ANNEX C

STATE OF MAINE - EMERGENCY OPERATIONS PLAN 2026

Annex C: Hazard & Threat Response

May 2026

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Record of Changes

Maine Emergency Management Agency (MEMA) personnel update and revise Annex C - Hazard & Threat Response of the Emergency Operations Plan to reflect lessons learned during incident response and exercise play. The Preparedness and Homeland Security Division's Senior Planner manages change annotations to ensure continuity across multiple planning documents.

Change #	Page	Date	Contact Info	Description

Annex Maintenance and Distribution

This annex functions as a primary reference guide within the State Emergency Operations Center (SEOC) during emergency activations. MEMA personnel review the annex annually to ensure consistency with current plans, procedures, equipment, record-keeping systems, display devices, and communication capabilities.

Updates: MEMA personnel, in coordination with the Operations and Response Division, update this living document based on best practices, formal after-action reviews, and evolving operational needs.

Validation: As MEMA distributes updates, the MEMA Preparedness and Homeland Security Division, coordinated by the State Training Officer and State Exercise Officer, provides training sessions or exercises to validate and disseminate procedural changes.

Section 1: Introduction

Annex C of the Maine Emergency Operations Plan provides hazard-specific operational guidance for high-consequence events that exceed routine county emergency management thresholds. While the Emergency Operations Plan, Base Plan, and Annex B: SEOC Procedures outline standard all-hazards response procedures, certain threats require multi-agency coordination, distinct activation trigger points, and unique reporting metrics to manage their complex, cascading impacts.

This annex serves as an operational reference guide for SEOC personnel. It allows staff to access tailored appendices for complex incidents, ensuring that responders execute critical initial actions without hesitation or delay during the chaotic onset of a disaster.

Section 2: Foundational Elements

Purpose

The fundamental purpose of this annex is to supplement the Base Plan by outlining the unique, hazard-dependent operational requirements for Maine's most significant and disruptive risks.

Scope

This document encompasses all participating state agencies, nongovernmental partners, and Emergency Response Team members operating collaboratively within the SEOC during an activation. The primary objective is to streamline the complex transition from steady-state monitoring operations to an incident-specific response posture. It achieves this transition by providing actionable event profiles, tailored Essential Elements of Information, and anticipated localized impacts to Community Lifelines. By outlining these expected impacts in advance, the annex allows response personnel to map out resource burn rates and anticipate logistical bottlenecks without duplicating the universal response protocols established within the Emergency Operations Plan, Base Plan, and Annex B: SEOC Procedures.

Section 3: Concept of Operations

Activation and Assessment

Upon the credible forecast or sudden onset of a major incident, the SEOC Manager and assembled Command Staff determine if an appendix within this annex applies to the unfolding situation. If a novel or uncharacterized incident occurs that lacks a dedicated hazard appendix, personnel default to the standard procedures outlined in the Emergency Operations Plan, Base Plan and Annex B: SEOC Procedures.

Operational Integration

Once the SEOC Manager activates an appendix, staff use it to identify pre-designated specialized resources, establish phase-based operational timelines, and execute hazard-specific mitigation strategies. This approach directs the attention of leadership toward the unique anomalies of the disaster rather than routine administrative tasks.

Management by Exception

Annex B: SEOC Procedures governs all foundational administrative and response actions. This annex operates on the principle of management-by-exception, detailing the necessary deviations and the specialized coordination required for the specific event type at hand.

Appendix Structure

To ensure rapid access to the appropriate guidance during an activation, this annex is organized into specific appendices based on hazard similarity and required response profiles.

Appendix Name	Hazards Covered
App 1: Severe Seasonal Weather (Summer)	Blizzards, ice storms, and extreme cold events
App 2: Severe Seasonal Weather (Winter)	Severe thunderstorms, tornadoes, and extreme heat events
App 3: Hurricanes & Tropical Storms	Hurricanes, tropical storms, and tropical depressions
App 4: Flooding	Inland freshwater flooding (riverine, flash, and ice jams), coastal flooding, and storm surge
App 5: Drought	Severe prolonged drought and critical water supply failures

Section 4: Organization & Responsibilities

Strategic Focus

Overall organizational structures and general agency responsibilities remain consistent with the established Emergency Operations Plan, Base Plan. However, the formal activation of a hazard-specific appendix shifts the strategic focus of the Command Staff and General Staff toward the specialized, high-priority tasks outlined within that guiding document.

Community Lifeline Structure

The Emergency Operations Plan 2026, Base Plan consolidates emergency response capabilities into Community Lifelines. This structure replaces the detailed listing of individual agency tasks in favor of functional coordination. It ensures the SEOC Command & General Staff maintain visibility over the critical services required to sustain community health, welfare, and economic stability. Each appendix details a summary of responsibilities categorized under specific Lifelines.

Planning Section Responsibilities

The Planning Section integrates the hazard-specific Universal Critical Information Requirements (CIR) and the Essential Elements of Information (EEI) into the formal Incident Action Plan for each operational period. By prioritizing these specific information requirements, the Planning Section ensures all response personnel maintain a unified understanding of the evolving threat.

Operations Section Priorities

Guided by the activated hazard appendix, the Operations Section plans for specialized resource shortfalls, identifies critical vulnerabilities, and coordinates the specific Community Lifeline stabilization efforts demanded by the unique characteristics of the hazard. This synchronized approach ensures all sections work toward identical, hazard-specific mitigation goals, allowing the state to source low-density, high-demand resources in advance.

Section 5: Direction, Control, and Coordination

Centralized Command and Control

The SEOC maintains centralized direction and control of a statewide response. To support this, the hazard appendices provide robust, pre-coordinated, time-phased operational matrices and specific environmental trigger points, such as countdown timelines or specific weather thresholds, that dictate the tempo of state-level operations.

Local and Regional Coordination

The anticipated regional impacts detailed in the specific hazard event profiles guide coordination with county emergency management agencies and affected local jurisdictions. This pre-incident alignment ensures that state-level support integrates with county priorities without duplicating efforts.

Synchronization

By leveraging these hazard-specific guides, state coordinators deploy high-capacity resources to strategic staging areas, initiate targeted public messaging campaigns regarding life-safety precautions, and synchronize multi-agency response efforts ahead of receiving localized requests for assistance from overwhelmed counties.

Appendix 1: Severe Seasonal Weather - Summer

SECTION 1: Overview

Purpose

The Severe Seasonal Weather - Summer Appendix defines the specific actions and multi-agency roles necessary for a coordinated state response to acute, rapid-onset summer weather extremes. For the purpose of this document, severe summer weather events include extreme heat waves, severe thunderstorms, frequent lightning, straight-line damaging winds, large hail, tornadoes, and microbursts. Unlike long-duration winter storms, these localized events materialize with little advanced warning. They carry the potential to cause intense, concentrated infrastructure damage, sudden power outages, and critical public health emergencies, such as heat exhaustion and heat stroke among the state's vulnerable populations.

Scope

This appendix applies to state agencies and partners assigned Emergency Response Team responsibilities by the Governor’s Executive Order. It outlines the unique, time-sensitive response coordination required for acute summer hazards. This includes mobilizing and resourcing public cooling centers, targeting multi-agency welfare checks for isolated and vulnerable populations, deploying localized damage assessment teams following sudden tornado or microburst impacts, and monitoring the statewide electrical grid during periods of critical peak summer demand to prevent cascading utility failures.

Consequence Analysis

The Severe Seasonal Weather - Summer Consequence Analysis resides in the Maine Emergency Operations Plan’s Annex A - Hazards and Threats Risk Assessment and the associated Risk Register. During the evaluation, planners emphasized the individual types of hazards that are associated with this incident so they can tailor a response accordingly. These include Inland/Coastal Flooding, Storm Surge and Storm Tide, Extreme Heat, Thunderstorms, Microbursts, Tornadoes, Hail, Flash Flooding, and Damaging Winds. Section 5: Event Profile contains additional information on each hazard.

SECTION 2: Concept of Operations

SEOC and Emergency Operations Plan Integration

This appendix supports the Emergency Operations Plan, Base Plan and related annexes. Standard SEOC activation levels and reporting chains remain in effect. MEMA handles events using the hybrid incident command structure without initial alteration, although this can change due to combined hazard responses or Policy Group direction.

The response to severe summer weather differs from normal daily operations and other seasonal hazards due to the rapid-onset and localized nature of these storms. Unlike winter storms that provide days of predictive lead time, summer hazards like microbursts, tornadoes, and severe squall lines materialize with only minutes of warning. This requires the SEOC to maintain an agile posture, capable of immediate activation and support to damage assessment, debris clearance, and search and rescue operations. Extreme heat waves require sustained, proactive public health interventions to prevent medical emergencies, necessitating coordination with local municipalities to manage cooling centers and emergency medical service surges.

The MEMA Director escalates the SEOC activation level based on forecasts from the National Weather Service and the immediate impacts of severe weather. For forecasted extreme heat or broad severe thunderstorm watches, the center operates at an enhanced monitoring level to coordinate initial public messaging and track municipal cooling center capacities. For sudden impact events with confirmed structural damage, mass power outages, or localized mass casualties, the center transitions to a full activation to coordinate mutual aid, dispatch specialized state assets, and stabilize critical community lifelines.

Special Procedural Issues

Several unique procedural issues complicate the response to summer weather events in Maine:

- **Transient Populations:** During the summer months, Maine experiences a massive influx of tourists, seasonal residents, and campers. This transient population lacks familiarity with local geography, lacks access to standard emergency alert systems, and shelters in vulnerable structures like tents or recreational vehicles during severe wind, lightning, or hail events. Temporary workers who supplement farming communities during the harvest season increase the complexity of any response. These workers face the same challenges as tourists but can lack English proficiency or a means of transportation.

- **Complex Coastal Evacuations:** Severe coastal flooding or approaching offshore storm systems necessitate rapid evacuations. Evacuating coastal peninsulas, crowded beaches, and remote island communities during peak tourist season requires complex logistical synchronization to manage traffic flow, secure maritime transportation, and ensure the safety of large crowds.

- **Concurrent Infrastructure Strain:** Extreme heat waves place immense strain on the electrical grid. When combined with severe thunderstorms that fell trees and damage power lines, the state faces the compounding threat of widespread power outages during periods of high temperatures, threatening the Health & Medical Lifeline.

Severe Summer Weather Response

While each hazard presents unique challenges, the SEOC manages several common, cross-cutting operational responses during severe summer weather events. Upon activation, the state prioritizes damage assessments to identify the most impacted communities and coordinate resources and assets depending on individual county needs. The state, through utility representatives, monitors the electrical grid, coordinating closely with utility providers to manage rolling blackouts, expedite repairs, and ensure critical infrastructure remains powered. To protect vulnerable populations, the state synchronizes mass care efforts with county emergency management agencies and non-governmental organizations, supporting the opening and resourcing of cooling centers and emergency shelters. The state coordinates extensive public messaging campaigns to issue critical safety warnings and coordinate complex evacuation procedures when coastal flooding or approaching storms threaten highly populated tourist areas.

Evacuation serves as the primary protective action for populations vulnerable to coastal and inland flooding. The immense scale of potential coastal evacuations drives early decision points. To determine if a mass evacuation is necessary, county and state emergency managers evaluate daylight hours, seasonal tourist occupancy, public perception, and weather forecast uncertainty. Because of this logistical complexity, personnel prepare for a possible evacuation as soon as a threat emerges, regardless of the final decision.

SECTION 3: Organization and Responsibilities

Lead Agency

MEMA coordinates the state's emergency response activities and provides situation awareness to county, state, and other agencies. The agency activates the SEOC, establishes communication with the National Weather Service, requests Emergency Management Assistance Compact resources from partner states, and advises the Governor on emergency declarations and evacuation orders. The agency coordinates public information and liaises with the Federal Emergency Management Agency for federal disaster assistance. If an evacuation is necessary, MEMA synchronizes and coordinates mass evacuation and reentry operations with adjacent jurisdictions including New Hampshire and selected Canadian Provinces.

Supporting Agencies

State agencies follow the Emergency Operations Plan, Base Plan directives and execute tasks through the Community Lifeline framework to ensure a unified response. These functional responsibilities include:

Safety & Security Lifeline: MEMA manages the SEOC, coordinates statewide damage assessments following tornado or microburst strikes, and supports local emergency management agencies with resource requests. The Maine State Police ensures public safety during mass power outages, secures damaged areas, and assists with traffic control during emergency evacuations or road blockages. The Maine Department of Agriculture, Conservation, and Forestry manages wildland fire risks associated with summer lightning strikes and assesses severe hail or wind impacts on critical summer crops.

Food, Hydration, & Shelter Lifeline: MEMA and partner nonprofits track municipal cooling center capacities, coordinate the distribution of emergency drinking water during heat waves, and support local shelter operations for residents displaced by wind or flood damage.

Health & Medical Lifeline: The Maine Center for Disease Control and Prevention (Maine CDC) and the Maine Department of Health and Human Services issue extreme heat advisories, track heat-related hospitalizations, support welfare checks for vulnerable populations, and coordinate with local emergency medical services to manage patient surges following mass casualty events.

Water Systems Lifeline: The Maine Department of Energy Resources facilitates communication between utility providers, tree clearing crews, and emergency management to expedite power

restoration to water treatment plants and wastewater facilities. The Maine Center for Disease Control and Prevention Drinking Water Program monitors the operational status of municipal water supplies to ensure safe drinking water standards remain maintained following flood events or power outages.

Energy Lifeline: The Public Utilities Commission coordinates power grid restoration priorities with regional operators and monitors emergency fuel allocations for critical infrastructure. The Maine Department of Energy Resources facilitates communication between utility providers, tree clearing crews, and emergency management to expedite power restoration to hospitals. State utility partners monitor statewide electrical grid stability during periods of peak summer cooling demand and conduct damage assessments following severe squall lines.

Communications Lifeline: The MEMA Communications Office ensures the operability of the state public safety radio network during severe thunderstorms and supports emergency alert broadcasts to the public.

Transportation Lifeline: The Maine Department of Transportation responds to road blockages by clearing downed trees, power lines, and storm debris to ensure vital transportation routes remain open for emergency responders.

Hazardous Material Lifeline: The Maine Department of Environmental Protection responds to hazardous material spills caused by structural destruction from tornadoes, microbursts, or inland flash flooding.

SECTION 4: Critical Information Requirements & Essential Elements of Information

Severe summer weather systems represent complex incident types that generate multiple cascading hazards, such as severe wind, large hail, and extreme heat. To account for this complexity, this section outlines hazard-specific Critical Information Requirements (CIRs) and categorizes Essential Elements of Information (EEIs) into universal storm impacts and localized hazards. As the event escalates and distinct threat profiles emerge, the SEOC Manager directs Emergency Response Team members to focus their information gathering and reporting on the CIRs and EEIs relevant to those active, specific hazards.

(**Note:** Universal CIRs, such as overarching Threats to Life/Safety, Mass Casualties, and broad Transportation/Communications failures, reside under the State's Overall Emergency Operations Plan CIRs and do not appear in this hazard-specific appendix).

UNIVERSAL SUMMER WEATHER EEIs

The following EEIs apply across the entire incident area, regardless of the specific localized hazard.

- **Damage Reports:** Initial and ongoing reports of structural damage to properties and infrastructure, including the volume and type of debris (e.g., trees on homes/vehicles, debris requiring clearance).
- **Road/Bridge Closures:** Real-time status of state and local roads or bridges closed due to flash flooding, downed trees, lines, or debris.
- **Power Outage Details:** Number of customers affected by utility, broken down by county/town, and the estimated time of restoration.
- **Search, Rescue & Evacuations:** Locations and numbers of active search/rescue operations (e.g., structural collapse or debris entrapment), the number of people evacuated, and current shelter/cooling center locations and capacities.
- **Resource Needs:** Requests for specialized State or mutual aid assets (e.g., chainsaw crews, urban search and rescue, heavy equipment, or Emergency Medical Service transport).

HAZARD-SPECIFIC CIRs AND EEIs

The following requirements are specific to the localized cascading hazards generated by summer weather systems.

HAZARD: Coastal Flooding

- **CIR - Impact on Coastal Communities:** Are multiple coastal towns or significant population centers experiencing inundation requiring mass evacuation or rescue?
- **CIR - Critical Infrastructure Compromise:** Are major coastal roads, ports, or utility infrastructure damaged or inoperable?
- **EEI - Tide Levels:** Actual and forecast tide levels and comparison to flood stages.
- **EEI - Areas Inundated:** Specific towns, neighborhoods, and critical facilities experiencing active impacts from coastal flooding and storm surge.

HAZARD: Inland Flooding

- **CIR - River Basin Status:** Are major river basins at or above major flood stage, impacting multiple counties?
- **CIR - Population Displacement:** Are widespread evacuations occurring, leading to numbers of displaced persons requiring mass care?
- **CIR - Dam Stability:** Do reports indicate concerns about the stability or overtopping of major dams?
- **EEI - River Gauge Readings:** Current and forecast river levels at specific U.S. Geological Survey gauges, compared to minor, moderate, and major flood stages.
- **EEI - Affected Communities:** List of inland towns/cities experiencing or forecast to experience significant riverine or flash flooding.
- **EEI - Public Water Supply Status:** Any public water systems compromised by floodwaters or loss of power.

HAZARD: Extreme Heat

- **CIR - Public Health Impact:** Are emergency medical services or hospitals experiencing a surge in heat-related illnesses or fatalities?
- **CIR - Grid Instability:** Is peak cooling demand causing regional rolling brownouts, blackouts, or threatening Critical Facilities (such as hospitals)?
- **CIR - Cooling Center Capacity:** Are local/county cooling centers overwhelmed or unable to meet the needs of displaced or vulnerable populations?
- **EEI - Temperature Data:** Current and forecasted maximum heat index temperatures and expected duration of the heat wave.
- **EEI - Vulnerable Populations:** Status of welfare checks on high-risk populations.
- **EEI - Agricultural Impact:** Reports of livestock stress or crop damage due to extreme temperatures.

HAZARD: Damaging Winds & Microbursts

- **CIR - Widespread Damage:** Do reports indicate severe wind damage across multiple communities within a distinct path?
- **CIR - Power Outage Impact:** Do significant power outages concentrate within the damage path, with prolonged restoration expected?
- **EEI - Impacted Locations:** Specific towns, neighborhoods, and streets isolated within the wind/microburst damage path.
- **EEI - Wind Speed Estimation:** National Weather Service estimated peak wind speeds within the specific damage path.

HAZARD: Thunderstorms, Lightning & Hail, and Flash Flooding

- **CIR - Widespread Activity:** Does widespread severe thunderstorm activity span portions of the state?
- **CIR - Flash Flooding:** Does flash flooding occur as a result of heavy downpours, impacting multiple communities or critical infrastructure?
- **EEI - Warning Status:** Number and location of active Severe Thunderstorm Warnings and Flash Flood Warnings.
- **EEI - Lightning Activity:** Real-time lightning strike density and locations from the National Weather Service Lightning Detection Network.
- **EEI - Observed Impacts:** Specific reports of strong winds, hail size, and heavy rain from trained spotters and the public.
- **EEI - Flash Flood Reports:** Specific locations of rapidly flooded roads, water over roadways, or water entering structures.

HAZARD: Tornados

- **CIR - Confirmed Tornado:** Is a confirmed tornado causing damage across multiple communities?
- **CIR - Path of Destruction:** Does a clear, continuous path of severe damage impact populated areas or critical infrastructure?
- **CIR - Resource Strain:** Are local search and rescue, Emergency Medical Services, and utility resources overwhelmed, requiring state support?
- **EEI - Tornado Path/Length:** Estimated path length, width, and a sequential list of specific communities impacted.
- **EEI - EF-Scale Rating:** Preliminary estimated Enhanced Fujita (EF) scale rating of the tornado damage provided by the National Weather Service.

SECTION 5: Event Profile(s)

Maine's summer weather is driven by the dynamic collision of contrasting air masses: hot, humid air pushing northward interacting with cooler, drier fronts descending from Canada or marine influences from the Atlantic Ocean. This atmospheric volatility, coupled with the state's varied topography, creates an environment susceptible to the rapid, localized development of severe convective storms and extreme heat. Unlike broad winter storms that offer days of predictive lead time, summer hazards often materialize and inflict localized devastation within a matter of hours or minutes. Furthermore, the operational complexity of responding to these events increases because of Maine's seasonal population surge, which places tourists, campers, and outdoor recreationists in exposed, vulnerable environments during the peak of severe weather season.

The following profiles outline the characteristics, vulnerabilities, and typical warning times for the severe summer hazards that most frequently impact the State of Maine:

Coastal Flooding [Storm Surge and Waves] (High Risk) Coastal flooding follows astronomical high tides combined with storm surge and wave action from summer low-pressure systems or offshore storms. Maine's extensive coastline remains vulnerable, especially low-lying areas in York, Cumberland, and Sagadahoc counties, as well as remote island communities. Historically, these events have caused the inundation of Route 1, closures of major coastal bridges, damage to working waterfronts and marinas, and severe coastal erosion. Emergency managers typically have a warning time of 12 to 48 hours via Coastal Flood Watches and Warnings.

Inland Flooding [Freshwater] (High Risk) Inland flooding follows slow moving thunderstorms, training storm cells, or remnants of hurricanes dumping extreme rainfall over short, concentrated periods. This hazard poses a statewide threat, especially in areas with steep terrain, such as the Western mountains, which cause runoff into river basins resulting in flash floods. In addition to the rising water, saturated soils increase the likelihood of landslides and tree falls. Urban centers with poor drainage face susceptibility to flash flooding, as do communities along major river basins like the Kennebec, Penobscot, and Androscoggin. Historical impacts include washed out local roads and culverts, bridge compromises, and flooded residential basements. Warning times range from minutes to hours for Flash Flood Warnings, and up to 12 to 24 hours for broader Riverine Flooding.

Extreme Heat (Medium Risk) Extreme heat events consist of extended periods of high temperatures combined with high humidity (Heat Index), which inhibits the body's ability to cool itself, often compounded by a lack of nighttime cooling. While a statewide vulnerability, urban heat islands like Portland, Lewiston, and Bangor experience amplified effects due to dense infrastructure. Coastal communities may benefit from marine breezes but remain susceptible. Historically, these heat waves cause surges in Emergency Medical Service calls and hospitalizations for heat exhaustion or stroke, combined with strain on the electrical grid from peak air-conditioning demand. Warning times are 24 to 72 hours through Excessive Heat Watches and Warnings.

Damaging Winds (Medium Risk) Damaging straight-line winds exceeding 58 mph are typically associated with severe squall lines, derechos (also known as inland hurricanes), or strong thunderstorm downdrafts. These winds pose a statewide vulnerability, with higher impacts expected in heavily forested regions intersecting with populated corridors. Historically, these events have caused widespread, prolonged power outages due to falling trees and branches on utility lines, structural damage to roofs, and blocked transportation routes. Typical warning times range from minutes to hours via Severe Thunderstorm Watches and Warnings.

Thunderstorms & Lightning (Medium Risk) Convective summer thunderstorms produce intense cloud-to-ground lightning, localized heavy rain, and sudden wind shifts. This statewide hazard peaks during hot, humid summer afternoons and evenings. Historical impacts include the ignition of remote wildfires, localized power grid disruptions, damage to transformers, and lightning-strike casualties among outdoor workers, boaters, and recreationists. Warning times are typically very short, ranging from minutes to a few hours.

Hail (Low Risk) Hail consists of ice pellets formed by strong updrafts within severe thunderstorms carrying water droplets into freezing altitudes before falling to the surface. It is a statewide vulnerability with frequent occurrences in western and central interior Maine. Historically, large hail has caused economic damage to Maine's agricultural sector, particularly apple orchards and potato crops, alongside physical damage to vehicles, siding, and skylights. Warning times are usually measured in minutes, issued as a component of Severe Thunderstorm Warnings.

Microburst (Low Risk) Microbursts are intense, localized downdrafts within a thunderstorm that cause explosive straight-line wind damage radiating outward from the impact point. These occur statewide and historically result in blowdowns of timber stands and damage to outbuildings and homes. Due to the severity of the destruction, the public often mistakes

microbursts for tornadoes. Typical warning times are zero to minutes, as they are often only detected via radar immediately before or as they occur.

Tornadoes (Low Risk) Tornados are rotating columns of air extending from a severe thunderstorm to the ground, with Maine experiencing EF0 to EF2 tornados on the Enhanced Fujita scale. While a statewide vulnerability, they are historically more frequent in the western foothills and central to southern interior counties. Impacts include localized destruction of structures, snapped or uprooted timber lines, and threats to life safety requiring immediate search and rescue responses within the direct path. Tornado Warnings usually provide only minutes of advance notice.

The SEOC measures the immediate operational intensity of tornadoes using the National Weather Service's Enhanced Fujita (EF) Scale, which estimates wind speeds based on observed damage:

- **EF0 (65-85 mph):** Light damage (e.g., branches broken off trees, minor roof damage).
- **EF1 (86-110 mph):** Moderate damage (e.g., mobile homes overturned, windows broken).
- **EF2 (111-135 mph):** Considerable damage (e.g., roofs torn off well-constructed houses, large trees snapped).
- **EF3 (136-165 mph):** Severe damage (e.g., entire stories of houses destroyed, trains overturned).
- **EF4 (166-200 mph):** Devastating damage (e.g., well-constructed houses completely leveled).
- **EF5 (>200 mph):** Incredible damage (e.g., strong frame houses swept away, automobile-sized missiles generated).

SECTION 6: Key Terms

100-Year Flood (Base Flood): A severe flood event calculated to have a 1 percent chance of being equaled or exceeded in any given year, based on historical data and predictive modeling. **Note:** A 100-year flood can occur more than once in a century.

Boil Water Advisory: A public health directive advising residents to boil tap water for at least one minute before consumption due to suspected microbiological contamination caused by floodwaters.

Coastal Flood Warning: An urgent alert issued by the National Weather Service when moderate to major coastal flooding is occurring or imminent. This level of flooding poses a serious risk to life and property along the coastline, requiring immediate evacuation from low-lying areas and resulting in the closure of coastal roads.

Cooling Center: An air-conditioned public facility opened to provide relief during extreme heat waves. Centers provide hydration and refuge to prevent heat-related illnesses for those lacking residential cooling.

Critical Infrastructure: Physical or virtual systems and assets so vital that their incapacity or destruction results in a debilitating impact on security, the economy, public health, or safety. Examples include public water systems, primary data storage facilities, chemical plants, power generation facilities exceeding 2,000 MW, nuclear power plants, and major underground utility supplies.

Critical Facility: A structure or activity for which even a slight threat of disruption is unacceptable due to its role in life safety or governance. Typical facilities include hospitals, fire stations, police stations, and repositories for critical records. These facilities require higher levels of protection to ensure the continued provision of essential services during and after a hazard event.

Excessive Heat Warning: An alert issued by the National Weather Service when the maximum heat index is expected to be 105°F or higher for at least 2 consecutive days, and nighttime temperatures remain above 75°F. This prolonged lack of nighttime cooling drastically increases heat stroke risks.

Flash Flood Warning: An urgent, short-fuse warning issued by the National Weather Service when a flash flood is imminent or occurring. A flash flood is a sudden, violent flood that develops in a timeframe ranging from a few minutes to a few hours.

Flood Warning: An alert issued by the National Weather Service when generalized flooding is imminent or occurring. This warning applies to a specific river basin, stream network, or larger geographical area where a predictable, slow-rising flood event is unfolding.

Microburst: A localized column of sinking air within a thunderstorm, typically 2.5 miles or less in diameter. The suspended core of water and hail plummets to the surface, producing straight-line winds that spread outward and cause extensive damage.

Severe Thunderstorm Warning: An alert issued when a thunderstorm produces, or is expected to produce, wind gusts of 58 mph or greater and hail 1 inch in diameter or larger. These storms present immediate hazards to outdoor events and power distribution networks due to downed trees and frequent lightning.

Storm Surge: An abnormal, destructive rise of ocean water above predicted astronomical tides, driven by severe storm winds and low pressure. This surge acts as a bulldozer, causing severe structural damage and extreme coastal erosion, and it can occur ahead of the arrival of peak winds.

Storm Surge Warning: An alert indicating a high danger of life-threatening coastal inundation expected within 36 hours. This signals the need to finalize preparedness and evacuation actions.

Storm Surge Watch: An alert indicating a possibility of life-threatening coastal inundation expected within 48 hours. This serves as an initial trigger for staging resources and preparing public warning campaigns.

Tornado Warning: An alert issued by local National Weather Service offices when a tornado is sighted by observers or indicated by radar. The warning includes the present location and the anticipated path of the tornado.

Tornado Watch: An alert issued when atmospheric conditions are favorable for the development of tornadoes within a specified area and timeframe.

SECTION 7: Resources

NATIONAL RESOURCES

- **Storm Prediction Center (SPC) [spc.noaa.gov]:** A division of the National Weather Service providing real-time forecasts, severe thunderstorm watches, tornado watches, and mesoscale discussions for severe convective weather across the United States.
- **National Integrated Heat Health Information System (NIHHIS) [heat.gov]:** A federal source for heat-related health mapping, extreme heat forecasts, and mitigation strategies for vulnerable populations.
- **National Oceanic and Atmospheric Administration NWS National Water Center [water.noaa.gov]:** Provides critical flash flooding forecasts and river gauge monitoring utilized during intense summer deluge events.

STATE & REGIONAL RESOURCES

- **National Oceanic and Atmospheric Administration National Weather Service (NWS) - Gray & Caribou Offices:** Localized forecasting hubs for the State of Maine, providing direct meteorological briefings to the SEOC during rapid-onset summer events.
- **Maine Center for Disease Control & Prevention (Maine CDC) [maine.gov/dhhs/mecdc]:** Provides localized public health advisories, heat exhaustion prevention protocols, and monitors statewide syndromic surveillance for heat-related hospitalizations.
- **Central Maine Power (CMP) & Versant Power Outage Centers [cmpco.com/outage and versantpower.com/outage-center]:** State-level utility portals providing real-time geographical data on grid status, customer outages, and restoration timelines following severe wind and lightning events.
- **Maine Forest Service - Wildfire Danger Reports [https://www.maine.gov/dacf/mfs/wildfire_danger_report/index.html]:** Tracks daily wildfire risks which can be critically exacerbated by summer lightning strikes during dry conditions. This system is only operational during Maine's wildfire season between late March and late November.

Appendix 2: Severe Seasonal Weather - Winter

SECTION 1: Overview

Purpose

The Severe Seasonal Weather - Winter Appendix defines the specific actions and multi-agency roles necessary for a coordinated state response to severe winter weather extremes. For the purpose of this document, severe winter weather events include blizzards, ice storms, heavy snow, extreme cold, and snow squalls. Unlike summer weather events, winter storms provide days of predictive lead time. However, they carry the potential to cause prolonged transportation disruption, structural damage to the electrical grid, and critical public health emergencies resulting from extended power outages during periods of extreme cold.

Scope

This appendix applies to state agencies and partners assigned Emergency Response Team responsibilities by the Governor's Executive Order. It outlines the sustained response coordination required for acute winter hazards. This includes support for the logistical sustainment of public warming centers, targeted multi-agency welfare checks for isolated populations, coordination with utility providers for large-scale grid restoration, and monitoring of critical transportation infrastructure to ensure the delivery of essential supplies.

Consequence Analysis

The Severe Seasonal Weather - Winter Consequence Analysis belongs to the Maine Emergency Operations Plan's Annex A - Hazards and Threats Risk Assessment and the associated Risk Register. During the evaluation, planners emphasized the individual types of hazards associated with an event so they can tailor a response accordingly. These include Blizzards, Ice Storms, Heavy Snow, Extreme Cold, and Snow Squalls. **Section 6: Event Profile** contains additional information on each hazard.

SECTION 2: Concept of Operations

SEOC and Emergency Operations Plan Integration

This appendix supports the Emergency Operations Plan, Base Plan and related annexes. Standard SEOC activation levels and reporting chains remain in effect. MEMA handles events using the hybrid incident command structure without initial alteration, although combined hazard responses or Policy Group direction can change this.

The response to severe winter weather relies on advance planning and the strategic prepositioning of resources. Because meteorological forecasts offer days of predictive lead time, the SEOC scales up its activation level prior to snowfall or ice accretion. The MEMA Director escalates the SEOC activation level based on forecasts from the National Weather Service, the predicted duration of the event, and the anticipated impact on community lifelines. Upon activation, the SEOC coordinates overarching public messaging, monitors the depletion of municipal salt and sand stockpiles, and works with utility partners to establish priority restoration routes for critical facilities.

Special Procedural Issues

Several unique issues complicate the response to winter weather events in Maine and create deviations from the establish operating procedures:

- **Prolonged Infrastructure Failure:** Ice storms pose a threat to Maine's overhead power grid. Significant ice accretion combined with high winds snaps utility poles and fells timber lines, leading to blackouts that last for weeks. This requires the sustained activation of energy stakeholders to coordinate regional grid recovery and fuel distribution.

- **Transportation Disruption:** Snow accumulation disrupts the Transportation Lifeline. Blocked roadways trap residents, prevent emergency medical services from reaching patients, disrupt the delivery of home heating fuel, and delay utility repair crews. Remote communities magnify these issues.

- **Life Safety Threat of Extreme Cold:** The loss of power during a Maine winter creates an immediate, life-threatening crisis due to extreme cold. Displaced populations and residents sheltering in place without heat face high vulnerability to hypothermia and carbon monoxide poisoning, requiring a synchronized mass care and public health response.

- **Rapid Onset Traffic Incidents:** Phenomena like snow squalls trigger sudden, zero-visibility whiteout conditions and flash freezes on interstates, resulting in mass-casualty pileups that overwhelm county-level Emergency Medical Service capability.

Severe Winter Weather Response

The SEOC manages cross-cutting operational responses during these events. Upon activation, the state prioritizes the clearance of vital transportation corridors by supporting the Maine Department of Transportation and coordinating the deployment of heavy equipment. The state, through utility representatives, monitors the electrical grid and dispatches crews to assist utility companies in accessing damaged infrastructure. To protect vulnerable populations, the state synchronizes mass care efforts with county emergency management agencies to establish, staff, and supply warming centers and overnight emergency shelters. The state coordinates public messaging campaigns to warn residents of travel bans, hypothermia risks, and safe generator operating procedures.

SECTION 3: Organization and Responsibilities

Lead Agency

MEMA acts as the lead agency for coordinating the state's response to severe winter weather events. The agency manages the state's emergency response activities and provides situation awareness to county, state, and other agencies. MEMA activates the SEOC, requests Emergency Management Assistance Compact resources from partner states, and advises the Governor on emergency declarations and evacuation orders. As part of this process, MEMA coordinates multi-agency and cross-jurisdictional resource requests, maintains situational awareness, and synchronizes public information.

Supporting Agencies

State agencies follow Emergency Operations Plan, Base Plan directives and execute tasks through the Community Lifeline framework to ensure a unified response. These functional responsibilities include:

Safety and Security Lifeline: MEMA manages the SEOC and coordinates overarching situational awareness across all counties. The Maine State Police ensures public safety by monitoring major highways for stranded motorists, managing traffic control during severe whiteout conditions and mass-casualty pileups, and enforcing emergency travel bans. The Maine National Guard remains on standby to deploy high-water vehicles, tracked assets, or aviation support for search and rescue operations in deeply snowbound or isolated regions.

Food, Hydration, & Shelter Lifeline: The MEMA Mass Care Program and partner nonprofits track municipal warming center capacities, coordinate the distribution of emergency supplies (such as cots, blankets, and Meals-Ready-To-Eat), and support local shelter operations for residents displaced by extended power outages or extreme cold.

Health & Medical Lifeline: The Maine Center for Disease Control and Prevention (Maine CDC) and the Maine Department of Health and Human Services track cold-related hospitalizations, monitor oxygen-dependent residents who lose power, and support welfare checks for vulnerable populations. The state also coordinates emergency medical service transport capabilities hindered by impassable roads.

Water Systems Lifeline: The Maine CDC Drinking Water Program monitors municipal water supplies for disruptions caused by frozen, ruptured mains during extreme cold, or loss of pressure due to grid failure, coordinating the delivery of potable water to impacted communities.

Energy Lifeline: The Maine Department of Energy Resources and MEMA utility liaisons coordinate closely with Central Maine Power, Versant Power, and municipal electric districts to track regional outages, prioritize the restoration of Critical Facilities (such as hospitals and water treatment plants), and monitor the regional availability of home heating fuel and diesel for backup generators.

Communications Lifeline: MEMA coordinates with telecommunications providers to monitor cell tower outages caused by ice accumulation or power loss and assists with prioritizing access for refueling backup generators at critical network sites.

Transportation Lifeline: The Maine Department of Transportation acts as the lead agency for clearing state highways and bridges. They monitor road salt and sand stockpiles, deploy plowing fleets, treat roads ahead of flash freezes, and coordinate the removal of downed trees and debris to ensure transportation routes remain open for emergency responders and utility crews.

Hazardous Material Lifeline: The Maine Department of Environmental Protection responds to hazardous material spills, tracking incidents such as home heating oil releases caused by ice damage and roof collapses, as well as commercial chemical spills resulting from multi-vehicle pileups during extreme winter driving conditions.

SECTION 4: Operational Phases and Decision Points

The state scales its operations based on forecast confidence and storm proximity. The following phases align SEOC actions with National Weather Service alerting cycles:

Phase 1: Readiness & Monitoring (72 - 96 Hours Pre-Onset)

- **Trigger:** National Weather Service forecasts indicate a high probability of a significant winter weather system impacting Maine.
- **Actions:** The MEMA Director adjusts the SEOC's activation level to "Level 3-Enhanced Monitoring." MEMA conducts initial coordination calls with the National Weather Service, Maine Department of Transportation, and utility partners to review fuel levels, municipal road salt stockpiles, and initial staffing availability.

Phase 2: Activation & Pre-Positioning (24 - 48 Hours Pre-Onset)

- **Trigger:** National Weather Service issues Winter Storm, Blizzard, or Ice Storm Watches.
- **Actions:** The MEMA Director changes the level of the SEOC to Level 2-Partial Activation or Level 1-Full Activation. Selected Emergency Response Team members deploy to the SEOC. Maine Department of Transportation pre-treats road surfaces. MEMA Mass Care coordinates with county agencies to place warming centers on standby. State messaging emphasizes preparedness and alters public travel plans.

Phase 3: Response & Life Safety Operations (0 - 24 Hours / Event Onset)

- **Trigger:** National Weather Service Warnings are active; hazardous precipitation is falling.
- **Actions:** SEOC operations focus on real-time life safety. Maine State Police manages highway blockages and stranded motorists. Maine Department of Transportation continuously clears priority routes. The SEOC tracks real-time power outages, coordinates mutual aid for debris clearance, and shifts public messaging to shelter-in-place directives.

Phase 4: Sustained Recovery (Post-Event)

- **Trigger:** Precipitation ceases, but severe impacts (impassable roads, extreme cold, massive power outages) remain.
- **Actions:** Operations shift to sustained logistical support. Focus remains heavily on the Energy Lifeline (supporting utility crews in grid reconstruction) and the Mass Care Lifeline (sustaining warming centers for residents without power). Preliminary damage assessments begin.

SECTION 5: Critical Information Requirements & Essential Elements of Information

Severe winter weather systems are widespread events that generate cascading hazards, primarily impacting the transportation and energy lifelines. To account for this complexity, the Critical Information Requirements (CIRs) in this section remain exclusively hazard-specific, while the Essential Elements of Information (EEIs) fall into categories of universal storm impacts and specific localized hazards. As the event escalates and distinct threat profiles emerge, the SEOC Manager directs Emergency Response Team members to focus intelligence gathering and reporting on the CIRs and EEIs relevant to those active hazards.

(**Note:** Universal CIRs, such as overarching Threats to Life/Safety, Mass Casualties, and broad Transportation/Communications failures, reside under the State's Overall EOP CIRs and do not appear in this hazard-specific appendix).

Universal Winter Weather EEIs

The following EEIs apply across the entire incident area, regardless of the specific localized hazard.

- **Road/Bridge Closures:** Real-time status of state and local roads, bridges, and interstate highways closed due to snow accumulation, ice, or downed debris.
- **Power Outage Details:** Number of customers affected by utility, broken down by county and town, and the estimated time of restoration.
- **Shelter and Warming Centers:** Current locations, capacities, and generator status of open emergency shelters and warming centers.
- **Fuel and Commodities:** Status of home heating fuel delivery operations, diesel supplies for critical facility generators, and municipal road salt/sand stockpiles.
- **Resource Needs:** Requests for specialized State or mutual aid assets (e.g., heavy plows, debris clearance crews, generator deployments, or high-clearance Emergency Medical Service transport).

Hazard-Specific CIRs and EEIs

The following requirements are specific to the cascading hazards generated by winter weather systems.

HAZARD: Blizzards & Heavy Snow

- **CIR - Transportation Disruption:** Are major interstate highways or vital regional arteries impassable, trapping motorists and halting critical supply chains?
- **CIR - Emergency Access:** Are local emergency medical services and fire departments unable to respond to 911 calls due to snow-blocked routes?
- **CIR - Structural Threat:** Are there widespread reports of roof collapses on commercial buildings, agricultural facilities, or residential homes due to excessive snow load?
- **EEI - Snowfall Rates:** Current and forecasted snowfall rates (inches per hour) and total accumulation predictions.
- **EEI - Visibility Restrictions:** Areas experiencing whiteout conditions and zero visibility.
- **EEI - Stranded Motorists:** Specific locations and estimated numbers of motorists stranded on state highways requiring rescue.

HAZARD: Ice Storms

- **CIR - Grid Collapse:** Are ice accumulations causing catastrophic, structural failure of the electrical transmission and distribution grid across multiple counties?
- **CIR - Critical Infrastructure Power:** Are Critical Facilities (hospitals, water/wastewater plants, 911 dispatch centers) operating on backup generator power, and what is their fuel burn rate?
- **CIR - Debris Blockage:** Is widespread tree damage isolating communities and preventing utility crews from accessing damaged infrastructure?
- **EEI - Ice Accretion:** Measured and forecasted radial ice accretion totals (in inches) across impacted regions.
- **EEI - Damage Reports:** Initial reports of snapped utility poles, downed high-voltage lines, and the volume of vegetative debris blocking roadways.

HAZARD: Extreme Cold

- **CIR - Heating Fuel Shortages:** Is there a critical regional shortage or delivery failure of home heating fuel (propane, heating oil, kerosene) threatening residential heating systems?
- **CIR - Public Health Surge:** Are hospitals reporting a significant surge in hypothermia, frostbite, or carbon monoxide poisoning cases?
- **CIR - Infrastructure Freezing:** Are major municipal water mains freezing and rupturing, leading to a loss of the Water Systems Lifeline for communities?
- **EEI - Wind Chill Values:** Current and forecasted ambient temperatures and wind chill minimums.
- **EEI - Warming Center Capacity:** Occupancy rates and unmet needs of established warming centers.

HAZARD: Snow Squalls

- **CIR - Mass Casualty Incidents:** Has a multi-vehicle pileup occurred on a major state interstate or highway requiring regional Emergency Medical Services mutual aid and heavy rescue?
- **EEI - Squall Warnings:** Immediate issuance and tracking of National Weather Service Snow Squall Warnings.
- **EEI - Traffic Camera Feeds:** Visual confirmation of highway conditions and rapid traffic slow-downs via Maine Department of Transportation cameras.

SECTION 6: Event Profile

Winter storms in Maine follow Nor'easters and potent cold fronts moving across the Great Lakes. These systems interact with moisture from the Atlantic Ocean, producing immense snowfall totals and severe ice accumulations. Unlike summer events, winter storms typically affect the entire state, causing widespread, sustained disruptions. The following profiles detail the specific winter threats identified in the Hazard and Threat Analysis.

Primary Hazards

Blizzards (High Risk) Blizzards are severe winter storms characterized by sustained wind speeds or frequent gusts of 35 mph or greater, accompanied by falling or blowing snow. These conditions reduce visibility to less than one-quarter of a mile and persist for three hours or longer. Blizzards pose a high-risk statewide vulnerability, especially along the immediate coast where oceanic winds amplify the effects and in the agricultural areas of Aroostook County where blowing snow creates impassable drifts. Warning times are extensive, with National Weather Service Winter Storm Watches and Blizzard Warnings providing 24 to 72 hours of advance notice.

Ice Storms (High Risk) Ice storms occur when a layer of warm air is sandwiched between two layers of freezing air. Precipitation falls as rain but freezes upon contact with surfaces below freezing, resulting in a destructive glaze of ice. Ice storms pose a massive vulnerability for the forested State of Maine. Even a quarter-inch of ice accumulation adds weight to tree limbs and power lines, but historic Maine ice storms involve accumulations exceeding one to two inches. This weight snaps utility poles, collapses transmission towers, and brings down timber stands, resulting in catastrophic, prolonged power outages that last for weeks in sub-freezing temperatures.

Heavy Snow (Low Risk) Heavy snow events lack the sustained high winds necessary for a blizzard classification but produce significant accumulations. In Maine, these events drop 12 to 24+ inches of snow over a 12-to-36-hour period. Because Maine possesses extensive municipal and state snow-removal infrastructure, heavy snow events rarely pose a catastrophic threat to life safety or property. Warning times are extensive. The primary impacts include temporary road closures, strained municipal plowing budgets, and isolated roof collapses on flat-roofed structures or agricultural barns during wet, heavy snowfalls.

Extreme Cold (Low Risk) Extreme cold involves periods of low temperatures and wind chills, often following winter storms or associated with polar vortex intrusions. Because Maine possesses a robust cold-weather response capability, including a mobilized network of municipal warming centers and a public accustomed to winter conditions, the risk to the state remains low. While it causes localized infrastructure issues, such as frozen municipal water mains or residential burst pipes, the SEOC focuses on the continuity of the Energy Lifeline and coordinating welfare checks for vulnerable or unhoused populations and isolated communities.

Snow Squalls (Low Risk) Snow squalls are intense, short-lived bursts of heavy snowfall accompanied by gusty winds, leading to a reduction in visibility and a drop in temperatures. While they only last 30 to 60 minutes, they create hazardous conditions for the Transportation Lifeline by causing "flash freezes" on interstate highways. National Weather Service warning dissemination, combined with the Department of Transportation's response capabilities and a public versed in winter driving, keeps the risk profile low. The primary threat involves localized, multi-vehicle traffic incidents rather than widespread disaster.

Winter Storm Severity and Intensity Categories

While the overarching probability of winter events is analyzed in Annex A, the SEOC measures the immediate operational intensity of winter weather using the National Weather Service's Winter Storm Severity Index (WSSI) and Wind Chill thresholds:

- **WSSI - Minor:** Rarely a direct threat to life and property. Typically results in an inconvenience to daily life and minor travel disruptions.
- **WSSI - Moderate:** Often results in some disruptions to daily life. Hazardous driving conditions and localized infrastructure impacts are possible.
- **WSSI - Major:** Extensive property damage is likely (e.g., roof collapses, severe ice damage to the utility grid). Significant disruptions to daily life and travel are expected. Immediate life-saving actions may be needed.
- **WSSI - Extreme:** Extensive and widespread severe property damage. Results in extreme disruptions to daily life and the complete paralysis of the Transportation Lifeline. Immediate life-saving actions will be needed.
- **Wind Chill Advisory:** Dangerous wind chills (typically -15°F to -24°F in Maine) making hypothermia and frostbite possible with prolonged exposure.

- **Wind Chill Warning:** Life-threatening wind chills (typically -25°F or colder in Maine) where frostbite can occur on exposed skin in a matter of minutes, triggering immediate mass care and sheltering interventions.

SECTION 7: Key Terms

Blizzard Warning: An alert issued when sustained winds or frequent gusts of 35 mph or greater combined with falling or blowing snow to reduce visibility to 1/4 mile or less for at least 3 hours. This creates severe whiteout conditions that can paralyze road networks, strand motorists, and severely restrict emergency response and rescue operations.

Critical Infrastructure: Physical or virtual systems and assets so vital that their incapacity or destruction results in a debilitating impact on security, the economy, public health, or safety. Examples include public water systems, primary data storage facilities, chemical plants, power generation facilities exceeding 2,000 MW, nuclear power plants, and major underground utility supplies.

Critical Facility: A structure or activity for which even a slight threat of disruption is unacceptable due to its role in life safety or governance. Typical facilities include hospitals, fire stations, police stations, and repositories for critical records. These facilities require higher levels of protection to ensure the continued provision of essential services during and after a hazard event.

Ice Storm Warning: An alert issued when crippling ice accumulations are expected, typically 1/2 inch or more. The weight of the ice snaps tree limbs and downs utility lines, causing power outages and dangerous road conditions.

Nor'easter: A disruptive low-pressure system characterized by northeasterly winds blowing from the ocean. These storms bring combinations of heavy snow, gale-force winds, and coastal storm surge.

Warming Center: A short-term, temporary facility opened to provide a safe, heated environment for individuals lacking heat during extreme cold or power outages. These are utilized specifically for temporary relief to prevent cold-weather injuries and remain operationally distinct from full-service, overnight mass care shelters.

Wind Chill Advisory/Warning: An alert issued when wind and cold temperatures combine to create dangerous apparent temperatures. These conditions accelerate heat loss from exposed skin, increasing the risk of frostbite and hypothermia.

Winter Storm Severity Index (WSSI): A scale used by the National Weather Service to communicate the operational impact of winter weather based on factors like snow amount, ice accumulation, and wind.

SECTION 8: Resources

NATIONAL RESOURCES

National Weather Service (NWS) Forecast Offices [weather.gov/car and weather.gov/gyx]: The primary source for localized winter storm watches, warnings, advisories, snowfall accumulation maps, and ice forecasts for the State of Maine, divided between the Caribou (CAR) and Gray (GYX) forecast offices.

Weather Prediction Center (WPC) [www.wpc.ncep.noaa.gov/#page=ovw]: A national center within National Oceanic and Atmospheric Administration providing highly detailed, medium-range forecasts, quantitative precipitation forecasts (QPF), and winter weather probability graphics for heavy snow and freezing rain.

National Snow and Ice Data Center (NSIDC) [nsidc.org]: Provides scientific data, research, and broad situational awareness regarding icy conditions and extreme winter trends.

STATE & LOCAL RESOURCES

Maine Department of Transportation New England 511 [newengland511.org]: The primary situational awareness tool for tracking real-time road closures, viewing interstate traffic camera feeds, and monitoring plow fleet progress during major snow events.

211 Maine [211maine.org]: The central directory used to direct the public to open warming centers and available emergency shelters during extended extreme cold and power outages.

Central Maine Power and Versant Outage Maps [cmpco.com/outage and https://kubra.io/stormcenter/views/05bfafbb-0ad1-4ff1-8287-d32fd1ed7fce]: Interactive maps utilized by the SEOC to track real-time power outage counts by county and municipality, essential for assessing the Energy Lifeline impact following an ice storm.

Appendix 3: Hurricanes & Tropical Storms

SECTION 1: Overview

Purpose

The Hurricanes & Tropical Storms Appendix defines the actions and roles necessary for a coordinated response by agencies within the State of Maine during a hurricane incident. It provides for the systematic integration of emergency resources and does not replace county or local emergency operations plans or procedures.

For the purpose of this document, a hurricane event includes hazards posed to Maine by a tropical depression, tropical storm, or hurricane. These carry the potential to cause fatalities, injuries, property and infrastructure damage, agricultural loss, environmental damage, and business interruptions. The Atlantic Hurricane Season spans from June 1 to November 30. During this period, MEMA may experience multiple changes in the SEOC activation level.

Scope

The appendix applies to Maine State Agencies and partners assigned Emergency Response Team responsibilities by Governor's Executive Order. This incident annex outlines details associated with hurricane planning, preparedness, response, and recovery. It includes the actions the State and disaster enterprise partners take to support impacted counties, as well as the structure for implementing state-level policy and operational coordination. Planners implement this fully or partially in anticipation of or in response to an event to allow for a scaled response, an accurate delivery of resources, and coordination.

Consequence Analysis

The Hurricanes Consequence Analysis is part of the Maine Emergency Operations Plan's Annex A - Hazards and Threats Risk Assessment and the associated Risk Register. During the evaluation, planners emphasized the individual types of hazards associated with this incident to tailor a response. These include Inland Freshwater Flooding, Coastal Flooding (Storm Surge and Waves), Tornadoes, Damaging Wind, Thunderstorms, Lightning, and Microbursts. **Section 5: Event Profile** contains additional information on each hazard.

SECTION 2: Concept of Operations

SEOC and Emergency Operations Plan Integration

This appendix supports the Emergency Operations Base Plan and related annexes. Standard SEOC activation levels and reporting chains remain in effect. MEMA handles a hurricane event using the hybrid incident command structure without initial alteration, although combined hazard responses or Policy Group direction can change this. A hurricane response operates in four phases: Enhanced Monitoring, Alerting and Strategic Planning, Readiness and Staging, and Response and Sustained Recovery. Key missions include mass evacuation, mass sheltering, commodities distribution, search and rescue, debris management, and fatality management.

Operations and missions resulting from a hurricane occur during the response and recovery phases. The Response and Sustained Recovery Phase occurs prior to landfall and lasts until lifeline systems are at least partially restored. During this phase, agencies perform functions critical to life safety and protection, basic human needs, critical infrastructure security, and the safeguarding of State records.

No clear distinctions exist between when the response portion of a phase ends and when the recovery portion begins. After direct hurricane impacts cease, both phases remain active for a period. Recovery efforts begin after the hurricane makes landfall and can last for years. During this time, the federal government may provide disaster relief contingent upon a Presidential Disaster Declaration. Functions during this phase include federal relief under the Stafford Act, which provides the federal government authority to respond to disasters and emergencies, assist in life-safety operations, and protect public health, safety, and property.

Special Procedural Issues

Hurricanes trigger deviations from standard MEMA emergency operations processes and procedures. These deviations are based on several factors that differentiate a hurricane response from many other emergency management incidents:

- **Advanced Warning and Early Decisions:** Hurricanes offer days of warning, which drives decisions about mass evacuations. Decision makers must order evacuations before hurricane-force winds arrive, as winds stop high-profile vehicle movement and force the closure of bridges.

- **Complex Coastal Evacuations:** Coastal geography complicates the response. Limited egress routes create bottlenecks on major highways like U.S. Highway 1 and Interstate 95. Additionally, island communities face isolation when ferry operations suspend service.

- **Transient Populations:** A hurricane event coincides with summer tourism months. This seasonal influx introduces transient visitors who do not understand local geography, evacuation routes, or emergency procedures. Temporary workers who supplement farming communities during the harvest season increase the complexity of any response. These workers face the same challenges as tourists but may lack English proficiency or a means of transportation.

- **Compounding Hazards:** A hurricane brings multiple threats at one time. Counties must address storm surge, destructive winds, inland freshwater flooding, and tornadoes during a single event.

- **Prolonged Infrastructure Failure:** The wind field and saturated soils cause prolonged statewide utility outages. This requires the activation of energy stakeholders to coordinate regional grid recovery, fuel distribution priorities, and generator deployments in conjunction with county emergency management agency efforts.

Hurricane Response

Evacuation serves as the primary protective action for populations vulnerable to storm surge, inland flooding, and those living in manufactured housing. The scale of potential coastal evacuations drives early decision points. To determine if a mass evacuation is necessary, county and state emergency managers evaluate daylight hours, seasonal tourist occupancy, public perception, and weather forecast uncertainty. Because of this logistical complexity, personnel begin preparing for a possible evacuation as soon as a hurricane threat emerges, regardless of the final decision.

The synchronization matrix in **Section 4: Hurricane Response & Evacuation Synchronization Matrix** incorporates evacuation planning and execution into a linear process alongside established MEMA procedures. Because hurricanes are forecasted events, staff use the matrix as a guideline to manage agency relationships, procure supplies, and stage personnel and equipment.

SECTION 3: Organization and Responsibilities

Lead Agency

MEMA coordinates the state's emergency response activities and provides situation awareness to county, state, and other agencies. The agency activates the SEOC, establishes communication with the National Hurricane Center, requests Emergency Management Assistance Compact resources from partner states, and advises the Governor on emergency declarations and evacuation orders. The agency coordinates public information and liaises with the Federal Emergency Management Agency for federal disaster assistance. If an evacuation is necessary, MEMA synchronizes mass evacuation and reentry operations with adjacent jurisdictions, including New Hampshire and selected Canadian Provinces.

Supporting Agencies

State agencies follow Emergency Operations Plan, Base Plan directives and execute tasks through the Community Lifeline framework to ensure a unified response. These functional responsibilities include:

Safety & Security Lifeline: The Maine Department of Public Safety oversees law enforcement operations, force protection, and traffic control. The Maine State Police manage evacuation route security and perform access control for impacted areas. The Maine National Guard provides high-water rescue vehicles and aviation assets for search and rescue missions. The Maine Department of Marine Resources secures maritime ports and conducts coastal water rescues.

Food, Hydration, & Shelter Lifeline: The MEMA Mass Care Program coordinates mass sheltering, family reunification services, and mass feeding operations. The Maine Department of Agriculture, Conservation, and Forestry monitors the food supply chain and manages shelter logistics for pets. The state coordinates bulk water distribution to areas experiencing municipal water failures.

Health & Medical Lifeline: The Maine Department of Health and Human Services manages hospital patient surges, coordinates medical supply distribution, and issues public health messaging regarding waterborne diseases. Emergency Medical Services conduct evacuations of vulnerable facilities such as nursing homes and assisted living centers. Planners identify registries that designate individuals reliant on home life-support equipment during power failures.

Energy Lifeline: The Public Utilities Commission coordinates power grid restoration priorities with regional operators and monitors emergency fuel allocations for critical infrastructure. The Maine Department of Energy Resources facilitates communication between utility providers, tree-clearing crews, and emergency management to restore power to hospitals and water treatment plants.

Communications Lifeline: MEMA maintains interoperable radio networks for first responders. The agency coordinates the deployment of mobile cell towers to areas with destroyed telecommunications infrastructure. MEMA operates the Emergency Alert System and sends Wireless Emergency Alerts to broadcast instructions..

Transportation Lifeline: The Maine Department of Transportation manages traffic flow, operates courtesy patrols to assist stranded motorists during evacuations, and monitors bridge safety limits. State crews prioritize clearing debris from essential routes to allow emergency vehicles access to impacted communities. The Maine Turnpike Authority suspends toll collection to expedite northbound traffic flow during major coastal evacuations.

Hazardous Material Lifeline: The Maine Department of Environmental Protection monitors chemical spills, assesses municipal water quality, and oversees hazardous debris disposal. Floodwaters dislodge residential heating oil tanks, creating environmental contamination that requires specialized cleanup teams.

SECTION 4: Hurricane Response & Evacuation Synchronization Matrix

This section establishes a synchronization matrix that aligns agency actions with the progression of a hurricane to ensure the State of Maine maintains a unified posture. The matrix provides a structured framework for state agencies and partners to manage information flow, resource deployment, and public safety directives.

Timeline Reference Markers

The timeline utilizes two distinct markers to synchronize state and county operations. Leadership monitors these markers to determine the timing for critical life safety decisions.

- **H Hour:** This marker signifies the arrival of tropical storm force winds. State policy requires the completion of all high-profile vehicle evacuations and the closure of major bridges before H Hour. High winds create extreme risks for emergency responders and the public, effectively ending the window for safe ground transportation.
- **E Hour:** This marker indicates the start of evacuation operations. Emergency managers calculate E Hour by subtracting the necessary clearance time from the arrival of tropical storm force winds.

Operational Phases and Decision Points

The response timeline organizes tasks into time-based phases based on the proximity of the threat. As the storm approaches, the MEMA Director escalates the SEOC's activation level from monitoring to full response. Directors base activation decisions on the severity of the event and the anticipated damage. They call upon specific team members to provide information and coordinate with other agencies as the situation dictates. When the center is not activated, the Operations and Response Division Director sends out requests for information to gather data.

The following tables delineate tasks by operational timeframe, trigger events, and the organizations or staff members responsible for execution. Entries marked with "**[DECISION POINT]**" identify critical decision points and time-sensitive events that require leadership attention. Delaying these actions reduces the effectiveness of the evacuation, disrupts the staging of resources, and increases risk to the populace.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
H>120 **[Greater than five days]**	**N/A**	**Steady State Level 4**	Storm enters long range forecast cone and/or National Oceanic and Atmospheric Administration National Hurricane Center identifies a high-probability "New England" track in the 7-day Tropical Weather Outlook.	**OPERATIONS AND RESPONSE DIVISION** • **[Director]** Survey all Division Directors to confirm personnel availability, specifically identifying those with planned leave or military obligations (i.e. verify the Staff Availability Matrix is current). • **[Director]** Issue a "Weather Advisory" to MEMA staff and Emergency Response Team members to initiate personal preparedness and potential SEOC activation. • **[Director]** Recommend that County Emergency Management Agencies contact at-risk/vulnerable facilities (nursing homes, hospitals, correctional centers, and food pantries) to verify their power and evacuation plans. Also recommend that agencies capture "before" photos or drone footage of critical infrastructure to streamline potential Federal Emergency Management Agency - Public Assistance claims. • **[Director]** Monitor weather models, National Oceanic and Atmospheric Administration products, local broadcast meteorologists' forecasts, radar trends. • **[On-Call Duty Officer or Designated Staff Member]** Monitor weather models, National Oceanic and Atmospheric Administration products, local broadcast meteorologists' forecasts, radar trends. • **[On-Call Duty Officer or Designated Staff Member]** Monitor NWSChat and relay pertinent information to the Operations and Response Division Director.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				EXTERNAL AFFAIRS • **[Director]** Initiate "Maine Prepares" style messaging via social media, focusing on individual kit preparation, flood insurance review, and evacuation route identification. Update the MEMA website with current storm data. • **[Public Outreach Specialist]** Maintain situational awareness of weather by monitoring Twitter feeds/Facebook pages of National Weather Service offices, and local meteorologists. **MITIGATION, PLANNING & RECOVERY DIVISION** • **[Natural Hazards Planner]** Monitor HURREVAC updates and create evacuation scenarios based on seasonal occupancy rates, State of Maine Hurricane Evacuation Study clearance times and Annex G, Evacuation Plan.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
H-120 **[Five Days]**	**E-96**	**Enhanced Monitoring Level 3**	National Oceanic and Atmospheric Administration National Hurricane Center issues the first five-day Forecast Track indicating a direct impact to Maine.	**ISSUES AND CONSIDERATIONS** • Will a Governor's State of Emergency Declaration to support disaster operations be necessary? • Will elements of the Maine National Guard need to be activated? • When should a SEOC Posture Determination Call, SEOC Staff Posture Brief, and a SEOC Response Activation Call be conducted? • Are the unbridged, year-round island communities threatened? • Are any special events scheduled for potentially impacted areas? **OPERATIONS AND RESPONSE DIVISION** • **[Director]** Create draft SEOC manning roster. Release to Division Directors upon determination that a Partial Activation is required to address the emergency. • **[Director]** Issue an updated "Weather Advisory" to MEMA staff and Emergency Response Team members to initiate personal preparedness and potential SEOC activation. • **[Director]** Verify active status for Emergency Management Assistance Compact and Memorandums of Understanding for identified staging areas and transportation resources. • **[Director]** Monitor weather models, National Oceanic and Atmospheric Administration products, local broadcast meteorologists' forecasts, radar trends. • **[Director]** Activate, at a minimum, the MEMA Mass Care Coordinator and Emergency Response Team members associated with the Food, Hydration, & Shelter Lifeline to begin potential shelter operations.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Director]** Schedule a SEOC Posture Determination Call, SEOC Staff Posture Brief, and a SEOC Response Activation Call in conjunction with the MEMA Director. • **[Resource Management Coordinator]** Top off fleet/equipment fuel tanks and generators. Contact Lawson to confirm the building generator is prepared. • **[Resource Management Coordinator]** Notify continuity sites of storm status and verify site's readiness (and Memorandums of Agreement / Memorandums of Understanding as necessary). • **[Resource Management Coordinator]** Review Critical Transportation Needs Evacuation Annual Estimates and update the Evacuation Coordination Board in WebEOC if necessary. • **[Resource Management Coordinator]** Ensure counties/tribes have updated Point of Distribution database in WebEOC. Facilitate the data update if WebEOC is not used. • **[Resource Management Coordinator]** Review (or contact and discuss) county/tribal continuity plans with the potentially impacted counties. The goal is to be able to operate without power for up to three days. • **[On-Call Duty Officer or Designated Staff Member]** Monitor weather models, National Oceanic and Atmospheric Administration products, local broadcast meteorologists' forecasts, radar trends. • **[On-Call Duty Officer or Designated Staff Member]** Monitor NWSChat and relay pertinent information to the Operations and Response Division Director.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				COMMUNICATIONS OFFICE • **[Director]** Ensure off-site data backups are complete and verify that satellite phones or high-frequency radios function properly. • **[Director]** Initiate Primary, Alternate, Contingency, Emergency plan and validate communications with county Emergency Management Agencies. **EXTERNAL AFFAIRS** • **[Director]** Continue to implement "Maine Prepares" style messaging via social media, focusing on individual kit preparation, flood insurance review, and evacuation route identification. Update the MEMA website with current storm data. • **[Public Outreach Specialist]** Maintain situational awareness of weather by monitoring Twitter feeds/Facebook pages of National Weather Service offices, and local meteorologists. **MITIGATION, PLANNING & RECOVERY DIVISION** • **[Mass Care Coordinator]** Confirm the availability of primary shelter locations and check current inventories of cots, blankets, and water with National Voluntary Organizations Active in Disaster partners. • **[Mass Care Coordinator]** Initiate a Planning Strategy conference call with all stakeholders based upon the forecast track and category; identify any resources needed to support shelter operations. • **[Natural Hazards Planner]** Monitor HURREVAC updates and create evacuation scenarios based on seasonal occupancy rates, State of Maine Hurricane Evacuation Study clearance times and Annex G, Evacuation Plan.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				EMERGENCY RESPONSE TEAM | COMMUNITY LIFELINES The MEMA Director and the Operations and Response Division Director control the activation of Emergency Response Team members. The director's base activation decisions on the severity of the event and anticipated damage, though they call upon members to provide information and coordinate with other agencies as necessary. If the directors do not activate the team, the Operations and Response Division Director sends out requests for information to gather data that helps determine future actions. The following Lifelines outline tasks that activated Emergency Response Team members typically perform. These tasks do not encompass every possible action and the Operations and Response Division Director may adjust them based on the pending storm. As the SEOC increases the activation level, the Operations and Response Division Director adds these tasks to the existing list of Critical Information Requirements and Essential Elements of Information. Many tasks require the monitoring of a situation or site. This responsibility requires members to report any information that indicates a loss of operational capacity or potential negative impacts to the populace. **LIFELINE: Safety & Security** • **[Law Enforcement/Security]** Monitor and report the readiness of law enforcement assets to provide evacuation support, traffic management, and re-entry assistance. • **[Fire Service]** Relay reports on fire service assets at risk and coordinate with primary agencies regarding assistance requests from counties. • **[Search and Rescue]** Monitor alert status of Search and Rescue assets and report updates regarding deployment status. • **[Government Service]** Assess readiness of state government infrastructure and track impacts on county school systems and local evacuations to identify potential risks to state operations.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Community Safety]** Assess potential impacts on vulnerable populations and monitor information regarding special events and estimated tourist occupancy in potentially impacted areas. **LIFELINE: Food, Hydration, & Shelter** • **[Food]** Identify bulk food resources and coordinate with vendors/non-government organizations to ensure readiness for sheltering and mass feeding missions. • **[Hydration]** Monitor availability of water and ice supplies and coordinate with vendors/non-government organizations to identify supplies for potential distribution. • **[Shelter]** Monitor the establishment of pre-identified shelters, coordinate planning for any functional access and medical needs populations, and update occupation status of shelter facilities as requested. • **[Agriculture]** Identify critical animal operations at risk from potential power outages and monitor planning for pet friendly shelters and animal relocation areas. **LIFELINE: Health & Medical** • **[Medical Care]** Monitor the clinical capacity, facility infrastructure, and patient treatment capabilities of statewide medical care centers and report closures, surge, and loss of treatment capacity. • **[Public Health]** Monitor census of Long-Term Care Facilities and County Staging Area as necessary. Coordinate and participate statewide status calls with the nine public health districts to identify potential medical care issues. • **[Patient Movement]** Confirm movement requirements for medical patients, identify available wheeled ambulances for evacuation, and monitor availability of staff to augment medical evacuation teams.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Medical Supply Chain]** Monitor WebEOC facility boards for census updates and evacuation planning data. • **[Fatality Management]** Coordinate with coroners to identify potential storage needs and fatality management resource needs to expedite resource requests. **LIFELINE: Energy** • **[Power Grid]** Maintain situational awareness of power grid stability and monitor weather models for potential infrastructure impacts. • **[Fuel]** Coordinate with logistics partners to identify bulk fuel resources, monitor state fuel storage tank levels, monitor status of retail fuel along evacuation routes, and identify potential shortages. **LIFELINE: Communications** • **[Infrastructure]** Monitor status of telecommunications infrastructure, maintain situational awareness of weather conditions to protect critical digital systems, and coordinate with private sector partners to monitor communications network stability. • **[Responder Communications]** Identify communications resources for post disaster operations and monitor readiness of deployable equipment. • **[Alerts Warnings and Messages]** Monitor dissemination of weather alerts and family preparedness information through media and social media channels and coordinate with Joint Information Center, if activated, to ensure consistent messaging. • **[Resource Management Coordinator]** Monitor validation of MEMA and related state fuel cards, coordinate removal of transaction limits for emergency operations, and monitor update of vendor contract lists for evacuation transportation.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Finance]** Monitor update of vendor contract lists for evacuation transportation. • **[911 and Dispatch]** Monitor open-source media and disseminate incident and damage reports. **LIFELINE: Transportation** • **[Highway/Roadway/Motor Vehicle]** Monitor cessation of construction on evacuation routes, identify closures on primary corridors, monitor deployment of teams to designated locations, and monitor clearance of disabled vehicles. • **[Mass Transit]** Confirm commercial bus and motor coach requirements for evacuations and monitor vendor contract lists. • **[Railway]** Monitor rail infrastructure status and maintain communication with rail providers regarding potential impacts to service. • **[Aviation]** Monitor stand up of the Aviation Support Operations Center to identify any Temporary Flight Restrictions, prioritization of emergency flights (Search and Rescue, firefighting), and ensure safe, coordinated access to the National Airspace System. • **[Maritime]** Monitor status of barrier islands, ferries, and maritime facilities in potentially impacted areas. **LIFELINE: Hazardous Materials** • **[Facilities]** Monitor weather briefings and participate in coordination calls to assess risks to hazardous material facilities. • **[HAZMAT]** Monitor hazardous material response efforts and ensure collection of damage reports.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				LIFELINE: Water Systems • **[Potable Water Infrastructure]** Monitor operations of drinking water facilities and identify all facilities and dams in potentially impacted area. • **[Wastewater Management]** Monitor operations of wastewater facilities for water service interruptions and identify potential restoration requirements for population re-entry.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
H-96	**E-72**	**Partial Activation Level 2**		**ISSUES AND CONSIDERATIONS** • Have commercial bus and motor coach, paratransit equipment, and ambulances been contracted and/or dispatched to support a potential coastal evacuation? • Have staging areas been pre-identified? Have these locations been posted to the Statewide Significant Events Board in WebEOC? • Has Hospital, County Staging Areas, and Long-Term Care Facility information been updated and posted to WebEOC? • **[DECISION POINT]** Should a Governor's State of Emergency Declaration be requested? • **[DECISION POINT]** When should a request for Presidential Emergency or Disaster Declarations be submitted? • **[DECISION POINT]** When should direct federal assistance be requested (tied to evacuation plans)? • **[DECISION POINT]** Should MENG be placed on alert? • **[DECISION POINT]** Should cancellation of special events be recommended? • **[DECISION POINT]** Should an Aviation Support Operations Center be stood-up for possible activation? **EXTERNAL AFFAIRS** • **[Director]** Continue to implement "Maine Prepares" style messaging via social media and update the MEMA website with current storm data.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Director]** Publish Situation Awareness updates to inform relevant stakeholders of potential issues (e.g., flooding, hazardous materials incidents) so they can "stay ahead of changing conditions" and prepare to respond or change their posture. **COMMUNICATIONS OFFICE** • **[Director]** Open a WebEOC Incident when notified by the Operations and Response Division Director, or equivalent staff member. **STATE EMERGENCY OPERATIONS CENTER | OPERATIONS AND RESPONSE DIVISION** • **[SEOC Manager]** Notify the Communications Office to open a WebEOC Incident. • **[SEOC Manager]** Establish an Evacuation Operations Group to assess evacuation decision conditions/metrics. Core members of the team include Maine Department of Transportation, Maine State Police, the MEMA Mass Care Coordinator, and select members of the Command & General Staff. Due to limited staffing, the team will serve as both planning and operational elements. The group will coordinate functional needs, voluntary, and mandatory evacuations. • **[SEOC Manager]** Establish a Critical Transportation Needs Group. • **[Evacuation Operations Group]** Coordinate with county emergency management agencies to determine the need for functional needs evacuations and synchronize voluntary evacuation timelines. • **[Critical Transportation Needs Group]** Confirm evacuation requirements for medical patients and other vulnerable populations.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				LOGISTICS SECTION • **[Section Chief]** Confirm commercial bus and wheeled ambulance requirements for evacuation. • **[Section Chief]** Coordinate the resupply of retail fuel, using partner agreements or state assets, along evacuation routes and in affected areas as necessary. • **[Section Chief]** Coordinate reentry staging operations. **FINANCE SECTION** • **[Section Chief]** Submit pre-scripted Action Request Forms to Federal Emergency Management Agency. • **[Section Chief]** Coordinate resource and mutual aid requests. **EMERGENCY RESPONSE TEAM | COMMUNITY LIFELINES** The following Lifelines outline tasks that Emergency Response Team members typically perform during this activation level. These tasks do not encompass every possible action and the SEOC Manager, now activated in place of the Operations and Response Division Director, may adjust them based on the pending storm. Tasks are incorporated into the existing list of Critical Information Requirements and Essential Elements of Information. Many tasks require the monitoring of a situation or site. This responsibility requires members to report any information that indicates a loss of operational capacity or potential negative impacts to the populace.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				LIFELINE: Safety & Security • **[Law Enforcement/Security]** Monitor the standby status of law enforcement personnel for evacuation support and traffic control operations, coordinate with agencies regarding primary corridor closures or detours, and engage with partners to plan security support for logistical transport. • **[Fire Service]** Identify fire service assets at risk, monitor the dissemination of weather alerts to primary and supporting agencies, monitor the alert status of deployed strike teams, and engage with agencies to identify staff for logistics staging areas. • **[Search and Rescue]** Monitor the notification of search, rescue, and recovery task forces regarding threat levels, maintain communication with search and rescue teams, coordinate the development of resource request forms for specialized capabilities, and engage with the Aviation Support Operations Center (or agency aviation support center) to monitor aviation resource staging. • **[Government Service]** Monitor the status of the Governor's state of emergency declaration. • **[Community Safety]** Monitor information regarding special events and estimated tourist occupancy in potentially impacted areas, engage with county officials regarding the cancellation of special events, and monitor the development of evacuation timelines for vulnerable and general populations. **LIFELINE: Food, Hydration, & Shelter** • **[Food]** Monitor the activation status of bulk food contracts for field feeding, engage with agriculture partners to identify bulk food resources for mass feeding missions, and track the status of field feeding equipment and personnel alert levels. • **[Hydration]** Coordinate with vendors to monitor the availability of water and ice supplies.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Shelter]** Coordinate with external affairs team regarding shelter locations for public dissemination, monitor the status of shelter preparations and openings, and engage with partners to track the requisition of cots and blankets from federal resources, if required. • **[Agriculture]** Coordinate with mass care and public health partners regarding animal sheltering support, monitor the readiness of animal friendly shelters and animal congregation areas, and identify additional critical animal operations at risk due to power outages. **LIFELINE: Health & Medical** • **[Medical Care]** Monitor the planning for medical and hospital evacuations and engage with partners to track medical beds, storage levels, facility status, and overall patient capacity. • **[Public Health]** Coordinate, or participate in, statewide status calls with district public health and regional hospitals to produce updated situational reports. • **[Patient Movement]** Monitor the status of patient placement boards on WebEOC, engage with the Maine Health Care Association regarding long term care facility evacuations, and monitor the requirements for wheeled ambulance and regional transportation support. • **[Medical Supply Chain]** Monitor WebEOC facility boards for census updates and evacuation planning data. • **[Fatality Management]** Monitor situational awareness for fatality management resource readiness and engage with coroners to identify potential storage needs. **LIFELINE: Energy** • **[Power Grid]** Maintain situational awareness of the power grid and engage with utility partners to identify resources for re-entry road clearing missions.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Fuel]** Engage with logistics partners to identify bulk fuel resources for forward disaster operations, monitor the status of state fuel storage tank levels, and track the availability of retail fuel along evacuation routes. **LIFELINE: Communications** • **[Infrastructure]** Monitor communications infrastructure status, engage with private sector providers, and track telecommunications station status during evacuations. • **[Responder Communications]** Identify communications resources for resource requests, monitor the testing of communications equipment and alert systems, track the status of equipment recall from maintenance as necessary, and monitor Primary, Alternate, Contingency, Emergency communications plan implementation. • **[Alerts Warnings and Messages]** Monitor the dissemination of weather alerts and notifications, engage with the meteorologist and leadership teams to coordinate messaging in conjunction with the Joint Information Center, when activated. • **[Finance]** Monitor the validation of state fuel cards and the removal of transaction limits, track the update of vendor contract lists for evacuation transportation, and monitor financial activities for potential cost impacts. • **[911 and Dispatch]** Monitor open-source media and disseminate incident and damage reports. **LIFELINE: Transportation** • **[Highway/Roadway/Motor Vehicle]** Monitor the decision process for lane reversal on I-95, monitor traffic counters for evacuee movement impacts, and participate in Evacuation Operations Group coordination.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Mass Transit]** Monitor the procurement of evacuation transportation resources and track the requirements for commercial bus assets. • **[Railway]** Monitor rail infrastructure status and maintain communication with rail providers regarding potential impacts to service. • **[Aviation]** Monitor the activation of the Aviation Support Operations Center, if required, and track requests for aviation resources for reconnaissance and damage assessment missions. • **[Maritime]** Monitor the status of barrier islands, ferries, and maritime facilities. **LIFELINE: Hazardous Materials** • **[Facilities]** Participate in weather briefings and engage with partners to assess risks to hazardous material facilities. • **[HAZMAT]** Engage with logistics partners regarding support requirements for re-entry task forces and monitor the production of situation reports regarding hazardous materials. **LIFELINE: Water Systems** • **[Potable Water Infrastructure]** Monitor for water interruptions, identify drinking water facilities and dams in the potentially impacted area, and engage with logistics partners regarding support requirements for reentry task forces. • **[Wastewater Management]** Monitor wastewater facility operations and track the preparation of templates for public notification advisories.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
H-48	**E-24**	**Partial Activation Level 2**		**ISSUES AND CONSIDERATIONS** • Are any metropolitan areas expected to be affected during normal business hours? • Are any transportation hubs anticipated to be affected? • Which school systems have not made the decision to close? • Has Contraflow begun? • Have Counties finalized their plans to move resources to a staging area? Have these plans been entered into WebEOC for information sharing and re-entry planning purposes? • Can the Maine Department of Economic and Community Development provide information on hotel and motel availability? (Publish on MEMA Website and distribute through External Affairs.) • **[DECISION POINT]** Should the Evacuation Plan be activated? • **[DECISION POINT]** Identify a timeline for the declaration of an Evacuation Order. Generally, this will be approximately within the E-12 timeframe. • **[DECISION POINT]** Should mass shelter operations begin? • **[DECISION POINT]** Should a Presidential Disaster Declaration be requested? • **[DECISION POINT]** Should Wireless Emergency Alerts be initiated? • **[DECISION POINT]** When should direct federal assistance be requested (tied to evacuation plans)? • **[DECISION POINT]** Should the Maine National Guard be activated?

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				EXTERNAL AFFAIRS • **[Director]** Continue to implement "Maine Prepares" style messaging via social media and update the MEMA website with current storm data. • **[Director]** Continue publishing Situation Awareness updates to inform relevant stakeholders of potential issues (e.g., flooding, hazardous materials incidents) so they can "stay ahead of changing conditions" and prepare to respond or change their posture. **STATE EMERGENCY OPERATIONS CENTER | OPERATIONS AND RESPONSE DIVISION** • **[SEOC Manager]** Activate Debris Management Group to coordinate removal operations. • **[SEOC Manager]** Activate mass sheltering operations through Mass Care Coordinator. • **[Liaison Officer]** Coordinate with Federal Emergency Management Agency to determine potential locations for a Joint Field Office. • **[Logistics & Operations Branch]** Coordinate resource and mutual aid requests. **EMERGENCY RESPONSE TEAM | COMMUNITY LIFELINES** The following Lifelines outline tasks that activated Emergency Response Team members typically perform as liaisons during this phase. These tasks do not encompass every possible action and the state may adjust them based on the pending storm. As the SEOC increases the activation level, the state adds these tasks to the existing list of Critical Information Requirements and Essential Elements of Information. Many tasks require the monitoring of a situation or site. This responsibility requires members to report any information that indicates a loss of operational capacity or potential negative impacts to the populace.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				LIFELINE: Safety and Security • **[Law Enforcement/Security]** Monitor the deployment of law enforcement teams and coordinate with partners regarding their alert status, briefing locations, and mission readiness. • **[Fire Service]** Monitor the mobilization status of deployed strike teams, track the readiness of potable water tankers, and coordinate with agencies to identify staff for logistics staging areas. • **[Search & Rescue]** Monitor the standby status of search and rescue task forces, engage with logistics partners to track support requirements, and monitor aviation resource staging in coordination with the Aviation Support Operations Center, if activated. • **[Government Service]** Monitor the submission of Emergency Management Assistance Compact requests for capability gaps and coordinate the publication of situational awareness statements. • **[Community Safety]** Monitor the implementation of voluntary evacuations, track impacts on metropolitan areas, and monitor the status of county school systems and community events. **LIFELINE: Food, Hydration, Shelter** • **[Food]** Monitor the distribution of bulk food resources, track the activation of field feeding personnel, and coordinate with vendors to ensure supply readiness. • **[Hydration]** Monitor the procurement of initial response resources from federal partners and track the availability of bulk water supplies. • **[Shelter]** Monitor the movement of personnel and resources to pre identified shelter locations, coordinate planning for functional access and medical needs populations, and monitor status of shelter facilities for the first wave of evacuees.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Agriculture]** Monitor the initiation of animal friendly and pet friendly shelters, track coordination for potential animal rescue operations, and identify critical animal operations at risk due to power outages. **LIFELINE: Health and Medical** • **[Medical Care]** Monitor medical and hospital evacuation planning, track the support provided to long term care facilities, and engage with facilities to monitor census and capacity updates. • **[Public Health]** Monitor and participate in statewide status calls with health districts and hospitals and monitor the production of any clinical situation reports. • **[Patient Movement]** Monitor the execution of functional needs evacuations and track the availability of staff to support the evacuation team, if activated. • **[Medical Supply Chain]** Monitor WebEOC facility boards for updates and coordinate with storage and distribution partners regarding resource availability. • **[Fatality Management]** Monitor situational awareness for fatality management resource readiness and coordinate with coroners to identify potential storage needs. **LIFELINE: Energy** • **[Power Grid]** Maintain situational awareness of power grid stability, track reports of service interruptions, and coordinate with owners to determine the number of citizens without electrical service. • **[Fuel]** Monitor the deployment of fuel resources for contraflow and reentry operations, track the procurement of bulk fuel resources, and monitor retail fuel availability and station status along evacuation routes.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				LIFELINE: Communications • **[Infrastructure]** Monitor telecommunications infrastructure status, engage with private sector and wireless providers to identify known issues, and track situational awareness of weather conditions to protect critical digital systems. • **[Responder Communications]** Monitor the deployment of communications resources to support requesting agencies and track any changes to the Primary, Alternate, Contingency, Emergency communications plan. • **[Alerts, Warnings, and Messages]** Monitor the enactment of wireless emergency alerts, track the coordination of media information within the joint information center, and monitor the coordination of news conferences including American Sign Language support. • **[Finance]** Monitor agency purchasing tracking sheets, track the removal of transaction thresholds for emergency purchases, and monitor the update of vendor contract lists for evacuation transportation. • **[911 and Dispatch]** Monitor reports of weather impacts and track communications with 911 and dispatch centers. **LIFELINE: Transportation** • **[Highway/Roadway/Motor Vehicle]** Monitor the implementation of lane reversal on I-95, monitor traffic counters for flow increases, and coordinate with partners regarding bridge teams and inspection priorities. • **[Mass Transit]** Monitor the procurement of evacuation transportation resources and track requirements for commercial bus assets.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Railway]** Monitor rail infrastructure status and maintain communication with rail providers regarding potential impacts to service. • **[Aviation]** Monitor the staging of aviation assets at safe locations and monitor the deployment of aviation resources for reconnaissance and route monitoring. • **[Maritime]** Monitor the status of barrier islands, ferries, and maritime facilities. **LIFELINE: Hazardous Materials** • **[Facilities]** Participate in weather briefings to assess risks to hazardous material facilities and engage with partners to monitor potential release reports. • **[HAZMAT]** Monitor coordination with logistics partners regarding support requirements for reentry task forces and track the production of situation reports regarding oil and hazardous materials. **LIFELINE: Water Systems** • **[Potable Water Infrastructure]** Monitor for water service interruptions, track the identification of dams at risk, and coordinate with partners to monitor the development of emergency power plans for water facilities. • **[Wastewater Management]** Monitor wastewater facility operations, track the quality of discharge, and monitor the preparation of public notification advisories.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
H-24	**E0** **Evacuations Begin**	**Full Activation Level 1**		**ISSUES AND CONSIDERATIONS** • Where is emergency power running and what is needed to keep it running? • Does fuel for backup generators need to be provided for: – Water/wastewater facilities not in the surge area that serve un-evacuated regions. – Hospitals, emergency service, and 911 centers that are expected to be without power for more than two days. • Has the general population evacuation begun? • What is the status of the evacuation plan being executed? • Do water/commodities need to be staged for un-evacuated regions impacted by an anticipated power loss of 3+ days? • **[DECISION POINT]** Should any bridges or other transportation infrastructure be closed? • **[DECISION POINT]** Should law enforcement personnel be retracted from traffic operations and place them on standby for post landfall reentry and curfew enforcement. • **[DECISION POINT]** Should all operations be placed on standby prior to the onset of storm force winds to prevent injuries and equipment loss? **EXTERNAL AFFAIRS** • **[Director]** Continue publishing situation awareness updates to inform relevant stakeholders of potential issues (e.g., flooding, hazardous materials incidents) so they can "stay ahead of changing conditions" and prepare to respond or change their posture.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				STATE EMERGENCY OPERATIONS CENTER | OPERATIONS AND RESPONSE DIVISION **[SEOC Manager]** Direct the Emergency Response Team members to collect the full range of CIRs/EEIs. Operations will be conducted using the SEOC Procedures annex. **EMERGENCY RESPONSE TEAM | COMMUNITY LIFELINES** The following Lifelines outline tasks that activated Emergency Response Team members typically perform as liaisons during this final phase. These tasks do not encompass every possible action and the state may adjust them based on the pending storm. As the SEOC increases the activation level, the state adds these tasks to the existing list of CIRs and EEIs. Many tasks require the monitoring of a situation or site. This responsibility requires members to report any information that indicates a loss of operational capacity or potential negative impacts to the populace. **LIFELINE: Safety & Security** • **[Law Enforcement/Security]** Monitor the retraction of law enforcement personnel from traffic operations and track their standby status for post landfall reentry support and curfew enforcement. • **[Fire Service]** Monitor the mobilization of deployed strike teams and coordinate with logistics partners to track support requirements. • **[Search and Rescue]** Monitor the staging of search and rescue task forces and engage with partners to track the readiness of resources for immediate post impact deployment. • **[Government Service]** Monitor the movement of Maine National Guard units to response areas and track the actions and outputs of the Joint Operations Center, if activated. • **[Community Safety]** Monitor the completion of mandatory evacuations and track the status of procurement for all logistics resources before the onset of tropical storm force winds.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				LIFELINE: Food, Hydration, & Shelter • **[Food]** Monitor the distribution of bulk food resources to support mass feeding missions and track the movement of commodities from Incident Support Bases to State Logistics Staging areas, and then to County Staging Areas. • **[Hydration]** Monitor the availability and distribution of bulk water and ice supplies to supporting facilities. • **[Shelter]** Monitor general population shelters, track the status of critical transportation needs populations, and coordinate with partners to ensure shelters remain ready for the onset of the storm. • **[Agriculture]** Monitor the operation of animal friendly and pet friendly shelters and track coordination for animal rescue missions. **LIFELINE: Health & Medical** • **[Medical Care]** Monitor the support provided to medical facilities that choose to shelter in place and track the status of emergency power for clinical infrastructure. • **[Public Health]** Monitor and track coordination with state partners regarding reentry planning. • **[Patient Movement]** Monitor the final stages of medical and hospital evacuations and track the requirements for post landfall medical transport. • **[Medical Supply Chain]** Monitor coordination with rapid response teams regarding the removal of contaminated food products and track the oversight of food destruction. • **[Fatality Management]** Monitor situational awareness for fatality management resource readiness and coordinate with coroners to identify potential storage needs.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				LIFELINE: Energy • **[Power Grid]** Monitor prioritized electrical restoration plans for critical facilities and track situational awareness of service interruptions. • **[Fuel]** Monitor the procurement of bulk fuel resources, track state fuel storage tank levels, and coordinate with partners to identify retail fuel availability for response operations. **LIFELINE: Communications** • **[Infrastructure]** Monitor telecommunications infrastructure status, track situational awareness of weather conditions to protect critical digital systems, and coordinate with private sector providers to monitor service stability. • **[Responder Communications]** Monitor the delivery of mobile cellular base station trailers, mobile command vehicles, and track the execution of the Primary, Alternate, Contingency, Emergency communications plan. • **[Alerts, Warnings, and Messages]** Monitor the coordination of news conferences with the Governor's Office, track the presence of certified American Sign Language interpreters, and coordinate with media partners regarding evacuation and sheltering information. • **[Finance]** Monitor agency purchasing tracking sheets, track the flow of emergency requests through the WebEOC portal, and monitor vendor contract lists for evacuation transportation. • **[911 and Dispatch]** Monitor weather impact reports and track status of 911 and dispatch centers. **LIFELINE: Transportation** • **[Highway/Roadway/Motor Vehicle]** Monitor the clearance of contraflow lanes, track the status of bridge closures, and monitor traffic counters to determine evacuation status.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Mass Transit]** Monitor the requirements for commercial bus assets and track the final movements of evacuation transportation resources. • **[Railway]** Monitor rail infrastructure status and maintain communication with rail providers regarding potential impacts to service. • **[Aviation]** Monitor final post landfall aviation preparations, track the staging of assets for reconnaissance and damage assessment missions, and coordinate with the air operations branch, if activated. • **[Maritime]** Monitor the status of barrier islands and ferry operations. **LIFELINE: Hazardous Materials** • **[Facilities]** Monitor reports of oil and hazardous material releases and coordinate with partners to triage potential release reports. • **[HAZMAT]** Monitor coordination with partners regarding appropriate response activities and track resource needs for hazardous material teams. **LIFELINE: Water Systems** • **[Potable Water Infrastructure]** Monitor for water interruptions, track the status of dams for potential flooding issues, and coordinate to implement emergency power plans for water facilities. • **[Wastewater Management]** Monitor wastewater facility operations, track the quality of discharge, and monitor the preparation of public notification advisories.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
H0 to H+72	**E+24 to E+96**	**Full Activation Level 1**	Arrival of Storm Force Winds	**ISSUES AND CONSIDERATIONS** • What are the conditions along potential reentry routes? • How should priorities for reentry be designated? **EXTERNAL AFFAIRS** • **[Director]** Continue publishing situation awareness updates to inform relevant stakeholders of potential issues (e.g., flooding, hazardous materials incidents) so they can "stay ahead of changing conditions" and prepare to respond or change their posture. **STATE EMERGENCY OPERATIONS CENTER | OPERATIONS AND RESPONSE DIVISION** **[SEOC Manager]** Conduct normal range of SEOC operations per Annex B: SEOC Procedures. **EMERGENCY RESPONSE TEAM | COMMUNITY LIFELINES** The following Lifelines outline tasks that activated Emergency Response Team members typically perform during the response, following the arrival of storm force winds. These tasks do not encompass every possible action and the state may adjust them based on the pending storm. As the SEOC increases the activation level, the state adds these tasks to the existing list of CIRs and EEIs. Many tasks require the monitoring of a situation or site. This responsibility requires members to report any information that indicates a loss of operational capacity or potential negative impacts to the populace. **LIFELINE: Safety & Security** • **[Law Enforcement/Security]** Monitor reentry route conditions, track the designation of reentry priorities, and engage with partners to monitor security details, access control, and curfew enforcement.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Fire Service]** Monitor damage assessments and engage with county emergency management agencies to track community needs and resource requests. • **[Search and Rescue]** Track the completion of search and rescue missions, monitor aerial damage assessments, and coordinate with the Aviation Support Operations Center, if activated, to monitor mission progress. • **[Government Service]** Monitor the shift in response objectives, track the coordination of the joint field office, if established, and engage with federal partners to monitor the transition of responsibilities to the disaster recovery center. • **[Community Safety]** Monitor the population status in impacted areas, as reported through county emergency management agencies, and track reports of community hazards or public safety concerns. **LIFELINE: Food, Hydration, & Shelter** • **[Food]** Monitor the transition of feeding operations and track the status of bulk food resources for response teams and evacuees. • **[Hydration]** Monitor the availability of potable water at support areas, staging locations, and impacted communities. • **[Shelter]** Monitor the closing or demobilization of shelters and engage with the recovery section to track long term housing solutions and the needs of returning populations. • **[Agriculture]** Monitor animal rescue operations during search and rescue missions and track the status of animal congregation areas and shelters.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				LIFELINE: Health & Medical • **[Medical Care]** Monitor damage reports for medical facilities, track the location of disaster recovery centers, and engage with clinical partners to monitor facility status. • **[Public Health]** Monitor statewide status updates from health districts and hospitals and track the coordination of environmental health assessments. • **[Patient Movement]** Monitor the return of evacuees and track requirements for medical transport and patient placement. • **[Medical Supply Chain]** Monitor coordination with rapid response teams regarding the removal of contaminated food products and track the oversight of food destruction. • **[Fatality Management]** Monitor situational awareness for fatality management missions and engage with coroners to identify storage or processing needs. **LIFELINE: Energy** • **[Power Grid]** Monitor restoration priorities for critical facilities, track situational awareness of service status, and engage with utility providers to monitor progress. • **[Fuel]** Monitor retail fuel availability, track coordination for reentry support, and monitor the fueling of emergency power systems for critical infrastructure. **LIFELINE: Communications** • **[Infrastructure]** Monitor service issues with telecommunications and wireless providers, track restoration progress, and engage with partners to monitor infrastructure stability. • **[Responder Communications]** Monitor the status of communications equipment.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				• **[Alerts Warnings and Messages]** Monitor media requests, coordinate briefings from the operations center, and engage with partners to ensure consistent public messaging. • **[Finance]** Monitor agency purchasing tracking sheets and track the flow of emergency requests through the WebEOC portal. • **[911 and Dispatch]** Monitor weather impact reports and track status of 911 and dispatch centers. **LIFELINE: Transportation** • **[Highway/Roadway/Motor Vehicle]** Monitor ground reconnaissance for route status, track the operation of reentry staging areas, and monitor the assistance provided to the public on roadways. • **[Mass Transit]** Monitor the return of transportation resources and track requirements for remaining transit missions or returning evacuees. • **[Railway]** Monitor rail infrastructure status and maintain communication with rail providers regarding the restoration of service. • **[Aviation]** Monitor aerial reconnaissance missions, track damage assessment reporting, and coordinate with the air operations branch. • **[Maritime]** Monitor the status of ports, maritime infrastructure, and ferry operations. **LIFELINE: Hazardous Materials** • **[Facilities]** Monitor the triage of release reports at hazardous material facilities and track environmental impacts. • **[HAZMAT]** Monitor the deployment of teams for site assessments and track coordination with response partners regarding appropriate cleanup activities.

Time (Hours)	Evacuation Timeline (Hours)	SEOC Activation Level	Trigger Event	Actions [Responsible Organization/Staff]
				LIFELINE: Water Systems • **[Potable Water Infrastructure]** Monitor the restoration of power to water facilities, track situational awareness of quality issues, and monitor the status of dams. • **[Wastewater Management]** Monitor wastewater facility status, track the quality of discharge, and monitor the issuance or rescission of public notification advisories.

SECTION 5: Event Profile

Hurricanes and tropical storms act as giant atmospheric heat engines. They originate over warm ocean waters and generate organized thunderstorms around a clear eye. These systems convert ocean heat into energy and vent it into the upper atmosphere to maintain their structure. The National Hurricane Center identifies the primary threats associated with these systems as inland freshwater flooding, storm surge and waves, tornadoes, and wind. The individual hazard profiles detail these specific threats.

When these systems reach Maine, they arrive as weakening or post-tropical hurricanes. They retain immense destructive potential, as demonstrated by Hurricane Bob in 1991 and the remnants of Hurricane Irene in 2011. Since 1965, seven hurricanes and dozens of storms impacted the state. A storm system does not need to make direct landfall in Maine to cause severe damage. Tidal timing during the passage of a storm dictates surge risk as much as the actual storm intensity.

This threat places all 16 Maine counties at risk for high winds, severe storms, inland flooding, and rain damage. Inland flooding threatens all major river basins despite modest coastal impacts. Ten counties face direct storm surge inundation: York, Cumberland, Sagadahoc, Lincoln, Knox, Waldo, Hancock, Washington, Kennebec, and Penobscot.

These coastal counties contain dense populations and experience population surges during the summer tourism months. This seasonal influx introduces millions of transient visitors who lack familiarity with local geography and emergency procedures. Island communities face unique vulnerabilities due to their reliance on ferry services. Ferries suspend operations before gale-force winds arrive, isolating residents and visitors.

To combat these threats, the state relies on forecasting partners. The National Hurricane Center, the National Oceanic and Atmospheric Administration, and the National Weather Service provide Maine with days of advance notice regarding impending hurricane activity.

Primary Hazards

Coastal Flooding [Storm Surge and Waves] (High Risk) Storm surge poses a massive risk during hurricanes. High winds push water onshore to create an abnormal rise in seawater levels above the predicted astronomical tide. Coastline shape, storm track orientation, hurricane intensity, hurricane size, hurricane speed, and local bathymetry dictate the severity of the surge. The funneled bays and estuaries along the Maine coastline amplify these water heights and threaten communities' miles from the open ocean.

Hurricanes generate destructive coastal waves. Continuous winds blowing across the ocean surface create these disturbances. Extended periods of wind covering massive distances increase wave heights. Hurricanes remaining out to sea produce large swells with long periods between crests and inflict minimal damage. As hurricanes approach the shore, these waves batter the coastline to cause erosion, overtopping, flooding, and infrastructure damage.

Inland Flooding [Freshwater] (High Risk) Hurricanes cause inland flooding by inundating dry land with massive amounts of precipitation. Fast-moving systems drop between 6 and 12 inches of rain in a short period, while slower-moving storms produce greater totals. This volume of water overwhelms streams, rivers, and stormwater infrastructure to flood low-lying areas hundreds of miles from the coast.

The mountainous terrain in western Maine accelerates this runoff into river basins and causes severe flash floods. Major rivers crest days after the storm passes to prolong the hazard and complicate recovery efforts. In addition to the rising water, saturated soils increase the likelihood of landslides and tree falls.

Damaging Winds (Medium Risk) Wind speed dictates the classification of a hurricane. These storms generate powerful straight-line winds that cause severe damage based on the strength and approach angle of the system. Unlike tornadoes, these winds push debris in a single direction along the path of the storm. In Maine, rocky soils create shallow root systems within dense forests. Sustained winds uproot these vulnerable trees, block critical transportation corridors, and devastate overhead power infrastructure to cause prolonged statewide utility outages.

Thunderstorms & Lightning (Medium Risk) Convective summer thunderstorms produce intense cloud-to-ground lightning, localized heavy rain, and sudden wind shifts. This statewide hazard peaks during hot, humid summer afternoons and evenings. Historical impacts include the ignition of remote wildfires, localized power grid disruptions, damage to transformers, and lightning-strike casualties among outdoor workers, boaters, and recreationists. Warning times range from minutes to a few hours.

Microburst (Low Risk) Microbursts are intense, localized downdrafts within a thunderstorm that cause sudden, explosive straight-line wind damage radiating outward from the impact point. These occur statewide and result in devastating blowdowns of timber stands and damage to outbuildings and homes. Due to the severity of the destruction, the public often mistakes microbursts for tornadoes. Typical warning times span minutes, as they are often only detected via radar before or as they occur.

Tornadoes (Low Risk) Tornadoes are rapidly rotating columns of air extending from a severe thunderstorm to the ground, with Maine experiencing EF0 to EF2 tornadoes on the Enhanced Fujita scale. While a statewide vulnerability, they occur more frequently in the western foothills and central to southern interior counties. Impacts include localized destruction of structures, snapped or uprooted timber lines, and threats to life safety requiring immediate search and rescue responses within the direct path. Tornado Warnings provide minutes of advance notice.

Hazard Intensity and Probability

The Atlantic hurricane season runs from June 1 to November 30. The threat peaks on September 10 after summer heat warms the ocean waters. Hurricane return periods in Maine range from 29 years in the eastern region to 50 years in the midcoastal and Penobscot Bay areas. Over the past century, Category 1 hurricanes passed within 58 miles of these locations two to three times. Maine faces a 2 to 3.5 percent annual chance of a hurricane strike. Major hurricanes of Category 3 or greater strike southern and eastern Maine every 180 years and the midcoastal region every 290 years, presenting an annual probability between 0.3 and 0.6 percent.

Meteorologists use the Saffir-Simpson scale to determine the intensity of hurricanes. Sustained wind speeds dictate the scale rating, but this categorical system omits concurrent hazards. For example, a massive Category 1 hurricane produces expansive rainfall and widespread flooding damage that exceeds the impacts of a compact Category 2 system. Emergency managers classify hurricanes with sustained winds greater than 110 mph (Category 3, 4, and 5) as major hurricanes.

Systems falling below hurricane intensity can still produce catastrophic impacts. The Saffir-Simpson Hurricane Wind Scale utilizes a strict wind classification but fails to indicate storm surge, rainfall, or overall damage potential.

Table 1 Saffir-Simpson Hurricane Scale with excerpt of Beaufort Wind Scale for tropical depression category.

Category	Sustained Wind Speed	Effects
Tropical Depression	0 to 38 mph	Tropical disturbances originate in tropical waters
	Beaufort Scale 5 19-24 mph	Moderate waves (6-10 ft), small trees begin to sway
	Beaufort Scale 6 25-31 mph	Large waves (9-13 ft), large branches in motion
	Beaufort Scale 7 32-38 mph	High wind, moderate gale, Large 13-19 ft waves, sea "heaps up," large trees in motion
Tropical Storm	Winds: 39-73 mph	Sustained winds capable of causing structural damage
Strong Tropical Storm: winds ≥ 58 mph, threshold for damaging winds		
Category 1	Winds: 74–95 mph	Very dangerous winds will produce some damage
Category 2	Winds: 96–110 mph	Extremely dangerous winds will cause extensive damage
Category 3	Winds: 111–129 mph	Devastating damage will occur
Category 4	Winds: 130–156 mph	Catastrophic damage will occur
Category 5	Winds: 157+ mph	Catastrophic damage will occur

SECTION 6: Critical Information Requirements & Essential Elements of Information

Hurricanes are complex incident types that generate multiple cascading hazards, such as severe wind, inland flooding, and coastal storm surge. To account for this complexity, the Critical Information Requirements (CIRs) in this section remain exclusively hazard-specific, while the Essential Elements of Information (EEIs) fall into categories of universal storm impacts and specific localized hazards. These data points supplement the standard metrics outlined in **Emergency Operations Plan – Annex B: SEOC Procedures**.

As an event escalates and distinct threat profiles emerge, the SEOC Manager directs Emergency Response Team members to focus information gathering and reporting on the CIRs and EEIs relevant to those active hazards.

(**Note:** Universal CIRs, such as overarching Threats to Life/Safety, Mass Casualties, and broad Transportation/Communications failures, reside under the State's Overall EOP CIRs and do not appear in this hazard-specific appendix).

Universal Hurricanes & Tropical Storms EEIs

The following EEIs apply across the entire incident area, regardless of the specific localized hazard.

- **Damage Reports:** Initial and ongoing reports of structural damage to properties and infrastructure, including the volume and type of debris (e.g., trees on homes/vehicles, debris requiring clearance).
- **Road/Bridge Closures:** Real-time status of state and local roads or bridges closed due to flooding, downed trees, lines, or debris.
- **Power Outage Details:** Number of customers affected by utility, broken down by county/town, and the estimated time of restoration.
- **Search, Rescue & Evacuations:** Locations and numbers of active search/rescue operations (e.g., swift water or debris entrapment), the number of people evacuated, and current shelter locations/capacities.
- **Incident Casualties:** Number of confirmed injuries and fatalities directly attributable to the storm and its cascading hazards.

- **Resource Needs:** Requests for specialized State or mutual aid assets (e.g., high-water vehicles, swift water rescue teams, dewatering pumps, chainsaw crews, urban search and rescue, or heavy equipment).

Hazard-Specific CIRs and EEIs

The following requirements are specific to the localized cascading hazards generated by the storm system.

HAZARD: Coastal Flooding

- **CIR - Impact on Coastal Communities:** Are multiple coastal towns or significant population centers experiencing inundation requiring mass evacuation or rescue?
- **CIR - Critical Infrastructure Compromise:** Are major coastal roads (e.g., Route 1, critical bridges), ports, or utility infrastructure significantly damaged or inoperable?
- **EEI - Tide Levels:** Actual and forecast tide levels (in feet above Mean Lower Low Water) and comparison to flood stages.
- **EEI - Areas Inundated:** Specific towns, neighborhoods, and critical facilities actively impacted by coastal flooding and storm surge.

HAZARD: Inland Flooding

- **CIR - River Basin Status:** Are multiple major river basins (e.g., Kennebec, Penobscot, Androscoggin) at or above major flood stage, impacting multiple counties?
- **CIR - Population Displacement:** Are widespread evacuations occurring, leading to significant numbers of displaced persons requiring mass care?
- **CIR - Dam Stability:** Are there any reports or concerns about the stability or overtopping of major dams?
- **EEI - River Gauge Readings:** Current and forecast river levels (in feet) at specific U.S. Geological Survey gauges, compared to minor, moderate, and major flood stages.
- **EEI - Affected Communities:** List of inland towns/cities currently experiencing or forecast to experience significant riverine or flash flooding.

- **EEI - Public Water Supply Status:** Any public water systems compromised or impacted by floodwaters or loss of power.

HAZARD: Damaging Winds

- **CIR - Widespread Power Outages:** What percentage of the state population is without power across multiple counties, and are restoration estimates prolonged?
- **CIR - Transportation Disruption:** Are multiple major roads impassable due to downed trees or power lines across wide areas?
- **CIR - Property Damage Severity:** Is there widespread, significant property damage (e.g., missing roofs, severe structural damage) across multiple communities?
- **EEI - Observed Wind Gusts:** Specific locations and maximum wind gusts (in mph) reported by official stations or trained spotters.

HAZARD: Thunderstorms & Lightning

- **CIR - Widespread Activity:** Is there widespread severe thunderstorm activity (multiple warnings) across significant portions of the state?
- **CIR - Significant Power Outages:** Are lightning strikes or strong winds causing significant power outages (e.g., >10% of a county's customers)?
- **CIR - Flash Flooding:** Is widespread flash flooding occurring, impacting multiple communities or critical infrastructure?
- **EEI - Warning Status:** Number and location of active Severe Thunderstorm Warnings and Flash Flood Warnings.
- **EEI - Lightning Activity:** Real-time lightning strike density and locations from the National Weather Service Lightning Detection Network.
- **EEI - Observed Impacts:** Specific reports of strong winds (mph), hail size, and heavy rain (inches per hour) from trained spotters and the public.
- **EEI - Flash Flood Reports:** Specific locations of rapidly flooded roads, water over roadways, or water entering structures.

HAZARD: Microburst

- **CIR - Widespread Damage:** Is there widespread, highly localized, and severe wind damage (e.g., numerous downed trees, multiple damaged roofs) across multiple communities within a distinct path?
- **CIR - Power Outage Impact:** Are significant power outages concentrated specifically within the microburst path, with prolonged restoration expected?
- **EEI - Impacted Locations:** Specific towns, neighborhoods, and streets isolated within the microburst damage path.
- **EEI - Wind Speed Estimation:** National Weather Service estimated peak wind speeds within the specific damage path.

HAZARD: Tornado

- **CIR - Confirmed Tornado:** Is a confirmed tornado (not just a funnel cloud) causing significant damage across multiple communities?
- **CIR - Path of Destruction:** Is there a clear, continuous path of severe damage impacting populated areas or critical infrastructure?
- **CIR - Resource Strain:** Are local search and rescue, Emergency Medical Services, and utility resources overwhelmed, requiring significant state support?
- **EEI - Tornado Path/Length:** Estimated path length, width, and a sequential list of specific communities impacted.
- **EEI - EF-Scale Rating:** Preliminary estimated Enhanced Fujita (EF) scale rating of the tornado damage provided by the National Weather Service.

SECTION 7: Key Terms

Boil Water Advisory: A public health directive advising residents to boil tap water for at least one minute before consumption due to suspected microbiological contamination caused by floodwaters.

Coastal Flood Warning: An urgent alert issued by the National Weather Service when moderate to major coastal flooding is occurring or imminent. This level of flooding poses a serious risk to life and property along the coastline, requiring immediate evacuation from low-lying areas and resulting in the closure of coastal roads.

Cone of Uncertainty: A graphic showing the probable track of a storm center based on forecast errors. The storm center falls outside the cone one third of the time. The cone does not represent storm size, wind extent, or area of impact.

Cooling Center: An air-conditioned public facility opened to provide relief during extreme heat waves. Centers provide hydration and refuge to prevent heat-related illnesses for those lacking residential cooling.

Critical Facility: A structure or activity for which even a slight threat of disruption is unacceptable due to its role in life safety or governance. Typical facilities include hospitals, fire stations, police stations, and repositories for critical records. These facilities require higher levels of protection to ensure the continued provision of essential services during and after a hazard event.

Critical Infrastructure: Physical or virtual systems and assets so vital that their incapacity or destruction results in a debilitating impact on security, the economy, public health, or safety. Examples include public water systems, primary data storage facilities, chemical plants, power generation facilities exceeding 2,000 MW, nuclear power plants, and major underground utility supplies.

Excessive Heat Warning: An alert issued by the National Weather Service when the maximum heat index is expected to be 105°F or higher for at least two consecutive days, and nighttime temperatures remain above 75°F. This prolonged lack of nighttime cooling drastically increases heat stroke risks.

Extreme Wind Warning: An alert indicating that sustained winds of 115 mph or greater, typically associated with the eyewall of a major hurricane, are expected within one hour.

Flash Flood Warning: An urgent, short-fuse warning issued by the National Weather Service when a flash flood is imminent or occurring. A flash flood is a sudden, violent flood that develops in a timeframe ranging from a few minutes to a few hours.

Flash Flood Watch: An alert issued when atmospheric conditions are favorable for the development of flash floods within a specified area.

Flood Warning: An alert issued by the National Weather Service when generalized flooding is imminent or occurring. This warning applies to a specific river basin, stream network, or larger geographical area where a predictable, slow-rising flood event is unfolding.

HURREVAC: A decision-support tool used by emergency managers to calculate hurricane evacuation clearance times and inform evacuation timing decisions.

Hurricane Warning: An alert indicating that hurricane conditions are expected within a specified area, generally within 36 hours of the onset of tropical storm force winds.

Hurricane Watch: An alert indicating hurricane conditions are possible within a specified area, generally within 48 hours of the onset of tropical storm force winds.

Hurricane: An intense tropical cyclone with a well-defined circulation producing maximum sustained winds of 74 mph or greater.

Major Hurricane: A tropical cyclone with maximum sustained winds of 111 mph or greater, corresponding to Category 3, 4, or 5 on the Saffir-Simpson Hurricane Wind Scale.

Saffir-Simpson Hurricane Wind Scale: A 1-5 scale based solely on maximum sustained winds. It is not a damage or surge scale and should not be used as the sole basis for protective action decisions.

Severe Thunderstorm Warning: An alert issued when a thunderstorm produces, or is expected to produce, wind gusts of 58 mph or greater and hail one inch in diameter or larger. These storms present immediate hazards to outdoor events and power distribution networks due to downed trees and frequent lightning.

Storm Surge Warning: An alert indicating a high danger of life-threatening coastal inundation expected within 36 hours. This signals the need to finalize preparedness and evacuation actions.

Storm Surge Watch: An alert indicating a possibility of life-threatening coastal inundation expected within 48 hours. This serves as an initial trigger for staging resources and preparing public warning campaigns.

Storm Surge: An abnormal, destructive rise of ocean water above predicted astronomical tides, driven by severe storm winds and low pressure. This surge acts as a bulldozer, causing severe structural damage and extreme coastal erosion, and it can occur ahead of the arrival of peak winds.

Tornado Warning: An alert issued by local National Weather Service offices when a tornado is sighted by observers or indicated by radar. The warning includes the present location and the anticipated path of the tornado.

Tornado Watch: An alert issued when atmospheric conditions are favorable for the development of tornadoes within a specified area and timeframe.

Tropical Depression: An organized system of thunderstorms with a defined circulation and maximum sustained winds of less than 39 mph.

Tropical Storm Warning: An alert indicating tropical storm conditions, including winds from 39 to 73 mph, are expected in a specified area within 36 hours.

Tropical Storm Watch: Issued when tropical storm conditions, including winds from 39 to 73 mph, pose a possible threat to a specified coastal area within 48 hours.

Tropical Storm: An organized system of thunderstorms with a defined circulation and maximum sustained winds of 39 to 73 mph.

Tropical Wave/Disturbance: A discrete tropical weather system of organized or disorganized thunderstorms, typically 100 to 300 miles in diameter, which maintains its identity for at least 24 hours.

SECTION 8: Resources

NATIONAL RESOURCES

National Hurricane Center (NHC) [nhc.noaa.gov]: The NHC provides public advisories, forecast discussions, the cone of uncertainty, wind speed probabilities, storm surge inundation maps, and all official tropical cyclone products.

National Hurricane Center (NHC) Probabilistic Storm Surge (P-Surge) [nhc.noaa.gov]: The NHC releases this model following each advisory to account for track, intensity, size, and tidal uncertainties. Planners use the 10 percent exceedance product for conservative planning.

National Oceanic and Atmospheric Administration (National Oceanic and Atmospheric Administration) Tides and Currents [tidesandcurrents.noaa.gov]: This site reports real time water levels at tide gauge stations in Portland, Bar Harbor, Cutler, and Eastport. Personnel use this primary resource to observe storm surge.

Environmental Sensor Map [sensors.ioos.us]: This map integrates regional, national, and global data gathered over the past four hours by sensors on buoys and fixed moorings. The data originates from a broad spectrum of local and national resources throughout the United States.

Integrated Ocean Observing System Model Viewer [eds.ioos.us]: This viewer allows personnel to examine, analyze, and access integrated model output from federal and nonfederal partners. Users view several modeled variables together in a map-based environment and generate time series plots of the output. The site also displays real time observations for comparison purposes.

REGIONAL RESOURCES

MARACOOS – Mid-Atlantic Regional Association Coastal Ocean Observing System [maracoos.org/storm-resource-center]: MARACOOS provides a storm map featuring near real time visualizations and links to neighboring regions and national information centers. The site offers premade storm related permalinks and interactive dashboards for all users.

NERACOOS – Northeastern Regional Association of Coastal Ocean Observing Systems [neracoos.org]: NERACOOS provides a range of data sets originating from a network of buoys, high frequency radars, monitoring stations, models, and other ocean observing assets. The collected data covers regional marine conditions from the New York Bight to the Canadian Maritime Provinces.

SECOORA – Southeast Coastal Ocean Observing Regional Association [secoora.org]: SECOORA provides direct access to a southeastern United States storm data portal. The hub includes links to buoy, glider, and water level data along with forecasts, storm surge models, and other products from partners throughout the region.

Webcam Coastal Observation System [webcoos.org]: SECOORA and its partners operate this network of coastal webcams. The cameras offer recent and up-to-the-minute views of coastal conditions before, during, and after a hurricane passage. The network continues to expand coverage in coastal regions across the country.

LOCAL RESOURCES

Central Maine Power and Versant Outage Maps [cmpco.com/outage and versantpower.com/outage-center]: These maps display real time power outage counts by county and municipality.

HURREVAC [hurrevac.com]: (Short for **Hurr**icane **Evac**uation) This storm tracking and decision support tool models evacuation clearance times. Planners use HURREVAC to structure county evacuation decision timelines because it incorporates Maximum Envelope of Water (potential storm surge for a storm category) and Hurricane Evacuation Study data specific to Maine.

Maine Hurricane Evacuation Study [Available via the HURREVAC library]: MEMA provides access to this study, which details county level evacuation zones, shelter needs estimates, and clearance time data.

Appendix 4: Flooding

SECTION 1: Overview

Purpose

Flooding is one of Maine's most frequent and destructive natural disasters, threatening infrastructure, property, and local economies. This appendix details how state agencies and partners coordinate their response to these severe events. It addresses a spectrum of flood risks, including inland freshwater flooding, such as riverine overflows, flash floods, and ice jams, alongside coastal inundation driven by storm surges and extreme high tides. Because flood conditions escalate with little warning, the response demands the immediate deployment of life-saving resources, efforts to restore disrupted transportation networks, action to address contaminated water supplies, and the safeguarding of displaced populations.

Scope

This appendix applies to state agencies and partners assigned Emergency Response Team responsibilities by the Governor’s Executive Order. It outlines the sustained coordination required to manage complex flood hazards. Specific operations include mobilizing high-clearance water vehicles, supporting municipal sandbagging efforts, coordinating evacuations with county officials, monitoring dam and levee integrity, and executing boil water advisories for compromised systems. This structured approach ensures a scaled response, targeted resource delivery, and consistent coordination across all levels of government.

Consequence Analysis

The Flooding Consequence Analysis belongs to the Maine Emergency Operations Plan’s Annex A, Hazards and Threats Risk Assessment, and the associated Risk Register. The evaluation emphasized the individual types of hazards that relate to this incident to allow a tailored response. These include Inland Freshwater Flooding and Coastal Flooding / Storm Surge. **Section 5: Event Profile** provides additional information on the mechanics and impacts of each hazard.

SECTION 2: Concept of Operations

SEOC and Emergency Operations Plan Integration

This appendix supports the Emergency Operations Plan, Base Plan and related annexes. Standard SEOC activation levels and reporting chains remain in effect. MEMA handles events using the hybrid incident command structure without initial alteration, although combined hazard responses, multi-county impacts, or Policy Group intervention can change this. Key missions include mass evacuation, mass sheltering, commodities distribution, search and rescue, debris management, and fatality management.

Effective flood response requires tracking hydrological data and adjusting operations as water levels fluctuate. Large riverine and coastal flood events offer predictive lead time through upstream gauge data and tide charts, but flash floods can occur with zero advance notice. The MEMA Director determines the SEOC activation level using National Weather Service Quantitative Precipitation Forecasts, U.S. Geological Survey real-time river gauge telemetry, and the anticipated threat to Community Lifelines. Once activated, the SEOC coordinates public messaging to amplify safety directives, tracks asset deployment, and monitors the structural integrity of bridges, culverts, and dams.

Special Procedural Issues

Several procedural and environmental issues complicate the response to flooding events in Maine:

- **Rapid Onset vs. Slow Rise:** The SEOC coordinates state-level support while county agencies manage tactical deployments. A slow-rising flood event along major rivers like the Penobscot or Kennebec allows counties to conduct planned evacuations, relocate equipment, and build sandbag defenses. The SEOC monitors these local actions, coordinates resource fulfillment, and prepares federal assistance documentation. Flash flooding presents the opposite challenge. With zero warning, county responders assume high-risk tactical postures while the SEOC provides crisis support, expedites emergency resource requests, and monitors rescue operations.

- **Transportation Washouts and Deep Isolation:** Floodwaters wash out rural roads and destroy culverts, isolating communities by severing entry and exit routes. This isolation prevents Emergency Medical Services from reaching patients, halts local supply chains, and requires the deployment of Maine National Guard aviation or high-clearance assets to deliver life-sustaining commodities to trapped residents.

- **Severe Environmental and Public Health Hazards:** Floodwaters present a biological and chemical threat to the public. These waters overwhelm municipal wastewater treatment plants and discharge sewage into public streets and waterways. Rushing currents dislodge residential heating oil tanks and industrial chemical drums, creating hazardous material slicks. Post-flood recovery requires environmental mitigation, mold remediation in homes, and boil-water advisories for compromised municipal systems and private wells.

- **Dam and Infrastructure Integrity:** Prolonged inland flooding places hydrostatic pressure on Maine's network of dams and levees. To manage this threat, the SEOC coordinates with MEMA Dam Safety Program staff, local emergency managers, and private dam operators to monitor spillway releases, evaluate structural stress, and prepare for downstream inundation should a breach occur.

Severe Flooding Response

While each flood presents unique challenges, the SEOC manages several cross-cutting operational responses. Upon activation, the state prioritizes life safety by coordinating with the Maine Department of Inland Fisheries and Wildlife and the Maine State Police to deploy swift-water rescue teams, flat-bottom boats, and high-water vehicles. The state supports the Maine Department of Transportation in staging barricades to prevent motorists from driving into deep water and assessing bridge scour damage. The SEOC also synchronizes mass care efforts with non-governmental organizations and county agencies to open and supply temporary shelters for evacuated residents. Throughout the event, the Maine Department of Environmental Protection tracks and mitigates hazardous material spills caused by displaced fuel tanks and flooded industrial sites.

SECTION 3: Organization and Responsibilities

Lead Agency

MEMA acts as the lead coordinating agency for the state's response to severe flooding events. The agency activates and staffs the SEOC, coordinates multi-agency and cross-jurisdictional resource requests, maintains situational awareness through hydrological monitoring, and synchronizes life-saving public information through a Joint Information Center. These coordinated resource requests include the movement of high-capacity water pumps, thousands of sandbags, and mutual aid rescue teams.

Supporting Agencies

State agencies follow Emergency Operations Plan, Base Plan directives and execute tasks through the Community Lifeline framework to ensure a unified response. These functional responsibilities include:

- **Safety & Security Lifeline:** MEMA manages the SEOC and statewide situational awareness. The Maine Department of Inland Fisheries and Wildlife (Maine Warden Service) and the Maine Department of Marine Resources (Marine Patrol) conduct inland and coastal swift-water rescues. The Maine State Police enforces road closures and secures evacuated zones. The Maine National Guard deploys high-water vehicles and aviation hoist assets to access isolated communities and extract stranded individuals.
- **Food, Hydration, & Shelter Lifeline:** The MEMA Mass Care Program and partner nonprofits track regional shelter capacities, coordinate the distribution of emergency supplies, and support local shelter operations for displaced residents.
- **Health & Medical Lifeline:** The Maine Center for Disease Control and Prevention (Maine CDC) monitors for waterborne diseases, coordinates tetanus vaccination campaigns for debris cleanup personnel, and ensures critical healthcare facilities in flood zones maintain evacuation or shelter-in-place plans.
- **Water Systems Lifeline:** The Maine CDC Drinking Water Program monitors municipal supplies for contamination and issues boil-water advisories. The Maine Department of Environmental Protection monitors wastewater treatment facilities for sanitary sewer overflows and potential system inundations.

- **Energy Lifeline:** The Maine Department of Energy Resources and MEMA utility liaisons coordinate with major utilities to de-energize flooded grid sectors to prevent electrocution hazards. Post-event, they prioritize power restoration to municipal pumping stations, hospitals, and water treatment facilities.

- **Communications Lifeline:** The MEMA Communications Office coordinates with telecommunications providers to monitor damage to fiber optic hubs and cell towers, establishing priority access for crews to refuel backup generators and maintain 911 routing services. MEMA operates the Emergency Alert System and sends Wireless Emergency Alerts to broadcast instructions.

- **Transportation Lifeline:** The Maine Department of Transportation leads the protection and recovery of the state transportation network. They implement road closures, inspect bridges for scour damage, and manage the contracting required to repair washed-out culverts and highways.

- **Hazardous Material Lifeline:** The Maine Department of Environmental Protection deploys environmental response teams to track, contain, and mitigate hazardous material spills within floodwaters, such as floating residential heating oil tanks, propane tank breaches, and commercial chemical releases.

SECTION 4: Operational Phases and Decision Points

The state scales its operations based on predictive hydrological forecasts and National Weather Service alerting cycles. The following phases align SEOC actions with the anticipated flood timeline:

Phase 1: Readiness & Monitoring (72 - 96 Hours Pre-Onset)

- **Trigger:** National Weather Service forecasts indicate heavy, prolonged rainfall, rapid spring snowmelt, or high astronomical tides combined with approaching storm surge.
- **Actions:** The MEMA Director adjusts the SEOC activation level to Level 3-Enhanced Monitoring. MEMA continuously reviews U.S. Geological Survey river gauge telemetry and tide charts to anticipate crest times. Initial coordination calls are held with the Maine Department of Transportation, Maine Department of Environmental Protection, and the MEMA Dam Safety Program to establish baseline readiness. The Resource Management Coordinator verifies physical counts of sandbag stockpiles and the operational status of high-capacity pumps to ensure resources are ready for immediate deployment.

Phase 2: Activation & Pre-Positioning (24 - 48 Hours Pre-Onset)

- **Trigger:** National Weather Service officially issues Flood Watches, Flash Flood Watches, or Coastal Flood Watches for vulnerable regions.
- **Actions:** The MEMA Director changes the level of the SEOC to Level 2-Partial Activation or Level 1-Full Activation. Selected Emergency Response Team members deploy to the SEOC. State managed rescue teams are placed on strict operational standby. Maine Department of Transportation strategically pre-positions barricades and heavy equipment near historically vulnerable roads to expedite closures. Coordinated evacuation warnings are drafted and issued for high-risk floodplains and coastal zones.

Phase 3: Response & Life Safety Operations (0 - 24 Hours / Event Onset)

- **Trigger:** National Weather Service Warnings are active; rivers are cresting or violent flash flooding is actively occurring.
- **Actions:** During a severe flood, SEOC operations prioritize the coordination of life-saving resources. County emergency responders conduct the physical deployment of swift-

water teams to extract trapped individuals, while the SEOC tracks mission progress and facilitates mutual aid requests. The Maine Department of Transportation secures compromised roads and bridges to prevent civilian casualties. To sustain the response, the SEOC synchronizes mass care logistics for displaced residents, amplifies warnings about the hazard of driving through floodwaters, and provides actionable updates on road washouts.

Phase 4: Sustained Recovery (Post-Event)

- **Trigger:** Floodwaters safely recede below major flood stage, allowing for ground access.
- **Actions:** Operations pivot from life safety to damage assessment and environmental mitigation. The Maine Department of Transportation rigorously inspects bridges for hidden scour damage before reopening them. The Maine Department of Environmental Protection manages widespread, complex hazmat cleanups (particularly residential oil/propane). Maine CDC manages the issuance and lifting of boil-water advisories. State teams begin conducting Preliminary Damage Assessments to support potential Federal Emergency Management Agency disaster declaration requests.

SECTION 5: Critical Information Requirements & Essential Elements of Information

Severe flooding primarily impacts the transportation, water systems, and hazardous materials lifelines. To address these impacts, this section outlines hazard-specific Critical Information Requirements (CIRs) and categorizes Essential Elements of Information (EEIs) into universal impacts and localized hazards. These data points supplement the standard metrics outlined in **Emergency Operations Plan – Annex B: SEOC Procedures**.

As an event escalates and distinct threat profiles emerge, the SEOC Manager directs Emergency Response Team members to focus information gathering and reporting on the CIRs and EEIs relevant to those active hazards.

(**Note:** Universal CIRs, such as overarching Threats to Life/Safety, Mass Casualties, and broad Transportation/Communications failures, reside under the State's Overall EOP CIRs and do not appear in this hazard-specific appendix).

Universal Flooding EEIs

The following EEIs apply across the entire incident area.

- **Road/Bridge Washouts:** Verified status of state highways, local roads, and bridges closed due to inundation or structural washouts.
- **Shelter Status:** Geographic locations, capacities, current populations, and unmet needs of open emergency shelters.
- **Wastewater/Water Systems Status:** Real-time operational status of municipal drinking water facilities and wastewater treatment plants.
- **Rescue Operations:** Number and location of active swift-water or boat rescues and outstanding mutual aid requests.
- **Hazmat Incidents:** Verified number, severity, and location of reported environmental spills (e.g., floating oil tanks, chemical releases).

Hazard-Specific CIRs and EEIs

The following requirements are specific to the distinct types of flooding events.

HAZARD: Inland Freshwater Flooding (Riverine, Flash, Ice Jam)

- **CIR - Riverine Threat:** Are major river systems projected by the National Weather Service to exceed "Major Flood Stage," threatening catastrophic inundation of downstream communities?
- **CIR - Infrastructure Failure:** Are any dams or levees at immediate risk of structural failure, overtopping, or uncontrolled breaching?
- **CIR - Community Isolation:** Have rising floodwaters or washed-out bridges isolated communities, preventing ground-based Emergency Medical Service and supply access?
- **EEI - USGS Telemetry:** Real-time measured water levels, flow rates, and projected crest times from USGS river gauges.
- **EEI - Dam Release Rates:** Current operational status and planned emergency spillway release rates from major dam operators.
- **EEI - Ice Jam Locations:** GPS coordinates, estimated size, and shifting status of dangerous river ice jams.

HAZARD: Coastal Flooding & Storm Surge

- **CIR - Inundation Threat:** Is the forecasted peak storm surge expected to coincide directly with astronomical high tides, necessitating mandatory coastal evacuations?
- **CIR - Island Isolation:** Have causeways, ferry terminals, or bridges to vulnerable island communities been severed or rendered structurally unsafe?
- **CIR - Maritime Infrastructure:** Is major commercial maritime infrastructure (ports, working waterfronts) sustaining catastrophic damage?
- **EEI - Surge Projections:** Forecasted peak storm surge levels (in feet) above Mean Higher High Water.
- **EEI - Tide Timings:** Exact, verified timing of upcoming cyclical high and low tide events for affected coastal zones.
- **EEI - Evacuation Compliance:** Estimated civilian compliance rates of populations ordered to evacuate designated coastal zones.

SECTION 6: Event Profile

Flooding in the State of Maine follows a complex interaction of rugged geography, shifting seasonal weather patterns, and coastal dynamics. Because Maine features vast river basins that empty into intricate coastal estuaries, heavy precipitation events create compounding downstream effects. The following profiles detail the specific flood threats identified in the Hazard and Threat Analysis and outline the operational challenges they present to emergency managers.

Inland Freshwater Flooding (High Risk). Inland flooding is categorized into three highly dangerous phenomena:

1. **Riverine Flooding:** This phenomenon occurs during the annual "spring freshet," when rapid snowpack melting combines with heavy seasonal rainfall over ground that remains frozen or saturated. Major waterways, such as the Kennebec, Penobscot, and Androscoggin rivers, overflow their banks. While riverine flooding is slow-rising and predictable due to river gauge telemetry, it causes widespread and prolonged inundation. This leads to economic disruptions, including delayed agricultural planting, extended closures of downtown business districts, and hydrostatic strain on municipal wastewater infrastructure.

2. **Flash Flooding:** Slow-moving summer thunderstorms and the moisture-heavy remnants of hurricanes generate flash floods by depositing localized rain in a short timeframe. These floods strike with zero warning. Maine's mountainous terrain channels this runoff, turning small streams and dry creek beds into fast-moving torrents. These high-velocity waters wash out roads, undermine bridge abutments, and sweep away passenger vehicles, forcing first responders into high-risk life-safety missions.

3. **Ice Jam Flooding:** An ice jam acts as an unpredictable winter and spring hazard. It occurs when thick chunks of river ice break apart and bottleneck at physical choke points, including sharp river bends, shallow shoals, or bridge supports. The blocked river backs up behind this temporary ice dam, causing sudden and localized flooding upstream. If the pressure causes the jam to rupture, a flash flood surges downstream. These blocks of ice act as mechanical battering rams, obliterating docks, moored vessels, and critical bridge piers.

Coastal Flooding / Storm Surge (High Risk). Maine's coastline faces vulnerability to coastal flooding driven by slow-moving Nor'easters in the winter and the remnants of hurricanes in the late summer and fall. The risk to coastal infrastructure magnifies when wind-driven storm surge, an abnormal rise of ocean water pushed inland by storm winds, coincides with a King Tide.

This combination pushes volumes of ocean water into coastal communities. The force of the surge, compounded by destructive wave action, destroys commercial fishing piers, severs low-lying causeways to island communities, accelerates coastal land erosion, and causes saltwater intrusion into municipal drinking wells. These events also inundate major economic hubs, such as Portland's working waterfront, paralyzing the maritime supply chain.

Flood Severity and Intensity Categories

The SEOC measures the immediate operational intensity of flooding using official National Weather Service severity categories to maintain a common operating picture:

- **Minor Flooding:** Minimal property damage occurs. Primary threats are public nuisance, such as the temporary inundation of secondary dirt roads, public parks, and known low-lying agricultural fields. There is typically no immediate threat to life safety, though minor traffic detours may be required.

- **Moderate Flooding:** Damaging inundation of residential structures and paved roads near streams and coastlines begins to occur. Floodwaters may breach residential basements or low-elevation commercial spaces. Localized, targeted evacuations of vulnerable populations and the transfer of valuable property (vehicles, livestock) to higher elevations become necessary, prompting the activation of municipal shelters.

- **Major Flooding:** Extensive, catastrophic, and deep inundation of residential structures, commercial districts, and primary transportation arteries (including state highways). Significant, widespread, and formally mandated evacuations are required to preserve life safety. Communities may face multi-day isolation due to structural collapses.

- **Record Flooding:** Flooding that equals or exceeds the highest documented water stage or volumetric discharge ever previously observed at a specific geographic location. This represents an unprecedented, highly destructive event requiring massive mutual aid support, federal intervention, and long-term recovery phases spanning months or years.

SECTION 7: Key Terms

100-Year Flood (Base Flood): A severe flood event calculated to have a 1 percent chance of being equaled or exceeded in any given year, based on historical data and predictive modeling. **Note:** A 100-year flood can occur more than once in a century.

Boil Water Advisory: A public health directive advising residents to boil tap water for at least one minute before consumption due to suspected microbiological contamination caused by floodwaters.

Coastal Flood Warning: An urgent alert issued by the National Weather Service when moderate to major coastal flooding is occurring or imminent. This level of flooding poses a serious risk to life and property along the coastline, requiring immediate evacuation from low-lying areas and resulting in the closure of coastal roads.

Critical Infrastructure: Physical or virtual systems and assets so vital that their incapacity or destruction results in a debilitating impact on security, the economy, public health, or safety. Examples include public water systems, primary data storage facilities, chemical plants, power generation facilities exceeding 2,000 MW, nuclear power plants, and major underground utility supplies.

Critical Facility: A structure or activity for which even a slight threat of disruption is unacceptable due to its role in life safety or governance. Typical facilities include hospitals, fire stations, police stations, and repositories for critical records. These facilities require higher levels of protection to ensure the continued provision of essential services during and after a hazard event.

Flash Flood Warning: An urgent, short-fuse warning issued by the National Weather Service when a flash flood is imminent or occurring. A flash flood is a sudden, violent flood that develops in a timeframe ranging from a few minutes to a few hours.

Flood Warning: An alert issued by the National Weather Service when generalized flooding is imminent or occurring. This warning applies to a specific river basin, stream network, or larger geographical area where a predictable, slow-rising flood event is unfolding.

Hydrostatic Pressure: The pressure exerted by a fluid at rest due to the force of gravity. During floods, standing or slow-moving water places outward and downward force against infrastructure, increasing the risk of a structural breach or collapse.

River Gauge: A scientific monitoring device operated by the U.S. Geological Survey that measures and transmits water levels and volumetric flow rates in real time. This provides crucial data for flood forecasting and response.

Storm Surge: An abnormal, destructive rise of ocean water above predicted astronomical tides, driven by severe storm winds and low pressure. This surge acts as a bulldozer, causing severe structural damage and extreme coastal erosion, and it can occur ahead of the arrival of peak winds.

Storm Surge Warning: An alert indicating a high danger of life-threatening coastal inundation expected within 36 hours. This signals the need to finalize preparedness and evacuation actions.

Storm Surge Watch: An alert indicating a possibility of life-threatening coastal inundation expected within 48 hours. This serves as an initial trigger for staging resources and preparing public warning campaigns.

SECTION 8: Resources

NATIONAL RESOURCES

National Weather Service (NWS) Forecast Offices (weather.gov/car and weather.gov/gyx): The primary source for localized flood watches, warnings, and quantitative precipitation forecasts for Maine.

USGS National Water Dashboard (dashboard.waterdata.usgs.gov): An interactive map providing real-time telemetry data from river gauges across Maine, essential for tracking riverine flood stages.

National Oceanic and Atmospheric Administration National Water Center (water.noaa.gov): Provides comprehensive national water analyses, predictive models, and long-range flood forecasting tools.

US Army Corps of Engineers (USACE) - New England District (nae.usace.army.mil): Provides high-level engineering expertise and technical assistance for levee and dam structural integrity assessments.

STATE & LOCAL RESOURCES

MaineDOT New England 511 (newengland511.org): The primary public awareness tool for tracking real-time emergency road closures and bridge washouts during flood events.

MEMA Dam Safety Program (www.maine.gov/mema/hazards/dam-safety): Responsible for maintaining the master inventory of Maine dams and providing expert technical assessments during severe rain events.

Maine Floodplain Management Program (www.maine.gov/moca/programs/floodplain-management-program): Provides state-specific floodplain mapping and technical assistance to local municipalities regarding flood risk and mitigation.

Appendix 5: Drought

SECTION 1: Overview

Purpose

The Drought Appendix defines specific actions and multi-agency roles for a coordinated state response to severe and prolonged drought conditions. Unlike rapid-onset hazards, droughts are insidious creeping disasters characterized by a prolonged, compounding period of low precipitation that damages municipal water supplies, commercial agriculture, and the environment. Effective response demands the long-term, sustained coordination of water management strategies, agricultural support programs, and the monitoring of public reservoirs.

Scope

This appendix applies to state agencies and partners assigned Emergency Response Team responsibilities by the Governor's Executive Order. It outlines the sustained response coordination required for complex drought hazards over an extended timeframe. This includes convening the State Drought Task Force to analyze hydrological data, assessing compounding agricultural and economic impacts, and coordinating phased voluntary or mandated water conservation measures. Furthermore, it details the logistical management of emergency drinking water distribution for populations experiencing dry wells and mitigating the secondary risk of rapid-onset wildland fires caused by depleted soil moisture.

Consequence Analysis

The Drought Consequence Analysis resides in Annex A - Hazards and Threats Risk Assessment and its associated Risk Register. It assesses the state's baseline vulnerability to prolonged precipitation deficits to tailor specific, phase-driven response efforts. This analysis remains crucial for balancing the competing survival needs of strained municipal water systems, impacted commercial agricultural sectors reliant on irrigation, and environmental conservation efforts for threatened watersheds. **Section 5: Event Profile** contains detailed event profiles and historical hazard contexts.

SECTION 2: Concept of Operations

SEOC and Emergency Operations Plan Integration

This appendix supports the Emergency Operations Plan, Base Plan and related annexes. Standard SEOC activation levels and reporting chains remain in effect. The MEMA hybrid incident command structure manages all events.

Drought response relies on the tracking of environmental data and the phased implementation of mitigation strategies. Because conditions deteriorate over weeks or months, the MEMA Director evaluates and escalates SEOC activation based on intelligence gathered from the U.S. Drought Monitor, U.S. Geological Survey streamflow and groundwater observation networks, and long-range forecasts from the National Weather Service. Upon activation, the SEOC coordinates public messaging campaigns regarding water conservation, manages reports of dry residential wells to identify vulnerable zones, and supports the distribution of agricultural relief to affected farming communities.

County and Local Government Response

County and Local governments or water suppliers, either independently or in conjunction with Maine Department of Environmental protection, Maine Public Utilities Commission, and/or Maine CDC are responsible for the management of their water systems to ensure that they can provide sufficient supply to meet essential needs. Key functions include:

- Ensuring local suppliers have working emergency response plans that include plans for drought response and existing and potential emergency water supply identification; and
- Educating the public and elected officials at the local level on options, if necessary, to impose water restrictions and conservation measures early in order to manage demand and avoid severe deficits, pressure problems, or water quality issues to the greatest extent possible.

Though this drought plan is intended to coordinate state agencies as they work with local governments and federal partners to assess and respond to drought conditions, state agencies recognize the fundamental role that local governments play. Actions by local government and water suppliers can range from conservation messaging, requesting voluntary to mandatory reductions in water use to local water emergency declarations (either by ordinance or through petition to the Public Utilities Commission) based on the status of their local water supplies. These local decisions are made by individual water suppliers and independently of the state

responses outlined below as it is the public water suppliers' responsibility to manage their resources. Regardless of drought conditions, water suppliers may have to institute non-essential outdoor water use restrictions to maintain water levels.

State Government Response

As dry conditions persist, agencies direct their drought response actions to regions of the state, based on the regional assessment of drought level, and where assistance is specifically requested. Agency responses range from: information collection and sharing during normal conditions; to increased coordination and communications; to voluntary or mandatory conservation orders; and, to the Governor's declaration of a state of emergency. These actions are not intended to limit or inhibit the discretion of the agencies on how they may undertake certain activities. Also, some actions may be triggered by particular drought indicators that provide input to the U.S. Drought Monitor index and not as the results of the Drought Monitor as a whole.

Maine Drought Task Force

Because drought is a slow-onset hazard, the primary operational mechanism during the early stages is the Maine Drought Task Force. Co-chaired by MEMA and the U.S. Geological Survey, this multi-agency task force meets during dry periods to synthesize scientific data, assess cross-sector impacts, and recommend policy actions or emergency declarations to the Governor before a full SEOC activation is required.

The role of the Maine Drought Task Force is to facilitate communication and situational awareness, provide an assessment of the situation, develop recommendations on potential responses, and to provide reports on drought situations. Therefore, the primary responsibilities of the Maine Drought Task Force are to gather the information necessary to assess the impact of dry conditions and to make recommendations to the Governor's Office, or others as needed. The Maine Drought Task Force makes recommendations for declaring emergencies and for developing and implementing emergency responses. MEMA will coordinate and assemble data for a report to the Governor after each DTF Meeting.

The DTF uses the U.S. Drought Monitor (USDM) to assess and characterize drought severity statewide. The USDM is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration.

The Maine Drought Task Force is not intended to infringe upon the statutory or other obligations of its member agencies or of others who are responsible for responding to any particular situation. Both the Maine Drought Task Force and the coordinating agencies serve to facilitate the activities of the Maine Drought Task Force members and ensure there is a coordinated response by state agencies to drought situations.

Maine Drought Task Force Membership

The DTF is comprised of public and private stakeholders that have responsibility for areas likely to be affected by drought conditions, as listed in subsections 1.1 and 1.2. Because the impacts of drought events are situationally driven by severity, location, extent, and duration, the DTF may add members as necessary.

Maine Drought Task Force Activation

The DTF can be activated in one of two ways:

1. When conditions that warrant a Drought Advisory are met, pursuant to Section 4, or;
2. At the recommendation of any Maine Drought Task Force member agency – after approval by both chairs (MEMA and U.S. Geological Survey).

Maine Drought Task Force Deactivation

The DTF can be deactivated in one of two ways:

1. When conditions no longer warrant a Drought Advisory, pursuant to Section 4, or;
2. At the recommendation of any Maine Drought Task Force member agency – after approval by both chairs (MEMA and U.S. Geological Survey).

Special Procedural Issues

Several procedural and environmental issues complicate drought response in Maine:

- **Public vs. Private Water Systems:** While municipal public water suppliers possess the infrastructure and regulatory mechanisms to enforce mandatory water conservation measures, a portion of Maine's population relies on shallow private residential wells. Consequently, the state faces challenges in tracking private well failures, conducting welfare checks, and coordinating the distribution of bulk potable water to isolated rural households.

- **Cascading Agricultural and Economic Impacts:** Drought creates disruptions across the Food, Hydration, & Shelter Lifeline. It causes crop failures, depletes grazing pastures for livestock, and lowers river levels required for the operation of hydroelectric dams and the state's paper manufacturing industry. These compounding failures necessitate economic recovery interventions and coordination with federal relief programs.

- **Increased Wildfire Threat:** Prolonged drought lowers the moisture levels of ground fuels across Maine's forested regions, creating a volatile secondary hazard. The SEOC simultaneously coordinates with the Maine Forest Service to monitor Keetch-Byram Drought Indices, enforce burn bans, and stage wildland firefighting assets to prepare for rapid-onset wildfires that threaten life and property.

Severe Drought Response

Upon activation, the SEOC prioritizes the stabilization of the Water Systems Lifeline by coordinating with the Maine CDC Drinking Water Program, the Maine Department of Environmental Protection, and local water utilities to manage dwindling reservoirs. The state supports the Maine Department of Agriculture, Conservation, and Forestry and federal partners like the U.S. Department of Agriculture Farm Service Agency in assessing crop losses and triggering federal disaster relief programs. Concurrently, the SEOC synchronizes public messaging campaigns urging voluntary water conservation and coordinates with county emergency management agencies to establish emergency bulk water distribution sites for communities experiencing dry wells.

The actions specified in this appendix are associated with potential actions to coordinate state response to drought situations. However, numerous individual agencies have particular responsibilities that they are responsible for implementing on an ongoing basis. These drought-triggered actions are not intended to limit or inhibit the discretion of the agencies as they undertake certain activities. Some actions may be triggered by a particular drought indicator, rather than the index created by the U.S. Drought Monitor. Individual communities have a range of actions they can take to manage their systems during droughts.

Potential State Actions during Drought Conditions

	Advisory	Warning	Emergency
Maine Department of Agriculture, Conservation, and Forestry	Maine Forest Service monitors increases in fire potential and fire suppression challenges that are increased by drought	Soil and Water Conservation Districts and Cooperative Extension participate in drought surveys to support possible additional federal drought disaster declarations	
Maine Department of Environmental Protection	Release water Best Management Practices and conservation tips as they relate to DEP permitting under drought conditions	Consult with DEP licensees on compliance issues related to drought conditions Provide technical assistance to affected stakeholders and expedite permitting for any drought related projects	Consult with DEP licensees on compliance issues related to drought conditions
Maine Department of Inland Fisheries and Wildlife		Require regulatory changes to site-specific habitat management actions (conditions dependent)	Require regulatory changes to site-specific habitat management actions (conditions dependent)
Maine Emergency Management Agency	Convene Drought Task Force, to meet throughout drought Activate 2-1-1 Maine to report dry wells Work with state and federal partners to assemble a guide of available assistance to residents		Recommend to Governor that a State of Emergency be issued to make state resources available for drought response
Maine Public Utilities Commission	Initiate an inquiry into water supply statuses		
U.S. Geological Survey	Convene Drought Task Force, to meet throughout drought		
Water Suppliers		Issue Voluntary Water Conservation Orders (supply status dependent)	Issue Mandatory Water Conservation Orders (supply status dependent)

SECTION 3: Organization and Responsibilities

Lead Agency

MEMA and the U.S. Geological Survey serve as the primary coordinating agencies for the state's drought response. MEMA manages the SEOC, coordinates with the Drought Task Force, and handles cross-jurisdictional resource requests. The U.S. Geological Survey collects and disseminates the authoritative scientific data, monitoring groundwater levels, streamflow, and precipitation deficits to classify the drought's severity.

Supporting Agencies

State agencies follow Emergency Operations Plan, Base Plan directives and execute tasks through the Community Lifeline framework to ensure a unified response. These functional responsibilities include:

- **Safety & Security Lifeline:** MEMA manages the SEOC and the Drought Task Force to maintain a unified statewide operational picture. The Maine Department of Public Safety and the Fire Marshal's Office enforce statewide burn bans to prevent accidental ignitions. The Maine Forest Service monitors fire-danger conditions and deploys specialized wildland-firefighting assets to combat secondary fire hazards across timberlands and vulnerable communities.

- **Food, Hydration, & Shelter Lifeline:** The Maine Department of Agriculture, Conservation, and Forestry, the University of Maine Cooperative Extension, and the U.S. Department of Agriculture Farm Service Agency track crop failures and manage agricultural impact data. These agencies coordinate financial and logistical relief programs to sustain farmers and livestock producers facing yield losses. Concurrently, the Maine State Housing Authority monitors the economic impacts of the drought on rural housing sectors dependent on shallow wells.

- **Health & Medical Lifeline:** The Maine Department of Health and Human Services and the Maine CDC monitor the public health impacts of compromised water-sanitation systems. These agencies draft and manage health advisories related to respiratory distress from dust, poor air quality from wildfires, and exposure to waterborne pathogens in stagnant water bodies.

- **Water Systems Lifeline:** The Maine CDC Drinking Water Program, Maine Department of Environmental Protection, the Maine Geologic Survey, the Maine Rural Water Association, and Public Water Suppliers form a coalition to protect the state's water supply. They monitor municipal reservoir capacities, regulate and enforce mandatory water-conservation restrictions, track the clustering of private dry wells, and coordinate the distribution of emergency potable water to isolated communities.

- **Energy Lifeline:** The Public Utilities Commission and MEMA coordinate with energy providers to monitor the operational status of hydroelectric dams. These facilities face power-generation reductions and potential shutdowns due to low streamflow, threatening the stability of the regional power grid.

- **Communications Lifeline:** The MEMA Communications Office coordinates with telecommunications providers to ensure core communication infrastructure remains operational. This connectivity guarantees the transmission of telemetry data from remote U.S. Geological Survey river and groundwater monitoring stations to the SEOC.

- **Transportation Lifeline:** The Maine Department of Transportation monitors and mitigates dust conditions that create hazardous driving environments and reduce highway visibility. Furthermore, engineering teams assess the long-term structural impacts of dry, shrinking soil on bridge footings and asphalt road foundations to prevent structural degradation.

- **Hazardous Material Lifeline:** The Maine Department of Environmental Protection monitors depleted rivers and streams where the lack of water volume creates environmental hazards. This lowered volume causes localized concentrations of existing industrial pollutants or natural contaminants, threatening aquatic wildlife and human health.

Data Collection and Reporting

In addition to the Community Lifelines, stakeholders involved in a drought response are responsible for collecting information and disseminating it to their particular constituents. This effort to monitor trends and collect pertinent information is vital to making timely and accurate decisions. Although this appendix is intended to facilitate coordination between state agencies, it is understood that local governments and associations play a key role in communications with their constituents.

The following agencies or organizations can be relied upon to provide information that is used to assess the severity of drought conditions and impacts.

- Maine Department of Agriculture, Conservation and Forestry (DACF), Maine Forest Service (MFS), Maine Geological Survey (MGS), Soil and Water Conservation Program
- Maine Department of Environmental Protection (DEP)
- Maine Department of Health and Human Services, Maine Center for Disease Control and Prevention (Maine CDC)
- Maine Department of Inland Fisheries and Wildlife (IFW)
- Maine Department of Public Safety, Fire Marshal's Office (FMO)
- Maine Rural Water Association
- Maine State Housing Authority
- National Weather Service (NWS)
- Public Utilities Commission (PUC)
- Public Water Suppliers
- University of Maine Cooperative Extension
- U.S. Department of Agriculture (USDA)
- U.S. Geological Survey (USGS)

The table below designates assigned information collection responsibilities.

Agency or Organization	Information
MGS, USGS	State groundwater levels, surface water levels, and streamflow conditions
NWS	Extended forecast
NWS	Precipitation levels
PUC, Maine CDC	Communities with water bans and declared water emergencies
Maine CDC, PUC, DEP	Drinking water supply concerns
DEP, PUC	Reservoir levels and flows
MFS	Forest fire conditions
DACF	Agricultural conditions and impacts and agricultural crop data
IFW	Impacts to natural resources
Maine CDC	Water consumption data from utilities
MGS	Water Well Database
DEP	Additional environmental information
MEMA, 2-1-1 Maine	Dry Well Reports

Communications to the General Public

It is important that accurate and timely information about the current status of drought conditions and the resultant impacts are communicated to the public. MEMA will communicate drought-related advice from the DTF to state agencies. MEMA's public information personnel will be the primary vehicle through which information will be made available to the media and the general public. MEMA will utilize the Joint Information System as defined in the Emergency Operations Plan when jointly released public announcements are needed to bring attention to the situation or to communicate specific response actions. If other agencies or groups determine that communication to the general public about drought response is necessary, it is recommended that they coordinate with MEMA on how best to accomplish this.

The table below depicts Agencies and Organizations, along with the constituents for their information.

Agency or Organization	Target Audience
MEMA, Governor's Office	General public
Maine CDC, PUC, DEP	Public water suppliers
MFS	Foresters
DACF, USDA	Farmers
DEP	Industrial water users
MFS, FMO	Fire departments
DEP	Wastewater discharge, hydropower, and permit holders

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SECTION 4: Drought Severity Levels and Decision Points

Three levels of drought are used to assess and characterize statewide drought severity: Advisory, Warning, and Emergency.

These drought levels are based on the conditions depicted by the U.S. Drought Monitor and are intended to categorize the status of water resources statewide. The levels provide a basic framework from which to take actions to assess, communicate, and respond to drought conditions. Water restrictions might be appropriate at the warning stage, depending on the capacity of each individual water supply system. A warning level indicates a severe situation and the possibility that a drought emergency may be necessary. A drought emergency is one in which mandatory water restrictions or use of emergency supplies is likely necessary.

If conditions reach the criteria for the next drought level, the Drought Task Force will recommend that the severity of the drought action level be increased. If conditions improve, the Drought Task Force will recommend that the severity of the drought action level be reduced based on either site specific information or on progress toward returning to normal. If conditions persist but do not change significantly, the Drought Task Force will recommend that the drought action level be held constant. Due to the variables associated with drought, the Drought Task Force DTF maintains final determination of Drought Level.

The following levels align SEOC and Drought Task Force actions with the anticipated timeline:

Level 1: Advisory (D0 Abnormally Dry)

- **Trigger:** U.S. Drought Monitor indicates D0 (Abnormally Dry) conditions; short-term dryness slows planting or causes minor surface water deficits.

Levels	Triggers Percent of Land Area or Population Affected
Advisory	50% in D0 Classification
	40% in D1 Classification
	30% in D2 Classification

- **Actions:** MEMA monitors U.S. Geological Survey and National Weather Service data. The Drought Task Force may convene to establish a baseline of readiness. State officials hold initial coordination calls with the Maine Department of Agriculture, Conservation and

Forestry and the Maine CDC Drinking Water Program to identify emerging agricultural or municipal vulnerabilities.

Level 2: Warning (D1 Moderate to D2 Severe Drought)

- **Trigger:** U.S. Drought Monitor classifies regions as D1 (Moderate) or D2 (Severe). Streams and reservoirs run low, and crop or pasture losses become likely.

Levels	Triggers Percent of Land Area or Population Affected
Warning	50% in D1 Classification
	40% in D2 Classification
	30% in D3 Classification

- **Actions:** The Drought Task Force convenes on a recurring schedule. The MEMA Director may activate the SEOC to a Partial level. State agencies request voluntary water-use restrictions from the public. The Maine Department of Agriculture, Conservation and Forestry compiles concrete agricultural damage assessments. The Maine Forest Service elevates wildland fire readiness postures.

Level 3: Emergency (D3 Extreme to D4 Exceptional Drought)

- **Trigger:** U.S. Drought Monitor classifies regions as D3 (Extreme) or D4 (Exceptional). Widespread water shortages occur, creating localized water emergencies and devastating crop losses.

Levels	Triggers Percent of Land Area or Population Affected
Emergency	50% in D2 Classification
	40% in D3 Classification

- **Actions:** The SEOC operates at a Full activation level. State agencies enforce mandatory water restrictions. The SEOC coordinates with the Maine National Guard and county emergency management agencies to deploy emergency potable water buffaloes to communities with clustered dry wells. MEMA and the Governor submit formal requests for USDA Secretarial Disaster Designations to unlock federal agricultural relief.

Sustained Recovery (Post-Event)

- **Trigger:** Prolonged precipitation restores groundwater aquifers, soil moisture, and reservoir levels to historical norms.
- **Actions:** Operations pivot from emergency water distribution to long-term economic recovery. The U.S. Department of Agriculture Farm Service Agency manages ongoing financial relief programs for the agricultural sector. The U.S. Geological Survey monitors the recovery of deep groundwater aquifers. The SEOC compiles final economic damage assessments.

SECTION 5: Critical Information Requirements & Essential Elements of Information

Severe drought primarily impacts the water systems, food/agriculture, and economic lifelines over an extended period. To address these impacts, this section outlines hazard-specific Critical Information Requirements (CIRs) and categorizes Essential Elements of Information (EEIs) into universal impacts and localized hazards. These data points supplement the standard metrics outlined in **Emergency Operations Plan – Annex B: SEOC Procedures**.

As an event escalates and distinct threat profiles emerge, the SEOC Manager directs Emergency Response Team members to focus information gathering and reporting on the CIRs and EEIs relevant to those active hazards.

(**Note:** Universal CIRs, such as overarching Threats to Life/Safety, Mass Casualties, and broad Transportation/Communications failures, reside under the State's Overall EOP CIRs and do not appear in this hazard-specific appendix).

Universal Drought EEIs

The following EEIs apply across the entire incident area during prolonged dry periods.

- **Drought Monitor Status:** The weekly geographic categorization of Maine counties according to the U.S. Drought Monitor (D0 through D4).
- **Public Water Systems Status:** The verified operational status, current reservoir capacity percentages, and calculated days-of-supply remaining for major municipal drinking water facilities.
- **Dry Well Reports:** The tracked number, geographic clustering, and specific locations of private residential wells reported as dry or failing.
- **Wildfire Danger Indices:** Fire danger ratings, Keetch-Byram Drought Indices, and the number of active wildland fires managed by the Maine Forest Service.

Hazard-Specific CIRs and EEIs

The following requirements are specific to the cascading hazards generated by prolonged drought.

HAZARD: Severe Agricultural and Economic Disruption

- **CIR - Agricultural Thresholds:** Have sustained crop and livestock losses reached the financial thresholds required to trigger U.S. Department of Agriculture Secretarial Disaster Designations?
- **CIR - Industry Stoppage:** Is streamflow dropping to levels that force the mandatory shutdown of major hydroelectric facilities or paper manufacturing plants?
- **EEI - Crop Yield Estimates:** Verified percentages of crop loss calculated by the Maine Department of Agriculture, Conservation and Forestry.
- **EEI - Soil Moisture Deficits:** Standard Precipitation Index and Climate Prediction Center Soil Moisture Model percentages indicating root-zone dryness.

HAZARD: Critical Water Supply Failure

- **CIR - Emergency Distribution Needs:** Do specific rural communities lack groundwater entirely, requiring the state-level deployment of emergency potable water buffaloes?
- **CIR - System Contamination:** Are dropping water levels resulting in toxic concentrations of pollutants or hazardous saltwater intrusion into coastal municipal aquifers?
- **EEI - USGS Groundwater Telemetry:** Depth-to-water measurements and percentiles sourced from the U.S. Geological Survey groundwater observation network.
- **EEI - Restriction Compliance:** Estimated public compliance rates for jurisdictions under mandatory water-use restrictions.

SECTION 6: Event Profile

Drought in the State of Maine acts as a unique, slow-onset hazard that demands specialized emergency management. All drought events begin with a precipitation deficiency, but their impacts do not materialize until surface and groundwater hydrology is affected, making it difficult to define a clear beginning and end to an event. Unlike the arid American Southwest, Maine's forest ecology and public infrastructure depend on a cycle of abundant rainfall and massive winter snowpacks. This seasonal snowpack acts as a natural reservoir that melts during the spring to recharge deep aquifers, saturate agricultural soil, and fill municipal reservoirs before the summer heat arrives. When prolonged precipitation deficits disrupt this cycle, cascading impacts shock multiple sectors.

Maine experienced the effects of drought on multiple occasions, including a prolonged event from 1961 to 1965 and a severe drought from 1999 to 2002 that pushed groundwater to record lows. Today, 42 percent of Maine’s population depends on private residential wells for water, representing the highest percentage in the country. These households are vulnerable to water shortages because they rely on localized groundwater levels and lack the redundant protections of the state's 153 public water suppliers.

As water tables fall and streamflow drop, compounding threats paralyze state industries. Commercial agriculture faces yield reductions for water-dependent cash crops, such as potatoes and wild blueberries. Water-intensive paper manufacturing mills must curtail operations, and hydroelectric facilities experience reduced power generation. Drought also exacerbates the threat of forest fires by drying out vegetation and limiting the water resources available for fire suppression. To manage these threats, the state relies on a standardized assessment framework. The following profile details the severity classifications used by the SEOC.

Drought Severity and Intensity Categories

The SEOC and the Drought Task Force measure the operational intensity of a drought using the official U.S. Drought Monitor Severity Classification Scheme. This scheme blends the Palmer Drought Severity Index, Climate Prediction Center Soil Moisture Models, and U.S. Geological Survey streamflow data to maintain a common operating picture:

- **D0 - Abnormally Dry:** Short-term dryness slowing the planting and growth of crops or pastures. This typically represents a region going into a drought or some lingering water deficits for a region coming out of a drought.
- **D1 - Moderate Drought:** Some visible damage to crops and pastures occurs. Streams, reservoirs, or local wells run low. Minor water shortages develop, and state agencies typically request voluntary water-use restrictions.
- **D2 - Severe Drought:** Crop or pasture losses become likely. Streams, reservoirs, and wells reach low levels. Widespread water shortages develop, and state authorities may implement localized mandatory water-use restrictions.
- **D3 - Extreme Drought:** Major crop and pasture losses occur. Widespread water shortages exist across multiple counties, resulting in enforced mandatory water restrictions and the mobilization of emergency water assets.
- **D4 - Exceptional Drought:** Exceptional and devastating crop and pasture losses occur. Shortages of water in reservoirs, streams, and private wells create total water emergencies, requiring federal intervention and emergency drinking water distribution.

U.S. Drought Monitor – Drought Severity Classification Scheme

Category & Description	Possible Impacts	Palmer Drought Severity Index	CPC Soil Moisture Model*	USGS Weekly Streamflow*	Standard Precipitation Index	Objective Drought Indicator Blends*
D0 Abnormally Dry	• Short-term dryness slowing planting, growth of crops or pastures (going into drought) • Some lingering water deficits, pastures of crops not fully recovered (coming out of drought)	-1 to -1.9	21 to 30	21 to 30	-.5 to -.7	21 to 30
D1 Moderate Drought	• Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested	-2 to -2.9	11 to 20	11 to 20	-.8 to -1.2	11 to 20
D2 Severe Drought	• Crop or pasture losses likely • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested	-3 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3 Extreme Drought	• Major crop/pasture losses • Widespread water shortages or restrictions	-4 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4 Exceptional Drought	• Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies	-5 or less	0 To 2	0 to 2	-2 or less	0 to 2

Courtesy of United States Drought Monitor.
http://droughtmonitor.unl.edu/AboutUs/ClassificationScheme.aspx for more information.

SECTION 7: Key Terms

Agricultural Drought: A condition that occurs when precipitation deficits, soil water deficits, reduced groundwater, or reduced reservoir levels impact agricultural yields. This causes yield reductions for water-dependent cash crops, such as potatoes and wild blueberries, and depletes grazing pastures for livestock.

Drought Task Force (DTF): A multi-agency coordinating body co-chaired by MEMA and the USGS. The DTF convenes during abnormally dry periods to share scientific intelligence, assess statewide impacts across all sectors, and recommend mitigation strategies and emergency declarations to the Governor.

Hydrologic Drought: A condition that occurs when a low water supply becomes evident in streams, reservoirs, and groundwater levels. Hydrologic drought indicators lag behind meteorological drought indicators. This phase threatens rural residents reliant on shallow private residential wells, depletes municipal reservoirs, and prevents the recharge of deep aquifers.

Keetch-Byram Drought Index (KBDI): A continuous reference scale used by the Maine Forest Service to estimate the dryness of the soil and duff layers. The index increases with each day without rain and is a critical metric for determining wildland fire potential during a drought.

Meteorological Drought: A condition that occurs when dry weather patterns dominate an area. In Maine, this begins when prolonged precipitation deficits disrupt the continuous cycle of abundant rainfall and winter snowpacks.

Palmer Drought Severity Index (PDSI): A meteorological index that uses temperature and precipitation data to calculate water supply and demand, providing a standardized measurement of long-term moisture conditions.

Socioeconomic Drought: A condition that occurs when drought conditions impact the supply and demand of economic goods. A lack of streamflow paralyzes state industries, forces water-intensive paper manufacturing mills to curtail operations, and reduces power generation at hydroelectric facilities.

Standardized Precipitation Index (SPI): An index used to characterize meteorological drought on a range of timescales, quantifying observed precipitation as a standardized departure from a selected probability distribution model.

U.S. Drought Monitor (USDM): A weekly map that shows the location and intensity of drought across the country. The National Drought Mitigation Center, the U.S. Department of Agriculture, and National Oceanic and Atmospheric Administration jointly produce this map using a five-category system (D0-D4).

SECTION 8: Resources

NATIONAL RESOURCES

National Weather Service (NWS) Climate Prediction Center (cpc.ncep.noaa.gov): Provides long-range precipitation outlooks and soil moisture monitoring tools essential for forecasting drought duration.

U.S. Drought Monitor (droughtmonitor.unl.edu): The official weekly map identifying the geographic footprint and severity classification (D0-D4) of drought conditions nationwide.

U.S. Geological Survey (USGS) Water Science Centers (usgs.gov/centers/new-england-water): The primary federal partner providing real-time telemetry data on groundwater levels, streamflow, and hydrologic drought indicators across Maine.

USDA Farm Service Agency - Maine (fsa.usda.gov/state-offices/Maine): Provides agricultural impact assessments, administers emergency disaster assistance programs, and manages financial relief for affected farmers and livestock producers.

STATE & LOCAL RESOURCES

Maine CDC Drinking Water Program (maine.gov/dhhs/mecdc/environmental-health/dwp): The primary regulatory agency responsible for monitoring the capacity and safety of all municipal public water systems during severe water shortages.

Maine Department of Agriculture, Conservation and Forestry (DACF) (maine.gov/dacf): The lead state agency for assessing crop losses, managing soil conservation efforts, and supporting the agricultural economy.

Maine Emergency Management Agency (MEMA) (maine.gov/mema): The lead coordinating agency responsible for managing the SEOC, convening the Drought Task Force, and synchronizing state-level relief efforts.

Maine Forest Service (maine.gov/dacf/mfs): Responsible for monitoring extreme fire danger indices caused by prolonged drought and deploying wildland firefighting assets to combat the elevated wildfire threat.