Town of Islesboro Maine

LOCAL HAZARD MITIGATION PLAN

2026

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1.0 Executive Summary

The Town of Islesboro, a small island community located in Penobscot Bay, Maine, faces a distinct set of challenges and vulnerabilities related to natural hazards. Encompassing approximately 14 square miles, Islesboro has a year-round population of around 600 residents, which increases to more than 2,000 during the summer months. The town includes 15 smaller islands within its jurisdiction: Job Island, Seven Hundred Acre Island, Spruce Island, Warren Island, Seal Island, Ram Island, Thrumcap, Middle Island, Minot Island, Ensign Islands 1 and 2, Lime Island, Flat Island, Hutchins Island, Little Island, and Little Bermuda.

This strong seasonal dynamic requires Islesboro to plan for both its permanent population and a significant influx of seasonal residents and visitors, ensuring that safety, access, and emergency response remain effective year-round. Due to its island geography, Islesboro relies almost entirely on ferry service for the transport of people, goods, and emergency resources. This dependence creates heightened vulnerability during severe storm events, power outages, or coastal flooding, when ferry operations may be suspended and the island can become temporarily isolated from the mainland. Maintaining reliable transportation, communication, and energy infrastructure is therefore central to the community's resilience and hazard mitigation strategy.

To address these vulnerabilities, the Town of Islesboro prepared this 2026 Local Hazard Mitigation Plan (LHMP). The plan is designed to guide hazard mitigation activities and protect the community's people, property, and environment from the effects of natural and human-caused hazard events. It represents a community-driven effort to identify Islesboro's most significant risks, assess vulnerabilities, and outline strategies to strengthen resilience. This LHMP also demonstrates the Town's continued commitment to reducing risks and serves as a decision-making tool for prioritizing and directing local mitigation actions and resources.

The plan is written to comply with the Disaster Mitigation Act of 2000 and FEMA's requirements under 44 CFR §201.6[1], ensuring Islesboro remains eligible for federal disaster assistance programs. These include the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, Building Resilient Infrastructure and Communities (BRIC), and the Flood Mitigation Assistance (FMA) program[2]. By maintaining compliance, Islesboro not only positions itself for critical federal funding but also ensures that future land use, infrastructure, and

[1] https://www.law.cornell.edu/cfr/text/44/201.6
[2] https://www.fema.gov/grants/mitigation/learn

emergency management decisions are risk-informed and aligned with long-term resilience goals.

National Benefit-Cost Ratio (BCR) Per Peril *BCR numbers in this study have been rounded	Beyond Code Requirements	Federally Funded
Overall Hazard Benefit-Cost Ratio	$4:1	$6:1
Riverine Flood	$5:1	$7:1
Hurricane Surge	$7:1	Too few grants
Wind	$5:1	$5:1
Earthquake	$4:1	$3:1
Wildland-Urban Interface Fire	$4:1	$3:1

Source: FEMA 2018; Federal Insurance Mitigation Administration 2018
Note: Natural hazard mitigation saves $6 on average for every $1 spent on federal mitigation grants.

Hazard mitigation is defined as sustained action taken to reduce or eliminate long-term risk to people and property. Its value is well documented: for every $1 spent on federally funded hazard mitigation, taxpayers save an estimated $6 in avoided disaster recovery costs. Across the United States, disasters claim hundreds of lives, injure thousands more, and cost billions of dollars each year. These costs extend far beyond federal disaster assistance to include insurance payouts, lost productivity, and lasting community impacts. Mitigation helps save lives by reducing the severity of natural disasters, which cause an average of 376 deaths annually in the United States, according to the National Oceanic and Atmospheric Administration (NOAA). Proactive mitigation reduces these losses, helping communities like Islesboro to recover more quickly and with less damage when disasters strike.

For Islesboro, hazards carry unique risks because of its coastal geography and reliance on marine and ferry access. Coastal flooding, storm surge, and sea level rise threaten low-lying homes, waterfront infrastructure, and critical transportation routes. Winter storms on Islesboro include a range of events such as heavy snowfall, nor'easters, and ice storms, which often occur in combination and produce similar impacts including power outages, transportation disruption, and structural damage. Summer droughts and the island's forested landscape create conditions favorable to wildfires, while extreme heat events threaten vulnerable populations, particularly older residents and those with preexisting health conditions. Additionally, any disruption in ferry, barge, or air transportation can have immediate impacts on supply chains, access to medical care, and evacuation planning.

While Islesboro cannot eliminate natural hazards, many of these risks are predictable, and much of the potential damage can be reduced or prevented through proactive planning. The purpose of this Hazard Mitigation Plan is to provide Islesboro with a roadmap to strengthen resilience, safeguard critical infrastructure, protect public safety, and preserve the island's unique way of life for generations to come.

1.1 Acronyms

The following table lists acronyms and abbreviations used throughout the Town of Islesboro Local Hazard Mitigation Plan (LHMP). These terms represent agencies, programs, and planning frameworks relevant to hazard mitigation, emergency management, and community resilience.

Acronym	Definition
APA	Approval Pending Adoption
BRIC	Building Resilient Infrastructure and Communities
CFR	Code of Federal Regulations
DMA 2000	Disaster Mitigation Act of 2000
EMA	Emergency Management Agency
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance
GIS	Geographic Information System
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
LHMP	Local Hazard Mitigation Plan

MEMA	Maine Emergency Management Agency
MDOT	Maine Department of Transportation
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
PDM	Pre-Disaster Mitigation
SHMP	State Hazard Mitigation Plan
SLRC	Sea Level Rise Committee
STAPLEE	Social, Technical, Administrative, Political, Legal, Economic, and Environmental
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
Waldo County EMA	Waldo County Emergency Management Agency

This list is not exhaustive. Additional acronyms and agency references may be introduced in subsequent plan updates or related technical appendices.

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2.0 Overview

2.1 Community Profile

2.1.1 Geography

Islesboro is located in Penobscot Bay, off the coast of midcoast Maine. The island stretches approximately 14 miles in length and varies from one to three miles in width, with a total land area of about 14 square miles. Its coastline is highly irregular, characterized by coves, inlets, and peninsulas. The island's geography creates both natural beauty and vulnerabilities: much of its infrastructure and housing is located near the shoreline, making it susceptible to coastal flooding, storm surge, and long-term sea level rise. Access to the island is primarily by ferry, with service to and from Lincolnville, as well as private boats and limited air service.

2.1.2 Population and Demographics

Islesboro is a small, sparsely populated island community of approximately 686 residents. The median age is 57.2 years, significantly higher than the county and state averages, indicating a large proportion of older adults. The town has 364 households with an average size of 1.9 persons. There are 747 housing units, many of which are seasonal or second homes. Economically, Islesboro has relatively high-income levels, with a per capita income of about 57,858 dollars and a median household income of about 75,625 dollars, though around 14.4 percent of residents live below the poverty line. The racial composition is predominantly White at approximately 97.5 percent, with small proportions identifying as multiracial or Black or African American.

2.1.3 Town Government Profile

Islesboro operates under a Select Board–Town Manager form of government. The five-member Select Board is elected by the community and serves as the executive and policy-making body. The Town Manager is responsible for day-to-day administration, coordination of municipal departments, and implementation of Select Board policies.

Several boards, committees, and volunteer groups support the governance structure, including the Planning Board, School Committee and Sea Level Rise Committee (SLRC). Islesboro also relies on close collaboration with the Maine Emergency Management Agency (MEMA) and Waldo County officials for emergency management and hazard mitigation planning. Volunteerism plays a vital role, with residents contributing time and expertise to municipal committees, emergency services, and civic organizations.

2.1.4 Community Life and Culture

Islesboro is recognized for its strong culture of cooperation and civic engagement. Residents contribute actively to emergency services, nonprofit organizations, and cultural activities. Islesboro Central School, serving students from pre-kindergarten through grade 12, is not only an educational institution but also a hub for social and recreational events. Seasonal and year-round residents alike engage in community activities, creating a sense of shared identity and stewardship.

2.1.5 Health and Social Services

The Islesboro Health Center provides primary care and helps connect residents with specialized providers on the mainland. Access to healthcare is a continuing priority given the island's distance from regional hospitals. Islesboro is also one of the few rural communities in the United States to operate a town-wide municipal broadband network, which supports telehealth, remote education, emergency preparedness, and local economic opportunities.

2.1.6 Economy and Employment

The island's economy reflects both traditional and seasonal influences. Year-round work includes fishing, aquaculture, carpentry, trades, and professional services. Seasonal residents and visitors support employment in construction, landscaping, hospitality, and retail. Tourism and second-home ownership provide an important tax base and economic boost, though the seasonal nature of much employment creates challenges for workforce retention and full-time housing.

2.1.7 Community Organizations and Assets

Islesboro benefits from a strong network of civic and nonprofit organizations. The Islesboro Community Center provides space for events, recreation, and services, while the Islesboro Islands Trust supports environmental stewardship and land conservation. Local churches, cultural initiatives, and arts programs further enrich community life. The island's reliance on volunteers for fire, emergency services, and committees underscores the community's resilience and shared responsibility.

2.1.8 Key Challenges and Opportunities

The Town faces challenges common to small island communities, including an aging year-round population, limited affordable housing, reliance on off-island transportation for essential goods and services, and vulnerabilities tied to its coastal setting. However, Islesboro has also

demonstrated innovation and resilience through investments such as municipal broadband, active planning for sea level rise, and strong partnerships among residents, nonprofits, and regional agencies. These assets provide the foundation for future hazard mitigation and community resilience initiatives.

2.2 Previous Plan Review and Update (Element E)

Although this is Islesboro's first standalone Local Hazard Mitigation Plan, the Town previously participated in the Waldo County Multi-Jurisdictional Hazard Mitigation Plan (2011)[3]. That plan provided a regional framework for hazard identification and mitigation but did not include detailed, Islesboro-specific actions or implementation tracking.

This section evaluates how conditions on Islesboro have changed since 2011, including development patterns, hazard priorities, and mitigation progress. It also identifies barriers encountered under the regional planning framework and explains how this 2026 plan addresses those gaps with more locally tailored strategies.

2.2.1 Changes in Development (E1-a)

Since 2011, development trends on Islesboro have incrementally increased hazard exposure. Growth has been modest and primarily consists of seasonal and second homes, with continued concentration along coastal areas. This pattern has increased the number and value of assets exposed to coastal flooding, erosion, and storm surge, as documented in Section 5.4 Hazard Profiles.

Reliance on critical infrastructure systems has also intensified. The Town remains dependent on a single ferry connection for transportation, as well as overhead electrical distribution and telecommunications systems. At the same time, existing infrastructure, including culverts, drainage systems, and coastal roadways, is aging and often undersized relative to current precipitation patterns and projected climate conditions (see Section 5.3 Vulnerability Assessment).

Although the year-round population has remained relatively stable, seasonal population increases significantly expand service demand and evacuation complexity. These development trends collectively contribute to increased vulnerability, particularly in coastal and low-lying areas identified in the Risk Assessment (Section 5).

2.2.2 Changes in Priorities (E2-a)

Mitigation priorities have evolved since the 2011 plan to reflect updated hazard data, observed impacts, and community input. There is increased emphasis on addressing coastal flooding, sea level rise, and shoreline erosion, particularly where these hazards affect critical access routes and infrastructure. Protection of ferry access and key transportation corridors is now a primary priority due to the Town's geographic isolation.

Energy resilience has also become a higher priority, driven by repeated outages associated with wind and winter storm events (see Section 5.4 Hazard Profiles). In addition, the Town has

[3] https://lincolnvilleme.govoffice3.com/vertical/Sites/%7B0EE09280-1571-4126-B77C-44B66AF5BC58%7D/uploads/2011_Waldo_County_Hazard_Mitigation_Plan.pdf

expanded its focus to include climate-driven hazards such as extreme precipitation and drought, which are further evaluated in the Risk Assessment (Section 5).

Public and stakeholder input played a direct role in shaping these priorities. Survey results and public meetings identified coastal flooding and winter storms as primary concerns, while local discussions highlighted vulnerabilities such as flooding at The Narrows and extended power outages. These inputs are reflected in the hazard rankings and mitigation actions presented in Section 6 Mitigation Strategy.

2.2.3 Status of Previous Mitigation Actions (E2-b)

Because Islesboro participated in a regional plan, mitigation actions identified in 2011 were not municipality-specific and were not formally tracked at the local level. Based on available information, progress has been made primarily in general emergency preparedness and coordination with county and state partners. Incremental infrastructure improvements, including culvert upgrades and drainage maintenance, are ongoing and address localized flooding issues identified in Section 5.3 Vulnerability Assessment.

However, larger capital-intensive projects, such as roadway elevation and shoreline stabilization, have generally not been implemented. These actions have been constrained by cost, logistical challenges, and reliance on external funding. The absence of clearly defined local actions and implementation tracking limited measurable progress under the 2011 plan. This plan addresses those limitations through the project-specific actions identified in Section 6 Mitigation Strategy.

2.2.4 Integration into Other Planning Mechanisms (E2-c)

Since 2011, hazard mitigation has been increasingly integrated into local planning mechanisms. The Town has incorporated mitigation principles into its Comprehensive Plan, Emergency Operations Plan, and Capital Improvement Planning processes. In addition, Shoreland Zoning and Floodplain Management Ordinances, adopted May 9, 2015, provide regulatory tools to reduce risk in hazard-prone areas.

Mitigation considerations are also integrated into routine municipal activities, including road design, drainage improvements, and coastal infrastructure planning. Emergency preparedness efforts similarly reflect mitigation objectives. This integration supports the continued incorporation of hazard mitigation into local decision-making and is further reinforced through the actions identified in Section 6.

2.2.5 Barriers Identified

Several key barriers have limited Islesboro’s ability to fully implement mitigation actions since 2011. As a small community, the Town has limited staffing and technical capacity to design, fund, and manage complex projects. Infrastructure improvements are particularly costly due to the logistical challenges of transporting materials and equipment to the island. In addition, the Town is heavily dependent on state and federal funding programs to support large-scale

mitigation efforts, which are competitive and not always predictable. Permitting requirements and environmental considerations, especially for coastal projects, can further delay implementation.

These constraints are consistent with vulnerabilities identified in Section 5.3 and directly inform the prioritization and feasibility considerations applied in Section 6 Mitigation Strategy.

2.2.6 How This Plan Addresses Those Barriers

This 2026 plan addresses prior limitations by providing a more detailed and implementation-oriented mitigation framework. The plan identifies specific, Islesboro-focused mitigation actions tied directly to the risks identified in Section 5 Risk Assessment. It incorporates public and stakeholder input into action development and prioritization and aligns with current FEMA planning requirements to improve eligibility for Hazard Mitigation Assistance funding.

The plan emphasizes phased implementation to reflect local capacity constraints and prioritizes actions that enhance resilience of critical infrastructure systems, including transportation access and power reliability. It also strengthens coordination with regional, state, and federal partners to support project development and funding.

Together, these improvements establish a clear linkage between risk, vulnerability, and mitigation actions, as required under FEMA guidance, and provide a structured path for implementation through Section 6 Mitigation Strategy.

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3.0 Plan Organization

This Local Hazard Mitigation Plan (LHMP) is structured to meet the requirements of the Disaster Mitigation Act of 2000 (DMA 2000) and 44 CFR §201.6, ensuring compliance with state and federal standards for hazard mitigation planning. The plan provides a comprehensive framework for understanding local risks, assessing community capabilities, and identifying strategies to reduce the impacts of natural hazards on Islesboro's residents, properties, and critical infrastructure.

The LHMP consists of the following major sections:

Section 1 – Executive Summary

This section provides an overview of the plan's purpose, goals, and key findings. It highlights the most significant natural hazards facing Islesboro, summarizes the Town's vulnerabilities, and outlines priority mitigation actions. The Executive Summary serves as a concise reference for elected officials, residents, and partner agencies.

Section 2 – Community Overview

The overview introduces the Town of Islesboro, describing its setting, population, economy, and critical infrastructure. It explains the island's unique challenges—including geographic isolation, reliance on ferry service, and exposure to coastal hazards—and sets the context for local mitigation planning efforts.

Section 3 – Plan Adoption

This section documents the formal adoption of the Hazard Mitigation Plan by the Islesboro Select Board, following public review and coordination with the Maine Emergency Management Agency (MEMA) and FEMA Region I. Official adoption ensures that the Town remains eligible for federal and state hazard mitigation funding programs.

Section 4 – Planning Process

The planning process outlines how the plan was developed, including public meetings, stakeholder engagement, data collection, and coordination with local, county, and state partners. This section details the steps taken to ensure transparency, inclusivity, and compliance with FEMA's 2025 Local Mitigation Planning Policy Guide.

Section 5 – Risk Assessment

The risk assessment identifies and profiles the natural hazards that could affect Islesboro, such as coastal flooding, sea-level rise, severe storms, and power outages. It evaluates the

probability and potential consequences of each hazard, analyzes exposure of critical facilities and infrastructure, and provides a foundation for prioritizing mitigation actions.

Section 6 – Local Capabilities

This section reviews the Town's existing authorities, programs, and resources related to hazard mitigation. It describes relevant ordinances, emergency management policies, land use regulations, and partnerships with agencies such as MEMA, Waldo County EMA, and the Maine Department of Transportation (MDOT). This assessment helps identify where additional capacity or policy updates may be needed.

Section 7 – Mitigation Strategy

The mitigation strategy outlines Islesboro's goals, objectives, and prioritized actions to reduce future disaster risk. It includes detailed descriptions of projects, responsible parties, estimated timelines, and potential funding sources. Actions are evaluated using the STAPLEE criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to ensure feasibility and long-term benefit.

Section 8 – Plan Maintenance Process

This section describes how the Town will monitor, evaluate, and update the plan to ensure it remains current and effective. It includes a schedule for five-year reviews, guidance for integrating mitigation principles into other municipal plans, and a commitment to continued public participation.

3.1 Plan Adoption - (F1)

The Town of Islesboro Local Hazard Mitigation Plan (LHMP) was developed in coordination with the Waldo County Emergency Management Agency (EMA) and the Maine Emergency Management Agency (MEMA), following FEMA's *Local Mitigation Planning Policy Guide (2025)*. The plan's adoption process ensures that it accurately represents local priorities, meets federal and state standards, and establishes Islesboro's continued eligibility for FEMA Hazard Mitigation Assistance (HMA) grant programs[4].

1. Draft Review and Public Input:

Throughout the planning process, the consulting team and Islesboro's Local Planning Team facilitated multiple public meetings to review the plan's progress and gather feedback from residents, town officials, and stakeholders. Public input was solicited through community surveys, public notices, and direct outreach to key local partners. This engagement ensured that the plan reflected the experiences, needs, and mitigation priorities of island residents.

2. Coordination with County and State Agencies: - Complete

Once the draft plan was completed, it was submitted to Waldo County EMA and MEMA for a preliminary review. Waldo County EMA and MEMA provided technical guidance to ensure consistency with the Maine State Hazard Mitigation Plan (2023) and compliance with FEMA's hazard mitigation planning requirements. Revisions were made based on their feedback to strengthen the plan's risk assessment, mitigation strategy, and implementation framework.

3. FEMA Review and Approval Pending Adoption (APA): - Complete

After state review, MEMA forwarded the Islesboro LHMP to FEMA Region I for review. FEMA conducted a detailed evaluation to verify that the plan met all criteria outlined in 44 CFR §201.6, including public involvement, risk assessment, mitigation strategy, and plan maintenance procedures. Upon completion of this review, FEMA issued an "Approval Pending Adoption" (APA) letter to the Town of Islesboro, authorizing the community to proceed with local adoption.

4. Local Adoption by the Town of Islesboro: - TBD

Following receipt of FEMA's APA, the Islesboro Select Board formally adopted the Local Hazard Mitigation Plan by vote during a duly noticed public meeting. This adoption resolution (Appendix A) signified the Town's official commitment to implementing the mitigation goals and strategies identified within the plan and maintaining it as a living document through regular updates, reviews, and integration into broader town planning efforts.

5. Final FEMA Approval and Implementation: - TBD

After local adoption, the signed resolution (Appendix A) was submitted to FEMA Region I through MEMA for final plan approval. With full approval granted, the plan became effective for

[4] https://www.fema.gov/grants/mitigation/learn/hazard-mitigation

a five-year period, ensuring Islesboro remains eligible for FEMA mitigation funding opportunities such as Flood Mitigation Assistance (FMA) and Hazard Mitigation Grant Program (HMGP) grants.

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4.0 Planning Process - (Element A)

4.1 LHMP Plan Development Process – (A1)

Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts are assessed, mitigation goals are set, and strategies are prioritized and implemented. For Islesboro, this process is especially important given the Town's island location, reliance on ferry and air service, and vulnerability to coastal and weather-related hazards. This 2026 Local Hazard Mitigation Plan (LHMP) documents Islesboro's hazard mitigation planning process and identifies the hazards, risks, and vulnerabilities most relevant to the community. It also outlines the strategies the Town will use to decrease vulnerability and increase resilience across the island.

The development of this Plan was guided by local officials, regional and state partners, and input from Islesboro residents. The process incorporated an evaluation of past hazard events, current risk assessments, and forward-looking considerations such as climate change, sea level rise, and evolving coastal storm impacts. Community engagement played an essential role in identifying priorities and ensuring the Plan reflects Islesboro's unique challenges and strengths.

The Islesboro Hazard Mitigation Plan was developed through an inclusive and participatory process that engaged town officials, emergency responders, community organizations, and the public. The planning area encompasses the entire jurisdiction of Islesboro, including its roadways, ferry terminal, critical facilities, and residential and commercial areas. The planning team was led by the Town Manager and included representation from the Islesboro Fire Department, Emergency Management Director and Public Works Department. Nonprofit organizations contributed environmental, cultural, and social perspectives, while seasonal residents and business owners were invited to participate through surveys and public meetings, ensuring that the broader community's perspectives were included.

Public involvement was a cornerstone of the planning process. Two community-wide surveys collected feedback on hazard concerns, past experiences, and preparedness levels. Several public workshops allowed residents to review draft findings, examine risk assessment data, and prioritize mitigation actions. Recognizing the island's limited access to high-speed internet and the challenges of engaging a seasonal population, the planning team offered both in-person and remote opportunities to maximize participation.

Documentation supporting the planning process, including meeting materials, surveys, and outreach records, is included in Appendix A and Appendix B.

The planning process was also informed by existing plans and policies, including the Islesboro Comprehensive Plan[5], the Town's Emergency Operations Plan, the Waldo County Hazard

[5] https://townofislesboro.com/committees/comprehensive-plan/

Mitigation Plan[6], and the Maine Climate Action Plan[7]. Integrating these resources ensured consistency with ongoing regional and state efforts, while tailoring the mitigation strategy to Islesboro's specific needs.

This LHMP was prepared pursuant to the Disaster Mitigation Act of 2000 (Public Law 106-390), the implementing regulations published in the Federal Register on February 26, 2002 (44 CFR §201.6) and finalized on October 31, 2007, as well as FEMA's latest LHMP guidance effective April 2025.

DMA Process	
Organize Resources	
201.6(c)(1) – A1	1. Organize the Planning Effort
201.6(b)(1) -A3	2. Involve the Public
201.6(b)(2) and (3) – A2/A4	3. Coordinate with Other Departments and Agencies
Assess Risks	
201.6(c)(2)(i) – B1	4. Identify the Hazards
201.6(c)(2)(ii) – B2	5. Assess the Risks
Develop the Mitigation Plan	
201.6(c)(3)(i) – C3	6. Set Goals
201.6(c)(3)(ii) – C2/C4	7. Review Possible Activities
201.6(c)(3)(iii) – C5	8. Draft and Action Plan
Implement the Plan and Monitor Progress	
201.6(c)(5) – F1	9. Adopt the Plan
201.6(c)(4) – D1-D3	10. Implement, Evaluate, and Revise the Plan

[6] https://www.waldocountyme.gov/wp-content/uploads/2025/07/2025-Hazard-Mitigation-Plan.pdf
[7] https://www.maine.gov/climateplan/sites/maine.gov.climateplan/files/2025-10/MWW_Guide.pdf

Coordination with the Maine Emergency Management Agency (MEMA), the Islesboro Select Board, the Local Emergency Management Director, and the Sea Level Rise Committee (SLRC) helped ensure that hazards, vulnerabilities, and priorities were accurately identified.

A detailed risk assessment was conducted to evaluate the hazards most relevant to Islesboro, including coastal flooding, winter storms, sea level rise, ferry service disruptions, and wildfire risk. This assessment drew on historical hazard data, state and federal resources, and local knowledge unique to Islesboro. Based on this analysis, the Town developed a targeted mitigation strategy to strengthen community resilience and protect critical infrastructure, services, and property.

Once reviewed and approved by MEMA and FEMA, this LHMP will be formally adopted by the Islesboro Select Board and implemented as a five-year guiding framework for hazard mitigation activities and investments.

4.2 Planning Team and Stakeholder Participation (A1-b, A2-a, A3-a)

The following table identifies the organizations, agencies, and stakeholders that participated in or were invited to participate in the planning process, along with how they were engaged.

Organization / Agency	Role / Function	Participation Type	Method of Engagement
Town of Islesboro	Lead Agency	Planning Team	Direct participation, meetings
Town Manager (Janet Anderson)	Project Lead	Planning Team	Kickoff, coordination meetings
Emergency Management Director (Fred Porter)	Emergency Planning	Planning Team	Meetings, risk assessment input
Islesboro Fire Department (Murt Durkee)	Emergency Response	Planning Team	Meetings, hazard input
Public Works Department (Jordy Watson)	Infrastructure	Planning Team	Meetings, infrastructure data

Islesboro Sea Level Rise Committee (Shey Conover, Fred Porter)	Town Committee	Planning Team	Survey, risk assessment input, public meetings, review
Waldo County EMA	Regional Coordination	Partner Agency	Guidance, review
MEMA	State Agency	Partner Agency	Guidance, review
National Weather Service - Gray	Federal Agency	Partner Agency	Guidance, review
Select Board	Governance	Stakeholder	Survey, public meetings
Residents (Year-round & Seasonal)	Public	Public	Survey, public meetings
Local Businesses (examples listed below)	Economic Stakeholders	Invited	Survey participation, public meetings
Community Organizations (examples listed below)	Civic Support	Invited	Meetings, outreach
Islesboro Historical Society	Civic Support	Invited	Survey, public meetings
Neighboring Communities	Regional Coordination	Invited	Coordination outreach

Stakeholders were invited through multiple methods including public notices, direct outreach, survey and public meetings. Engagement opportunities included two public meetings, a community-wide survey open from September 2024 through January 2025, and ongoing coordination with local and regional partners.

All island businesses, as well as those that serve the island, were invited to provide feedback, participate in the survey, and attend public meetings offered both in person and virtually. Some examples of businesses that were invited to participate include the Island Market, Grindle Point Sailor’s Museum Gift Shop, Tarratine Club of Dark Harbor, and Island Property Dark Harbor Boatyard. A mix of year-round and seasonal businesses was engaged, representing a range of sectors such as general retail and fuel, real estate, marine services, and local shops.

Community organizations were also invited to participate, including local churches, the community center, the historical society, eldercare service providers, and the K to 12 school. In addition, neighboring towns were invited to participate and provide feedback during the process, including Lincolnville, Northport, and Castine.

Documentation of these outreach methods is provided in Appendix B.

4.3 Public Involvement - (A3-a)

Public involvement was a cornerstone of the planning process. Islesboro utilized multiple engagement strategies to ensure broad participation, including:

- Two public meetings
- A community-wide survey open from September 2024 through January 2025
- Direct outreach to residents, businesses, and community organizations
- In-person and remote participation opportunities

Public input directly informed hazard identification, vulnerability assessment, and mitigation action prioritization. Feedback gathered from residents was incorporated throughout this plan, ensuring that the mitigation strategy reflects local knowledge, experiences, and priorities.

In depth information on this public involvement can be found in section 4.6.

Supporting documentation of public engagement activities is included in Appendix B.

4.4 Summary of Review

As Islesboro's first Local Hazard Mitigation Plan (LHMP), this document represents an important milestone in the Town's efforts to formally assess hazard risks, identify vulnerabilities, and establish a framework for building resilience. The plan was developed with guidance from FEMA's Local Mitigation Planning Policy Guide (2025)[8], which emphasizes the importance of considering future hazard conditions, equity, and community-specific vulnerabilities in local hazard mitigation planning.

Two primary drivers shaped this Plan. First, the State of Maine has taken significant steps in recent years to strengthen its resilience policies, regulations, and funding opportunities to address increasing environmental risks. These initiatives align closely with FEMA's Hazard Mitigation Assistance (HMA) programs, administered through the Maine Emergency Management Agency (MEMA), and provide Islesboro with new opportunities to partner with

[8] Local Mitigation Planning Handbook https://www.fema.gov/sites/default/files/documents/fema_hmd_2025-local-mitigation-planning-handbook_06122025.pdf

state agencies and leverage technical and financial support for resilience projects. For example, the State Hazard Mitigation Plan (SHMP) has been updated to incorporate resilience priorities, expanding partnership opportunities for municipalities like Islesboro.

Second, FEMA's 2025 policy guidance requires local plans to explicitly consider long-term hazard risks as well as equity and resource challenges facing disadvantaged or at-risk populations. For Islesboro, this means giving special attention to how hazards affect vulnerable groups, including older residents, medically dependent individuals, and seasonal populations who may have limited access to emergency resources.

Additional motivations for preparing this first LHMP include:

- the Town's exposure to emerging environmental hazards such as sea level rise and extreme heat;
- recent severe weather events, both declared and undeclared, that caused damages and disruptions;
- new geospatial and hazard data that improve local risk assessments; and
- the recognition of capability gaps in ferry service continuity, emergency power reliability, and wildfire suppression capacity.

The Planning Team adopted a focused and collaborative approach to ensure the plan not only meets FEMA's updated standards but also provides clear benefits to the community. The work was organized into three major areas of emphasis:

1. **Natural Hazard Risks** – identifying the full range of hazards that affect Islesboro and evaluating their potential impacts on people, infrastructure, and natural systems;
2. **Capabilities** – documenting state and local resources, policies, and programs that support hazard mitigation; and
3. **Capability Gaps and Priorities** – developing problem statements and action strategies to address vulnerabilities and guide mitigation investments over the next five years.

This LHMP is both a compliance document and a roadmap. By aligning Islesboro's priorities with FEMA's 2025 policy expectations and Maine's resilience initiatives, the plan ensures the Town will be eligible for federal hazard mitigation funding while positioning the community to proactively address the challenges of changing environmental conditions and unique island vulnerabilities.

4.5 Resources used to Create the Plan - (A4-a)

The Islesboro Hazard Mitigation Plan was developed using input from a wide range of resources, data sources, and stakeholder contributions that are cited throughout the document. While hundreds of references and informational materials were reviewed to strengthen the plan, it is not practical to list each one individually. However, several key resources were instrumental in shaping the development of this plan. These include national and state-level guidance documents, technical reports, and planning tools that informed Islesboro's hazard identification, risk assessment, and mitigation strategy development. The most influential of these resources are referenced below and cited throughout the plan to ensure transparency, accuracy, and alignment with federal and state standards.

Maine State Hazard Mitigation Plan - 2023 Update[9]
Maine Won't Wait: a Four-Year Plan for Climate Action[10]
Maine's Climate Future: 202 Update[11]
Maine Risk Map[12]
Multi-Jurisdictional Hazard Mitigation Plan For Select Municipalities located in Waldo County, Maine[13]
Islesboro Emergency Operations Plan
FEMA Map Service Center (FIRM Maps)[14]
FEMA National Flood Insurance Program (NFIP) data
Maine Floodplain Management Program

In addition to Flood Insurance Rate Maps (FIRMs), the Town of Islesboro incorporated data from the Flood Insurance Study (FIS) for Waldo County, Maine (Effective July 6, 2015). The FIS provides detailed information on flood profiles, base flood elevations (BFEs), coastal flood zones (AE and VE zones), wave heights, and storm surge modeling.

This information was used to better understand flood risk along vulnerable areas such as The Narrows, Ferry Road, and Grindle Point. The FIS data supports the Town's floodplain management efforts, informs development standards, and guides mitigation actions such as roadway elevation, shoreline stabilization, and infrastructure protection.

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[9] https://www.maine.gov/mema/sites/maine.gov.mema/files/inline-files/Maine_SHMP2023_Final_full.pdf
[10] https://www.maine.gov/climateplan/sites/maine.gov.climateplan/files/2024-11/MWW_2024_Book_112124.pdf
[11] https://digitalcommons.library.umaine.edu/climate_facpub/6/

[12] https://experience.arcgis.com/experience/202cb7e1444c4881b44b7586136ef9e7/
[13] https://www.waldocountyme.gov/wp-content/uploads/2025/07/2025-Hazard-Mitigation-Plan.pdf

[14] https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd&extent=-68.89415713241837,44.322808857352705,-68.8792869656398,44.33048392168077

Incorporating the FIS ensures consistency with National Flood Insurance Program (NFIP) requirements and strengthens the technical basis for flood hazard analysis within this plan. These resources were used to support hazard identification, flood risk analysis, and development of mitigation strategies, particularly for flood-related hazards.

4.6 Community Engagement - (A3-a)

4.6.1 Kickoff

On June 21, 2024, the consulting team met with the Islesboro Town Manager and the Local Emergency Management Director to officially initiate the hazard mitigation planning process. This meeting served as an important kickoff to outline the overall approach, expectations, and timeline for developing the town's first Local Hazard Mitigation Plan. During the discussion, participants reviewed the required elements of a FEMA-approved plan, including data collection needs, community engagement strategies, and coordination with regional and state partners such as the Maine Emergency Management Agency. The group also identified key local stakeholders and potential sources of information to ensure that the plan accurately represents Islesboro's specific risks and community priorities. Establishing this foundation early in the process helped clarify roles and responsibilities and set clear milestones for future meetings, public outreach, and plan development activities.

4.6.2 Community Survey

The Islesboro Hazard Mitigation Survey was developed to collect input from residents on local hazards, vulnerabilities, and priorities as part of creating the town's first Local Hazard Mitigation Plan that was open to the public from September 2024 - January 2025.

Survey results show that Islesboro residents are highly aware of environmental risks, concerned about the impacts of severe weather, and supportive of proactive municipal measures to improve community resilience.

Respondents identified severe winter storms and coastal flooding as the most significant threats, followed by high winds, power outages, and rising sea levels. While drought and wildfire were seen as lesser risks, several participants noted these hazards are becoming more relevant as environmental conditions shift. Many residents mentioned that Islesboro's geographic isolation, particularly its dependence on ferry service, can magnify the effects of these events, especially during prolonged power outages or major storms.

Most participants reported having experienced previous hazard impacts such as extended power outages, road washouts, and damage to trees, docks, and private property. The island's limited road network and reliance on a single ferry connection were highlighted as key

vulnerabilities during emergencies. While many respondents felt somewhat prepared for future hazards, they cited a lack of backup power, communication challenges, and uncertainty about shelter locations or evacuation routes as areas needing improvement.

Residents strongly supported the town investing in hazard mitigation measures, including infrastructure upgrades to improve drainage and protect coastal roads, backup power systems for critical facilities like the Town Office and Fire Station, and enhanced emergency communication systems such as public alerting tools and radio networks. Shoreline and flood resilience projects, particularly those that restore natural buffers, were also highly prioritized.

While residents varied in the terms, they used to describe environmental changes, there was clear agreement that Islesboro is experiencing more intense storms, rising tides, and unpredictable weather patterns. Many respondents emphasized the importance of aligning local planning with state and federal resilience initiatives while maintaining the island's rural character and sense of community.

Finally, the survey revealed strong interest in continued public involvement. Many residents expressed willingness to serve on committees, attend workshops, or participate in public meetings related to hazard preparedness. Respondents recommended the town use multiple communication methods, such as social media, newsletters, and ferry signage, to share information and encourage engagement. Overall, the findings show that Islesboro residents are aware, engaged, and eager to see the town take active steps to strengthen infrastructure, improve communication, and build long term resilience against natural hazards.

4.6.3 Public Meeting 1

On Wednesday, October 23, 2024, the consulting team hosted the first public meeting for the Islesboro Hazard Mitigation Plan, bringing together members of the planning team, the Select Board, and local residents. The meeting served as an introduction to the planning process and provided an opportunity for community members to learn about the goals and benefits of hazard mitigation. A detailed slideshow presentation was shared, explaining how the plan identifies local risks, outlines strategies to reduce future disaster impacts, and supports eligibility for state and federal funding. Attendees were encouraged to share their experiences and concerns, helping ensure that the plan reflects the community's priorities and local knowledge.

4.6.4 Public Meeting 2

A public meeting was held on January 29, 2025, to review the progress of the Islesboro Hazard Mitigation Plan and gather community feedback. The consulting team and local officials presented updates on the planning process, including data collection, identified hazards, and draft mitigation strategies. Residents shared concerns about natural disasters such as coastal flooding, winter storms, and power outages, emphasizing the need for improved emergency access and communication. The input received during this meeting helped refine the plan's

goals and actions to ensure they reflect local experiences and priorities, reinforcing the town's commitment to a collaborative, community-driven approach to hazard mitigation.

Public Feedback Theme	Source of Input	How Feedback Was Incorporated into the Plan
Severe winter storms and coastal flooding identified as top hazards	Community survey, public meetings	Prioritized in Section 5 Risk Assessment and assigned the highest hazard ratings, directly informing the mitigation strategy
Flooding and erosion concerns at The Narrows and Ferry Road	Public meetings, resident input	Addressed through mitigation actions M-1 and M-2 and additional coastal infrastructure projects in Section 7
Dependence on ferry service and risk of isolation during emergencies	Public meetings, survey responses	Incorporated into mitigation actions focused on protecting ferry access, maintaining transportation routes, and improving emergency coordination
Extended power outages and lack of backup power	Community survey	Led to mitigation actions that expand backup power at critical facilities such as the Town Office, Fire Station, and essential services
Communication challenges during emergencies	Survey responses, public meetings	Addressed through actions such as the Emergency Preparedness Outreach Program and Seasonal Resident Hazard Awareness Campaign
Need for improved drainage and infrastructure resilience	Survey responses	Reflected in mitigation actions focused on culvert upgrades, stormwater improvements, and roadway elevation projects
Support for natural resource protection and shoreline resilience	Survey responses, stakeholder input	Incorporated into actions such as wetland restoration, shoreline stabilization, and nature-based mitigation strategies

Desire to maintain rural character while improving resilience	Public meetings	Guided development of mitigation actions that balance infrastructure improvements with environmental protection and community values
Interest in continued public involvement	Survey responses	Incorporated into Section 8 Plan Maintenance through commitments to ongoing public engagement, meetings, and outreach

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5.0 Risk Assessment - (Element B)

5.1 Hazard Identification (B1)

The Islesboro Hazard Mitigation Planning Team, in coordination with the Waldo County Emergency Management Agency, reviewed the range of natural hazards that could impact the island community. These hazards were identified through a comprehensive process that incorporated input from the Islesboro Emergency Management Director, Town officials, and residents, as well as data from past disaster declarations affecting the region. The review also utilized current mapping resources such as the Maine Risk Map[15], climatological and geological information, and findings from the countywide hazard identification and risk assessment. This collaborative approach ensured that the hazards most relevant to Islesboro, such as coastal flooding, winter storms, and high wind events, were accurately evaluated to inform local mitigation priorities.

Hazard identification and analysis also incorporate FEMA disaster declaration data, NOAA records, and regional hazard trends to ensure that both localized and county-wide events are considered in assessing risk.

5.1.1 List of Potential Hazards

The following list of hazards has been developed using various information from the following sources:

- Maine Emergency Management Agency (MEMA) Hazard Identification and Vulnerability Assessment Workbook
- Maine State Hazard Mitigation Plan (2023)[16]
- NFPA 1600 (2016)
- FEMA 386-1: Understanding Your Risks
- IFSTA Emergency Management Handbook (1st Edition)

[15] https://maine.maps.arcgis.com/apps/mapviewer/index.html?webmap=eb8ec0935ce544dbaa80aec18c8db785

[16] https://www.maine.gov/mema/sites/maine.gov.mema/files/inline-files/Maine_SHMP2023_Final_full.pdf

5.1.2 List of Natural Hazards:

- Avalanche
- Coastal Erosion
- Coastal Storm
- Drought
- Earthquake
- Extreme Heat
- Extreme Cold
- Flood
- Geomagnetic Storm
- Glacier
- Hailstorm
- Landslide
- Sea Level Rise
- Tornado
- Tropical Cyclone
- Tsunami
- Volcanic Activity
- Windstorm
- Winter Storm
- Wildfire

Due to Islesboro's geography, geology, and climate, several natural hazards identified at the national level are not considered realistic threats to the island community within any reasonable timeframe. These hazards are either geographically impossible or so unlikely that they present no measurable risk to Islesboro. These include:

- Avalanche
- Glacier
- Volcanic Activity

5.1.3 Hazards Eliminated

The Islesboro Hazard Mitigation Planning Team identified several hazards that were eliminated from further consideration in this plan. These hazards were excluded based on a combination of factors, including the absence of historical occurrences on or near Islesboro, a lack of county-wide severity, limited scientific or climatological data indicating potential risk, or an overall low likelihood of occurrence.

It is important to note that the decision to exclude these hazards from detailed analysis does not imply that they are impossible or that they could never occur. Rather, the available data suggest that their probability and potential impact are minimal compared to other hazards that pose more immediate and measurable risks to Islesboro's residents, infrastructure, and natural environment. Should conditions change or new information become available, these hazards may be reconsidered in future plan updates.

Hazard	Records Reviewed	Justification
Earthquake	Maine Geological Survey records	Although minor earthquakes occasionally occur in Maine, no significant seismic activity has been recorded on or near Islesboro. The overall risk to the island community is considered very low.
Extreme Heat	NOAA records	The highest recorded temperature near Islesboro was 104°F in 1935. Typical summer highs reach the upper 80s°F, with only rare days in the 90s°F. Prolonged extreme heat events are highly unlikely for the island.
Hailstorm	Maine EMA records NOAA records	Hailstorms occasionally occur on Islesboro but are rare and minor, with no recorded instances of damage in Waldo County.
Landslide	Maine Geological Survey records	Since 1868, Maine has recorded 11 landslides causing damage to homes or roads, with none occurring in Waldo County. A minor coastal landslide was recorded in Stockton Springs in 2009 with no damage or injuries. While some low coastal bluffs in the region are mapped as potential landslide areas, no significant property on Islesboro is at severe risk.
Tsunami	NOAA records	There have been no recorded tsunamis affecting Islesboro or the surrounding region. According to NOAA, Penobscot Bay's coastal topography makes impacts over three feet highly unlikely, resulting in an extremely low but non-zero risk. As noted by MEMA, any event would likely present as a sudden tide-like surge, not a breaking wave, potentially adding several feet to existing tide levels if it coincides with high tide.

*Dam Failure was reviewed as part of the hazard identification process based on its inclusion in the Maine State Hazard Mitigation Plan. However, there are no dams located on Islesboro, nor are there upstream dams that pose a failure risk to the island. Due to the absence of dam infrastructure and

lack of exposure, dam failure is not considered a credible hazard and has been excluded from further analysis.

5.1.4 Hazards Profiled

- Coastal Erosion
- Coastal Storm (Storm Surge and Coastal Flooding)
- Drought
- Extreme Cold
- Geomagnetic Storm
- Inland Flooding
- Sea Level Rise
- Severe Windstorm
- Tornado
- Tropical cyclone
- Wildfire
- Winter Storm (including Nor'easters and Ice Storms)

Many of the hazards identified for Islesboro have overlapping impacts and shared consequences. To avoid duplication and better illustrate interconnected risks, the following table groups hazards by their common effects. The primary consequences resulting from these hazards include:

Identified Hazard	Loss of Buildings	Damage to Water / Sewer Systems	Loss of Roads	Loss of Grid Power
Coastal Erosion	Coastal buildings and private property may experience flooding and shoreline loss.	Coastal septic systems and wastewater components at risk of flooding.	Coastal roads and access points (e.g., Main Road segments) may be washed out or damaged.	Limited losses directly from flooding, but prolonged restoration if poles or transformers are damaged.

Identified Hazard	Loss of Buildings	Damage to Water / Sewer Systems	Loss of Roads	Loss of Grid Power
Coastal Storm (Surge and Flooding)	Coastal buildings and private property may experience flooding and shoreline loss.	Coastal septic systems and wastewater components at risk of flooding.	Coastal roads and access points (e.g., Main Road segments) may be washed out or damaged.	Limited losses directly from flooding, but prolonged restoration if poles or transformers are damaged.
Drought	Minimal direct structural damage; increased fire risk may threaten buildings in prolonged dry conditions.	Potential strain on private wells and groundwater supplies; increased risk of septic system performance issues in dry soils.	No direct impact; secondary impacts possible from increased wildfire risk affecting access.	Minimal direct impact; possible increased demand on electrical systems due to cooling needs during associated heat events.
Extreme Cold	Limited building damage; potential for frozen pipes or minor structural	No direct damage; possible strain on water systems due to freezing conditions.	Minimal icy conditions may cause short-term transportation challenges.	High risk of outages due to frozen lines or increased energy demand.
Geomagnetic Storm	None.	Possible temporary impact to communications and navigation systems.	None.	Potential for regional, short- to long-term grid disruption.

Identified Hazard	Loss of Buildings	Damage to Water / Sewer Systems	Loss of Roads	Loss of Grid Power
Inland Flooding (Heavy Rain, Spring Runoff)	Occasional flooded basements or minor structural damage.	Minimal impact; localized drainage issues possible.	Localized washouts on low-lying or unpaved roads.	Limited power loss due to secondary wind or tree impacts.
Sea Level Rise	Long-term threat to coastal buildings and properties; potential for foundation and structural impacts.	Gradual inundation risk for coastal septic systems and drainage infrastructure.	Increased risk of chronic flooding and erosion on coastal roads and access points.	Minimal direct impact, but could increase vulnerability of coastal power infrastructure over time.
Tornado	No recorded tornado damage on Islesboro; minimal structural risk due to rare occurrence.	None anticipated.	None; possible minor debris on roads if high winds occur.	Brief, localized power loss possible if trees or lines are impacted.
Tropical Cyclone	Occasional roof, siding, and structural damage to exposed buildings.	None anticipated.	Roads blocked by downed trees and powerlines.	Short- to long-term outages depending on storm severity.

Identified Hazard	Loss of Buildings	Damage to Water / Sewer Systems	Loss of Roads	Loss of Grid Power
Wildfire (Localized /WUI Event)	Potential loss of buildings in forested or rural areas.	None.	Temporary loss or blockage of access roads.	Localized outages possible; generally limited in scope.
Winter Storm (including Nor'easters and Ice Storms)	Structural damage from snow load or ice accumulation; isolated roof collapse possible.	Risk of frozen or damaged pipes; limited system disruptions due to outages.	Snow accumulation, ice, and drifting can make roads impassable for extended periods.	High likelihood of prolonged outages due to ice loading and falling trees/lines.

Note:

• Islesboro's island geography and limited road access increase vulnerability to power outages, ferry delays, and emergency response disruptions during coastal or winter storms.

• Flooding and erosion hazards primarily affect coastal roads, private properties, and waterfront utilities.

• While events such as geomagnetic storms or wildfires are considered low-probability, they are included for completeness and long-term resilience planning.

5.2 Historical Hazard Events17 - (B1-d)

Prior to the documentation below, it has been difficult to distinguish Islesboro-specific damages within NOAA or other federal records. Historical data often groups Islesboro with other midcoast or coastal Maine communities, resulting in limited detail about localized impacts. Record retention before the 1950s was inconsistent, and the town maintained minimal documentation of storm or disaster events. Furthermore, Islesboro saw relatively little development until the 1960s, meaning that earlier hazard impacts were less likely to cause measurable property damage or generate formal reporting.

17 https://www.ncei.noaa.gov/stormevents/listevents.jsp?eventType=ALL&beginDate_mm=05&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=05&endDate_dd=31&endDate_yyyy=2025&county=WALDO%3A27&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=23%2CMAINE

Date	Hazard type	Impacts on Islesboro / Region	Cost notes/Declaration
Sep 11, 1954	Hurricane Edna (post-tropical in Maine)	Heavy rain, wind, regional flooding/washouts across Maine's coast; Islesboro likely impacted given Penobscot Bay exposure.	~$25M statewide (1954 USD) reported for Maine; Islesboro-specific costs not reported. DR-24
Mar–Apr 1987	Spring floods (rain + snowmelt)	Widespread Maine river/road damage; coastal midcoast towns saw flooding—likely ferry/road interruptions for Islesboro.	Statewide event; island-specific costs not reported. DR-788
Jan 4–10, 1998	Ice Storm of '98	Prolonged outages across Maine; likely multi-day outages on Islesboro, tree/line damage.	Northeast/U.S. damages $4–7B (incl. $1.4B U.S.); Maine share substantial but not broken out by town. DR-1198
Apr 15–17, 2007	Patriots' Day Storm	Coastal flooding/erosion across Maine; midcoast impacts likely on low-lying Islesboro areas.	~$5M statewide in Maine; town-level costs not reported. DR-1693
Oct 30, 2017	Historic windstorm (sou'easter)	~400k+ outages in Maine; downed trees/lines likely blocked Islesboro roads and caused ferry/schedule issues.	No Islesboro-specific figure published; regional restoration costs significant. DR-4354
Oct 31, 2021	Halloween Storm	Heavy rain and flooding impacted infrastructure across Maine, including Waldo County. Islesboro may have experienced localized drainage and roadway impacts.	DR-4647
Dec 23, 2022	Winter Storm Elliot	Severe winter storm bringing high winds, coastal flooding, and widespread power outages across Maine. Islesboro likely experienced outages and ferry disruption.	DR-4696

Dec 18, 2023	Coastal storm / flooding	New England flood event; Maine coastal/river flooding. Islesboro's low-lying areas vulnerable to tidal inundation.	Statewide/regionwide damages; Islesboro costs not published. DR-4754
May 1, 2023	May Day Storm	Heavy rainfall and flooding across Maine; impacts in Waldo County included road damage and drainage issues. No specific documented impacts to Islesboro, but similar vulnerabilities exist.	DR-4719
Jan 10, 2024	Coastal storm: record-level surge + high winds	Significant island damage reported; trees down on Main Rd, Ferry Rd, West Bay Rd, etc.; "highest surf in recent memory."	State civil emergency declared for coastal counties; town-specific costs not yet published. DR-4764
Jan 13, 2024	Second coastal storm (back-to-back)	Further coastal damage and outages statewide; working waterfronts heavily hit around Penobscot Bay; ferry road on Islesboro reported flooded in accounts.	No Islesboro-only figure; widespread losses to waterfront infrastructure regionally.
2018–2024 (context)	Repeated extreme surge events	~11 extreme storm-surge events along Maine coast in 2018-2024 (avg 1.8/yr), consistent with rising coastal risk affecting Islesboro.	Cost varies by event; island-specific totals typically not broken out.

Note:

- While specific damages on Islesboro were not always documented for these events, their inclusion reflects regional impacts within Waldo County. These events demonstrate the types of hazards that affect the area and reinforce the Town's vulnerability to flooding, severe storms, and infrastructure disruption.

- The town's own Sea Level Rise Committee materials and the Narrows Flooding Adaptation Project page document recurring flooding at the Narrows and active mitigation design work, useful for linking events to forward-looking projects.

- Grindle Point Lighthouse and ferry-adjacent assets have acknowledged flood exposure; the lighthouse association notes sea-level-rise-driven flooding and potential adaptation (e.g., elevating the structure).

*Grindle Point Lighthouse - Jan, 2024 Flood Event

5.3 Probability Classification Framework

To ensure consistency and compliance with FEMA requirements under 44 CFR §201.6(c)(2)(i), the Town of Islesboro has established a standardized probability classification system that applies to all hazards evaluated in this plan. This framework provides a quantitative basis for describing the likelihood of hazard occurrence and ensures that all probability statements are consistent and measurable across hazard profiles.

The following table defines the probability categories used throughout this plan:

Probability Category	Annual Probability Range	Description
Certain	100 percent per year	Event is expected to occur annually or continuously
Highly Likely	90 to 99 percent per year	Event occurs frequently, often multiple times per year
Likely	50 to 89 percent per year	Event occurs regularly, typically every 1 to 2 years
Possible	10 to 49 percent per year	Event occurs occasionally, typically every 2 to 10 years
Unlikely	1 to 9 percent per year	Event is rare but has been known to occur
Very Unlikely	Less than 1 percent per year	Event is extremely rare or has no recent historical occurrence

These probability classifications are applied consistently across all hazard profiles in this section. Where appropriate, qualitative descriptions have been aligned with these categories to provide clarity and improve comparability between hazards.

This probability framework supports consistency in hazard evaluation and strengthens the linkage between hazard identification, risk assessment, and mitigation prioritization.

5.4 Hazard Profiles18 - (B1-b, B1-c, B1-d, B1-e)

5.4.1 Coastal Erosion

Location & Extent:
Islesboro's location in the center of Penobscot Bay exposes its shoreline to continuous wave action, tidal forces, and long-term sea level rise, all of which contribute to coastal erosion. The island's extensive and irregular coastline, characterized by low lying areas, unconsolidated soils, and exposed bluffs, is particularly vulnerable to gradual shoreline retreat. Shoreline retreat rates are estimated at 1 to 3 feet per year in vulnerable areas, with localized losses of 5 feet or more during major storm events. Wave heights during coastal storms can exceed 10 to 15 feet in exposed areas, accelerating erosion. Over a 10-year period, cumulative shoreline retreat in high-risk areas may exceed 10 to 30 feet, posing a direct threat to infrastructure and private property, including sections of Main Road, Ferry Road, and Grindle Point.

Previous Occurrences:
Coastal erosion on Islesboro is an ongoing, long-term process that has been documented through both resident observations and regional studies. While erosion is gradual, it is often accelerated during major storm events such as the Patriots' Day Storm of April 2007 and the December 2023 and January 2024 coastal storms. These events contributed to significant shoreline loss and damage to coastal infrastructure.

Residents have reported noticeable changes in shoreline position over time, particularly in exposed areas of the island, indicating that erosion is both persistent and worsening.

Probability:
Coastal erosion is a certain hazard, with an estimated probability of 100 percent per year, as shoreline change is an ongoing and continuous process that occurs annually and is accelerated during storm events. Unlike discrete storm events, erosion occurs annually, with incremental shoreline loss expected each year and episodic acceleration during storms. With projected sea level

[18] https://www.weather.gov/gyx/

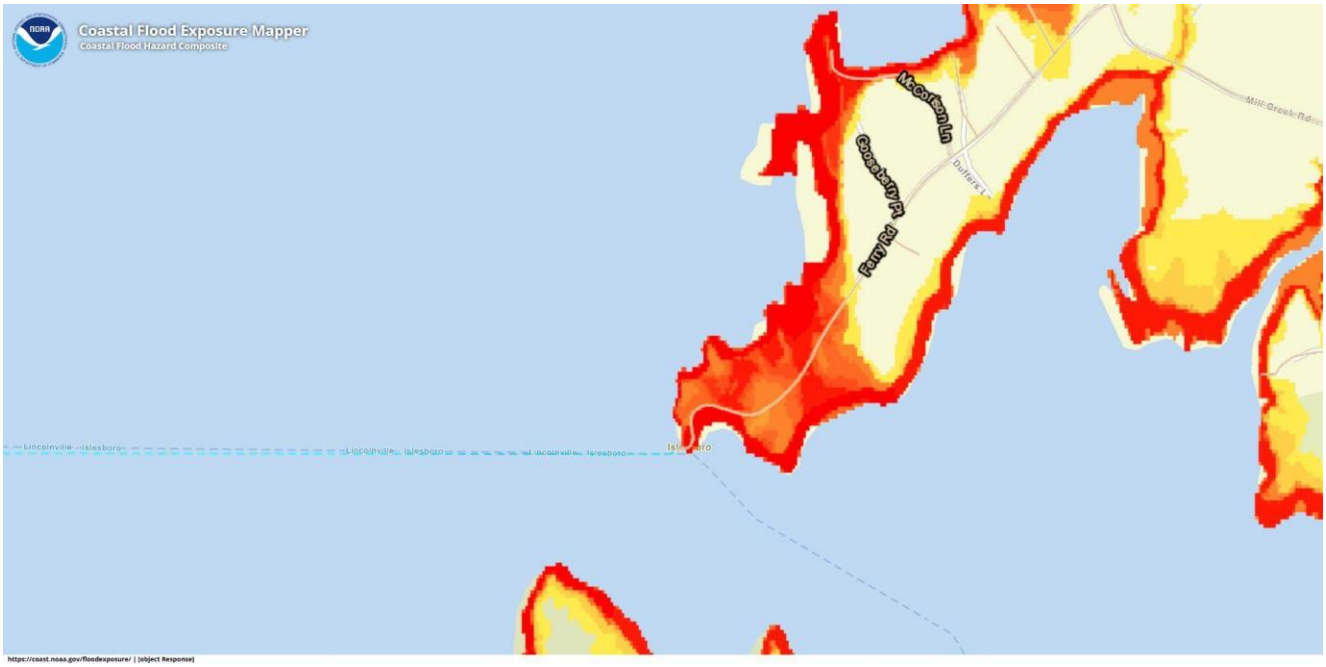
rise and increasing storm intensity, erosion rates are expected to increase over time. Continued monitoring, shoreline stabilization efforts, and strategic land use planning will be critical to managing long term impacts.

5.4.2 Coastal Storm (Surge and Flooding)

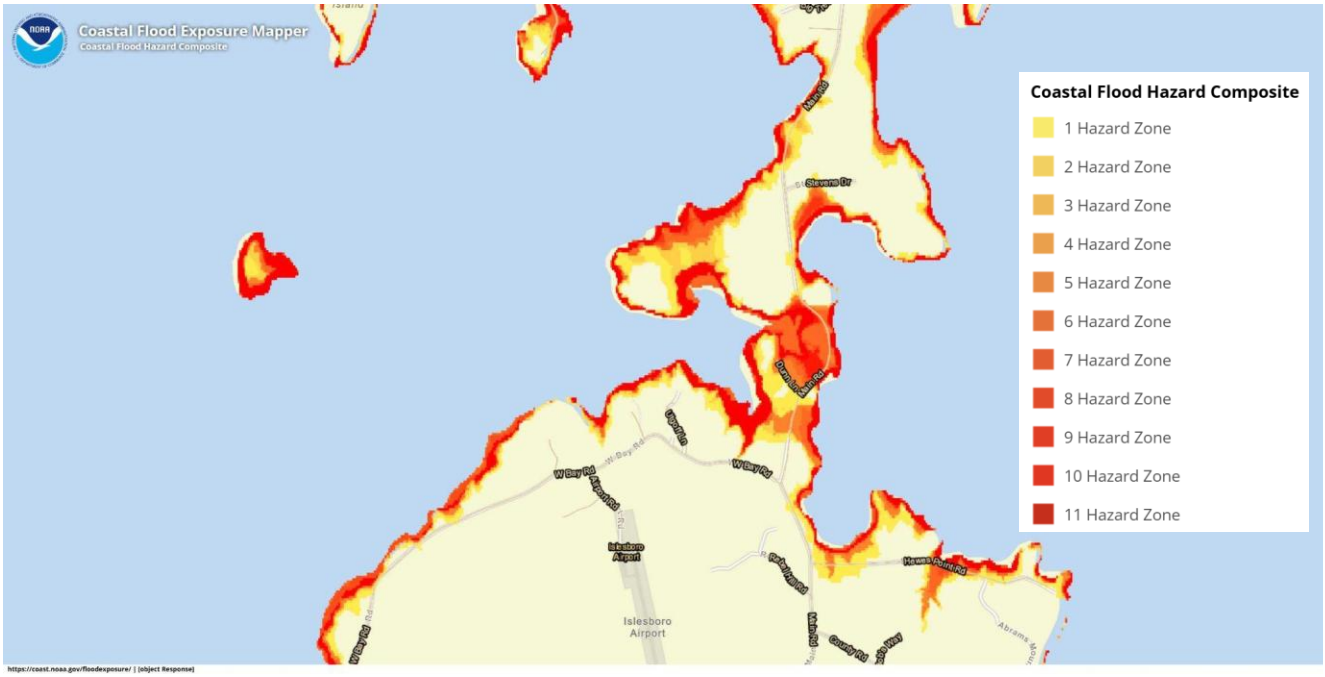
Location & Extent:
Islesboro is highly exposed to coastal storms, including nor'easters and the remnants of tropical systems, which bring storm surge, high winds, and coastal flooding. Low lying areas of the island, including Main Road near The Narrows, Ferry Road, and Grindle Point, are particularly vulnerable to inundation during these events. Storm surge combined with high astronomical tides can produce water levels 2 to 6 feet above normal high tide, with extreme events exceeding 7 feet when combined with wave action. Wave heights in Penobscot Bay can exceed 15 to 20 feet in exposed areas. Flood depths on roadways such as The Narrows and Ferry Road may reach 1 to 3 feet, making them impassable. The island's limited drainage infrastructure and reliance on a single ferry terminal significantly amplify the impacts of coastal flooding, as access for residents, goods, and emergency services may be disrupted.

Previous Occurrences:
Islesboro has experienced numerous coastal storm events that have caused flooding and infrastructure damage. The Patriots' Day Storm of April 2007 resulted in widespread coastal flooding throughout Penobscot Bay. More recently, the December 18, 2023, and January 10, 2024 storms produced record storm surges and wave action described by residents as the most severe in living memory. These back-to-back events caused damage to coastal roads, wharves, and waterfront properties, and temporarily disrupted ferry service, highlighting the island's vulnerability to storm driven flooding.

Probability:
Coastal storms are highly likely to occur, with an estimated probability of 90 to 99 percent per year. Minor impacts occur annually, with more significant storm surge and flooding events expected every 3 to 5 years. Nor'easters and Sou'easters are the most frequent drivers of coastal flooding, while tropical systems, though less common, can produce more intense impacts. Climate projections indicate an increase in storm intensity and frequency, which, combined with rising sea levels, will likely increase both the extent and severity of coastal flooding over time. Ongoing mitigation efforts, including infrastructure improvements and coastal resilience planning initiatives such as the Narrows Flooding Adaptation Study, will be essential to reducing future risk.



*The image depicts the MDOT Islesboro Ferry “Margaret Chase Smith”. Flooding of this magnitude causes the ferry to be inoperable for residents trying to get to the mainland.



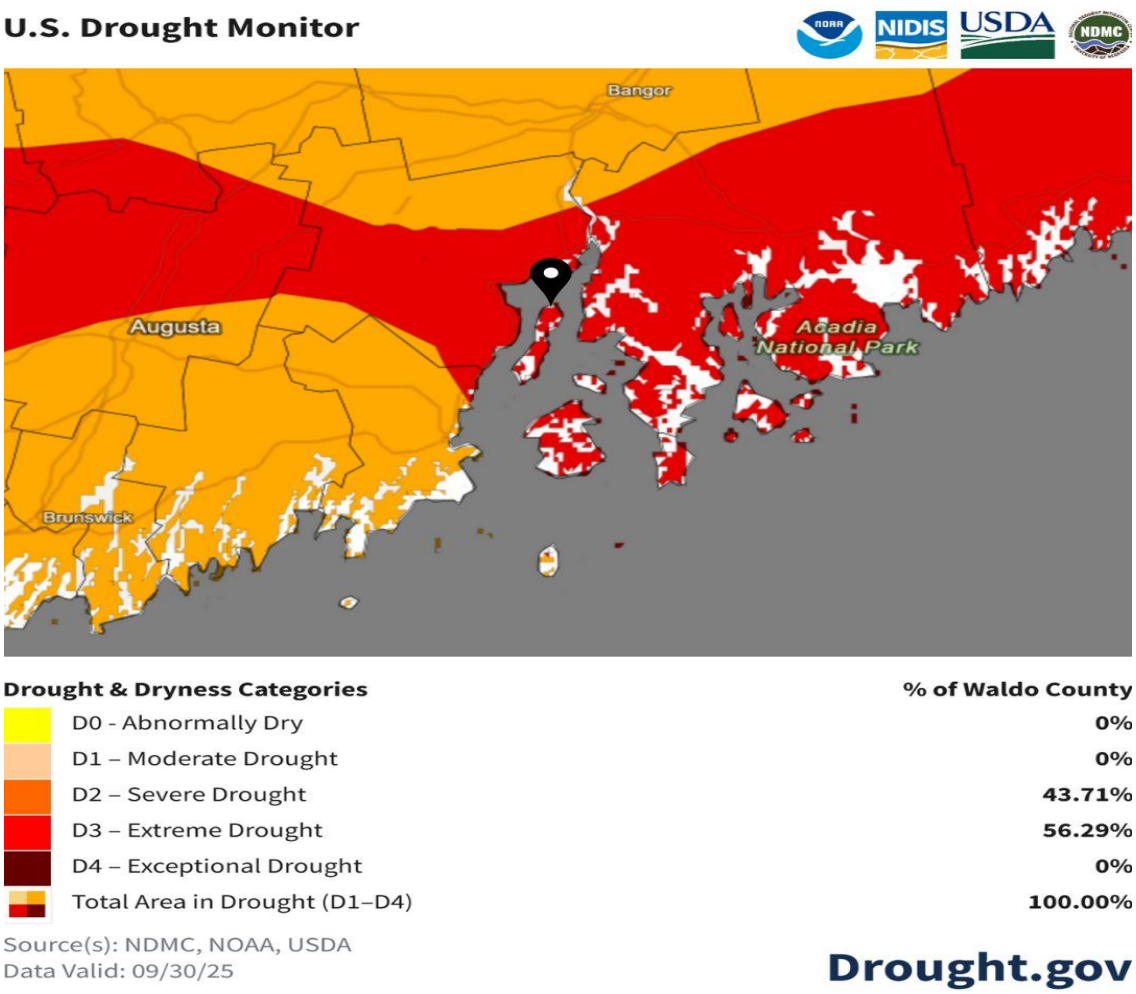
*The image depicts the Narrows with the effects of coastal flooding. Flooding to this magnitude essentially splits the island in two.

5.4.3 Drought

Location & Extent:
Drought conditions on Islesboro affect the entire island and are primarily driven by extended periods of below average precipitation combined with higher temperatures and increased evapotranspiration. Recent events have produced precipitation deficits of 4 to 8 inches below normal over seasonal periods. As an island community with no large freshwater bodies or surface water reservoirs, Islesboro relies heavily on private wells and limited groundwater resources. During prolonged dry periods, groundwater recharge is reduced, which can lead to declining well levels, reduced water availability, and increased stress on vegetation. Drought conditions may also increase wildfire risk and place strain on septic systems and shallow aquifers. While Islesboro's coastal climate moderates extreme drought conditions compared to inland areas, even moderate drought can have noticeable impacts on water supply and ecosystem health.

Previous Occurrences:
Historically, Maine has experienced periodic drought conditions, including notable statewide droughts in 2016 and 2020. During these events, parts of coastal Maine, including Waldo County, experienced abnormally dry to moderate drought conditions as classified by the U.S. Drought Monitor. While no severe water shortages have been formally documented on Islesboro, residents have reported lower well levels and dry conditions affecting landscaping and vegetation during extended dry periods.

Probability:
Drought is considered a possible hazard, with an estimated probability of 10 to 49 percent per year. While severe drought is less frequent, moderate drought conditions occur periodically and may increase over time. While severe drought conditions are relatively infrequent due to the moderating influence of the surrounding ocean, climate projections for Maine indicate increasing variability in precipitation and longer dry periods between storms. These trends suggest that drought conditions may become more common and more impactful over time, particularly in late summer and early fall. Continued monitoring of groundwater conditions and public awareness of water conservation practices will be important for maintaining resilience to drought.



*Pin shows Islesboro, Maine location

5.4.4 Extreme Cold

Location & Extent:
Islesboro, like the rest of coastal Maine, experiences periods of extreme cold each winter, though the island's surrounding marine environment slightly moderates temperatures compared to inland areas. Extreme cold events can produce air temperatures ranging from 0 to negative 10 degrees Fahrenheit, with wind chill values reaching negative 20 to negative 35 degrees Fahrenheit. These conditions may persist for 2 to 5 days. Cold snaps with temperatures well below freezing can persist for several days, resulting in frozen pipes, equipment failures, and increased demand for heating fuel and electricity. Prolonged cold also poses risks to vulnerable populations, including the elderly and those with limited access to reliable heating systems. Islesboro's island location and dependence on ferry transportation can complicate emergency response and fuel resupply during extended cold weather events, particularly if ice or wind conditions disrupt ferry service. There is also a low probability but notable

potential for harbor ice formation, which could impact ferry routes and further limit access to and from the island during extreme cold periods.

Previous Occurrences:
Extreme cold events have affected Islesboro on numerous occasions, typically following strong Arctic air outbreaks. Significant cold waves occurred in January 1994, February 2015, and January 2023, with wind chills reaching dangerously low levels. During these events, heating system failures, frozen pipes, and short-term power outages were reported throughout the region. Extended cold in February 2015 coincided with record snow accumulation, further straining local resources and ferry operations. While Islesboro generally avoids the extreme temperature lows seen in northern Maine, the combined effects of cold, wind, and isolation can still create substantial public safety and infrastructure challenges.

Probability:
Extreme cold events are highly likely to occur, with an estimated probability of 90 to 99 percent per year, as at least one significant cold event typically occurs each winter season. Temperatures below zero degrees Fahrenheit, while infrequent, are expected every few years, often accompanied by high winds and hazardous wind chills. Although climate data suggests that Maine's average winter temperatures are gradually warming, increased variability in weather patterns could lead to more frequent short duration cold extremes. Preparation and mitigation measures such as winterizing water infrastructure, ensuring adequate heating fuel supplies, and maintaining emergency warming centers remain essential for protecting residents and sustaining operations during prolonged cold events.

5.4.5 Geomagnetic Storm

Location & Extent:
Geomagnetic storms, also known as solar storms, occur when charged particles from solar activity interact with the Earth's magnetic field, potentially disrupting electrical and communication systems. While these events are global in nature, their impacts can vary locally depending on latitude and the resilience of infrastructure. Islesboro, located at a relatively high geomagnetic latitude and dependent on grid supplied electricity and communication systems, is vulnerable to power transmission disruptions, radio interference, and GPS inaccuracies during strong solar events. Geomagnetic storms are measured using the NOAA G scale. Severe G4 to G5 events could result in regional power outages lasting 24 to 72 hours or longer. The island's limited redundancy in communication and power infrastructure heightens its sensitivity to any extended outages resulting from geomagnetic activity.

Previous Occurrences:
Maine has been indirectly affected by past geomagnetic storm activity, including major global events in March 1989, October 2003, and September 2017, which caused temporary power grid fluctuations and communication interference in parts of North America. While there are no recorded local damages or service interruptions specifically attributed to geomagnetic storms on Islesboro, the island could experience indirect effects from broader grid instability or communication loss originating on the mainland. These impacts could temporarily affect navigation systems, ferry operations, or emergency communication networks that rely on satellite or radio signals.

Probability:
Geomagnetic storms are considered unlikely, with an estimated probability of 1 to 9 percent per year for significant events capable of causing widespread disruption. Minor geomagnetic disturbances occur multiple times per year, while significant solar storms capable of regional power disruptions are expected once every one to two decades. The probability of a geomagnetic storm causing direct damage on Islesboro is minimal; however, its island dependence on external electrical supply and digital communications means that preparedness, such as maintaining backup generators, redundant communications using radio systems, and local emergency coordination procedures, is important to ensure continuity of operations should a severe geomagnetic event occur.

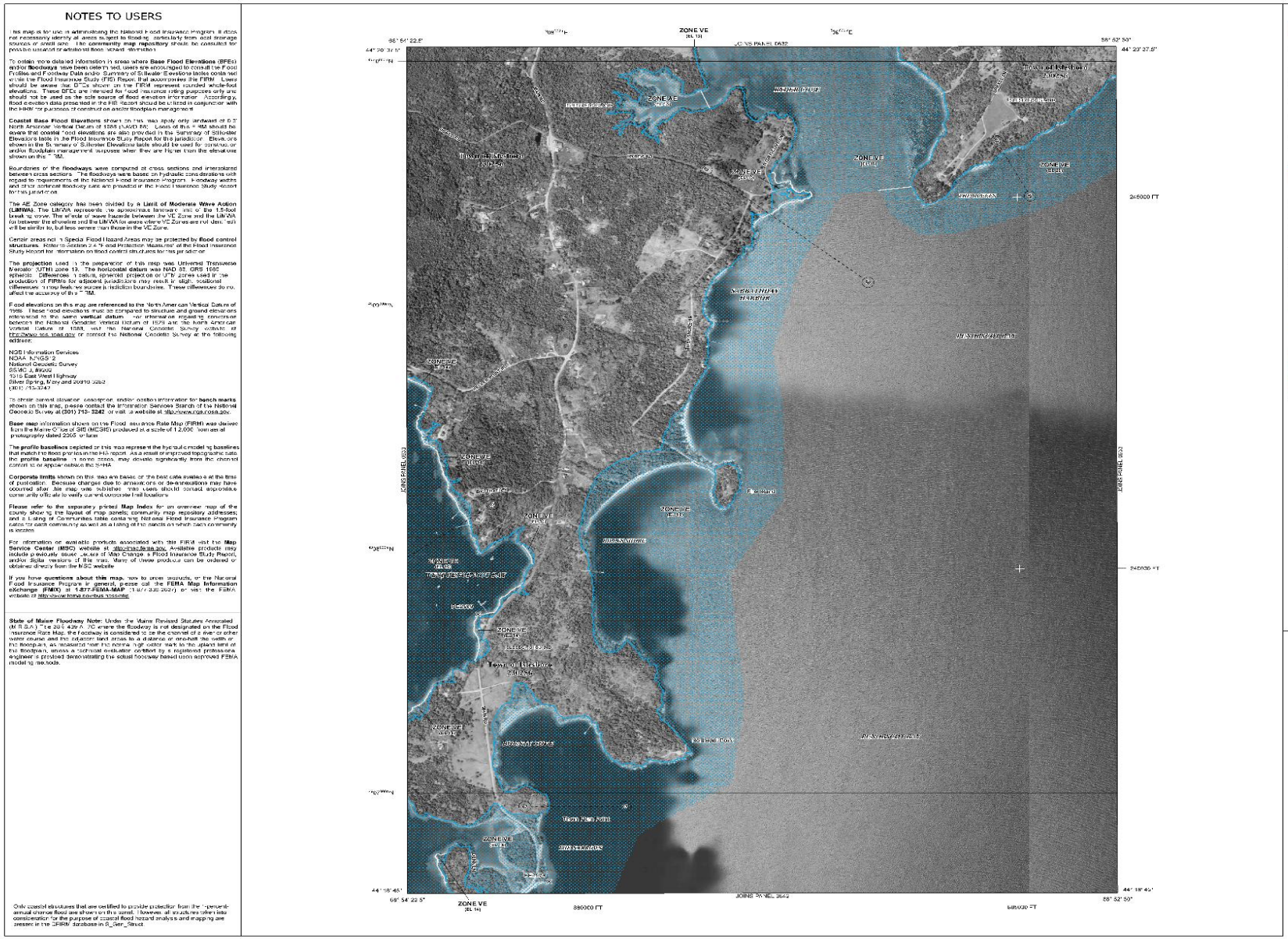
5.4.6 Inland Flooding

Location & Extent:
While Islesboro is primarily affected by coastal flooding, the island is also vulnerable to inland or localized flooding caused by heavy rainfall, rapid snowmelt, and drainage limitations. Localized flooding produces water depths of 6 inches to 2 feet on roadways, with isolated areas exceeding 3 feet. Rainfall events typically produce 2 to 4 inches in 24 hours, with extreme events exceeding 5 inches. The island's narrow roadways, limited stormwater infrastructure, and areas of poor soil permeability can lead to temporary pooling, road washouts, and culvert blockages during intense precipitation events. Low lying areas, particularly along Main Road, West Bay Road, and Ferry Road, are most susceptible. Because of its small size and elevation gradients, Islesboro does not experience large-scale riverine flooding; however, localized flash flooding and stormwater overland flow can still create hazardous travel conditions and infrastructure impacts. Heavy rainfall occurring during high astronomical tide periods can further increase flooding, as elevated ocean levels limit the ability for stormwater to drain, resulting in additional surface water buildup.

Previous Occurrences:
Heavy rainfall events have periodically caused road and culvert washouts on Islesboro, particularly during nor'easters and remnants of tropical systems that bring sustained precipitation and high winds. Regional flooding events such as the April 2005 and June 2006 rainstorms, as well as the Patriots' Day Storm of 2007, likely contributed to localized roadway damage and stormwater system stress on the island. More recently, intense rainfall associated with the December 18, 2023, and January 10, 2024, coastal storms led to drainage backups and surface flooding in several areas. Although Islesboro lacks major inland water bodies, its small culvert systems and limited elevation relief make even minor flooding disruptive to transportation and emergency response operations.

Probability:
Inland flooding is a likely hazard, with an estimated probability of 50 to 89 percent per year. Minor flooding occurs multiple times annually, with more severe events occurring periodically. Nor'easters and tropical remnants are the most common triggers, often producing rainfall rates exceeding two inches in a short period. Climate projections for Maine indicate an increase in the frequency and intensity of heavy precipitation events, which could exacerbate existing drainage challenges and accelerate infrastructure wear. Ongoing investments in culvert upgrades, roadside ditching, and

improved stormwater management will be essential for reducing localized flooding impacts and maintaining year-round accessibility across the island.



NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies the FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross-sections and interpolated between cross-sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

The AE Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA)**. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The whole of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not designated) will be similar to, but less severe than those in the VE Zone.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 19. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NGS2
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov.

Base map information shown on the Flood Insurance Rate Map (FIRM) was derived from the Maine GIS (MEGIS) produced at a scale of 1:2,000 from aerial photography dated 2005 or later.

The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

State of Maine Floodway Note: Under the Maine Revised Statutes Annotated (M.R.S.A.) Title 38 § 439-A 7, "[w]here the floodway is not designated on the Flood Insurance Rate Map, the floodway is considered to be the channel of a river or other water course and the adjacent land areas to a distance of one-half the width of the floodplain, as measured from the normal high water mark to the upland limit of the floodplain, unless a technical evaluation certified by a registered professional engineer is provided. Such evaluation must be submitted in accordance with applicable FEMA standards."

Only coastal structures that are certified to provide protection from the 1-percent-annual-chance flood are shown on this panel. However, all structures given consideration for the purpose of coastal flood hazard analysis and mapping are present in the DFIRM database in S_Gen_Struct.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

ZONE A — No Base Flood Elevations determined.

ZONE AE — Base Flood Elevations determined.

ZONE AH — Flood depths of 1 to 3 feet (usually shallow ponding); Base Flood Elevations determined.

ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual-chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual-chance or greater flood.

ZONE A99 — Area to be protected from 1% annual-chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual-chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual-chance flood; areas of 1% annual-chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual-chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual-chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS area or OPA boundary

Floodway boundary

Zone boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Limit of Moderate Wave Action

Limit of Moderate Wave Action (LiMWA) or Coastal A Zone boundary

Base Flood Elevation line and value; elevation in feet*

Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

(A) Cross section line

(23) Transect line

97° 07' 30", 43° 22' 30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

4275000 mN Universal Transverse Mercator grid values, zone 19

1000-meter Universal Transverse Mercator grid ticks, zone 19

5000-foot grid ticks: Maine State Plane coordinate system, East zone (FIPSZONE 1801), Lambert Conformal Conic projection

DX5510 × Bench mark (see explanation in Notes to Users section of this FIRM panel)

• M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
JULY 16, 2015

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

PANEL 0634E

FIRM
FLOOD INSURANCE RATE MAP
WALDO COUNTY, MAINE
(ALL JURISDICTIONS)

PANEL 634 OF 725

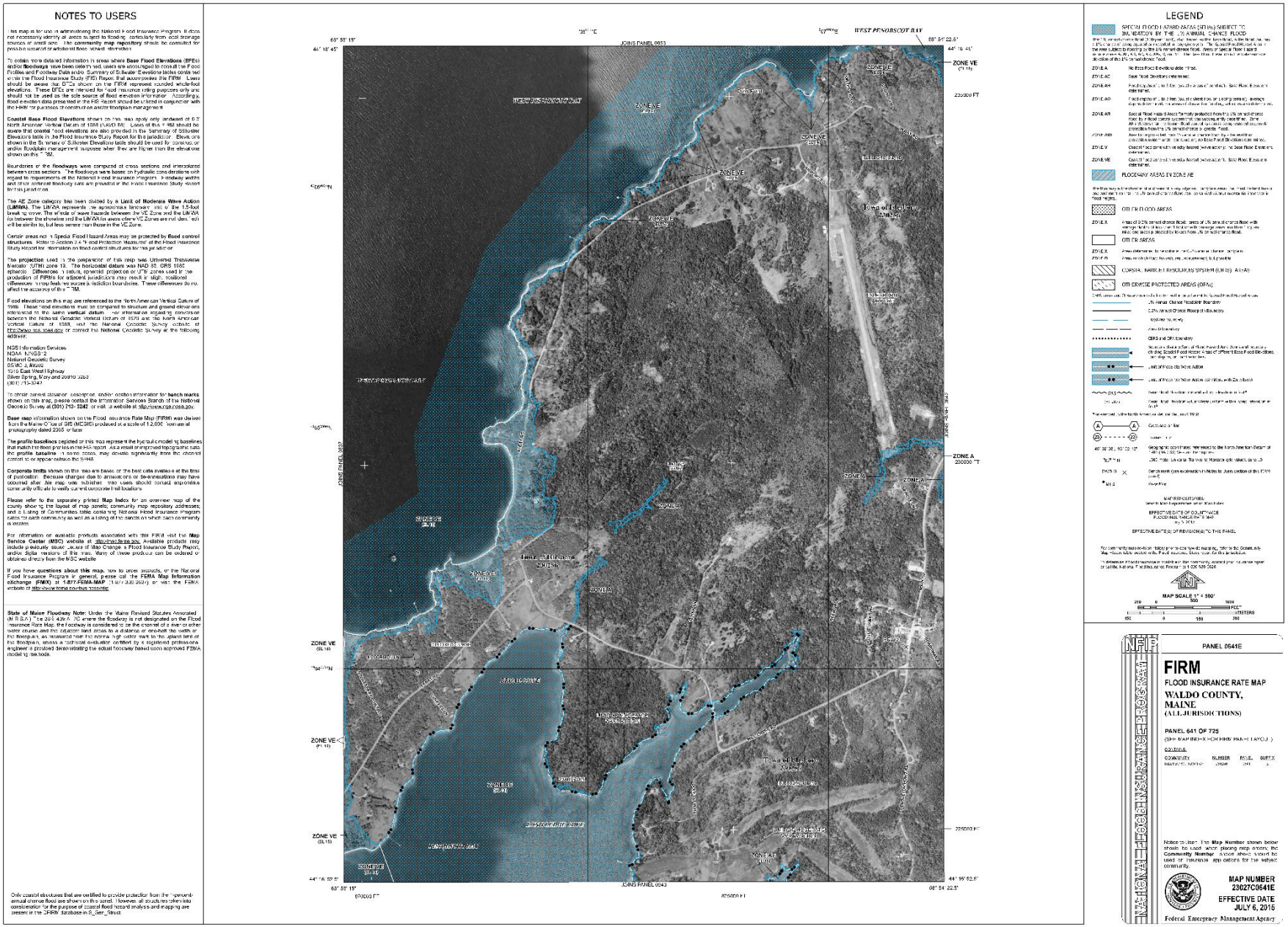
CONTAINS:
COMMUNITY — NUMBER — PANEL — SUFFIX

Notice to User: The Map Number shown should be used when placing map order; the Community Number shown should be used on insurance applications for the community.

MAP NUMBER 23027...

EFFECTIVE DATE JULY ...

Federal Emergency Management ...



NOTES TO USERS

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Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NNGS2
National Geodetic Survey
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1315 East-West Highway
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To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov.

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The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community offices to verify current corporate limit locations.

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State of Maine Floodway Note: Under the Maine Revised Statutes Annotated (M.R.S.A.) Title 38 § 436-A, "Within the floodway is not designated on the Flood Insurance Rate Map, the floodway is considered to be the channel of a river or other water course and the adjacent land areas to a distance of one-half the width of the floodplain, as measured from the normal high water mark to the upland limit of the floodplain, unless a technical evaluation certified by a registered professional engineer is provided demonstrating that a lesser distance is sufficient to discharge the base flood without cumulatively increasing the water surface elevation more than one foot at any point."

Only coastal structures that are certified to provide protection from the 1-percent-annual-chance flood are shown on this panel. However, all structures were taken into consideration for the purpose of coastal flood hazard analysis and mapping are present in the LiDAR database in S_User_Struct.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, A1-30, A99, AH, AO, AR, V, and VE. See Table 1 in the Publication Section of the FIS for actual flood hazard.

ZONE A — No Base Flood Elevations determined.

ZONE AE — Base Flood Elevations determined.

ZONE AH — Flood depths of 1 to 3 feet (usually shallow ponding); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 — Area to be protected from 1% annual chance flood by a federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% Annual Chance Floodplain Boundary
- 0.2% Annual Chance Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- CBRS and OPA Boundary

Boundaries of the 1% and 0.2% annual chance floods are rounded to the nearest 1/10th of a mile, except that the boundaries of areas of special flood hazard less than 1/10th of a mile wide are shown at their true position. Because of limitations in the scale of this map, some small areas of special flood hazard may not be shown.

- Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*
- Limit of Moderate Wave Action (LiMWA) or Coastal A Zone boundary
- Limit of Moderate Wave Action (LiMWA) with Zone A Boundary
- Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- Cross section line
- Transect line
- 97° 07' 30", 32° 22' 30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 3907000 FT — UTM zone 19 tick mark values; zone is 0
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- Hydrographic Feature

MAP REPOSITORY
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
July 6, 2015

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

PANEL 0641E

FIRM
FLOOD INSURANCE RATE MAP
WALDO COUNTY, MAINE
(ALL JURISDICTIONS)

PANEL 641 OF 725
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX

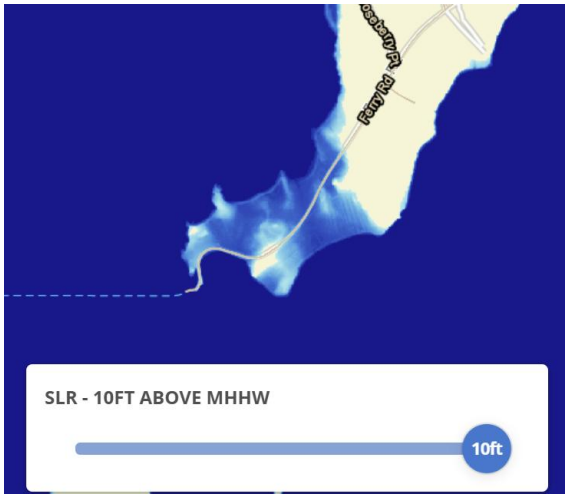
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
23027C0641E
EFFECTIVE DATE
JULY 6, 2015

Federal Emergency Management Agency

5.4.7 Sea Level Rise

Location & Extent:



Sea level rise poses a long term and escalating hazard to Islesboro due to its location in Penobscot Bay and its extensive low-lying shoreline. The island's coastal infrastructure, including Main Road near The Narrows, Ferry Road, Grindle Point, and numerous private waterfront properties, is already experiencing the effects of higher tides and more frequent nuisance flooding. Based on regional tide gauge data and Maine Geological Survey projections, relative sea level along the midcoast is expected to rise approximately 0.5 to 1.0 feet by 2050, 1.5 to 3.0 feet by 2100 under intermediate scenarios, and potentially more than 4.0 feet under high emission scenarios. Even a 1-foot increase in sea level can significantly expand the extent of tidal inundation, increasing the frequency of flooding events from a few times per year to dozens of occurrences annually in vulnerable locations. Storm surge events, when combined with elevated sea levels, can produce water levels exceeding 3 to 6 feet above current high tide, resulting in roadway overtopping, saltwater intrusion, and damage to coastal infrastructure. The town's limited road network and single ferry access point make even small increases in water levels a significant concern for transportation, emergency access, and public safety.

Previous Occurrences:

While sea level rise is a gradual process rather than a single event, its effects are becoming increasingly visible on Islesboro. Tide gauge data from the nearby Rockland and Bar Harbor stations show a rise of approximately 7 to 8 inches over the past century, with acceleration projected in the coming decades. Local observations confirm that high-tide flooding at The Narrows and Ferry Landing now occurs more frequently and with less severe storm activity than in the past. Coastal storms in December 2023 and January 2024 highlighted the compounding effects of elevated sea levels and storm surge, leading to flooding of roads and shoreline infrastructure. The Narrows Flooding Adaptation Study currently underway is a direct response to these increasingly frequent events. The Maine Geological Survey maintains a monthly Sea Level Rise Ticker and Dashboard for keeping track of local sea level trends[19]).

Probability:

Sea level rise is a certain hazard, with an estimated probability of 100 percent per year, as it is a continuous and measurable long-term process affecting the island annually. The rate of rise along Maine's coast is expected to increase by 1.5 to 3 feet by 2100, depending on global emissions and ice melt scenarios. Even moderate projections suggest that chronic tidal flooding could affect key

[19] https://www.maine.gov/dacf/mgs/hazards/slr_ticker/slr_dashboard.html

transportation routes, residential areas, and public infrastructure within the next several decades. The probability of related impacts, such as coastal road overtopping, drainage failure, and erosion, is high and increasing annually. Continued monitoring, incorporation of sea level rise projections into infrastructure planning, and implementation of coastal adaptation strategies will be essential for maintaining community resilience and safeguarding Islesboro's access and livability in the long term.

5.4.7 Severe Windstorm

Location & Extent:
Severe windstorms affect the entire island, particularly forested areas and exposed coastal zones. Islesboro's heavily wooded landscape makes it especially vulnerable to tree damage and power outages. Sustained wind speeds during typical storm events range from 40 to 60 miles per hour, with frequent gusts between 60 and 75 miles per hour. During stronger nor'easters and coastal storms, gusts can exceed 80 miles per hour, with isolated higher gusts possible in exposed shoreline areas. These wind speeds are sufficient to bring down mature trees, damage roofs and siding, and disrupt overhead utility lines. Given that much of Islesboro's electrical infrastructure is above ground and runs through wooded corridors, even moderate wind events can result in outages affecting large portions of the island. In severe events, 50 to 80 percent of the island may experience power loss, and roadways can become blocked by fallen trees, limiting access for emergency response and delaying restoration efforts.

Previous Occurrences:
Islesboro experiences frequent wind events associated with nor'easters and regional storm systems. In recent years, storms have caused multi day power outages and significant debris cleanup efforts across the island. Regional events across midcoast Maine have produced wind gusts exceeding 60 to 70 miles per hour, with some coastal locations reporting higher values during intense storms. These events have demonstrated the island's vulnerability to widespread utility disruption and transportation impacts.

Probability:
Severe windstorms are highly likely to occur, with an estimated probability of 90 to 99 percent per year, with multiple events typically impacting the island annually. Nor'easters and strong frontal systems regularly bring damaging winds to the Maine coast. Increasing storm intensity observed in the Gulf of Maine region suggests that wind related impacts may worsen over time, with a higher likelihood of stronger gusts and more frequent infrastructure disruptions.

5.4.8 Tornado

Location & Extent:
Tornadoes are extremely rare in coastal Maine and even less likely to occur directly on Islesboro due to its small land area, maritime climate, and surrounding water, which typically suppresses tornadic activity. However, the island could experience indirect effects from regional tornado producing weather systems associated with strong frontal boundaries or remnants of tropical storms. If a tornado were to occur on Islesboro, it would likely be short lived and of low intensity, classified as an

EF0 or EF1 event, with potential wind speeds between 65 and 110 miles per hour. The limited extent of developed land and forest cover means that damage would likely be confined to trees, power lines, and light structures, primarily along open areas or ridgelines exposed to prevailing winds.

Previous Occurrences:
An F2 tornado on July 7, 1954, and an F1 tornado on July 1, 1968, caused localized damage on the mainland, including tree loss and minor structural impacts. No injuries or deaths were reported from either event. These occurrences demonstrate that tornado activity, though infrequent, is not impossible within the region and that the atmospheric conditions capable of producing them can extend across Penobscot Bay. Islesboro's exposure to strong convective storms, particularly during late spring and summer, provides the potential, albeit very limited, for a similar event.

Probability:
Tornado occurrence is very unlikely, with an estimated probability of less than 1 percent per year. While possible, direct impacts are extremely rare. Based on historical data and regional climatology, the island could expect such an event less than once per century. However, the indirect effects of nearby tornadoes, such as high straight line winds, downed trees, and secondary power outages, remain relevant to emergency preparedness planning. Because tornado warnings typically allow little reaction time, maintaining reliable emergency communication systems, public alerting capabilities, and coordination with the National Weather Service Gray office are essential components of Islesboro's preparedness strategy. While the overall risk is minimal, continued monitoring and readiness for severe wind events will help protect the island's residents, infrastructure, and critical services.

5.4.9 Tropical Cyclone

Location & Extent:
Islesboro is highly exposed to strong wind events due to its island geography and open exposure to Penobscot Bay. The community experiences high winds from a variety of sources, including tropical cyclones, hurricane remnants, post tropical storms, and other coastal wind events. While most tropical systems weaken before reaching Maine, their remnants can still produce sustained winds of 40 to 60 miles per hour and gusts exceeding 70 miles per hour, leading to downed trees, damaged roofs, and widespread power outages. Given the island's dependence on overhead power lines and a single ferry landing, strong wind events can significantly disrupt transportation, emergency response, and utility restoration efforts.

Previous Occurrences:
Numerous wind events have impacted Islesboro and the surrounding midcoast region. Hurricane Edna (1954) and Hurricane Bob (1991) brought damaging winds and heavy rain to Penobscot Bay, downing trees and disrupting ferry service. More recently, October 2017 Windstorm, one of Maine's most severe non tropical wind events, caused extensive power outages across the region, including on Islesboro. The January 10 and 13, 2024 coastal storms generated hurricane force gusts that produced significant tree damage and multi day power outages across the island. Additional recent examples include Hurricane Lee (2023), which prompted a tropical storm warning for Waldo County

and brought strong winds and coastal impacts to the region, and Tropical Storm Irene (2011), which caused heavy rainfall, inland flooding, and infrastructure damage across Maine. These events demonstrate that even weakened tropical systems and their remnants can produce significant impacts. Similar but lesser events occur several times each year, particularly during fall and winter storm systems. These storms frequently leave debris on roads, damage roofing and siding, and strain local emergency resources.

Probability:
Tropical cyclones and their remnants are possible, with an estimated probability of 10 to 49 percent per year. While direct hurricane impacts are rare, remnants affect the region periodically. The island's coastal exposure and forested landscape increase the likelihood of tree and power line damage, while ferry and communication service interruptions are common during extreme wind conditions. Climate trends indicate that tropical storm remnants may bring stronger winds farther north and that coastal storm systems are intensifying, both of which increase Islesboro's long term wind risk. Ongoing tree management, undergrounding of power lines where feasible, and redundant emergency power and communication systems are essential mitigation strategies to reduce vulnerability and improve storm recovery capacity.

5.4.10 Wildfire (Localized / Wildland-Urban Interface Event)

Location & Extent:
Although Islesboro is less forested than inland regions of Maine, the island contains a mix of wooded tracts, grasslands, and residential development, creating conditions for localized wildfires, particularly within the wildland-urban interface (WUI). These zones, where homes and vegetation closely overlap, are most prominent along Main Road, Derby Road, and Parker Point Road.

Typical fires are under 3 acres, but under extreme conditions spread may exceed several acres per hour. Prolonged dry or windy weather increases the likelihood of ignition, while limited local firefighting resources, dependence on ferry-based mutual aid, and restricted access to water sources heighten containment challenges. Given the island's isolation, even small fires can pose significant risks to life, property, and infrastructure.

Previous Occurrences:
According to the Maine Forest Service (2019–2023), Islesboro experienced three recorded wildfire incidents, burning a combined 2.9 acres. All were contained quickly by the Islesboro Fire Department, with no structural damage or injuries reported. However, recent climate data indicates an increasing wildfire threat. Large portions of Islesboro were classified as being in Extreme Drought (D3) during 2023, significantly elevating wildfire potential by drying vegetation, reducing soil moisture, and limiting water availability for firefighting. Furthermore, 2025 has been the 51st driest year to date in the past 131 years (January–August), according to NOAA and the National Centers for Environmental Information, underscoring a concerning trend of reduced precipitation and heightened fire danger across coastal Maine.

Probability:
Wildfire is a possible hazard, with an estimated probability of 10 to 49 percent per year. Small fires

occur occasionally, with larger events becoming more likely under extended drought conditions. While small brush or grass fires may occur every few years, extended dry periods now make larger or more rapidly spreading fires increasingly possible. The combination of Extreme Drought classification, record-setting dryness, and limited suppression capacity elevates Islesboro's overall vulnerability to wildfire events.

To reduce wildfire risk and enhance community preparedness, Islesboro can benefit from participation in the Firewise USA® Program, a national initiative sponsored by the National Fire Protection Association (NFPA) in coordination with the Maine Forest Service. Firewise USA provides guidance and resources to help communities in the wildland-urban interface take proactive steps to reduce ignition risk, such as maintaining defensible space around homes, clearing flammable debris, and using fire-resistant landscaping and building materials. Establishing a Firewise-recognized community on Islesboro would strengthen collaboration between residents, local officials, and fire personnel while supporting eligibility for state and federal grant funding aimed at wildfire mitigation.

Local strategies should continue to include strict burn-permit enforcement, public education on drought-related fire safety, and mutual-aid coordination with mainland fire departments to ensure timely response capability. Proactive participation in Firewise USA and continued investment in fire prevention and drought monitoring will be essential for maintaining Islesboro's safety and resilience in an increasingly dry climate.

5.4.11 Winter Storm (including Nor'easters and Ice Storms)

Location & Extent:
Islesboro regularly experiences winter storms, including powerful nor'easters and ice storms, that bring heavy snow, freezing rain, ice accumulation, and strong winds. These events impact the entire island, with more severe effects along exposed coastal areas and in heavily wooded interior zones. Due to its location in Penobscot Bay, precipitation often shifts between snow, sleet, and freezing rain, increasing the likelihood of significant ice accretion compared to inland communities.

Snowfall typically ranges from 8 to 24 inches per storm, with major events producing 24 to 36 inches or more. Ice accumulation during freezing rain events can reach one quarter to one half inch, with extreme cases exceeding one inch, enough to cause widespread tree damage and power outages. Wind speeds generally range from 30 to 60 miles per hour, with strong nor'easters producing gusts over 70 miles per hour. These combined conditions frequently result in downed trees, blocked roadways, and damage to overhead utility lines.

Because Islesboro relies heavily on above ground electrical infrastructure through forested corridors, outages can affect a majority of residents during severe storms. Snow drifting can exceed 3 to 5 feet in open areas, particularly along exposed roadways such as Main Road, West Bay Road, and Ferry Road, limiting mobility and delaying emergency response. Structural impacts may also occur due to snow load, ice buildup, and high winds, including roof damage and heating system failures.

The island's limited road network and reliance on a single ferry terminal at Grindle Point further amplify impacts. Ferry service is often delayed or suspended during severe winter weather due to

high winds, icing, and reduced visibility, disrupting deliveries of fuel, food, and emergency services. Extended outages during winter conditions increase risks related to heating, water systems, and public safety, particularly for vulnerable populations.

Previous Occurrences:
Islesboro has experienced multiple significant winter storms affecting the midcoast region. The January 1998 Ice Storm remains one of the most damaging events in Maine, coating much of the state in over three inches of ice and causing widespread power outages and infrastructure damage. The December 2013 Ice Storm also impacted coastal communities, including Islesboro, with ice accumulations exceeding one inch and outages lasting several days.

Additional events in February 2015, January 2023, and March 2024 brought heavy snowfall, strong winds, and extreme cold, resulting in multi day outages, blocked roads, ferry service suspensions, and significant snow removal and debris management efforts. Nor’easters continue to be a recurring hazard, often producing snowfall totals exceeding two feet across coastal Maine.

Probability:
Winter storms, including nor’easters and ice storms, are highly likely to occur, with an estimated probability of 90 to 99 percent per year. Multiple events are expected each winter season, with at least one significant storm occurring annually. Multiple events are expected each winter, with major damaging storms likely every three to five years. Ice storms, while less frequent than snow events, tend to cause longer lasting disruptions due to their impact on power and communication systems.

Climate trends indicate increasing variability in winter weather, including more frequent mixed precipitation events and heavier snowfall intensity. These changes may increase the risk of icing, infrastructure damage, and prolonged service disruptions. Continued investment in backup power, road maintenance, and emergency heating and shelter capabilities will be critical to strengthening Islesboro’s resilience.

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6.0 Vulnerability Overview - (Element B)

6.1 Assessing Risks (B2)

The Islesboro Hazard Mitigation Plan evaluates the vulnerability of current and future assets, including people, structures, systems, and natural and cultural resources, to natural hazards.

Islesboro's location in Penobscot Bay, combined with its reliance on a single ferry terminal at Grindle Point, limited roadway network, and dependence on mainland power and services, creates a unique risk profile. Disruptions to transportation, power, or communications can quickly affect the entire community. Seasonal population increases during summer months also expand the number of people exposed to hazards and increase demand on emergency services.

The following section summarizes how each hazard may affect key asset categories:

- People
- Structures
- Systems
- Natural, historic, and cultural resources

6.1.1 Coastal Erosion

People:
Residents along Shore Road, Pendleton Point, and other coastal areas face long term risk of property loss and displacement. Older residents and individuals with limited mobility may have difficulty relocating or adapting to changing access conditions as erosion progresses. Loss of access roads or driveways may isolate residents or delay emergency response.

Structures:
Shoreline homes, septic systems, and wells are highly vulnerable. Sections of Main Road at The Narrows and areas near Grindle Point are at risk of undermining.

Systems:
Erosion threatens the integrity of key transportation routes, especially The Narrows, which serves as a critical north to south connection on the island. Utility poles along coastal corridors are also at risk.

Natural, Historic, and Cultural Resources:
Loss of shoreline affects coastal habitats, scenic viewsheds, and areas valued for recreation such as beaches and public shoreline access points.

6.1.2 Coastal Storm (Surge and Flooding)

People:
Residents in low lying areas such as The Narrows and Ferry Road may be temporarily cut off during storm events. Older adults, individuals with limited mobility, and those with medical needs are particularly vulnerable when evacuation routes are flooded or emergency access is delayed. Residents relying on electrically powered well systems may lose access to potable water during outages.

Structures:
Flooding impacts homes near Grindle Point, the ferry terminal infrastructure, and waterfront buildings. Saltwater intrusion accelerates structural degradation.

Systems:
Flooding of The Narrows can effectively divide the island, limiting access between northern and southern portions. Ferry service suspension at Grindle Point isolates the island from Lincolnville, delaying fuel, medical transport, and emergency assistance. Storm surge and coastal flooding can introduce saltwater into groundwater recharge areas, particularly in low lying zones such as The Narrows and areas near Grindle Point. Given the island's reliance on private wells and its Sole Source Aquifer designation, contamination from saltwater or debris can affect drinking water supply and reduce water availability for both residential and emergency use.

Natural, Historic, and Cultural Resources:
Storm surge accelerates erosion and damages coastal ecosystems, including intertidal zones and shellfish habitats important to the local environment.

6.1.3 Drought

People:
Residents dependent on private wells may experience reduced water availability, particularly older residents or those with limited ability to transport water. Seasonal population increases place additional strain on limited groundwater resources.

Structures:
Minimal direct structural impact, but reduced water availability can affect residential systems and fire protection.

Systems:
Because Islesboro relies entirely on private wells and springs, drought conditions can reduce groundwater recharge and lower water table levels across the island. This may result in reduced well yield or temporary well failure, particularly in shallow dug wells. The Sole Source Aquifer designation highlights the limited redundancy in the island's water supply, meaning that extended drought conditions can affect both residential use and firefighting capability.

Natural, Historic, and Cultural Resources:
Vegetation stress across wooded areas along Main Road and interior island zones increases wildfire risk and may alter natural landscapes.

6.1.4 Extreme Cold

People:
Older residents and individuals with limited heating resources are particularly vulnerable during prolonged cold events. Power outages may limit access to heat, increasing health risks. Residents dependent on medical equipment or well systems may face additional challenges.

Structures:
Frozen pipes are common in homes and municipal buildings such as the Town Office and Islesboro Health Center.

Systems:
Electric demand increases during cold events, and outages may disrupt heating systems. Ferry delays due to weather can interrupt fuel deliveries to the island.

Natural, Historic, and Cultural Resources:
Limited direct impact, though prolonged cold may stress vegetation and wildlife.

6.1.5 Geomagnetic Storm

People:
Loss of communication systems may limit the Town's ability to notify residents of emergencies. Older residents and those without access to backup communication methods may be particularly vulnerable.

Structures:
No direct structural damage.

Systems:
A prolonged power outage would affect all island systems, including the ferry terminal, emergency services, and communications. Backup generators at key facilities such as the Fire Station provide limited duration support.

Natural, Historic, and Cultural Resources:
No direct impact.

6.1.6 Inland Flooding

People:
Residents along West Bay Road and low-lying sections of Main Road may experience temporary isolation if roadways become impassable. Older residents and individuals with limited mobility are

particularly vulnerable, as flooded roads may prevent access to healthcare or delay emergency response. Residents relying on electrically powered well systems may temporarily lose access to potable water during outages. Seasonal population increases may further strain response capacity.

Structures:
Limited direct building damage, but culverts and driveways may be damaged or washed out.

Systems:
Undersized culverts along Main Road, Ferry Road, and secondary roads are vulnerable to failure. Flooding can delay emergency response and Public Works operations. Localized flooding may introduce contaminants into shallow groundwater systems, particularly in areas with septic systems and limited soil filtration. Because Islesboro relies on private wells and has no centralized water treatment system, contamination events could directly affect drinking water quality for individual properties and nearby areas.

Natural, Historic, and Cultural Resources:
Drainage pathways and small wetlands may be altered by repeated flooding.

6.1.7 Sea Level Rise

People:
Residents in low elevation areas face long term displacement risks. Older residents may have difficulty adapting to gradual but persistent changes in access and living conditions.

Structures:
Roads, homes, and septic systems near the shoreline are increasingly exposed to chronic flooding.

Systems:
Grindle Point ferry access is particularly vulnerable to long-term sea level rise. Even minor increases in water levels can affect accessibility and operations. Sea level rise increases the risk of saltwater intrusion into the island’s groundwater system. Because Islesboro relies exclusively on private wells and has no centralized water system, even minor increases in salinity can impact drinking water quality. The Sole Source Aquifer designation underscores the sensitivity of the island’s groundwater to long term changes in sea level and coastal flooding.

Natural, Historic, and Cultural Resources:
Loss of shoreline and coastal habitats may impact recreation, tourism, and community character.

6.1.8 Severe Windstorm

People:
Residents may experience extended power outages affecting heating, communication, and food storage. Older residents and those with medical needs are particularly vulnerable during prolonged outages.

Structures:
Homes are vulnerable to falling trees and debris, especially in wooded areas.

Systems:
Overhead power lines along Main Road and throughout the island are highly susceptible to damage. Blocked roads delay emergency response. Ferry service may be suspended during high wind conditions.

Natural, Historic, and Cultural Resources:
Tree loss is common, altering forested areas and scenic landscapes.

6.1.9 Tornado

People:
Although rare, tornadoes pose localized risk. Individuals without access to warning systems or safe shelter may be vulnerable.

Structures:
Potential damage to homes and outbuildings from high winds.

Systems:
Localized outages and road blockages.

Natural, Historic, and Cultural Resources:
Tree damage in affected areas.

6.1.10 Tropical Cyclone

People:
Residents may be isolated due to ferry shutdown and road flooding. Older residents and those with medical needs are particularly vulnerable during extended outages and limited access to services. Seasonal population increases may strain emergency response.

Structures:
Waterfront homes and structures near Grindle Point and Ferry Road are most vulnerable.

Systems:
Simultaneous impacts to power, roads, and ferry operations create compound risk. Recovery may be delayed due to limited access for outside assistance.

Natural, Historic, and Cultural Resources:
Coastal erosion and storm damage to shoreline areas.

6.1.11 Wildfire (Localized / Wildland-Urban Interface Event)

People:
Residents in wooded areas are most at risk. Older residents and those with limited mobility may face evacuation challenges. Smoke exposure may affect those with respiratory conditions.

Structures:
Homes in the wildland urban interface are vulnerable to fire spread.

Systems:
Fire suppression efforts on Islesboro rely heavily on available groundwater sources and stored water. Because there is no centralized municipal water system, limited well yield during dry conditions may constrain firefighting capacity, particularly in more remote or elevated areas of the island.

Natural, Historic, and Cultural Resources:
Forest and vegetation loss may affect the island's natural character.

6.1.12 Winter Storm

People:
Residents may be isolated for several days due to snow, ice, and ferry suspension. Older residents, individuals with limited mobility, and those dependent on medical or electrical systems are particularly vulnerable. Loss of power may also limit access to heat and potable water. Seasonal residents may be less prepared for extended winter conditions.

Structures:
Snow load and ice accumulation may damage roofs and structures. Ice buildup on trees can result in falling limbs and property damage.

Systems:
Roads may become impassable, limiting emergency response. Power outages are likely and may persist for several days due to tree damage and delayed restoration. Ferry disruptions limit delivery of supplies and fuel.

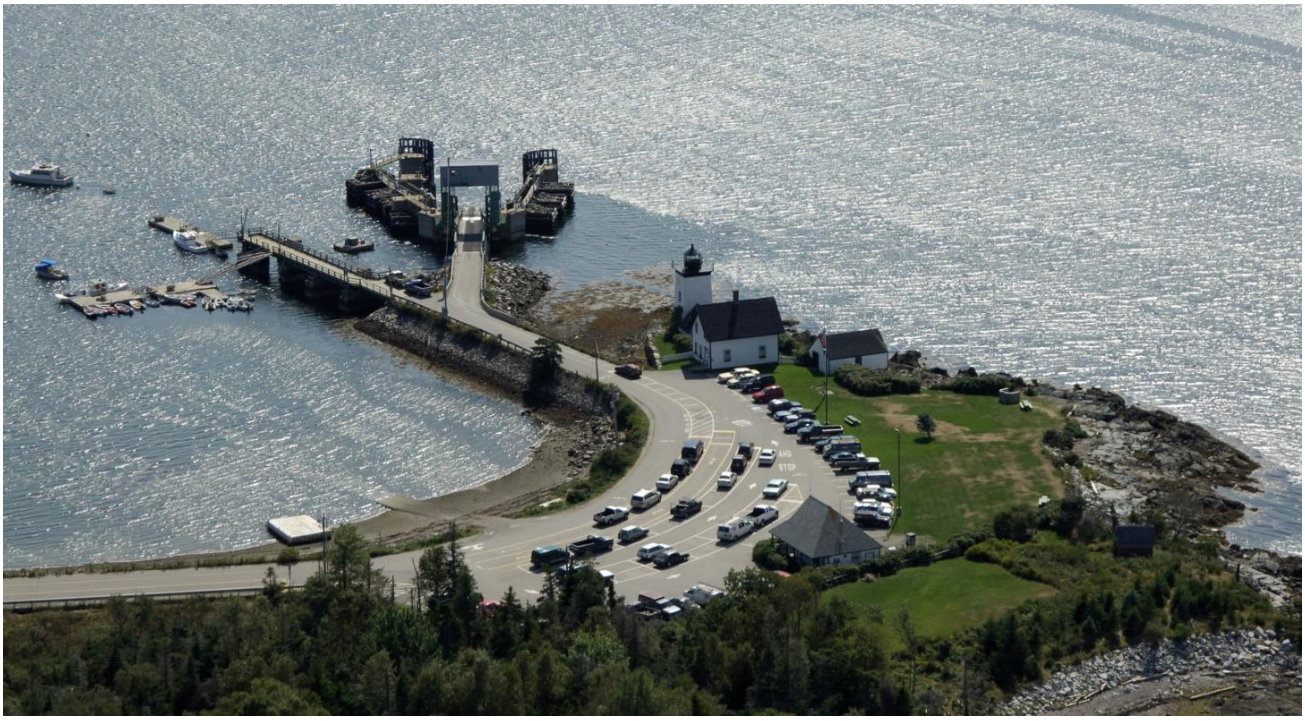
Natural, Historic, and Cultural Resources:
Tree damage is common and may significantly alter the island's landscape.

6.1.13 Overall Community Implications

Islesboro's vulnerability is defined by its dependence on a small number of critical systems, particularly ferry transportation at Grindle Point, overhead electrical infrastructure, and limited roadway access along Main Road. Disruption to any of these systems can quickly impact the entire island.

Future vulnerability is expected to increase due to sea level rise, more intense storm events, and aging infrastructure. Seasonal population increases further strain emergency response and infrastructure systems.

Maintaining resilience will require continued investment in shoreline protection, infrastructure hardening, backup power systems, and emergency preparedness tailored to the island's unique conditions.



*MDOT Ferry Terminal - Islesboro, Maine

6.2 Identifying Structures

Understanding and protecting critical assets is essential to ensuring Islesboro's resilience during and after hazard events. Critical facilities include buildings, infrastructure, and systems that provide essential services, protect public safety, or are vital to the island's functioning and recovery. Because Islesboro is geographically isolated and dependent on ferry access for supplies and emergency assistance, maintaining the reliability and protection of these assets is a top mitigation priority.

6.2.1 Critical Facility Inventory

Category	Facility / Asset	Primary Function
Government & Administration	Town Office / Municipal Building	Town administration, records, public meetings, emergency coordination
Emergency Services	Fire Station	Fire protection and emergency response
Emergency Services	Law Enforcement / Public Safety Office	Law enforcement coordination and public safety
Healthcare	Islesboro Health Center / Clinic	Primary care and emergency medical services
Public Works	Public Works Facility	Road maintenance, snow removal, drainage upkeep
Solid Waste	Transfer Station	Waste management and recycling
Transportation	Islesboro Municipal Airport	Small-plane transport and emergency evacuation capability

Category	Facility / Asset	Primary Function
Transportation	Seaports / Ferry Terminals (Lincolnville & Islesboro Landings)	Passenger and freight transport, emergency supply chain
Public Services	Islesboro Free Library	Public resource center and potential warming or communication hub
Residential Care	Assisted Living / Residential Care Facility	Support for vulnerable populations
Utilities	Wastewater Treatment Facility	Wastewater collection and treatment
Communications & Power	Utility Lines, Substations, and Cellular Infrastructure	Electrical and communication connectivity
Education & Community	Islesboro Central School	Education, public shelter, and meeting space
Recreation & Environment	Public Parks, Shorelines, and Natural Areas	Tourism, recreation, and environmental protection

6.2.2 Critical Infrastructure Vulnerability by Hazard

Coastal Erosion

Coastal erosion presents a long term and accelerating threat to Islesboro's shoreline infrastructure due to its direct exposure to Penobscot Bay and limited elevation along key corridors. Areas such as Main Road at The Narrows, Ferry Road, and sections of shoreline adjacent to Grindle Point are particularly vulnerable to gradual land loss and structural undermining. Repeated wave action and storm driven erosion weaken road bases, culverts, and retaining structures, increasing the likelihood

of roadway failure or collapse over time. Because many of these roads serve as primary access routes, even localized erosion can restrict movement across the island.

Private infrastructure is also highly exposed. Septic systems, wells, and shoreline residences are at risk of damage or loss as erosion progresses. Utility poles located near the shoreline may become unstable, increasing the likelihood of power outages. Over time, continued erosion may require relocation or elevation of infrastructure, particularly in areas where shoreline retreat directly threatens access to the ferry terminal or residential neighborhoods.

Coastal Storm (Surge and Flooding)

Coastal storms represent the most immediate and disruptive hazard to Islesboro's infrastructure systems. Storm surge and wave action can overtop low elevation roads, particularly at The Narrows and Grindle Point, temporarily severing the primary transportation link to the ferry terminal. This has direct implications for emergency response, fuel delivery, medical transport, and supply chains.

Flooding can impact ferry operations, which serve as the island's only consistent connection to the mainland. Suspension of ferry service during storm events isolates the island, delaying restoration crews, emergency responders, and essential goods. Saltwater inundation also damages electrical systems, corrodes underground utilities, and accelerates deterioration of roadways and marine infrastructure.

Critical facilities such as the Town Office, Fire Station, and Public Works facility may remain structurally intact but can become functionally compromised if access routes are flooded or if power and communications are disrupted.

Drought

Drought affects Islesboro differently than mainland communities due to its reliance on groundwater and absence of centralized water systems. Most residents and facilities depend on private wells that draw from shallow aquifers, which are sensitive to prolonged dry conditions. During extended drought, well levels may decline, reducing water availability for residential use, firefighting, and municipal operations.

Dry conditions also stress vegetation across the island's forested landscape, increasing susceptibility to wildfire and tree mortality. This can indirectly impact infrastructure by increasing the likelihood of falling trees during subsequent wind events. Septic systems may also experience reduced performance in dry soils, potentially affecting residential and environmental health.

While drought does not cause immediate infrastructure failure, it creates cumulative stress across water supply, environmental systems, and emergency response capacity, particularly during peak summer population periods.

Extreme Cold

Extreme cold events place significant strain on Islesboro's infrastructure due to the island's reliance on electricity, delivered fuel, and limited repair access. Frozen pipes are a frequent issue in municipal buildings, the Health Center, and residential structures, particularly during extended cold periods. Infrastructure such as water lines, pumps, and heating systems become vulnerable to failure under sustained low temperatures.

Electric demand increases sharply during cold events, raising the risk of outages or system strain. If power is lost, heating systems in many buildings become inoperable, creating immediate life safety concerns. The island's reliance on ferry service for fuel delivery adds another layer of vulnerability, as severe cold combined with wind or ice can delay deliveries and limit resupply.

Emergency response is also affected, as road conditions, equipment performance, and access to warming facilities all become critical during prolonged cold events.

Geomagnetic Storm

Although rare, a geomagnetic storm could create widespread disruption across Islesboro's infrastructure by affecting the regional electrical grid. Because the island depends entirely on mainland power transmission, any large-scale grid disturbance could result in a complete loss of electricity.

This would immediately impact all critical systems, including communications, water and wastewater operations, fuel distribution, and emergency response coordination. The Health Center, Fire Station, and Town Office rely on backup generators, but fuel supply is limited and dependent on ferry transport. Extended outages would strain these systems and could reduce the island's ability to maintain basic services.

Communication systems, including cellular networks and internet connectivity, may also be disrupted, limiting coordination with mainland emergency services and regional partners.

Inland Flooding

Inland flooding primarily affects Islesboro's transportation and drainage infrastructure. Heavy rainfall and rapid snowmelt can overwhelm culverts and roadside drainage systems, particularly along Main Road, Ferry Road, and West Bay Road. Undersized or aging culverts can fail under high flow conditions, leading to washouts that isolate portions of the island.

While most buildings are not located in high-risk inland flood zones, access to them can be compromised. Emergency vehicles may be delayed or rerouted, and Public Works operations may be hindered if equipment cannot reach affected areas. Repeated flooding also accelerates deterioration of road surfaces and increases long term maintenance costs.

Because the island has a limited road network, even a single washout can significantly affect mobility and response times.

Sea Level Rise

Sea level rise is a long-term driver of increasing vulnerability across Islesboro's coastal infrastructure. Gradual increases in sea level are already contributing to more frequent tidal flooding in areas such as The Narrows and Grindle Point. As baseline water levels rise, even minor storm events can produce significant flooding impacts.

Critical infrastructure including ferry terminals, shoreline roads, and utilities located near the coast will face increasing exposure to chronic inundation. Saltwater intrusion can affect septic systems, groundwater quality, and underground utilities. Over time, these impacts may require major infrastructure investments such as road elevation, relocation, or engineered shoreline protection.

Because ferry access is central to the island's functionality, long-term sea level rise poses a direct risk to Islesboro's connectivity, economic activity, and emergency response capability.

Severe Windstorm

Severe windstorms are one of the most frequent causes of infrastructure disruption on Islesboro. The island's forested terrain combined with extensive overhead utility lines creates high vulnerability to tree related damage. Falling trees and branches frequently bring down power lines, resulting in outages that can affect a majority of residents.

Communication systems are also vulnerable, particularly where antennas and lines are exposed to high winds. Blocked roadways delay emergency response and Public Works operations, while restoration crews may face delays reaching the island due to ferry disruptions.

Extended outages place strain on backup power systems at critical facilities, including the Fire Station and Health Center. Fuel availability becomes a concern during prolonged events, particularly if ferry service is interrupted.

Tornado

Although tornadoes are extremely rare in coastal Maine, a direct strike could severely damage above-ground utilities, communication towers, and lightly constructed municipal or residential structures. The most likely impacts would be downed trees, scattered debris, and isolated damage to roofs or power lines. Critical infrastructure built to modern standards would likely sustain minor damage, but widespread power loss and transportation blockages could occur. Given the low probability, mitigation focuses on maintaining strong public warning systems and structural maintenance rather than new protective measures.

Tropical Cyclone

Remnants of tropical systems can produce combined impacts that affect multiple infrastructure systems simultaneously. High winds, heavy rainfall, and coastal flooding can damage roads, utilities, and waterfront facilities. Power outages are common, and ferry service is typically suspended during these events, isolating the island.

Recovery may be prolonged due to limited access for restoration crews and reliance on mainland support. Critical facilities must rely on backup power and limited local resources during these events.

Wildfire (Localized Wildland Urban Interface Event)

Wildfire risk is concentrated in areas where forested land meets residential development. Dry conditions and wind can allow fires to spread quickly, threatening homes, outbuildings, and nearby infrastructure.

Access for firefighting can be limited in certain areas, and local resources may be strained during larger incidents. While wildfire risk is currently moderate, increasing drought conditions and vegetation stress may elevate this hazard over time.

Winter Storm (including Nor’easters and Ice Storms)

Winter storms, including heavy snow events, nor’easters, and ice storms, significantly impact infrastructure and operations across Islesboro. Heavy snowfall, reduced visibility, and strong winds limit mobility and can isolate portions of the island. Snow accumulation and drifting frequently block roadways, requiring sustained Public Works response to maintain access and ensure emergency services can operate.

Storms that include freezing rain and ice accumulation present some of the most severe risks. Ice buildup on trees and power lines often leads to widespread outages, sometimes lasting several days. Combined snow and ice conditions can make roads hazardous or impassable, further restricting emergency response and recovery operations.

Ferry service is frequently suspended during major winter storms due to high winds, icing, and poor visibility. This delays the delivery of fuel, supplies, and personnel, and can prevent external repair crews from reaching the island. As a result, outages and disruptions may be prolonged. Critical facilities must rely on backup generators, which are dependent on available fuel supplies.

Municipal operations rely heavily on snow removal capacity, backup power systems, vegetation management, and coordination among local services to maintain safety and accessibility. Historical events, such as the 1998 Ice Storm, demonstrate the potential for widespread infrastructure failure across Maine, highlighting the importance of continued investment in equipment readiness and system resilience.

Overall Implications for Critical Infrastructure

Islesboro's infrastructure systems are highly interdependent and uniquely vulnerable due to the island's geographic isolation. Power, transportation, communications, and emergency services rely heavily on one another, and disruption in any single system can quickly cascade across the entire community.

Ferry service is a critical lifeline that supports fuel delivery, emergency response, and supply chains. Electrical power is equally essential, as nearly all municipal and residential systems depend on it. When both systems are disrupted simultaneously, the island's ability to respond and recover is significantly reduced.

Strengthening infrastructure resilience through redundancy, hardening of utilities, improved shoreline protection, and expanded emergency planning will be essential to maintaining Islesboro's long-term safety, functionality, and quality of life.

6.3 National Flood Insurance Program (NFIP) Participation and Repetitive Loss Properties - (C2-a)

The Town of Islesboro actively participates in the National Flood Insurance Program (NFIP) and enforces a Floodplain Management Ordinance that meets FEMA's minimum standards under 44 CFR §60.3. Participation in the NFIP enables property owners to obtain federally backed flood insurance and makes the Town eligible for federal disaster recovery and hazard mitigation grant assistance. Islesboro maintains up-to-date Flood Insurance Rate Maps (FIRMs) for reference during permitting and site development review and continues to integrate floodplain management with broader hazard mitigation and coastal resilience planning efforts. According to data from the Maine Emergency Management Agency (MEMA), Maine Floodplain Management Program and FEMA, there are currently no Repetitive Loss (RL) or Severe Repetitive Loss (SRL) properties within Islesboro.

The table below summarizes Islesboro's NFIP participation and floodplain management details:

NFIP Participation Element	Town of Islesboro Details
Community Name	Town of Islesboro
Community Identification (CID) Number	230258
NFIP Entry Date	June 4, 1987
Current Flood Insurance Rate Map (FIRM) Effective Date	July 6, 2015
Floodplain Management Ordinance Adopted	June 4, 1987 (most recently amended 2015)
Community Rating System (CRS) Participation	Not currently participating
Number of Policies-in-Force (as of 2025)	Approximately 5–10 (subject to annual change)
Number of Repetitive Loss (RL) Properties	0
Number of Severe Repetitive Loss (SRL) Properties	0
Floodplain Administrator	Code Enforcement Officer / Town Manager
Primary Flood Hazards	Coastal flooding, storm surge, and sea-level rise impacts

Islesboro continues to maintain compliance with NFIP requirements, regularly reviews its Floodplain Management Ordinance, and integrates flood hazard considerations into planning and capital improvement projects. Although no repetitive loss properties currently exist, the Town remains proactive in managing coastal risk and monitoring future vulnerabilities.

6.4 Potential Loss Summary

Based on Maine construction cost benchmarks and Islesboro's known exposure, the Town's potential loss from a major, multi-hazard event is conservatively estimated at $15 to $20 million, exclusive of cleanup and logistical premiums. The largest share of losses would stem from coastal flooding, storm surge, and wind damage, especially to waterfront homes, marine infrastructure, and low-lying road segments such as the Narrows corridor. A 100-year coastal storm event alone could impose millions in direct damages to buildings, docks, roads, and utilities. Inland flooding, severe winter/ice events, and high winds contribute additional risk through roadway washouts, extended outages, and structural impairment.

In addition to direct losses, debris removal and cleanup represent a significant post-disaster cost driver. According to the *draft* (non-FEMA-approved) Waldo County 2025 Hazard Mitigation Plan[20] debris management after storms in the region has averaged $20,000–$30,000 per lane-mile of roadway in comparable coastal and rural settings. Because Islesboro is an island, these costs would be further amplified by the need to ferry heavy equipment, crew, and materials over water, driving up mobilization expenses, vessel time, and staging logistics. As a result, debris cleanup on Islesboro could exceed typical mainland costs by an estimated 25–50 %, especially for major storms that scatter trees, structural debris, and sediment across roads, docks, and shoreline access points.

These combined expenses, direct damages, infrastructure repair, and cleanup, present a substantial financial burden for the community. Incorporating these elevated cleanup and transportation costs into future mitigation project cost-benefit analyses will be essential for prioritizing shoreline stabilization, utility hardening, road resilience, and emergency response capacity.

[20] https://www.waldocountyme.gov/wp-content/uploads/2025/07/2025-Hazard-Mitigation-Plan.pdf

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7.0 Mitigation Strategy - (Element C)

Overview

In accordance with 44 CFR §201.6©(3), the mitigation strategy provides Islesboro's blueprint for reducing potential losses identified in the risk assessment. The strategy builds upon existing local authorities, policies, programs, and resources while identifying opportunities to expand and strengthen hazard mitigation capacity over time. Islesboro's small size, island geography, and reliance on the State Ferry Service make hazard mitigation particularly important, as the town's isolation during emergencies can intensify the impacts of storm events, power outages, and coastal flooding.

7.1 Mitigation Goals – (C3-a)

The following mitigation goals apply to the natural hazards profiled in this plan, including coastal erosion, coastal storms, inland flooding, sea level rise, severe windstorms, winter storms, drought, extreme cold, wildfire, and other hazards that may affect Islesboro. These goals guide the Town's mitigation strategy and provide a framework for reducing long term risk to Islesboro's residents, infrastructure, natural resources, and critical systems.

Mitigation Goal 1: Minimize loss of life, injury and damage to property, the economy and the environment from natural hazards.

Mitigation Goal 2: Build and enhance local mitigation capabilities to ensure the safety and resilience of all community members. Reduce damage to public buildings and ensure continuity of emergency services.

Mitigation Goal 3: Maintain the jurisdiction's natural and man-made systems that protect against natural hazards.

Mitigation Goal 4: Increase cooperation and coordination among private entities, local agencies, state agencies and federal agencies.

Mitigation Goal 5: Protect natural, historic and cultural resources.

7.2 Current Mitigation Capacity and Governance Framework - (C1-a)

7.2.1 Local Capacity and Staffing

Like other small towns in Waldo County, Islesboro has limited staff dedicated specifically to hazard mitigation. The Local Emergency Management Director is a volunteer, supported by the Town Manager, Code Enforcement Officer, and Public Works Director. The Planning Board, composed of volunteers, oversees land use, shoreland zoning, and subdivision review, while the Code Enforcement Officer enforces ordinances on a part-time basis. Islesboro does not currently employ a municipal engineer, GIS technician, or full-time planner.

Despite limited staffing, Islesboro demonstrates strong local coordination. Hazard mitigation functions are integrated within broader municipal operations, especially through public works maintenance, floodplain management, and emergency planning. Technical and financial assistance are provided through the Waldo County Emergency Management Agency (EMA) and the Maine Emergency Management Agency (MEMA). MEMA administers all FEMA Hazard Mitigation Assistance (HMA) grants statewide, including Hazard Mitigation Grant Program (HMGP) funding, which Islesboro remains eligible for through plan adoption.

7.2.2 Regional and State Partnerships

Islesboro benefits from regional coordination with Waldo County EMA and the Midcoast Council of Governments (MCOG), which provide technical and planning support on land use, transportation, and coastal management. The Town also collaborates with the Maine Department of Transportation (MDOT) for road and drainage improvements and the Maine Floodplain Management Program, which provides mapping updates, technical training, and guidance on NFIP compliance.

7.2.3 Building Codes and Construction Standards

Islesboro follows the Maine Uniform Building and Energy Code (MUBEC) under Title 10, Chapter 1103, which applies statewide. Because Islesboro’s population is under 4,000, the Town is not required to enforce MUBEC locally, but may not adopt or enforce any alternative building code. MUBEC incorporates national standards, including the 2015 International Building Code (IBC) and 2015 International Residential Code (IRC), providing a baseline for resilient construction practices. While enforcement capacity is limited, Islesboro encourages voluntary compliance with MUBEC standards for new construction and renovations, particularly in coastal and flood-prone areas.

7.2.4 Shoreland Zoning

Under Maine's Mandatory Shoreland Zoning Act (MSZA), Islesboro enforces a Shoreland Zoning Ordinance regulating development within 250 feet of the coast and wetland areas. The ordinance serves as a key mitigation tool to:

- Protect buildings and infrastructure from coastal flooding and erosion.
- Guide placement of new structures outside of high-hazard areas.
- Conserve vegetative buffers to reduce runoff and stabilize shorelines.
  Administration and enforcement are handled by the Planning Board and Code Enforcement Officer, with technical guidance from the Maine Department of Environmental Protection.

7.2.5 Floodplain Management and NFIP Participation

Islesboro participates in the National Flood Insurance Program (NFIP) and enforces a Floodplain Management Ordinance first adopted in 1987 and updated in 2015. The Town has no repetitive loss or severe repetitive loss properties, reflecting limited exposure and strong adherence to development standards. Floodplain regulations are administered by the Code Enforcement Officer under Planning Board oversight. FEMA and MEMA provide updated mapping, compliance reviews, and training. NFIP participation ensures eligibility for federal flood insurance and hazard mitigation funding.

7.2.6 Substantial Improvement and Substantial Damage Compliance

Following a flood or other hazard event, the Town of Islesboro implements the substantial improvement and substantial damage provisions of its Floodplain Management Ordinance through the Code Enforcement Officer, who serves as the primary local administrator for floodplain compliance.

The Code Enforcement Officer, in coordination with the Town Manager, Local Emergency Management Director, and other applicable officials, is responsible for evaluating damage to structures located within Special Flood Hazard Areas and ensuring compliance with NFIP requirements.

Substantial damage and substantial improvement determinations are required for any structure located within a mapped flood hazard area that is proposed for repair, reconstruction, rehabilitation, addition, or other improvement. This includes damage from any origin, including flooding, wind, fire, or winter storm events.

The Town follows a consistent process for implementing these requirements:

- Conduct or coordinate post event damage assessments to identify affected structures within flood hazard areas

- Determine whether a substantial damage determination is required and notify property owners of applicable requirements
- Verify the cost of repairs, including materials and labor
- Verify the pre damage market value of the structure using available assessment data or accepted valuation methods
- Make and document the substantial damage or substantial improvement determination
- Issue written determinations to property owners and explain compliance requirements under the Floodplain Management Ordinance
- Require that any repair or reconstruction meeting the substantial damage threshold be brought into compliance with current floodplain standards, including elevation or floodproofing as applicable
- Issue permits and ensure that all development complies with local ordinances and NFIP regulations
- Conduct inspections during and after construction to verify compliance and maintain documentation of completed work

Due to Islesboro's limited staffing, damage assessments and determinations may be supported by Waldo County Emergency Management Agency, Maine Emergency Management Agency, or other qualified technical partners when needed. This coordination helps ensure that determinations are conducted accurately and in accordance with state and federal guidance.

Through this process, Islesboro maintains compliance with the National Flood Insurance Program and ensures that post disaster reconstruction reduces future flood risk rather than perpetuating existing vulnerabilities.

7.2.7 Land Use and Subdivision Ordinances

The Town's Land Use and Subdivision Ordinances require that new construction comply with both the Shoreland Zoning and Floodplain Management ordinances. These ordinances support hazard mitigation by guiding development away from high-risk coastal areas, promoting appropriate setbacks and drainage standards, and reducing impervious surface impacts on stormwater systems.

7.2.8 Road Maintenance and Stormwater Management

The Public Works Department, led by the Public Works Director, conducts ongoing maintenance and upgrades of local roads, culverts, and ditches. Many of Islesboro's most frequent mitigation actions involve improving roadway drainage, culvert sizing, and stormwater capacity to prevent washouts and maintain emergency access. The Town works closely with the MDOT Local Roads Center, which provides technical training and engineering assistance for small communities. Routine maintenance also incorporates adaptation measures such as using larger culverts, raising road grades, and installing improved erosion controls.

7.2.9 Integration with Other Local and Regional Plans

Hazard mitigation principles are integrated into Islesboro's Comprehensive Plan, Emergency Operations Plan, and capital improvement planning. These documents collectively address land use management, coastal resilience, and infrastructure upgrades that align with mitigation goals. Future updates will continue to emphasize flood-resistant design, energy resilience, and coastal adaptation, ensuring the Town remains compliant with evolving state and federal policy guidance.

7.2.10 Future Mitigation Priorities

Building on existing authorities, Islesboro's mitigation priorities include:

1. **Strengthening coastal infrastructure resilience**, particularly at ferry terminals, harbors, and low-lying road segments.
2. **Expanding local enforcement capacity** for building and floodplain standards.
3. **Upgrading culverts and drainage systems** to manage increased precipitation and runoff.
4. **Developing shoreline stabilization and nature-based erosion control projects.**
5. **Improving emergency power redundancy** at critical facilities (Fire Station, Health Center, and Town Office).
6. **Enhancing public education and preparedness** through outreach and participation in statewide training opportunities.

7.2.11 Summary

While Islesboro has limited staffing and fiscal capacity, its strong local leadership, volunteer participation, and intergovernmental partnerships provide a solid foundation for hazard mitigation. By leveraging MEMA, Waldo County EMA, MDOT, NWS – Gray and regional planning support, Islesboro continues to strengthen its resilience to flooding, coastal storms, and other hazards while maintaining compliance with federal mitigation planning standards.

7.3 Capability Improvement and Expansion Strategy - (C1-b)

While Islesboro maintains a solid foundation for hazard mitigation through local ordinances, partnerships, and day to day operations, the Town recognizes the need to expand and strengthen its capabilities over time. Due to limited staffing, technical resources, and fiscal capacity, many of these improvements will require phased implementation and continued reliance on state, regional, and federal support.

The following identifies key existing capabilities and describes how each may be expanded or improved:

7.3.1 Staffing and Technical Capacity

Current Condition:
Hazard mitigation responsibilities are distributed among the Town Manager, Code Enforcement Officer, Public Works Director, and a volunteer Emergency Management Director. The Town does not employ a municipal engineer, planner, or GIS specialist.

Opportunities for Improvement:

- Utilize regional planning support through Midcoast Council of Governments for grant writing, GIS mapping, and hazard analysis
- Contract with engineering consultants for project design, culvert sizing, and coastal resilience planning
- Pursue funding through FEMA BRIC or HMGP to support technical studies and project development
- Explore shared service agreements with Waldo County or neighboring communities for technical expertise

7.3.2 Building Codes and Construction Standards

Current Condition:
Islesboro follows the standards of the Maine Uniform Building and Energy Code. Because the Town's population is below 4,000, it is not required to enforce MUBEC locally. However, communities under this threshold may choose to adopt and enforce a building code in conformance with MUBEC, and Islesboro encourages adherence to these standards to support resilient construction practices.

Opportunities for Improvement:

- Evaluate the feasibility of adopting and enforcing MUBEC locally to strengthen construction standards

- Increase outreach and education to encourage voluntary compliance, particularly in flood prone and coastal areas
- Provide training opportunities for the Code Enforcement Officer to enhance inspection and enforcement capabilities
- Incorporate higher standards for elevation, wind resistance, and floodproofing into local ordinances where appropriate

7.3.3 Land Use and Shoreland Zoning

Current Condition:
Municipalities without zoning may consider preparing and adopting a zoning ordinance to better guide development and reduce risk. Developing such an ordinance typically requires technical and legal assistance, as well as strong community engagement, and can be challenging in small rural communities. Islesboro currently enforces Shoreland Zoning and Floodplain Management Ordinances, which play a critical role in directing development away from high-risk areas and protecting coastal resources.

Opportunities for Improvement:

- Update zoning provisions to incorporate future sea level rise projections and climate adaptation standards
- Consider expanding land use tools to further limit development in high hazard areas
- Continue coordination with Maine DEP and regional partners to strengthen ordinance language and enforcement
- Evaluate opportunities to incorporate additional resilience standards into subdivision and site plan review processes

7.3.4 Floodplain Management and NFIP Compliance

Current Condition:
Islesboro participates in the National Flood Insurance Program and maintains a Floodplain Management Ordinance administered by the Code Enforcement Officer.

Opportunities for Improvement:

- Provide additional training for local officials on substantial damage and substantial improvement determinations
- Improve record keeping and documentation of floodplain compliance activities
- Evaluate participation in the Community Rating System if capacity allows, which could reduce flood insurance costs for residents
- Continue coordination with MEMA and FEMA to stay current with mapping updates and regulatory changes

7.3.5 Infrastructure and Public Works Capacity

Current Condition:
Public Works maintains roads, culverts, and drainage systems, with a focus on routine maintenance and incremental improvements.

Opportunities for Improvement:

- Increase culvert sizing and replacement efforts to accommodate more intense rainfall events
- Elevate or reinforce vulnerable road segments such as The Narrows and Ferry Road
- Pursue funding for long term capital improvements through MDOT and FEMA programs
- Expand asset inventory and condition assessments to better prioritize infrastructure investments

7.3.6 Emergency Management and Response

Current Condition:
Emergency management is led by a volunteer director with support from local officials and coordination with Waldo County EMA and MEMA.

Opportunities for Improvement:

- Expand training and participation in statewide emergency management programs
- Enhance local emergency communication systems and redundancy
- Increase backup power capacity at critical facilities such as the Fire Station, Health Center, and Town Office
- Develop additional emergency sheltering and resource staging plans for extended isolation events

7.3.7 Water Supply Resilience

Current Condition:
Islesboro relies entirely on private wells, springs, and groundwater, with no centralized municipal water system. The island's groundwater is designated as a Sole Source Aquifer, making it highly sensitive to contamination and saltwater intrusion.

Opportunities for Improvement:

- Evaluate options for community water storage or emergency supply systems
- Promote installation of backup power for private well systems
- Incorporate groundwater protection strategies into land use planning and shoreline management
- Assess feasibility of dry hydrants, cisterns, or other fire suppression water sources

7.3.8 Regional and Intergovernmental Coordination

Current Condition:
The Town works closely with Waldo County EMA, MEMA, MDOT, and regional planning organizations for technical assistance and funding access.

Opportunities for Improvement:

- Continue strengthening partnerships to improve access to funding and technical expertise
- Participate in regional hazard mitigation and coastal resilience initiatives
- Coordinate multi-jurisdictional planning efforts to address shared risks such as coastal flooding and infrastructure resilience

7.3.9 Summary of Capability Growth

Islesboro's ability to expand and improve its hazard mitigation capabilities is closely tied to its ability to leverage external funding, technical assistance, and regional partnerships. While local capacity is limited, the Town has demonstrated a strong ability to integrate mitigation into everyday operations and to pursue incremental improvements over time.

Future progress will depend on continued collaboration with state and regional partners, strategic investment in infrastructure and planning, and ongoing commitment to strengthening local capacity. By building on its existing foundation, Islesboro is well positioned to enhance its resilience to natural hazards and adapt to changing environmental conditions.

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7.4 Hazard Mitigation Actions/Project and Implementation Strategy - (C4)

Mitigation actions are specific projects and initiatives designed to achieve the goals identified in Islesboro's Hazard Mitigation Plan. These actions move beyond general objectives by establishing measurable steps, timelines, and responsible parties to ensure progress and accountability. Each action addresses a particular hazard or vulnerability, emphasizing the protection of existing and future buildings, infrastructure, and critical services that sustain year-round and seasonal residents alike.

The Islesboro Planning Team reviewed mitigation strategies from the Maine State Hazard Mitigation Plan (2023), as well as relevant examples from other coastal and island communities across Maine, to identify and refine actions most applicable to Islesboro's conditions. The resulting strategies focus on reducing the effects of flooding, coastal storms, sea-level rise, power disruptions, and other hazards that pose risk to the Town's people, property, and essential services.

In accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and implementing federal regulations under the Stafford Act, each mitigation action was evaluated and prioritized using the STAPLEE criteria—Social, Technical, Administrative, Political, Legal, Economic, and Environmental. This process ensures that selected projects are feasible, broadly supported, and effective in reducing long-term risk while accounting for Islesboro's limited staff capacity, geographic isolation, and reliance on ferry transport for supplies and equipment.

The Mitigation Action Plan presented in the following table outlines the specific projects the Town of Islesboro intends to pursue over the next five years, subject to available funding and technical assistance. Each action includes an assigned lead department or partner agency, an estimated implementation timeline, and potential funding sources such as FEMA's FMA, and HMGP programs, as well as state and regional resilience grants. This approach provides a practical roadmap for advancing Islesboro's resilience, safeguarding its coastal environment, and ensuring the continued safety and wellbeing of its residents.

7.4.1 Evaluation of a Comprehensive Range of Mitigation Actions

As part of the mitigation strategy development process, the Islesboro Hazard Mitigation Planning Team evaluated a comprehensive range of potential mitigation actions in accordance with FEMA's Local Mitigation Planning Policy Guide (2025). This process ensured that a wide variety of strategies were considered before identifying and prioritizing the final set of mitigation actions included in this plan.

The Planning Team considered multiple categories of mitigation actions, including:

Prevention and Regulatory Measures
Potential updates to land use regulations, zoning ordinances, and development standards were

evaluated to limit future risk. This included consideration of enhanced floodplain standards, freeboard requirements, and expanded shoreline protection regulations.

Property Protection Measures
Strategies such as elevation, relocation, or floodproofing of structures were reviewed, particularly for buildings located in coastal flood hazard areas. While these measures can be effective, they were determined to be limited in feasibility due to the high cost, private ownership considerations, and the dispersed nature of development on the island.

Structural and Infrastructure Projects
A wide range of infrastructure improvements were evaluated, including roadway elevation, culvert replacement, shoreline stabilization, drainage improvements, and protection of ferry access points. These actions were identified as some of the most effective and feasible for reducing risk to critical systems and were prioritized in the final mitigation strategy.

Natural Systems Protection and Nature-Based Solutions
The Planning Team evaluated opportunities to restore or enhance natural systems such as wetlands, coastal buffers, and drainage areas to reduce flooding and erosion. These approaches were prioritized where feasible due to their cost effectiveness and environmental co-benefits.

Emergency Services and Response Enhancements
Actions to improve emergency response capabilities were considered, including backup power systems, communication upgrades, and emergency planning improvements. These measures were prioritized due to Islesboro's geographic isolation and reliance on limited access routes.

Public Education and Outreach
The Planning Team considered strategies to improve public awareness and preparedness, including outreach programs, seasonal resident education, and improved communication tools. These actions were included to address identified gaps in emergency communication and preparedness.

Planning, Administrative, and Capability Building Actions
Additional actions were evaluated to strengthen local capacity, including staff training, improved coordination with regional partners, and participation in programs such as the National Flood Insurance Program and Firewise USA. These actions support long-term resilience and implementation capability.

7.4.2 Selection of Final Mitigation Actions

Following evaluation of this comprehensive range of alternatives, the Planning Team applied the STAPLEE criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to identify the most feasible, cost-effective, and impactful actions for Islesboro.

Actions included in this plan were selected based on their ability to:

Reduce risk to people, property, and critical infrastructure
Address the most significant hazards identified in the risk assessment
Be implemented within the Town's financial and administrative capacity
Leverage available state, federal, and regional funding sources
Provide long-term resilience benefits while maintaining community character

Actions that were not selected were generally determined to be infeasible due to high cost, limited effectiveness for island conditions, regulatory constraints, or lack of local capacity to implement and maintain them.

7.4.3 Examples of Mitigation Actions Considered but Not Selected

The Planning Team also evaluated several additional mitigation actions that were ultimately not advanced due to feasibility, cost, or site-specific constraints. Examples include:

Construction of a Centralized Municipal Water System
The development of a centralized water supply system was considered as a way to improve water availability during drought and support firefighting capacity. However, this option was not selected due to the high capital cost, ongoing operational requirements, and the dispersed nature of development across the island, which would make system expansion and maintenance challenging.

Undergrounding of Electrical Distribution Lines Island-Wide
Burying electrical distribution lines was evaluated as a potential strategy to reduce power outages caused by falling trees and severe storms. While this approach would improve long-term reliability, it was not selected due to the significant cost, complex installation conditions in coastal and rocky soils, and the need for coordination with private utility providers. Targeted undergrounding may be considered in the future for critical or high-risk segments.

Large-Scale Living Shoreline Installation Along the Entire Coastline
The Planning Team evaluated the use of living shoreline techniques, such as salt marsh restoration, coir fiber logs, and vegetative stabilization, along extensive portions of Islesboro's coastline to reduce erosion and absorb wave energy. While these approaches provide important environmental benefits and can be effective in low-energy coastal areas, they were not selected as a primary strategy for island-wide implementation due to site-specific limitations, including high wave energy exposure in many shoreline areas, permitting complexity, and variable effectiveness depending on location. Instead, targeted nature-based solutions were incorporated where conditions are suitable and can be combined with structural measures for greater resilience.

7.5 STAPLEE Evaluation Criteria for Mitigation Actions

The Town of Islesboro uses the STAPLEE method (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to evaluate and prioritize mitigation actions. This structured approach ensures that proposed projects are feasible, broadly supported, and effective in reducing long-term risk, while reflecting the Town's local capacity and island-specific constraints.

Social (S)

Mitigation actions are assessed for their public support, community acceptance, and social equity. Islesboro places high value on actions that protect vulnerable populations such as elderly residents and those living in isolated areas, especially during long-term power outages or storm events. Public outreach and education remain essential for ensuring community understanding and participation in mitigation efforts.

Technical (T)

The Town considers whether each proposed action is technically feasible, will effectively reduce losses, and will avoid unintended secondary impacts. On an island with limited engineering capacity, the Town relies on regional and state partners such as MEMA, MDOT, and consultants to review technical soundness before implementation.

Administrative (A)

Given Islesboro's small staff and reliance on volunteers, administrative capacity is a central factor in prioritizing actions. Projects that can be implemented by existing personnel—such as the Town Manager, Public Works Director, or Code Enforcement Officer—are typically favored. For more complex actions, Islesboro seeks outside technical or grant assistance to supplement local efforts.

Political (P)

Political feasibility is determined by support from the Select Board, Planning Board, and the broader community. Actions aligned with existing town goals, such as infrastructure resilience, shoreline protection, or emergency preparedness, are more likely to gain political and public approval.

Legal (L)

Each proposed action is evaluated for its legal authority and compliance with local ordinances, state statutes, and federal regulations. Islesboro's Shoreland Zoning Ordinance, Floodplain Management Ordinance, and Comprehensive Plan provide the primary legal framework for hazard mitigation and coastal protection. Actions requiring new ordinances or amendments are reviewed by the Select Board and Planning Board.

Economic (E)

Economic feasibility considers both initial and long-term costs, including engineering, permitting, and maintenance. As an island community, Islesboro's project costs are typically higher than those on the mainland due to the need to ferry equipment, materials, and labor to the island. The Town actively seeks external funding through FEMA's FMA, and HMGP programs, as well as state resilience and infrastructure grants. Preference is given to cost-effective projects that also contribute to broader economic stability and community benefit.

Environmental (E)

Environmental impacts are carefully considered to ensure that mitigation projects do not harm natural resources or protected areas. Projects with positive environmental outcomes, such as shoreline stabilization using nature-based solutions, improved stormwater management, or habitat protection, are given higher priority. The Town coordinates with the Maine Department of Environmental Protection (DEP) and U.S. Army Corps of Engineers on permitting and compliance.

7.5.1 STAPLEE Evaluation Scoring Table

Mitigation Action	S (Social)	T (Technical)	A (Administrative)	P (Political)	L (Legal)	E (Economic)	E (Environmental)	Total Score (Max 35)	Priority
Narrows (Short-Term Fix)	4	3	3	4	3	3	3	22	Immediate
Narrows (Long-Term Road & Revetment Upgrade	4	3	2	4	3	2	3	21	High
Grindle Point Joint Project	5	3	3	3	3	3	3	22	Immediate
West Bay Road	3	3	2	3	3	2	3	19	High

Hewes Point Road	3	3	2	3	3	2	3	19	Medium
Seal Harbor (Stabilization)	3	3	2	3	3	2	3	19	High
Seal Harbor Pier Elevation	3	3	2	3	3	3	3	20	High
Sprague Beach Road	3	3	2	3	3	2	5	20	High
Town Beach	3	2	2	3	3	3	3	19	Medium

Dark Harbor Wastewater Treatment	3	3	2	3	3	2	4	20	High
Warren Landing/Pripet Point	3	3	2	3	3	2	3	19	High
Mill Creek Bridge Joint Project	3	3	3	3	3	3	3	21	Immediate
Emergency Preparedness Outreach Program	3	3	3	3	3	3	3	21	Medium

Seasonal Resident Hazard Awareness Campaign	3	3	3	3	3	3	3	21	Medium
Wetland Restoration & Culvert Upsizing Program	3	3	2	3	3	2	3	19	Medium
Coastal Buffer Protection Program	3	3	2	3	3	3	3	20	High
Adopt Enhanced Development Standards for Hazard Areas	3	3	2	3	3	3	3	20	Medium

Scoring Key (1–5 Scale):

5 = Excellent – Strongly supports criteria / easily achievable

4 = Good – Supports criteria with minimal difficulty

3 = Fair – Supports criteria with moderate effort or resources required

2 = Poor – Significant barriers to achievement

1 = Very Poor – Unlikely to be implemented or effective

7.5.2 Mitigation Actions/Projects - (C4-a, C4-b, C5-b)

Action ID	Mitigation Action / Project Description	Responsible Entity	Estimated Timeline	Estimated Cost	Possible Funding Sources	Status Funding	Hazard Profile Code(s)	Hazards Addressed (Summary)
M-1	Narrows Short-Term Hazard Fix Prevent debris or materials from being displaced across the roadway during storm events.	Public Works / MEMA	Fall (2025)	$100,000	Local CIP; MEMA Grants	In progress	H-1, H-2	Storm surge debris, roadway hazards

M-2	Narrows Road & Revetment Elevation Project Raise road ~ 4 feet and strengthen two revetments	MDOT / Town	2027	$7.65 million	FEMA BRIC; HMGP; MDOT	Deferred - Dependent on Federal & State funds	H-1, H-3, H-5	Flooding, erosion, long-term risk
M-3	Construct Grindle Point Joint Project State owned infrastructure, main ferry to the island. Address public transportation access and road hazards, i.e. flooding, erosion. Raise road 3-4 feet, replace undersize culvert, rebuild revetment	MDOT / Town	Short Term	$350,000	MDOT Capital Program; FEMA BRIC	Deferred - Dependent on state funds	H-1, H-2, H-9	Flooding, ferry access disruption
M-4	West Bay Road Raise approximately 1,900 feet of low-lying roadway located within the Velocity (VE) Zone and below the 15-foot Base Flood Elevation (BFE). The segment is highly vulnerable to storm surge, flooding, and coastal erosion.	Town / MEMA	Medium	$3 million	FEMA BRIC; FMA; HMGP	Deferred - Dependent on grant award	H-1, H-3, H-5	VE Zone flooding, erosion

M-5	Hewes Point Road Approximately 780 feet of low-lying Town road located within the Velocity (VE) Zone is vulnerable to flooding and erosion, lying below the 16-foot Base Flood Elevation (BFE). Raise the roadway by at least 2 feet to reduce flood risk and improve resilience.	Town / MEMA	Medium	$1.5 million	FEMA HMGP; FMA; Maine DEP	Deferred - Dependent on grant award	H-1, H-3, H-5	Flooding, shoreline erosion
M-6	Seal Harbor Shoreline/Seawall Stabilize shoreline and seawall to protect roadway. Restore wetland with appropriate sized culvert.	Town / MDOT	Medium	$1.5 million	FEMA BRIC; NOAA Coastal Resilience; Maine DEP	Deferred - Dependent on grant award	H-1, H-4, H-5	Drainage failure, erosion
M-7	Seal Harbor Pier Raise the elevation of the town pier 4 feet.	Harbor Committee / Town	Medium	$250,000	FEMA BRIC; EDA; Working Waterfront Program	Deferred - Dependent on grant award	H-1, H-2, H-9	Storm surge, waterfront disruption

M-8	Sprague Beach Road Raise the roadway by at least two feet and reinforce the shoulders. Rebuild the revetment to mitigate flooding hazards and replace the undersized culvert to restore natural coastal wetland connectivity.	Town / MEMA	Medium	$3.5 million	FEMA BRIC; FMA; NOAA Grants	Deferred - Dependent on grant award	H-1, H-4, H-5	Flooding, wetland loss
M-9	Islesboro Town Beach Improve the parking area and drainage infrastructure. The existing lot is low-lying and vulnerable to flooding, impacting the Town's recreation and public access area.	Town / Parks	Long	$200,000	CDBG; LWCF; Maine Coastal Program	Deferred - Lack of funding	H-1, H-5	Flooding, public access impacts
M-10	Dark Harbor Waste Water Treatment Plant Stabilize the shoreline to prevent erosion hazards that degrades water quality and threatens the wastewater pumping station. Relocate the sewer pump station outside the AE Zone (Base Flood Elevation 12) and protect the associated pipeline located within the velocity (VE) zone.	Town / DEP	Medium	$4 million	FEMA BRIC; Clean Water State Revolving Fund (SRF); Maine DEP	Deferred - Dependent on funding	H-1, H-5, H-9	Flooding, contamination risk

M-11	Warren Landing Pripet/Joint Project Raise approximately 300 feet of roadway located within the Velocity (VE) Zone and currently below the 14-foot Base Flood Elevation by at least 2 feet. Stabilize the adjacent shoreline and reconstruct the boat ramp to support and preserve the working waterfront.	Town / MDOT	Medium	$500,000	Working Waterfront Access Program; FEMA BRIC; MDOT	Deferred - Dependent on grant award	H-1, H-2, H-9	Coastal flooding, working waterfront
M-12	Mill Creek Bridge 3490 Joint Project Raise the low-lying bridge located within the AE Zone that is vulnerable to flooding. The current bridge deck elevation is below the Base Flood Elevation (BFE) of 11 feet (NAVD88).	MDOT / Town	Medium	$150,000	MDOT; FEMA BRIC; HMGP	Deferred - Dependent on grant award. If granted the project will move forward for MDOT to implement their mitigation measure.	H-4, H-9	Inland flooding, transportation disruption

M-13	Emergency Preparedness Outreach Program Develop and implement island-wide preparedness education, including workshops, materials, and alert system promotion.	Town / EMA	Short	$25,000	MEMA; FEMA HMA; Local Budget	Deferred - Seeking funding	H-1–H-10 (All Hazards)	Public awareness, preparedness
M-14	Seasonal Resident Hazard Awareness Campaign Provide hazard awareness materials to seasonal residents via ferry, rentals, and digital outreach.	Town / Ferry / Rentals	Short	$15,000	MEMA; Local Funds; Nonprofit Partnerships	Deferred - Seeking funding	H-1–H-10 (All Hazards)	Evacuation awareness, communication gaps
M-15	Wetland Restoration & Culvert Upsizing Program Restore wetlands and replace undersized culverts to improve drainage, reduce flooding, and enhance resilience.	Public Works / DEP	Long	$250,000 -$1.5M per site	FEMA BRIC; NOAA; Maine DEP	Deferred - Dependent on grant award	H-1, H-4, H-5	Flood reduction, drainage improvement

M-16	Adopt Enhanced Development Standards for Hazard Areas Update local ordinances to require higher resilience standards for new construction and substantial redevelopment in hazard-prone areas.	Planning Board / CEO	Medium	$30,000	Maine Community Resilience Partnership; Local Funds; FEMA Capability & Capacity	Deferred - Seeking funding	H-10 (All Hazards)	Long-term vulnerability reduction

Hazard profile codes (H-1 through H-10) correspond directly to the hazard identification and risk assessment presented in Section 5 of this Plan. Each mitigation action has been evaluated and prioritized based on its ability to reduce risk associated with one or more identified hazards, ensuring consistency with FEMA's Local Mitigation Planning Policy Guide (2025) and strengthening the linkage between risk assessment and mitigation strategy.

Code	Hazard Profile
H-1	Coastal Flooding
H-2	Coastal Storms
H-3	Sea Level Rise (Long-Term Conditions)
H-4	Inland / Stormwater Flooding

H-5 Coastal Erosion

H-6 Winter Storms

H-7 Wildfire / Drought

H-8 Extreme Cold / Public Health

H-9 Infrastructure / Transportation Disruption

H-10 Future Hazard Conditions (All Hazards)

Timeframes are assigned based on project complexity, funding availability, permitting requirements, and coordination needs with state and federal partners. These categories help prioritize implementation and provide a realistic schedule for advancing mitigation actions over the five-year planning horizon.

Timeframe Category	Definition
Short-Term	Actions expected to be completed within **1–2 years**. These projects are typically low-cost, high-impact, and ready for immediate implementation.
Medium-Term	Actions expected to be completed within **3–5 years**. These projects often require planning, design, permitting, or external funding prior to implementation.

Long-Term	Actions expected to be completed in **5+ years**. These projects are typically larger in scale, require substantial funding, or involve long-term policy, infrastructure, or environmental changes.

Implementation Notes:

- **Note: In most cases, municipalities have not made a decision about which funding source to pursue for specific actions. For all projects, local tax dollars are the likely funding source with the option of applying for FEMA funds, state resilience grants, or other funding sources.**

- Actions are prioritized using Islesboro's STAPLEE evaluation process (see preceding table)
- Implementation is dependent on funding availability and technical assistance.

- The plan will be reviewed annually by the Islesboro Emergency Management Director and Town Manager, with updates incorporated into municipal and capital improvement planning processes.

7.6 Potential Funding Resources

Implementing Islesboro's hazard mitigation actions will depend on access to a combination of local, state, and federal funding sources, as well as technical assistance and partnerships. Because the Town has limited staff and tax base capacity, leveraging outside resources is essential to advancing infrastructure upgrades, shoreline protection, and community resilience. The following summarizes key funding mechanisms available to Islesboro.

7.6.1 Municipal Resources

Municipal Annual Budget
The Town's annual operating budget provides the foundation for small-scale mitigation and maintenance activities such as culvert cleaning, ditching, tree trimming, and emergency response preparedness. These funds are typically limited but can be used as local match for larger grant programs.

Municipal Bonding
Bonding allows the Town to finance larger capital projects, including road reconstruction, drainage improvements, and facility hardening. Bonded funds may also serve as a match requirement for state and federal mitigation grants. Islesboro's bonding capacity is modest due to its small population but remains a viable tool for essential infrastructure projects.

7.6.2 State Resources

Maine Department of Transportation (MDOT) – Transportation Capital Improvements
MDOT provides cost-share and direct funding for roadway, bridge, and drainage improvements through its Transportation Capital Improvement Program (TCIP) and Local Roads Center. Islesboro may partner with MDOT to address erosion, sea-level rise impacts, and stormwater upgrades along ferry routes and the Narrows causeway.

Maine Department of Environmental Protection (DEP) – Culvert and Stream Crossing Grants
Administered by Maine DEP and the Department of Inland Fisheries and Wildlife, this competitive grant program supports replacement of undersized or degraded culverts to restore natural stream flow and reduce flooding risks. These funds are well-suited for Islesboro's vulnerable road crossings.

Climate Resilience Grants
Through state agencies such as the Governor's Office of Policy Innovation and the Future (GOPIF), the Maine Climate Council, and the Community Resilience Partnership, municipalities can apply for planning and implementation grants. These programs help communities prepare for climate-driven challenges such as coastal flooding, sea-level rise, and infrastructure resilience.

7.6.3 Federal Resources

FEMA Building Resilient Infrastructure and Communities (BRIC)
The BRIC program is one of the most significant sources of pre-disaster mitigation funding. It supports large scale infrastructure projects such as elevation of roads, flood mitigation, backup power systems, and coastal resilience improvements. BRIC is particularly well suited for Islesboro projects such as protecting ferry access routes, hardening utilities, and addressing long-term sea level rise impacts.

FEMA Legislative Pre-Disaster Mitigation (LPDM) Program
The LPDM program provides competitive funding for hazard mitigation planning and project implementation before disasters occur. Eligible projects include infrastructure protection, floodproofing, and resilience planning. Islesboro may apply through MEMA as the state applicant.

FEMA Hazard Mitigation Grant Program (HMGP)
The HMGP provides post-disaster funding to implement long-term hazard mitigation measures following presidential disaster declarations. Funding may support projects such as shoreline stabilization, drainage upgrades, or backup power installation at critical facilities. Islesboro's adopted Hazard Mitigation Plan ensures eligibility for HMGP assistance.

FEMA Flood Mitigation Assistance (FMA)
FMA funds projects that reduce or eliminate long-term flood risk to NFIP-insured properties. Although Islesboro currently has no repetitive loss properties, participation in the NFIP allows eligibility for future FMA grants for drainage, elevation, or shoreline protection projects.

7.6.4 Additional Federal and Regional Opportunities

United States Department of Agriculture Rural Development Programs
USDA Rural Development offers funding and low interest loans for infrastructure improvements in small and rural communities. Programs such as the Community Facilities Program can support upgrades to emergency services buildings, backup power systems, and essential public facilities.

United States Army Corps of Engineers Planning Assistance to States Program
This program provides technical assistance and planning support for water resource and coastal resilience projects. Islesboro can utilize this program to evaluate shoreline protection, flood mitigation strategies, and long-term infrastructure adaptation options.

National Oceanic and Atmospheric Administration Coastal Resilience Grants
NOAA provides funding for coastal communities to address resilience to storms, flooding, and sea level rise. These grants can support shoreline stabilization, habitat restoration, and infrastructure protection projects that align with Islesboro's coastal vulnerabilities.

Economic Development Administration Public Works and Economic Adjustment Assistance
EDA funding can support infrastructure projects that strengthen economic resilience, including transportation access, utility improvements, and recovery planning. For Islesboro, this may include projects that protect ferry operations and maintain economic connectivity.

Department of Energy Grid Resilience and Innovation Programs
Federal energy programs support improvements to electrical grid reliability, including microgrids, battery storage, and backup generation. These programs are particularly relevant to Islesboro's dependence on mainland power and vulnerability to outages.

7.6.5 Partnerships and Technical Assistance

In addition to direct funding, Islesboro benefits from partnerships with regional organizations, state agencies, and nonprofit groups. These partners can provide technical expertise, grant writing support, and project implementation assistance. Collaboration with MEMA, Waldo County Emergency Management, and coastal resilience organizations will be essential to securing and managing funding.

7.6.6 Summary

A diversified funding strategy combining municipal contributions, state partnerships, and federal grant opportunities is essential for Islesboro's mitigation program. The Town's participation in the National Flood Insurance Program NFIP and adoption of this Hazard Mitigation Plan ensure ongoing eligibility for FEMA hazard mitigation assistance. By working closely with MEMA, MDOT, DEP, and other state and federal agencies, Islesboro can maximize technical and financial support to address its most pressing vulnerabilities, particularly those associated with coastal flooding, sea level rise, and critical infrastructure resilience.

It is important to note that the funding sources listed in this plan are not exhaustive. Grant programs, state initiatives, and federal funding priorities continue to evolve, especially as climate adaptation and infrastructure resilience receive increasing national attention. New opportunities may arise, while others may change or sunset over time. The Town should regularly review available programs and coordinate with MEMA, Waldo County EMA, and regional partners to stay informed of current funding avenues.

8.0 Plan Maintenance - (Element D)

In accordance with 44 CFR §201.6(c)(4), the Town of Islesboro will maintain this Hazard Mitigation Plan as a living document that evolves with changing conditions, new data, and community priorities. The plan maintenance process ensures that hazard mitigation remains an integral and ongoing component of the Town's planning, budgeting, and emergency management activities.

This section outlines how Islesboro will monitor, evaluate, and update the plan over time, integrate mitigation strategies into other local planning mechanisms, and encourage continued public participation throughout the plan's lifecycle.

The Town recognizes that, as a small island community with limited staff, ongoing coordination with the Maine Emergency Management Agency (MEMA), Waldo County EMA, and other partners will be essential to keeping the plan current and actionable.

The plan maintenance process consists of three interrelated components:

1. Monitoring, Evaluating, and Updating the Plan - (D2-b)

The Islesboro Planning Team, led by the Town Manager and Local Emergency Management Director, will be responsible for overseeing the monitoring and evaluation of the Hazard Mitigation Plan. This team will meet at least annually or following any major hazard event to review progress on mitigation actions, funding opportunities, and emerging risks such as coastal erosion and changing environmental conditions.

In addition to tracking implementation, the Planning Team will evaluate the effectiveness of the plan in achieving its stated goals using the following criteria. The Town will utilize a standardized Hazard Mitigation Project Tracking Form (see Appendix B) to document the status of mitigation actions identified in this plan, as well as new projects that emerge prior to the next plan update. This form will be reviewed and updated at least annually as part of the Planning Team's evaluation process, and following any major hazard event, to ensure progress is consistently monitored and priorities remain aligned with current conditions:

- **Completion of Mitigation Actions:** Progress toward implementation of projects identified in the Mitigation Action Strategy;
- **Reduction in Vulnerability:** Evidence of reduced exposure to hazards, such as fewer roadway closures, improved drainage performance, or increased infrastructure resilience;
- **Reduction in Losses:** Decreases in damages, response costs, or service disruptions associated with hazard events;
- **Increased Preparedness:** Improvements in community awareness, participation in outreach programs, and readiness of residents and seasonal populations;
- **Integration into Local Planning:** Degree to which mitigation strategies are incorporated into capital planning, land use decisions, and infrastructure investments.

The Planning Team will document findings from these evaluations and use them to adjust priorities, refine mitigation actions, and inform future funding applications.

Every five years, the plan will undergo a comprehensive review and update in coordination with MEMA and FEMA Region I to maintain eligibility for federal mitigation grants (e.g., HMGP and FMA). Updates will incorporate:

- Progress on previously identified mitigation projects;
- Changes in local development, population, or infrastructure;
- Newly available hazard and environmental data; and
- Lessons learned from local or regional emergencies.

The Select Board will formally adopt plan updates following a public hearing and recommendation by the Planning Team.

2. Incorporation into Existing Planning Mechanisms - (D3)

Hazard mitigation principles will be integrated into Islesboro's existing and future municipal planning processes. This includes the Comprehensive Plan, Capital Improvement Plan (CIP), Land Use Ordinance, and Shoreland Zoning Ordinance.

When infrastructure or development projects are proposed—such as roadway improvements, shoreline stabilization, or facility upgrades—the Town will reference the Hazard Mitigation Plan to ensure consistency with resilience goals and risk reduction strategies.

The Town Manager, in coordination with the Planning Board and Public Works Department, will also consider the plan's recommendations when preparing annual budgets, applying for state or federal grants, or updating emergency operations procedures.

3. Continued Public Involvement

Public engagement remains a cornerstone of Islesboro's mitigation strategy. The Town will encourage ongoing public input through:

- Annual public meetings or Select Board updates on plan progress;
- Posting updates, notices, and surveys on the Town's website and at the Town Office;
- Collaboration with civic organizations such as the Islesboro Community Center and local volunteer groups; and
- Coordination with regional and state agencies to share progress and receive technical feedback.

Public participation will be invited whenever the plan is updated or new mitigation actions are proposed, ensuring that residents remain informed and engaged in shaping the Town's long-term resilience.

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Appendix A - Resolution

RESOLUTION

Whereas natural disasters may occur at any time, we recognize that to lessen the impacts of these disasters, we will save lives, property and the environment;

And whereas the creation of a Local Hazard Mitigation Plan is necessary for the development of a risk assessment and effective mitigation strategy;

And whereas the Town of Islesboro, Maine are committed to the mitigation goals and measures as presented in this plan;

Therefore, the Select Board of Islesboro hereby adopt the 2026 Local Hazard Mitigation Plan.

Authorizing Signatures

_____ _____

Selectperson, Islesboro Date

_____ _____

Selectperson, Islesboro Date

_____ _____

Selectperson, Islesboro Date

_____ _____

Selectperson, Islesboro Date

_____ _____

Selectperson, Islesboro Date

Appendix B - Community Engagement

Community Survey

Islesboro Hazard Mitigation Plan Survey

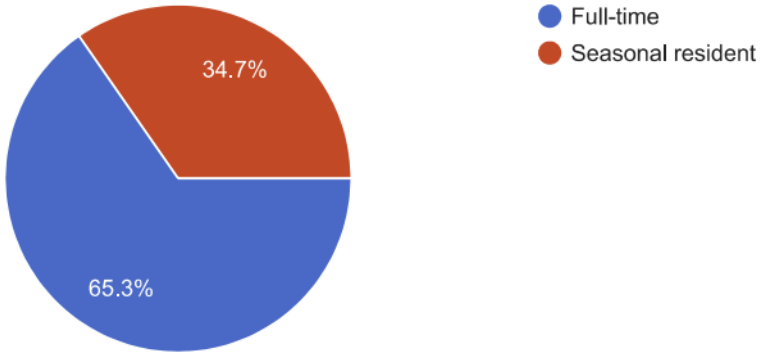
50 responses

Publish analytics

1. Are you a full-time or seasonal resident?

Copy

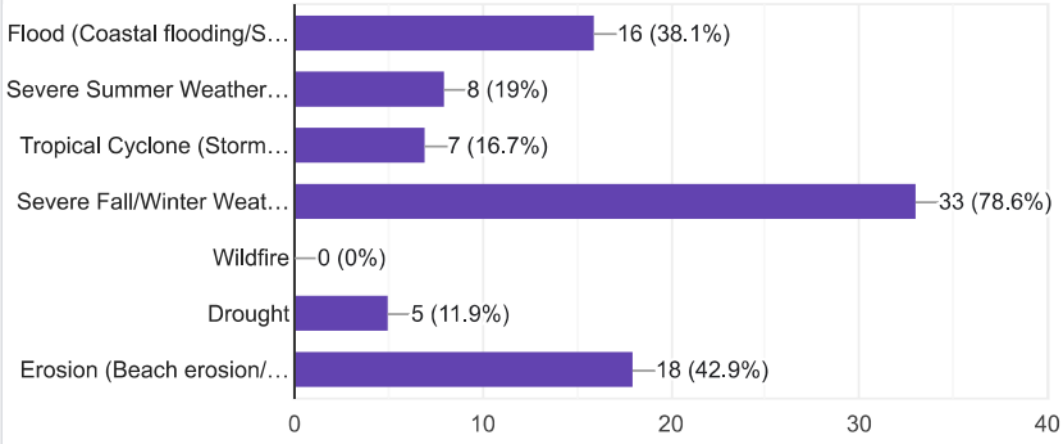
49 responses



2. During the past five years, have and you or someone in your household experienced a natural disaster such as severe windstorm, flooding, etc.? (Check all that apply)

Copy

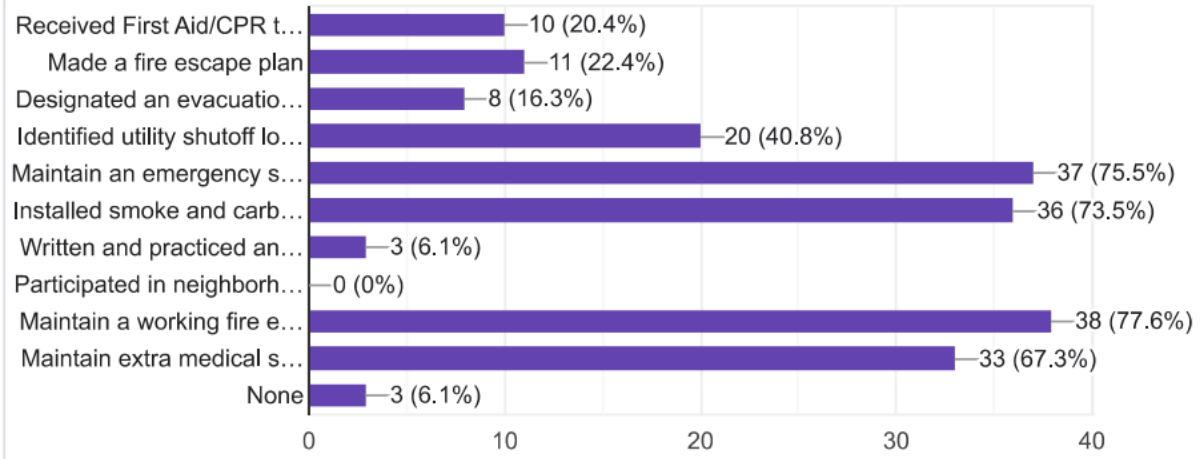
42 responses



3. What steps has your household taken to prepare for a disaster? (Check all that apply)

Copy

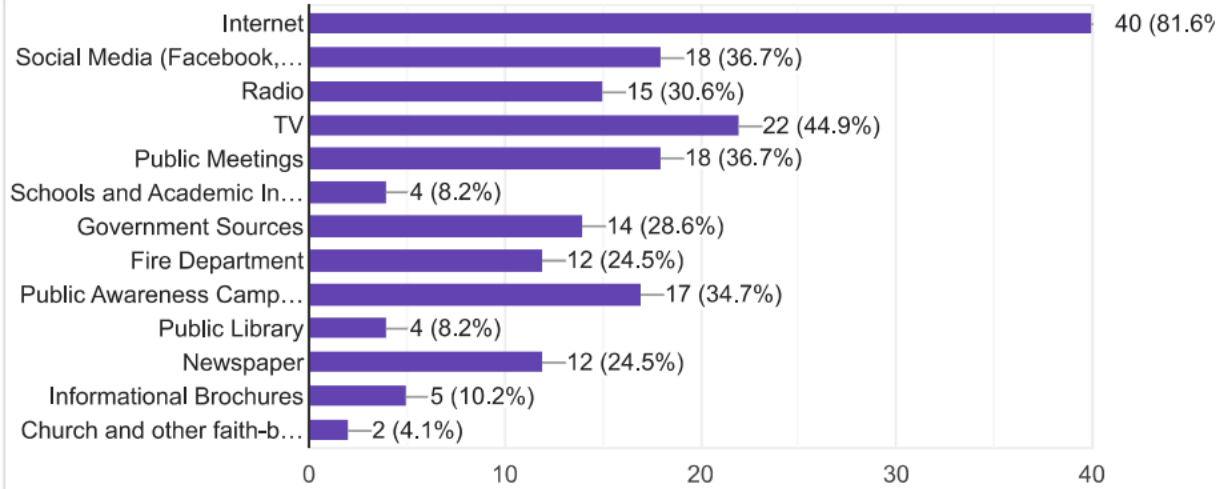
49 responses



4. How do you get information about emergency preparedness? (Check all that apply)

Copy

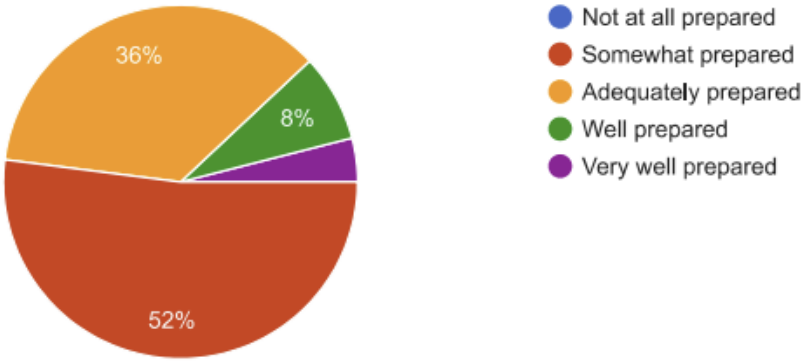
49 responses



5. How prepared is your household to deal with a hazard event?

Copy

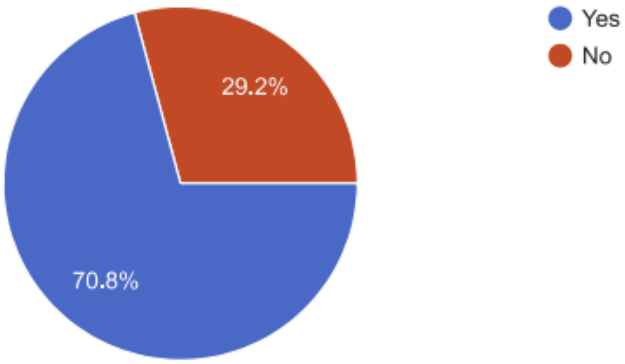
50 responses



6. Would the disclosure of natural hazard information influence your decision to purchase or move into a home (house, condo, apartment) today?

Copy

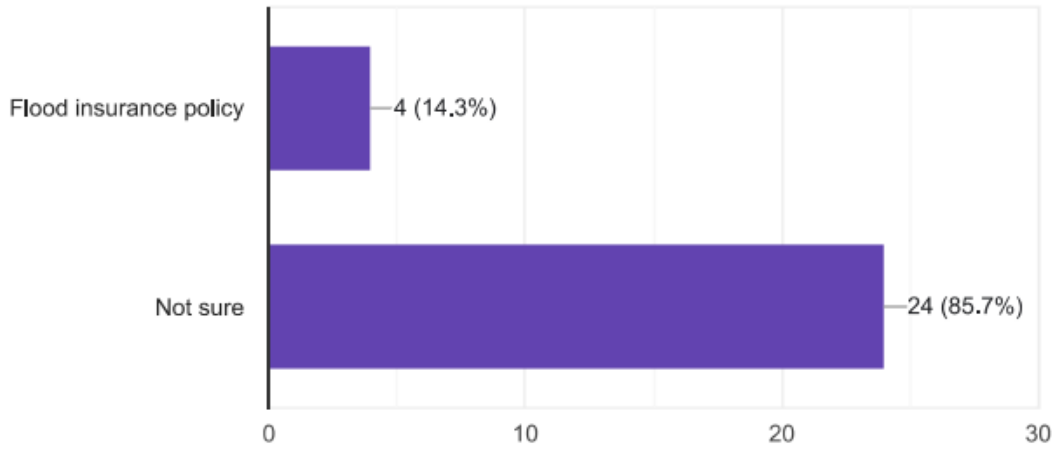
48 responses



7. To the best of your knowledge, does the home in which you live have:

Copy

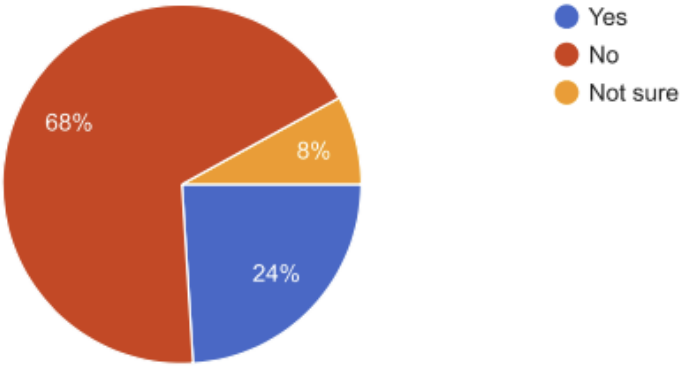
28 responses



8. Have you ever had difficulty obtaining homeowners or renters insurance due to risks from natural hazards? (Check one)

Copy

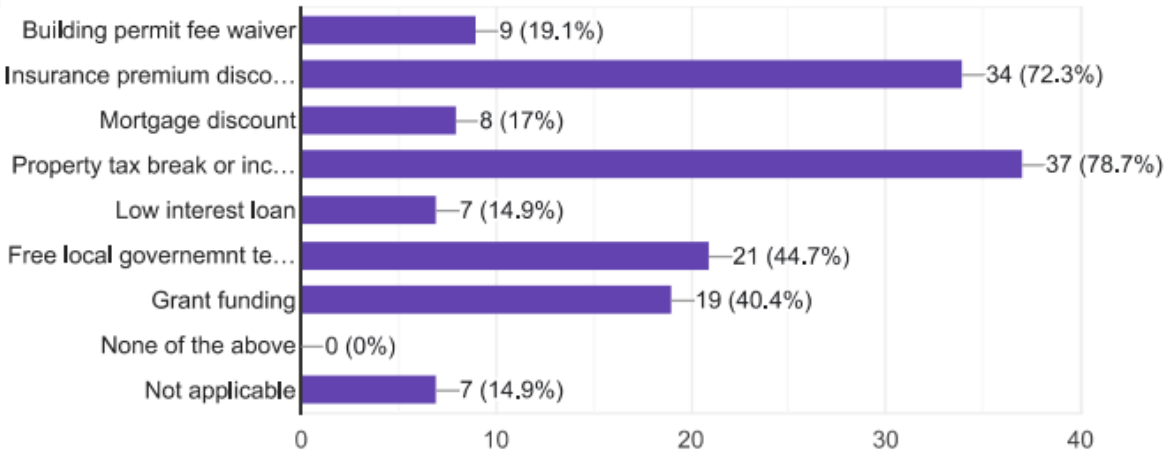
50 responses



9. Which incentive would encourage you to retrofit your house against natural disasters? (Check all that apply)

Copy

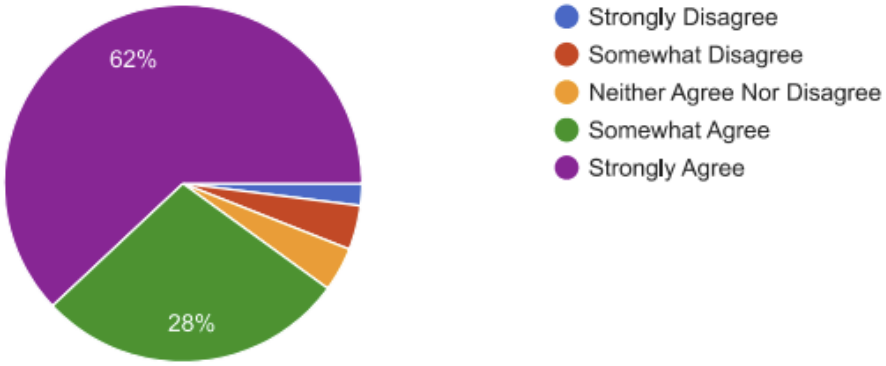
47 responses



10. Please indicate how you feel about the following statement: "I think it is important to provide education and programs that promote community members to take action to reduce their exposure and risks to natural hazards."

Copy

50 responses



Please share your experience (optional)

1 response

We try to make evacuation plans, after every storm surge or storm event, but then we get halfway through or dismantle our go-bags. We were too close for comfort to the Crate's fire, which almost made us prepare for another such emergency. The main emergencies we think about are power outages and losing our all-electric heating in the winter. We are forced to invest in shoreline stabilization, a massive cost that we did not plan for, because we have nowhere else to build on our land. We've been waiting for years for a company to finish it, and we cannot get any aid for it.

Public Meeting Slideshow

WHAT IS HAZARD MITIGATION?

- Hazard Mitigation refers to efforts to reduce or eliminate the long-term risk to life and property from hazards.
- It involves planning, policy changes, infrastructure improvements, and community awareness.
- **Goal:** Build more resilient and sustainable communities.

THE IMPORTANCE OF HAZARD MITIGATION

- **Reduce Losses:** Protects people, property, and the economy.
- **Saves Money:** Mitigation investments are often much lower than disaster recovery costs.
- **Protect Natural Resources:** Helps preserve the environment by reducing harm from natural disasters.

TYPES OF HAZARDS

The United States outlines the following 18 Natural Hazards:

- Avalanche
- Coastal Flooding
- Cold Wave
- Drought
- Earthquake
- Hail
- Heatwave
- Hurricane
- Ice Storm
- Landslide
- Lightning
- Riverine Flooding
- Strong Wind
- Tornado
- Tsunami
- Volcanic Activity
- Wildfire
- Winter Weather

Emerging Hazards: Climate Change and Pandemics

MITIGATION EXAMPLES

Flood Control

- **Stormwater Drainage Systems:** Infrastructure improvements that redirect stormwater runoff to prevent flooding
- **Retention Ponds and Wetlands Restoration:** These hold excess water during storms and gradually release it, helping to reduce immediate flood risk

Wildfire Prevention

- **Firebreaks:** Clearing vegetation in strategic areas to prevent wildfires from spreading.
- **Vegetation Management:** Regular trimming, clearing of brush, and removal of dead trees or vegetation that could fuel fires.
- **Fire-Resistant Building Materials:** Encouraging or mandating the use of materials that are less likely to catch fire, such as metal roofing or fire-resistant side.

Coastal Protection

Seawalls and Barriers: Physical structures built along coasts to protect against storm surges and sea-level rise.
Sand Dune Restoration: Rebuilding natural sand dunes to act as buffers against coastal flooding and erosion.
Living Shorelines: Using natural materials like plants, shells, and rocks to stabilize coasts while promoting healthy ecosystems.

STEPS IN HAZARD MITIGATION PLANNING

- **Identify Hazards:** Assess potential risks in your community.
- **Assess Vulnerabilities:** Determine which areas, structures, or populations are most at risk.
- **Set Goals:** Prioritize actions that reduce risk.
- **Develop and Implement Strategies:** Include policies, infrastructure changes, and public outreach.
- **Evaluate and Revise:** Continuously monitor and improve the plan.

HOW CAN YOU GET INVOLVED?

- **Share Input:** Participate in local hazard mitigation planning meetings.
- **Stay Informed:** Understand the risks in your area and the community's response plans.
- **Prepare Your Home/Business:** Implement personal mitigation measures like securing furniture, installing storm windows, or creating defensible space in fire-prone areas.

BENEFITS OF MITIGATION EFFORTS

- **Lives Saved:** Prevents injuries and fatalities.
- **Reduced Recovery Costs:** Lowers the financial burden on individuals and governments.
- **Community Resilience:** Strengthens the ability to bounce after a disaster.
- **Environmental Protection:** Reduces the impact on natural ecosystems.

National Benefit-Cost Ratio (BCR) Per Peril *BCR numbers in this study have been rounded	Beyond Code Requirements	Federally Funded
Overall Hazard Benefit-Cost Ratio	$4:1	$6:1
Riverine Flood	$5:1	$7:1
Hurricane Surge	$7:1	Too few grants
Wind	$5:1	$5:1
Earthquake	$4:1	$3:1
Wildland-Urban Interface Fire	$4:1	$3:1

FUNDING OPPORTUNITIES

- **FEMA Funding:** Annual (BRIC) and post-disaster funding (HMGP or 404).
- **State and Local Grants:** Many states offer their own funding programs to supplement federal hazard mitigation grants.
- **Private Sector:** Companies and foundations may offer grants for community resilience and hazard mitigation.

LET'S HEAR FROM YOU!

Hazard Mitigation Workshops


HAZARD
MITIGATION
WORKSHOP
Why Attend?
• Understanding of hazard mitigation
• Learn about grant opportunities
• Opportunity to share input
• Help make your community more resilient
4:30-5:30 PM
January 29, 2025
Islesboro Town Office or Zoom
https://us06web.zoom.us/j/81599818180?pwd=ZbQH64sAQOjMovwYeBJCMxQbNOQ213.1
Meeting ID: 821 6449 6660
Passcode: 606289

Town of Islesboro- Hazard Mitigation Project Tracking Form

Use this form to track mitigation actions for the Islesboro Local Hazard Mitigation Plan (LHMP).

Project Identification

Project ID

Project Name

Hazard(s) Addressed

Location

Lead Department / Responsible Party

Supporting Partners

Project Description

Brief Description

Purpose

Action Type (☐ Infrastructure ☐ Natural Systems ☐ Education ☐ Regulatory ☐ Emergency Services)

STAPLEE Priority

Priority Ranking

Implementation Details

Estimated Cost

Funding Sources (☐ BRIC ☐ HMGP ☐ FMA ☐ State ☐ Local ☐ Other)

Timeframe (☐ Short 1–2 yrs ☐ Medium 3–5 yrs ☐ Long 5+ yrs)

Project Status (☐ Not Started ☐ In Progress ☐ Completed ☐ Deferred ☐ Cancelled)

Progress Tracking

Percent Complete

Progress Notes

Review Log

Date	Reviewed By	Update