



# Jackson, NH

## Hazard Mitigation Plan Update 2025

**This Plan integrates the following:**

- Hazard Mitigation Plan Update (FEMA)
- Community Wildfire Protection Plan (DNCR)

**May 19, 2025  
Final**

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**Prepared for the Town of Jackson and NH Homeland Security & Emergency Management  
By  
The Jackson Hazard Mitigation Planning Team**

**With assistance from Mapping and Planning Solutions**

*“Plans are worthless, but planning is everything. There is a very great distinction because when you are planning for an emergency you must start with this one thing: The very definition of “emergency” is that it is unexpected, therefore it is not going to happen the way you are planning.”*

*-Dwight D. Eisenhower*

#### HAZARD MITIGATION PLAN DEFINITIONS

“A **natural hazard** is a source of harm or difficulty created by a meteorological, environmental, or geological event.”

“**Hazard mitigation** is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards (44CFR 201.2). Hazard mitigation activities may be implemented prior to, during, or after an event. However, it has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs.”

(Source: Local Mitigation Plan Review Guide, FEMA, October 1, 2011)



**Plan Prepared and Authored By**

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**Cover Photo: Storm damage**  
**Photo Credit: Town of Jackson**

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## Acknowledgments

This Plan integrates elements to qualify it as a Community Wildfire Protection Plan (CWPP), according to the US Forest Service and the NH Department of Natural & Cultural Resources (DNCR). The Plan was created through a grant from NH Homeland Security & Emergency Management (HSEM). The following organizations have contributed invaluable assistance and support to this project:

- NH Homeland Security & Emergency Management (HSEM)
- Federal Emergency Management Agency (FEMA)
- NH Office of Strategic Initiatives (OSI)
- Mapping and Planning Solutions (MAPS)
- NH Forests & Lands (DNCR)
- White Mountain National Forest (WMNF)

**This Plan is an update to the most recent Jackson Hazard Mitigation Plan, approved on December 11, 2019.**

**This Plan was funded under the Building Resilient Infrastructure & Communities Grant Program (BRIC2021)**

**Approval Notification Dates for 2025 Update**

Approved Pending Adoption (APA) .....April 16, 2025  
Jurisdiction Adoption: .....May 13, 2025  
CWPP Approval: .....May 20, 2025  
**\*Plan Approval Date (FEMA): .....May 19, 2025**  
Receipt of FEMA Letter .....May 21, 2025  
Plan Distribution (MAPS):.....May 26, 2025  
*\*The start of the next five-year clock*

**TOWN OF JACKSON HAZARD MITIGATION PLANNING TEAM (HMPT)**

The Town of Jackson would like to thank the following people for the time and effort spent to complete this Plan. The following people have attended meetings or been instrumental in completing this Plan:

- Gary Allen .....Jackson Road Agent
- Dick Bennett.....Jackson Planning Board Member
- Kevin Bennett.....Jackson Building Inspector and Health Officer
- Emily Benson .....Jackson Emergency Management Director
- Frank DiFruscio.....Jackson Select Board Member
- Betsy Eaton.....Jackson Assistant Town Administrator
- Scott Hayes.....Jackson Water Department Director
- Jay Henry .....Jackson Fire Chief
- Julie Hoyt .....Jackson Town Administrator
- Mike Mosher.....Jackson Police Sergeant
- Meg Murphy .....Jackson Public Library Director
- Chris Perley.....Jackson Police Chief
- Rick Murnik .....Bartlett-Jackson Ambulance Service Operations Manager
- Rob Reiners .....Bartlett-Jackson Ambulance Service Quality Control, Training, and Medical Supply Coordinator
- Krissy Fraser .....Deputy Emergency Management Director
- Beth Funicella .....Jackson Citizen
- Lynne Doyle .....NH HSEM State Hazard Mitigation Planner
- Dean Jore.....NH HSEM Field Representative
- Chris Szatynski .....NH HSEM Field Representative
- June Garneau .....MAPS Owner/Planner
- Olin Garneau.....MAPS Senior Planner

Many thanks for all the hard work and effort you provided. This Plan would not exist without your knowledge and experience. Jackson would also like to thank FEMA and NH HSEM as the primary funding sources for this Plan.

## Executive Summary



The Jackson Hazard Mitigation Plan Update 2025 was compiled to assist the Town in reducing and mitigating future losses from natural and other hazardous events. The Plan was developed by the Jackson Hazard Mitigation Planning Team (HMPT), interested stakeholders, the public, and Mapping and Planning Solutions (MAPS). The Plan contains the tools necessary to identify specific hazards and aspects of existing and future mitigation efforts.

This Plan is an **update** to the 2019 Jackson Hazard Mitigation Plan. To produce an accurate and current planning document, the HMPT used the 2019 plan as a foundation, building upon that plan to provide more timely information.

**This Plan focuses on mitigation action items for natural hazards;** NH Homeland Security & Emergency Management (HSEM) determined the natural hazard when writing the 2023 NH Hazard Mitigation Plan. However, this Plan also addresses technological and human-caused hazards, as shown below.

### NATURAL HAZARDS – AS DETERMINED BY NH HSEM AND THE TOWN

- |                          |                                    |
|--------------------------|------------------------------------|
| 1) Severe Winter Weather | 7) Wildfire                        |
| 2) High Wind Events      | 8) Tropical/Post Tropical Cyclones |
| 3) Inland Flooding       | 9) Drought                         |
| 4) Extreme Temperatures  | 10) Earthquake                     |
| 5) Infectious Disease    | 11) Solar Storms & Space Weather   |
| 6) Lightning             | 12) Avalanche                      |

### TECHNOLOGICAL & HUMAN-CAUSED HAZARDS

- |                             |                                  |
|-----------------------------|----------------------------------|
| 1) Long Term Utility Outage | 6) Mass Casualty Incidents       |
| 2) Transport Accidents      | 7) Terrorism & Violence          |
| 3) Cyber Events             | 8) Known & Emerging Contaminants |
| 4) Conflagration            | 9) Hazardous Materials           |
| 5) Aging Infrastructure     |                                  |

Some hazards listed in the 2023 NH Hazard Mitigation Plan were not included in this Plan as the Team felt they were unlikely to occur in Jackson or were not applicable. An explanation of why these hazards are excluded from this Plan can be seen in Chapter 3, Section A.

This Plan also provides a list of Critical Infrastructure & Key Resources (CIKR) categorized as follows: Emergency Response Facilities (ERF), Non-Emergency Response Facilities (NERF), Facilities & Populations to Protect (FPP), and Potential Resources (PR). It also addresses the Town's involvement in the National Flood Insurance Program (NFIP).

Communities can sometimes cope with the impact of particular natural hazards. For example, although severe winter weather is often a common hazard in the State, most New Hampshire communities handle two to three-foot snowstorms with little or no disruption of services. On the other hand, an unexpected ice storm can have disastrous effects on a community. Mitigation for sudden storms, such as ice storms, is difficult to achieve. Establishing warming and cooling centers, creating notification systems, providing public outreach, tree trimming, opening shelters, and perhaps burying overhead power lines are just a few actions that may be implemented.

In summary, finding mitigation action items for every hazard that affects a community can be difficult. With economic constraints, cities and towns are less likely to have the financial ability to complete certain mitigation action items, such as burying power lines. In preparing this Plan, the Jackson HMPT (the Team) has considered a comprehensive list of mitigation action items that could diminish the impact of hazards. The Team has also decided to maintain a list of preparedness action items for future reference and action.

To simplify the language in the Plan, the following abbreviations and acronyms will be used:

Jackson Hazard Mitigation Plan Update 2025.....	the Plan or this Plan
Jackson.....	the Town or the Community
Hazard Mitigation Planning Team.....	The Team or HMPT
Hazard Mitigation Plan.....	HMP
Emergency Operations Plan.....	EOP
Mapping and Planning Solutions.....	MAPS
Mapping and Planning Solutions Planner.....	the Planner
NH Homeland Security & Emergency Management.....	HSEM
Federal Emergency Management Agency.....	FEMA

*For more acronyms, please refer to Appendix E: Acronyms.*

**Mission Statement:**  
To make Jackson less vulnerable to the effects of hazards through the effective administration of hazard mitigation planning, wildfire hazard assessments, and a coordinated approach to mitigation policy and planning activities.

**Vision Statement:**  
The Town of Jackson will reduce the impacts of natural hazards and other potential disasters through implementing mitigation measures, public education, and deliberate capital expenditures within the Community. Homes and businesses will be safer and the Community's International Organization for Standardization (ISO) rating may be improved.

## Chapter 1: Hazard Mitigation Planning Process

### A. AUTHORITY & FUNDING

The Jackson Hazard Mitigation Plan Update 2025 was prepared following the Disaster Mitigation Act of 2000 (DMA), Section 322 Mitigation Planning, signed into law by President Clinton on October 30, 2000. This hazard mitigation plan was prepared by the Jackson Hazard Mitigation Planning Team (HMPT) under contract with New Hampshire Homeland Security & Emergency Management (HSEM), operating under the guidance of Section 206.405 of 44 CFR Chapter 1 (10-1-97 Edition) and with the assistance and professional services of Mapping and Planning Solutions (MAPS). HSEM funded this Plan through Federal Emergency Management Agency (FEMA) grants. Matching funds for team members' time were also part of the funding formula.

### B. PURPOSE & HISTORY OF THE FEMA MITIGATION PLANNING PROCESS

*The ultimate purpose of the Disaster Mitigation Act of 2000 (DMA) is to:*

*"...establish a national disaster hazard mitigation program -*

- To reduce the loss of life and property, human suffering, economic disruption and disaster assistance costs resulting from natural disasters; and*
- To provide a source of pre-disaster hazard mitigation funding that will assist States and local governments (including Indian tribes) in implementing effective hazard mitigation measures that are designed to ensure the continued functionality of critical services and facilities after a natural disaster".<sup>1</sup>*

DMA 2000 amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by, among other things, adding a new section, "322 – Mitigation Planning", which states:

*"As a condition of receipt of an increased Federal share for hazard mitigation measures under subsection (e), a State, local, or tribal government shall develop and submit for approval to the President a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government."<sup>2</sup>*

HSEM aims to have all New Hampshire communities complete a local hazard mitigation plan to reduce future losses from natural hazards before they occur. HSEM outlined a process whereby communities throughout the State may be eligible for grants and other assistance upon completing this hazard mitigation plan.

The Jackson Hazard Mitigation Plan Update 2025 is a planning tool to reduce future losses from natural, technological, and human-caused hazards as required by the Disaster Mitigation Act of 2000. This Plan does not constitute a section of the Town's Master Plan. However, mitigation action items from this Plan may be incorporated into future Master Plan updates.

The DMA emphasizes local mitigation planning. It requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans as a condition for receiving grants under the Hazard Mitigation Grant Program (HMGP). Local governments must review this Plan yearly and update this Plan every five years to continue program eligibility.

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<sup>1</sup> Disaster Mitigation Act (DMA) of 2000, Section 101, b1 & b2

<sup>2</sup> Disaster Mitigation Act (DMA) of 2000, Section 322a

### **C. JURISDICTION**

This Plan addresses one jurisdiction – the Town of Jackson, Carroll County, New Hampshire.

### **D. SCOPE OF THE PLAN & FEDERAL & STATE PARTICIPATION**

A community's hazard mitigation plan often identifies many natural hazards and is somewhat broad in scope and outline. The scope and effects of this Plan were assessed based on the impact of hazards and wildfire on Critical Infrastructure & Key Resources (CIKR), current residential buildings, other structures within the Town, future development, administrative, technical, and physical capacity of emergency response services and response coordination between federal, state and local entities.

In seeking approval as a Hazard Mitigation Plan (HMP) and a Community Wildfire Protection Plan (CWPP), the planning effort included the participation of NH Homeland Security & Emergency Management (HSEM), the United States Department of Agriculture-Forest Service (USDA-FS), the NH Department of Natural & Cultural Resources (DNCR), and the NH Bureau of Economic Affairs (BEA) as well as routine notification of upcoming meetings to other state and federal entities. Designation as a CWPP may allow a community to gain federal funding for hazardous fuel reduction and other mitigation projects supported by the USDA-FS and NH-DNCR. By merging the two federal planning processes (hazard and wildfire), duplication is eliminated, and the Town has access to a larger pool of resources for pre-disaster planning.

The Healthy Forest Restoration Act (HFRA) of 2003 includes statutory incentives for the USDA-Forest Service to consider local communities as they develop and implement forest management and hazardous fuel reduction projects. However, a community must prepare a CWPP to take advantage of this opportunity. This hazard mitigation planning process not only satisfies FEMA's criteria regarding wildfires and all other hazards but also addresses the minimum requirements for a CWPP:

- **Collaboration:** *Local and state government representatives must collaboratively develop a CWPP in consultation with federal agencies and other interested parties.*
- **Prioritized Fuel Reduction:** *A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and treatment methods that will protect one or more at-risk communities and essential infrastructure.*
- **Treatment of Structural Ignitability:** *A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the Plan.<sup>3</sup>*

Finally, as required under the Code of Federal Regulations (CFR), Title 44, Part 201.6(c) (2) (ii) and 201.6(c) (3) (ii), the Plan must address the Community's participation in the National Flood Insurance Program (NFIP) and its continued compliance with the program. As part of a vulnerability assessment, the Plan must address the NFIP-insured structures that have been repetitively damaged due to floods.

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<sup>3</sup> Healthy Forest Restoration Act; HR 1904, 2003; Section 101-3-a.b.c; <https://www.govinfo.gov/content/pkg/BILLS-108hr1904enr/pdf/BILLS-108hr1904enr.pdf>

**E. PUBLIC & STAKEHOLDER INVOLVEMENT**

Public and stakeholder involvement was stressed during the initial meeting, and community officials were given a matrix of potential team members (see below). Community officials were urged to contact as many people as possible to participate in the planning process, including residents, officials, and residents from surrounding communities. The Town of Jackson understands that natural hazards do not recognize political boundaries.

The Team provided excellent public and stakeholder notification. Many interested citizens and stakeholders had the opportunity to become aware of the hazard mitigation planning in Jackson. A press release (see below) was posted at the Town Office Bulletin Board, in Jackson E-News, and on the Town’s website, calendar, and Emergency Management webpage (see the following pages). The press release was used to notify academia, businesses, and private and non-profit organizations that work with underserved communities and socially vulnerable populations that meetings were taking place, and they were invited to attend. Jackson has no colleges or universities; local school officials were invited to attend meetings.

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**HAZARD MITIGATION  
POTENTIAL TEAM MEMBERS**

**FEDERAL**

- USDA Forest Service

**STATE**

- Department of Transportation (DOT)
- Department of Natural & Cultural Resources (DNCR)
- Bureau of Economic Affairs (BEA)

**LOCAL**

- Select Board Member(s)
- Town Manager/Administrator
- Planning Board Member(s)
- Town Planner
- Police Chief
- Fire Chief
- Emergency Management Director
- Emergency Medical Services
- Education/School
- Recreation Director
- DPW Director or Road Agent
- Water & Waste Management
- Public Utilities
- Dam Operator(s)
- Major Employer(s)
- Senior Citizen Facilities
- Vulnerable populations
- Academia

**OTHER OR SPECIAL INTEREST**

- Landowners
- Homeowners Association(s)
- Forest Management
- Developers & Builders
- Major Businesses

**Press Release**

FOR IMMEDIATE RELEASE  
Updated: March 16, 2024

Contact: June Garneau  
603-991-9664

**THE TOWN OF JACKSON COMMENCES  
HAZARD MITIGATION PLANNING**

The Jackson Emergency Management Director (EMD) will meet with June Garneau of Mapping and Planning Solutions and other Community members to work on the required five-year update to the **2019 Jackson Hazard Mitigation Plan**. The Town and Mapping and Planning Solutions are conducting a series of hazard mitigation meetings over the next few months to develop the plan.

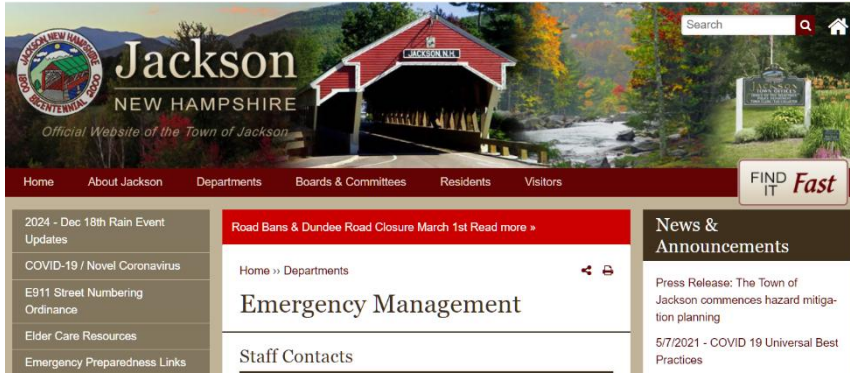
During these public meetings, the Hazard Mitigation Planning Team (HMPT) will address natural, technological, and human-caused hazards such as Inland Flooding, Long-Term Utility Outages, and Transport Accidents; the Team will determine “Action Items” to help mitigate the effects of these hazards. The Team will also review shelter sites and the need for generators at those sites.

By examining critical infrastructure and key resources, along with past hazards, the Team will establish priorities for future mitigation projects and steps that can be taken to increase public awareness of hazards in general.

As mandated by the Disaster Mitigation Act of 2000, all municipalities must complete a local hazard mitigation plan to qualify for Federal Emergency Management Administration (FEMA) funding should a natural disaster occur. FEMA grants make the planning processes possible.

The HMPT is currently being formed. Jackson citizens and any interested stakeholders are invited to participate. The first meeting is scheduled for **Wednesday, April 10, 2024, from 9:30 AM to 11:30 AM** via “Zoom”. Future Wednesday meetings are scheduled for May 8, June 12, July 10, August 14, and September 11, 2024. The public and representatives of vulnerable populations are encouraged to attend all meetings. To be included in the process, all interested parties should contact Emily Benson, the Jackson EMD, by email at [emd@jackson-nh.org](mailto:emd@jackson-nh.org); interested parties will be added to the Zoom meeting invitation list.

More information on the hazard mitigation planning process is available from June Garneau at Mapping and Planning Solutions, [jgarneau@mappingandplanning.com](mailto:jgarneau@mappingandplanning.com).



# Press Release: The Town of Jackson commences hazard mitigation planning

POSTED ON: MARCH 18, 2024 - 1:23PM

*Mapping and Planning Solutions*  
PO Box 283  
91 Cherry Mountain Place  
Twin Mountain, NH 03595

## Press Release

for immediate release  
Updated: March 18, 2024

Contact: June Garneau  
603-991-9684

### The Town of Jackson commences hazard mitigation planning

Jackson Emergency Management Director (EMD) Emily Benson will meet with June Garneau of Mapping and Planning Solutions and other Jackson Town Staff and community members to work on the required five-year update to the 2019 Jackson Hazard Mitigation Plan. The Town and Mapping and Planning Solutions are conducting a series of hazard mitigation meetings over the next few months to develop the plan.

During these public meetings, the Hazard Mitigation Planning Team (HMPT) will address natural, technological, and human-caused hazards such as Inland Flooding, Long-Term Utility Outages, and Transport Accidents; the Team will determine "Action Items" to help mitigate the effects of these hazards. The Team will also review shelter sites and the need for generators at those sites.

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More information on the hazard mitigation planning process is available from June Garneau at Mapping and Planning Solutions, [jgarneau@mappingandplanning.com](mailto:jgarneau@mappingandplanning.com) .

## Calendar

Month Week Day Year List

April 2024

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Filter by Type:

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Department/Board/Committee:

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Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2 Library Board of Trustees Meeting at Library 4:00pm	3	4	5	6
7	8	9	10 Public Meeting (via ZOOM): Jackson Hazard Mitigation Plan Update 9:30am to 11:30am	11	12	13
14	15	16 Jackson Housing Commission Meeting 6:00pm	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1			

## Calendar

Month Week Day Year List

July 2024

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Filter by Type:

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Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	1	2 Library Board of Trustees Meeting at Library 4:00pm	3	4	5	6
7	8	9	10 Public Meeting (via ZOOM): Jackson Hazard Mitigation Plan Update 9:30am to 11:30am	11	12	13
14	15	16	17	18	19	20
		23	24	25	26	27
30	31		1	2	3	

## Calendar

Month Week Day Year List

September 2024

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Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3 Library Board of Trustees Meeting at Library 4:00pm	4	5	6	7
8	9	10 Public Meeting (via ZOOM): Jackson Hazard Mitigation Plan Update 9:30am to 11:30am	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

Lastly, the Planner sent a monthly calendar (see below) and an email inviting stakeholders to participate in MAPS' planning meetings. EMDs, Police Chiefs, Fire Chiefs, Rangers, and other state, federal, and private officials were included in this email blast. Jackson's neighbors, Gorham, Chatham, Conway, Bartlett, Hart's Location, and Carroll, are also part of MAPS' monthly email.



### Upcoming Zoom Meetings

Colored by county  
August 10, 2024 – January 11, 2025



Day	Date	Time	Town/Location	Plan Type	County
Wednesday	8/14/24	2:00 PM	Alexandria Zoom Meeting	HMP	Grafton
Tuesday	8/20/24	10:00 AM	Conway Zoom Meeting	HMP	Carroll
Monday	8/26/24	10:00 AM	Salem Zoom Meeting	HMP	Rockingham
Monday	9/9/24	10:00 AM	Salem Zoom Meeting	HMP	Rockingham
Tuesday	9/10/24	10:00 AM	Woodstock Zoom Meeting	HMP	Grafton
Wednesday	9/11/24	9:30 AM	Jackson Zoom Meeting	HMP	Carroll
Tuesday	9/17/24	10:00 AM	Bartlett & Hart's Location Zoom Meeting	HMP	Carroll
Wednesday	9/18/24	2:00 PM	Alexandria Zoom Meeting	HMP	Grafton

Team composition can be impacted in some communities due to lower population and because many people “wear more than one hat”. It is often challenging to attract citizens to participate in town government. In smaller communities, those working in town government generally hold full-time jobs and volunteer in various town positions. Depending on the population, the percentage of interested citizens in a town’s planning processes may be diminished. Due to the availability of jobs, a high elderly population, and other economic factors, smaller communities have a dwindling number of young people interested in town planning.

Jackson had excellent participation in developing this Plan. The Emergency Management Director (EMD), Fire Chief, Police Chief, Road Agent, Building Inspector/Health Officer, Water Department Director, and Police Sergeant participated in meetings. The Town Administrator, Deputy Town Administrator, Select Board and Planning Board members, Bartlett-Jackson Ambulance Service members, the Jackson Public Library Director, and several citizens also participated in the meetings. Comments made by all team members, including the public, were integrated into the narrative discussion and incorporated into the document.

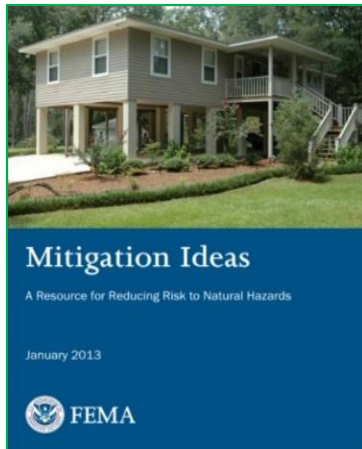
§201.6(b) requires that there be an open public involvement process in the formation of a plan. This process shall provide an opportunity for the public to comment on the Plan during its formation as well as an opportunity for any neighboring communities, businesses, and others to review any existing plans, studies, reports, and technical information and incorporate those into the Plan, to assist in the development of a comprehensive approach to reducing losses from natural disasters.

**F. INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS, AND TECHNICAL INFORMATION**

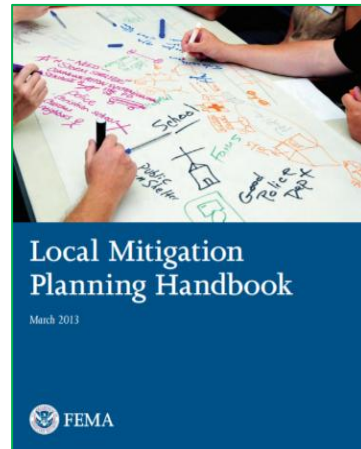
The planning process included a complete Jackson Hazard Mitigation Plan 2019 review for updates, development changes, and accomplishments. The Team worked with the Planner to identify pertinent information from the reviewed documents; this information was then added to the appropriate place in the Plan. Also, as noted in the bibliography and footnotes throughout the Plan, many other documents were used to create this mitigation plan. Some, but not all, of those plans and documents are listed below:

The Jackson Hazard Mitigation Plan 2019 .....	Compare & Contrast
Jackson Master Plan (2016) .....	Community Information
Jackson Annual Report (2023) .....	Fire Report & Development
Other Hazard Mitigation Plans (Sugar Hill, Gorham, Chester) .....	Formats & Mitigation Ideas
The Jackson Subdivision Regulations (2024).....	New Development Regulations
The Jackson Zoning Ordinance (2024) .....	Zoning Regulations
Floodplain Development Ordinance (Part of Zoning) .....	Floodplain Regulations
Census 2020 Redistricting Data .....	Population Data
The NH DRA Summary of Inventory of Valuation MS-1 2024 for Jackson .....	Structure Evaluation
The Economic & Labor Market Information Bureau Community Profile .....	Population Trends
The American Community Survey (ACS2021, 201-2021) .....	Population Trends
Mitigation Ideas, FEMA, January 2013 .....	Mitigation Strategies
The Department of Cultural & Natural Resources (DNCR) .....	DNCR Fire Report
The NH Bureau of Economic Affairs (BEA) .....	Flood Losses
Property Tax Valuation (Department of Revenue Administration).....	Property Information

Other technical manuals, federal and state laws, and research data were combined with these elements to produce this integrated hazard mitigation plan. Please refer to *Appendix A: Bibliography* and the Plan’s footnotes.



[https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas\\_02-13-2013.pdf](https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf)



[https://www.fema.gov/sites/default/files/2020-06/fema-local-mitigation-planning-handbook\\_03-2013.pdf](https://www.fema.gov/sites/default/files/2020-06/fema-local-mitigation-planning-handbook_03-2013.pdf)

**G. HAZARD MITIGATION GOALS**

Before identifying new mitigation action items, the Team reviewed and agreed to the State of New Hampshire Multi-Hazard Mitigation Plan Update 2023 goals.<sup>4</sup> These goals below have been modified for grammatical purposes but are otherwise quoted directly from the State plan.

**OVERARCHING GOALS**

1. Minimize loss and disruption of human life, property, the environment, and the economy due to natural hazards and high-hazard potential dam failure through a coordinated and collaborative efforts between federal, state, and local authorities to implement appropriate and cost-effective hazard mitigation measures.
2. Enhance the protection of the general population, citizens, and guests of the State before, during, and after a hazard event through public education about disaster preparedness and resilience and expanded awareness of the threats and hazards that face the State.
3. Promote comprehensive hazard mitigation planning at state and local levels to encourage data integration, alignment of plans, and identification of funding and other resources.
4. Identify how climate change impacts natural hazards and mitigation strategies.
5. Strengthen the Continuity of Operations and Continuity of Government across the state and local levels to ensure the continuation of essential services through training, outreach, and education.
6. Promote equity by challenging state agencies and municipalities to incorporate whole community concepts during the planning and execution of mitigation projects, encouraging the identification and inclusion of vulnerable populations in the planning process.

**NATURAL HAZARD OBJECTIVES**

1. Reduce long-term risks through assessment, identification, and strategic mitigation of at risk/vulnerable infrastructure (high hazard potential and other dams, stream crossings, roadways, coastal levees, etc.)
2. Minimize illnesses and deaths related to events that present a threat to human and animal health
3. Assist communities with plan development, outreach, and public education in order to reduce the impact from natural disasters
4. Ensure mitigation strategies consider the protection and resiliency of natural, historical, and cultural resources.
5. Effectively collaborate between federal, State, and local agencies as well as private partners, NGOs, and VOADs
6. Ensure that grant related funding processes allow for expedient and effective actions to take place at the Community and State-level

**TECHNOLOGICAL AND HUMAN-CAUSED HAZARD OBJECTIVES**

The State recognizes that technological and human-caused hazards are important to consider at the state and local level. The State and local jurisdictions must prepare to respond to and monitor for these types of hazards. As such, they will remain included in this Plan as an Annex for reference purposes. Strategies and action items for these hazards will not be included in this Plan so that the focus can remain on natural hazards.

<sup>4</sup> New Hampshire State Hazard Mitigation Plan, 2023 Update; <https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2023/10/2023-NH-State-Hazard-Mitigation-Plan-Signed-10.5.23.pdf>

**H. HAZARD MITIGATION PLANNING PROCESS & METHODOLOGY**

The planning process consisted of twelve steps; some were accomplished independently, while others were interdependent. Many factors affected the planning process's sequence, such as the number of meetings, community preparation, attendance, and other community needs. The planning process resulted in significant crosstalk regarding natural, technological, and human-caused hazards.



All steps were included, but not necessarily in the numerical sequence listed. The steps are as follows:

**PLANNING STEPS**

Step 01: Team formation, orientation, and goals

Step 02: Identify hazards and their risk and probability

*Table 3.1 – Hazard Identification & Risk Assessment (HIRA)*

Step 03: Profile and list historic and potential hazards

*Table 3.2 – Historic Hazard Identification*

Step 04: Profile, list, and establish risk for Critical Infrastructure & Key Resources (CIKR)

*Tables 4.1 to 4.4 – Critical Infrastructure & Key Resources*

Step 05: Assess the Community's participation in the National Flood Insurance Program (NFIP)

*Chapter 3, Section D*

Step 06: Prepare an introduction to the Community, discuss emergency service capabilities, and development trends, and review statistical information about the Town

*Chapter 2, Sections A, B, and C & Table 2.1, Town Statistics*

Step 07: Review current plans, policies, and mutual aid, and brainstorm to identify improvements

*Table 6.1 – Capabilities Assessment*

Step 08: Examine the status of the mitigation action items from the last plan

*Table 7.1 – Accomplishments since the last Plan*

Step 09: Evaluate and categorize potential mitigation action items

*Tables 8.1 - Potential Mitigation Strategies & the STAPLEE*

Step 10: Prioritize mitigation action items to determine an action plan

*Table 9.1 – The Mitigation Action Plan*

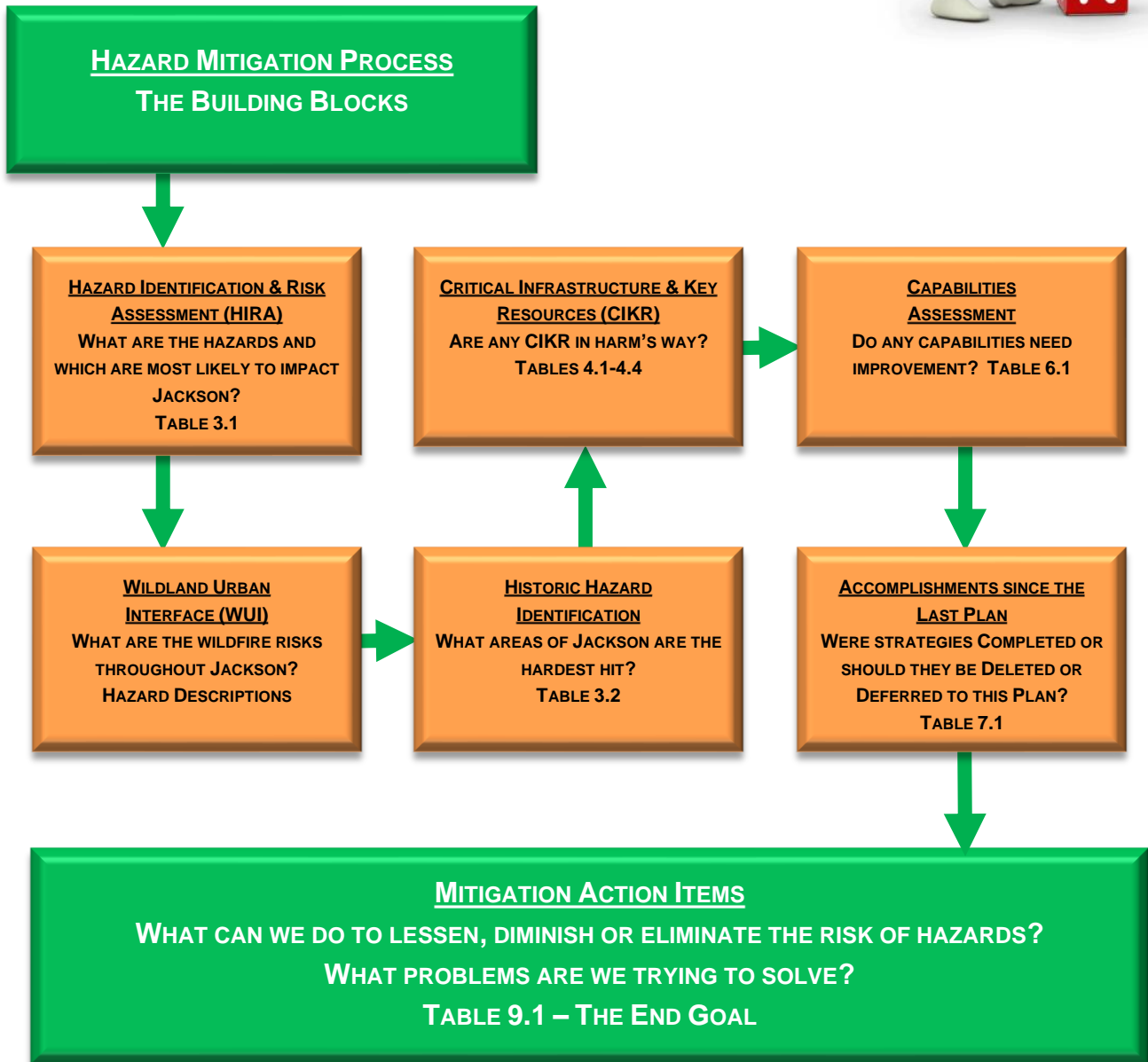
Step 11: Review the Plan before submission to HSEM for APA (Approved Pending Adoption)

Step 12: Adopt and monitor the Plan

**I. HAZARD MITIGATION BUILDING BLOCKS & TABLES**

The previous plan was the foundation for this mitigation plan; each completed table started with the last hazard mitigation plan completed by the Community.

Using a building block approach, each table led to the next table. The final goal was to develop prioritized action items that would lessen or diminish the impact of natural hazards on the Town when put into an action plan.



**J. NARRATIVE DESCRIPTION OF THE PROCESS**

Completion of this new hazard mitigation plan required significant preparation. The Plan was developed with substantial local, state, and federal coordination. All meetings were geared to accommodate brainstorming, open discussion, and increased awareness of potentially hazardous conditions in the Town.

The planning process included a complete 2019 Jackson Hazard Mitigation Plan review. Each element of the old plan was examined and revised to reflect changes in development and the Community's priorities, using the 2019 plan as a base. Strategies from the past were also reassessed and improved upon for the future.

The following narrative explains how the 2019 Jackson Hazard Mitigation Plan was used during each step of the planning process to make revisions that resulted in this Plan.

**MEETING 1, APRIL 12, 2024**

The first virtual meeting with the Jackson Hazard Mitigation Team was held on April 12, 2024. Meeting attendance included Beth Funicella (Citizen), Betsy Eaton (Assistant Town Administrator), Emily Benson (Emergency Management Director), Frank DiFruscio (Select Board Member), Gary Allen (Road Agent), Jay Henry (Fire Chief), Julie Hoyt (Town Administrator), Kevin Bennett (Building Inspector & Health Officer), Krissy Fraser (Deputy EMD), Meg Murphy (Library Director), Mike Mosher (Police Officer), Rick Murnik (Bartlet-Jackson Ambulance Service), Scott Hayes (Water Department Director), Rob Reiners (Bartlet-Jackson Ambulance Service), Olin Garneau (Planner, Mapping & Planning Solutions), and June Garneau (Owner, Mapping & Planning Solutions).

To introduce the Team to the planning process, the Planner reviewed the evolution of hazard mitigation plans, the funding, the 12-step process, the collaboration with other agencies, and the goals. The Planner also explained the need to sign in, track time, and provide public notice to encourage community involvement.<sup>5</sup>

Work then began on *Table 2.1, Town Statistics*. Most of the work on this table was completed at this meeting. The Planner agreed to determine the remaining items through GIS or get them later. There was some discussion about the seasonal population change in Jackson. It was determined that Jackson has a significant influx of non-residents year-round. This additional population may create an increased burden on emergency responders.

**Meeting 1 – April 12, 2024**

- 1) Introduction**
  - a) Evolution of Hazard Mitigation Plans & Community Wildfire Protection Plans
  - b) Reasons for Hazard Mitigation and Update
  - c) Community involvement to solicit input on how to mitigate the effects of hazards
  - d) Devise a plan that lessens, diminishes, or eliminates the threat of Hazards to the town
- 2) The Process**
  - a) Funding
  - b) Review of 12 Step Process & the team
  - c) Collaboration with other agencies (i.e., HSEM, WMNF)
- 3) Meetings**
  - a) Community Involvement - Public Notice & Press Release
  - b) Stakeholders
  - c) Signing In, Tracking Time, Agendas & Narrative
- 4) Today's Topics**
  - a) Table 2.1, Town Statistics
  - b) Table 3.1, Hazard Identification & Risk Analysis (HIRA)
  - c) Hazard Descriptions
  - d) Tables 4.1-4.4, Critical Infrastructure & Key Resources (CIKR)
- 5) Homework**
  - a) Homework – Critical Infrastructure & Key Resources (CIKR)
  - b) Digital Photos – contributions welcome
- 6) Future Meetings**
  - a) Wednesday, May 8, 2024, @ 9:30 AM
  - b) Wednesday, June 12, 2024, @ 9:30 AM
  - c) Wednesday, July 10, 2024, @ 9:30 AM
  - d) Wednesday, August 14, 2024, @ 9:30 AM
  - e) Wednesday, September 11, 2024, @ 9:30 AM

<sup>5</sup> Documents emailed to the Team pre-meeting: agenda, process, acronyms & abbreviations, goals, work record, and 2023 state hazards

Next on the agenda was *Table 3.1, Hazard Identification & Risk Assessment (HIRA)*. The Team assessed which hazards could affect the Community using the Town's last HMP and the State of New Hampshire Multi-Hazard Mitigation Plan Update 2023.

After the hazards had been identified, the Team then assessed the risk severity and probability by ranking each hazard on a scale of 1-5 (5 being very high or catastrophic) based on the following:

- The Human Impact ..... What is the probability of death or Injury?
- The Property Impact ..... What is the probability of physical losses and damages?
- The Business Impact ..... What is the probability of interruption of service?
- The Probability ..... What is the likelihood of this occurring within 25 years?

The rankings were then calculated to reveal the hazards that pose the Community's most significant risks. Twelve natural hazards and nine technological and human-caused hazards were identified. After analyzing the natural hazards in *Table 3.1*, Severe Winter Weather, High Wind Events, and Inland Flooding were designated "Very High" risk natural hazards for the Town.

Having completed *Table 3.1*, the Team started working on descriptions of each hazard and how they could impact the Community.

To gain more knowledge of the impact of these hazards, the Planner asked the Team to describe each hazard as it relates to Jackson. For example, some of the questions asked were:

- *How often do these hazards occur?*
- *Do the hazards damage either the roads or structures?*
- *Have the hazards resulted in the loss of life?*
- *Are the elderly, functional needs, and other vulnerable populations at risk?*
- *What has been done in the past to cope with the hazards?*
- *Was outside help requested?*
- *Are the hazards further affected by an extended power failure?*
- *What mitigation actions can we take to eliminate the hazard or diminish its impact?*

In addition to bringing more awareness to the hazards, these questions provided additional information to analyze the impact of the hazards on the Community. The Planner noted that these descriptions would be used in Chapter 5.

With time running out, the Planner reviewed what would occur at the next meeting and thanked the Team. The next meeting was set for May 8, 2024.

**MEETING 2, MAY 8, 2024**

Virtual meeting attendance included Betsy Eaton, Emily Benson, Frank DiFruscio, Gary Allen, Jay Henry, Julie Hoyt, Kevin Bennett, Krissy Fraser, Meg Murphy, Mike Mosher, Rick Murnik, Scott Hayes, Chris Perley (Police Chief), Alex Nemeth (Citizen), Dean Jore (NH Homeland Security & Emergency Management), Chris Szatynski (NH Homeland Security & Emergency Management), Olin Garneau, and June Garneau.

The meeting began with a review of the work done at the previous meeting. First, the Planner reviewed *Table 2.1, Town Statistics*, to ensure the data was accurate. Next, the Planner reviewed *Table 3.1, Hazard Identification & Risk Assessment (HIRA)*, to ensure the Team felt the Town's hazards were in the correct order. No changes were made to either of these tables.

Next, the Team began work on *Table 3.2, Historic Hazard Identification*, which lists past and potentially hazardous locations and events. This table had been prepopulated with information from past hazard mitigation plans, Major Disaster Declarations (DRs), and Emergency Declarations (EMs) reported by FEMA that have occurred statewide, specifically in Carroll County. The Team described the events during each disaster in Jackson in each instance.

The Team then worked on *Tables 4.1–4.4, Critical Infrastructure & Key Resources (CIKR)*. The Emergency Response Facilities (ERFs), the Non-Emergency Response Facilities (NERFs), the Facilities & Populations to Protect (FPPs), and the Potential Resources (PRs) from the 2019 plan were examined. A few minor adjustments were made for this Plan. In addition, the evacuation routes, helicopter landing zones, and bridges on the evacuation routes were discussed. Lastly, each Critical Infrastructure & Key Resource was analyzed for its “Hazard Risk” (see Chapter 4).

*Table 7.1, Accomplishments since the Last Plan*, pre-populated with data from the 2019 plan, was the next agenda item. The Planner discussed each strategy to determine which had been “Completed”, should be “Deleted”, or should be “Deferred” to this Plan as a new mitigation action item. Some of the action items from the 2019 plan had been completed or partially completed by the Town. Some were deleted as they were no longer useful or considered emergency preparedness, not mitigation. Still, others were deferred for consideration as new action items for this Plan. The Planner promised to translate her notes into paragraphs to review at the next meeting.

With time running out, the Planner thanked the Team for their work and assigned homework to team members, requesting that the Road Agent prepare a list of road and culvert projects that should be completed within the next five years. The next meeting was scheduled for Wednesday, June 12, 2024, and the meeting was adjourned.

**Meeting 2 – May 8, 2024**

- 1) Last Meeting**
  - a) Discussed...
    - i) Planning process, purpose, funding & collaboration
    - ii) Community involvement & stakeholders
  - b) Worked on...
    - i) Table 2.1, Town Statistics
    - ii) Table 3.1, Hazard Identification & Risk Assessment (HIRA)
    - iii) Hazard Descriptions
- 2) Today's Topics**
  - a) Review...
    - i) Table 2.1, Town Statistics
    - ii) Table 3.1, Hazard Identification & Risk Assessment (HIRA)
  - b) Work on...
    - i) Table 3.2, Historic Hazard Identification
    - ii) Tables 4.1-4.4, Critical Infrastructure & Key Resources
- 3) Homework**
  - a) Review materials sent by MAPS
  - b) Digital Photos – contributions welcome
- 4) Future Meetings**
  - a) Wednesday, June 12, 2024, @ 9:30 AM
  - b) Wednesday, July 10, 2024, @ 9:30 AM
  - c) Wednesday, August 14, 2024, @ 9:30 AM
  - d) Wednesday, September 11, 2024, @ 9:30 AM

**MEETING 3, JUNE 12, 2024**

Virtual meeting attendance included Betsy Eaton, Emily Benson, Gary Allen, Kevin Bennett, Krissy Fraser, Rick Murnik, Scott Hayes, Rob Reiners, Chris Perley, Dick Bennett (Planning Board), Dean Jore, Chris Szatynski, Olin Garneau, and June Garneau.

First on the agenda was a review of *Table 3.2, Historic Hazard Identification*. While reviewing Table 3.2, the Planner took the opportunity to explain the Wildland Urban Interface (WUI); this area is determined to be where the urban environment interfaces with the wildland environment and is the most prone area to the risk of wildfires. In Jackson, it was noted that the WUI would cover the entire Town due to the abundance of forested land. Mitigation strategies were discussed to protect structures and educate citizens about wildfire risk.

The Planner then brought the Team through a review of *Tables 4.1-4.4, Critical Infrastructure & Key Resources*. The Planner also took some time to discuss development trends in the Town; the Team noted a few development projects, but most were smaller projects not in hazard-prone areas.

Next, the Planner walked the Team through a complete review of Table 7.1. Having translated notes from the last meeting into paragraphs, the Planner reviewed each item in Table 7.1 to see if the concepts and ideas of the Team remained intact and to verify the accuracy of the information. A few changes were made with this review, leaving additional items from Table 7.1 deferred to become new mitigation action items for this Plan. Although several strategies from the last plan were determined to be emergency preparedness and not mitigation, the Team kept them as reminders to complete these important action items.

Then, the Team worked on *Table 6.1, Capabilities Assessment*; like other tables, this table was also pre-populated with information from the 2019 plan. Looking closely at the existing policies from the last plan and current mechanisms that are in place, the Team determined if each plan, policy, or mutual aid system should be designated as “No Improvements Needed” or “Improvements Needed” based on the “Key to Effectiveness” found in Chapter 6.

It was explained to the Team that those items that needed improvement would become new action items for this Plan and be discussed again and re-prioritized when we got to the final table, *Table 9.1, The Mitigation Action Plan*.

With time running out and Table 6.1 complete, the Planner promised to write statements to support the concepts and ideas expressed in Table 6.1. The Planner also provided a virtual handout detailing a comprehensive list of possible mitigation action items (see Chapter 8, Sections A & B, and Appendix F). The Planner also encouraged the

Team members to explore the link on their agendas for the FEMA Mitigation Idea booklet to see if any of the strategies in this book would be helpful in Jackson (see right). The next meeting was scheduled for July 10, 2024.

**Meeting 3 – June 12, 2024**

**1) Last Meeting**

- a) Reviewed...
  - i) Table 2.1, Town Statistics
  - ii) Table 3.1, Hazard Identification & Risk Assessment (HIRA)
- b) Worked on...
  - i) Table 3.2, Historic Hazard Identification
  - ii) Tables 4.1-4.4, Critical Infrastructure & Key Resources
  - iii) Table 7.1, Past Hazard Mitigation Plan Assessment

**2) Today's Topics**

- a) Review...
  - i) Table 3.2, Historic Hazard Identification
  - ii) Tables 4.1-4.4, Critical Infrastructure & Key Resources
  - iii) Table 7.1, Past Hazard Mitigation Plan Assessment
- b) Work on...
  - i) Table 6.1, Capabilities Assessment
  - ii) Table 9.1, Mitigation Action Plan
  - iii) STAPLEE

**3) Homework**

- a) Review materials sent by MAPS
- b) Digital Photos – contributions welcome

**4) Future Meetings**

- a) Wednesday, July 10, 2024, @ 9:30 AM
- b) Wednesday, August 14, 2024, @ 9:30 AM
- c) Wednesday, September 11, 2024, @ 9:30 AM

**Link to explore – FEMA Mitigation Ideas:**

[https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas\\_02-13-2013.pdf](https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf)

**MEETING 4 – JULY 10, 2024**

Virtual meeting attendees included Betsy Eaton, Emily Benson, Gary Allen, Jay Henry, Julie Hoyt, Meg Murphy, Mike Mosher, Rob Reiners, Chris Perley, and June Garneau.

First, the Team reviewed Table 6.1 to ensure that the comments and ideas expressed by the Team were fully represented. Work on this table resulted in new action items for this Plan, some of which are also in Table 7.1.

Next, the Planner took the Team through with an overall recap of the work already done. The recap included a brief look at each of the following completed tables:

- *Table 2.1, Town Statistics*
- *Table 3.1, Hazard Identification & Risk Assessment (HIRA)*
- *Table 3.2, Historic Hazard Identification*
- *Tables 4.1-4.4, Critical Infrastructure & Key Resources*
- *Table 7.1, Accomplishments since the Last Plan*

This review helped the Team understand how these tables serve as building blocks for the final two tables, *Table 8.1, Potential Mitigation Strategies & the STAPLEE*, and *Table 9.1, The Mitigation Action Plan*. The STAPLEE method analyzes a project's **S**ocial, **T**echnical, **A**ministrative, **P**olitical, **L**egal, **E**conomic, and **E**nvironmental characteristics and helps evaluate the efficacy of the action item.

In addition to the action items identified in Tables 6.1 and 7.1, the Team reviewed additional potential action items, including a comprehensive list of mitigation strategies derived from several sources and the Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards, January 2013. (See Chapter 8, Sections A & B, and Appendix F).

The Team then worked on *Table 8.1, Potential Mitigation Action Items & the STAPLEE*, and *Table 9.1, The Mitigation Action Plan*. The Planner explained that these tables were combined for the meeting and would become separate tables in the final plan. Having pre-populated the tables with the action items that had been deferred from Tables 6.1 and 7.1, the Team looked carefully at each action item to assign responsibility, the time frame for completion, the type of funding that would be required, and the estimated cost of the action (see Chapter 9, Section B).

Work on this table included the STAPLEE process, as shown in Chapter 8. Using handouts provided by the Planner, the Team could go through the STAPLEE process for the identified action items. The STAPLEE analysis would then become *Table 8.1, Potential Mitigation Action Items & the STAPLEE*. Most importantly, the STAPLEE process enabled the Team to consider the cost-benefit of each action item.

Although most of Tables 8.1 and 9.1 were complete, there were a few action items to discuss at the next meeting, as well as the ranking and prioritizing of each action item. The Planner displayed one last document that explained the ranking and prioritizing methodology (Chapter 9, Section A).

**Meeting 4 – July 10, 2024**

**1) Last Meeting**

- a) Reviewed...
  - i) Table 3.2, Historic Hazard Identification
  - ii) Tables 4.1-4.4, Critical Infrastructure & Key Resources
  - iii) Table 7.1, Past Hazard Mitigation Plan Assessment
- b) Worked on...
  - i) Table 6.1, Capabilities Assessment

**2) Today's Topics**

- a) Review...
  - i) Table 6.1, Capabilities Assessment
- b) Work on...
  - i) Table 9.1, Mitigation Action Plan
  - ii) STAPLEE

**3) Homework**

- a) Review materials sent by MAPS
- b) Digital Photos – contributions welcome

**4) Future Meetings**

- a) Wednesday, August 14, 2024, @ 9:30 AM
- b) Wednesday, September 11, 2024, @ 9:30 AM

The Planner explained to the Team what would occur during the next meeting, which was set for September 11, 2024. The meeting was adjourned.

**MEETING 5 – SEPTEMBER 11, 2024**

Virtual meeting attendees included Emily Benson, Jay Henry, Kevin Bennett, Krissy Fraser, Rick Murnick, Rob Reiners, Olin Garneau, and June Garneau.

The meeting began where we had left off in Tables 9.1 and 8.1. After considering each strategy forwarded from Tables 6.1 and 7.1, the Team considered additional mitigation items, some the Planner had suggested from other plans and some provided by the Team at an earlier meeting. After much discussion and a careful review, the Team ultimately settled on thirty “Mitigation Action Items” that they felt were achievable and could help diminish the impact of natural hazards in the future.

**Meeting 5 – September 11, 2024**

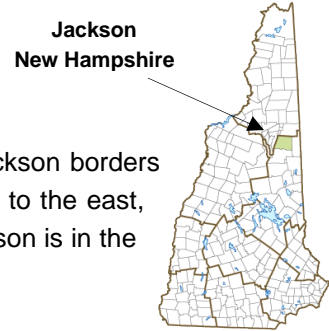
- 1) Last Meeting**
  - a) Reviewed...
    - i) Table 6.1, Capabilities Assessment
  - b) Worked on...
    - i) Table 9.1, Mitigation Action Plan
    - ii) STAPLEE
- 2) Today’s Topics**
  - a) Work on...
    - i) Table 9.1, Mitigation Action Plan
    - ii) STAPLEE
    - iii) Ranking & Priority (time allowing)
- 3) Homework**
  - a) Review materials sent by MAPS
  - b) Digital Photos – contributions welcome
- 4) Future Meetings**
  - a) \_\_\_\_\_

Upon determining the mitigation action items and completing the STAPLEE process, the Team was now ready to rank and prioritize the identified action items. Before the meeting, the Planner had pre-ranked the action items based on the time frame, the Town’s authority to accomplish the strategy, the type of strategy, and the STAPLEE score. The action items were placed in four categories, as shown in Chapter 9, Section A, and assigned a priority within each category. For example, if seven action items were ranked in the A category, the priority ranks were A-1 to A-7. The pre-ranked action items were shown to the Team using a digital presentation to enable the Team to see the action items, determine any changes needed, and adjust the rank. In this fashion, the Team determined which action items were the most important within their rank and in which order they would be accomplished.

With the completion of Tables 8.1 and 9.1, the Team’s work was complete, except for the final review and adoption. No additional meetings were scheduled. The Planner agreed to prepare the draft plan and email a copy for review. The Planner explained the process from this point forward and thanked the Team for their hard work.

Documentation for the planning process, including public involvement, is required to meet DMA 2000 (44CFR§201 (c) (1) and §201.6 (c) (1)). The Plan must include a description of the planning process used to develop the Plan, including how it was prepared, who was involved in the process, and how other agencies participated. A description of the planning process should include how the planning team or committee was formed, how input was sought from individuals or other agencies who did not participate on a regular basis, what the goals and objectives of the planning process were, and how the Plan was prepared. The description can be in the Plan itself or contained in the cover memo or an appendix.

## Chapter 2: Community Profile



### A. INTRODUCTION

Jackson is a beautiful community in Carroll County in northeast New Hampshire. Jackson borders Pinkham’s Grant and Bean’s Purchase (unincorporated places) to the north, Chatham to the east, Bartlett to the south, and Sargent’s Purchase (unincorporated place) to the west. Jackson is in the White Mountains Tourism Region.

### TOWN GOVERNMENT

A three-member Select Board governs the Town of Jackson, with a Town Administrator overseeing the Town's day-to-day operations. The Town’s departments include, but are not limited to, fire, police, highway, planning, zoning, and conservation. The largest employers in Jackson are The Wentworth, Red Fox Bar and Grille, Black Mountain Ski Area, and Eagle Mountain House & Golf Club.

### DEMOGRAPHICS & HOUSING

Jackson’s population has increased from 680 in 1990 to 1,028 in 2020, showing an increase of 348, according to the US Census 2020.<sup>6</sup> This data represents a growth rate of approximately 51.18%.

There are an estimated 1,065 housing units; 500 are occupied, while vacant housing units total 565, thus confirming the presence of second homes. The estimated median household income is \$94,219, and the median age is 53.9 years.<sup>7</sup>

### EDUCATION & CHILD CARE

Jackson students in grades K-6 attend Jackson Grammar School in Jackson. Students in grades 7-8 attend Josiah Bartlett Elementary School in Bartlett, while students in grades 9-12 attend Kennett High School in Conway. The town has no private schools, childcare facilities, or colleges/universities.

### NATURAL FEATURES

The Town of Jackson covers approximately 66.8 square miles of land area and 0 square miles of inland water. The mountains and hills of the White Mountains of New Hampshire dominate the community. The highest peak is Wildcat Ridge, at 3,870’ above sea level. The lowest elevation in town is 758’ above sea level; most of the community is over 1,000 feet above sea level, making it

**Incorporated:** 1800

**Origin:** Once consisting of several large land grants given by Governor John Wentworth, the town was first named New Madbury, after the seacoast town. In 1800, the town was incorporated as Adams, in honor of President John Adams, who was then in office. The name Adams stuck until 1829 when General Andrew Jackson was inaugurated as President. Governor Benjamin Pierce, a staunch backer of President Jackson, was influential in changing the name of the town to Jackson.\* Jackson is the location of the Honeymoon Bridge, a scenic covered bridge built in 1876 that is popular with newlyweds for wedding photographs.

**Villages and Place Names:** Black Mountain Cabin, Ducks Head, Dundee, Jackson Falls, Panno Place

**Population, Year of the First Census Taken:** 180 residents in 1800

**Population Trends:** Population change for Jackson totaled 508 over 57 years, from 315 in 1960 to 823 in 2017. The largest decennial percent change was a 59 percent increase between 1970 and 1980. The 2017 Census estimate for Jackson was 823 residents, which ranked 193rd among New Hampshire’s incorporated cities and towns.

**Population Density and Land Area, 2017 (US Census Bureau):** 12.3 persons per square mile of land area. Jackson contains 66.8 square miles of land area and 0 square miles of inland water area.

*\*On May 15, 2021, the voters of Jackson approved the rededication of the Town of Jackson from Andrew Jackson to Charles Thomas Jackson, a former state Geologist.*

*Source: Economic & Labor Market Information Bureau, NH Employment Security, June 2024; Received 7/15/2024*

<sup>6</sup> US Census 2020

<sup>7</sup> American Community Survey (ACS 2022) 5-Year Estimate Data

vulnerable to ice storms. Vegetation in Jackson is typical of northern New England, including deciduous and conifer forests, open fields, swamps, and riverine areas.

### TRANSPORTATION

Only one major roadway runs through Jackson, NH Route 16. NH Route 16 travels north-south from Bartlett in the south, through Jackson, into Pinkham's Grant, and eventually to Gorham in the north. NH Route 16A and NH Route 16B make loops in the center of Jackson but do not travel outside of the town. Other minor and less-traveled roadways lend access to other areas of the town. Jackson's roads are susceptible to hazards, such as road flooding and high winds, leading to downed trees and potential hazardous materials spills.

## **B. EMERGENCY SERVICES**

### EMERGENCY OPERATIONS CENTER & EMERGENCY MANAGEMENT DIRECTOR

The Town of Jackson has a designated Emergency Management Director (EMD). The EMD maintains an Emergency Operations Center (EOC) as part of the Town's emergency preparedness program. The EOC is where the EMD, department heads, government officials, and volunteer agencies gather to coordinate their response to a significant emergency or disaster. In Jackson, the designated EOC is the Fire Station.

### FIRE DEPARTMENT & EMS

The Jackson Fire Department is a municipal fire department providing quality fire services to the residents and visitors of Jackson 24 hours a day, 365 days a year. The department staffs a full-time Chief and 25-28 paid-on-call firefighters and operates one station within the Community. Bartlett-Jackson Ambulance Service provides emergency medical services and transportation for the Town. The Jackson Fire Department participates with Mount Washington Valley Mutual Aid and other area departments.

### POLICE DEPARTMENT

The Jackson Police Department is a full-time department providing quality law enforcement services to the residents and visitors of Jackson. The department staffs a full-time Chief and Sergeant. The Jackson Police Department has mutual aid with the NH State Police, the Carroll County Sheriff's Office, and surrounding towns.

### PUBLIC WORKS

The Jackson Highway Department operates year-round, 24 hours daily, as needed. The department staffs a full-time Road Agent and three full-time employees. The department's mission is to support the citizens of Jackson through the safe operation, proper maintenance, and future development of highways, supporting infrastructure and utilities, cost-consciously without sacrificing quality. The department belongs to the NH Public Works Mutual Aid Association.

### MEDICAL FACILITIES

Jackson's closest medical facility is Memorial Hospital in Conway (7 miles).

### EMERGENCY SHELTER(S)

The primary shelter is where evacuees are directed during an emergency. Jackson's designated primary shelter is the Whitney Community Center, which offers a large sleeping area, restrooms, showers, and kitchen facilities. It has a permanent generator to keep the building operational during power outages. The designated secondary shelter for the Town is the Jackson Public Library.

**C. JACKSON'S CURRENT & FUTURE DEVELOPMENT TRENDS**

Nearly every New Hampshire community experienced a significant drop in new home construction after the 2008 Great Recession. Jackson was no exception. As were New Hampshire trends between 2009 and 2020, single-family new home construction in Jackson was consistently slow. In Jackson, there was a brief increase in 2020 and a return to low levels of development in 2022, as shown in the chart (see right) from City-Data.com<sup>8</sup>.

Since the pandemic's beginning in 2020, development in Jackson and New Hampshire has undergone several changes. One of the most significant changes was that occasionally used homes were modified as permanent residences for those wishing to flee the cities. Lot line adjustments and minor subdivisions were also quite common. Real estate sales have boomed since 2021, leaving low housing inventories and very little affordable housing throughout the State. See the average cost estimates in the chart to the right - from 2012 to 2022, the average cost per new single-family housing unit went from \$291,700 to \$817,300 in Jackson. The net valuation in Jackson rose 57.5% from a 2023 valuation of \$486,711,781 to \$846,196,787 in 2024.<sup>9</sup>

More recently, development has been steady and very well-regulated. Single-family home building has increased slightly since 2022, and lots are available; however, driveways and accessibility to some areas are limited. Nothing that has been developed in the last couple of years has increased the Town's hazard vulnerability. The Team reported that a new Fire Station was planned; any necessary mitigation requirements will be addressed in the planning process.

Lot line adjustments and minor subdivisions have been the norm, and any situation that appears to be a threat is mitigated. The last major subdivision occurred in the 1980s. The Building Inspector's Report in the 2023 Annual Report stated, "*It is (was) another busy year for building permits. There were 141 building permits issued in 2023. In 2023, the total construction value of permits issued was \$10,262,787.24. Thirteen were for new single-family homes...*"<sup>10</sup> In the same report, the Jackson Planning Board stated, "*...as a land use board, we had a handful of subdivision/boundary line (4) and lot merger (1) approvals throughout the year and one or two Conditional Use Permits each month (total 20) for Short Term Rentals.*"<sup>11</sup>



<sup>8</sup> City-Data.com; <http://www.city-data.com/city/Sandwich-New-Hampshire.html>

<sup>9</sup> Town of Jackson, email, 1/31/25

<sup>10</sup> 2023 Jackson Annual Report, Building Inspector's Report 2023, page 53

<sup>11</sup> 2023 Jackson Annual Report, Jackson Planning Board, page 76

Jackson's Planning Board's process for all subdivision, site plan, and excavation applications is extensive and involves on-site examinations and the expertise of other departments and commissions as appropriate. Local regulations are designed to meet state regulations and maintain the Community's local character. Jackson's regulations address wetland areas, stormwater flow, and fire protection. Regulations require all large subdivisions and commercial enterprises to address water availability, and the planning mechanisms that are in place require adequate fire protection to be installed. New development approval requires live hydrants, cisterns, sprinklers, or other fire mitigation provisions as appropriate. All development that has occurred or is proposed in hazard-prone areas has been closely monitored and mitigated to reduce the Town's hazard vulnerability.

The Town recognizes the importance of growth and understands the impact of hazards on new facilities and homes if built within the Community's hazard-prone areas. The Planning Board, the Building Inspector, and the Select Board will monitor and guide growth and development using the Master Plan, Subdivision Regulations, and the Zoning Ordinance. Building permits are required.

As a relatively small community, the Building Inspector, the Planning Board, the Select Board, and other town officials are almost always aware of construction that is taking place. The Planning Board will follow town regulations to ensure that any construction in hazardous areas will be built to minimize vulnerability to the hazards identified in this Plan.



*Jackson Town Offices*

*Photo Credit: Town of Jackson, 2023 Annual Report, page 35*

**TABLE 2.1: TOWN STATISTICS**

<b>Table 2.1 - Town Statistics</b>				
<b>Census Population Data</b>	<b>2020</b>	<b>2010</b>	<b>2000</b>	<b>1990</b>
<b>Jackson, NH - Census Population Data</b>	<b>1,028</b>	<b>816</b>	<b>840</b>	<b>680</b>
<b>Carroll County</b>	<b>50,107</b>	<b>47,818</b>	<b>43,918</b>	<b>35,526</b>
<i>30-year Growth Rate</i>	51.18%	<i>Growth Rate = 2020POP-1990POP/1990POP</i>		
<i>Elderly Population-% over 65 (2022 ACS 5-Year)</i>	24.1%			
<i>Median Age (2022 ACS 5-Year)</i>	53.9			
<i>Median Household Income (2022 ACS 5-Year)</i>	\$94,219			
<i>Poverty Rate (2022 ACS 5-Year)</i>	9.7%			
<i>Change in Population-Year-Round (%)</i>	600% (non-residents)			
<b>Housing Statistics (2022 ACS 5-Year)</b>				
<i>Total Housing Units</i>	1,065			
<i>Occupied Housing Units</i>	500			
<i>Vacant Housing Units</i>	565 (only recreational & seasonal homes/short-term)			
<b>Assessed Building Values</b>				
<b>Building types</b>	<b>Value</b>	<b>1% Damage</b>	<b>5% Damage</b>	
<i>Residential</i>	\$529,976,500	\$5,299,765	\$26,498,825	
<i>Manufactured Housing</i>	\$152,800	\$1,528	\$7,640	
<i>Commercial</i>	\$51,140,900	\$511,409	\$2,557,045	
<i>Discretionary Preservation Easement</i>	\$0	\$0	\$0	
<i>Tax Exempt</i>	\$6,946,300	\$69,463	\$347,315	
<i>Utilities</i>	\$7,269,400	\$72,694	\$363,470	
<i>Totals</i>	\$595,485,900	\$5,954,859	\$29,774,295	
<i>The above chart shows the 2024-MS1 structure values. These values estimate structure loss due to natural hazards (see Chapter 5) based on a loss of 0-1% or 1-5% of structures in the Community—source: email from the Town on 1/31/25</i>				
<b>Regional Coordination</b>				
<i>County</i>	Carroll			
<i>Tourism Region</i>	White Mountains			
<b>Municipal Services &amp; Government</b>				
<i>Town Hall or Town Offices</i>	Town Offices			
<i>Town Administrator</i>	Yes			
<i>Select Board (3-member)</i>	Yes			
<i>Planning Board</i>	Yes			
<i>School Board</i>	Yes			
<i>Zoning Board of Adjustment</i>	Yes			
<i>Conservation Commission</i>	Yes			
<i>Housing Commission</i>	Yes			
<i>Master Plan</i>	Yes, 2016			
<i>Emergency Operation Plan (EOP)</i>	Yes, April 11, 2023			

<b>Table 2.1 - Town Statistics</b>	
<i>Hazard Mitigation Plan (HMP)</i>	Yes, December 11, 2019
<i>Zoning Ordinances</i>	Yes, March 12, 2024
<i>Subdivisions Regulations</i>	Yes, 2024
<i>Site Plan Review Regulations</i>	No
<i>Capital Improvement Plan (CIP)</i>	Yes, being updated by the Planning Board
<i>Capital Reserve Funds (CRF)</i>	Yes, reviewed annually
<i>Building Permits Required</i>	Yes
<i>Adopted IBC &amp; IRC</i>	Yes, in the Building Codes
<i>Town Website</i>	Yes, www.jackson-nh.org
<i>Floodplain Ordinance</i>	Yes, part of the Zoning Ordinance
<i>National Flood Insurance Program (NFIP) Member</i>	Yes, July 2, 1979
<i>Flood Insurance Rate Maps (DFIRMs)</i>	March 19, 2013
<i>Flood Insurance Rate Study (FIS)</i>	March 19, 2013
<b>Percent of Local Assessed Valuation by Property Type - 2023 (NH Department of Revenue)</b>	
<i>Residential Buildings</i>	90.2%
<i>Commercial Land &amp; Buildings</i>	9.1%
<i>Other (including Utilities)</i>	0.7%
<b>Emergency Services</b>	
<i>Town Emergency Warning Systems</i>	Genasys (formerly CodeRED) & fire siren (3 blasts means emergency)
<i>School Emergency Warning System</i>	SchoolMessenger
<i>Emergency Page</i>	Yes
<i>Facebook</i>	Police & Fire Departments & Jackson Grammar School
<i>ListServ</i>	Jackson E-News (privately operated)
<i>Local Newspapers</i>	Conway Daily Sun
<i>Public Access TV</i>	Valley Vision, Channel 3
<i>Local TV Stations</i>	WMUR, Channel 9
<i>Local Radio Stations</i>	WMWV Magic 93.5 FM & 104.5 FM & WBNC Easy 95.3 FM
<i>Police Department</i>	Yes, full-time Chief, one full-time Sergeant
<i>Police Dispatch</i>	Carroll County Dispatch
<i>Police Mutual Aid</i>	Surrounding towns, NH State Police - Troop E & Carroll County Sheriff's Office
<i>Animal Control Officer</i>	No, the Police Department handles animals
<i>Fire Department</i>	Yes, full-time Chief & 25-28 paid-on-call firefighters
<i>Fire Dispatch</i>	Carroll County Dispatch
<i>Fire Mutual Aid</i>	Mount Washington Valley Mutual Aid
<i>Fire Stations</i>	One
<i>Forest Fire Warden</i>	Yes
<i>Emergency Medical Services (EMS)</i>	Yes, Bartlett-Jackson Ambulance
<i>EMS Dispatch</i>	Carroll County Dispatch
<i>Emergency Medical Transportation</i>	Bartlett-Jackson Ambulance

Table 2.1 - Town Statistics	
<i>HazMat Team</i>	Carroll County HazMat Team
<i>Established Emergency Management Director (EMD)</i>	Yes
<i>Established Deputy EMD</i>	Yes
<i>Line of Succession (If EMD is unavailable)</i>	1st...Deputy EMD
	2nd...Fire Chief
	3rd...Deputy Fire Chief
<i>Public Health Network</i>	Carroll County Coalition for Public Health
<i>Health Officer (also Building Inspector)</i>	Yes
<i>Deputy Health Officer</i>	Yes
<i>Building Inspector (also Health Officer)</i>	Yes
<i>Established Public Information Officer (PIO)</i>	No, one will be determined at the time of the emergency
<i>Nearest Hospital</i>	Memorial Hospital, Conway (7 miles)
<i>Primary EOC</i>	Fire Station (generator)
<i>Secondary EOC</i>	Town Building Complex (generator)
<i>Primary Shelter</i>	Whitney Community Center (generator)
<i>Secondary Shelter</i>	Jackson Public Library (generator)
<i>Potential Shelter</i>	Jackson Community Church (no generator)
<i>Cooling &amp; Warming Shelter</i>	Jackson Public Library (generator) or Whitney Community Center (generator)
<i>Household Pet Shelter</i>	Whitney Community Center (generator)
<i>Large Animal &amp; Livestock Shelter</i>	Local farmers cooperative
<i>Local Humane Society &amp; Veterinarians</i>	Conway Humane Society, North Country Animal Hospital, True North Veterinarian & Disaster Animal Response Team (DART)
Utilities	
<i>Town Sewer</i>	Private septic
<i>Highway Department</i>	Yes, full-time Road Agent & three full-time employees
<i>Miles of Class V Roads</i>	17.08 paved + 3.42 gravel = 20.50 total
<i>NH Public Works Mutual Aid</i>	Yes
<i>Water Supply</i>	Jackson Water Precinct (20% of town, 150 residential, 50+ commercial units) & private wells
<i>Wastewater Treatment Plant</i>	No
<i>Electric Supplier</i>	NH Electric Co-op
<i>Natural Gas Supplier</i>	None
<i>Cellular Telephone Access</i>	Limited in places
<i>Alternative Energy Projects</i>	<b>Solar:</b> Highway Department & Town Office <b>Green projects:</b> planting project & riverbank conservation <b>Tax incentives:</b> solar
<i>Pipelines or Gaslines</i>	No
<i>High-Speed Internet</i>	Yes
<i>Telephone Company</i>	Spectrum & Consolidated Communications

<b>Table 2.1 - Town Statistics</b>	
<b>Transportation</b>	
<i>Primary Evacuation Routes</i>	NH Routes 16, 16A (Main Street) & 16B
<i>Secondary Evacuation Routes</i>	Dundee Road & Thorn Hill Road
<i>Nearest Interstate</i>	I-93, Exit 35 (42 miles) & Exit 23 (62 miles)
<i>Nearest Airstrip</i>	Gorham Airport, Gorham (2,800 ft. turf runway)
	Eastern Slope Airport, Fryeburg, ME (4,200 ft. paved runway & 1,280 ft. paved runway)
<i>Nearest Commercial Airport(s)</i>	Portland International Jetport, Portland, ME (70 miles)
	Manchester-Boston Regional, Manchester (110 miles)
	Logan International Airport, Boston, MA (144 miles)
	Portsmouth International Airport at Pease, Portsmouth (91 miles)
<i>Helicopter-Landing Zones</i>	Highway Department & Town Park
<i>Public Transportation</i>	Yes, Concord Coach
<i>Railroad</i>	No
<b>Education &amp; Childcare</b>	
<i>Elementary Schools</i>	Jackson Grammar School (grades K-6)
<i>Middle Schools</i>	Grades 7-8 are tuitioned to Bartlett
<i>High Schools</i>	Grades 9-12 are tuitioned to Conway
<i>School Administrative Unit (SAU)</i>	SAU 9
<i>Private Schools</i>	No
<i>Colleges/Universities</i>	No
<i>Licensed Child Care Facilities</i>	No
<b>Fire Statistics (NH Division of Forests &amp; Lands, Fire Warden Report, and the Town)</b>	
<i>Wildfire Fires (2023-2024)</i>	None
<i>Carroll County Fire Statistics (2023)</i>	10 fires, 1.95 acres
<i>State Forest Fires Statistics (2023)</i>	99 fires, 64.5 acres
<p><i>Unless otherwise noted, the information in Table 2.1 was derived from the Town, the US Census 2020, and the Economic &amp; Labor Market Information Bureau, NH Employment Security, June 2024. Community Response Received 7/15/2024, <a href="https://www2.nhes.nh.gov/GraniteStats/SessionServlet?page=Community.jsp&amp;SID=1&amp;city=000211&amp;cityName=Jackson">https://www2.nhes.nh.gov/GraniteStats/SessionServlet?page=Community.jsp&amp;SID=1&amp;city=000211&amp;cityName=Jackson</a></i></p>	

## Chapter 3: Hazard Identification, Risk Assessment & Probability

### A. HAZARD IDENTIFICATION

The first step in hazard mitigation is to identify hazards. The Team determined that twelve natural hazards can potentially affect the Community. *Table 3.1, Hazard Identification & Risk Assessment (HIRA)*, estimates the level of impact that each listed hazard could have on humans, property, and business and averages them to establish an index of severity. The probability estimate for each hazard is multiplied by its severity to establish an overall relative threat factor.

Some hazards in Table 3.1 include subcategories of hazards. For instance, Severe Winter Weather includes snowstorms, ice storms, blizzards, and nor'easters. In such instances<sup>12</sup>, the analysis included a discussion of the subcategories. However, ultimately, the final analysis was based on the category in general, as shown in Table 3.1.

The NH State Hazard Mitigation Plan includes many of the same potential hazards identified in Jackson. However, several of the State's hazards were excluded from this Plan - these hazards scored a zero during the HIRA process and were excluded from Table 3.1 on page 35. The reasons for exclusion are further explained below.

<u>State Hazard</u>	<u>Reason for Exclusion from this Plan</u>
*Coastal Flooding .....	Distance away from the sea
*Landslides .....	No known areas subject to landslide or erosion in the Town
*Dam Failure.....	No dams will affect the Town if breached
Radiological .....	Distance away from radiological sites

Specific hazards that have affected the Town, the region, and the State in the past are detailed in *Table 3.2, Historic Hazard Identification*, and Chapter 5. *\*=Natural Hazards as identified in this Plan.*

### B. RISK ASSESSMENT

The hazards listed in Table 3.1 were classified based on the "Relative Threat" score as calculated in Column F; these were then separated into three categories using Jenks Optimization, also known as the natural breaks classification.<sup>13</sup> The "Relative Threat" score was then labeled into three categories: *High Risk, Medium Risk, and Low Risk*, as shown in Table 3.1, Column G; these categories are also indicated in Chapter 5, Sections B-D. The Plan demonstrates each hazard's likelihood of occurrence and its potential effect on the Town. This process illustrates a comprehensive hazard statement and helps the Town understand which hazards should receive the most attention.

In addition to the relative threat analysis in Table 3.1, the Team used *Tables 4-1-4.4, Critical Infrastructure & Key Resources (CIKR)*, to identify and analyze the potential hazard risk based on a scale of 1-3 for each CIKR.

<sup>12</sup> Inland Flooding (Riverine, 100-year, local road flooding, ice jams, dam failure); Extreme Temperatures (hot & cold); High Wind Events (Tornadoes & Downbursts); Infectious Diseases (too many to list)

<sup>13</sup> The natural breaks classification process is a method of manual data classification partitions data into classes based upon natural groups within the data distribution; ESRI, <https://pro.arcgis.com/en/pro-app/latest/help/mapping/layer-properties/data-classification-methods.htm>

**C. PROBABILITY**

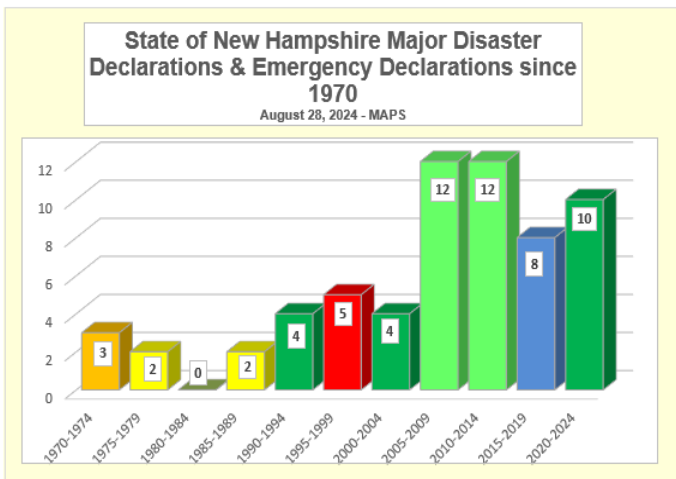
The determination of the probability of occurrence is contained within Column D in Table 3.1, which assesses hazards based on the likelihood that the hazards will occur within 25 years. The probability scores indicate whether the identified hazard has a *Very Low, Low, Moderate, High, or Very High* probability. Probability categories are also indicated in Chapter 5, Sections B-D.

Jackson is reasonably safe from natural, technological, and human-caused hazards. However, due to Jackson’s geographic location, within the high peaks of the White Mountains, forested lands, hills, heavy snowpack, and topography, there is always a probability that future hazards will occur.

**HAZARD PROBABILITY & CLIMATE CHANGE**

Although not identified as a natural hazard in this Plan, no plan can be considered complete without discussing climate change’s impact on weather patterns. *“Climate change increases the frequency, duration and intensity of natural hazards, such as wildfires, extreme heat, drought, storms, heavy precipitation and sea level rise. Communities are feeling the impacts of a changing climate now.”*, FEMA stated in its State Mitigation Plan Mitigation Policy Guide<sup>14</sup>. FEMA recognizes climate change by including climate change in this guide for state planners.

The chart to the right shows the increased frequency of Major Disaster Declarations (DR) and Emergency Declarations (EM) in New Hampshire, possibly indicating the impact of climate change.<sup>15</sup> The decade beginning in 2020 includes ten disaster declarations: DR-4516 and EM-3445, DR-4622, DR-4624, DR-4693, DR-4740, DR-4761, DR-4771, DR-4799, and DR-4812.



Communities in New Hampshire, such as Jackson, have become increasingly aware of climate change’s impact on the hazards they have already experienced and anticipate an increase in their probability. Jackson has established a solar exemption program for residents who install solar energy.

**HAZARD PROBABILITY COMBINED WITH LONG-TERM UTILITY OUTAGE**

Any potential disaster in Jackson is particularly impactful if combined with a long-term utility outage, as would most likely be true with severe winter storms, blizzards, ice storms, hurricanes, tropical storms, and windstorms. An outage could result in frozen pipes and a lack of water and heat during the winter, a concern for the Town’s elderly and vulnerable citizens. The food supply of individual citizens could quickly become depleted should a power failure last for a week or more. When combined with a long-term utility outage, any hazard’s effects could have a higher probability of damaging impacts on the Community.

<sup>14</sup> State Mitigation Planning Policy Guide, FEMA, Released April 19, 2022, page 6  
<sup>15</sup> Derived from FEMA’s record of disasters; categorized by decade since 1970 by the Planner

**TABLE 3.1: HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)**

Table 3.1 - Hazard Identification & Risk Assessment (HIRA)							
Scoring for Probability	Column A	Column B	Column C	Column D	Column E	Column F	Risk
1=Very Low (0-20%)	Probability				Severity	Relative Threat	Very High 16.0 & up
2=Low (21-40%)	Human Impact	Property Impact	Business Impact	Occurrence within 25 years	Average of Human, Property & Business Impact (A+B+C)/3	Risk Severity x Occurrence D x E	High 12.0-15.9
3=Moderate (41-60%)							Medium 8.0-11.9
4=High (61-80%)							Low 4.0-7.9
5=Very High (81-100%)							Very Low 0.0-3.9
Natural Hazards - as determined by NH HSEM and the Town							
1) Severe Winter Weather	3.0	4.0	4.0	5.0	3.67	18.33	Very High
2) High Wind Events	3.0	5.0	3.0	5.0	3.67	18.33	Very High
3) Inland Flooding	2.0	5.0	4.0	5.0	3.67	18.33	Very High
4) Extreme Temperatures	2.0	1.0	2.0	4.0	1.67	6.67	Low
5) Infectious Disease	4.0	1.0	3.0	2.0	2.67	5.33	Low
6) Lightning	2.0	3.0	2.0	2.0	2.33	4.67	Low
7) Wildfire	2.0	2.0	2.0	2.0	2.00	4.00	Low
8) Tropical/Post Tropical Cyclones	2.0	2.0	2.0	2.0	2.00	4.00	Low
9) Drought	1.0	1.0	2.0	2.0	1.33	2.67	Very Low
10) Earthquake	3.0	2.0	2.0	1.0	2.33	2.33	Very Low
11) Solar Storms & Space Weather	1.0	1.0	2.0	1.0	1.33	1.33	Very Low
12) Avalanche	1.0	1.0	1.0	1.0	1.00	1.00	Very Low
Hazards that scored a zero in this analysis can be seen in Chapter 3, Section A.							
Technological & Human-caused Hazards							
1) Long-Term Utility Outage	1.0	2.0	3.0	5.0	2.00	10.00	Medium
2) Transport Accidents	3.5	3.0	2.0	3.0	2.83	8.50	Medium
3) Cyber Events	2.0	2.0	4.0	3.0	2.67	8.00	Medium
4) Conflagration	3.0	4.0	4.0	2.0	3.67	7.33	Low
5) Aging Infrastructure	2.0	1.0	2.0	4.0	1.67	6.67	Low
6) Mass Casualty Incidents	4.5	2.5	2.5	2.0	3.17	6.33	Low
7) Terrorism & Violence	4.0	2.0	3.0	2.0	3.00	6.00	Low
8) Known & Emerging Contaminants	3.0	1.0	4.0	2.0	2.67	5.33	Low
9) Hazardous Materials	2.0	2.0	2.0	2.0	2.00	4.00	Low

**D. NATIONAL FLOOD INSURANCE PROGRAM (NFIP) STATUS**

Jackson has been a National Flood Insurance Program member since July 2, 1979. Jackson actively monitors the NFIP and related compliance issues and participates in offered training by the State or FEMA that addresses flood hazard planning. The latest Flood Insurance Rate Studies (FIRS) and Digital Flood Insurance Rate Maps (DFIRMS) are dated March 19, 2013. The latest DFIRM and FIS are incorporated by reference when amended in Section 12 of the Town’s Zoning Ordinance.

Jackson has a relatively small floodplain. The floodplain areas are primarily along the Ellis River, the Wildcat River, and smaller tributaries of the Ellis. Jackson is likely to experience flooding on several roads and along most rivers and streams. Nearly every spring, rapid snowmelt, and heavy rain cause the flooding of the Ellis River, which confluences with smaller brooks and streams in the heart of Jackson Village. Among these brooks and streams that flow into the Ellis River are tributaries of Meserve Brook, Miles Brook, Marsh Brook, Spruce Brook, and Great Brook.

According to FEMA, there are 15 NFIP policies in effect in Jackson, including four single-family, ten other residential buildings, and one non-residential building. There have been three paid losses for a total of \$7,670. FEMA reports no repetitive losses.<sup>16</sup>

**AREAS OF SPECIAL FLOOD HAZARD**

The Town of Jackson has strict flood zone building codes and uses its zoning ordinances to guide development and comply with and enforce NFIP standards. Section 12: Areas of Special Flood Hazard, in the Jackson Zoning Ordinance, details the definitions, requirements, and variance and appeals process. The Planning Board, as the initiator, and the Selectboard, as the enforcer, adhere to the rules, regulations, and requirements outlined in the ordinances. Some older buildings do not lie within flood-prone areas, and current building codes have successfully deterred building in hazardous areas.

Among other floodplain-related items, the Town, with its strict building codes:

- *Addresses the requirements to obtain a permit to build or develop in any flood hazard area;*
- *Addresses the Planning Board’s review of all building permit applications for a determination that building sites will be reasonably safe from flooding;*
- *Ensures that any proposed building site in a special flood hazard area shall be constructed with materials resistant to flood damage and constructed by methods and practices that minimize flood damage.*



In 1968, although well-intentioned government flood initiatives were already in place, Congress established the National Flood Insurance Program (NFIP) to address both the need for flood insurance and the need to lessen the devastating consequences of flooding. The goals of the program are twofold: to protect communities from potential flood damage through floodplain management, and to provide people with flood insurance.

For decades, the NFIP has been offering flood insurance to homeowners, renters and business owners, with the one condition that their communities adopt and enforce measures to help reduce the consequences of flooding.

Source: [http://www.floodsmart.gov/floodsmart/pages/about/nfip\\_overview.isp](http://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.isp)

**Severe Repetitive Loss (SRL) Properties--** NFIP-insured buildings that, on the basis of paid flood losses since 1978, meet either of the loss criteria described on page SRL 1. SRL properties with policy effective dates of January 1, 2007, and later will be afforded coverage (new business or renewal) only through the NFIP Servicing Agent’s Special Direct Facility so that they can be considered for possible mitigation activities.

Source: <http://www.fema.gov/national-flood-insurance-program/definitions#R>

<sup>16</sup> FEMA, email received with data, November 2024

In addition, the Jackson Zoning Ordinance describes requirements related to electrical, heating, ventilation, plumbing, as-built elevations, and water and sewer systems as they pertain to flood-prone areas based on the most current Flood Insurance Rate Map (FIRM).

The Jackson Planning Board identifies and becomes aware of non-compliant proposals, offers advice on ways to mitigate flood damage, inspects foundations to determine if the lowest floor is at or above Base Flood Elevation, requires elevation certificates, and assists builders and members of the community in their understanding of the FIRM and of the NFIP. The Town continues to caution and educate builders, landowners, and developers about the challenges and dangers of building within the floodplain. The Town understands that the benefits of the NFIP also extend to structures not in the 100-year floodplain. The Town also continues to educate homeowners, developers, and builders on the National Flood Insurance Program.

The Town uses Section #12 of the Zoning Ordinance to guide development and ensure compliance and enforcement of NFIP standards. The Planning Board (initiator) and the Select Board (enforcer) adhere to the rules, regulations, and requirements outlined in the ordinance. The Jackson Zoning Ordinance can be found on the Town's website.<sup>17</sup>

Jackson's Floodplain Administrator is responsible for determining substantial improvement and damage. These determinations are made for all development in a special flood hazard area that proposes to improve an existing structure, including alterations, movement, enlargement, replacement, repair, additions, rehabilitations, renovations, repairs of damage from any origin (such as, but not limited to flood, fire, wind, or snow) and any other improvement of or work on such structure including within its existing footprint.

The Floodplain Administrator, in coordination with any other applicable community official(s), shall be responsible for the following:

- Determine if a substantial damage (SD) determination needs to be made and communicate SD and permit requirements to property owners.
- Verify the cost of repairs to the structure.
- Verify the market value of the structure.
- Make the SD determination and issue it to the property owner.
- Permit development/ensure compliance with community ordinance.
- Inspect development and maintain as-built compliance documentation post-construction.

The Team understands that the NFIP's benefits extend to structures not in the 100-year floodplain. They felt it worthwhile to have NFIP brochures and information available at the Town Hall for current homeowners and potential developers. Several flood-related mitigation strategies have been added to this Plan. The Town will continue to work with FEMA and carefully monitor its compliance with the NFIP.

**Table 3.1, Table 3.2 and Chapter 5, Section B provide more information on past and potential hazards in Jackson.**

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<sup>17</sup> [https://www.jackson-nh.org/sites/g/files/vyhliif3296/f/uploads/section\\_12.pdf](https://www.jackson-nh.org/sites/g/files/vyhliif3296/f/uploads/section_12.pdf)

**TABLE 3.2: HISTORIC HAZARD IDENTIFICATION**

**Key for Table 3.2**

2019 HMPT ..... 2019 Hazard Mitigation Planning Team  
 2025 HMPT ..... 2025 Hazard Mitigation Planning Team  
 DR ..... Major Disaster Declarations (DR) since 1953  
 EM ..... Emergency Declarations (EM) since 1953  
 FM ..... Fire Management Assistance Declaration (FM) since 1953

**Table 3.2 includes the following sections:**

<b>A. Inland Flooding</b>	<b>D. Severe Winter Weather</b>	<b>G. Miscellaneous Hazards</b>
<b>B. Wildfire</b>	<b>E. Earthquake</b>	<b>H. Other Hazards</b>
<b>C. High Wind Events</b>	<b>F. Drought</b>	

Type of Event	Date of Event	Location	Description	Source
<b>A. Inland flooding includes flooding caused by 100-year rain events, heavy rainfall, rapid snowmelt, ice jam flooding, dam failure, and local road flooding.</b> Riverine flooding is the most common disaster event in NH. Significant riverine flooding in some areas of the State occurs in less than ten-year intervals and increases with climate change. The entire State of NH has a high flood risk. Flood events have the potential to impact the Community townwide. Since May 1, 2024, no significant flooding has occurred in Jackson.				
<b>A summary of flood events, including Major Disaster and Emergency Declarations in the State and region</b>				
<b>Inland Flooding</b> before 1970	1927, 1936, 1938, 1943 (2), 1953, 1955, 1959		Spring and fall flooding events resulting from severe storms and heavy snowmelt	See below
<b>Inland Flooding</b> 1970-1979	1972 (DR-327), 1973 (DR-399), 1974 (DR-411), 1976, 1978 (DR-549), 1979 (EM-3073)			
<b>Inland Flooding</b> 1980-1989	1986 (DR-771), 1987 (DR-789)			
<b>Inland Flooding</b> 1990-1999	1990 (DR-876), 1991 (DR-923), 1991 (DR-917), 1995, 1996 (DR-1077), 1996 (DR-1144), 1998 (DR-1231)			
<b>Inland Flooding</b> 2000-2009	2003 (DR-1489), 2005 (DR-1610), 2006 (DR-1643), 2007 (DR-1695), 2008 (DR-1787), 2008 (DR-1799)			
<b>Inland Flooding</b> 2010 - 2019	2010 (DR-1892), 2010 (DR-1913), 2011 (DR-4006), 2012 (DR-4065), 2013 (DR-4139), 2015 (DR-4206), 2017 (DR-4329), 2017 (DR-4355), 2018 (DR-4370), 2019 (DR-4457)			
<b>Inland Flooding</b> 2020 - Present	2021 (DR-4622), 2021 (DR-4624), 2022 (DR-4693), 2023 (DR-4740), 2023 (DR-4761), 2024 (DR-4771), 2024 (DR-4812)			
<b>A detailed summary of flood events in the Community</b>				
<b>Inland Flooding</b> (Heavy Rain)	March 30- April 11, 1987	Carroll, Cheshire, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	<b>Major Disaster Declaration DR-789:</b> The Jackson Grammar School's building, playground, and parking lot were flooded. The entire Mount Washington Valley was flooded.	FEMA, 2019 HMPT & 2025 HMPT
<b>Coastal Flooding</b> (Heavy Rain)	October 30-31, 1991	Regionwide	<b>Major Disaster Declaration DR-923:</b> Although this was primarily a coastal storm, heavy rain in Jackson took out part of Dundee Road when a clogged culvert diverted water and undermined the asphalt.	FEMA, 2019 HMPT & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Inland Flooding</b> (Heavy Rain)	October 20- November 15, 1995	Carroll, Cheshire, Coos, Grafton, Merrimack & Sullivan	<b>Major Disaster Declaration DR-1077:</b> Heavy rain and flooding occurred in the Mount Washington Valley. Conway received flooding as bad as the flooding that occurred during Tropical Storm Irene. The ballpark flooded in Jackson, and Crawford's Notch was shut down.	FEMA, 2019 HMPT & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	May 12-23, 2006	Belknap, Carroll, Grafton, Hillsborough, Merrimack, Rockingham & Strafford	<b>Major Disaster Declaration DR-1643:</b> Flooding occurred in most of southern NH from May 12-23, 2006 (Mother's Day Storm). Jackson received heavy rain but had no major damage.	FEMA, 2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	April 15-23, 2007	All Ten NH Counties	<b>Major Disaster Declaration DR-1695:</b> FEMA & SBA obligated more than \$27.9 million in disaster aid for flood damages following the April nor'easter (Tax Day Storm). Jackson received a high accumulation of snow, and there were roof collapses. Isolated power losses were caused by heavy, wet snow and rain. Some culverts were overwhelmed by the heavy rains, resulting in road closures.	FEMA, 2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain & Tornado)	July 24- August 14, 2008	Belknap, Carroll & Grafton & Coos	<b>Major Disaster Declaration DR-1787:</b> A period of severe storms and flooding from July 24 to August 14; a tornado occurred on July 24, 2008. The tornado did not reach Jackson, and Jackson was not severely impacted by heavy rain.	FEMA, 2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Inland Flooding</b> (Tropical Storm Irene)	August 26- September 6, 2011	<b>EM 3333:</b> All Ten NH Counties <b>DR-4026:</b> Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan	<b>Major Disaster Declaration DR-4026 &amp; Emergency Declaration EM-3333:</b> See below, Section C	FEMA & 2025 HMPT
<b>Flooding</b> (Heavy Rain)	July 1-2, 2017	Coos & Grafton	<b>Major Disaster Declaration DR-4329:</b> Although this extraordinary rain event occurred primarily in Grafton County, Jackson also experienced heavy rain, resulting in one lost culvert on a Class IV road. This issue was mitigated at the time of the storm.	FEMA, 2019 HMPT & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	October 29- November 1, 2017	Sullivan, Grafton, Coos, Carroll, Belknap & Merrimack	<b>Major Disaster Declaration, DR-4355:</b> The Federal Emergency Management Agency (FEMA) announced that federal disaster assistance is available to NH to supplement state and local recovery efforts in the areas affected by severe storms and flooding from October 29-November 1, 2017, in five counties. Jackson experienced heavy rain during this storm but no damage to roads or structures.	FEMA, 2019 HMPT & 2025 HMPT
Inland Flooding	May 2020	Pinkham Notch	An intense thunderstorm with heavy rain caused significant damage in Pinkham Notch. The Notch was closed due to road washouts. This flooding issue was mitigated on May 27, 2020.	2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)  <b>Long-Term Utility Outage</b>	December 22-25, 2022	Belknap, Grafton, Coos & Carroll	<b>Major Disaster Declaration, DR-4693:</b> A severe storm occurred December 22-25, 2022. Most communities saw heavy rain and wind, causing culvert damage, road washouts, and power outages. The northern communities saw heavy, wet snow, causing trees and power lines to fall, creating power outages. The declaration was declared in four of the State's ten counties. Jackson experienced heavy rain and high winds, leading to trees and power lines coming down. The power was out for 24 hours, and Route 16B was closed for some time due to trees blocking the roadway.	FEMA & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Inland Flooding</b> (Heavy Rain)	May 1, 2023	Townwide	A heavy rainstorm caused significant erosion on the sides of many roads in the Community, including Tin Mine Road. Although less significant than the December 2022 storm, repairs were made to multiple roads.	2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	December 17-21, 2023	Coos, Grafton & Carroll	<b>Major Disaster Declaration, DR-4761:</b> A significant rainstorm, similar to a 100-year flood event, struck multiple areas in New Hampshire, causing widespread damage to rivers, roads, and bridges. Jackson experienced heavy rain and high winds, creating downed trees, power lines, power outages, and flooded roadways. Dundee, Sugar Hill, Eagle Mountain, Black Mountain, Meloon, Carter Notch, Green Hill, Iron Mountain, and the water precinct access road sustained damage. Debris & washouts. The Town has submitted for \$135,000 in FEMA disaster reimbursement.	FEMA & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	May 1, 2024	Townwide	A heavy rainstorm caused minor flooding in the Town, most significantly at the ballpark.	2025 HMPT

**B. Wildfire:** New Hampshire is heavily forested and is therefore vulnerable to wildfire, particularly during periods of drought. The proximity of many populated areas to the State's forested land exposes these areas to the potential impact of wildfire. Wildfires have the potential to impact the Community townwide. Since the prior hazard mitigation plan, no significant wildfire events have occurred in Jackson.

**A summary of wildfire events, including Major Disaster and Emergency Declarations in the State and other recent large fires**

<b>Wildfire</b> (Fire of 1947)	October 21, 1947	Strafford County	This fire, caused by drought conditions and a spark from the Boston & Maine Railroad, burned a swath 9.5 miles long and 1.5 miles wide starting in Farmington; the fire was widespread enough to cause significant damage in Maine. Spaulding High School was used to serve meals to the hundreds of firefighters and volunteers who assisted. Around a thousand people were evacuated in Rochester; the fire resulted in one death, an 18-year-old UNH student. This fire did not reach Carroll County or Jackson.	Local Resources & 2025 HMPT
<b>Wildfire</b> (Shaw Mountain Fire)	July 2, 1953	Carroll County	<b>Major Disaster Declaration DR-11:</b> This wildfire occurred in Carroll County at Shaw Mountain. It did not reach Jackson.	FEMA & 2025 HMPT
<b>Wildfire</b> (Table Mountain)	October 16, 1984	Carroll County	<b>Table Mountain Fire:</b> This Class D fire burned 100 acres in Carroll County before being extinguished. It did not reach Jackson.	Local Resources & 2025 HMPT
<b>Wildfire</b> (Lucy Brook)	November 16, 2004	Carroll County	<b>Lucy Brook Fire:</b> The Lucy Brook Fire burned 136 acres before being extinguished. It did not reach Jackson.	Local Resources & 2025 HMPT
<b>Wildfire</b> (Bayle Mountain Fire)	May 2015	Carroll County	<b>The Bayle Mountain Fire:</b> This Class D fire burned 275 acres and took five days to put out on rocky and steep terrain in Ossipee, NH. Military and private helicopters and fire crews from all over the State assisted in extinguishing this fire. The Bayle Mountain Fire did no damage to homes. It did not reach Jackson; however, five firefighters were sent to assist.	Local Resources & 2025 HMPT
<b>Wildfire</b> (Stoddard Fire)	April 2016	Cheshire County	<b>Fire Management Assistance Declaration, FM-5123:</b> Stoddard, NH. In April 2016, the Stoddard Fire, a Class D fire, burned 190 acres and caused the evacuation of 17 homes. It did not reach Carroll County or Jackson.	FEMA & 2025 HMPT
<b>Wildfire</b> (Covered Bridge Fire)	November 2016	Carroll County	<b>The Covered Bridge Fire:</b> A brush fire near the Albany Covered Bridge grew to 329 acres, primarily on White Mountain National Forest land. No structures were lost; it was a Class E fire. It did not reach Jackson.	Local Resources & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Wildfire</b> (Dilly Cliff Fire)	October 2017	Grafton County	<b>The Dilly Cliff Fire:</b> The Dilly Cliff Fire occurred on the Lost River Gorge Trail in North Woodstock off Route 112 (Lost River Road). It was a Class: Human-caused fire that burned 75 acres. The fire was determined to be extinguished 36 days later. It did not reach Carroll County or Jackson.	Local Resources & 2025 HMPT
<b>Wildfire</b> (Centennial Fire)	May 9, 2022	Coos County	<b>The Centennial Fire,</b> caused by an out-of-control campfire, burned 48 acres along the Appalachian Trail (state land) in Shelburne. There was a multi-agency response but no structural damage or injuries. It did not reach Carroll County or Jackson.	Local Resources & 2025 HMPT
<b>Wildfire</b> (Bemis Fire)	May 14, 2022	Carroll County	<b>The Bemis Fire</b> lasted six days, burning 106 acres on the steep terrain around Bemis Brook in Crawford Notch State Park. Local firefighters, the NH Division of Forest and Lands, and members of the US Forest Service from Maine, Colorado, and Virginia all responded to extinguish the fire. There were no structures damaged or injuries to the public or responders. It did not reach Carroll County or Jackson; however, crews were sent for two days to assist.	Local Resources & 2025 HMPT

**A detailed summary of wildfires in the Community**

<b>Wildfires</b> Before 1980	Early 1960s (2) Unknown (2) 1970s	Jackson	Wildfires noted before 1980: 2 Class A fires, 2 Class B fires, 1 Class Unknown, three fires started by logging operations, one by lightning, one by campfire.	2009 HMPT & 2019 HMPT
<b>Wildfires</b> 1980-1989	July 1983 (2) March 1989 April 1989 August 1989	Jackson	Wildfires noted between 1980-1989: 3 Class A fires, 2 Class B fires, two illegal burns, one caused by downed wire, Class B fires started as structure fires that were started by wind-blown debris.	2009 HMPT & 2019 HMPT
<b>Wildfires</b> 1990-1999	July 1995 (3)	Jackson	Wildfires noted between 1990-1999: 1 additional fire noted in the early 1990s at Black Mountain caused by lightning; 3 Class A fires, 2 Class B fires, two caused by lightning, two illegal burns, and one out-of-control fire at Transfer Station.	2009 HMPT & 2019 HMPT
<b>Wildfires</b> 2000-2009	April 2000 to June 2007	Jackson	Wildfires noted between 2000 & 2009: 2 additional fires noted, months unknown, 2004 & 2007, 13 Class A fires, 3 Class B fires, one fire caused by lightning, eight fires caused by illegal burns, seven other small fires caused by miscellaneous human causes.	2009 HMPT & 2019 HMPT
<b>Wildfire</b>	June 2012	Jackson	The Green Hill fire was a non-permitted brush fire that burned out of control, just over 1 acre. No structure damage occurred.	2014 & 2019 HMPT
<b>Wildfire</b>	2014-2019	Jackson	The Town reported that no wildfires larger than one acre have occurred in Jackson since the prior hazard mitigation plan in 2014.	2019 HMPT
<b>Wildfire</b>	2020-2024	Jackson	The Town reported that no wildfires larger than one acre have occurred in Jackson since the prior hazard mitigation plan in 2019.	2025 HMPT

**C. High Wind Events, including Tropical/Post Tropical Cyclones, Tornadoes, Downbursts, and Windstorms:** Tornadoes are spawned by thunderstorms and occasionally hurricanes; tornadoes may occur singularly or in multiples. A downburst is a severe localized wind blasting down from a thunderstorm. Downbursts happen throughout NH and are becoming more prevalent with climate change; most downbursts go unrecognized unless significant damage occurs. Hurricanes develop from tropical depressions, which form off the coast of Africa. New Hampshire's exposure to direct and indirect impacts from hurricanes is prevalent but modest compared to other states in New England. A hurricane downgraded to a Tropical Storm is more likely to impact New Hampshire. Tornadoes and other wind events can impact the Community townwide. Since the prior hazard mitigation plan, no significant high wind events have occurred in Jackson.

**A summary of high wind events and tropical/post-tropical cyclone events, including Major Disaster and Emergency Declarations in the State and region**

<b>Tropical/Post Tropical Cyclones</b>	1804, 1869, 1938, 1944, 1954 (2), 1960, 1976, 1978, 1985, 1991 ( <b>DR-917</b> ), 1999 ( <b>DR-1305</b> ), 2005 ( <b>EM-3258</b> ), 2011 ( <b>EM-3333 &amp; DR-4026</b> ), 2012 ( <b>EM-3360</b> )	Number 4 (1938), Number 7 (1944), Carol (1954), Edna (1954), Donna (1960), Belle (1976), Amelia (1978), Gloria (1985), Bob (1991), Floyd (1999), Katrina (2005), Irene (2011), Sandy (2012)	See below
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Type of Event	Date of Event	Location	Description	Source
<b>High Wind Events</b> (Tornadoes)	1814, 1890, 1951, 1953, 1957, 1961, 1963, 2008 ( <b>DR-1782</b> )		All listed tornadoes were reported as F2, except for the June 1953 tornado, reported as an F3.	See below
<b>A detailed summary of high wind and tropical/post-tropical cyclone events in the Community</b>				
<b>Tropical/Post Tropical Cyclone</b> (Great New England Hurricane)	September 21, 1938	All Ten NH Counties	<b>The Great New England Hurricane:</b> Statewide, multiple deaths occurred, and damages in NH were about \$12.3 million in 1938 (about \$200 million now). This storm damaged 20,000 structures, 26,000 automobiles, 6,000 boats, and 325,000 sugar maples throughout New England. 80% of the people lost power. Although there was no local recollection, it was expected that the damage would have been similar to the rest of the State in Jackson.  (Source <a href="http://nhpr.org/post/75th-anniversary-new-englands-greatest-hurricane">http://nhpr.org/post/75th-anniversary-new-englands-greatest-hurricane</a> )	FEMA, 2019 HMPT & 2025 HMPT
<b>High Wind Events</b> (High Wind Events)  <b>Long Term Utility Outage</b>	1981	Jackson	A significant windstorm caused multiple trees, some very large, to fall. There was also damage to some roofs and shingles, with one roof completely lifted off a structure. Some power outages occurred for a short period.	2009 HMPT & 2019 HMPT
<b>Tropical/Post Tropical Cyclone</b> (Hurricane Bob)	August 18-20, 1991	Carroll, Hillsborough, Rockingham & Strafford	<b>Major Disaster Declaration DR-917:</b> Jackson received heavy rain and minor wind but no damage.	FEMA, 2019 HMPT & 2025 HMPT
<b>High Wind Events</b> (High Wind Events)	1995	Jackson	A significant windstorm caused multiple trees, some very large, to fall. There was also damage to some roofs and shingles.	2009 HMPT & 2019 HMPT
<b>Tropical/Post Tropical Cyclone</b> (Hurricane Katrina evacuation)	August 29-October 1, 2005	All Ten NH Counties	<b>Emergency Declaration EM-3258:</b> Assistance was provided to evacuees from the areas struck by Hurricane Katrina; emergency assistance to those areas began on August 29, 2005. The President's action made federal funding available to all 10 New Hampshire counties. No evacuees came to Jackson, but residents may have taken in some pets.	FEMA, 2019 HMPT & 2025 HMPT
<b>High Wind Events</b> (Tornado)	July 24, 2008	Belnap, Carroll, Merrimack, Strafford & Rockingham	<b>Major Disaster Declaration DR-1782:</b> Tornado damage to several New Hampshire counties. Jackson did not receive any damage from this storm.	FEMA, 2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Tropical/Post Tropical Cyclone</b> (Tropical Storm Irene)	August 26-September 6, 2011	<b>EM 3333:</b> All Ten NH Counties <b>DR-4026:</b> Carroll, Coos, Grafton, Merrimack, Belnap, Strafford, & Sullivan	<b>Major Disaster Declaration DR-4026 &amp; Emergency Declaration EM-3333:</b> Tropical Storm Irene, August 26 to September 6, 2011, occurred in seven New Hampshire counties, causing flood and wind damage. In addition, an Emergency Declaration was declared for all ten New Hampshire counties. There was significant damage to some roadways and most bridges in Jackson, particularly damage to Melloon Bridge Road. Trees were down, power losses occurred, some roads were closed, and some Village streets were impassable.	FEMA, 2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Tropical/Post Tropical Cyclone</b> (Hurricane Sandy)	October 26-November 8, 2012	<b>DR-4095:</b> Belnap, Carroll, Coos, Grafton, Rockingham & Sullivan <b>EM-3360:</b> All Ten NH Counties	<b>Major Disaster Declaration DR-4095 &amp; Emergency Declaration EM-3360:</b> The declaration covers damage to property from the storm that spawned heavy rains, high winds, high tides, and flooding from October 26-November 8, 2012. Hurricane Sandy came ashore in NJ, bringing high winds, power outages, and heavy rain to six New Hampshire counties. Jackson received about 1" of rain but no major flooding.	FEMA, 2014 HMPT, 2019 HMPT & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>D. Severe Winter Weather, including Nor'easters, Blizzards, and Ice Storms:</b> Severe winter weather in NH may include heavy snowstorms, blizzards, nor'easters, and ice storms, particularly at elevations over 1,000 feet above sea level. Generally speaking, NH will experience at least one of these hazards during any winter season; however, most NH communities are well prepared for such hazards. Severe winter weather and ice storms can impact the Community townwide. Since April 4, 2024, no significant winter weather events have occurred in Jackson.				
<b>A summary of severe winter weather events, including Major Disaster and Emergency Declarations in the State and region</b>				
<b>Severe Winter Weather</b> (Ice Storms)	1942, 1969, 1970, 1979, 1991, 1998 <b>(DR-1199), 2008 (DR-1812)</b>		The major ice storms that have occurred and caused significant disruptions to power, transportation, and public and private utilities.	FEMA & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorms)	1920, 1929, 1940, 1950, 1952, 1958 (2), 1960, 1961, 1969, 1978, 1982, 1993 <b>(EM-3101), 2001 (EM-3166), 2003 (EM-3177), 2003 (EM-3193), 2004, 2005 (EM-3207), 2005 (EM-3208), 2005 (EM-3211), 2008 (EM-3297), 2009, 2011 (EM-3344 &amp; DR-4049), 2013 (EM-1405), 2015 (DR-4209), 2017 (DR-4316), 2018 (DR-4371), 2024 (DR-4799)</b>		The major severe winter weather events with snowfalls exceeding 2' in parts of the State. Power and transportation systems were disrupted.	FEMA & 2025 HMPT
<b>A detailed summary of severe winter storm events in the Community</b>				
<b>Severe Winter Weather</b> (Snowstorm)	Winter of 1968-69	All Ten NH Counties	The winter of 1968-69 brought record snow to New Hampshire. Pinkham Notch at the base of Mount Washington recorded more than 75" of snowfall in four days at the end of February 1969 and snow that had already fallen in previous storms. NH experienced difficulty with snow removal because of the great depths that had fallen from December 1968 to April 1969. Major snowstorms brought large amounts of snow to Jackson and northern NH. The snow was measured in feet, and roads were plowed with loaders and bulldozers. Some snow banks were over 7' high. Some roads were closed, which made emergency response difficult. Jackson and all of northern NH received massive accumulations throughout the winter.	2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)  <b>High Wind Events</b>  <b>Coastal Flooding</b>	February 16, 1978	All Ten NH Counties	<b>Major Disaster Declaration DR-549:</b> The Blizzard of '78, a regionwide storm severely affecting southern New England, resulted in high snow accumulations throughout New Hampshire. This storm also brought hurricane-force winds, making this one of the most intense storms this century across the northeastern United States. Recorded accumulations show up to 28" in northeast New Hampshire, 25" in west-central New Hampshire, and 33" along the coast of New Hampshire. This event was a major snowstorm in southern New England, and heavy snow also reached Jackson. Heavy equipment was used to remove snow, and area schools were closed for a week. Snowmobiles were used as a means of transportation in areas not yet plowed.	2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Ice Storm)	January 7-25, 1998	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Strafford & Sullivan	<b>Major Disaster Declaration DR-1199:</b> A major ice storm struck nearly every part of the State, impacting northern communities and areas over 1,000 feet above sea level. Many trees were down, and there was a massive loss of timber and a large amount of slash on the forest floor. The 1998 Ice Storm was disastrous in Jackson, with some without power for up to two weeks. The storm was more devastating at elevations of 700' or more, which is most of Jackson. Tyrol, Thorn Hill, Jackson Highlands, and other elevations above 1,000 feet were extremely damaged.	FEMA, 2009 HMPT, 2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	December 6-7, 2003	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan	<b>Emergency Declaration EM-3193:</b> The emergency declaration covers jurisdictions with record and near-record snowfall that occurred throughout December 6-7, 2003, and affected eight New Hampshire counties. The Highway Department handled the heavy snow accumulation in Jackson.	FEMA, 2009 HMPT, 2014 HMPT, 2019 HMPT & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Severe Winter Weather</b> (Snowstorms)	January 22-23, 2005 February 10-11, 2005 March 11-12, 2005	<b>EM-3208-002</b> (Jan, Feb & Mar): All Ten NH Counties <b>EM-3207</b> (Jan): Nine NH Counties <b>EM-3208</b> (Feb): Five NH Counties <b>EM-3211</b> (Mar): Five NH Counties	<b>Emergency Declaration EM 3208-002:</b> The Federal Emergency Management Agency (FEMA) had obligated more than \$6.5 million to reimburse state and local governments for costs incurred in three snowstorms. The total aid for all three storms was \$6,892,023. <b>Emergency Declaration EM-3207:</b> The total aid for the January storm in Carroll was \$52,864. <b>Emergency Declaration EM-3208:</b> The total aid for the January storm in Carroll was \$91,832. <b>Emergency Declaration EM-3211:</b> The total aid for the March storm in Carroll was \$73,964. During the 2005 winter season, the Highway Department handled the heavy snow accumulation in Jackson.	FEMA, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	2008	Jackson	The 2008 winter brought several storms to New Hampshire, resulting in high accumulation. Heavy snow fell all winter, with a 2-foot snowstorm about every week. Residents and businesses were reminded of the risk of roof collapse.	2014 HMPT & 2019 HMPT
<b>Severe Winter Weather</b> (Snowstorm & Ice Storm)	December 11-23, 2008	All Ten NH Counties	<b>Major Disaster Declaration DR-1812 &amp; Emergency Declaration EM-3297:</b> A damaging ice storm impacted the State, including all 10 New Hampshire counties, resulting in fallen trees and large-scale power outages. Nearly \$15 million in federal aid had been obligated by May 2009. The Highway Department handled the heavy snow accumulation in Jackson.	FEMA, 2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	Winter 2010	Jackson	Heavy snowstorms brought high snow accumulations to Jackson. In some places, this storm affected the higher elevations with up to four feet of heavy, wet snow. The Highway Department handled the heavy accumulation, and no damage occurred.	2014 HMPT & 2019 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	October 29-30, 2011	<b>DR-4049:</b> Hillsborough & Rockingham <b>EM-3344:</b> All Ten NH Counties	<b>Major Disaster Declaration DR-4049 &amp; Emergency Declaration EM-3344:</b> A severe winter storm occurred in two New Hampshire counties on October 29-30, 2011. <b>EM-3344:</b> The emergency declaration for snow removal and damage repair included all ten NH counties (Snowtober). Leaves were still on trees, contributing to multiple power outages in Jackson. The Highway Department handled the heavy snow accumulation in Jackson.	FEMA, 2014 HMPT, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	Winter of 2012	Jackson	The winter of 2012 brought heavy snow accumulations to Jackson, with total accumulation for the winter recorded as the 3rd largest since the winter of 1969. The Highway Department handled the heavy accumulation, and no damage occurred.	2014 HMPT & 2019 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	February 8, 2013	All Ten NH Counties	<b>Major Disaster Declaration DR-4105:</b> A severe winter storm resulted in heavy snow in February 2013 in all ten New Hampshire counties (Nemo). The Highway Department handled the heavy snow accumulation in Jackson.	FEMA, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	March 14-15, 2017	Belknap & Carroll	<b>Major Disaster Declaration DR-4316:</b> A severe winter storm and snowstorm occurred on NH's Town Meeting Day in two New Hampshire counties, resulting in disaster aid supplementing state and local recovery efforts. In Jackson, confirmed wind gusts destroyed a house (with people in it) on Town Hall Road, and three houses in the Tyrol Development lost shingles from their roofs. The Town held the Town Meeting despite this significant wind and snowstorm. The Highway Department handled the heavy accumulation in Jackson.	FEMA, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	March 13-14, 2018	Carroll, Strafford & Rockingham	<b>Major Disaster Declaration, DR 4371:</b> A severe winter storm and snowstorm occurred on NH's Town Meeting Day in three New Hampshire counties, resulting in disaster aid supplementing state and local recovery efforts. The Jackson Town Meeting was held, and the Highway Department handled the heavy accumulation in Jackson. No damage occurred.	FEMA, 2019 HMPT & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
Severe Winter Weather (Snowstorm)	March 2021	Townwide	A high wind event downed trees and power lines, creating power outages. It was also extremely cold during this storm. Carter Notch Road was particularly hit hard.	2025 HMPT
Severe Winter Weather (Snowstorm)	April 4, 2024	Townwide	<b>Major Disaster Declaration, DR-4799:</b> A late winter snowstorm on April 4, 2024, brought heavy wet snow with accumulations up to two feet in some parts of the State. In Jackson, heavy, wet snow and high winds downed trees and power lines, creating power outages. The Highway Department handled the heavy accumulation in Jackson.	2025 HMPT

**E. Earthquake:** According to the NH State Hazard Mitigation Plan, New Hampshire lies in an area of "Moderate" seismic activity compared to other areas of the United States. "Major" activity areas border New Hampshire to the north and southwest. Generally, earthquakes in NH cause little or no damage and have not exceeded a magnitude of 5.5 since 1940. Earthquakes have the potential to impact the Community townwide. Since the prior hazard mitigation plan, no significant earthquakes have been felt in Jackson.

**A summary of earthquakes with a magnitude of 4.0 or more significant in the State and region**

Earthquakes	3/5/1905 (Lebanon, NH, Unknown), 8/30/1905 (Rockingham County, Unknown), 11/09/1925 (Ossipee, NH, 4.0), 3/18/1926 (New Ipswich, NH, Unknown), 11/10/1936 (Laconia, NH, Unknown), 12/20/1940 (Tamworth, NH, 5.3), 12/24/40 (Tamworth, NH, 5.6), 1/19/1982 (Sanbornton, NH, 4.5), 10/16/2012 (Hollis Center, ME, 4.7)	Occurrences of earthquakes with a magnitude of 4.0 or greater in recorded New Hampshire History since 1900	State of NH Multi-Hazard Mitigation Plan, Update 2023
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**A detailed summary of earthquakes that may have been felt in the Community since 1960**

Earthquake	June 26, 1964	Salisbury, NH	Magnitude 3.2	United States Geological Society (USGS), State of NH Multi-Hazard Mitigation Plan Update, 2019 HMPT & 2025 HMPT
Earthquake	June 15, 1973	Quebec/ME border	Magnitude 4.8	
Earthquake	December 25, 1977	Hopkinton, NH	Magnitude 3.2	
Earthquake	June 28, 1981	Sanbornton, NH	Magnitude 3.0	
Earthquake	January 19, 1982	Sanbornton, NH	Magnitude 4.5	
Earthquake	October 25, 1986	Northfield, NH	Magnitude 3.9	
Earthquake	October 20, 1988	Milan, NH	Magnitude 3.9	
Earthquake	November 22, 1988	Milan, NH	Magnitude 3.2	
Earthquake	April 6, 1989	Berlin, NH	Magnitude 3.5	
Earthquake	October 6, 1992	Canterbury, NH	Magnitude 3.4	
Earthquake	August 21, 1996	Livermore, NH	Magnitude 3.8	
Earthquake	June 16, 1995	Lisbon, NH	Magnitude 3.8	
Earthquake	January 10, 1999	Merrimac, MA	Magnitude 3.1 & 3.0	
Earthquake	January 27, 2000	Fremont, N	Magnitude 3.0	
Earthquake	September 26, 2010	Canterbury, NH	Magnitude 3.2	
Earthquake	October 16, 2012	Hollis Center, ME	Magnitude 4.7 - In Jackson, buildings shook for 10-30 seconds, but no damage was reported. Due to call volume, the telecommunication systems in Jackson and other parts of the State were disrupted.	
Earthquake	February 15, 2018	East Kingston, NH	Magnitude 2.7	
Earthquake	February 4, 2022	Gorham, NH	Magnitude 2.9	
Earthquake	April 25, 2023	Center Sandwich	Magnitude 2.9	
Earthquake	January 28, 2025	Portsmouth, NH	Magnitude 3.8	

Type of Event	Date of Event	Location	Description	Source
<p><b>F. Drought:</b> Drought is generally less damaging or disruptive than floods and other hazards and is more challenging to define. A drought is a natural hazard that evolves over months or even years and can last as long as several years to as short as a few months. According to the NH State Hazard Mitigation Plan, New Hampshire has a low probability, severity, and overall risk for drought. Droughts have the potential to impact the Community townwide. Since the summer of 2022, no significant droughts have occurred in Jackson.</p>				
<p><b>A summary of drought in the State and region</b></p>				
Drought	1775, 1840, 1882, 1910's, 1929-1936, 1939-1944, 1947-1950, 1960-1969, 1999; 2001-2002, 2016-2017, 2020-2021, 2022		Occurrences of severe droughts in recorded New Hampshire history.	State of NH Multi-Hazard Mitigation Plan, Update 2023
<p><b>A summary of drought in the Community since 1929</b></p>				
Drought	1929-1936	Statewide	Regional	State of NH Multi-Hazard Mitigation Plan, Update 2023, 2019 HMPT & 2025 HMPT
Drought	1939-1944	Statewide	Severe in the southeast and moderate elsewhere	
Drought	1947-1950	Statewide	Moderate	
Drought	1960-1969	Statewide	The longest recorded regional continuous spell of less-than-average precipitation	
Drought	2001-2002	Statewide	The third-worst drought on record	
Drought	2016-2017	Statewide	A declared drought for the summers of 2016 and 2017, moderating from extreme in southern New Hampshire to dry in the northern communities. The drought affected Jackson, with several wells drying up.	
Drought	2020-2021	Statewide	A declared drought for 2020-2021, with NH's north country being impacted more than the southern communities. Some residential wells dried in Jackson, and one fire pond was unusable; others were low but still usable.	
Drought	2022	Statewide	A declared drought in the summer and fall of 2022 waned as fall and winter approached and after several periods of rain. This drought moderated from south to north. Significant drought conditions had nearly abated by January 2023. The drought affected Jackson, with a few wells drying up.	
<p><b>G. Miscellaneous Past or Potential Hazards:</b> Natural, technological, and human-caused hazards and other unusual hazardous events have been noted throughout New Hampshire and can impact the Community townwide. One concern is transporting hazardous material through communities by rail and tractor-trailer. Since spring 2024, no significant miscellaneous hazards have occurred in Jackson.</p>				
Lightning	2008-2009	Tyrol	During this time frame, two or three structure fires occurred due to lightning in Tyrol.	2019 HMPT & 2025 HMPT
Infectious Disease	January 2020-May 11, 2023	All Ten NH Counties	<b>Major Disaster Declaration, DR-4516:</b> The Federal Emergency Management Agency ("FEMA") within the US Department of Homeland Security is giving public notice of its intent to assist the State of New Hampshire, local and tribal governments, and specific private nonprofit organizations under the major disaster declaration issued by the President on April 3, 2020, as a result of the Coronavirus Disease 2019 ("COVID-19").	FEMA & 2025 HMPT
Infectious Disease	January 2020-May 11, 2023	All Ten NH Counties	<b>Emergency Declaration EM-3445:</b> Ten-county declaration to provide individual assistance and public assistance as a result of the impact of COVID-19	FEMA & 2025 HMPT
Terrorism & Violent	December 2022	Dana Place	A domestic incident involving a 21-year-old man resulted in the death of his 23-year-old partner at the Dana Place residential complex. The man was charged with murder; the trial begins in 2024.	2025 HMPT
Transportation Accident	Spring 2024	Route 16	As of 5/8/2024, four vehicles have rolled over on Route 16 on four weekends.	2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>H. Other Hazards:</b> Identified hazards with no specific example of occurrence.				
<b>Natural Hazards</b>			<p>Although the Team did not identify specific examples or past occurrences of these hazards, it felt worthwhile to list them as potential hazards to the Town. These hazards can potentially impact the Community either locally or townwide.</p> <p>See <i>Table 3.1, Hazard Threat Analysis</i>, and Chapter 5 for more details on these hazards.</p>	
Solar Storms & Space Weather				
Avalanche				
<b>Technological &amp; Human-caused Hazards</b>				
Cyber Events				
Conflagration				
Aging Infrastructure				
Mass Casualty Incidents				
Known & Emerging Contaminants				
Hazardous Materials				

Historic hazard events were derived from the following sources unless noted otherwise:

- Website for NH Disasters: <https://www.nh.gov/safety/divisions/hsem/disaster/documents/NHDisasterInfo.pdf>
- FEMA Disaster Information: <https://www.fema.gov/disaster>
- The Tornado Project: <https://www.tornadoproject.com/alltorns/nhtorn.htm>
- The Disaster Center (NH): <https://www.disastercenter.com/newhamp/tornado.html>
- United States Geological Survey (earthquakes); <https://www.usgs.gov/programs/earthquake-hazards>

**For more information on state and county-wide past events, see Major Disaster and Emergency Declarations, Appendix D, *NH Major & Emergency Declarations*.**

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## Chapter 4: Critical Infrastructure & Key Resources (CIKR)

Team discussion and brainstorming identified Critical Infrastructure & Key Resources (CIKR) within Jackson. The Hazard Risk rating was based on a scale of 1-3, with 1 indicating little or no risk.

**TABLE 4.1 - EMERGENCY RESPONSE FACILITIES (ERFs) & EVACUATION**

Emergency Response Facilities (ERFs)			
ERFs are primary facilities and resources needed during an emergency response.			
Facility	Type of Facility	Hazard Risk	
Fire Station (generator)	Fire services & primary EOC	All Hazards & Inland Flooding	1
Town Building Complex - Town Offices (generator)	Town government, records, & secondary EOC	All Hazards	1
Town Building Complex - Police (generator)	Law enforcement services	All Hazards	1
Whitney Community Center (generator)	Primary shelter	All Hazards	1
Highway Garage (generator)	Heavy equipment, sand, gravel, diesel & heli-landing zone	All Hazards	1
Jackson Public Library (generator)	Gathering of people & cooling & warming center	All Hazards	1
Siren @ Fire Station	Warning system	All Hazards	1
Memorial Hospital (North Conway)	Medical	All Hazards	1
Bartlett-Jackson Ambulance (Bartlett)	Emergency medical services	All Hazards	1
Communications Tower (Thorn Mountain) (solar)	Emergency communications & repeater	All Hazards, High Wind Events & Severe Winter Weather	3
Radio & cell towers (Black Mountain Knoll)	Communications	All Hazards, High Wind Events & Severe Winter Weather	2
Carroll County Sheriff's Office (Ossipee)	Dispatch	All Hazards	1
Evacuation Routes			
NH Route 16	Primary evacuation route	All Hazards & Inland Flooding	2
Thorn Hill Road	Primary evacuation route	All Hazards	1
Main Street	Primary evacuation route	All Hazards & Inland Flooding	2
Dundee Road	Secondary evacuation route	All Hazards & Inland Flooding	2
Bridges & Culverts on the Evacuation Routes			
Jackson Covered Bridge (Route 16B)	Bridge on an evacuation route	All Hazards	1
Route 16 at the intersection of Green Hill Road	Bridge on an evacuation route	All Hazards	1
Stone Bridge on Main Street	Bridge on an evacuation route	All Hazards & Inland Flooding	2
Bridge on Dundee Road over Great Brook	Bridge on an evacuation route	All Hazards & Inland Flooding	2
Dundee Road over Mill Brook by Crossroads	Bridge on an evacuation route	All Hazards & Inland Flooding	2

<b>Emergency Response Facilities (ERFs)</b>			
<b>ERFs are primary facilities and resources needed during an emergency response.</b>			
<b>Facility</b>	<b>Type of Facility</b>	<b>Hazard Risk</b>	
Route 16 over the Ellis	Bridge on an evacuation route	All Hazards	1
Melloon Road	Bridge on an evacuation route	All Hazards & Inland Flooding	2
<b>Helicopter Landing Zones</b>			
Highway Garage	Helicopter-landing zone	All Hazards	1
Town Park	Helicopter-landing zone	All Hazards & Inland Flooding	2
<b>Dams</b>			
Mirror Lake Dam (ML HOA)	Low-hazard	All Hazards & Inland Flooding	1
Upper Meserve Brook Dam (Jackson Water Precinct); plans to make the dam 18" taller (not sure of this yet)	Non-menace	All Hazards & Inland Flooding	1
Lower Meserve Brook Dam (Jackson Water Precinct) has been demolished	Non-menace	All Hazards & Inland Flooding	1
Trickey Brothers Dam (Jackson School District)	Non-menace	All Hazards & Inland Flooding	2
Great Brook Dam (Private)	Non-menace	All Hazards & Inland Flooding	1
Fire Pond (1) (Private)	Non-menace	All Hazards & Inland Flooding	1
Recreation Pond (Town)	Non-menace	All Hazards & Inland Flooding	1
Fire Pond (2) (Town)	Non-menace	All Hazards & Inland Flooding	1
Fire Pond (3) (Private)	Non-menace	All Hazards & Inland Flooding	1
In addition to the nine active dams listed above, the Department of Environmental Services (DES) reports five additional inactive dams classified as either exempt or not built.			

**TABLE 4.2 – NON-EMERGENCY RESPONSE FACILITIES (NERFs)**

<b>Non-Emergency Response Facilities (NERFs)</b>			
<b>NERFs are facilities that, although critical, are unnecessary for immediate emergency response efforts. NERFs would include facilities to protect public health and safety and act as backup emergency facilities when needed.</b>			
<b>Facility</b>	<b>Type of Facility</b>	<b>Hazard Risk</b>	
Jackson Library (generator)	Secondary shelter	All Hazards	1
Jackson Community Church	Potential shelter	All Hazards & Inland Flooding	2
Consolidated Substation (Thorn Hill Road)	Utilities - Telephone	All Hazards	1
NHEC Substation (Route 16)	Utilities - Electric	All Hazards	1
Public Water Pumping Site/Treatment Plant/Water Storage (Green Hill Road)	Utilities - water supply	All Hazards & Inland Flooding	3
Storage Tanks (Switchback Road)	Utilities - water supply	All Hazards	1

**TABLE 4.3 – FACILITIES & POPULATIONS TO PROTECT (FPPs)**

<b>Facilities &amp; People to Protect (FPPs)</b>			
<b>FPPs are facilities that must be protected because of their importance to the Town and residents who may need help during a hazardous event.</b>			
<b>Facility</b>	<b>Type of Facility</b>	<b>Hazard Risk</b>	
Jackson Grammar School	School	All Hazards	1
Wentworth Hall Golf Course Maintenance Shed (pesticides, fertilizers, etc.)	Hazardous material storage	All Hazards & Inland Flooding	2
Eagle Mountain Golf Course Maintenance Shed (pesticides, fertilizers, etc.)	Hazardous material storage	All Hazards	2
Eagle Mountain House	Historic (NRHP)	All Hazards	1
Jackson Falls Historic District (The Emerson Building, Old Town Hall, and Jackson Community Church)	Historic (NRHP)	All Hazards & Inland Flooding	3
Covered Bridge (Main Street over Ellis River)	Historic	All Hazards	1
The Jackson Public Library	Gathering of people	All Hazards	1

**TABLE 4.4 – POTENTIAL RESOURCES (PRs)**

<b>Potential Resources (PRs)</b>			
<b>PRs are potential resources that could be helpful for emergency response in the case of a hazardous event.</b>			
Yesterday's	Food & water	All Hazards	1
J-Town Deli	Food & water	All Hazards & Inland Flooding	2
Shannon Door	Food & water	All Hazards	1
Red Fox	Food & water	All Hazards	1
Wildcat Tavern	Lodging, food & water	All Hazards	1
Wentworth Resort	Lodging, food & water	All Hazards & Inland Flooding	2
Inn at Thorn Hill	Lodging, food & water	All Hazards	1
Eagle Mountain House	Lodging, food & water	All Hazards	1
Christmas Farm Inn Lodging	Lodging, food & water	All Hazards	1
Whitney's Inn & Shovel Handle Pub	Lodging, food & water	All Hazards	1
Highway Garage (generator)	Heavy equipment, sand, gravel, diesel & heli-landing zone	All Hazards	1
<b>Please refer to the Resource Inventory List in the Jackson Emergency Operations Plan for additional resources.</b>			

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## Chapter 5: Hazard Effects in Jackson

### A. IDENTIFYING VULNERABLE CRITICAL INFRASTRUCTURE & KEY RESOURCES (CIKR)

Identifying the Critical Infrastructure & Key Resources (CIKR) that are most likely to be damaged in inland flooding events is important, as inland flooding is the most significant hazard in New Hampshire. Identifying the CIKR with a wildfire risk is also important, as the Town is heavily forested.

#### Overall Flood Risk

Jackson’s CIKR were identified and listed in Chapter 4; each CIKR was analyzed for its flooding potential. This analysis and the GIS data to the right indicate the CIKR in the floodplain. Some of the identified CIKRs are expected to be in or near water. Others, like the Jackson Community Church, should be monitored during excessive rain and high-water events.

ALL_H	NAME	Hazmit_Type
ERFH	Helicopter Landing Zone, Town Park	Landing Zone
ERFB	Bridge-Covered-Main St over Ellis R	Bridge/Covered
ERFB	Bridge-Stone on Main St	Bridge (State)
ERFB	Bridge-State/Rt 16 over Ellis R	Bridge (State)
ERFB	Bridge-Meloon Rd/ Wildcat River	Bridge
NERF	Jackson Community Church	Religious Facility
FPP	Wentworth Hall Golf Course Mtnc Shed	Golf Course (Mtnc)
FPP	Historic Library	Library
PR	J-Town Deli, Main Street	Food & Water
PR	Thomson House Eatery	Food & Water
PR	Wentworth Resort/1 Carter Notch	Lodging

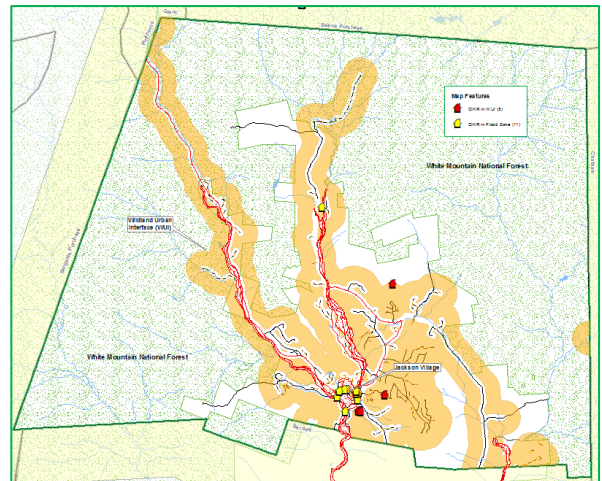
When working on Table 4.1, it is noted that the Team established a considerable list of facilities that could be susceptible to inland flooding. In addition to those shown above, the Town Park, several evacuation routes, the Fire Station, nine active dams, the public water system, and the Jackson Falls Historic District were noted as having some risk for flooding; several were identified as having a high risk. Please refer to Chapter 4, Tables 4.1-4.4 for more information.

All other CIKR are outside the flood zone; however, it is expected that there may be other structures and homes within the flood zone. Town officials should consider all at-risk properties when a flood hazard is likely.

#### Overall Wildfire Risk

CIKR falling within the Wildland Urban Interface (WUI) were reviewed using the same methodology as flooding. Identifying these facilities helped the Team create and prioritize wildfire mitigation action items.

Traditionally, the WUI is determined using GIS analysis to create a 300’ buffer from the centerline of all Class V roads and an additional 1,320’ buffer from the first buffer. The orange symbology in the map screen print to the right shows the traditional WUI in Jackson. This area is where the urban environment interfaces with the wildland environment and is the most prone to wildfire risk.



The traditional WUI was initially developed to identify human-interface areas that may exceed the typical length of fire hoses. In rural communities like Jackson, this would virtually cover the entire town. A different method to determine the WUI in suburban communities includes identifying developments, streets, roads with limited egress, a high canopy of old-growth softwoods, or older wooden structures. The Team identified several areas that would meet

the requirements of a WUI neighborhood, including Iron Mountain Road, Spring Street, Francis Avenue, and Town Hall Road. Building in the WUI has increased as more people build in secluded areas or use seasonal camps.

CIKR falling within the Wildland Urban Interface (WUI) were reviewed using the same methodology used for flooding. Identifying these facilities assists the team in creating and prioritizing wildfire mitigation action items; it is important to determine which Critical Infrastructure & Key Resources are most vulnerable to wildfires.

Many structures were found to be in the traditional WUI. However, using GIS analysis, only five CIKR were found in the WUI. These are the Jackson Highway Garage, the Highway Garage Parking Lot, the FM Communications Tower, the Storage Tanks on Switchback Road, and the Salt Shed at the Highway Garage. Each facility has ample defensible space and is unlikely to be impacted by wildfire. Red houses indicate CIKR in the WUI on the map on the previous page.

The rest of the Town’s Critical Infrastructure & Key Resources were found to be within the 300-foot WUI buffer, therefore accessible by fire apparatus and hoses. However, as stated elsewhere in this plan, the entire Town of Jackson, including many structures, is thought to be in the WUI because it is so heavily forested. Therefore, all structures in the Town can be assumed to be in the WUI.

No CIKR at high risk for wildfires were identified in Tables 4.1-4.4. However, as suggested above, many structures in Jackson are expected to be prone to wildfires, particularly in neighborhoods with limited egress and a canopy of old-growth trees or where forests surround structures. Because Jackson is so forested, it can be assumed that nearly every structure in town is within the Wildland Urban Interface. Mitigation strategies were discussed to protect structures and educate the citizens about the wildfire risk.

**Table 3.1, The Hazard Identification & Risk Assessment, is used to evaluate the probability and the potential impact of all hazards.**

**B. CALCULATING THE POTENTIAL LOSS**

It is difficult to ascertain the dollar amount of damage caused by hazards because the damage will depend on the hazard’s extent and severity, making each hazard event somewhat unique. Therefore, we have assumed that hazards could damage 0-1% or 1-5% of the Town’s structures. Structure damage depends on the nature of the hazard and whether the impact is localized.

2024 MS-1 Assessed Value of All Structures			
Building types	Value	1% Damage	5% Damage
<i>Residential</i>	\$529,976,500	\$5,299,765	\$26,498,825
<i>Manufactured Housing</i>	\$152,800	\$1,528	\$7,640
<i>Commercial</i>	\$51,140,900	\$511,409	\$2,557,045
<i>*DPE</i>	\$0	\$0	\$0
<i>Tax Exempt</i>	\$6,946,300	\$69,463	\$347,315
<i>Utilities</i>	\$7,269,400	\$72,694	\$363,470
<i>Totals</i>	\$595,485,900	\$5,954,859	\$29,774,295
<small>*DPE: Discretionary Preservation Easement; data provided by the Town</small>			

This Plan assumes that the potential loss from the identified natural hazards would range from **\$0 to \$5,954,859** or **\$5,954,859 to \$29,774,295**, based on the 2024 MS1 total structure value of **\$595,485,900**. (See chart above)

Human loss of life was not included in the potential loss estimates but could be expected to occur depending on the hazard’s severity and type. Although descriptions are given for technological and human-caused hazards, no potential loss estimates for these hazards are provided in this Plan.

**C. NATURAL HAZARDS**

The descriptions below represent the **local impact** on the Community of the hazards identified by the Team. The **extent** of these hazards is shown in *Appendix C, The Extent of Hazards*. Charts such as the Saffir-Simpson Hurricane Wind Scale, the Beaufort Wind Scale, the National Weather Service Heat Index, the Sperry-Piltz Ice Accumulation Index, and the Enhanced Fujita Scale for tornadoes are included in Appendix C.

The “Hazard Identification & Risk Assessment (HIRA)” and the “Probability” noted for each hazard below are taken from the analysis done in Table 3.1, *Hazard Identification & Risk Assessment (HIRA)*. The numbers preceding the hazard name in this section correspond to Table 3.1 and are ordered by “Relative Threat”. The estimated loss is determined using the methodology and table, as explained in Section B of this chapter.

**1) SEVERE WINTER WEATHER**

Hazard Identification & Risk Assessment (HIRA) .....	Very High
Probability .....	Very High
Estimated Structure Loss Value .....	\$5,954,859 to \$29,774,295

***Snowstorms, Blizzards & Nor’easters***

Heavy snowstorms typically occur from December through April. New England usually experiences at least one or two heavy snowstorms with varying severity each year. The effects of past winter storms felt in Jackson are power outages, extreme cold, and impacts on infrastructure. These impacts are a risk to the Community, including isolation, especially to senior citizens (24.1%) and other vulnerable populations. In addition, the ability to get in and out of town and emergency service access can be hindered.

Damage caused by severe winter snowstorms varies according to wind velocity, snow accumulation, duration, and moisture content. Seasonal accumulation can also be as significant as an individual snowstorm. Heavy overall winter accumulations can impact the roof load of some buildings. Significant snowstorms, nor’easters, and blizzards could diminish food supplies within two days.

Although the declared storms in December 2022 and December 2023 were considered Inland Flooding events, these winter storms impacted Jackson. In both of these storms, not only did flooding occur, but high winds brought down power lines and trees. Rain was a more significant problem than snow accumulation. See Table 3.2 and Inland Flooding in this Chapter.

The Team reported a March 2021 event that brought heavy snow accumulation, extreme cold, and high winds to the Town. Trees and power lines were impacted, particularly on Carter Notch Road. Another winter storm, DR-4799, occurred on April 4, 2024. This storm brought heavy, wet snow and high winds to Jackson; the Highway Department handled the snow accumulation.

As shown in Table 3.2, other snowstorms and nor’easters have struck Jackson in the past, but the Highway Department could keep up with the accumulation. Although Jackson’s Highway Department handles usual snow amounts without difficulty, Jackson’s roads are often impacted by poor weather conditions. Travel can be difficult with heavy traffic, particularly on Routes 16, 16A, 16B, Dundee Road, and Thorn Hill Road. Fortunately, some of these roads are the State’s responsibility.

**Ice Storms**



Ice storms are more concerning than 2-4' snowstorms, though the probability of a significant ice storm is lower than a significant snowstorm. An ice storm can inflict several million dollars of damage on forests and structures. Unlike typical snowstorms, which are generally handled well by the Highway Department, ice storms present significant problems. Downed power lines and fallen trees make it difficult for the highway crew and emergency responders. School buses are also at risk.

The 1998 ice storm (Major Disaster Declaration: DR-1199) was disastrous in Jackson, particularly in the Tyrol area of the Town. Most devastation occurred at elevations of 700' or more; hardwood forests above 300' were also significantly damaged. Parts of the Community lost power for up to two weeks, and the Emergency Operations Center had intermittent power losses for four days. School was out for several days, and with trees and power lines down on roads, some areas of the Town were inaccessible.

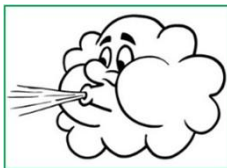
The 2008 ice storm was considered one of the worst ice storms in New Hampshire's history (Major Disaster Declaration: DR-1812) in much of the state, but fortunately, in Jackson, this storm was not as significant as the 1998 ice storm. The 2008 storm again impacted higher elevations. The Town experienced extended power outages and fallen trees, resulting in power outages for up to seven days. Trees and power lines in the roadways created closures; a few minor vehicular accidents occurred due to steep, icy roads. The Town's EMD opened the EOC.

Since the last hazard mitigation plan, Jackson has had no damaging or debilitating winter storm events. However, due to the widespread nature of severe winter weather, particularly from ice storms, the potential loss value is estimated to be between 1% and 5% of the total assessed value of all structures in town.

**2) HIGH WIND EVENTS**

Hazard Identification & Risk Assessment (HIRA) .....	Very High
Probability .....	Very High
Estimated Structure Loss Value .....	\$5,954,859 to \$29,774,295

**Isolated High Wind Events**



Isolated high winds and downdrafts are likely to occur in Jackson. These unpredictable wind events could fall timber, block roadways, down power lines, and impair emergency response. These unexpected windstorms affect old-growth softwood, especially when the water table is high in the spring. Most of the land cover in Jackson is forested.

The Team noted that high winds often occur in Jackson due to its location within the high peaks of the White Mountains. However, the Team also noted that the power companies have recently increased their trimming efforts. The Highway Department and the power companies have repeatedly removed downed trees. High wind events have been reported since the last hazard mitigation plan during declared inland flooding events. See Table 3.2 for more information and the Inland Flooding section of this Chapter.

**Tornadoes & Downbursts (microbursts & macrobursts)**

The most significant difference between tornadoes and downbursts, also known as microbursts and macrobursts, is the size and direction from which the wind comes; all winds of these types can cause significant damage.

A tornado generally covers a large area, perhaps even several miles. Its winds blow circularly, leaving behind downed trees in a swirling pattern. Straight-line winds and winds that burst downward indicate a microburst; the fallen trees left behind lay in roughly the same direction. A microburst must be 2.5 miles in width or less, whereas a macroburst is a similar wind event more than 2.5 miles wide and lasting longer than a microburst.

Microbursts are becoming more frequent and often result in damage. Like high winds, the effects would be primarily power outages and blowdowns; however, if a tornado, microburst, or macroburst were severe enough, property damage could also occur. In Jackson, a microburst would be more likely than a tornado. Since the previous hazard mitigation plan, Jackson has had no reports of downbursts or tornadoes.

Although downbursts are becoming more common, damaging high wind events are rare natural hazards in New Hampshire. Damage from high wind events largely depends on where the hazard strikes. If a high wind event strikes a densely populated or commercial area, the impact could be significant, resulting in personal injury, property damage, and economic hardship. Based on the potential devastation from tornadoes, macrobursts, or microbursts, the potential loss value was estimated to be between 0% and 1% of the total structure value.

**3) INLAND FLOODING**

Hazard Identification & Risk Assessment (HIRA) .....	Very High
Probability .....	Very High
Estimated Structure Loss Value .....	\$5,954,859 to \$29,774,295

**100-Year Flood Events, Riverine Flooding & Local Road Flooding**



Riverine flooding and 100-year flood events can occur due to hurricanes, tropical and post-tropical cyclones, and heavy summer and fall rains. Local road flooding is often the result of rapid snowmelt and heavy spring or autumn rain events. Heavy rain from tropical downpours, hurricanes, severe thunderstorms, and rapid snowmelt often cause culverts to be overwhelmed and roads to wash out. If conducted improperly, timber harvesting, undersized or aging culverts, and inadequate ditching are possible causes of local road flooding.

In Jackson, nearly every spring, rapid snowmelt, and heavy rain cause the flooding of the Ellis River, which meets several smaller brooks and streams in the heart of Jackson Village. Meserve Brook, Miles Brook, Marsh Brook, Spruce Brook, and Great Brook tributaries are among these brooks and streams that flow into the Ellis River. The Team also reported that ice jam flooding has occurred several times. During one ice jam event on the Ellis River, the ballfield in Jackson Village flooded to a level higher than during Tropical Storm Irene.

Jackson is the 14th largest town in New Hampshire by area. Despite having relatively few roads, these roads are long, winding, and often exposed to severe weather conditions. Due to continuous erosion, the Highway Department faces a significant challenge in maintaining these roads. The department is responsible for 20.50 miles of Class V roads within the community, consisting of 17.08 miles of paved roads and 3.42 miles of gravel roads. Fortunately, the State maintains the major thoroughfares in the Town, including NH Route 16 and Routes 16A and 16B.

Jackson has been very proactive in the maintenance and repairs of the 242 culverts and ditches in Town to reduce the incidence of local road erosion and washouts and has made considerable repairs since Tropical Storm Irene. Except for the undersized culvert on Sugar Hill Lane, Jackson’s roads are in excellent condition to handle excessive rain amounts and potential flooding.

Table 3.2 provides details of inland flooding events that have occurred since the last hazard mitigation plan. These events include road washouts in Pinkham Notch in 2020, heavy rain, tree damage, and power losses in December 2022, significant roadside washouts in May 2023, power outages and flooded roadways in December 2023, and a heavy rainstorm that flooded the ballpark in May 2024.

While staying within its budget, the Highway Department has been proactive in the maintenance and repairs of culverts, reducing the incidence of local road erosion and washouts. To further improve stormwater flow in the Community, culvert improvement projects are included in *Table 9.1, The Mitigation Action Plan*.

The expected loss value from inland flooding would be based on the cost of repairing roadways and the potential cost of damage to structures. Flooding can be severe enough to take out utilities and create areas of Town that become inaccessible to emergency responders. The economic impact on the Community, the loss of accessibility, and the time and cost of road repair also factor into the estimated loss value. Therefore, the estimated loss value was determined to be between 1% and 5% of the total structure value.

**4) EXTREME TEMPERATURES**

Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	High
Estimated Structure Loss Value .....	Not estimated

***Extreme Cold & Heat***

Winter temperatures in Jackson can fall below -30°F, and summer temperatures, laden with high humidity, can soar to nearly 100°F. There was more concern about cold temperatures in the past, but with improved heating systems and local communications, most New Hampshire residents can cope with extreme cold. Many New Hampshire residents have also equipped their homes with generators and woodstoves. Many cities and towns offer warming centers or have established a functional needs list to check vulnerable citizens.

More concerning today is extreme heat conditions, which seem to be more likely with climate change; temperatures above 95° for a week or more can impact the elderly and other vulnerable populations. Few residents, particularly vulnerable populations, have air conditioners and are less able to cope with extreme heat. The estimated senior population in Jackson is 24.1%, and the estimated poverty rate is 9.7% of the total population<sup>18</sup>. Since the prior hazard mitigation plan, no deaths or illnesses due to cold or heat have been reported in Jackson.

***Extreme Temperatures combined with Long-Term Utility Outage***

Town officials are concerned during extreme temperatures; they look after their citizens to ensure that extreme temperatures do not create a life or property-threatening disaster. When combined with power failure, extreme temperatures are of the most concern; power failure could result in no water, heat, or air conditioning for the Town’s

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<sup>18</sup> American Community Survey, 2022 ACS 5-Year Estimate

most vulnerable populations. In Jackson, residents are advised to use the Whitney Center, the Library, the Town Offices, or the Fire Station for cooling and warming centers. All of these facilities have backup power.

The cost of extreme temperatures is difficult to calculate as it is not based on the loss of structures. The expected loss value would be primarily on the economic impact on the Community and the time and cost of emergency response. The structure loss value due to extreme temperatures was not estimated based on the assumption that damage would not occur to structures.

**5) INFECTIOUS DISEASE**

Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	Low
Estimated Structure Loss Value .....	Not estimated

*“Infectious diseases are disorders caused by organisms — such as bacteria, viruses, fungi or parasites. Many organisms live in and on our bodies. They’re normally harmless or even helpful, but under certain conditions, some organisms may cause disease.*

*Some infectious diseases can be passed from person to person. Some are transmitted by bites from insects or animals. And others are acquired by ingesting contaminated food or water or being exposed to organisms in the environment.”<sup>19</sup>*

Infectious diseases and epidemics, or pandemics, present a possible threat to Jackson. Jackson is susceptible to an epidemic and subsequent quarantine with worldwide pandemics such as COVID-19, Lyme Disease, SARS, the Zika Virus, H1N1, the Avian Flu, and even the common seasonal flu virus. The United States and the world have been coping with the COVID-19 pandemic for nearly five years. All non-essential businesses and schools throughout New Hampshire and most of the United States were closed during the pandemic's early months in the spring of 2020.



Jackson’s unique geography provides hikers and summer and winter recreation enthusiasts opportunities to visit the Town; the Community’s population significantly increases during both summer and winter. Facilities in Jackson hold events and activities that could increase the likelihood of spreading infectious diseases. Students in grades 7-12 attend school in Bartlett and Conway, along with students from multiple surrounding towns. Churches, meeting houses, and social facilities also invite infectious disease outbreaks. Interactions between students and out-of-town sports teams and clubs can also bring infectious diseases.

With assistance from public health networks, town officials did their best to mitigate the onset of COVID-19 in Jackson. To help mitigate the crisis, the Town Offices remained open with mitigation measures in place. Initially, the schools went virtual. The Town continues to encourage social distancing and protecting the Town’s most vulnerable citizens. There are no senior group housing facilities in Jackson.

<sup>19</sup> Infectious diseases, Overview, <https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173>

The CDC recommends that persons, particularly those who are medically compromised or over 65, receive the newest booster shot, which became available in September 2024. Recommendations for children are similar. In coordination with Bartlett-Jackson Ambulance Service, Jackson’s EMD and other town officials plan extensively to prepare for and respond to infectious diseases. The Team felt that an epidemic or pandemic, like COVID-19, would continue to threaten the Community’s citizens. However, because there would be no direct impact on the Town structures, the structure loss value was not estimated.

**6) LIGHTNING**

Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	Low
Estimated Structure Loss Value .....	\$0 to \$5,954,859

Lightning strikes have occurred in Jackson due to severe summer storms. Some of the Town’s structures are older and historic buildings, as detailed in Table 4.3. Forests surround other vulnerable structures. Dry timber on the forest floor, some of which remains from past ice or windstorms, along with the age of many buildings and outbuildings combined with lightning strikes, can pose a significant disaster threat. Lightning could damage specific structures, but the direct damage would not be widespread. Jackson is home to two golf courses, and although these present a lightning risk, no injuries have been reported.

Although lightning is a potential problem, the Town reports few occurrences, none of which were significant.

It was noted that severe thunder and lightning storms have been happening more often in recent years, perhaps due to climate change. Also concerning are the heavy rains that thunderstorms can produce and the subsequent erosion of ditches and roadways.

Based on the localized nature of lightning strikes, the potential loss value was determined to be between 0% and 1% of the total assessed structure value.

**7) WILDFIRE**

Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	Low
Estimated Structure Loss Value .....	\$5,954,859 to \$29,774,295

There are two potential losses with wildfire: the loss of forest land and the threat to the built-up human environment and structures within the Wildland Urban Interface (WUI). In many cases, the only time it is feasible for a community to control a forest fire is when the built-up human environment is threatened.

Any wildfire discussion must include a Wildland Urban Interface (WUI) discussion. The WUI can be determined in various ways; however, it represents the area where the forest and human habitation intersect. At times, the WUI is defined as the area out of reach of available fire hoses and water resources, while other times, it is determined to be areas with substantial tree cover and limited egress. For many New Hampshire communities, entire towns are thought to be in the WUI because of the abundance of hardwood and softwood trees. In more populated areas, the WUI is often determined to be in densely populated neighborhoods where a towering canopy of old-growth trees and limited access make people and structures more vulnerable. All structures within the WUI are assumed to be at some level of risk and, therefore, vulnerable to wildfire. See Section A in this chapter for more discussion on the WUI in Jackson.

The Team described the forests of Jackson as consisting primarily of mixed forests. Some fires are “duff” fires, the burning of “the layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.”<sup>20</sup> However, with climate change, drought no longer has a low probability in New Hampshire, and more fires are likely to be surface fires. Burn permits are required in Jackson, as they are throughout the State, but often, burning occurs without the proper permits. Sometimes, it is difficult for the fire department to monitor all conditions, and the occasional unauthorized burn will occur.

Due to the abundance of slash on the forest floor left by past ice storms and blowdowns, and the mixture of hardwood and softwood trees throughout the Community, there is potential for fast-burning fuels, and a wildfire could potentially occur. Also, outdoor enthusiasts' recreational use of woods trails creates additional risks, and more people are building in remote areas of the Town or turning seasonal camps into permanent residences, thus increasing the Wildland Urban Interface.

To help mitigate the effects of wildfire, the Jackson Fire Department strives to improve and maintain firefighting equipment and water resources and manages a variable Capital Reserve Fund to help pay costs for a new engine, a new fire station, and other necessary equipment. The 2023 Annual Report for the Jackson Fire Department reports 153 calls for service in 2023; this included one structure fire in the Town, ten mutual aid responses, and zero forest fires.<sup>21</sup> Jackson has had no significant wildfires since the last hazard mitigation plan.

Significant wildfires in New Hampshire are uncommon; six large fires have occurred in the State since 2015. These include the Bayle Mountain Fire in Ossipee, the Stoddard Fire in Stoddard, the Covered Bridge Fire in Albany, the Dilly Cliff Fire in Woodstock, the Centennial Fire in Shelburne, and the Bemis Fire in Crawford Notch. The Jackson Fire Department was called to assist in the Bayle Mountain and Bemis Fires.

Given the right conditions - drought, lightning, human interface - the potential for a significant wildfire is high. The impact of climate change on drought could also play a role in predicting wildfires. Therefore, the potential loss value was estimated to be between 1% and 5% of the total assessed structure value.

**8) TROPICAL/POST TROPICAL CYCLONES**

Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	Low
Estimated Structure Loss Value .....	\$0 to \$5,954,859



Damaging winds due to tropical and post-tropical cyclones (hurricanes) are considered a medium risk, primarily because of Jackson's abundance of forested land. Significant forest damage could occur, like during the 1938 hurricane. Although tropical and post-tropical cyclones could fit into several categories (wind and flooding), the Team considered tropical and post-tropical cyclones separate events. Tropical and post-tropical cyclones are rare in New Hampshire but should be considered potential hazards. In most cases, tropical cyclones have been downgraded to post-tropical cyclones when they reach northern New Hampshire.

<sup>20</sup> [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fswdev3\\_009827.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fswdev3_009827.pdf)

<sup>21</sup> Jackson 2023 Annual Report, Jackson Fire Department, page 60-62

Tropical Storm Irene in August 2011, the remnants of Hurricane Irene, brought heavy rain and flooding to Jackson. Several trees were downed, as were some power lines. For most in Jackson, there was a brief loss of power; however, some residents experienced power outages for three to four days. As a result of the extraordinary volume of rainfall that fell over the peaks of the White Mountains, rivers and streams throughout Jackson overflowed their banks, causing significant damage to roadways and bridges, particularly to Melloon Bridge Road. The ballfield and golf course experienced flooding. In addition, trees were down, some roads were closed, and some streets within the Village were impassable. As experienced in other New Hampshire communities, the rivers of Jackson ferociously flowed down mountain streams, causing damage along the way before dissipating quickly when the rain stopped. Tropical Storm Sandy had little impact in Jackson, except for heavy rain. Since the prior hazard mitigation plan, no tropical or post-tropical cyclones have reached Jackson. The last tropical storm to impact the State was Sandy in 2012.

The probability that a tropical and post-tropical cyclone would remain a Category 1 or higher in this part of the State is low. Therefore, the potential loss value due to tropical and post-tropical cyclones was determined to be between 0% and 1% of the total assessed structure value.

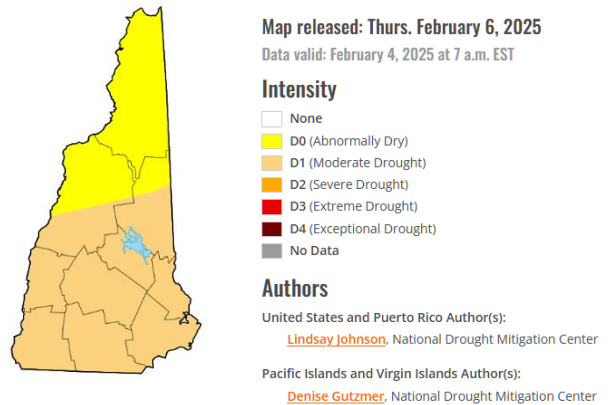
**9) DROUGHT**

Hazard Identification & Risk Assessment (HIRA) ..... Very Low  
 Probability ..... Low  
 Estimated Structure Loss Value ..... \$0 to \$5,954,859

A drought, an extended period without precipitation, could elevate the risk of wildfire and blowdowns in the Community's forested areas. With an extreme drought, the water supply and aquifer levels could be threatened. According to the NH Department of Environmental Services (DES), drought is not rare in New Hampshire. DES states, *"In actuality, New Hampshire experiences drought quite frequently. For example, between the years 2000 and 2020, drought conditions occurred within 11 of those 20 years."*<sup>22</sup>

A concern is that more frequent and longer-lasting droughts will occur with climate change. In addition, drought conditions damage the local forests and farms and increase the risk of wildfire. Besides being heavily forested, Jackson has few open fields; however, it is not a predominately agricultural community.

Only four significant droughts occurred before 2000, while three have occurred, as noted above, in just nine years (2016, 2020, and 2022). The 2016-2017 drought brought extreme drought conditions in the south and dry or no drought conditions in the north. The 2020-2021 drought was less significant than the 2016 drought in southern NH but more significant in the north. During the summer of 2022, yet another drought impacted NH. Once again, this drought was more significant in the southern part of the State; it was over by January 2023. As of February 4, 2025, the northern part of New Hampshire has abnormally dry drought conditions, while the southern half is in moderate drought.<sup>23</sup>



<sup>22</sup> <https://www.des.nh.gov/climate-and-sustainability/>

<sup>23</sup> <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NH>

During the 2016 drought, the Team reported the loss of a few dug wells and springs, with some residents turning to artesian wells. During the 2020-21 drought, some residential wells were again impacted, one fire pond was unusable, and other water resources were low but not drastic. The 2022 drought had less effect on Jackson than the 2016 or 2020 droughts.

The cost of future droughts is challenging to calculate, as any cost would likely result from associated fire risk, crop loss, and diminished water supply. Based on these assumptions, the structure loss value was not estimated.

**10) EARTHQUAKE**

Hazard Identification & Risk Assessment (HIRA) .....	Very Low
Probability .....	Very Low
Estimated Structure Loss Value .....	\$5,954,859 to \$29,774,295

Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric, and phone lines, and are often associated with landslides and flash floods. Since 1940, only two earthquakes with a magnitude greater than 5.0 have occurred in New Hampshire; both earthquakes occurred in Tamworth in December of 1940 (5.5-5.8). Since then, only one earthquake with a magnitude greater than 4.0 has occurred in the State; it occurred in Sanbornton on January 19, 1982.

Many New Hampshire residents felt the most recent large earthquake in October 2012, with its epicenter in Hollis Center, ME. The Team noted that the Hollis earthquake was felt in Jackson, but no damage occurred. A more recent earthquake on January 28, 2025, with a magnitude of 3.8, occurred off the coast of Portsmouth in southern New Hampshire. The Portsmouth quake was felt in Jackson and through much of the State, but no damage occurred. The Portsmouth quake was larger than the many small earthquakes frequently occurring in New Hampshire.<sup>24</sup> (See Table 3.2 for more information on earthquakes)

It is well documented that fault lines run throughout the State, but high-magnitude earthquakes have not been common in New Hampshire's history. Although historically, earthquakes have been rare, the potential exists, and depending on the location, the impact could be significant. Therefore, the potential structure loss value due to earthquakes was determined to be between 1% and 5% of the total assessed structure value.

**11) SOLAR STORMS & SPACE WEATHER**

Hazard Identification & Risk Assessment (HIRA) .....	Very Low
Probability .....	Very Low
Estimated Structure Loss Value .....	Not estimated

*“Space weather describes the “dynamic conditions in the Earth’s outer space environment, in the same way that “weather” and” climate” refer to conditions in Earth’s lower atmosphere. Space weather includes any and all conditions and events on the sun, in the solar wind, in near-Earth space, and in our upper atmosphere that can affect space-borne and ground-based technological systems and through these, human life and endeavor. Heliophysics is the science of space weather.”<sup>25</sup>*

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<sup>24</sup> United States Geological Survey (USGS), Earthquake Hazards Program (<https://www.usgs.gov/programs/earthquake-hazards>)

<sup>25</sup>NASA, <https://science.nasa.gov/science-research/heliophysics/space-weather/solar-flares/what-is-a-solar-flare#q2>

Solar storms and space weather are direct products of activity on the surface, or corona, of the Sun. As the Sun continuously changes, its wind blows charged particles in every direction, including the direction of Earth. When sudden amounts of stored magnetic energy and ions are discharged from the Sun’s surface, solar flares, high-speed solar wind streams, solar energetic particles, and coronal mass ejections (CMEs) are possible. This magnetic energy sometimes finds its way to Earth by following the Sun’s magnetic field. Then, upon collision with the Earth’s magnetic field, these charged particles enter the Earth’s upper atmosphere, causing Auroras.

These particles can also produce their own magnetic field, disrupting navigation and communication systems and GPS satellites and potentially producing Geomagnetic Induced Currents (GICs), affecting the power grid and pipelines. An electromagnetic surge from a solar storm has the potential to produce an Electromagnetic Pulse (EMP). An EMP could cause significant damage to critical infrastructures such as nuclear power plants, banking systems, the electrical grid, sewage treatment facilities, cell phones, landlines, and even vehicles.

The Team felt that recognizing Solar Storms and Space Weather was necessary for this hazard mitigation plan. However, they also understand that the Town cannot truly mitigate this hazard; continued education and monitoring of such events is the most they can do.

**12) AVALANCHE**

Hazard Identification & Risk Assessment (HIRA) ..... Very Low  
Probability ..... Very Low  
Estimated Structure Loss Value ..... \$0 to \$5,954,859

The Team felt snow avalanches should be listed because of the potential for heavy snowfall and the terrain's steepness within the White Mountain National Forest. However, most areas where an avalanche is possible are remote and within forested lands; these remote areas in Jackson include the mountains in Pinkham Notch and around Mount Washington.

The impact on human life, property, or business would be minimal; only a unique combination of factors could create an avalanche, and no impact would be felt in or near Jackson Village. The potential loss value was between 0% and 1% due to the expected minimal effect.

**D. TECHNOLOGICAL & HUMAN-CAUSED HAZARDS**

The following hazards were also considered while developing this hazard mitigation plan. Though these hazards are not analyzed in more detail as part of this Plan, they are worth mentioning as real and possible hazards that could occur in Jackson. The estimated structure loss was not determined for these hazards.

**1) LONG-TERM UTILITY OUTAGE**

Hazard Identification & Risk Assessment (HIRA) ..... Medium  
Probability ..... High

Although rare, long-term utility outages of five or more days have occurred in Jackson due to local line damage from high winds, severe storms, and problems with the power grid. During the 1998 and 2008 ice storms, outages ranged from three to twelve days, depending on the location in town. The April 2024 storm also brought power outages, but only short-term.

A significant or extended power outage lasting more than a week could result in hardship for individual residents, particularly seniors, disabled people, or people experiencing poverty. The Team reported that long-term power outages have diminished due to utility companies' efforts to trim trees and branches near power lines. The Team also felt that many residents are self-sufficient and equipped with generators and woodstoves.

Long-term utility outage is still a concern, particularly when combined with the above natural hazards. An extended power failure's most significant impact would be the inconvenience caused by the inability to pump water for residents who rely on wells. In Jackson, approximately 20% of its residents (within the Jackson Water Precinct) have municipal water. It is also noted that many services, including pharmacies and large grocers, are located out of Town; driving during severe weather events to obtain necessities can be difficult due to poor road conditions.

As a small, close-knit community, town officials know persons who may need help in emergencies. Nonetheless, a long-term utility outage could have a significant impact.

**2) TRANSPORT ACCIDENTS**

Hazard Identification & Risk Assessment (HIRA) ..... Medium  
Probability ..... Moderate



The possibility of vehicular accidents involving hazardous materials is identified as potentially significant in Jackson. The Town's major road, NH Route 16, is known to be used by vehicles carrying hazardous materials, a common delivery route for tankers to and from the southern part of the State to the north. These roadways traverse the Jackson area, traveling through terrain with little or no population and, at other times, through more densely populated areas.

Many of Jackson's roads are narrow and winding and subject to severe winter weather; they become treacherous when affected by flooding, winter snow conditions, and ice. A major ice storm or another significant event can make egress and access difficult for individuals and first responders. All roadways in Jackson are susceptible to hazards such as road flooding and high winds, leading to downed trees in the roadways and potentially hazardous materials spills.

As mentioned above, the Town has one major road, NH Route 16. Route 16 runs north-south through the entire town and experiences heavy truck and vehicular traffic daily. Various factors could create a potential transport accident on Route 16, including wildlife in the roadway, the topography and design of the road, and weather conditions.

It is estimated that 100,000 gallons of hazardous materials per day are transported on Route 16. If a spill were to occur and impact the Ellis River, the town’s drinking water would also be affected as it is drawn from the river, and there would be a massive cleanup effort. The water supply from the Ellis River supplies the school, some businesses, hotels, and the Town's municipal buildings, including the town’s Emergency Operations Center and shelter. Also of concern could be local fuel, propane, gas, etc., deliveries within the Village and to residents’ houses.

Due to poor road design and increased traffic volume, there were four vehicular rollovers on NH Route 16 during a four-week time frame in the Spring of 2024. The serpentine section of the highway between mile markers 92 and 96 is particularly treacherous, and the speed limit is thought to be too high at 50 mph. Action Item #5 in this Plan advises the Community to lobby the state for improvements on this section of the highway and a lowering of the speed limit. In addition, one exit from Dana Place Road has a poor sight line of ongoing traffic. Fortunately, no hazardous materials transportation events have occurred since the last hazard mitigation plan.

Depending on the scope and location of a hazardous materials incident, losses could be relatively high in property and structural damage. However, the losses are expected to be localized and unlikely in densely populated areas, where the speed limit is reduced.

**3) CYBER EVENTS**

Hazard Identification & Risk Assessment (HIRA) ..... Medium  
Probability ..... Moderate

Presidential Policy Directive (PPD-41) describes a cyber incident as *“An event occurring on or conducted through a computer network that actually or imminently jeopardizes the integrity, confidentiality, or availability of computers, information or communications systems or networks, physical or virtual infrastructure controlled by computers or information systems, or information resident thereon. For purposes of this directive, a cyber incident may include vulnerability in an information system, system security procedures, internal controls, or implementation that could be exploited by a threat source.”*<sup>26</sup>

With the increased use of computers and the internet, cyber events could include targets such as banks, hospitals, schools, churches, towns, city and state government operations, emergency operations, and critical infrastructure. Cyber events have been known to occur almost anywhere, from very small towns to large facilities in New Hampshire, causing large expenditures, disruption in everyday business practices, and data loss. Several communities in New Hampshire have had their data held for ransom.

The Team reported that one incident occurred when a phone number was hacked, and an officer’s name was used in an Identity Theft. Facebook warnings and public education were done to bring knowledge to the public. The Town stores essential documents on a server at the Town Hall; the information is also stored in the “cloud”. Security on computer networks, off-site backup, and user education are vital to protecting sensitive town information and data.

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<sup>26</sup> PPD-41; <https://obamawhitehouse.archives.gov/the-press-office/2016/07/26/presidential-policy-directive-united-states-cyber-incident>

**4) CONFLAGRATION**

Hazard Identification & Risk Assessment (HIRA) ..... Low  
Probability ..... Low

A conflagration is an uncontrolled burning that threatens human life, health, property, or ecology. A conflagration can be accidentally or intentionally created. The main difference between a wildfire and a conflagration is the density of the human interface at the site of the fire.

In Jackson, the risk of a sizeable uncontrolled fire threatens the entire Town because of its proximity to forested land and the developments and neighborhoods created in the Wildland Urban Interface (WUI). A conflagration would be particularly threatening in the Village of Jackson, where there is a bucolic collection of older buildings, historic sites, and inns. When combined with high winds, a sizeable uncontrolled fire could spread from building to building across the Village. Fire could easily begin as a wildfire and quickly escalate to a conflagration. Alternatively, a conflagration could ignite a major wildfire. The amount of damage from any fire depends on many factors; the location of the fire and emergency accessibility are just two of those factors.

A conflagration could result in explosions, affect the transportation infrastructure, hamper communication and power systems, shut down the numerous businesses in Jackson Village, and create a significant cultural loss. The impact on communication, power, and transportation would likely be temporary, but damage to homes and businesses could be significant.

**5) AGING INFRASTRUCTURE**

Hazard Identification & Risk Assessment (HIRA) ..... Low  
Probability ..... High

*“Infrastructure is the backbone of our community. While we don’t always acknowledge it, the condition of our infrastructure has a very real impact on our lives. We all depend on roads and bridges to get us where we are going, water infrastructure that delivers clean on-demand water, electricity to light our home and office, and schools that will facilitate a learning environment.”<sup>27</sup>*

Aging infrastructure is the continued deterioration of roads, bridges, culverts, ports, railroads, wastewater facilities, airports, dams, utilities, and public water and sewage systems. The State Multi-Hazard Mitigation Plan states that the average lifespan of a bridge is 50 years; the current average age of state-owned bridges in New Hampshire is 52-56 years.<sup>28</sup> The American Society of Civil Engineers gave NH an overall C- in its 2017 report card.<sup>29</sup>

Aging infrastructure is a concern in Jackson, as it is throughout New Hampshire and the United States. In Jackson, of particular concern is the Town’s public water supply system; the system’s backbone was created in 1982, with some parts of the system dating back to 1970. The aging system could deteriorate or create leaks or sinkholes in Town. However, the Team reported that although there are water lines to replace, the Town has been repairing the lines where possible and has completed some upgrades to the system, thus mitigating most of the leaks. Long-term plans are in place to improve the water system over time.

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<sup>27</sup> <https://www.infrastructurereportcard.org/wp-content/uploads/2016/10/2017-NH-Report-Card-hq-with-cover.pdf>  
<sup>28</sup> <https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2023/11/2023-NH-STATE-HAZARD-MITIGATION-PLAN-APPENDICES-2.pdf>, page 87  
<sup>29</sup> Ibid

Older roads and aging culverts are also part of the Town’s aging infrastructure. In addition, the plans are underway to build a new Fire Station near the current station's location.

Several mitigation action items in Table 9.1 are included in this Plan to address aging infrastructure. Among them are upgrading culverts, moving the Old Town Hall, and building a new Fire Station.

**6) MASS CASUALTY INCIDENTS**

Hazard Identification & Risk Assessment (HIRA) ..... Low  
Probability ..... Low

A Mass Casualty Incident (MCI) is defined as “any number of casualties that exceed the resources normally available from local resources”<sup>30</sup>. MCIs have been known to occur due to bus, auto, train, and aircraft accidents and incidents involving large crowds. MCIs can also result from natural hazards such as hurricanes, floods, earthquakes, and tornadoes. No MCIs have occurred since the previous hazard mitigation plan.

An MCI could happen anywhere in Jackson but is more likely on NH Route 16. Route 16 is a twisty, steep, busy road that often sees animal crossings and poor weather. With the influx of tourists both in the summer and the winter and tour bus activity, an MCI is a real possibility for the Town. Route 16 and other roads in the Community are heavily traveled year-round but are particularly dangerous during winter storms and peak fall foliage days. Busy roadways, wildlife encounters, and snow and ice can set up the conditions for an MCI. In addition, students traveling to Bartlett for middle school and Conway for high school increase the potential. Fortunately, there have been no reported MCIs since the last hazard mitigation plan.

**7) TERRORISM & VIOLENCE**

Hazard Identification & Risk Assessment (HIRA) ..... Low  
Probability ..... Low

Terrorism is feared throughout our country and the world; the disruption at soft targets is often the result of terrorist incidents. “Soft Targets and Crowded Places (ST-CPs) are locations that are easily accessible to large numbers of people and that have limited security or protective measures in place making them vulnerable to attack.”<sup>31</sup>

Jackson has several soft targets, including but not limited to the Whitney Community Center, Jackson Grammar School, the Wentworth Resort, Eagle Mountain House, the Town Offices, the Jackson Library, and the Black Mountain Ski area. Still, the potential risk from terrorism and violence is low in Jackson.

The hazard mitigation planning Team reported one well-publicized violent event in Jackson since the prior hazard mitigation plan. In December 2022, a 22-year-old man was charged with the second-degree shooting death of his domestic partner at the Dana Place Apartments. This event was a shock to this small, close-knit community and a reminder of another event at the same establishment (then the Dana Place Inn) when the owners were murdered in 1985.

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<sup>30</sup> DeValle Institute Learning Center; <https://delvalle.bphc.org/mod/wiki/view.php?pageid=89>  
<sup>31</sup>Homeland Security [Soft Targets and Crowded Places](https://www.cisa.gov/sites/default/files/publications/DHS-Soft-Target-Crowded-Place-Security-Plan-Overview-052018-508_0.pdf), [https://www.cisa.gov/sites/default/files/publications/DHS-Soft-Target-Crowded-Place-Security-Plan-Overview-052018-508\\_0.pdf](https://www.cisa.gov/sites/default/files/publications/DHS-Soft-Target-Crowded-Place-Security-Plan-Overview-052018-508_0.pdf)

Highways could also be targets; any closure of NH Route 16 in Jackson would cause statewide disruptions in the transportation system. Disruption of this significant route could affect Jackson's businesses and the local economy.

As with many small towns, the terrorism threat is minimal; if a terrorist incident were to occur, it would most likely be a homegrown terrorist event.

**8) KNOWN & EMERGING CONTAMINANTS**

Hazard Identification & Risk Assessment (HIRA) ..... Low  
Probability ..... Low

Known contaminants in drinking water occur naturally or when introduced by humans. Damage to the environment, the local flora and fauna, a reduction in land values, restrictions on public water sources, and an increase in short and long-term health issues are just some of the impacts of contaminants. There may also be a need for more robust water treatment equipment. Naturally occurring contaminants could include trace elements such as arsenic, lead, manganese, and uranium. The most concerning of these to private well water is arsenic; arsenic is naturally occurring and common in groundwater. Hazardous material spills and other accidental introductions of chemicals into the ground and surface water can affect the safety of public and private water supplies; as noted above, a hazardous materials spill at or near the Ellis River could impact the public drinking water in Jackson Village.

Human-made contaminants generally include pesticides and metals impacting groundwater or surface water. Emerging contaminants, such as poly or perfluoroalkyl substances (PFAs), have also been found in ground and surface water in New Hampshire; additional emerging contaminants, such as Methyl Tertiary Butyl Ether (MtBE), have also been found. Increased public awareness and testing of PFAs and MtBEs help counteract emerging contaminants' effects.

In Jackson, PFA contamination has been detected in commercial wells in the area; large carbon filters are being used in collaboration with the State to address the issue. An old landfill closed 30 years ago showed PFAS in two test wells. The landfill and a nearby well are currently being monitored and tested.

Although municipal water is available in the Jackson Water Precinct (Jackson Village), most of Jackson's residents rely on private well water; thus, radon, iron, and arsenic contamination in the aquifer may be a concern. Town officials should encourage testing by individual homeowners for known and emerging contaminants.

**9) HAZARDOUS MATERIALS**

Hazard Identification & Risk Assessment (HIRA) ..... Low  
Probability ..... Low

Hazardous material in fixed locations is a concern in many New Hampshire communities, and Jackson. Manufacturers, gas stations, fuel depots, small businesses, and even homes can have hazardous chemicals, explosive materials, or poisons on site. Breaches in the storage, use, production, or disposal can affect the groundwater, aquifers, water supply, soil, and the air we breathe.

Jackson has several areas noted as susceptible to damage from a fixed hazardous material event, although there are no large fuel depots or factories that would be at risk. Otherwise, the concern is at the Wentworth Resort's golf course (chemicals), the telephone company substation, and other small facilities within the Community. Jackson is relatively safe from a hazardous materials incident, with only four or five Tier II properties. The Team did not report

any hazardous materials leaks, spills, or explosions since the previous hazard mitigation plan.

Residents on private property may also store hazardous materials; to help its residents, the Town participates in collecting household hazardous waste, such as batteries and some paint types.

If hazardous materials ignited, entire buildings could be susceptible to explosion and fire. The resulting losses could be substantial in terms of structure loss and loss of business revenue for local merchants.

## Chapter 6: Current Plans, Policies, and Mutual Aid

### A. ANALYSIS OF THE EFFECTIVENESS OF CURRENT PROGRAMS

After researching historic hazards, identifying CIKR, and determining potential hazards, the Team determined what was already being done to protect its citizens and structures. Once identified, the Team addressed each policy or plan to determine its effectiveness and whether improvements were needed. This analysis became one of the tools the Team used to identify mitigation action items for this Plan.

Creating new action items was less challenging, knowing what regulations were already in place. In addition, this process helped identify current plans and policies that are working well and those that should be addressed as a new action item and the responsible departments. The following table, *Table 6.1, Policies, Plans & Mutual Aid*, shows the analysis resulting from the Team's discussion.

Existing policies, plans and mutual aid that were designated as "Improvements Needed" were added to **Table 9.1, Mitigation Action Items** as new strategies and were reprioritized to meet the current needs of the Town.

**TABLE 6.1: CAPABILITIES ASSESSMENT**

KEY TO EFFECTIVENESS

- Excellent**..... The existing program works as intended and is exceeding its goals.
- Good** ..... The existing program works as intended and meets its goals.
- Inadequate**..... The existing program does not work as intended or meet its goals.
- Poor** ..... The existing program does not work as intended, often falls short of its goals, or may present unintended consequences.

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Genasys	Genasys is a reverse calling system that uses residents' landline phone numbers. Genasys does not include cell and unlisted numbers or email addresses. The Jackson School District uses School Messenger, a reverse calling system for school activities and emergency notification.	Emergency Management Director	Good	<b>Improvements Needed:</b> Genasys (formerly CodeRED/NH ENS) is an excellent warning system that only stores residents' landline phone numbers. The Town provides information to residents on the reverse 911 system on the Town's website, social media platforms, and through Jackson ENews. This strategy was deferred to continue to provide public outreach to encourage residents to contact Genasys to add cell numbers, emails, and unlisted numbers and verify their information. It is also deferred for the EMD and Deputy EMD to take part in additional training to ensure they use Genasys to its full potential. <b>Action Item #9 (also in Table 7.1)</b>
E-911 Signage Compliance	E-911 signage compliance includes markers at driveway entrances that identify residence locations in conjunction with the E-911 alerting system.	Website Administrator & Fire Department	Good	<b>Improvements Needed:</b> Jackson is about 65% compliant with E911 signage. 911 signage compliance has improved since the prior hazard mitigation plan, and according to Jackson's Building Inspector, it continues to increase. The Town has made several efforts to increase compliance, including writing directly to homeowners and making signs available at the Covered Bridge Dance in July 2023. Also, additional strategies to increase compliance continue to be considered and shared on Jackson ENews, posted on the Town's website and appropriate social media, at Town Meetings, and direct outreach to the most vulnerable residents. <b>Action Item #4 (also in Table 7.1)</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Public Education & Awareness	Jackson is well situated to provide public information and outreach to its citizens.	Emergency Management Director & Other Departments	Excellent	<b>Improvements Needed:</b> An emergency web page is a great way to provide outreach to residents on emergency preparedness and hazard mitigation. Jackson has an excellent Emergency Management webpage with preparedness and mitigation-related links. The Fire Department also provides residents with important information on smoke and CO2 detectors. This strategy was deferred to continue to add robust information to the Emergency Management webpage and provide important information via Jackson ENews, Facebook, and the Town website. (see Table 2.1). <b>Action Item #8 (also in Table 7.1)</b>
National Flood Insurance Program (NFIP) & Floodplain Ordinance (part of Zoning Ordinance)	The goals of the NFIP are to protect communities from potential flood damage through floodplain management and provide people with flood insurance. A community's floodplain ordinance regulates all new and substantially improved structures located in the 100-year floodplain, as identified on the FEMA Flood Maps, which in Jackson are dated March 19, 2013.	Website Administrator & EMD	Good	<b>Improvements Needed:</b> The Town developed a flood ordinance and became a National Flood Insurance Program (NFIP) member on July 2, 1979. The Town's Flood Ordinance, part of the Zoning Ordinance, works well to successfully prohibit or force compliance with the ordinance for building and substantial improvements within the FEMA flood zone. Information about the National Flood Insurance Program is included on the Town website, at the Town Offices, and shared through ENews and appropriate social media. This strategy was deferred to continue compliance with the NFIP and to provide NFIP membership information to all members of the Community. This strategy was also deferred to provide information on flood mitigation techniques to encourage homeowner mitigation projects. Provide links to the NFIP, Ready.gov, and other pertinent websites. <b>Action Item #10 (also in Table 7.1)</b>
Tree Removal Program	Tree Removal Program reduces damage from fallen trees and limbs to power lines, stormwater ditches, and structures. It also helps reduce the wildfire risk.	Highway Department	Good	<b>Improvements Needed:</b> Brush cutting, drainage system maintenance, and tree removal are ongoing, with work done often daily based on priority. Recently, NH Electric Coop has done much work on powerline corridors. Projects are prioritized according to impact on power lines, road visibility, drainage, and the need to reduce wildfire risk. As trees become damaged and threaten structures and town roads, the Highway Department removes them. The NH Electric Coop does this for state roads as needed. This strategy was deferred to continue local tree and brush removal efforts to help mitigate the effects of high wind events, ice storms, wildfires, and other natural hazards and to share information with residents regarding the need to trim/cut back vegetation on their private driveways to allow access for emergency vehicles. <b>Action Item #1 (also in Table 7.1)</b>
Culvert & Stormwater Maintenance Plan	A Culvert & Storm Water Maintenance Plan includes an inventory of all culverts and ditches in the Community and a record of the location, size, etc. The Jackson Highway Department cleans drainage basins once a year, and after significant flooding events, culverts are repaired as needed.	Highway Department	Excellent	<b>Improvements Needed:</b> Work was completed over the Summer of 2023 on creating an inventory spreadsheet for drainage culverts and winter stormwater maintenance; this was shared with the Select Board. A maintenance plan for a specific culvert is created before major improvement is made on the road to ensure more efficient stormwater management. This strategy was deferred to maintain the culvert inventory and improve, upgrade, and maintain culverts and ditches throughout the Community. <b>Action Item #2 (also in Table 7.1)</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Master Plan (2016)	A Master Plan includes goals, objectives, and expectations for the future development of the Town.	Planning Board	Good	<b>Improvements Needed:</b> The Jackson Master Plan's most recent full update was in 2016. This strategy was deferred to update the Master Plan according to the State's 10-year recommendation and consider including a natural hazards section, a discussion on climate change, and action items from this Plan in future updates. <b>Action Item #23 (also in Table 7.1)</b>
Building Code & Permits	The Town has not adopted the International Building Codes (IBC) and International Residential Codes (IRC). However, it does require builders to follow the State-adopted codes for new construction so that national standards for flood, wind, earthquake, fire, and snow load are met.	Building Inspector	Excellent	<b>Improvements Needed:</b> The Jackson Building Inspector continues to monitor compliance with state building codes and provides education to community members as needed, especially short-term rental (STR) owners, through the STR application process. Information is posted on the building department's page on the Town website. This strategy was deferred to continue to offer public outreach on the building codes and to assess the code's effectiveness in light of recent severe storms and climate change. <b>Action Item #11 (also in Table 7.1)</b>
Jackson Hazard Mitigation Plan (2019)	A hazard mitigation plan is designed to address natural and other hazards and understand the risks these pose to the Community. A hazard mitigation plan aims to create action items that will make the Community safer by lessening or eliminating the effects of hazards.	Emergency Management Director	Excellent	<b>Improvements Needed:</b> The EMD has reviewed the action items in the prior hazard mitigation plan annually and has completed and submitted a report to the Select Board, most recently in December 2023. The Jackson Hazard Mitigation Plan (2019) is being updated with this Plan. This strategy was deferred to review this Plan, the Jackson Hazard Mitigation Plan 2025, annually and to update the Plan again in 2030. <b>Action Item #15 (also in Table 7.1)</b>
Emergency Operation Plan (2023)	An emergency operations plan identifies the response procedures and capabilities of the Town in the event of a disaster.	Emergency Management Director	Excellent	<b>Improvements Needed:</b> The Jackson Emergency Operations Plan (EOP) was last updated in 2023 to coincide with the 18-ESF State plan. Based on the State's five-year recommendation, this strategy was deferred to update the EOP again in 2028. <b>Action Item #30 (also in Table 7.1)</b>
NIMS & ICS Training	The National Incident Management System (NIMS) and the Incident Command System (ICS) provide training that can help ensure effective command, control, and communications during emergencies.	Emergency Management Director	Good	<b>Improvements Needed:</b> The Emergency Management Director (EMD) is in contact with town employees when appropriate to recommend emergency preparedness training, particularly for NIMS 700 (S-700) and ICS (ISC100 and ISC200). The EMD, the Health Officer, and the Town Administrator have received training on these specific courses. The Deputy EMD, Deputy Health Officer, and Assistant Town Administrator are expected to complete training as part of their newly filled positions. <b>Action Item #6 (also in Table 7.1)</b>
Emergency Training	Fire, Police, and EMS personnel training for all fire, law enforcement, and EMS situations.	Fire Chief, Police Chief, Bartlett-Jackson Ambulance Director & Emergency Management Director	Excellent	<b>Improvements Needed:</b> Training of all fire responders includes many aspects of emergency response, including EMS, confined space, wildfire, and HazMat training. Fire and EMS training is done locally or through Mount Washington Valley Mutual Aid, the State of New Hampshire Fire & EMS Training Facilities, the Fire Academy, or Maine Health (local hospitals). Police training includes many aspects of law enforcement response, including active shooters and terrorism. Police training is done locally or through the NH Police Academy. Although training is preparedness, not mitigation, emergency responder training was deferred to continue for the life of the Plan. <b>Action Item #7 (also in Table 7.1)</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Pressurized, Dry Hydrants & other Water Resources	Jackson Fire Department and the Water Precinct maintain pressurized and dry hydrants. The Community has approximately 27 pressurized hydrants, 3-5 dry hydrants, and multiple locations for water drafting.	Fire Department & Water Precinct	Good	<b>Improvements Needed:</b> The Jackson Water Precinct (JWP) maintains a fire inspection program that includes full hydrant inspection twice a year and flushing once yearly. The Jackson Fire Department monitors dry hydrants, ponds, and other standing water sources. This strategy was deferred to maintain, improve, and upgrade hydrants as needed to ensure water for fire suppression. <b>Action Item #3 (also in Table 6.1)</b>
Bridge Maintenance Program	There is currently one red-listed bridge in the Community. Inspection and clean-up of bridges occur annually. The State inspects all bridges every other year and maintains them regularly.	Highway Department	Excellent	<b>Improvements Needed:</b> The Jackson Highway Department has established a short and long-term bridge maintenance and replacement schedule. There is one "red-listed" bridge in the Town, the Dundee Road Bridge. This strategy was deferred to repair and replace the Dundee Road Bridge. <b>Action Item #26</b>
Capital Improvement Plan (CIP)	A Capital Improvement Plan (CIP) is a decision-making tool to plan and schedule town improvements over at least six years. A CIP provides a suggested timeline for budgeting and implementing needed capital improvements.	Planning Board	Excellent	<b>Improvements Needed:</b> The Planning Board is updating the Jackson Capital Improvement Plan. A CIP is generally reviewed to ensure the program's goals are achieved. This strategy was deferred to update the CIP and review this Plan upon its approval to incorporate actions from it. <b>Action Item #14</b>
Radio Communications	Radio communications are vital for emergency response to all types of hazards. Radios should be interoperable and up-to-date with current technology.	Fire Chief	Good	<b>Improvements Needed:</b> All three emergency departments in Jackson (Police/Fire/Highway Departments) have radio interoperability. Communications systems and radios are updated with state and federal requirements and work as intended. There are areas of the Town that have "dead spots". Mobile radios and portable radio upgrades are Jackson's greatest need. This strategy is deferred to assess radio needs and obtain upgrades as needed. <b>Action Item #21</b>
Subdivision Regulations (2024) Zoning Ordinance (2024)	The purpose of subdivision regulations is to provide for the Town's orderly present and future development by promoting public health, safety, convenience, and welfare. Zoning regulations deal with land use, including rural, residential, flood zone, agriculture, and timber management. Zoning regulations often include drainage and infrastructure provisions.	Select Board & Planning Board	Good	<b>Improvements Needed:</b> Jackson's regulations address setbacks, road frontage, and the size of the lot. Regulations also address driveways, structures, roads, erosion and sediment control, and adequate stormwater flow. This strategy was deferred to review the Town's planning mechanisms, including but not limited to the Subdivision and Zoning Regulations, and to discuss changes that may mitigate the occurrence of and damage from the natural hazards identified in this Plan. This strategy was also deferred to consider adding criteria-based regulations requiring water availability for fire suppression in new subdivisions. <b>Action Item #22</b>
Burning Index	NH Forests & Lands (DNCR) has a burning index that measures the wildfire risk and how likely fires are to start on a given day. It also evaluates the potential damage wildfires can create, the number of people needed to fight them, and the type of equipment that might be needed.	NH Forests & Lands (DNCR) & Fire Department	Excellent	<b>Improvements Needed:</b> The Fire Department receives regular notification of the burning index via email from NH Forests & Lands. This notification is made daily during the fire danger season. There is currently no Smokey Bear-type fire danger sign in Jackson. This strategy is deferred to consider locations suitable for a Fire Danger Sign to keep citizens and visitors aware of the daily fire risk. <b>Action Item #19</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Public Health Plan	The State Health Department wrote the "Influenza, Pandemic, Public Health Preparedness, and Response Plan" to be prepared for any public health emergency; the Town is part of the Carroll County Coalition for Public Health.	Carroll County Coalition for Public Health	Good	<b>No Improvements Needed:</b> The State Public Health Plan assists the Community as part of the Carroll County Coalition for Public Health Network. The Jackson Health Officer attends public health meetings whenever possible.
Shoreland Water Quality Protection Act (formerly the Comprehensive Shoreland Protection Act)	The Shoreland Water Quality Protection Act (SWQPA) establishes minimum standards for using and developing shorelands adjacent to the State's public water bodies. The SWQPA includes changes to vegetation requirements within the natural woodland and waterfront buffers, the impervious surface limitations, and the shoreland permit by notification process.	State of NH	Good	<b>No Improvements Needed:</b> The Town of Jackson follows the Shoreland Water Quality Protection Act; compliance with the Act is encouraged by the Building Inspector.
NH Forest & Lands & Fire Permits	NH Forest & Lands, a division of the NH Department of Natural & Cultural Resources (DNCR), regulates open burning and permits.	NH Forests & Lands (DNCR) & Local Fire Warden	Excellent	<b>No Improvements Needed:</b> The system with NH Forests & Lands (DNCR) and the local fire warden works well. The public knows fire permitting requirements and can get permits online (\$5.50 fee).
Emergency Generators	The Town has emergency backup power at all its Key Resources to enable ongoing operations during a long-term utility outage.	Emergency Management Director	Excellent	<b>No Improvements Needed:</b> The recent addition of generators at the Library and the Fire Station ensures adequate long-term utility outage protection. Jackson has backup power capabilities at all of the Town's CIKRs. <b>(The Jackson Library generator is also in Table 7.1)</b>
Capital Reserve Fund (CRF)	A Capital Reserve fund is an account on a town's balance sheet reserved for long-term capital investment projects or any other significant and anticipated expense(s) that will be incurred. Reserve funds are set aside to partially ensure adequate funding for future projects, equipment, and other expenditures.	Select Board	Excellent	<b>No Improvements Needed:</b> The Town's Capital Reserve Funds are set aside each year at budget time to assist the Town's departments with planned purchases of equipment and supplies or in emergencies. The Jackson Capital Reserve Funds work well and are part of the Town Warrant at the annual Town Meeting.
Life Safety & Fire Codes	Guides all buildings for life safety and fire codes	Fire Department	Excellent	<b>No Improvements Needed:</b> The National Fire Protection Association (NFPA) and the NH Safety and Fire Codes guide the Jackson Fire Department in inspecting all permanent public assembly locations, small hotels, inns, and B&Bs (town ordinance). The Department does its best to provide timely inspections based on available staffing.

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Mutual Aid Agreements (Fire, Police, Highway & EMS)	Mutual Aid agreements provide communications capabilities and cooperative assistance between area cities and towns; mutual aid provides access to resources appropriate to the scope of the emergency.	Police Department, Fire Department, Highway Department & Bartlett-Jackson Ambulance	Excellent	<b>No Improvements Needed:</b> The Jackson Fire Department has a mutual aid agreement with Mount Washington Valley Mutual Aid. The Jackson Police Department has mutual aid agreements with surrounding towns, the NH State Police (Troop E), the Carroll County Sheriff's Office, and NH Fish & Game. The Highway Department is a NH Public Works Mutual Aid Association member. Barlett-Jackson Ambulance performs EMS services and medical transportation. All mutual aid systems in Jackson work well.
Local Road Design Standards	Local road design standards are specifications for constructing new roads in a community.	Select Board & Highway Department	Good	<b>No Improvements Needed:</b> Local road standards have been established to provide specifications for building new roads to ensure that the Town does not assume ownership of substandard roads. The Town will not assume ownership of roads not built to Class V standards. Acceptance of new roads is voted on at Town Meetings as a warrant article.
Social Media Accounts	Social media accounts, such as Facebook, Twitter, Instagram, and local online newsletters, can provide excellent information on emergency preparedness and hazard mitigation strategies that can be taken to protect homes and property.	Department Heads	Excellent	<b>No Improvements Needed:</b> The Fire Department, Police Department, and Jackson Grammar School maintain Facebook pages. A privately operated listserv, Jackson E-News, can also send important messages to the residents of Jackson. These social media accounts work very well to keep the citizens of Jackson informed about what's happening in their town.

## Chapter 7: Last Mitigation Plan

### A. DATE OF LAST PLAN

Based on the Disaster Mitigation Act (DMA) of 2000, Jackson has developed hazard mitigation plans in the past. The most recent update was formally approved in 2019. The Jackson Hazard Mitigation Plan Update 2025 updates the 2019 plan.

Below are the action items that were identified in the 2019 plan. The Team identified the current status of each strategy based on three sets of questions:

#### COMPLETED

- Has the strategy been completed?
- If so, what was done?

Strategies “deferred” from the prior plan, were added to **Table 9.1, Mitigation Action Plan** as new strategies and were reprioritized to meet the current needs of the Town.

#### DELETED

- Should the strategy be deleted?
- Is the strategy mitigation or preparedness?
- Is the strategy useful to the Town under the current circumstances?

#### DEFERRED

- Should the strategy be deferred for consideration in this Plan?
- Should this strategy be reconsidered and included as a new action item for this Plan if the strategy was not completed?

In *Table 7.1: Accomplishments since the Last Plan*, the Team assessed what had been accomplished and determined what additional work may be needed. Columns in red font were extracted word-for-word from the 2019 Hazard Mitigation Plan. Four additional columns not shown here – *Type of Hazard, Managing Department, Funding or Support, and Estimated Cost* – can be found in the 2019 Hazard Mitigation Plan.

**TABLE 7.1: ACCOMPLISHMENTS SINCE THE LAST PLAN**

Rank	New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
0-1	<b>Action Item #1:</b> Provide public outreach to encourage all residents to contact NH ENS to add cell numbers, unlisted numbers, emails and to verify information. Use the website, Jackson E-News, available social media platforms, or a sign up at Town Meeting. (MU14) (Table 6.1)	Short Term Ongoing	<b>Completed &amp; Deferred:</b> Genasys (formerly CodeRED/NH ENS) is an excellent warning system, but it only stores residents' landline phone numbers. The Town has provided information to residents on the reverse 911 system on the Town's website and appropriate social media platforms, and shared through Jackson ENews. This strategy was deferred to continue to provide public outreach to encourage residents to contact Genasys to add cell numbers, emails, and unlisted numbers and verify their information. <b>Action Item #9 (also in Table 6.1)</b>

Rank	New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
0-2	<p><b>Action Item #2:</b> Improve 911 signage compliance so that emergency responders can better assist the public at the time of need. Utilize all available public outreach opportunities, including the town's website, social media platforms, and Jackson E-News. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Short Term Ongoing</b></p>	<p><b>Completed &amp; Deferred:</b> Jackson is about 50% compliant with E911 signage. 911 signage compliance has improved since the prior hazard mitigation plan, and according to Jackson's Building Inspector, it continues to increase. The Town has made several efforts to increase compliance, including writing directly to homeowners and making signs available at the Covered Bridge Dance in July 2023. Also, additional strategies to increase compliance continue to be considered and shared on ENews, posted on the Town website, on appropriate social media, at Town Meetings, and through direct outreach to the most vulnerable residents. <b>Action Item #4 (also in Table 6.1)</b></p>
0-3	<p><b>Action Item #3:</b> To promote private mitigation efforts, provide public outreach to the citizens of Jackson on the importance of maintaining private roads to allow for safe access for fire apparatus into wildland-urban interface neighborhoods and properties. This will help to ensure accessibility for emergency response and decrease the risk for wildfire. <b>(MU16) (Table 7.1)</b></p>	<p><b>Short Term Ongoing</b></p>	<p><b>Completed &amp; Deferred:</b> Jackson has provided public outreach to its citizens on the importance of maintaining private roads through the Town website, Jackson ENews, and appropriate social media. In addition, Highway Department personnel contact residents directly when necessary. Maintaining private roads and culverts may prevent flooding and allow for safe access for fire apparatus into wildland-urban interface neighborhoods and properties. This strategy was deferred to remind the residents living on private roads of the importance of this action item. <b>Action Item #12</b></p>
0-4	<p><b>Action Item #4:</b> Provide robust information on the town's Emergency Management webpage and on other available social media platforms to educate the public on hazard mitigation and preparedness measures <b>(MU14)</b> that will include such information as: emergency contacts, shelter locations, evacuation routes <b>(SW7, WF11 &amp; T3)</b>, methods of emergency alerting, 911 compliance, water saving techniques <b>(D9)</b>, earthquake risk and mitigation activities that can be taken in residents' homes <b>(EQ7)</b>, steps homeowners can take to protect themselves and their properties when extreme temperatures occur <b>(ET1 &amp; ET4)</b>, safety measures that can be taken during hail <b>(HA3)</b> and lightning storms <b>(L2)</b>, mitigation techniques for property protection and links to available sources. Educate homeowners regarding the risks of building in hazard zones and, encourage homeowners to install carbon monoxide monitors and alarms <b>(WW5)</b> and provide public information regarding infectious diseases. Continue to develop ways to provide notification to citizens. <b>(Table 7.1)</b></p>	<p><b>Short Term Ongoing</b></p>	<p><b>Completed &amp; Deferred:</b> An emergency web page is a great way to provide outreach to residents on emergency preparedness and hazard mitigation. Jackson has an excellent Emergency Management webpage with preparedness and mitigation-related links. The Fire Department also provides residents with important information on smoke and CO2 detectors. This strategy was deferred to continue to add robust information to the Emergency Management webpage and provide important information via Jackson ENews, Facebook, and the Town website. (see Table 2.1). <b>Action Item #8 (also in Table 6.1)</b></p>

Rank	New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
0-5	<p><b>Action Item #5:</b> Post important information on the town's Emergency Management webpage and notices of red flag burning days. Obtain and have available Firewise® brochures to educate homeowners on methods to reduce fire risk around their homes (WF10) and provide a link to Firewise® on the Emergency page of the Town's website. Provide Firewise® brochures to those residents seeking burn permits (if not obtained on-line); advise residents of the importance of maintaining defensible space, the safe disposal of yard and household waste and the removal of dead or dry leaves, needles, twigs, and combustible materials from roofs, decks, eaves, porches and yards. (WF12) (Table 7.1)</p>	<p><b>Short Term Ongoing</b></p>	<p><b>Completed &amp; Deferred:</b> Fire safety Information has been included on the Town website and shared through Jackson ENews and appropriate social media. This strategy was deferred to continue proactively advising residents of the importance of maintaining defensible space, safely disposing of household and yard waste, and removing combustible materials from roofs, decks, eaves, porches, and yards. <b>Action Item #13</b></p>
0-6	<p><b>Action Item #6:</b> Advise the public about the local flood hazard, flood insurance, and flood protection measures (F10) by obtaining and keeping on hand a supply of National Flood Insurance Program (NFIP) brochures to have available in the Town Offices. Give NFIP materials to homeowners and builders when proposing new development or substantial improvements and encourage property owners to purchase flood insurance (F22), whether or not they are in the flood zone. Through public outreach, educate homeowners regarding the risks of building in the flood zone and measures that can be taken to reduce the chance of flooding, such as securing debris, propane tanks, yard items or stored objects that may otherwise be swept away, damaged, or pose a hazard if picked up and washed away by floodwaters. Add links to the NFIP, Ready.gov, and other flood mitigation information to the Town's Emergency Management webpage and other available social media platforms, such as Jackson E-News. Continue to actively work with residents to ensure they are in compliance with the town's Floodplain Ordinance. (F23) (Tables 6.1 &amp; 7.1)</p>	<p><b>Short Term Ongoing</b></p>	<p><b>Completed &amp; Deferred:</b> The Town developed a flood ordinance and became a National Flood Insurance Program (NFIP) member on July 2, 1979. The Town's Flood Ordinance, part of the Zoning Ordinance, works well to successfully prohibit or force compliance with the ordinance for building and substantial improvements within the FEMA flood zone. Information about the National Flood Insurance Program has been included on the Town website, at the Town Offices, and shared through ENews and appropriate social media. This strategy was deferred to this Plan to continue compliance with the NFIP and to provide NFIP membership information to all members of the Community. This strategy was also deferred to provide vital information on flood mitigation techniques using local resources to encourage homeowner mitigation projects. Provide links to the NFIP, Ready.gov, and other pertinent websites. <b>Action Item #10 (also in Table 6.1)</b></p>
0-7	<p><b>Action Item #7:</b> The Emergency Management Director (EMD) to encourage all town officials who may be required to respond to an emergency and any new emergency responders to take NIMS 700 (S-700) &amp; ICS (ISC100 &amp; ISC200). (Tables 6.1 &amp; 7.1)</p>	<p><b>Short Term Ongoing</b></p>	<p><b>Completed &amp; Deferred:</b> The Emergency Management Director (EMD) is in contact with town employees when appropriate to recommend emergency preparedness training, particularly for NIMS 700 (S-700) and ICS (ISC100 and ISC200). The EMD, the Health Officer, and the Town Administrator have received training on these specific courses. The Deputy EMD, Deputy Health Officer, and Assistant Town Administrator are expected to complete training as part of their newly filled positions. <b>Action Item #6 (also in Table 6.1)</b></p>

Rank	New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
0-8	<b>Action Item #8:</b> Continue HazMat training for the members of the Jackson Fire Department. (Table 6.1)	Short Term Ongoing	<b>Completed &amp; Deferred:</b> Basic HazMat response is offered to the members of the Jackson Fire Department, which would secure a perimeter and limit access to the area until specialized HazMat teams arrive. Although this is preparedness training, it was deferred to continue for the life of the Plan, along with other emergency response training. <b>Action Item #7 (also in Table 6.1)</b>
0-9	<b>Action Item #9:</b> In addition to work that is done by and with local utility companies, monitor and maintain brush cutting, drainage system maintenance, and tree removal as part of a tree maintenance program. Create defensible space around power lines, oil and gas lines, and other infrastructure and work to reduce wildfire risk by clearing dead vegetation, cutting high grass, and other fuel loads in the community. (SW4, WF7, WF9 & F14) (Table 7.1)	Short Term Ongoing	<b>Completed &amp; Deferred:</b> Brush cutting, drainage system maintenance, and tree removal are ongoing, with work done often daily based on priority. Recently, NH Electric Coop has done much work on powerline corridors. Projects are prioritized according to impact on powerlines, road visibility, drainage, and the need to reduce wildfire risk. As trees become damaged and threaten structures and town roads, the Highway Department removes them. The NH Electric Coop does this for state roads as needed. This strategy was deferred to continue local tree and brush removal efforts to help mitigate the effects of high wind events, ice storms, wildfires, and other natural hazards. <b>Action Item #1 (also in Table 6.1)</b>
0-10	<b>Action Item #10:</b> Maintain culverts and ditches in the community and develop and maintain a written stormwater maintenance plan in order to ensure more efficient stormwater management. In this plan or "inventory", include the location, date of installation, GPS coordinates, material, type, size, age, and expected replacement date of all culverts, catch basins, and drainage ditches in the community. (F5) (Table 6.1)	Short Term Ongoing	<b>Completed &amp; Deferred:</b> Work was completed over the summer of 2023 to create an inventory spreadsheet for drainage culverts and winter stormwater maintenance and shared with the Select Board. A maintenance plan for a specific culvert is created before major improvement is made on the road to ensure more efficient stormwater management. This strategy was deferred to maintain the culvert inventory and improve, upgrade, and maintain culverts and ditches throughout the Community. <b>Action Item #2 (also in Table 6.1)</b>
0-11	<b>Action Item #11:</b> Inspect the functionality of fire hydrants and maintain and repair all hydrants and other water resources in Jackson. Consider other areas of the community that have limited water resources and address these issues by installing new hydrants, fire ponds and/or cisterns as needed. (WF8) (Table 6.1)	Short Term Ongoing	<b>Complete &amp; Deferred:</b> The Jackson Water Precinct (JWP) maintains a hydrant inspection program that includes full hydrant inspection twice a year and flushing once yearly. The Jackson Fire Department monitors dry hydrants, ponds, and other standing water sources. This strategy was deferred to maintain, improve, and upgrade hydrants as needed to ensure water for fire suppression. <b>Action Item #3 (also in Table 6.1)</b>
0-12	<b>Action Item #12:</b> Review this plan, the Jackson Hazard Mitigation Plan Update 2019, whenever an annual review of the Master Plan is done, and consider the incorporation of a "Natural Hazards" section and mitigation action items from this plan. (MU6) (Tables 6.1 & 7.1)	Short Term Ongoing	<b>Deferred:</b> The Jackson Master Plan's most recent full update was in 2016. This strategy was deferred to update the Master Plan according to the State's 10-year recommendation and consider including a natural hazards section, a discussion on climate change, and action items from this Plan in future updates. <b>Action Item #23 (also in Table 6.1)</b>

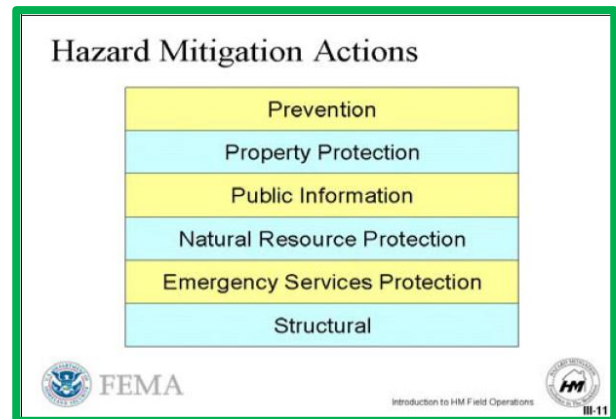
Rank	New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
1-1	<b>Action Item #13:</b> Obtain funding and install a permanent generator at the Jackson Fire Station to ensure the capabilities of this important Emergency Response Facility. <b>(MU13) (Table 6.1)</b>	<b>Short Term</b>	<b>Completed &amp; Deleted:</b> A permanent automatic generator was delivered to the Fire Station on 12/6/2023; it has been connected. This strategy was deleted as it was completed. <b>(also in Table 6.1)</b>
1-2	<b>Action Item #14:</b> Review the state's adopted building codes (IBC & IRC) and provide public education to the residents of Jackson on these codes, along with appropriate links on the Town's website and available social media platforms. Revise the town's building code as needed to reflect the state's adopted codes. <b>(MU14) (Tables 6.1 &amp; 7.1)</b>	<b>Short Term</b>	<b>Completed or Deferred:</b> The Jackson Building Inspector continues to monitor compliance with state building codes and provides education to community members as needed, especially short-term rental (STR) owners, through the STR application process. Information is posted on the building department's page on the Town website. This strategy was deferred to continue to offer public outreach on the building codes and to assess the code's effectiveness in light of recent severe storms and climate change. <b>Action Item #11 (also in Table 6.1)</b>
1-3	<b>Action Item #15:</b> Review the wellhead protection plan to ensure compliance with state regulations. Research opportunities for conservation easements for the water supply. <b>(Table 6.1)</b>	<b>Short Term</b>	<b>Completed &amp; Deleted:</b> Jackson Water Precinct has reviewed and fully complies with source water protection. A groundwater protection ordinance written for specific areas was passed by voters at the Town Meeting in March 2022. Ordinances are in place to ensure compliance.
1-4	<b>Action Item #16:</b> Provide an annual review of the Jackson Hazard Mitigation Plan Update 2019, including a review of the status of "Action Items" listed in this Plan to encourage completion. Obtain approval from the local elected body on an annual basis. <b>(MU11) (Table 6.1)</b>	<b>Short Term</b>	<b>Completed &amp; Deferred:</b> The EMD has reviewed the action items in the prior hazard mitigation plan annually and has completed and submitted a report to the Select Board, most recently in December 2023. The Jackson Hazard Mitigation Plan (2019) is being updated with this Plan. This strategy was deferred to review this Plan, the Jackson Hazard Mitigation Plan 2025, annually and to update the Plan again in 2030. <b>Action Item #15 (also in Table 6.1)</b>
1-5	<b>Action Item #17:</b> Obtain approval of this hazard mitigation plan as a Community Wildfire Protection Plan (CWPP) to enable there be potential assistance from the State and Federal Governments for future wildfire mitigation projects. <b>(Table 7.1) (WF2)</b>	<b>Short Term</b>	<b>Completed &amp; Deferred:</b> Approval for the prior hazard mitigation plan was received from DNCR on December 11, 2019. This strategy was deferred to obtain approval of the 2025 Plan as a Community Wildfire Protection Plan (CWPP) to enable potential assistance from the State and Federal governments for future wildfire mitigation projects. <b>Action Item #16</b>
2-1	<b>Action Item #18:</b> Alleviate the flooding that occurs when winter snow and ice clog the culvert on Green Hill Road by replacing the 40" metal culvert with at least a 36" plastic culvert. Exact culvert improvements to be based on an engineered hydrology study. <b>(F13) (Table 7.1)</b>	<b>Medium Term</b>	<b>Deleted:</b> The Green Hill Road culvert project from the prior plan has been completed. Improvements included upgrades to allow for 30% more water flow capacity.

Rank	New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
2-2	<p><b>Action Item #19:</b> Update the Jackson Emergency Operations Plan to coincide with the new State 15-ESF format. Include an analysis of the impact of natural hazards on Critical Infrastructure and Key Resources that may be needed during an emergency. Like the current EOP, the new EOP will include an EOC Call Alert List as well as a detailed Resource Inventory List and Player Packets. <b>(MU6) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Medium Term</b></p>	<p><b>Completed &amp; Deferred:</b> The Jackson Emergency Operations Plan (EOP) was last updated in 2023 to coincide with the 18-ESF State plan. Based on the State's five-year recommendation, this strategy was deferred to update the EOP again in 2028. <b>Action Item #30 (also in Table 6.1)</b></p>
2-3	<p><b>Action Item #20:</b> Obtain a dedicated cistern or cisterns with an aggregate total of 30,000 gallons for the Tyrol development to be used for fire suppression <b>(WF6). (Table 7.1)</b></p>	<p><b>Medium Term</b></p>	<p><b>Deferred:</b> This action item from the prior plan has not been completed; location issues must be addressed. A new cistern would most likely be located on Presidential Drive. This strategy was deferred to determine the location and obtain and install a cistern or cisterns with an aggregate total of 30,000 gallons in Tyrol. <b>Action Item #28</b></p>
2-4	<p><b>Action Item #21:</b> Install a new repeater at the top of Tyrol to improve townwide radio communications. <b>(MU13)</b></p>	<p><b>Medium Term</b></p>	<p><b>Completed &amp; Deleted:</b> New solar panels have been installed at the top of Tyrol's communications tower, and new batteries have been installed on an existing second panel. These actions have mitigated the need for a new repeater.</p>
3-1	<p><b>Action Item #22:</b> Obtain funding and install a permanent generator at the Jackson Public Library to ensure the use of this important CIKR as a Secondary Shelter and/or cooling and warming place. <b>(MU13) (Table 6.1)</b></p>	<p><b>Long Term</b></p>	<p><b>Completed &amp; Deleted:</b> A permanent generator was installed at the Jackson Public Library to ensure use as a secondary shelter in Spring 2023. This strategy was completed; therefore, it was deleted. <b>(also in Table 6.1)</b></p>

## Chapter 8: New Mitigation Strategies & STAPLEE

### A. MITIGATION STRATEGIES BY TYPE

The following list of mitigation categories and possible strategy ideas was compiled from several sources, including the USFS, FEMA, other planners, and past hazard mitigation plans. This list was used during a brainstorming session to discuss the issues in town. Team involvement and the brainstorming sessions proved helpful in bringing new ideas, better relationships, and more in-depth knowledge of the Community.



#### Prevention

- Forest fire fuel reduction programs
- Special management regulations
- Fire Protection Codes NFPA 1
- Firewise® landscaping
- Culvert and hydrant maintenance
- Planning and zoning regulations
- Building Codes
- Density controls
- Driveway standards
- Slope development regulations
- Master Plan
- Capital Improvement Plan
- Rural Fire Water Resource Plan
- NFIP compliance

#### Public Education & Awareness

- Hazard information centers
- Public education and outreach programs
- Emergency website creation
- Firewise® training
- National Flood Insurance Program (NFIP)
- Public hazard notification
- Defensible space brochures

#### Emergency Service Protection

- Critical facilities protection
- Critical infrastructure protection
- Emergency training for town officials
- Ongoing training for first responders

#### Property Protection

- Current use or other conservation measures
- Transfer of development rights
- Firewise® landscaping
- Water drafting facilities
- High-risk notification for homeowners
- Structure elevation
- Real estate disclosures
- Floodproofing
- Building codes
- Development regulations

#### Natural Resource Protection

- Best management practices within the forest
- Forest and vegetation management
- Forestry and landscape management
- Development regulations for wetlands
- Watershed management
- Erosion control
- Soil stabilization
- Open space preservation initiatives

#### Structural Projects

- Structure acquisition and demolition
- Structure acquisition and relocation
- Bridge replacement
- Dam removal
- Culvert upsize or realignment

**B. POTENTIAL MITIGATION STRATEGIES BY HAZARD**

To further promote the concept of mitigation, the Team was provided with a handout developed by Mapping and Planning Solutions and used to determine what additional mitigation action items might be appropriate for the Town. The mitigation action items from that handout are listed below and on the following page. The Team considered each item from this comprehensive list of possible mitigation action items to determine if any of these action items could be put in place for Jackson, emphasizing new and existing buildings and infrastructure.

Strategies that may apply to more than one hazard	Type of Project
• <i>Community Outreach and Education</i> .....	<i>Public Awareness</i>
• <i>Changes to Zoning Regulations</i> .....	<i>Prevention</i>
• <i>Changes to Subdivision Regulations</i> .....	<i>Prevention</i>
• <i>Steep Slopes Ordinance</i> .....	<i>Prevention</i>
• <i>Density Controls</i> .....	<i>Prevention</i>
• <i>Driveway Standards</i> .....	<i>Prevention</i>
• <i>Emergency Website Creation</i> .....	<i>Public Awareness</i>
• <i>Critical Infrastructure &amp; Key Resources</i> .....	<i>Emergency Service Protection</i>
• <i>Emergency Training for Town Officials</i> .....	<i>Emergency Service Protection</i>
• <i>High-risk Notification to Homeowners</i> .....	<i>Property Protection</i>
• <i>Master Plan Update or Development</i> .....	<i>Prevention</i>
• <i>Capital Improvement Plan</i> .....	<i>Prevention</i>
Flood Mitigation Ideas	Type of Project
• <i>Stormwater Management Ordinances</i> .....	<i>Prevention</i>
• <i>Floodplain Ordinances</i> .....	<i>Prevention</i>
• <i>Updated Floodplain Mapping</i> .....	<i>Prevention</i>
• <i>Watershed Management</i> .....	<i>Natural Resource Protection</i>
• <i>Drainage Easements</i> .....	<i>Prevention</i>
• <i>Purchase of Easements</i> .....	<i>Prevention</i>
• <i>Wetland Protection</i> .....	<i>Natural Resource Protection</i>
• <i>Structural Flood Control Measures</i> .....	<i>Prevention</i>
• <i>Bridge Replacement</i> .....	<i>Structural Project</i>
• <i>Dam Removal</i> .....	<i>Structural Project</i>
• <i>NFIP Compliance</i> .....	<i>Prevention</i>
• <i>Acquisition, Demolition &amp; Relocation</i> .....	<i>Structural Project</i>
• <i>Structure Elevation</i> .....	<i>Structural Project</i>
• <i>Floodproofing</i> .....	<i>Property Protection</i>
• <i>Erosion Control</i> .....	<i>Natural Resource Protection</i>
• <i>Floodplain/Coastal Zone Management</i> .....	<i>Prevention</i>
• <i>Building Codes Adoption or Amendments</i> .....	<i>Prevention</i>
• <i>Culvert &amp; Hydrant Maintenance</i> .....	<i>Prevention</i>
• <i>Culvert &amp; Drainage Improvements</i> .....	<i>Structural Protection</i>
• <i>Transfer of Development Rights</i> .....	<i>Property Protection</i>

Natural Hazard Mitigation Ideas	Type of Project
<b>Landslide &amp; Erosion</b>	
• Slide-Prone Area Ordinance.....	Prevention
• Drainage Control Regulations.....	Prevention
• Grading Ordinances.....	Prevention
• Hillside Development Ordinances.....	Prevention
• Open Space Initiatives.....	Prevention
• Acquisition, Demolition & Relocation.....	Structural Project
• Vegetation Placement and Management.....	Natural Resource Protection
• Soil Stabilization.....	Natural Resource Protection
<b>Lightning &amp; Hail</b>	
• Building Construction.....	Property Protection
<b>High Wind Events</b>	
• Construction Standards and Techniques.....	Property Protection
• Safe Rooms.....	Prevention
• Manufactured Home Tie Downs.....	Property Protection
• Building Codes.....	Property Protection
<b>Wildfire</b>	
• Building Codes.....	Property Protection
• Defensible Space.....	Prevention
• Forest Fire Fuel Reduction.....	Prevention
• Burning Restriction.....	Property Protection
• Water Resource Plan.....	Prevention
• Firewise® Training & Brochures.....	Public Awareness
• Woods Roads Mapping.....	Prevention
<b>Extreme Temperatures</b>	
• Warming & Cooling Stations.....	Prevention
<b>Severe Winter Weather</b>	
• Snow Load Design Standards.....	Property Protection
<b>Subsidence</b>	
• Open Space.....	Natural Resource Protection
• Acquisition, Demolition & Relocation.....	Structural Project
<b>Earthquake</b>	
• Construction Standards and Techniques.....	Property Protection
• Building Codes.....	Property Protection
• Bridge Strengthening.....	Structural Project
• Infrastructure Hardening.....	Structural Project
<b>Drought</b>	
• Water Use Ordinances.....	Prevention

**C. STAPLEE METHODOLOGY**

Table 8.1, *Potential Mitigation Items & the STAPLEE*, reflects the newly identified potential hazard mitigation action items and the results of the STAPLEE evaluation, as explained below. Many of these potential mitigation action items overlap. Some areas identified as “All Hazards” would also apply indirectly to wildfire response.

Each proposed mitigation action item aims “to reduce or eliminate the long-term risk to human life and property from hazards”. To determine the effectiveness of each mitigation action item in accomplishing this goal, a set of criteria that was developed by FEMA, the STAPLEE method, was applied to each proposed action item.

The STAPLEE method analyzes a project's social, technical, administrative, political, legal, economic, and environmental characteristics; public administration officials and planners commonly use it to make planning decisions. The following questions were asked about the proposed mitigation action items discussed in Table 8.1.

**Social**..... Is the proposed action item socially acceptable to the Community? Is there an equity issue that would result in one segment of the Community being treated unfairly?

**Technical**..... Will the proposed action item work? Will it create more problems than it solves?

**Administrative** ..... Can the Community implement the action item? Is there someone to coordinate and lead the effort?

**Political** ..... Is the action item politically acceptable? Is there public support both to implement and maintain the project?

**Legal**..... Is the Community authorized to implement the proposed action item? Is there a clear legal basis or precedent for this activity?

**Economic** ..... What are the costs and benefits of this action item? Does the cost seem reasonable for the size of the problem and the potential benefits?

**Environmental** ..... How will the action item impact the environment? Will it need environmental regulatory approvals?

Each proposed mitigation action item was evaluated and scored based on the above criteria. Each of the STAPLEE categories was discussed and was awarded one of the following scores:

**1 - Poor ..... 2 - Average..... 3 - Good**

An evaluation chart with total scores for each new action item is shown in Table 8.1.

The “Type” of Action Item was also considered (see section A of this chapter for reference):

- **Prevention**
- **Public Education & Awareness**
- **Emergency Service Protection**
- **Property Protection**
- **Natural Resource Protection**
- **Structural Projects**

**D. TEAM’S UNDERSTANDING OF HAZARD MITIGATION ACTION ITEMS**

The Team determined that any strategy designed to reduce personal injury or damage to property that could be done before an actual disaster would be listed as a potential mitigation action item. This decision was made even though not all projects listed in Table 8.1 and *Table 9.1, The Mitigation Action Plan*, are fundable under FEMA pre-mitigation guidelines. The Team determined that this Plan was primarily a management document designed to assist the Select Board and other town officials in managing and tracking potential emergency planning action items. For instance, the Team knew some action items were more appropriately identified as preparedness or readiness issues. As no other established planning mechanism recognizes some of these issues, the Team did not want to lose the ideas discussed during these planning sessions and thought this method was the best way to achieve that objective.

The Town understands that the action items for a town of 1,000 may not be the same as those for 30,000. Also, the action items for a town in the middle of predominantly hardwood forests are not the same as those for a town on the Jersey Shore. Therefore, the Town of Jackson has accepted the **Mitigation Action Items** in Tables 8.1 and 9.1 as the complete list of action items for this town and only this town. Furthermore, the Town of Jackson indicates that having considered a comprehensive list of possible mitigation action items (see sections A & B of this chapter) for this Plan, there are no additional action items to add now.

**TABLE 8.1: POTENTIAL MITIGATION ACTION ITEMS & THE STAPLEE**

Potential mitigation action items in Table 8.1 are listed in numerical order and indicate if they were derived from prior tables in this Plan, i.e., (Table 7.1). Items in green, such as (MU14), represent mitigation action items taken from Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013; see *Appendix F: Potential Mitigation Ideas*, for more information.

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<b>Action Item #1:</b> In addition to work done by and with local utility companies, monitor and maintain brush cutting, drainage system maintenance, and tree removal as part of a tree maintenance program. Create defensible space around power lines, oil and gas lines, and other infrastructure. Work to reduce the effects of invasive species, high wind events, ice storms, wildfires, and other natural hazards by clearing dead vegetation and cutting the Community’s high grass and other fuel loads. (SW4, WF7, WF9 & F14) (Tables 6.1 & 7.1)	<u>Affected Location</u> -Townwide  <u>Type of Activity</u> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	1	3	3	1	2	3	3	16
		<b>Social:</b> Some homeowners will not understand the need to cut trees <b>Political:</b> Some homeowners will not understand the need to cut trees <b>Legal:</b> There are designated scenic roads that have specific cutting requirements							
<b>Action Item #2:</b> Maintain, upgrade, and improve the culvert inventory plan and improve, upgrade, and maintain culverts and ditches throughout the Community as budget and priorities allow. (F5) (Tables 6.1 & 7.1)	<u>Affected Location</u> -Culverts & Ditches  <u>Type of Activity</u> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	3	3	3	2	3	3	2	19
		<b>Political:</b> Ditching causes issues with homeowners who think their land extends into the right-of-way <b>Environmental:</b> DES approvals may be needed.							
<b>Action Item #3:</b> Inspect the functionality of all hydrants and maintain, improve, and upgrade hydrants as needed to ensure water for fire suppression. Consider other community areas with limited water resources and address these issues by installing new hydrants, fire ponds, and cisterns. Work with local landowners to gain access to available water resources to help mitigate the effects of wildfires. (WF8) (Tables 6.1 & 7.1)	<u>Affected Location</u> -Dry & Pressurized Hydrants -Water resources  <u>Type of Activity</u> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	3	3	3	3	3	3	3	21
		No apparent difficulty with this action item							

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<p><b>Action Item #4:</b> Consider ways to get this signage more compliant so that emergency responders can better assist the public in their time of need. Use public outreach opportunities such as the Town's website or available social media to promote better compliance and develop other means of increasing compliance. The Town could purchase and install signage or provide signs for residents to install themselves to promote compliance better. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Public Education &amp; Awareness -Emergency Service Protection -Property Protection -Natural Resource Protection</p>	2	3	3	2	3	3	3	19
<p><b>Action Item #5:</b> Lobby the State to mitigate the dangers on NH Route 16 between mile markers 92-96. Engineering studies may result in road modifications to increase safety. At a minimum, ask the State to lower the speed limit to 45 mph in this area.</p>	<p><u><b>Affected Location</b></u> -NH Route 16; 92-96</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #6:</b> The Emergency Management Director (EMD) is to encourage all town officials who may be required to respond to an emergency and any new emergency responders to take NIMS 700 (S-700) and ICS (ISC100 and ISC200). Additionally, the EMD should encourage key personnel to learn about and become adept at WEB-EOC. <b>(Emergency Preparedness) (Tables 6.1 &amp; 7.1)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #7:</b> The Fire Chief, Police Chief, EMS Director, and the EMD are to provide ongoing training for all emergency responders. Training will include the many aspects of emergency response, including EMS, wildfire suppression, confined spaces, HazMat, active shooter, and terrorism. Training is done locally or through Mount Washington Valley Mutual Aid, the State of New Hampshire Police, Fire &amp; EMS Training Facilities, the Fire Academy, or Maine Health (local hospitals). <b>(Emergency Preparedness) (Tables 6.1 &amp; 7.1)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection</p>	3	3	2	3	3	3	3	20
<p><b>Action Item #8:</b> Provide robust information on the Emergency Management webpage and social media platforms to educate the public on hazard mitigation and preparedness measures. Include preparedness information such as shelter locations, evacuation routes, methods of emergency alerting, and 911 compliance. Include mitigation techniques for earthquakes, tornadoes, severe winter weather, lightning, and climate change. Provide information on infectious diseases, encourage homeowners to install carbon monoxide monitors and alarms, and monitor radon in their homes. Offer residents and business owners reminders to clear snow from roofs during high accumulation snow years. <b>(MU14, SW7, WF11, D9, T3, EQ7, ET1, ET4, L2, HA3, WW5) (Tables 6.1 &amp; 7.1)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Public Education &amp; Awareness -Property Protection</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #9:</b> Provide public outreach to encourage all residents to contact Genasys (formerly CodeRED/NH ENS) to add cell numbers, unlisted numbers, and emails and verify their information. Use the Town's website, a possible brochure, available social media platforms, local newsletters, or a sign-up at a Town Meeting. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Public Education &amp; Awareness -Emergency Service Protection</p>	3	3	3	3	3	3	3	21

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<p><b>Action Item #10:</b> Advise the public about the local flood hazard, flood insurance, and flood protection measures by obtaining and keeping a supply of NFIP brochures available in the Town Offices. When proposing new development or substantial improvements, give NFIP materials to homeowners and builders. Encourage property owners to purchase flood insurance, whether they are in the flood zone, and provide appropriate links to the NFIP and Ready.gov on the Town's website or available social media platforms. Through Public Outreach, educate homeowners regarding the risks of building in the flood zone and measures to reduce flooding. Actively work with residents and builders to ensure they comply with the Town's Floodplain Ordinance. <b>(F10, F22 &amp; F23) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Affected Location</b> -Areas prone to flooding</p> <p><b>Type of Activity</b> -Prevention -Public Education &amp; Awareness -Property Protection</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #11:</b> Offer public outreach on the building codes and assess the building codes' effectiveness in light of recent severe storms and climate change. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Public Education &amp; Awareness -Emergency Service Protection -Property Protection</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #12:</b> To promote private mitigation efforts, provide public outreach to the citizens of Jackson on the importance of maintaining private roads and culverts to allow for safe access for fire apparatus and properties and to prevent flooding. This education will help ensure accessibility for emergency response, decrease the wildfire risk, and prevent damage and flooding on public roads. <b>(MU16) (Table 7.1)</b></p>	<p><b>Affected Location</b> -Private Roads</p> <p><b>Type of Activity</b> -Prevention -Public Education &amp; Awareness -Emergency Service Protection -Property Protection -Natural Resource Protection</p>	3	3	3	2	3	3	3	20
<p><b>Action Item #13:</b> Post important information on the Town's website and notices of red flag burning days. Obtain and have available Firewise® brochures to educate homeowners on methods to reduce fire risk around their homes and provide a link to Firewise® on the emergency page of the Town's website. Provide Firewise® brochures to those residents seeking burn permits (if not obtained online); advise residents of the importance of maintaining defensible space, the safe disposal of household waste, and the removal of dead or dry leaves, needles, twigs, and combustible materials from roofs, decks, eaves, porches, and yards. <b>(WF10 &amp; WF12) (Table 7.1)</b></p>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Public Education &amp; Awareness -Emergency Service Protection -Property Protection -Natural Resource Protection</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #14:</b> Review and update the Jackson Capital Improvement Plan (CIP) to ensure that the program's goals will be achieved and assist the Town's departments with planned purchases of equipment and supplies. Review the CIP after the approval of this Plan to integrate concepts, ideas, and action items from it. <b>(MU6)</b></p>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection</p>	3	2	3	3	3	3	3	20
<p><b>Action Item #15:</b> Complete annual reviews of the Jackson Hazard Mitigation Plan Update 2025, including a review of the "Action Items" status to encourage completion. Obtain approval from the local elected body annually and provide a complete update of the Plan in five years. <b>(MU11) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #16:</b> Obtain approval of this Plan as a Community Wildfire Protection Plan (CWPP) to enable potential assistance from the State and Federal governments for future wildfire mitigation projects. <b>(WF2) (Table 7.1)</b></p>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Property Protection -Natural Resource Protection</p>	3	3	3	3	3	3	3	21

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<b>Action Item #17:</b> Upgrade the 32" underperforming metal culvert on Sugar Hill Lane with a new 48" plastic culvert to improve stormwater flow. (F13)	<b>Affected Location</b> -Sugar Hill Lane	3	3	3	3	3	3	3	21
	<b>Type of Activity</b> -Prevention -Structural Project	No apparent difficulty with this action item							
<b>Action Item #18:</b> Elevate the generator at the Whitney Community Center, the Primary Shelter, to mitigate the chance of flooding and ensure this key resource's continued use. (MU13)	<b>Affected Location</b> -Whitney Community Center	3	3	2	3	3	3	3	20
	<b>Type of Activity</b> -Prevention -Emergency Service Protection	<b>Administrative:</b> The Jackson Grammar School Board must agree to do this.							
<b>Action Item #19:</b> Consider suitable location(s) in Jackson for a Fire Danger Sign to keep citizens and visitors aware of the daily fire risk. (WF)	<b>Affected Location</b> -To be determined	3	3	3	3	3	3	3	21
	<b>Type of Activity</b> -Prevention -Public Education & Awareness	No apparent difficulty with this action item							
<b>Action Item #20:</b> Improve stormwater flow in the Jackson Grammar School's drainage system by evaluating engineering needs and executing a plan to mitigate the issue. (MU13)	<b>Affected Location</b> -Jackson Grammar School	3	3	2	3	3	3	3	20
	<b>Type of Activity</b> -Prevention -Property Protection -Structural Project	<b>Administrative:</b> The Jackson Grammar School Board must agree to do this.							
<b>Action Item #21:</b> Assess radio needs and obtain upgrades as needed. (Emergency Preparedness) (Table 6.1)	<b>Affected Location</b> -Townwide	3	3	3	3	3	3	3	21
	<b>Type of Activity</b> -Prevention -Emergency Service Protection	No apparent difficulty with this action item							
<b>Action Item #22:</b> Review the Jackson Subdivision and Zoning Regulations to consider changes that will enhance mitigation efforts across the Community. Update these planning mechanisms and integrate elements from this Plan where possible. (WF2, F1 & MU6)	<b>Affected Location</b> -Townwide	3	3	2	3	3	3	3	20
	<b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	<b>Administrative:</b> Available time is always an issue.							
<b>Action Item #23:</b> Review this Plan, the Jackson Hazard Mitigation Plan Update 2025, whenever working on the Master Plan. Consider incorporating a discussion on climate change, natural hazards, and mitigation action items from this Plan. (MU6) (Tables 6.1 & 7.1)	<b>Affected Location</b> -Townwide	3	3	2	3	3	3	3	20
	<b>Type of Activity</b> -Prevention	<b>Administrative:</b> Time to work on this project may be hard to find.							
<b>Action Item #24:</b> Complete the planning, funding, and execution of the plan to build a new Fire Station in roughly the same location as the current station to ensure the capabilities of this important critical infrastructure and a key resource.	<b>Affected Location</b> -Site of the current station	3	3	3	1	3	1	3	17
	<b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection -Structural Project	<b>Political:</b> Some people will object to the project. <b>Economical:</b> Budget constraints.							
<b>Action Item #25:</b> Upgrade the 5' diameter underperforming and rotting culvert and stone retaining wall to improve stormwater flow. (F13)	<b>Affected Location</b> -Black Mountain Road	3	3	3	3	3	3	3	21
	<b>Type of Activity</b> -Prevention -Emergency Service Protection -Structural Project	No apparent difficulty with this action item							

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<b>Action Item #26:</b> Replace the one "red-listed" bridge, the Dundee Road Bridge over Mill Brook, once state funding becomes available. This old stone bridge is on the State's schedule for the earliest in 2034 and will likely be replaced completely with a new and wider bridge. (MU13) (Table 6.1)	<p><b>Affected Location</b> -Dundee Road Bridge at Mill Brook</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection -Structural Project</p>	3	3	3	3	3	2	2	19
		<p><b>Economical:</b> Budget constraints. <b>Environmental:</b> DES permits will be needed.</p>							
<b>Action Item #27:</b> Move the Old Town Hall, the home of the Historical Society, to protect it from damage along the riverbank.	<p><b>Affected Location</b> -Old Town Hall</p> <p><b>Type of Activity</b> -Prevention -Property Protection -Structural Project</p>	2	3	3	1	2	1	2	14
		<p><b>Social:</b> Some people may be displeased with the new location. <b>Political:</b> Decisions on location are ongoing; the public may not be fully aware of the project; complicated project. <b>Legal:</b> Will have to work with the non-profit. <b>Economical:</b> Budget constraints. <b>Environmental:</b> Approvals will be needed.</p>							
<b>Action Item #28:</b> Determine the location and obtain and install a cistern or cisterns with an aggregate total of 30,000 gallons in Tyrol. (WF2) (Table 7.1)	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection -Structural Project</p>	3	3	2	3	3	2	3	19
		<p><b>Administrative:</b> The time to do this may be limited. <b>Economical:</b> Budget constraints.</p>							
<b>Action Item #29:</b> Implement bank erosion control methods to maintain safe public access to Jackson Falls, protect the Falls' natural resource values, and protect the Town's infrastructure of roads, bridges, and town buildings. (ER5)	<p><b>Affected Location</b> -Jackson Falls</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection</p>	3	1	1	1	1	1	1	9
		<p><b>Technical:</b> There will be obstacles to overcome. <b>Administrative:</b> Time and assignment of responsibilities will depend on multiple agencies. <b>Political:</b> Designation as a Wild Scenic River affects the process. <b>Legal:</b> Need participation from the State and Federal governments. <b>Economical:</b> Budget constraints. <b>Environmental:</b> DES permitting is needed.</p>							
<b>Action Item #30:</b> Update the Jackson Emergency Operations Plan to coincide with the State's 18-ESF format. Include an analysis of the impact of natural hazards on Critical Infrastructure & Key Resources (CIKR) that may be needed during an emergency. Like the current EOP, the new EOP will include an EOC Call Alert List, a detailed Resource Inventory List, and Player Packets. (MU6) (Tables 6.1 & 7.1)	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection</p>	3	3	3	3	3	3	3	21
		<p>No apparent difficulty with this action item</p>							

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## Chapter 9: Implementation Schedule for Prioritized Action Items

### A. PRIORITY METHODOLOGY

After reviewing the finalized STAPLEE numerical ratings, the Planner and the Team developed *Table 9.1, The Mitigation Action Plan*. To do this, the Planner created four categories in which to place the potential mitigation action items.

#### CATEGORY A

Category A includes those items that are being done and will continue to be done in the future.

#### CATEGORY B

Category B includes those items under the direct control of town officials within the financial capability of the Town using only town funding, those already being done or planned, and those that could generally be completed within one year.

#### CATEGORY C

Category C includes those items that the Town does not have sole authority to act upon, those for which funding might be beyond the Town's capability, and those generally taking 13-36 months to complete.

#### CATEGORY D

Category D includes those items that would take a significant funding effort, the Town has little control over the final decision, and those that would take more than 37 months to complete.

Each potential mitigation action item was placed in one of these four categories. Then, those action items were prioritized within each category according to cost-benefit, time frame, and STAPLEE scores. Actual cost estimates were unavailable during the planning process. However, the Team could agree on the cost-benefit for each proposed action item using the STAPLEE process and a Very Low Cost to High-Cost estimate (see the following page).

The following criteria were considered while ranking and prioritizing each action item:

- *Does the action reduce damage?*
- *Does the action contribute to community objectives?*
- *Does the action meet existing regulations?*
- *Does the action protect historic structures?*
- *Does the action keep in mind future development?*
- *Can the action be implemented quickly?*

The prioritization exercise helped the committee evaluate the new hazard mitigation action items they brainstormed throughout the planning process. While all actions would improve the Town's hazard and wildfire responsiveness capability, funding availability will be a driving factor in determining what and when new mitigation action items are implemented.

**B. WHO, WHEN & How?**

Once this was completed, the Team developed an action plan to outline responsibilities, time frames, and methods for implementing each action item. The following questions were asked to develop a schedule for the identified mitigation action items.

**WHO?** Who will lead the implementation efforts? Who will put together funding requests and applications?

**WHEN?** When will these actions be implemented, and in what order?

**HOW?** How will the Community fund these projects? How will the Community implement these projects? What resources will be needed to implement these projects?

In addition to the prioritized mitigation action items, *Table 9.1, The Mitigation Action Plan*, includes the responsible party (WHO), how the project will be supported (HOW), and what the time frame is for implementation of the project (WHEN).

Once the Plan is approved, the Community will begin working on the action items listed in *Table 9.1, The Mitigation Action Plan* (see below and on the following pages). An estimation of completion for each action item is noted in the “Time Frame” column of Table 9.1. Some projects, including most training and education of residents on emergency and evacuation procedures, could be tied into the emergency operations plan and implemented through that planning effort.

**TABLE 9.1: THE MITIGATION ACTION PLAN**

*Table 9.1, The Mitigation Action Plan*, beginning on the following page, includes problem statements expressed by the Team. These action items are listed by priority and indicate if they were derived from other tables in this Plan.

Key to the Estimated Cost	
<b>Very Low Cost</b> .....	\$0-\$1,000 or staff time only
<b>Low Cost</b> .....	\$1,000-\$20,000
<b>Medium Cost</b> .....	\$20,000-\$100,000
<b>High Cost</b> .....	\$100,000 or more

Key to the Time Frame	
<b>Life of Plan</b> .....	Starting on Plan adoption 2025-2030 (0-60 months)
<b>Short Term</b> .....	1 year 2025-2026 (0-12 months)
<b>Medium Term</b> .....	2 years starting in 2026 – 2028 (12 – 36 months)
<b>Long-term</b> .....	3 years starting in 2028 – 2030 (36 -60 months)

In the following table, “Final R/P” means final rate and priority. Items in green, such as (MU14), represent mitigation action items taken from Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013; see *Appendix F: Potential Mitigation Ideas* for more information.

Mitigation Action Items are listed in order of priority.

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
A-1	<p><b>Problem Statement:</b> As trees become damaged and threaten structures and town roads, the Highway Department removes them. The NH Department of Transportation (NH DOT) and the NH Electric Coop do this for state roads as needed. There is a need to continue to work to keep this hazard to a minimum.</p> <p><b>Action Item #1:</b> In addition to work done by and with local utility companies, monitor and maintain brush cutting, drainage system maintenance, and tree removal as part of a tree maintenance program. Create defensible space around power lines, oil and gas lines, and other infrastructure. Work to reduce the effects of invasive species, high wind events, ice storms, wildfires, and other natural hazards by clearing dead vegetation and cutting the Community's high grass and other fuel loads. <b>(SW4, WF7, WF9 &amp; F14) (Tables 6.1 &amp; 7.1)</b></p>	High Wind Events, Wildfire, Severe Winter Weather & Inland Flooding	Highway Department	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)
A-2	<p><b>Problem Statement:</b> The Jackson Highway Department works to clean and repair drainage basins and culverts, and a written stormwater maintenance plan has been developed to ensure continuity of actions and efficient stormwater management. Updates to this plan and culvert improvements need to continue.</p> <p><b>Action Item #2:</b> Maintain, upgrade, and improve the culvert inventory plan and improve, upgrade, and maintain culverts and ditches throughout the Community as budget and priorities allow. <b>(F5) (Tables 6.1 &amp; 7.1)</b></p>	Inland Flooding	Highway Department	Local	Life of the Plan	Medium Cost (\$20,000-\$100,000)
A-3	<p><b>Problem Statement:</b> The Jackson Water Precinct (JWP) maintains a hydrant inspection program that includes full hydrant inspection twice a year and flushing once a year. The Jackson Fire Department monitors dry hydrants, ponds, and other standing water sources. These actions continue.</p> <p><b>Action Item #3:</b> Inspect the functionality of all hydrants and maintain, improve, and upgrade hydrants as needed to ensure water for fire suppression. Consider other community areas with limited water resources and address these issues by installing new hydrants, fire ponds, and cisterns. Work with local landowners to gain access to available water resources to help mitigate the effects of wildfires. <b>(WF8) (Tables 6.1 &amp; 7.1)</b></p>	Wildfire & Conflagration	Jackson Water Precinct & Fire Department	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)
A-4	<p><b>Problem Statement:</b> The Town has continuously used public outreach to remind residents of the need for proper E911 signage. However, the Town is only about 65% compliant with the proper E911 signage.</p> <p><b>Action Item #4:</b> Consider ways to get this signage more compliant so that emergency responders can better assist the public in their time of need. Use public outreach opportunities such as the Town's website or available social media to promote better compliance and develop other means of increasing compliance. The Town could purchase and install signage or provide signs for residents to install themselves to promote compliance better. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Website Administrator & Fire Department	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
A-5	<p><b>Problem Statement:</b> NH Route 16, between mile markers 92-96, has a poor road design with a cast toward the shoulder, no guardrails, and no breakdown lanes. In addition, this winding section of the highway has a speed limit of 50 mph and has been the site of multiple past accidents.</p> <p><b>Action Item #5:</b> Lobby the State to mitigate the dangers on NH Route 16 between mile markers 92-96. Engineering studies may result in road modifications to increase safety. At a minimum, ask the State to lower the speed limit to 45 mph in this area.</p>	Road Danger	Select Board & other department heads	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)
A-6	<p><b>Problem Statement:</b> Although first responders, including firefighters, have received NIMS &amp; ICS training, not all of Jackson's town officials have.</p> <p><b>Action Item #6:</b> The Emergency Management Director (EMD) is to encourage all town officials who may be required to respond to an emergency and any new emergency responders to take NIMS 700 (S-700) and ICS (ISC100 and ISC200). Additionally, the EMD should encourage key personnel to learn about and become adept at WEB-EOC. <b>(Emergency Preparedness) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Emergency Management Director	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)
A-7	<p><b>Problem Statement:</b> The Fire Chief, Police Chief, EMS Director, and the EMD coordinate all responders' training, which includes the many aspects of emergency response. This training needs to continue.</p> <p><b>Action Item #7:</b> The Fire Chief, Police Chief, EMS Director, and the EMD are to provide ongoing training for all emergency responders. Training will include the many aspects of emergency response, including EMS, wildfire suppression, confined spaces, HazMat, active shooter, and terrorism. Training is done locally or through Mount Washington Valley Mutual Aid, the State of New Hampshire Police, Fire &amp; EMS Training Facilities, the Fire Academy, or Maine Health (local hospitals). <b>(Emergency Preparedness) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards & Critical Incidents	Fire Department, Police Department, Bartlett-Jackson Ambulance & Emergency Management Director	Local & Grants	Life of the Plan	Low Cost \$1,000-\$20,000
A-8	<p><b>Problem Statement:</b> The Town's website has an emergency management webpage with emergency-related links. The Town has continuously provided the residents with emergency preparedness and mitigation techniques; this practice is ongoing.</p> <p><b>Action Item #8:</b> Provide robust information on the Emergency Management webpage and social media platforms to educate the public on hazard mitigation and preparedness measures. Include preparedness information such as shelter locations, evacuation routes, methods of emergency alerting, and 911 compliance. Include mitigation techniques for earthquakes, tornadoes, severe winter weather, lightning, and climate change. Provide information on infectious diseases, encourage homeowners to install carbon monoxide monitors and alarms, and monitor radon in their homes. Offer residents and business owners reminders to clear snow from roofs during high accumulation snow years. <b>(MU14, SW7, WF11, D9, T3, EQ7, ET1, ET4, L2, HA3, WW5) (Tables 6.1 &amp; 7.1)</b></p>	High Wind Events, Drought, Earthquake, Extreme Temperatures, Lightning, Severe Winter Weather, Wildfire & Infectious Disease	Website Administrator, Emergency Management Director & other department heads	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
A-9	<p><b>Problem Statement:</b> Genasys (formerly CodeRED/NH ENS) is an excellent warning system that only stores residents' landline phone numbers. Residents may not be aware that they can add cell numbers, emails, and unlisted numbers.</p> <p><b>Action Item #9:</b> Provide public outreach to encourage all residents to contact Genasys (formerly CodeRED/NH ENS) to add cell numbers, unlisted numbers, and emails and verify their information. Use the Town's website, a possible brochure, available social media platforms, local newsletters, or a sign-up at a Town Meeting. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Website Administrator & Emergency Management Director	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)
A-10	<p><b>Problem Statement:</b> Residents and builders may not be aware of flood regulations &amp; the availability of flood insurance through the National Flood Insurance Program (NFIP). They may also not be aware of the risk of building in the floodplain and the steps they can take to reduce flooding.</p> <p><b>Action Item #10:</b> Advise the public about the local flood hazard, flood insurance, and flood protection measures by obtaining and keeping a supply of NFIP brochures available in the Town Offices. When proposing new development or substantial improvements, give NFIP materials to homeowners and builders. Encourage property owners to purchase flood insurance, whether they are in the flood zone, and provide appropriate links to the NFIP and Ready.gov on the Town's website or available social media platforms. Through Public Outreach, educate homeowners regarding the risks of building in the flood zone and measures to reduce flooding. Actively work with residents and builders to ensure they comply with the Town's Floodplain Ordinance. <b>(F10, F22 &amp; F23) (Tables 6.1 &amp; 7.1)</b></p>	Inland Flooding	Website Administrator, Floodplain Administrator (Building Inspector) & Emergency Management Director	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)
A-11	<p><b>Problem Statement:</b> The Jackson Building Inspector continues to monitor compliance with state building codes and provides education to community members as needed, especially short-term rental (STR) owners, through the STR application process. Information is posted on the building department's page on the Town website. This public outreach needs to continue.</p> <p><b>Action Item #11:</b> Offer public outreach on the building codes and assess the building codes' effectiveness in light of recent severe storms and climate change. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	High Wind Events, Earthquake, Extreme Temperatures, Lightning, Severe Winter Weather, Wildfire & Infectious Disease	Building Inspector	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)
A-12	<p><b>Problem Statement:</b> Residents may not be aware of the importance of maintaining their private roads to allow emergency responders access and prevent wildfires.</p> <p><b>Action Item #12:</b> To promote private mitigation efforts, provide public outreach to the citizens of Jackson on the importance of maintaining private roads and culverts to allow for safe access for fire apparatus and properties and to prevent flooding. This education will help ensure accessibility for emergency response, decrease the wildfire risk, and prevent damage and flooding on public roads. <b>(MU16) (Table 7.1)</b></p>	Wildfire, Conflagration & Inland Flooding	Website Administrator & Emergency Management Director	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)

JACKSON, NH HAZARD MITIGATION PLAN UPDATE 2025

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
A-13	<p><b>Problem Statement:</b> Although the Town does a great job using its website and social media platforms to promote preparedness, residents may not be aware of the steps they can take to reduce their homes' fire risk.</p> <p><b>Action Item #13:</b> Post important information on the Town's website and notices of red flag burning days. Obtain and have available Firewise® brochures to educate homeowners on methods to reduce fire risk around their homes and provide a link to Firewise® on the emergency page of the Town's website. Provide Firewise® brochures to those residents seeking burn permits (if not obtained online); advise residents of the importance of maintaining defensible space, the safe disposal of household waste, and the removal of dead or dry leaves, needles, twigs, and combustible materials from roofs, decks, eaves, porches, and yards. <b>(WF10 &amp; WF12) (Table 7.1)</b></p>	Wildfire & Conflagration	Website Administrator & Fire Department	Local	Life of the Plan	Very Low Cost (\$0 - \$1,000 or staff time only)
B-1	<p><b>Problem Statement:</b> The Planning Board is updating the Jackson Capital Improvement Plan (CIP), generally reviewed to ensure the program's goals are achieved.</p> <p><b>Action Item #14:</b> Review and update the Jackson Capital Improvement Plan (CIP) to ensure that the program's goals will be achieved and assist the Town's departments with planned purchases of equipment and supplies. Review the CIP after the approval of this Plan to integrate concepts, ideas, and action items from it. <b>(MU6) (Table 6.1)</b></p>	All Hazards	Planning Board	Local	Short Term <1 year	Low Cost \$1,000-\$20,000
B-2	<p><b>Problem Statement:</b> This Plan, the Jackson Hazard Mitigation Plan Update 2025, will require an annual review and a complete update in five years.</p> <p><b>Action Item #15:</b> Complete annual reviews of the Jackson Hazard Mitigation Plan Update 2025, including a review of the "Action Items" status to encourage completion. Obtain approval from the local elected body annually and provide a complete update of the Plan in five years. <b>(MU11) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Emergency Management Director	Local & Grants	Short Term <1 year  Long Term 3-5 years	Very Low Cost (\$0 - \$1,000 or staff time only)
B-3	<p><b>Problem Statement:</b> This Plan, the Jackson Hazard Mitigation Plan Update 2025, will need to be approved again as a Community Wildfire Protection Plan (CWPP).</p> <p><b>Action Item #16:</b> Obtain approval of this Plan as a Community Wildfire Protection Plan (CWPP) to enable potential assistance from the State and Federal governments for future wildfire mitigation projects. <b>(WF2) (Table 7.1)</b></p>	Wildfire & Conflagration	Mapping & Planning Solutions	Local	Short Term <1 year	Very Low Cost (\$0 - \$1,000 or staff time only)
B-4	<p><b>Problem Statement:</b> An undersized culvert on Sugar Hill Lane needs upgrading to improve stormwater flow.</p> <p><b>Action Item #17:</b> Upgrade the 32" underperforming metal culvert on Sugar Hill Lane with a new 48" plastic culvert to improve stormwater flow. <b>(F13)</b></p>	Inland Flooding & Aging Infrastructure	Highway Department	Local	Short Term <1 year	Low Cost \$1,000-\$20,000
B-5	<p><b>Problem Statement:</b> The Whitney Community Center generator needs to be elevated to reduce the risk of flooding. The Whitney Community Center is the designated Primary Shelter for the Town.</p> <p><b>Action Item #18:</b> Elevate the generator at the Whitney Community Center, the Primary Shelter, to mitigate the chance of flooding and ensure this key resource's continued use. <b>(MU13)</b></p>	Inland Flooding	Jackson Grammar School Board	Local	Short Term <1 year	Low Cost \$1,000-\$20,000

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
C-1	<b>Problem Statement:</b> Jackson has no Smokey Bear fire danger sign. <b>Action Item #19:</b> Consider suitable location(s) in Jackson for a Fire Danger Sign to keep citizens and visitors aware of the daily fire risk. <b>(WF) (Table 6.1)</b>	Wildfire & Conflagration	Fire Department	Local & Grants	Medium Term 1-3 years	Low Cost \$1,000-\$20,000
C-2	<b>Problem Statement:</b> The Jackson Grammar School's drainage system does not accommodate significant stormwater flow during periods of high water. <b>Action Item #20:</b> Improve stormwater flow in the Jackson Grammar School's drainage system by evaluating engineering needs and executing a plan to mitigate the issue. <b>(MU13)</b>	Inland Flooding	Jackson Grammar School Board	Local & Grants	Medium Term 1-3 years	High Cost (\$100,000 or more)
C-3	<b>Problem Statement:</b> All three emergency departments in Jackson (Police, Fire, and highway Departments) have radio interoperability. Communications systems and radios are updated with state and federal requirements and work as intended. However, some areas of the Town have "dead spots." <b>Action Item #21:</b> Assess radio needs and obtain upgrades as needed. <b>(Emergency Preparedness) (Table 6.1)</b>	All Hazards	Emergency Management Director & Fire Department	Local & Grants	Medium Term 1-3 years	Very Low Cost (\$0 - \$1,000 or staff time only)
C-4	<b>Problem Statement:</b> The Jackson Subdivision and Zoning Regulations have been recently updated and are in good shape. However, they should be reviewed when this Plan is completed to integrate action items and mitigation ideas into future planning. <b>Action Item #22:</b> Review the Jackson Subdivision and Zoning Regulations to consider changes that will enhance mitigation efforts across the Community. Update these planning mechanisms and integrate elements from this Plan where possible. <b>(WF2, F1 &amp; MU6) (Table 6.1)</b>	All Hazards	Planning Board	Local	Medium Term 1-3 years	Very Low Cost (\$0 - \$1,000 or staff time only)
C-5	<b>Problem Statement:</b> The Jackson Master Plan (2016) is reviewed annually and may need an update in 2026 based on the State's 10-year recommendation. It does not have a "Natural Hazards" section or discuss climate change. <b>Action Item #23:</b> Review this Plan, the Jackson Hazard Mitigation Plan Update 2025, whenever working on the Master Plan. Consider incorporating a discussion on climate change, natural hazards, and mitigation action items from this Plan. <b>(MU6) (Tables 6.1 &amp; 7.1)</b>	All Hazards	Planning Board	Local	Medium Term 1-3 years	Low Cost \$1,000-\$20,000
C-6	<b>Problem Statement:</b> The Jackson Fire Station does not meet the needs or codes of a modern fire station. <b>Action Item #24:</b> Complete the planning, funding, and execution of the plan to build a new Fire Station in roughly the same location as the current station to ensure the capabilities of this important critical infrastructure and a key resource.	Wildfire & Conflagration	Fire Department	Local & Grants	Medium Term 1-3 years	High Cost (\$100,000 or more; 4.5 Million)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
D-1	<p><b>Problem Statement:</b> An undersized culvert on Black Mountain Road needs upgrading to improve stormwater flow and prevent continued aging.</p> <p><b>Action Item #25:</b> Upgrade the 5' diameter underperforming and rotting culvert and stone retaining wall to improve stormwater flow. <b>(F13)</b></p>	Inland Flooding & Aging Infrastructure	Highway Department	Local & Grants	Long Term 3-5 years	High Cost (\$100,000 or more)
D-2	<p><b>Problem Statement:</b> The Jackson Highway Department has established a short and long-term bridge maintenance and replacement schedule. The Dundee Road Bridge over Mill Brook is one "red-listed" bridge in the Town.</p> <p><b>Action Item #26:</b> Replace the one "red-listed" bridge, the Dundee Road Bridge over Mill Brook, once state funding becomes available. This old stone bridge is on the State's schedule for the earliest in 2034 and will likely be replaced completely with a new and wider bridge. <b>(MU13) (Table 6.1)</b></p>	Aging Infrastructure	Highway Department	Local & Grants	Long Term 3-5 years	High Cost (\$100,000 or more)
D-3	<p><b>Problem Statement:</b> The location of the Old Town Hall is being undermined by the Wildcat River. The building should be moved to protect the historic significance of the structure.</p> <p><b>Action Item #27:</b> Move the Old Town Hall, the home of the Historical Society, to protect it from damage along the riverbank.</p>	Landslide	Jackson Historical Society	Local & Grants	Long Term 3-5 years	High Cost (\$100,000 or more)
D-4	<p><b>Problem Statement:</b> This action item from the prior plan has not been completed; location issues must be addressed. A new cistern would most likely be located on Presidential Drive.</p> <p><b>Action Item #28:</b> Determine the location and obtain and install a cistern or cisterns with an aggregate total of 30,000 gallons in Tyrol. <b>(WF2) (Table 7.1)</b></p>	Wildfire & Conflagration	Fire Chief & Select Board	Local & Grants	Long Term 3-5 years	Medium Cost (\$20,000-\$100,000)
D-5	<p><b>Problem Statement:</b> Higher floods have caused major trail and bank erosion at Jackson Falls, which receives high public use and is designated a National Wild and Scenic River. The damage threatens public safety, the greater risk of tree root damage and tree falls, and the Falls' natural resources.</p> <p><b>Action Item #29:</b> Implement bank erosion control methods to maintain safe public access to Jackson Falls, protect the Falls' natural resource values, and protect the Town's infrastructure of roads, bridges, and town buildings. <b>(ER5)</b></p>	Erosion	Jackson Conservation Commission	Local & Grants	Long Term 3-5 years	High Cost (\$100,000 or more)
D-6	<p><b>Problem Statement:</b> The Jackson Emergency Operations Plan (EOP) was last updated in 2023 and will need to be updated again in 2028.</p> <p><b>Action Item #30:</b> Update the Jackson Emergency Operations Plan to coincide with the State's 18-ESF format. Include an analysis of the impact of natural hazards on Critical Infrastructure &amp; Key Resources (CIKR) that may be needed during an emergency. Like the current EOP, the new EOP will include an EOC Call Alert List, a detailed Resource Inventory List, and Player Packets. <b>(MU6) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Emergency Management Director	Local & Grants	Long Term 3-5 years	Very Low Cost (\$0 - \$1,000 or staff time only)

## Chapter 10: Adopting, Monitoring, Evaluating, and Updating the Plan

### ***A. HAZARD MITIGATION PLAN MONITORING, EVALUATION, AND UPDATES***

The Town's Emergency Management Director will call meetings of all responsible town parties to review plan progress annually on the anniversary of plan adoption and, as needed, based on the occurrence of hazard events and report outcomes to the Select Board. The public will be notified of these meetings by posting the agenda at the Town Offices. Responsible parties identified for mitigation actions will be asked to submit their reports before the meeting. Meetings will entail the following actions:

- Review previous hazard events to discuss and evaluate major issues, the effectiveness of current mitigation, and possible mitigation for future events.
- Assess how the mitigation strategies of the Plan can be integrated with other Town plans and operational procedures.
- Review and evaluate progress toward implementing the current mitigation plan based on reports from responsible parties.
- Amend the current Plan to improve mitigation practices.
- Evaluate and assess the Plan's effectiveness in achieving its goals, stated purpose, and priorities.

The following questions will serve as the criteria that are used to evaluate and update the Plan:

#### **Plan Mission and Goal**

- Is the Plan's stated goal and mission still accurate and up to date, reflecting any changes to local hazard mitigation activities?
- Are there any changes or improvements that can be made to the goal and mission?

#### **Hazard Identification and Risk Assessment**

- Have there been any new occurrences of hazard events since the Plan was last reviewed? If so, these hazards should be incorporated into the Hazard Identification and Risk Assessment.
- Have any new occurrences of hazards varied from previous occurrences in terms of their extent or impact? If so, the stated impact, extent, probability of future occurrence, or overall risk and vulnerability assessment should be edited to reflect these changes.
- Is there any new data available from local, state, or federal sources about the impact of previous hazard events, or any new data for the probability of future occurrences? If so, this information should be incorporated into the Plan.

**Existing Mitigation Strategies**

- Are the current strategies effectively mitigating the effects of any recent hazard events?
- Has there been any damage to property since the Plan was last reviewed?
- How could the existing mitigation strategies be improved to reduce the impact of recent occurrences of hazards?

**Proposed Mitigation Strategies**

- What progress has been accomplished for the previously identified proposed mitigation strategies?
- How have any completed mitigation strategies reduced the Town’s vulnerability and impact from hazards since the strategy was completed? If not, and if they have been tested, what changes are needed to make them more effective?
- Should the criteria for prioritizing the proposed strategies be altered in any way?
- Should the priority given to individual mitigation strategies be changed based on any recent changes to financial and staffing resources or recent hazard events?

**Review of the Plan and Integration with Other Planning Documents**

- Is the current process for reviewing the Hazard Mitigation Plan effective?
- How could it be improved?
- Are there any town plans in the process of being updated that should have the content of this Hazard Mitigation Plan incorporated into them or integrated with other town planning tools and operational procedures, including the Zoning Regulations, the Subdivision Regulations, the Master Plan, and the Capital Improvement Plan?

Following these discussions, it is anticipated that the Planning Team may decide to reassign the roles and responsibilities for implementing mitigation strategies to different town departments or revise the goals and objectives contained in the Plan.

Review forms for post-hazard or annual reviews are available in Chapter 11 of this Plan. The Town is encouraged to use these forms to document any changes and accomplishments after this Plan’s development. Forms are available for years 1-4.

## ***B. INTEGRATION WITH OTHER PLANS***

This Plan will only enhance mitigation if balanced with all other town plans. Jackson completed its last hazard mitigation plan in 2019 and has completed many projects. Examples in Table 7.1 include providing ongoing fire and flood education, installing a generator at the Jackson Public Library, installing solar panels on the Tyrol Repeater, and creating a wellhead protection ordinance. As a result, the Town was able to integrate these actions into other town activities, budgets, plans, and mechanisms.

The Town of Jackson has agreed to incorporate a Community Wildfire Protection Plan (CWPP) into this planning document, the Jackson Hazard Mitigation Plan Update 2025. As part of this Plan, the Town will adopt the CWPP, which will be approved by the Department of Natural and Cultural Resources (DNCR).

The Town will incorporate elements from this Plan into the following documents:

### **JACKSON MASTER PLAN**

Traditionally, Master Plans are updated every 5 to 10 years. A complete update of Jackson's Master Plan was completed in 2016 and is due for a recommended update in 2026. Future reviews and updates of the Master Plan will consider integrating concepts, ideas, and action items from this Hazard Mitigation Plan, a discussion on climate change, and a natural hazards section (**Action Item #23**).

### **JACKSON EMERGENCY OPERATIONS PLAN 2023 (EOP)**

The EOP is designed to allow the Town to respond more effectively to disasters and mitigate the risk to people and property. EOPs are generally reviewed after each hazardous event and updated on a five-year basis. The last Jackson EOP was completed in 2023. An update for the Emergency Operations Plan is expected to be completed in 2028. The new EOP will incorporate elements from this hazard mitigation plan (**Action Items #30**).

### **TOWN BUDGET, CAPITAL IMPROVEMENT PLAN & CAPITAL RESERVE FUNDS**

The Town of Jackson maintains a Capital Improvement Plan (CIP) and Capital Reserve Funds (CRFs) for major expenditures. The CRFs and the CIP are adjusted annually in coordination with the Select Board and other town department heads and committees at budget time. The budget is then voted on at the annual Town Meeting. During the annual budget planning process, specific mitigation actions identified in this Plan that require town fiscal support will be reviewed for incorporation into the budget. **Refer to those Action Items that require local money or match money (multiple Action Items) or address the CIP and CRF.**

### **THE JACKSON ORDINANCES & SUBDIVISION REGULATIONS**

As time passes and the Town's needs change, the Town's planning mechanisms will be reviewed and updated. In coordination with these actions, the Planning Board will review this Plan and incorporate any changes that help mitigate the Community's susceptibility to the dangers of natural, technical, or human-caused disasters. An example of this integration can be seen in this Plan's mitigation action item (**Action Item #22**).

The local governments will modify other plans and actions to incorporate hazard or wildfire issues. The Select Board ensures this process will be followed in the future.

### **C. PLAN APPROVAL & ADOPTION**

The Emergency Management Director will update the Plan every five years and incorporate the results of the Town's plan monitoring and evaluation procedures. The next anticipated annual update will begin upon the anniversary of the Plan's approval. The next full update of the Plan is scheduled to begin before the fifth anniversary of approval. Plan updates may begin earlier following a significant natural hazard event within the Town and region, such as a federally declared disaster.

The public meetings of the Planning Team shall be publicized through legal notices in local newspapers, posted fliers, and on the town website. Written and email comments shall be directed to the EMD. The updated Plan will incorporate input from the public, other municipalities, and government agencies. The Select Board is responsible for approving the Plan submission to FEMA and for adopting the Plan. The update will follow a similar planning process and outline as the current process, making deviations when needed. The update will be expanded to better address natural hazards, development, climate change, vulnerable populations, regional impacts, and other pertinent issues.

This Plan was completed in a series of open meetings beginning April 10, 2024. The Plan was presented to the Town for review, submitted to HSEM/FEMA for Conditional Approval (*APA, Approved Pending Adoption*), formally adopted by the Select Board, and resubmitted to HSEM/FEMA for Final Approval. Once Final Approval from HSEM/FEMA was met, copies of the Plan were distributed to the Town, HESM, FEMA, DNCR, and the USDA-FS; the Plan was then distributed as these entities saw fit. Copies of the Plan remain on file at Mapping and Planning Solutions (MAPS) in digital and paper formats.

## Chapter 11: Signed Community Documents and Approval Letters

### A. PLANNING SCOPE OF WORK & AGREEMENT

#### PLANNING SCOPE OF WORK & AGREEMENT

#### JACKSON HAZARD MITIGATION PLAN UPDATE

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#### PARTIES TO THE AGREEMENT

Mapping and Planning Solutions

Town of Jackson, NH

Current Plan Expiration: 12/10/2024

BRIC2021 Grant Expiration: 8/3/2025

This agreement between the Town of Jackson (the Town), or its official designee, and Mapping and Planning Solutions (MAPS) outlines the Town's desire to engage the services of MAPS to assist in planning services to produce the Jackson Hazard Mitigation Plan Update (the plan).

#### Agreement

This agreement outlines the responsibilities that will ensure plan development with the involvement of town members and local, federal, and state emergency responders and organizations. The agreement identifies the work to be done by detailing the specific tasks, schedules, and finished products resulting from the planning process.

The goal of this agreement is that the plan and planning process be consistent with town policies and accurately reflect the Town's values and individuality; this is accomplished by forming a working relationship between the Town's citizens, the planning team, and MAPS.

The plan created as a result of this agreement will be presented to the Town for adoption once conditional approval (also known as Approved Pending Adoption or APA) is received from NH Homeland Security & Emergency Management (HSEM) on behalf of the Federal Emergency Management Agency (FEMA). When adopted, the plan guides the Town, commissions, and departments; adopted plans do not include any financial commitments by the Town. All adopted plans should address mitigation strategies for reducing the risk of natural, technological, human-caused, and wildfire disasters on life and property and be written to integrate them into other town planning initiatives.

#### Scope of Work

#### **MAPS - Responsibilities include, but are not limited to, the following:**

- MAPS will collect the necessary data to complete the plan and meet the requirements of the FEMA Plan Review Tool by working with the planning team (the team) and taking public input.
- With the team's assistance, MAPS will coordinate and facilitate two-hour virtual meetings to complete the project; generally, meetings are held monthly and do not exceed eight. As needed, MAPS will provide virtual materials and handouts to explain each step in the planning process. These meetings will be held online unless unanticipated circumstances prevail.<sup>32</sup>

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<sup>32</sup> If unanticipated circumstances prevail and meetings are held in person, MAPS will make every effort to proceed. However, the town shall ensure that attendance at any meeting is adequate to proceed. Mapping and Planning Solutions reserves the right to invoice the town for travel, meal expenses and staff costs incurred when meeting attendance is inadequate.

- MAPS will assist the team in developing goals, objectives, and action items and define the processes needed for plan monitoring, educating the public, and integrating the plan with other town plans and activities.
- MAPS will coordinate and collaborate with other federal, state, and local agencies throughout the process.
- MAPS will explain and delineate the Town's Wildland Urban Interface (WUI) and, working with the team, will establish a list of potentially hazardous areas and analyze each risk's severity.
- MAPS will author, edit, and prepare the plan for review by the team before submitting the plan to HSEM for conditional approval. Upon conditional approval by HSEM, MAPS will provide the planning team with the necessary documents for plan adoption by the Jackson Select Board and continue to work with the Town until final approval and distribution of the plan are complete.
- MAPS shall provide all supplies and space necessary to complete the Jackson Hazard Mitigation Plan at its office.
- Once final documents are received, MAPS will print and distribute the plan. The final documents include the HSEM formal approval email, the FEMA formal letter of approval, and the approved Community Wildfire Protection Plan (CWPP) documents. MAPS will provide the Town with one hard copy of the plan containing all signed documents and approvals, and a flash drive containing these same documents in digital form. Additional flash drives may be requested at an additional cost. Copies of the plan will be distributed by MAPS to collaborating agencies, including, but not limited to, HSEM, FEMA, the Department of Natural and Cultural Resources (DNCR), and the US Forest Service.
- MAPS will provide all "Quarterly Reports" required by HSEM for this project's duration. These quarterly reports will be done online, and a copy of the report will be forwarded to the primary contact for Jackson.
- As long as MAPS is in operation, MAPS will provide annual plan maintenance reminders leading up to the next five-year plan update.

***The Town - Responsibilities include, but are not limited to, the following:***

- The Town shall ensure that the planning team includes members who can access and provide pertinent data. The planning team should include, but not be limited to, such town members as the local Emergency Management Director, the Fire, Ambulance, and Police Chiefs, members of the Select Board and the Planning Board, the Public Works Director or Road Agent, representatives from relevant federal and state organizations, other local officials, property owners, and relevant businesses or organizations.
- The Town shall determine a principal contact to work with MAPS. This agreement shall assist with recruiting participants for planning meetings, including developing mailing lists when necessary, distributing handouts, and placing meeting announcements. This contact shall also assist MAPS with organizing public meetings to develop the plan and offer assistance to MAPS in developing the work program, which will produce the plan.
- The Town shall gain the support of stakeholders for the recommendations found within the plan.
- The Town shall provide public access for all meetings and provide public notice at the start of the planning process and at the time of adoption, as required by FEMA and the Code of Federal Regulations (CFRs).
- The proposed plan shall be submitted to the Select Board for consideration and adoption.

- After the Town adopts the plan and final approval from HSEM is received, the Town will:
  - *Distribute copies of the plan as it sees fit throughout the local community.*
  - *Develop a team to monitor and work toward completing the determined Action Items.*
  - *Publicize the plan to the community and ensure citizen awareness.*
  - *Encourage the integration of priority projects into the Town's Capital Improvement Plan (if available).*
  - *Integrate mitigation strategies and priorities from the plan into other town planning documents.*

**Terms**

- **Fees & Payment Schedule:** The contract price is limited to \$7,500; an invoice will be sent to the Town for each payment as outlined below. (HMP, Level 2)
  - 1. Initial payment upon receipt of the first invoice, one week before the first meeting.....\$3,500.00
  - 2. Second payment upon plan submittal to HSEM for APA (Approve Pending Adoption).....\$3,700.00
  - 3. Final payment upon project completion and receipt of the final hard copy of the plan.....\$300.00
  - Total Fees.....\$7,500.00
  
- **Payment Procedures:** The payment procedure is as follows:
  - MAPS will invoice the Town according to the schedule above.
  - The Town will pay MAPS.
  - The Town will forward the MAPS invoice along with an invoice from the Town on letterhead to HSEM.
  - HSEM will reimburse the Town for the monies paid to MAPS.

All payments to MAPS are fully reimbursable to the Town by Homeland Security & Emergency Management, provided prescribed match amounts have been met.

- **Required Matching Funds:** This project's total cost under BRIC2021 is \$10,000, with a federal share of \$7,500 and a matching amount of \$2,500 (75%/25% split). Matching funds are the responsibility of the Town of Jackson, not MAPS. The Town will be responsible for providing and documenting all resources used to meet the FEMA-required match. However, Mapping and Planning Solutions will assist the Town with attendance tracking by asking meeting attendees to sign in at all meetings and log any time spent outside of the meetings working on this project. MAPS will provide the Town with final attendance records in spreadsheet form at the project's end to use in its match fulfillment.
  
- **Project Period:** This project shall begin upon grant approval from HSEM and the signing of this agreement with MAPS. The project will continue through a date yet to be determined or whenever the planning process is complete. The project period may be extended if required by mutual written agreement between the Town, MAPS, and Homeland Security. The actual project end date depends on timely adoptions and approvals, which may be outside the control of MAPS and the Town. The grant provided for this project is funded through BRIC2021. Per the grant agreement between the Town and HSEM, all work must be completed by August 3, 2025.
  
- **Ownership of Material:** The Town shall own all reports, documents, and other materials produced during the project period; each party may keep file copies of any generated work. MAPS shall have the right to use work products collected during the planning process; however, MAPS shall not use any data in such a way as to reveal personal or public information about individuals or groups which could reasonably be considered confidential. MAPS utilizes licensed Microsoft products to prepare documents; our MS Word, Excel, and PowerPoint documents will only be provided as Adobe PDF documents.
  
- **Termination:** This agreement may be terminated if both parties agree in writing. In the event of termination, MAPS shall forward all information prepared to date to the Town. MAPS shall be entitled to recover its costs for any completed work.

- **Limit of Liability:** MAPS agrees to perform all work diligently and efficiently according to the terms of this agreement. MAPS' responsibilities under this agreement depend upon the cooperation of the Town of Jackson. MAPS and its employees, if any, shall not be liable for opinions rendered, advice, or errors resulting from the quality of data supplied. Adoption of the plan by the Town and final approval of the plan by HSEM and FEMA relieve Mapping and Planning Solutions of content liability. MAPS carries general liability insurance.
- **Amendments:** Changes, alterations, or additions to this agreement may be made if agreed to in writing between the Town of Jackson and Mapping and Planning Solutions.
- **Mapping and Planning Solutions:** Mapping and Planning Solutions provides hazard mitigation and emergency operations planning throughout New Hampshire. Mapping and Planning Solutions has developed more than 100 Hazard Mitigation Plans and more than 85 Emergency Operations Plans and has completed the following FEMA courses in emergency planning and operations:
  - Introduction to Incident Command System, IS-100.a
  - ICS Single Resources and Initial Action Incidents, IS-200.a
  - National Incident Management System (NIMS) An Introduction, IS-700.a
  - National Response Framework, An Introduction, IS 800.b
  - Emergency Planning, IS-235
  - Homeland Security Exercise & Evaluation Program (HSEEP)
  - IS-547.a – Introduction to Continuity Operations
  - IS-546.a – Continuity of Operations (COOP) Awareness Course
  - G-318; Preparing & Review Hazard Mitigation Plans
  - Climate Change Adaptation Planning, AWR-347
  - ALICE; School Shooting Workshop, Littleton High School
  - L0550 Continuity Planners Workshop (2320EM1216)

➤ **Contacts:**

**For Mapping & Planning Solutions**

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**For the Town of Jackson**

Emily Benson  
Emergency Management Director  
Town of Jackson - PO Box 26  
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emd@jackson-nh.org  
(603) 986-2197 (cell)  
(603) 383-4223 (Town Office)

**Signatures below indicate acceptance of and agreement to the details outlined in this agreement.**

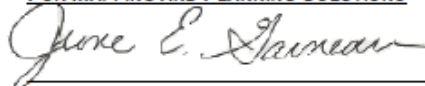
**FOR THE TOWN OF JACKSON, NH**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name/Title

\_\_\_\_\_  
Date

**FOR MAPPING AND PLANNING SOLUTIONS**



\_\_\_\_\_  
Signature  
June Gameau, Owner  
March 16, 2024

**Signatures are scanned facsimiles; original signatures are on file.**

**B. APPROVED PENDING ADOPTION (APA) FROM FEMA**

HMP Approvable Pending Adoption (APA) Notice: Jackson, NH

Neiderbach, Josiah <josiah.neiderbach@fema.dhs.gov>  
 To emd@jackson-nh.org  
 Cc jgarneau@mappingandplanning.com; FEMA-R1-MitigationPlans; Doyle, Lynne; DOS: Hazard Mitigation; Brown, Austin; +2 others

Reply Reply All Forward

Wed 4/16/2025 4:35 PM

This message was sent with High importance.

Jackson NH APA Review.docx 95 KB

Dear Official:

The FEMA Region 1 Mitigation Division has determined the Jackson, NH Hazard Mitigation Plan Update 2025 meets all applicable FEMA Mitigation Planning requirements (Local Mitigation Planning Policy Guide, effective April 11, 2025), except its adoption by Town of Jackson, NH.

Mitigation plans may include additional content to meet Element H: Additional State Requirements or content the local government included beyond applicable FEMA mitigation planning requirements. Determination that the plan is "Approvable Pending Adoption" does not include the review or approval of content that exceeds these applicable FEMA mitigation planning requirements.

**This status is "Approvable Pending Adoption" (APA). Plan adoption is required to receive formal FEMA approval.**

Local governments, including special districts, with a plan status of "Approvable Pending Adoption" are not eligible for FEMA mitigation grant programs with a mitigation plan requirement.

The next step in the approval process is to formally adopt the mitigation plan and send a resolution or adoption documentation in accordance with Element F1 of the Local Mitigation Planning Policy Guide, on pages 31-32, to the State for submission to FEMA. A sample adoption resolution can also be found in Appendix B of the Policy Guide.

It is critical for the jurisdiction to adopt the plan as soon as possible. Jurisdictions that adopt the plan more than one year after APA status has been issued must either:

- Validate that their information in the plan remains current with respect to both the risk assessment (no recent hazard events, no changes in development) and their mitigation strategy (no changes necessary); or
- Make the necessary updates before submitting the adoption resolution to FEMA.

An approved local mitigation plan, including adoption by the local government, is one of the conditions for applying for and/or receiving FEMA mitigation grants from the following programs:


- Hazard Mitigation Grant Program (HMGP)
- HMGP Post-Fire
- Flood Mitigation Assistance (FMA)
- Safeguarding Tomorrow Revolving Loan Fund
- If applicable, High Hazard Potential Dams Grant Program (HHPD)

If a plan does not meet the HHPD requirements, then the jurisdiction is not eligible for assistance from the HHPD Grant Program. If any jurisdiction with HHPDs is interested in this assistance, they should contact the FEMA Regional Mitigation Planner listed below to learn more about how to include all dam risks in the plan, or at least their portion of the plan.

We look forward to receiving the adoption resolution/documentation soon and discussing options for implementing this mitigation plan. If we can assist in any way, please contact Jay Neiderbach at 202-285-7769 and [josiah.neiderbach@fema.dhs.gov](mailto:josiah.neiderbach@fema.dhs.gov).

Sincerely,  
 Jay  
 Josiah (Jay) Neiderbach  
 Mitigation Planner | Mitigation Division | Region 1  
 Mobile: (202) 285-7769  
[josiah.neiderbach@fema.dhs.gov](mailto:josiah.neiderbach@fema.dhs.gov)

Federal Emergency Management Agency  
[fema.gov](https://www.fema.gov)



**Signatures are scanned facsimiles; original signatures are on file.**

**C. FORMAL APPROVAL LETTER FEMA**

U.S. Department of Homeland Security  
FEMA Region 1  
220 Binney Street  
Cambridge, MA 02142



**FEMA**

May 19, 2025

Robert M. Buxton, Director  
New Hampshire Homeland Security and Emergency Management  
33 Hazen Dr.  
Concord, NH 03305

Director Buxton:

The U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region 1 Mitigation Division has approved the *Jackson, NH Hazard Mitigation Plan Update 2025* effective **May 19, 2025** through **May 18, 2030** in accordance with the planning requirements of the Robert T. Stafford Relief and Emergency Assistance Act (Stafford Act), as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; and Title 44 Code of Federal Regulations (CFR) Part 201.

Mitigation plans may include additional content to meet Element H: Additional State Requirements or content the local government included beyond applicable FEMA mitigation planning requirements. FEMA approval does not include the review or approval of content that exceeds these applicable FEMA mitigation planning requirements.

With this plan approval, the Town of Jackson, NH is eligible to apply to New Hampshire Homeland Security and Emergency Management for mitigation grants administered by FEMA. Requests for funding will be evaluated according to the eligibility requirements identified for each of these programs. A specific mitigation activity or project identified in this community's plan may not meet eligibility requirements for FEMA funding; even eligible mitigation activities or projects are not automatically approved.

The plan must be updated and resubmitted to the FEMA Region 1 Mitigation Division for approval every five years to remain eligible for FEMA mitigation grant funding.

Robert M. Buxton, Director  
Page 2

Thank you for your continued commitment and dedication to risk reduction demonstrated by preparing and adopting a strategy for reducing disaster losses. Should you have any questions, please contact Jay Neiderbach at (202) 285-7769 or [josiah.neiderbach@fema.dhs.gov](mailto:josiah.neiderbach@fema.dhs.gov).

Sincerely,

**CHRISTOPHER J MARKESICH** Digitally signed by CHRISTOPHER J  
MARKESICH  
Date: 2025.05.20 08:51:02 -04'00'

Christopher Markesich  
Floodplain Management and Insurance Branch Chief  
Mitigation Division | DHS, FEMA Region 1

cc: Austin Brown, Mitigation & Recovery Section Chief, NH HSEM  
Lynne Doyle, State Planner, NH HSEM  
Richard Verville, Mitigation Division Director, DHS, FEMA Region 1  
Josiah (Jay) Neiderbach, Hazard Mitigation Community Planner, DHS, FEMA Region 1

**Signatures are scanned facsimiles; original signatures are on file.**

***D SIGNED CERTIFICATE OF ADOPTION***

**CERTIFICATE OF ADOPTION**

**JACKSON, NH**

**SELECT BOARD**

**A RESOLUTION ADOPTING THE JACKSON, NH HAZARD MITIGATION PLAN UPDATE 2025**

WHEREAS the Town of Jackson has historically experienced severe damage from natural hazards, and it continues to be vulnerable to the effects of those natural hazards profiled in this Plan, resulting in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS the Town of Jackson has received Approved Pending Adoption (APA) status from the Federal Emergency Management Agency (FEMA) for its Hazard Mitigation Plan Update 2025 under the requirements of 44 CFR 201.6 and in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS public and committee meetings were held between April 10, 2024, and September 11, 2024, regarding the development and review of the Hazard Mitigation Plan Update 2025 and

WHEREAS the Plan specifically addresses hazard mitigation strategies and plan maintenance procedures for the Town of Jackson and

WHEREAS the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural hazards that impact the Town of Jackson, with the effect of protecting people and property from loss associated with those hazards and

WHEREAS adoption of this Plan will make the Town of Jackson eligible for funding to alleviate the impacts of future hazards; now, therefore, be it

RESOLVED by the Select Board:

1. The Plan is now adopted as an official plan of the Town of Jackson.
2. The respective officials identified in the Plan's mitigation action items are directed to pursue the implementation of the recommended actions assigned to them.

Jackson, Hazard Mitigation Plan Update Certificate of Adoption, page two

- 3. Future revisions and plan maintenance required by 44 CFR 201.6 and FEMA are now adopted as a part of this resolution for five (5) years from the date of this resolution.
- 4. The Emergency Management Director shall present an annual report to the Select Board on the progress of the Plan's action items.

Adopted this day, the 13<sup>th</sup> of May, 2025

Select Board Chair

Bruce Lybell  
Signature

Barbara Campbell  
Print Name

Member of the Select Board

[Signature]  
Signature

Frank DiFruscio  
Print Name

Member of the Select Board

[Signature]  
Signature

Bob Thompson  
Print Name

Emergency Management Director

[Signature]  
Signature

Emily T. Benson  
Print Name

IN WITNESS WHEREOF, the undersigned has affixed their signature and Notary Stamp on this day, May 13<sup>th</sup> 2025

Julie G. Hoyt  
Notary

March 13, 2029  
Expiration



Signatures are scanned facsimiles; original signatures are on file.

**E. CWPP APPROVAL LETTER FROM DNCR**

**Jackson, NH  
A Resolution Approving the  
Jackson, NH Hazard Mitigation Plan Update 2025  
As a Community Wildfire Protection Plan**

Several public and committee meetings were held between April 10, 2024, and September 11, 2024, regarding the development and review of the Jackson, NH Hazard Mitigation Plan Update 2025. The Plan contains potential future projects to mitigate hazard and wildfire damage in the Town of Jackson.

The Fire Chief, the Select Board, and the Emergency Management Director request that the Department of Natural and Cultural Resources (DNCR) accept this plan as a Community Wildfire Protection Plan, having adhered to its requirements.


The Select Board, the Emergency Management Director, and the Fire Chief approve the Jackson Hazard Mitigation Plan Update 2025 and understand that with approval by DNCR, this Plan will also serve as a Community Wildfire Protection Plan.

**For the Town of Jackson**

APPROVED and SIGNED this day, May 13<sup>th</sup>, 2025.

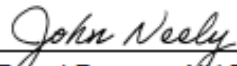
  
\_\_\_\_\_  
Chairman of the Select Board

  
\_\_\_\_\_  
Fire Chief

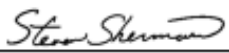
  
\_\_\_\_\_  
Printed Name  
**JAY HENRY**  
\_\_\_\_\_  
Printed Name

**For the Department of Natural & Cultural Resources (DNCR)**

APPROVED and SIGNED this day, May 19, 2025.

  
\_\_\_\_\_  
Forest Ranger – NH Division of Forest and Lands, DNCR

APPROVED and SIGNED this day, May 20, 2025.

  
\_\_\_\_\_  
Steve Sherman, Chief, Forest Protection Bureau – NH Division of Forests & Lands, DNCR

*Signatures are scanned facsimiles; original signatures are on file.*

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**F. ANNUAL OR POST HAZARD REVIEW FORMS**

**YEAR ONE - Annual or Post Hazard Review Form**

**CHECK ALL THAT APPLY**

Annual Review - **Year One**: \_\_\_\_\_ (Date)

Annual Review – Post Hazardous Event: \_\_\_\_\_ (Event/Date)

Annual Review – Post Hazardous Event: \_\_\_\_\_ (Event/Date)

After inviting the public and stakeholders to hearings, the Town’s governing body and the designated Emergency Management Director shall execute this page annually.

Jackson, NH  
Hazard Mitigation Plan Update

REVIEWED AND APPROVED

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

Chairman of the Select Board

Changes and notes regarding the 2025 Hazard Mitigation Plan Update

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Please use the reverse side for additional notes** 



**YEAR TWO - Annual or Post Hazard Review Form**

**CHECK ALL THAT APPLY**

Annual Review - **Year Two**: \_\_\_\_\_ (Date)

Annual Review – Post Hazardous Event: \_\_\_\_\_ (Event/Date)

Annual Review – Post Hazardous Event: \_\_\_\_\_ (Event/Date)

After inviting the public and stakeholders to hearings, the Town’s governing body and the designated Emergency Management Director shall execute this page annually.

Jackson, NH  
Hazard Mitigation Plan Update

REVIEWED AND APPROVED

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

Chairman of the Select Board

Changes and notes regarding the 2025 Hazard Mitigation Plan Update

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***Please use the reverse side for additional notes*** 



**YEAR THREE - Annual or Post Hazard Review Form**

**CHECK ALL THAT APPLY**

- Annual Review - **Year Three**: \_\_\_\_\_ (Date)
- Annual Review – Post Hazardous Event: \_\_\_\_\_ (Event/Date)
- Annual Review – Post Hazardous Event: \_\_\_\_\_ (Event/Date)

After inviting the public and stakeholders to hearings, the Town’s governing body and the designated Emergency Management Director shall execute this page annually.

Jackson, NH  
Hazard Mitigation Plan Update

REVIEWED AND APPROVED

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

Chairman of the Select Board

Changes and notes regarding the 2025 Hazard Mitigation Plan Update

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***Please use the reverse side for additional notes*** 



**YEAR FOUR - Annual or Post Hazard Review Form**

CHECK ALL THAT APPLY

- Annual Review - **Year Four**: \_\_\_\_\_ (Date)
- Annual Review – Post Hazardous Event: \_\_\_\_\_ (Event/Date)
- Annual Review – Post Hazardous Event: \_\_\_\_\_ (Event/Date)

After inviting the public and stakeholders to hearings, the Town’s governing body and the designated Emergency Management Director shall execute this page annually.

Jackson, NH  
Hazard Mitigation Plan Update

REVIEWED AND APPROVED

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: \_\_\_\_\_

PRINTED NAME: \_\_\_\_\_

Chairman of the Select Board

Changes and notes regarding the 2025 Hazard Mitigation Plan Update

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*Please use the reverse side for additional notes* 



## Chapter 12: Appendices

- Appendix A: Bibliography
- Appendix B: Technical and Financial Assistance for Hazard Mitigation
  - *Hazard Mitigation Grant Program (HMGP)*
  - *Hazard Mitigation Grant Program Post Fire (HMGMP-Post Fire)*
  - *Flood Mitigation Assistance (FMA)*
  - *Building Resilient Infrastructure and Communities (BRIC)*
  - *Pre-Disaster Mitigation (PDM)*
- Appendix C: The Extent of Hazards
- Appendix D: Major Disaster & Emergency Declarations
- Appendix E: Acronyms
- Appendix F: Potential Mitigation Ideas

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## APPENDIX A: BIBLIOGRAPHY

### Documents

- **Local Hazard Mitigation Planning Policy Guide**, FEMA, April 19, 2023
- **Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards**, FEMA, January 2013
- **Hazard Mitigation Unified Guidance**, FEMA, July 12, 2013
- **Hazard Mitigation Assistance Guidance**, FEMA, February 27, 2015
- **Hazards Mitigation Plans**
  - Jackson Hazard Mitigation Plan, 2019
  - Sugar Hill Hazard Mitigation Plan, 2024
  - Gorham Hazard Mitigation Plan, 2024
  - Chester Hazard Mitigation Plan, 2024
- **NH State Multi-Hazard Mitigation Plan**, 2023
  - <https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2023/10/2023-NH-State-Hazard-Mitigation-Plan-Signed-10.5.23.pdf>
- **Disaster Mitigation Act (DMA) of 2000**, Section 101, b1 & b2, and Section 322a
  - <https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning/regulations-guidance#:~:text=The%20Disaster%20Mitigation%20Act%20of,of%20non%2Demergency%20disaster%20assistance>
- **Economic & Labor Market Information Bureau**, NH Employment Security, June 2024; Community Response for Jackson, Received, 7/15/2024, Census 2000 and Revenue Information derived from this site;
  - <http://www.nhes.nh.gov/elmi/products/cp/profiles-htm/Jackson.htm>

### Photos

- Photos are taken by MAPS unless otherwise noted.

### Map Images

- Map images (screen prints) are created by MAPS using readily available data from NH Granite unless otherwise indicated.

### **Wildfire Links & Wildfire Grant Assistance Links**

- US Forest Service; <https://www.fs.usda.gov/>
- US Fire Administration; <https://www.usfa.fema.gov/>
- Community Wildfire Defense Grant Program; <https://www.fs.usda.gov/managing-land/fire/grants#:~:text=The%20Community%20Wildfire%20Defense%20Program,reduce%20the%20risk%20of%20wildfire>
- Firewise®; <https://www.nfpa.org/Education-and-Research/Wildfire/Firewise-USA>
- Fire Adapted Communities; <https://www.fireadapted.org>
- Ready Set Go; <http://www.wildlandfires.org/>
- Fire education for children; <https://www.smokeybear.com/>
- Funding for Community Wildfire Risk Reduction; <https://wildfirerisk.org/reduce-risk/funding/>
- Pre-Disaster Mitigation (PDM) Grant Program; <https://www.fema.gov/grants/mitigation/learn/pre-disaster>
- Fire Prevention and Safety (FP&S); <https://www.fema.gov/grants/preparedness/firefighters/safety-awards>
- Assistance to Firefighters Grants; <https://www.fema.gov/grants/preparedness/firefighters/assistance-grants>
- Community Wildfire Defense Grant Program; <https://www.fs.usda.gov/managing-land/fire/grants/cwdg>
- Federal Wildfire Resources; <https://www.fs.usda.gov/sites/default/files/2022-08/Fed-Wildfire-Mitigation-Resources.pdf>

### **Additional Websites**

- NH Homeland Security & Emergency Management; <https://www.nh.gov/safety/divisions/hsem/>
- US Geological Survey; <https://www.usgs.gov/mission-areas/water-resources/science/land-subsidence>
- Department of Environmental Services; <https://www.des.nh.gov/>
- The Disaster Center (NH); <https://www.disastercenter.com/newhamp/tornado.html>
- The NFIP; <https://www.floodsmart.gov/>
- NOAA, National Weather Service; <https://w1.weather.gov/glossary/>
- NOAA, Storm Prediction Center; <https://www.spc.noaa.gov/faq/tornado/beaufort.html>
- National Weather Service; <https://www.weather.gov/safety/cold>
- Center for Disease Control; <https://www.cdc.gov/disasters/winter/index.html>
- Slate; <https://slate.com/news-and-politics/2003/12/outbreaks-vs-epidemics.html>
- NH Bureau of Economic Affairs; <https://www.nheconomy.com/office-of-planning-and-development>
- Code of Federal Regulations; Title 14, Aeronautics and Space; Part 1, Definitions and Abbreviations; <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-A/part-1>
- US Legal, Inc.; <https://definitions.uslegal.com/v/violent-crimes/>

**APPENDIX B: HAZARD MITIGATION ASSISTANCE (HMA)**

The Federal Emergency Management Agency’s (FEMA’s) HMA programs promote funding for mitigation measures that reduce or eliminate long-term risk to people and property from future disasters. These programs allow communities across the nation to enhance mitigation and take steps that will foster greater resilience and reduce disaster suffering<sup>33</sup>:

**HAZARD MITIGATION GRANT PROGRAM (HMGP)**

HMGP provides funding to rebuild communities in a way that mitigates future disaster losses in those communities. Funding is made available after the President issues a major disaster declaration. It is based on up to 15% or 20% of the estimated federal assistance provided.

**HAZARD MITIGATION GRANT PROGRAM POST FIRE (HMGP POST FIRE)**

The HMGP Post Fire program provides funding after a Fire Management Assistance Grant (FMAG) is declared and helps communities implement hazard mitigation measures after wildfire disasters. State, local, tribal, and territorial governments can apply for funding. The funding amount is pre-calculated, based on historical FMAG declarations, and reassessed every fiscal year.

**FLOOD MITIGATION ASSISTANCE (FMA)**

FMA is a competitive grant program funding states, local communities, tribes, and territories. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program (NFIP). An annual congressional appropriation funds the program and, since 2016, has made \$160 million available for mitigation projects.

MITIGATION PROJECTS	HMGP	HMGP POST FIRE	BRIC	FMA
Property Acquisition	Yes	Yes	Yes	Yes
Structure Elevation	Yes	Yes	Yes	Yes
Mitigation Reconstruction	Yes	Yes	Yes	Yes
Flood Risk Reduction Measures	Yes	Yes	Yes	Yes
Dry Floodproofing Non-Residential Buildings	Yes	Yes	Yes	Yes
Tsunami Vertical Evacuation	Yes	Yes	Yes	–
Safe Rooms Construction	Yes	Yes	Yes	–
Wildfire Mitigation	Yes	Yes	Yes	–
Retrofitting	Yes	Yes	Yes	Yes
Generators	Yes	Yes	Yes	–
Earthquake Early Warning System	Yes	Yes	Yes	–
<b>CAPABILITY AND CAPACITY BUILDING</b>				
New Plan Creation and Updates	Yes	Yes	Yes	Yes
Planning-Related Activities	Yes	Yes	Yes	Yes
Project Scoping/ Advance Assistance	Yes	Yes	Yes	Yes
Financial Technical Assistance	–	–	–	Yes

Note: The table above is not an exhaustive list of eligible activities. Please see program guidance or Notice of Funding Opportunity (NOFO) for more information on eligible activities.

<sup>33</sup> [https://www.fema.gov/sites/default/files/documents/fema\\_hma-trifold\\_2021.pdf](https://www.fema.gov/sites/default/files/documents/fema_hma-trifold_2021.pdf); sections of this appendix are taken directly from this Hazard Mitigation Assistance flier, although not all sections are quoted

**BUILDING RESILIENT INFRASTRUCTURE AND COMMUNITIES (BRIC)**

BRIC is a competitive grant program that provides funding for mitigation projects to reduce the risks from disasters and natural hazards. The funding is based on a 6% set aside for FEMA's assistance following major disaster declarations through the Public Assistance and Individuals and Households Program. The BRIC program was designed to foster innovation and provide a yearly grant cycle, offering applicants a consistent funding source.

**PRE-DISASTER MITIGATION (PDM)**

PDM is a grant program that helps state, local, tribal, and territorial governments plan and implement hazard mitigation projects. For 20 years, PDM funded mitigation projects, but in FY 2020, BRIC replaced PDM with any new funding. Any grant awarded in FY 2019 will continue to be managed under PDM for any new funding.

**ROLES OF APPLICANTS AND SUBAPPLICANTS**

Mitigation project subapplications are developed by local governments (subapplicants) and submitted to their state, territory, or tribal government (applicant). States, territories, and tribes are responsible for selecting the subapplications that align with their mitigation priorities and submitting these in an application to FEMA. FEMA conducts a final eligibility review of all subapplications to ensure compliance with federal regulations. For competitive mitigation grants, FEMA will select projects for funding. All HMA grants have programmatic and administration requirements that are the responsibility of the applicant and subapplicant.

**ADDITIONAL RESOURCES**

For general questions about the HMA programs, please contact your State Hazard Mitigation Officer or FEMA Region. Other resources are available; see the Hazard Mitigation Assistance flier, FEMA, or go to [www.fema.gov/hazard-mitigation-assistance](http://www.fema.gov/hazard-mitigation-assistance).<sup>34</sup>

<b>Who is eligible to apply?</b>				
APPLICANTS	HMGP	HMGP POST FIRE	BRIC	FMA
State/territorial agencies	Yes	Yes	Yes	Yes
Federally recognized tribes	Yes	Yes	Yes	Yes

SUBAPPLICANT	HMGP	HMGP POST FIRE	BRIC	FMA
State agencies	Yes	Yes	Yes	Yes
Federally recognized tribes	Yes	Yes	Yes	Yes
Local governments/communities	Yes	Yes	Yes	Yes
Private nonprofit organizations	Yes	Yes	-	-

<b>Cost-share requirements</b>	
PROGRAM	COST SHARE*
<b>HMGP</b>	75 / 25
<b>HMGP Post Fire</b>	75 / 25
<b>BRIC</b>	75 / 25
<b>BRIC</b> (Economically Disadvantaged Rural Communities**)	90 / 10
<b>FMA</b> (Community Flood Mitigation, Project Scoping, Individual Mitigation of Insured Properties, and Planning Grants)	75 / 25
<b>FMA</b> (Repetitive loss properties)	90 / 10
<b>FMA</b> (Severe repetitive loss properties)	100 / 0

\* Percent of federal/non-federal cost share  
 \*\* Economically Disadvantaged Rural Communities\* is synonymous with small impoverished communities as used in the Stafford Act.

<sup>34</sup> [https://www.fema.gov/sites/default/files/documents/fema\\_hma-trifold\\_2021.pdf](https://www.fema.gov/sites/default/files/documents/fema_hma-trifold_2021.pdf)

**APPENDIX C: THE EXTENT OF NATURAL HAZARDS**

Hazards indicated with an asterisk \* are included in this Plan.

**\*SEVERE WINTER WEATHER**

Ice and snow events typically occur during winter and can cause loss of life, property damage, and tree damage.

**Snowstorms**

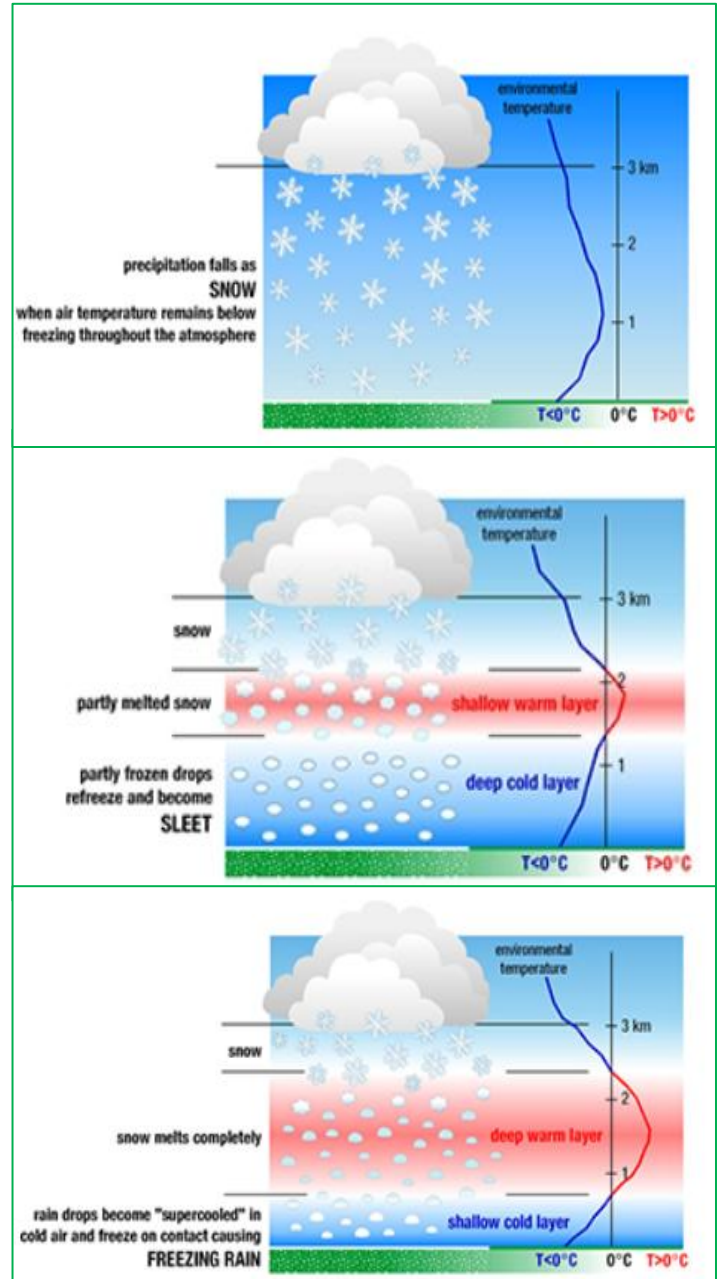
A winter storm can range from moderate snow to blizzard conditions. Blizzard conditions are considered blinding wind-driven snow over 35 mph that lasts several days. A severe winter storm deposits four or more inches of snow for 12 hours or six inches for 24 hours.

**Sleet**

Snowflakes melt as they fall through a small band of warm air and refreeze when passing through a wider band of cold air. These frozen raindrops then fall to the ground as “sleet”.

**Freezing Rain & Ice Storms**

Snowflakes melt as they fall through a warm band of air and then fall through a shallow band of cold air close to the ground to become “supercooled”. These supercooled raindrops instantly freeze upon contact with the ground and anything else below 32 degrees Fahrenheit. This freezing accumulates ice on roads, trees, utility lines, and other objects, resulting in an “ice storm”. “Ice coating at least one-fourth inch in thickness is heavy enough to damage trees, overhead wires, and similar objects.”<sup>35</sup>



*Types of Severe Winter Weather  
NOAA – National Severe Storms Laboratory*

<sup>35</sup> NOAA, National Severe Storms Laboratory, <https://www.nssl.noaa.gov/education/svrwx101/winter/types/>

The Sperry-Piltz Ice Accumulation Index (SPIA) (below) is designed to help utility companies better prepare for predicted ice storms.<sup>36</sup>

**The Sperry-Piltz Ice Accumulation Index, or “SPIA Index” – Copyright, February, 2009**

ICE DAMAGE INDEX	* AVERAGE NWS ICE AMOUNT (in inches) <small>*Revised-October, 2011</small>	WIND (mph)	DAMAGE AND IMPACT DESCRIPTIONS
<b>0</b>	< 0.25	< 15	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
<b>1</b>	0.10 – 0.25	15 - 25	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
	0.25 – 0.50	> 15	
<b>2</b>	0.10 – 0.25	25 - 35	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
	0.25 – 0.50	15 - 25	
	0.50 – 0.75	< 15	
<b>3</b>	0.10 – 0.25	> = 35	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
	0.25 – 0.50	25 - 35	
	0.50 – 0.75	15 - 25	
	0.75 – 1.00	< 15	
<b>4</b>	0.25 – 0.50	> = 35	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
	0.50 – 0.75	25 - 35	
	0.75 – 1.00	15 - 25	
	1.00 – 1.50	< 15	
<b>5</b>	0.50 – 0.75	> = 35	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.
	0.75 – 1.00	> = 25	
	1.00 – 1.50	> = 15	
	> 1.50	Any	

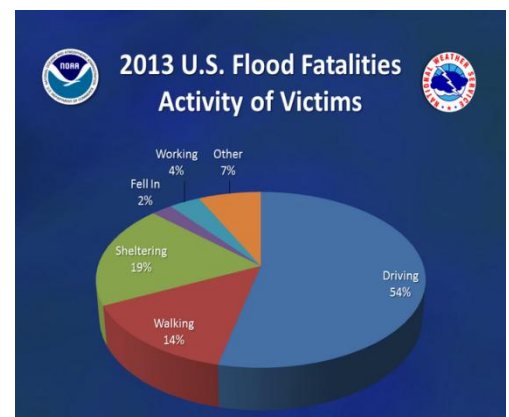
(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

**\*INLAND FLOODING**

**General Flooding Conditions**

Floods are defined as a temporary overflow of water onto lands not usually covered by water. Flooding results from the overflow of major rivers and tributaries, storm surges, or inadequate local drainage. Floods can cause loss of life, property damage, crop/livestock damage, and water supply contamination. Floods can also disrupt travel routes on roads and bridges.

Inland floods are most likely to occur in the spring due to increased rainfall and snowmelt; however, floods can occur anytime. A sudden thaw in the winter or a major downpour in the summer can cause flooding because there is suddenly too much water in one place with nowhere to go; warm temperatures and heavy rains cause rapid snowmelt, producing prime flood conditions. Also, rising waters in early spring often break the ice into chunks that float downstream and pile up, causing flooding behind them. Small rivers and streams pose unique flooding risks because jams easily block them. Ice in riverbeds and against structures presents a significant flooding threat to bridges, roads, and the surrounding lands.



<sup>36</sup> The Weather Channel, <https://weather.com/news/weather-winter/rating-ice-storms-damage-sperry-piltz-20131202>

**Flooding (Dam Failure)**

Flooding due to dam failure can be small enough to affect the immediate area of the dam or large enough to cause catastrophic results to cities, towns, and human life below the dam. The amount of flooding depends mainly on the dam's size and the water held by the dam. The size of the breach, the amount of water flowing from the dam, and the amount of human habitation downstream are also factors.

A "Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water, has a height of 4 feet or more, or a storage capacity of two acres or more, or is located at the outlet of a great pond<sup>37</sup>. A dam failure occurs when water overtops the dam or there is a structural failure of the dam, which causes there to be a breach and an unintentional release of water. Dams are classified in the following manner<sup>38</sup>:

Classification	Description	Inspection Intervals
<b>Non-Menace</b>	A dam is not a menace because it is in a location and size that failure or misoperation of the dam would not result in probable loss of life or property. The dam must be less than six feet in height if the storage capacity is greater than 50 acre-feet or less than 25 feet if it has a storage capacity of 15-50 acre-feet.	Every six years
<b>Low Hazard</b>	A dam that has a low hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in no possible loss of life, low economic loss to structures or property, structural damage to a town or city road or private road accessing property other than the dam owner's that could render the road impassable or otherwise interrupt public safety services, the release of liquid industrial, agricultural, or commercial wastes, septage, or contained sediment if the storage capacity is less two-acre-feet and is located more than 250 feet from a water body or watercourse, and/or reversible environmental losses to environmentally-sensitive sites.	Every six years
<b>Significant Hazard</b>	A dam that has a significant hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in no probable loss of lives; however, there would be a major economic loss to structures or property, structural damage to a Class I or Class II road that could render the road impassable or otherwise interrupt public safety services, major environmental pro-public health losses including one or more of the following: damages to a public water system (RSA 485:1-a, XV) which will take longer than 48 hours to repair, the release of liquid industrial, agricultural, or commercial wastes, septage, sewage, or contaminated sediments if the storage capacity is two acre-feet or more; or damage to an environmentally-sensitive site that does not meet the definition of reversible environmental losses.	Every four years
<b>High Hazard</b>	A dam that has a high hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in probable loss of human life as well as a result of water levels and velocities causing the structural failure of a foundation of a habitable residential structure or commercial or industrial structure which is occupied under normal conditions; water levels rising above the first floor elevation of a habitable residential structure or a commercial or industrial structure, which is occupied under normal conditions when the rise due to a dam failure is greater than one foot; structural damage to an interstate highway, which could render the roadway impassable or otherwise interrupt public safety services; the release of a quantity and concentration of material, which qualify as "hazardous waste" as defined by RSA 147-A:2 VII; or any other circumstance that would more likely than not cause one or more deaths.	Every two years

<sup>37</sup> <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/vol2-appC.pdf>

<sup>38</sup> <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/db-15.pdf>

**Flooding (local, road erosion)**

Today, the risk of flooding is a serious concern with changes in land use, aging roads, designs that are no longer effective, and undersized culverts. Heavy rain, rapid snowmelt, and stream flooding often cause culverts to be overwhelmed and roads to wash out. In addition, inadequate and aging stormwater drainage systems create local flooding on asphalt and gravel roads.

**Flooding (Riverine)**

Floodplains are usually located in lowlands near rivers; floodplains experience flooding regularly. The term 100-year flood does not mean that floods will occur once every 100 years. It is a statement of probability that scientists and engineers use to describe how one flood compares to others that are likely to occur. Using “1% annual chance of flood” is more accurate. Flooding is often associated with hurricanes, heavy rains, ice jams, and rapid snowmelt in the spring.

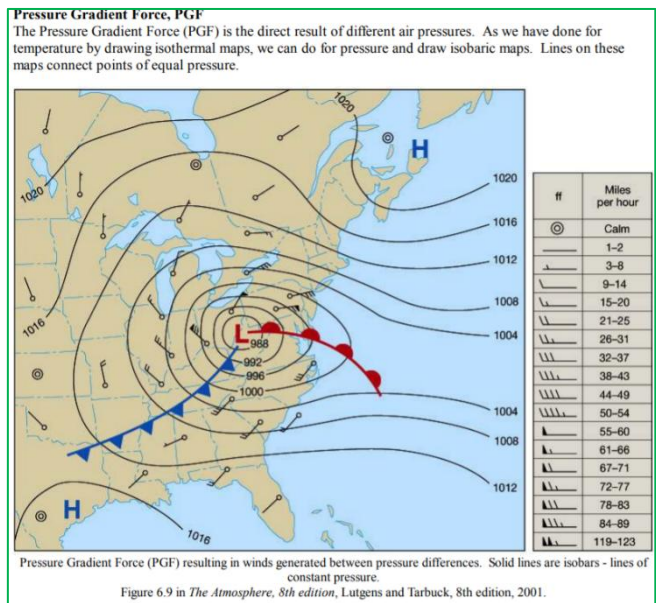
**Erosion**

Erosion is the wearing away of land, such as riverbank loss, beach, shoreline, or dune material. It is measured as the rate of change in the position or displacement of a riverbank or shoreline over time. Short-term erosion typically results from periodic natural events, such as flooding, hurricanes, storm surges, and windstorms, but may be intensified by human activities. Long-term erosion results from multi-year impacts such as repetitive flooding, wave action, sea-level rise, sediment loss, subsidence, and climate change. Death and injury are not typically associated with erosion; however, erosion can destroy buildings and infrastructure.<sup>39</sup>

**\*HIGH WIND EVENTS**

**Windstorm**

NOAA (National Oceanic & Atmospheric Administration) stated that wind is *“The horizontal motion of the air past a given point.”* Winds begin with differences in air pressures. Air pressures higher in one place than another set up a force pushing from the high pressure toward the low pressure. The more significant the difference in pressures, the stronger the force. The distance between high and low pressure also determines how fast the moving air is accelerated. Meteorologists refer to the force that starts the wind flowing as the “pressure gradient force.” High and low pressures are relative. No set number divides high and low pressure. Wind is used to describe the prevailing direction from which the wind is blowing with speed given usually in miles per hour or knots.” Also, NOAA’s issuance of a Wind Advisory occurs when sustained winds reach 25 to 39 mph and gusts to 57 mph.<sup>40 41</sup>



<sup>39</sup> [https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas\\_02-13-2013.pdf](https://www.fema.gov/sites/default/files/2020-06/fema-mitigation-ideas_02-13-2013.pdf)  
<sup>40</sup> NOAA; <https://w1.weather.gov/glossary/index.php?letter=w>  
<sup>41</sup> Pressure Gradient Force Chart “snipped” from [Air Pressure and Wind](https://www.weather.gov/media/zhu/ZHU_Training_Page/winds/pressure_winds/pressure_winds.pdf);  
[https://www.weather.gov/media/zhu/ZHU\\_Training\\_Page/winds/pressure\\_winds/pressure\\_winds.pdf](https://www.weather.gov/media/zhu/ZHU_Training_Page/winds/pressure_winds/pressure_winds.pdf)

**Tornado**

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. The atmospheric conditions required to form a tornado include significant thermal instability, high humidity, and the convergence of warm, moist air at low levels with cooler, drier air aloft. Tornadoes develop when cold air overrides a layer of warm air, causing the warm air to rise rapidly. Most tornadoes remain suspended in the atmosphere but become a force of destruction if they touch down.

Tornadoes produce the most violent winds on Earth, at 280 mph or more. Also, tornadoes can travel at a forward speed of up to 70 mph. Damage paths can be more than one mile wide and 50 miles long. Violent winds and debris slamming into buildings cause the most structural damage.

The Fujita Scale is the standard scale for rating the severity of a tornado as measured by the damage it causes. A tornado is usually accompanied by thunder, lightning, heavy rain, and a loud “freight train” noise. A tornado covers a much smaller area than a hurricane but can be more violent and destructive.

*“Dr. T. Theodore Fujita developed the Fujita Tornado Damage Scale (F-Scale) to provide estimates of tornado strength based on damage surveys. Since it's practically impossible to make direct measurements of tornado winds, an estimate of the winds based on damage is the best way to classify a tornado. The new Enhanced Fujita Scale (EF-Scale) addresses some of the limitations identified by meteorologists and engineers since introducing the Fujita Scale in 1971. The new scale identifies 28 different free-standing structures most affected by tornadoes considering construction quality and maintenance. The range of tornado intensities remains as before, zero to five, with 'EF-0' being the weakest, associated with very little damage and 'EF-5' representing complete destruction, which was the case in Greensburg, Kansas on May 4th, 2007, the first tornado classified as 'EF-5'. The EF scale was adopted on February 1, 2007.”<sup>42</sup>* The chart (right), adapted from wunderground.com, compares the Fujita Scale to the Enhanced Fujita Scale.

EF SCALE	OLD F-SCALE	TYPICAL DAMAGE
EF-0 (65-85mph)	F0 (65-73 mph)	<b>Light damage.</b> Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF-1 (86-110 mph)	F1 (74-112 mph)	<b>Moderate damage.</b> Roofs are severely stripped; mobile homes are overturned or badly damaged; loss of exterior doors; windows and other glass is broken.
EF-2 (111-135 mph)	F2 (113-157 mph)	<b>Considerable damage.</b> Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light object missiles generated; cars lifted off the ground.
EF-3 (136-165 mph)	F3 (158-206 mph)	<b>Severe damage.</b> Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF-4 (166-200 mph)	F4 (207-260 mph)	<b>Devastating damage.</b> Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF-5 (>200 mph)	F5 (261-318 mph)	<b>Incredible damage.</b> Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yards); high-rise buildings have significant structural deformation; incredible phenomena will occur.
EF No rating	F6-F12 (319 mph to speed of sound)	<b>Inconceivable damage.</b> Should a tornado with a maximum wind speed in excess of EF5 occur, the extent and types of damage may not be conceivable. A number of missiles, such as iceboxes, water heaters, storage tanks, and automobiles, will create secondary damage to structures.

<sup>42</sup> Enhance Fujita Scale, <https://www.wunderground.com/prepare/hurricane-typhoon>

**Downburst**

According to NOAA, a downburst is a strong downdraft that causes damaging winds on or near the ground. Not to be confused with a downburst, the term "microburst" describes the size of the downburst. Both a microburst and a larger macroburst can cause extreme winds.

A microburst is a downburst with winds extending 2 ½ miles or less, lasting 5 to 15 minutes, and causing damaging winds as high as 168 MPH. A macroburst is a downburst with winds extending more than 2 ½ miles and lasting 5 to 30 minutes. Damaging winds, causing widespread, tornado-like damage, could be as high as 134 MPH.<sup>43</sup>

Below is the Beaufort Wind Scale, showing expected damage based on the wind (knots), developed in 1805 by Sir Francis Beaufort of England and posted on NOAA’s Storm Prediction Center website.<sup>44</sup>

Force	Wind (Knots)	WMO Classification	The appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction; still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted; small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft. taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft., whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-20 ft., white foam streaks off breakers	Whole trees moving, resistance felt walking against the wind
8	34-40	Gale	Moderately high (13-20 ft.) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Whole trees in motion, resistance felt walking against the wind
9	41-47	Strong Gale	High waves (20 ft.), the sea begins to roll, dense streaks of foam, and the spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (20-30 ft.) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage."
11	56-63	Violent Storm	Exceptionally high (30-45 ft.) waves, foam patches cover the sea, visibility more reduced	
12	64+	Hurricane	Air-filled with foam, waves over 45 ft., sea completely white with driving spray, visibility greatly reduced	

<sup>43</sup> NOAA - [https://www.noaa.gov/jetstream/wind\\_damage](https://www.noaa.gov/jetstream/wind_damage)

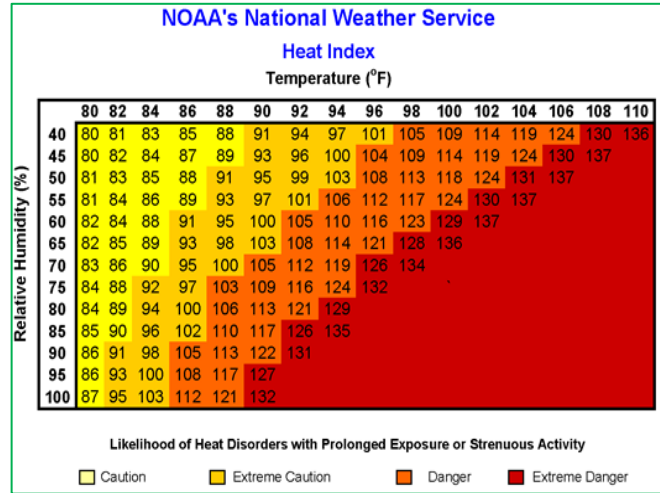
<sup>44</sup> NOAA, Storm Prediction Center, <https://www.spc.noaa.gov/faq/tornado/beaufort.html>

**\*EXTREME TEMPERATURES**

**Extreme Heat**

A heatwave is a “prolonged period of excessive heat, often combined with excessive humidity.” Heat kills by pushing the human body beyond its limits. In extreme heat and high humidity, evaporation is slowed, and the body must work extra hard to maintain a normal temperature.

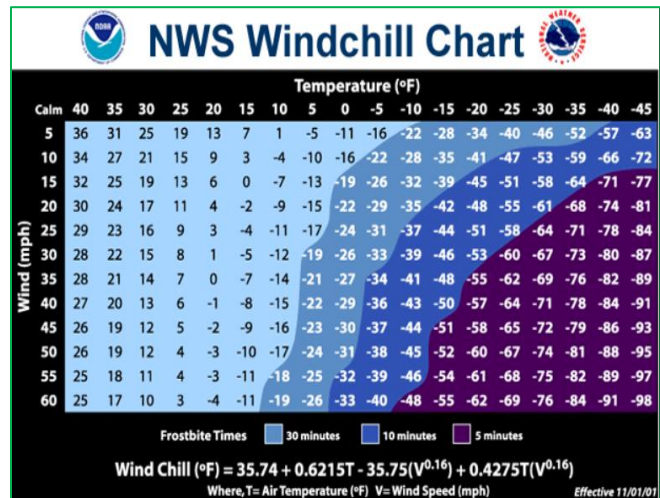
Most heat disorders occur when a victim is overexposed to heat or has overexercised for their age and physical condition. Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat.



Conditions that can induce heat-related illnesses include stagnant atmospheric conditions and poor air quality. Consequently, people living in urban areas may be at greater risk from a prolonged heat wave than those in rural areas. Also, asphalt and concrete store heat longer and gradually release heat at night, producing higher nighttime temperatures known as the urban heat island effect. The chart above explains the likelihood of heat disorders that may result from high heat.<sup>45</sup>

**Extreme Cold**

What constitutes extreme cold and its effects can vary across different areas of the country. In regions relatively unaccustomed to winter weather, near-freezing temperatures are considered “extreme cold.” Whenever temperatures drop decidedly below average and wind speed increases, heat can leave your body more rapidly; these weather-related conditions may lead to serious health problems. Extreme cold is dangerous; it can bring on health emergencies in susceptible people without shelter, those stranded, or those living in poorly insulated homes or without heat. The National Weather Service Chart (to the right) shows wind chill due to wind and temperature.<sup>46</sup>



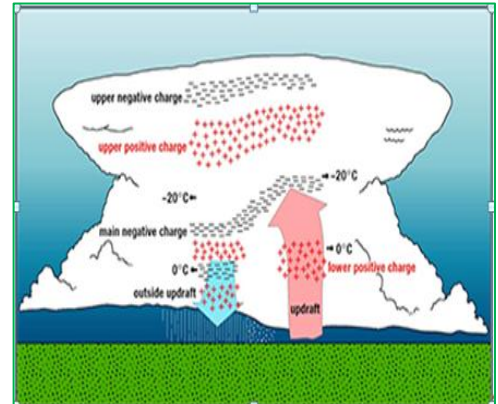
<sup>45</sup> NOAA; <https://www.weather.gov/safety/heat-index>  
<sup>46</sup> National Weather Service; <https://www.weather.gov/safety/cold-wind-chill-chart>

**\*LIGHTNING**

**Lightning**

The NOAA National Severe Storms Laboratory (NSSL) stated, “Lightning is a giant spark of electricity in the atmosphere between clouds, the air, or the ground. In the early stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground. When the opposite charges build up enough, this insulating capacity of the air breaks down, and there is a rapid discharge of electricity that we know as lightning. The flash of lightning temporarily equalizes the charged regions in the atmosphere until the opposite charges build up again.”<sup>47</sup>

Thunder, a result of lightning, is created when the “lightning channel heats the air to around 18,000 degrees Fahrenheit...”<sup>48</sup> thus causing the rapid expansion of the air and the sounds we hear as thunder. Although thunder heard during a storm cannot hurt you, the lightning associated with the thunder can strike people and strike homes, outbuildings, grass, and trees, sparking disaster. In addition, wildfires and structure loss are at high risk during severe lightning events.



**“A conceptual model shows the electrical charge distribution inside deep convection (thunderstorms), developed by NSSL and university scientists. In the main updraft (in and above the red arrow), there are four main charge regions. In the convective region but outside the out draft (in and above the blue arrow), there are more than four charge regions.” - NOAA**

Although thunderstorms and their associated lightning can occur any time of year, in New England, they are most likely to occur in the summer and late afternoon or early evening; they may even occur during a winter snowstorm. Trees, tall buildings, and mountains are often lightning targets because their tops are closer to the cloud; however, lightning is unpredictable and does not always strike the tallest thing in the area.

Thunderstorms and lightning occur most commonly in moist, warm climates. Data from the National Lightning Detection Network shows that an average of 20,000,000 cloud-to-ground flashes occur annually over the continental US. Around the world, lightning strikes the ground about 100 times each second, or 8 million times a day.

In general, lightning decreases across the US mainland toward the northwest. Over the entire year, the highest cloud-to-ground lightning frequency is in Florida between Tampa and Orlando. This phenomenon is due to the presence, on many days during the year, of significant moisture content in the atmosphere at low levels (below 5,000 feet) and high surface temperatures that produce strong sea breezes along the Florida coast. The western mountains of the US also produce strong upward motions and contribute to frequent cloud-to-ground lightning. There are also high frequencies along the Gulf of Mexico, the Atlantic coast, and the southeast United States. US regions along the Pacific west coast have the least cloud-to-ground lightning.”<sup>49</sup>

<sup>47</sup> NOAA National Severe Storms Laboratory, <https://www.nssl.noaa.gov/education/svrwx101/lightning>

<sup>48</sup> Ibid

<sup>49</sup> Ibid

Lightning Activity Level (LAL) Grid		
The lightning activity level is a common parameter in fire weather forecasts nationwide. LAL is a measure of the amount of lightning activity using values 1 to 6 where:		
LAL	Cloud & Storm Development	Lightning Strikes 15 Minutes
1	No thunderstorms	-
2	Cumulus clouds are common, but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	1-8
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two to three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered, and more than three must occur within the observation area. Moderate rain is common, and lightning is frequent.	16-25
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rain is moderate to heavy, and lightning is frequent and intense.	>25
6	Similar to LAL 3, except thunderstorms are dry.	

<https://graphical.weather.gov/definitions/defineLAL.html>

**\*WILDFIRE**

According to the International Wildland-Urban Interface Code (IWUIC), the definition of wildfire is “an uncontrolled fire spreading through vegetative fuels exposing and possibly consuming structures”. In addition, the IWUIC defines the Wildland Urban Interface (WUI) area as “that geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels.”<sup>50</sup>

Two major potential losses from wildfire are the forest and the threat to the built-up human environment. In many cases, the only time it is feasible for a community to control a wildfire is when it threatens the built-up human environment.

<sup>50</sup><https://codes.iccsafe.org/content/IWUIC2021P1/chapter-2-definitions#:~:text=WILDFIRE.,exposing%20and%20possibly%20consuming%20structures>

**\*TROPICAL/POST TROPICAL CYCLONES**

***Cyclones (Hurricanes)***

A hurricane is a tropical cyclone with 74 miles per hour or more winds that blow in a large spiral around a relatively calm center. The storm's eye is usually 20-30 miles wide, and the storm may extend over 400 miles. High winds are a primary cause of hurricane-inflicted loss of life and property damage.

“The Saffir-Simpson Hurricane Wind Scale” (on the following page<sup>51</sup>) is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous and require preventative measures. In the western North Pacific, the term "super typhoon" is used for tropical cyclones with sustained winds exceeding 150 mph.”<sup>52</sup>

Flooding is often caused by the coastal storm surge of the ocean and torrential rains, both of which may accompany a hurricane; these floods can result in the loss of lives and property.

***Post-Tropical Cyclones***

A tropical depression becomes a tropical storm with maximum sustained winds between 39-73 mph. Although tropical storms have less than 74 miles per hour winds, they can do significant damage like hurricanes. The damage most felt by tropical storms is from the torrential rains, which cause rivers and streams to flood and overflow their banks.

Rainfall from tropical storms has been reported at up to 6 inches per hour; 43 inches of rain in 24 hours was reported in Alvin, TX, due to Tropical Storm Claudette.<sup>53</sup>

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt. 119-153 km/h	<b>Very dangerous winds will produce some damage:</b> Well-constructed frame homes could have damage to the roof, shingles, vinyl siding, and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles will likely result in power outages that could last several days.
2	96-110 mph 83-95 kt. 154-177 km/h	<b>Extremely dangerous winds will cause extensive damage:</b> Well-constructed frame homes could sustain significant roof and siding damage. In addition, many shallowly rooted trees will be snapped or uprooted, blocking numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt. 178-208 km/h	<b>Devastating damage will occur:</b> Well-built frame homes may incur significant damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt. 209-251 km/h	<b>Catastrophic damage will occur:</b> Well-built frame homes can sustain severe damage by losing most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles will be downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt. or higher 252 km/h or higher	<b>Catastrophic damage will occur:</b> A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

<sup>51</sup> National Hurricane Center; <https://www.nhc.noaa.gov/aboutsshws.php>

<sup>52</sup> Ibid

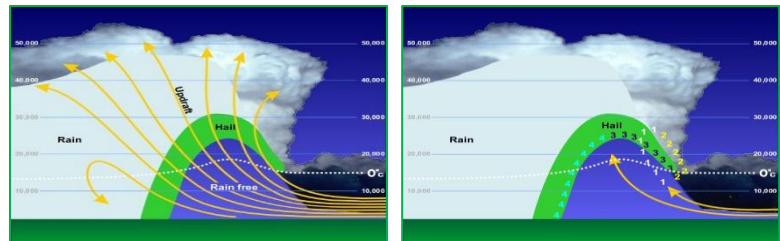
<sup>53</sup> [https://www.wpc.ncep.noaa.gov/research/mcs\\_web\\_test\\_test\\_files/Page1637.htm](https://www.wpc.ncep.noaa.gov/research/mcs_web_test_test_files/Page1637.htm)

**Hail**

Hailstones are balls of ice that grow as they are held up by winds, known as updrafts, that blow upwards in thunderstorms. The updrafts carry droplets of supercooled water, water at a below-freezing temperature that is not yet ice. The supercooled water droplets freeze into ice balls and grow to become hailstones. The faster the updraft, the bigger the stones can grow. Most hailstones are smaller in diameter than a dime, but stones weighing more than a pound have been recorded. “The largest hailstone recovered in the US fell in Vivian, SD on June 23, 2010, with a diameter of 8 inches and a circumference of 18.62 inches. It weighed 1 lb. 15 oz.”<sup>54</sup>

Dime/Penny	0.75	
Nickel	0.88	
Quarter	1.00	
Half Dollar	1.25	
Ping Pong	1.50	
Golf Ball	1.75	
Hen Egg	2.00	
Tennis Ball	2.50	
Baseball	2.75	
Tea Cup	3.00	
Grapefruit	4.00	
Softball	4.50	

How hailstones grow is complicated, but the results are irregular balls of ice that can be as large as baseballs. The chart above shows the relative size differences and a common way to “measure” the size of hail based on diameter.<sup>55</sup> The charts to the right show how hail is formed.<sup>56</sup>



**\*EARTHQUAKE**

An earthquake is a rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth’s surface. Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric, and phone lines, and often cause landslides, flash floods, fires, and avalanches. More significant earthquakes usually begin with slight tremors but rapidly take the form of one or more violent shocks and end in vibrations of gradually diminishing force called aftershocks. An earthquake's underground point of origin is called its focus; the point on the surface directly above the focus is the epicenter.

Using the commonly used scales, the Richter scale (which measures strength or magnitude) and the Mercalli Scale (which measures intensity or severity), the magnitude and intensity of an earthquake are determined. The chart to the right shows the two scales relative to one another. The Richter scale measures earthquakes starting at one as the lowest, with each successive unit being about ten times stronger and more severe than the previous one.<sup>57</sup>

It is well documented that fault lines run throughout New Hampshire, but high-magnitude earthquakes have not been common in NH history. Four earthquakes occurred in New Hampshire between 1924 and 1989, having a magnitude of 4.2 or more. Two occurred in Ossipee, one west of Laconia and one near the Quebec border.

Modified Mercalli Scale		Richter Magnitude Scale
I	Detected only by sensitive instruments	1.5
II	Felt by few persons at rest, especially on upper floors; delicately suspended objects may swing	2
III	Felt noticeably indoors, but not always recognized as earthquake; standing autos rock slightly, vibration like passing truck	2.5
IV	Felt indoors by many, outdoors by few, at night some may awaken; dishes, windows, doors disturbed; autos rock noticeably	3
V	Felt by most people; some breakage of dishes, windows, and plaster; disturbance of tall objects	3.5
VI	Felt by all, many frightened and run outdoors; falling plaster and chimneys, damage small	4
VII	Everybody runs outdoors; damage to buildings varies depending on quality of construction; noticed by drivers of autos	4.5
VIII	Panel walls thrown out of frames; fall of walls, monuments, chimneys; sand and mud ejected; drivers of autos disturbed	5
IX	Buildings shifted off foundations, cracked, thrown out of plumb; ground cracked; underground pipes broken	5.5
X	Most masonry and frame structures destroyed; ground cracked, rails bent, landslides	6
XI	Few structures remain standing; bridges destroyed, fissures in ground, pipes broken, landslides, rails bent	6.5
XII	Damage total; waves seen on ground surface, lines of sight and level distorted, objects thrown up in air	7

<sup>54</sup> NOAA National Severe Storms Laboratory; <https://www.nssl.noaa.gov/education/svrwx101/hail/>

<sup>55</sup> <https://www.pinterest.com/pin/126171227030590678/>

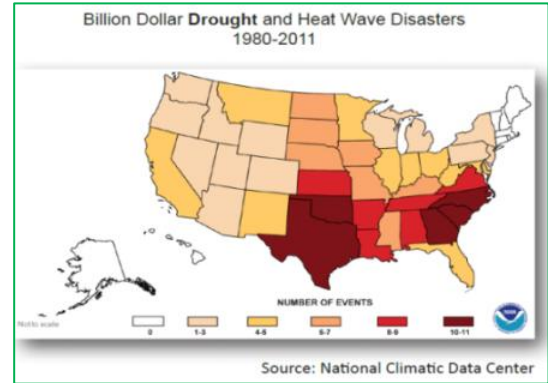
<sup>56</sup> <https://www.noaa.gov/jetstream/hail>

<sup>57</sup> <https://dnr.mo.gov/land-geology/hazards/earthquakes/science/relationship-between-richter-magnitude-modified-mercalli-intensity>

**\*DROUGHT**

A drought is a long period of abnormally low precipitation that adversely affects plants and animals' growing seasons or living conditions. Droughts are not rare in New Hampshire. They are generally less damaging and disruptive than floods and are more difficult to define. The effect of drought is indicated through measurements of soil moisture, groundwater levels, and streamflow.

However, not all of these indicators will be minimal during a drought. For example, frequent minor rainstorms can replenish the soil moisture without raising groundwater levels or increasing streamflow. Low stream flow also correlates with low groundwater levels because groundwater discharge to streams and rivers maintains streamflow during extended dry periods. Low streamflow and low groundwater levels commonly cause diminished water supply.



The US Drought Monitor provides an intensity scale, as shown to the right, to indicate the “Category” of drought at any given time. During the peak months of the 2016 drought in New Hampshire, the southern part of the state was in Category D3 or Extreme Drought.

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: <ul style="list-style-type: none"> <li>• short-term dryness slowing planting, growth of crops or pastures</li> </ul> Coming out of drought: <ul style="list-style-type: none"> <li>• some lingering water deficits</li> <li>• pastures or crops not fully recovered</li> </ul>
D1	Moderate Drought	<ul style="list-style-type: none"> <li>• Some damage to crops, pastures</li> <li>• Streams, reservoirs, or wells low, some water shortages developing or imminent</li> <li>• Voluntary water-use restrictions requested</li> </ul>
D2	Severe Drought	<ul style="list-style-type: none"> <li>• Crop or pasture losses likely</li> <li>• Water shortages common</li> <li>• Water restrictions imposed</li> </ul>
D3	Extreme Drought	<ul style="list-style-type: none"> <li>• Major crop/pasture losses</li> <li>• Widespread water shortages or restrictions</li> </ul>
D4	Exceptional Drought	<ul style="list-style-type: none"> <li>• Exceptional and widespread crop/pasture losses</li> <li>• Shortages of water in reservoirs, streams, and wells creating water emergencies</li> </ul>

*<https://www.nrcc.cornell.edu/services/blog/2018/06/28/index.html>; photo from US Drought Monitor*

### LANDSLIDES

While no universally accepted standard or scientific scale has been developed for measuring the severity of all landslides, severity can be measured in several other ways:

- Steepness/grade of the Slope (measured as a percent)
- Geographical Area
  - Measured in square feet, square yards, etc.
  - More accurately measured using LIDAR/GIS systems
- Earthquake, either causing the event or caused by the event (measured using the Moment Magnitude Intensity or Mercalli Scale)

There are also multiple types of landslides:

- Falls: A mass detaches from a steep slope or cliff and descends by free-fall, bounding, or rolling
- Topples: A mass tilts or rotates forward as a unit
- Slides: A mass displaces on one or more recognizable surfaces, which may be curved or planar
- Flows: A mass moves downslope with a fluid motion. A significant amount of water may or may not be part of the mass.

Like flooding, landslides are unique in affecting different geographic, topographic, and geologic areas. Therefore, the severity of the landslide event must be determined by considering many measurements.<sup>58</sup>

### \*INFECTIOUS DISEASE

#### **Bacterial & Viral Infections**

Many organisms live inside our bodies and on our skin. Although these organisms are generally harmless and sometimes helpful, they can cause illnesses. Infectious diseases can be transmitted from one person to another by bites from animals or insects (zoonotic), from the environment, or by consuming food or water that has been contaminated. In addition, infectious diseases may be caused by bacteria, viruses, fungi, and parasites.<sup>59</sup>

Some of the more common infectious diseases include Lyme disease, HIV/AIDS, Tuberculosis, Rabies, West Nile Virus, Eastern Equine Encephalitis (EEE), Ebola, Avian Flu, Enterovirus D-68, Influenza, Hepatitis A, Zika Virus, Meningitis, Legionella, Sexually Transmitted Diseases (STD), Hepatitis C, Salmonella, SARS and Staph.<sup>60</sup>

*“Throughout history, millions of people have died of diseases such as bubonic plague or the Black Death, which is caused by Yersinia pestis bacteria, and smallpox, which is caused by the variola virus. In recent times, viral infections have been responsible for two major pandemics: the 1918-1919 “Spanish Flu” epidemic that killed 20-40 million people, and the ongoing HIV/AIDS epidemic that killed an estimated 1.5 million people worldwide in 2013 alone.*

*Bacterial and viral infections can cause similar symptoms such as coughing and sneezing, fever, inflammation, vomiting, diarrhea, fatigue, and cramping – all of which are ways the immune system tries to rid the body of infectious organisms. But bacterial and viral infections are dissimilar in many other important respects, most of them due to the organisms’ structural differences and the way they respond to medications.”<sup>61</sup>*

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<sup>58</sup> State of New Hampshire Multi-Hazard Mitigation Plan Update 2023 & <https://oas.org/dsd/publications/Unit/oea66e/ch10.htm>

<sup>59</sup> <https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173>

<sup>60</sup> <https://www.dhhs.nh.gov/programs-services/disease-prevention/infectious-disease-control>

<sup>61</sup> <https://www.webmd.com/a-to-z-guides/bacterial-and-viral-infections#1>

In early 2020, a novel coronavirus emerged in China, spreading worldwide to become the worst pandemic since the 1918 Spanish Flu. Known as COVID-19, this novel coronavirus had infected 676,609,955 people and caused the deaths of 6,881,955 individuals worldwide as of March 20, 2023, the final day that Johns Hopkins collected COVID-19 data, after three years. The Delta and Omnicron variants appeared in the US in December 2021, causing critical concerns about the possibility of overwhelming the country's hospital systems.

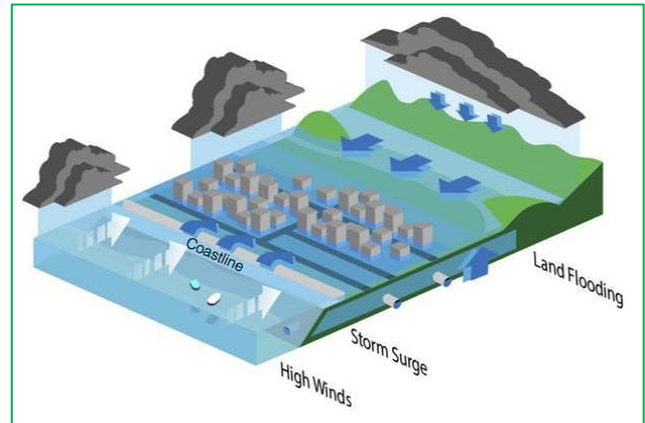
The pandemic remains an evolving worldwide crisis, affecting millions of workers in the United States and presenting significant economic results. Although most people confirmed with COVID-19 eventually recover, and many have been vaccinated, the virus remains a risk for the elderly and compromised individuals.

The extent of infectious diseases is generally described by the level and occurrence of a particular disease as follows:

- Endemic.....Disease with a constant presence or usual prevalence in a population within a geographic area
- Sporadic.....Disease that occurs infrequently and irregularly
- Hyperendemic.....Disease that is persistent and has high levels of occurrence
- Epidemic .....Disease that shows an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area
- Outbreak .....Disease that has the same definition as an epidemic but is often used for a more limited geographic area
- Cluster.....Refers to an aggregation of cases grouped in place and time that are suspected to be greater than the number expected, even though the expected number may not be known.
- Pandemic.....An epidemic that has spread over several countries or continents, usually affecting a large number of people

**COASTAL FLOODING**

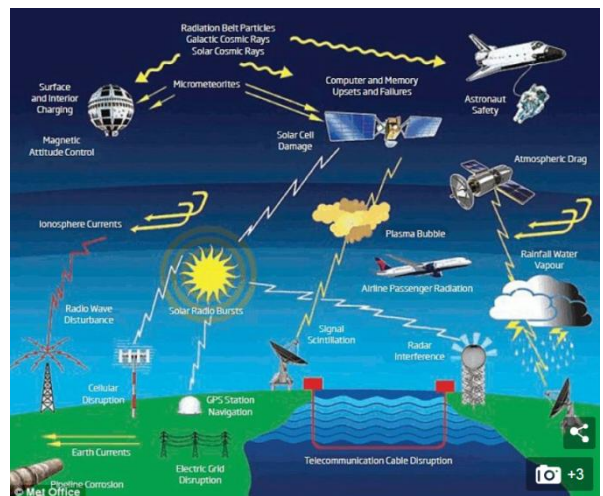
Coastal areas are particularly susceptible to flooding, erosion, storm surge, and sea-level rise due to tropical and post-tropical cyclones, heavy rain events, gale-force winds, and other natural phenomena. The 2023 State Hazard Mitigation Plan states, “Coastal flooding is defined by the National Oceanic and Atmospheric (NOAA) as flooding which occurs when there are significant storms, such as tropical and extratropical cyclones (NWS Internet Services Team, 2009).”<sup>62</sup>



The State Plan goes on to discuss problems associated with coastal flooding, “These problems can include but are not limited to—beach and shoreline erosion; loss or submergence of wetlands, other coastal ecosystems, and developed land; impacts from saltwater intrusion and high groundwater tables; loss of coastal structures (sea walls, piers, bulkheads, bridges, or buildings); overwhelmed public infrastructure; water quality impairments; and hazardous waste exposure. Loss of life and property damage can be more severe in coastal storm events due to velocity of wave action and accompanying winds.”<sup>63</sup>

**\*SOLAR STORMS & SPACE WEATHER**

When sudden amounts of stored magnetic energy and ions are discharged from the Sun’s surface, solar flares, high-speed solar wind streams, solar energetic particles, and coronal mass ejections (CMEs) are possible. This magnetic energy sometimes finds its way to Earth by following the Sun’s magnetic field. Then, upon collision with the Earth’s magnetic field, these charged particles enter the Earth’s upper atmosphere, causing Auroras.



Charged magnetic particles can produce their own magnetic field, disrupting navigation, communication systems, and GPS satellites. In addition, they can potentially produce Geomagnetic Induced Currents (GICs), affecting the power grid and pipelines. In addition, an electromagnetic surge from a solar storm can produce an Electromagnetic Pulse (EMP). An EMP could cause significant damage to infrastructures such as nuclear power plants, banking systems, the electrical grid, sewage treatment facilities, cell phones, landlines, and even vehicles. The image above shows the potential impacts of solar storms and space weather.<sup>64</sup>

<sup>62</sup> New Hampshire State Hazard Mitigation Plan, 2023 Update; <https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2023/10/2023-NH-State-Hazard-Mitigation-Plan-Signed-10.5.23.pdf>; page 127

<sup>63</sup> Ibid, page 127

<sup>64</sup> <https://www.dailymail.co.uk/sciencetech/article-3764842/A-solar-storm-destroy-planet-unless-create-massive-magnetic-shield-protect-Earth-warns-expert.html>

Solar Storms & Space Weather Extent<sup>65</sup>

Geomagnetic Storms				
Scale	Description	Effect	Physical Measure	Average Frequency (1 cycle = 11 years)
G 5	Extreme	<p><b>Power systems:</b> Widespread voltage control problems and protective system problems can occur; some grid systems may experience complete collapse or blackouts. Transformers may experience damage.</p> <p><b>Spacecraft operations:</b> May experience extensive surface charging, problems with orientation, uplink/downlink, and tracking satellites.</p> <p><b>Other systems:</b> Pipeline currents can reach hundreds of amps, HF (high frequency) radio propagation may be impossible in many areas for one to two days, satellite navigation may be degraded for days, low-frequency radio navigation can be out for hours, and aurora has been seen as low as Florida and southern Texas (typically 40° geomagnetic lat.).</p>	Kp. = 9	4 per cycle (4 days per cycle)
G 4	Severe	<p><b>Power systems:</b> Possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid.</p> <p><b>Spacecraft operations:</b> May experience surface charging and tracking problems; corrections may be needed for orientation problems.</p> <p><b>Other systems:</b> Induced pipeline currents affect preventive measures, HF radio propagation is sporadic, satellite navigation is degraded for hours, low-frequency radio navigation is disrupted, and aurora has been seen as low as Alabama and northern California (typically 45° geomagnetic lat.).</p>	Kp. = 8, including a 9-	100 per cycle (60 days per cycle)
G 3	Strong	<p><b>Power systems:</b> Voltage corrections may be required; false alarms are triggered on some protection devices.</p> <p><b>Spacecraft operations:</b> Surface charging may occur on satellite components, drag may increase on low-Earth-orbit satellites, and corrections may be needed for orientation problems.</p> <p><b>Other systems:</b> Intermittent satellite navigation and low-frequency radio navigation problems may occur, HF radio may be intermittent, and aurora has been seen as low as Illinois and Oregon (typically 50° geomagnetic lat.).</p>	Kp. = 7	200 per cycle (130 days per cycle)
G 2	Moderate	<p><b>Power systems:</b> High-latitude power systems may experience voltage alarms; long-duration storms may cause transformer damage.</p> <p><b>Spacecraft operations:</b> Corrective actions to orientation may be required by ground control; possible changes in drag affect orbit predictions.</p> <p><b>Other systems:</b> HF radio propagation can fade at higher latitudes, and aurora has been seen as low as New York and Idaho (typically 55° geomagnetic lat.).</p>	Kp. = 6	600 per cycle (360 days per cycle)
G 1	Minor	<p><b>Power systems:</b> Weak power grid fluctuations can occur.</p> <p><b>Spacecraft operations:</b> Minor impact on satellite operations possible.</p> <p><b>Other systems:</b> Migratory animals are affected at this and higher levels; aurora is commonly visible at high latitudes (northern Michigan and Maine).</p>	Kp. = 5	1700 per cycle (900 days per cycle)

Solar Radiation Storms				
Scale	Description	Effect	Physical Measure (Flux level of >=10 MeV particles)	Average Frequency (1 cycle = 11 years)
S 5	Extreme	<p><b>Biological:</b> Unavoidable high radiation hazard to astronauts on EVA (extra-vehicular activity); passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.</p> <p><b>Satellite operations:</b> Satellites may be rendered useless, memory impacts can cause loss of control, may cause serious noise in image data, star-trackers may be unable to locate sources, permanent damage to solar panels is possible.</p> <p><b>Other systems:</b> Complete blackout of HF (high frequency) communications possible through the polar regions and position errors make navigation operations extremely difficult.</p>	10 <sup>5</sup>	Fewer than 1 per cycle
S 4	Severe	<p><b>Biological:</b> Unavoidable radiation hazard to astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.</p> <p><b>Satellite operations:</b> May experience memory device problems and noise on imaging systems; star-tracker problems may cause orientation problems, and solar panel efficiency can be degraded.</p> <p><b>Other systems:</b> Blackout of HF radio communications through the polar regions and increased navigation errors over several days are likely.</p>	10 <sup>4</sup>	3 per cycle

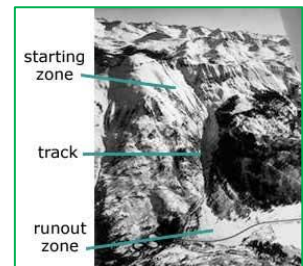
<sup>65</sup> Extent charts taken from <https://www.weather.gov/akq/SpaceWeather>

Solar Radiation Storms				
S 3	Strong	<p><b>Biological:</b> Radiation hazard avoidance is recommended for astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.</p> <p><b>Satellite operations:</b> Single-event upsets, noise in imaging systems, and a slight reduction of efficiency in solar panels are likely.</p> <p><b>Other systems:</b> Degraded HF radio propagation through the polar regions and navigation position errors likely.</p>	10 <sup>3</sup>	10 per cycle
S 2	Moderate	<p><b>Biological:</b> Passengers and crew in high-flying aircraft at high latitudes may be exposed to elevated radiation risk.</p> <p><b>Satellite operations:</b> Infrequent single-event upsets are possible.</p> <p><b>Other systems:</b> minor effects on HF propagation through the polar regions and navigation at polar cap locations possibly affected.</p>	10 <sup>2</sup>	25 per cycle
S 1	Minor	<p><b>Biological:</b> None.</p> <p><b>Satellite operations:</b> None.</p> <p><b>Other systems:</b> Minor impacts on HF radio in the polar regions.</p>	10	50 per cycle

Radio Blackout				
Scale	Description	Effect	Physical Measure	Average Frequency (1 cycle = 11 years)
R 5	Extreme	<p><b>HF Radio:</b> Complete HF (high frequency) radio blackout on the entire sunlit side of the Earth, lasting for a number of hours. This results in no HF radio contact with mariners and on-route aviators in this sector.</p> <p><b>Navigation:</b> Low-frequency navigation signals used by maritime and general aviation systems experience outages on the sunlit side of the Earth for many hours, causing loss in positioning. Increased satellite navigation errors in positioning for several hours on the sunlit side of Earth, which may spread into the night side.</p>	X20 (2 x 10 <sup>-3</sup> )	Less than 1 per cycle
R 4	Severe	<p><b>HF Radio:</b> HF radio communication blackouts on most of the sunlit side of Earth for one to two hours. HF radio contact lost during this time.</p> <p><b>Navigation:</b> Outages of low-frequency navigation signals cause increased errors in positioning for one to two hours. Minor disruptions of satellite navigation possible on the sunlit side of Earth.</p>	X10 (10 <sup>-3</sup> )	8 per cycle (8 days per cycle)
R 3	Strong	<p><b>HF Radio:</b> Wide area blackout of HF radio communication, loss of radio contact for about an hour on sunlit side of Earth.</p> <p><b>Navigation:</b> Low-frequency navigation signals degraded for about an hour.</p>	X1 (10 <sup>-4</sup> )	175 per cycle (140 days per cycle)
R 2	Moderate	<p><b>HF Radio:</b> Limited blackout of HF radio communication on the sunlit side, loss of radio contact for tens of minutes.</p> <p><b>Navigation:</b> Degradation of low-frequency navigation signals for tens of minutes.</p>	M5 (5 x 10 <sup>-5</sup> )	350 per cycle (300 days per cycle)
R 1	Minor	<p><b>HF Radio:</b> Weak or minor degradation of HF radio communication on sunlit side, occasional loss of radio contact.</p> <p><b>Navigation:</b> Low-frequency navigation signals are degraded for brief intervals.</p>	M1 (10 <sup>-5</sup> )	2000 per cycle (950 days per cycle)

**\*AVALANCHE**

According to the National Snow & Ice Data Center, an avalanche is a rapid snow flow down a hill or mountainside. Although avalanches can occur on any slope given the right conditions, certain times of the year and specific locations are naturally more dangerous than others. Most avalanches tend to happen during winter, particularly from December to April. However, avalanche fatalities have been recorded every month of the year.<sup>66</sup>



<sup>66</sup> Copyright Richard Armstrong, NSIDC, <https://nsidc.org/learn>

All that is necessary for an avalanche is a mass of snow and a slope to slide down...A large avalanche in North America might release 230,000 cubic meters (300,000 cubic yards) of snow. That is the equivalent of 20 football fields filled 3 meters (10 feet) deep with snow. However, such large avalanches are often naturally released when the snowpack becomes unstable and layers of snow fail. Skiers and recreationists usually trigger smaller but often more deadly avalanches.

North American Public Avalanche Danger Scale				
Avalanche danger is determined by the likelihood, size and distribution of avalanches.				
Danger Level		Travel Advice	Likelihood of Avalanches	Avalanche Size and Distribution
5 Extreme		Avoid all avalanche terrain.	Natural and human-triggered avalanches certain.	Large to very large avalanches in many areas.
4 High		Very dangerous avalanche conditions. Travel in avalanche terrain <b>not</b> recommended.	Natural avalanches likely; human-triggered avalanches very likely.	Large avalanches in many areas; or very large avalanches in specific areas.
3 Considerable		Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Natural avalanches possible; human-triggered avalanches likely.	Small avalanches in many areas; or very large avalanches in specific areas; or very large avalanches in isolated areas.
2 Moderate		Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.	Natural avalanches unlikely; human-triggered avalanches possible.	Small avalanches in specific areas; or large avalanches in isolated areas.
1 Low		Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.	Natural and human-triggered avalanches unlikely.	Small avalanches in isolated areas or extreme terrain.
Safe backcountry travel requires training and experience. You control your own risk by choosing where, when and how you travel.				

An avalanche has three main parts (see the image above). The first and most unstable is the “starting zone”, where the snow can “fracture” and slide. “Typical starting zones are higher up on slopes. However, given the right conditions, snow can fracture at any point on the slope.”<sup>67</sup>

The second part is the “avalanche track”, or the downhill path the avalanche follows. The avalanche is evident where large swaths of trees are missing or where there are large pile-ups of rock, snow, trees, and debris at the bottom of an incline.

The third part of an avalanche is the “runout zone”. The avalanche has stopped in the runout zone, leaving the most extensive and highest pile of snow and debris.

“Several factors may affect the likelihood of an avalanche, including weather, temperature, slope steepness, slope orientation (whether the slope is facing north or south), wind direction, terrain, vegetation, and general snowpack conditions. Different combinations of these factors can create low, moderate, or extreme avalanche conditions. In addition, some of these conditions, such as temperature and snowpack, can change daily or hourly.”<sup>68</sup>

When an avalanche is possible, an “avalanche advisory” is issued. This preliminary notification warns hikers, skiers, snowmobilers, and responders that conditions may be favorable for the development of avalanches. The chart above shows avalanche danger determined by likelihood, size, and distribution.<sup>69</sup>

<sup>67</sup> NSIDC, <https://www.sierraavalanchecenter.org/introduction-north-american-avalanche-danger-scale>

<sup>68</sup> Copyright Richard Armstrong, NSIDC, <http://nsidc.org/cryosphere/snow/science/avalanches.html>

<sup>69</sup> NSIDC, <https://www.sierraavalanchecenter.org/introduction-north-american-avalanche-danger-scale>

**APPENDIX D: NH MAJOR DISASTER & EMERGENCY DECLARATIONS**

**Major Disaster (DR) & Emergency Declarations (EM)**

This list includes one Fire Management Assistance Declaration (FM) Declarations are arranged chronologically; the most recent disaster is listed first

Number	Hazard	Date of Event	Counties	Description
DR-4812	Inland Flooding	July 10-13, 2024	Coos & Grafton	<b>Major Disaster Declaration, DR-4812:</b> FEMA announced that federal disaster assistance is available to the state of New Hampshire to supplement recovery efforts in the areas affected by the severe storms and flooding on July 10-13, 2024
DR-4799	Severe Winter Storm	April 3-5, 2024	Carroll, Belknap, Sullivan & Rockingham	<b>Major Disaster Declaration, DR-4799:</b> A late winter snowstorm on April 4, 2024, brought heavy wet snow with accumulations up to two feet in four NH counties.
DR-4771	Inland Flooding	January 9-14, 2024	Grafton & Rockingham	<b>Major Disaster Declaration DR-4771:</b> A significant winter rain event caused local road and riverine flooding in two counties.
DR-4761	Inland Flooding	December 17-21, 2023	Coos, Grafton & Carroll	<b>Major Disaster Declaration, DR-4761:</b> A significant rainstorm, similar to a 100-year flood event, struck multiple areas in New Hampshire, causing widespread damage to rivers, roads, and bridges.
DR-4740	Inland Flooding	July 9-17, 2023	Coos, Grafton, Belknap, Sullivan & Cheshire	<b>Major Disaster Declaration, DR-4740:</b> Severe storms brought significant summer rains and flooding to towns within five counties in New Hampshire.
DR-4693	Inland Flooding	December 22-25, 2022	Belknap, Grafton, Carroll & Coos	<b>Major Disaster Declaration, DR-4693:</b> A severe winter storm occurred December 22-25, 2022. Heavy, wet snow caused trees and power lines to fall; some roadways were closed. Flooding also occurred in several communities. The declaration was declared in four of the State's ten counties.
DR-4624	Inland Flooding	July 29-July 30, 2021	Cheshire & Sullivan	<b>Major Disaster Declaration, DR-4624:</b> The Federal Emergency Management Agency announced a major disaster declaration and notification of individual and public assistance on October 4, 2021, for two NH Counties.
DR-4622	Inland Flooding	July 17-19, 2021	Cheshire	<b>Major Disaster Declaration, DR-4622:</b> The Federal Emergency Management Agency announced a major disaster declaration for one New Hampshire county during a period of severe storms and flooding from July 17-19, 2021.
DR-4516	Infectious Disease	January 20, 2020 ongoing	All Ten NH Counties	<b>Major Disaster Declaration, DR-4516:</b> The Federal Emergency Management Agency ("FEMA") within the US Department of Homeland Security is giving public notice of its intent to assist the State of New Hampshire, local and tribal governments, and certain private nonprofit organizations under the major disaster declaration issued by the President on April 3, 2020, as a result of the Coronavirus Disease 2019 (COVID-19).
EM-3445	Infectious Disease	January 20, 2020 ongoing	All Ten NH Counties	<b>Emergency Declaration EM-3445:</b> A ten-county declaration to provide individual assistance and public assistance as a result of the impact of COVID-19
DR-4457	Severe Storm & Flooding	July 11-12, 2019	Grafton	<b>Major Disaster Declaration, DR-4457:</b> The Federal Emergency Management Agency announced a major disaster declaration for a period of severe storms and flooding from July 11-12, 2019, in one New Hampshire County.

Number	Hazard	Date of Event	Counties	Description
DR-4371	Severe Winter Storms	March 13-14, 2018	Carroll, Strafford & Rockingham	<b>Major Disaster Declaration, DR 4371:</b> The Federal Emergency Management Agency announced a major disaster declaration on June 8, 2018, for a period of a severe winter storm from March 13-14, 2018.
DR-4370	Severe Storm & Flooding	March 2-8, 2018	Rockingham	<b>Major Disaster Declaration, DR 4370:</b> The Federal Emergency Management Agency announced a major disaster declaration on June 8, 2018, for a period of severe storms and flooding from March 2-8, 2018.
DR-4355	Severe Storms, Flooding	October 29-November 1, 2017	Sullivan, Grafton, Coos, Carroll, Belknap & Merrimack	<b>Major Disaster Declaration, DR-4355:</b> The Federal Emergency Management Agency (FEMA) announced that federal disaster assistance was available to supplement state and local recovery efforts in areas affected by severe storms and flooding from October 29-November 1, 2017, in five New Hampshire Counties.
DR-4329	Severe Storms, Flooding	July 1-2, 2017	Grafton & Coos	<b>Major Disaster Declaration DR-4329:</b> The Federal Emergency Management Agency (FEMA) announced that federal disaster assistance is available to the State of New Hampshire to supplement state and local recovery efforts in the areas affected by severe storms and flooding from July 1, 2017, to July 2, 2017, in Grafton County
DR-4316	Severe Winter Storms	March 14-15, 2017	Belknap & Carroll	<b>Major Disaster Declaration DR-4316:</b> Severe winter storm and snowstorm in Belknap & Carroll Counties; disaster aid was provided to supplement state and local recovery efforts.
FM-5123	Forest Fire	April 21-23, 2016	Cheshire	<b>Fire Management Assistance Declaration, FM-5123: Stoddard, NH</b>
DR-4209	Severe Winter Storms	January 26-28, 2015	Hillsborough, Rockingham & Stafford	<b>Major Disaster Declaration DR-4209:</b> Severe winter storm and snowstorm in Hillsborough, Rockingham, and Strafford Counties; disaster aid was provided to supplement state and local recovery efforts.
DR-4139	Severe Storms, Flooding	July 9-10, 2013	Cheshire, Sullivan & Grafton	<b>Major Disaster Declaration DR-4139:</b> Severe storms, flooding, and landslides occurred from June 26 to July 3, 2013, in Cheshire, Sullivan, and southern Grafton Counties.
DR-4105	Severe Winter Storm	February 8, 2013	All Ten NH Counties	<b>Major Disaster Declaration DR-4105:</b> Nemo; heavy snow in February 2013.
DR-4095	Hurricane Sandy	October 26-November 8, 2012	Belknap, Carroll, Coos, Grafton, Rockingham & Sullivan	<b>Major Disaster Declaration DR-4095:</b> The declaration covers damage to property from the storm that spawned heavy rains, high winds, high tides, and flooding from October 26-November 8, 2012.
EM-3360	Hurricane Sandy	October 26-31, 2012	All Ten NH Counties	<b>Emergency Declaration EM-3360:</b> Hurricane Sandy came ashore in NJ, bringing NH high winds, power outages, and heavy rain. It was declared in all ten counties in New Hampshire.
DR-4065	Severe Storm & Flooding	May 29-31, 2012	Cheshire	<b>Major Disaster Declaration DR-4065:</b> Severe Storm and Flood Event May 29-31, 2012, in Cheshire County.
DR-4049	Severe Storm & Snowstorm	October 29-30, 2011	Hillsborough & Rockingham	<b>Major Disaster Declaration DR-4049:</b> Severe Storm and Snowstorm Event October 29-30, 2011, in Hillsborough and Rockingham Counties.
EM-3344	Severe Snowstorm	October 29-30, 2011	All Ten NH Counties	<b>Emergency Declaration EM-3344:</b> Severe storm during October 29-30, 2011, in all ten counties in New Hampshire (Snowtober).

Number	Hazard	Date of Event	Counties	Description
DR-4026	Tropical Storm Irene	August 26-September 6, 2011	Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan	<b>Major Disaster Declaration DR-4026:</b> Tropical Storm Irene Aug 26th- Sept 6, 2011, in Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan Counties.
EM-3333	Tropical Storm Irene	August 26-September 6, 2011	All Ten NH Counties	<b>Emergency Declaration EM-3333:</b> An emergency Declaration was declared for Tropical Storm Irene in all ten counties.
DR-4006	Severe Storm & Flooding	May 26-30, 2011	Coos & Grafton Counties	<b>Major Disaster Declaration DR-4006:</b> May flooding event occurred May 26th-30th, 2011, in Coos & Grafton Counties (Memorial Day Weekend Storm).
DR-1913	Severe Storms & Flooding	March 14-31, 2010	Hillsborough & Rockingham	<b>Major Disaster Declaration DR-1913:</b> Flooding in two NH counties occurred, including Hillsborough and Rockingham counties.
DR-1892	Severe Winter Storm, Rain & Flooding	February 23 - March 3, 2010	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	<b>Major Disaster Declaration: DR-1892:</b> Flood and wind damage to most of southern NH, including six counties; 330,000 homes without power; more than \$2 million obligated by June 2010.
DR-1812	Severe Winter Storm & Ice Storm	December 11-23, 2008	All Ten NH Counties	<b>Major Disaster Declaration DR-1812:</b> Damaging ice storms to the entire state, including all ten NH counties; fallen trees and large-scale power outages; five months after December's ice storm battered the region, nearly \$15 million in federal aid had been obligated.
EM-3297	Severe Winter Storm	December 11, 2008	All Ten NH Counties	<b>Emergency Declaration EM-3297:</b> Severe winter storm beginning on December 11, 2008.
DR-1799	Severe Storms & Flooding	September 6-7, 2008	Hillsborough	<b>Major Disaster Declaration: DR-1799:</b> Severe storms and flooding began on September 6, 2008.
DR-1787	Severe Storms & Flooding	July 24-August 14, 2008	Belknap, Carroll & Grafton & Coos	<b>Major Disaster Declaration DR-1787:</b> Severe storms, a tornado, and flooding occurred on July 24, 2008.
DR-1782	Severe Storms, Tornado, & Flooding	July 24, 2008	Belknap, Carroll, Merrimack, Strafford & Rockingham	<b>Major Disaster Declaration DR-1782:</b> Tornado damage to several NH counties.
DR-1695	Nor'easters, Severe Storms & Flooding	April 15-23, 2007	All Ten NH Counties	<b>Major Disaster Declaration DR-1695:</b> Flood damages; FEMA & SBA obligated more than \$27.9 million in disaster aid following the April nor'easter. (Tax Day Storm)
DR-1643	Severe Storms & Flooding	May 12-23, 2006	Belknap, Carroll, Grafton, Hillsborough, Merrimack, Rockingham & Strafford	<b>Major Disaster Declaration DR-1643:</b> Flooding in most of southern NH; May 12-23, 2006 (aka Mother's Day Storm).
DR-1610	Severe Storms & Flooding	October 7-18, 2005	Belknap, Cheshire, Grafton, Hillsborough, Merrimack & Sullivan	<b>Major Disaster Declaration DR-1610:</b> State and federal disaster assistance reached more than \$3 million to help residents and business owners in New Hampshire recover from losses from severe storms and flooding in October 2005.
EM-3258	Hurricane Katrina Evacuation	August 29-October 1, 2005	All Ten NH Counties	<b>Emergency Declaration EM-3258:</b> Assistance to evacuees from the area struck by Hurricane Katrina and to provide emergency assistance to those areas beginning on August 29, 2005, and continuing. The President's action made federal funding available to the State's ten counties.

Number	Hazard	Date of Event	Counties	Description
EM-3211	Snow	March 11-12, 2005	Carroll, Cheshire, Hillsborough, Rockingham & Sullivan	<b>Emergency Declaration EM-3211:</b> March snowstorm; more than \$2 million has been approved to help pay for costs of the snow removal; Total aid for the March storm is <b>\$2,112,182.01</b> (Carroll: \$73,964.57; Cheshire: \$118,902.51; Hillsborough: \$710,836; Rockingham: \$445,888.99; Sullivan: \$65,088.53; State of NH: \$697,501.41)
EM-3208	Snow	February 10-11, 2005	Carroll, Cheshire, Coos, Grafton & Sullivan	<b>Emergency Declaration EM-3208:</b> FEMA had obligated more than \$1 million by March 2005 to help pay for costs of the heavy snow and high winds; Total aid for the February storm is <b>\$1,121,727.20</b> (Carroll: \$91,832.72; Cheshire: \$11,0021.18; Coos: \$11,6508.10; Grafton: \$213,539.52; Sullivan: \$68,288.90; State of NH: \$521,536.78)
EM 3208-002	Snow	January, February, March 2005	Belknap, Carroll, Cheshire, Grafton, Hillsborough, Rockingham, Merrimack, Strafford & Sullivan	<b>Emergency Declaration EM 3208-002:</b> The Federal Emergency Management Agency (FEMA) has obligated more than \$6.5 million to reimburse state and local governments in New Hampshire for costs incurred in three snowstorms that hit the State earlier this year, according to disaster recovery officials. Total aid for all three storms is \$6,892,023.87 (January: \$3,658,114.66; February: \$1,121,727.20; March: \$2,113,182.01)
EM-3207	Snow	January 22-23, 2005	Belknap, Carroll, Cheshire, Grafton, Hillsborough, Rockingham, Merrimack, Strafford & Sullivan	<b>Emergency Declaration EM-3207:</b> More than \$3.5 million has been approved to help pay for the costs of the heavy snow and high winds; Total aid for the January storm is <b>\$3,658,114.66</b> (Belknap: \$125,668.09; Carroll: \$52,864.23; Cheshire: \$134,830.95; Grafton: \$137,118.71; Hillsborough: \$848,606.68; Merrimack: \$315,936.55; Rockingham: \$679,628.10; Strafford: \$207,198.96; Sullivan: \$48,835.80; State of NH: \$1,107,426.59)
EM-3193	Snow	December 6-7, 2003	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan	<b>Emergency Declaration EM-3193:</b> The declaration covers jurisdictions with record and near-record snowfall that occurred throughout December 6-7, 2003
DR-1489	Severe Storms & Flooding	July 21-August 18, 2003	Cheshire & Sullivan	<b>Major Disaster Declaration DR-1489:</b> Floods stemming from persistent rainfall and severe storms caused damage to public property from July 21 through August 18, 2003.
EM-3177	Snowstorm	February 17-18, 2003	Cheshire, Hillsborough, Merrimack, Rockingham & Strafford	<b>Emergency Declaration EM-3177:</b> Declaration covers jurisdictions with record and near-record snowfall from the snowstorm that occurred February 17-18, 2003
EM-3166	Snowstorm	March 5-7, 2001	Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham & Strafford	<b>Emergency Declaration EM-3166:</b> Declaration covers jurisdictions with record and near-record snowfall from the late winter storm that occurred in March 2001
DR-1305	Tropical Storm Floyd	September 16-18, 1999	Belknap, Cheshire & Grafton	<b>Major Disaster Declaration DR-1305:</b> The declaration covers damage to public property from the storm that spawned heavy rains, high winds, and flooding throughout September 16-18.
DR-1231	Severe Storms & Flooding	June 12-July 2, 1998	Belknap, Carroll, Grafton, Hillsborough, Merrimack & Rockingham	<b>Major Disaster Declaration DR-1231:</b>

Number	Hazard	Date of Event	Counties	Description
DR-1199	Ice Storm	January 7-25, 1998	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Strafford & Sullivan	Major Disaster Declaration DR-1199:
DR-1144	Severe Storms/Flooding	October 20-23, 1996	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	Major Disaster Declaration DR-1144:
DR-1077	Storms/Floods	October 20-November 15, 1995	Carroll, Cheshire, Coos, Grafton, Merrimack & Sullivan	Major Disaster Declaration DR-1077:
EM-3101	High Winds & Record Snowfall	March 13-17, 1994	All Ten NH Counties	Emergency Declaration EM-3101:
DR-923	Severe Coastal Storm	October 30-31, 1991	Rockingham	Major Disaster Declaration DR-923:
DR-917	Hurricane Bob, Severe Storm	August 18-20, 1991	Carroll, Hillsborough, Rockingham & Strafford	Major Disaster Declaration DR-917:
DR-876	Flooding, Severe Storm	August 7-11, 1990	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, & Sullivan	Major Disaster Declaration DR-876:
DR-789	Severe Storms & Flooding	March 30 - April 11, 1987	Carroll, Cheshire, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	Major Disaster Declaration DR-789
DR-771	Severe Storms & Flooding	July 29-August 10, 1986	Cheshire, Hillsborough & Sullivan	Major Disaster Declaration DR-771:
EM-3073	Flooding	March 15, 1979	Coos	Emergency Declaration EM-3073:
DR-549	High Winds, Tidal Surge, Coastal Flooding & Snow	February 16, 1978	All Ten NH Counties	Major Disaster Declaration DR-549: Blizzard of 1978
DR-411	Heavy Rains, Flooding	January 21, 1974	Belknap, Carroll, Cheshire & Grafton	Major Disaster Declaration DR-411:
DR-399	Severe Storms & Flooding	July 11, 1973	All Ten NH Counties	Major Disaster Declaration DR-399:
DR-327	Coastal Storms	March 18, 1972	Rockingham	Major Disaster Declaration DR-327:
DR-11	Forest Fire	July 2, 1953	Carroll	Major Disaster Declaration DR-11:

Source:  
 Disaster Declarations for New Hampshire; <https://www.fema.gov/disaster/declarations>

**APPENDIX E: HAZARD MITIGATION PLANNING – LIST OF ACRONYMS**

AAR .....	After Action Report	HSEM.....	Homeland Security Emergency Management
ACS .....	Acute Care Site	HSPD .....	Homeland Security Presidential Directive
ARC .....	American Red Cross	IAP .....	Incident Action Plan
ARES.....	Amateur Radio Emergency Service	IC.....	Incident Commander
BFE.....	Base Flood Elevation	ICC.....	Incident Command Center
BOCA .....	Building Officials and Code Administrators	ICS .....	Incident Command System
CBRNE .....	Chemical, Biological, Radiological,	JIC.....	Joint Information Center
CDC .....	Centers for Disease Control and Prevention	LEOP.....	Local Emergency Operations Plan
CDP .....	Center for Domestic Preparedness	MAPS .....	Mapping and Planning Solutions
CERT .....	Community Emergency Response Team	MCI.....	Mass Casualty Incident
CFR .....	Code of Federal Regulations	MEF.....	Mission Essential Function
CIKR .....	Critical Infrastructure & Key Resources	MOU .....	Memorandum of Understanding
CIP.....	Capital Improvements Program	NAWAS .....	National Warning System
COG .....	Continuity of Government	NEF .....	National Essential Function
COGCON.....	Continuity of Government Readiness Conditions	NERF.....	Non-Emergency Response Facility
COOP .....	Continuity of Operations	NFIP .....	National Flood Insurance Program
CPCC .....	Continuity Policy Coordination Committee	NGVD.....	National Geodetic Vertical Datum of 1929
CWPP .....	Community Wildfire Protection Plan	NIMS .....	National Incident Management System
DBHRT .....	Disaster Behavioral Health Response Team	NOAA .....	National Oceanic and Atmospheric Association
DEMD .....	Deputy Emergency Management Director	NRP.....	National Response Plan
DES .....	Department of Environment Services	NSPD .....	National Security Presidential Directive
DFO .....	Disaster Field Office	NTAS.....	National Terrorism Advisory System Nuclear and Explosive
DHHS .....	Department of Health and Human Services	NWS.....	National Weather Service
DHS .....	Department of Homeland Security	PA .....	Public Assistance
DMCR .....	Disaster Management Central Resource	PDA.....	Preliminary Damage Assessment
DBEA.....	Department of Business & Economic Affairs	PDD.....	Presidential Decision Directive
DNCR .....	Department of Natural & Cultural Resources	PIO .....	Public Information Officer
DOD.....	Department of Defense	PMEF .....	Primary Mission Essential Function
DOE.....	Department of Energy	POD .....	Point of Distribution
DOJ .....	Department of Justice	PPE .....	Personal Protective Equipment
DOT .....	Department of Transportation	PR .....	Potential Resources
DPW .....	Department of Public Works	PSA .....	Public Service Announcement
DRC.....	Disaster Recovery Center	RERP .....	Radiological Emergency Response Plan
EAS .....	Emergency Alert System	RNAT.....	Rapid Needs Assessment Team
EMD.....	Emergency Management Director	SERT.....	State Emergency Response Team
EMS.....	Emergency Medical Services	SITREP .....	Situation Report (Also SitRep)
EO .....	Executive Order	SNS.....	Strategic National Stockpile
EOC.....	Emergency Operations Center	SOG .....	Standard Operating Guidelines
EPA .....	U.S. Environmental Protection Agency	SOP.....	Standard Operating Procedures
EPZ.....	Emergency Planning Zone	SPNHF .....	Society for the Protection of NH Forests
ERF .....	Emergency Response Facility	UC .....	Unified Command
ERG.....	Emergency Relocation Group	USDA-FS .....	US Department of Agriculture – Forest Service
ESF.....	Emergency Support Functions	USGS .....	United States Geological Survey
FEMA.....	Federal Emergency Management Agency	VOAD .....	Volunteer Organization Active in Disasters
FIRM.....	Flood Insurance Rate Map	WMD .....	Weapon(s) of Mass Destruction
FPP.....	Facilities & Populations to Protect	WMNF .....	White Mountain National Forest
GIS .....	Geographic Information System	WUI .....	Wildland Urban Interface
HazMat .....	Hazardous Material(s)		
HFRA.....	Healthy Forest Restoration Act		
HMGP .....	Hazard Mitigation Grant Program		
HSAS.....	Homeland Security Advisory System		

**APPENDIX F: POTENTIAL MITIGATION IDEAS<sup>70</sup>**

**Drought**

- D1 ..... Assess Vulnerability to Drought Risk
- D2 ..... Monitoring Drought Conditions
- D3 ..... Monitor Water Supply
- D4 ..... Plan for Drought
- D5 ..... Require Water Conservation during Drought Conditions
- D6 ..... Prevent Overgrazing
- D7 ..... Retrofit Water Supply Systems
- D8 ..... Enhance Landscaping & Design Measures
- D9 ..... Educate Residents on Water Saving Techniques
- D10 .... Educate Farmers on Soil & Water Conservation Practices
- D11 .... Purchase Crop Insurance

**Earthquake**

- EQ1.... Adopt & Enforce Building Codes
- EQ2.... Incorporate Earthquake Mitigation into Local Planning
- EQ3.... Map & Assess Community Vulnerability to Seismic Hazards
- EQ4.... Conduct Inspections of Building Safety
- EQ5.... Protect Critical Facilities & Infrastructure
- EQ6.... Implement Structural Mitigation Techniques
- EQ7.... Increase Earthquake Risk Awareness
- EQ8.... Conduct Outreach to Builders, Architects, Engineers, and Inspectors
- EQ9.... Provide Information on Structural & Non-Structural Retrofitting

**Erosion**

- ER1.... Map & Assess Vulnerability to Erosion
- ER2.... Manage Development in Erosion Hazard Areas
- ER3.... Promote or Require Site & Building Design Standards to Minimize Erosion Risk
- ER4.... Remove Existing Buildings & Infrastructure from Erosion Hazard Areas
- ER5.... Stabilize Erosion Hazard Areas
- ER6.... Increase Awareness of Erosion Hazards

**Extreme Temperatures**

- ET1 .... Reduce Urban Heat Island Effect
- ET2 .... Increase Awareness of Extreme Temperature Risk & Safety
- ET3 .... Assist Vulnerable Populations
- ET4 .... Educate Property Owners about Freezing Pipes

**Hail**

- HA1 .... Locate Safe Rooms to Minimize Damage
- HA2.... Protect Buildings from Hail Damage
- HA3.... Increase Hail Risk Awareness

**Landslides**

- LS1.... Map & Assess Vulnerability to Landslides
- LS2.... Manage Development in Landslide Hazard Areas
- LS3.... Prevent Impacts to Roadways
- LS4 .... Remove Existing Buildings & Infrastructure from Landslide

**Lightning**

- L1..... Protect Critical Facilities
- L2..... Conduct Lightning Awareness Programs

**Inland Flooding**

- F1 ..... Incorporate Flood Mitigation in Local Planning
- F2 ..... Form Partnerships to Support Floodplain Management
- F3 ..... Limit or Restrict Development in Floodplain Areas
- F4 ..... Adopt & Enforce Building Codes and Development Standards
- F5 ..... Improve Stormwater Management Planning
- F6 ..... Adopt Policies to Reduce Stormwater Runoff
- F7 ..... Improve Flood Risk Assessment
- F8 ..... Join or Improve Compliance with NFIP
- F9 ..... Manage the Floodplain Beyond Minimum Requirements
- F10 .... Participate in the CRS
- F11 .... Establish Local Funding Mechanism for Flood Mitigation
- F12 .... Remove Existing Structures from Flood Hazard Areas
- F13 .... Improve Stormwater Drainage System Capacity
- F14 .... Conduct Regular Maintenance for Drainage Systems & Flood Control Structures
- F15 .... Elevate or Retrofit Structures & Utilities
- F16 .... Floodproof Residential & Non-Residential Structures
- F17 .... Protect Infrastructure
- F18 .... Protect Critical Facilities
- F19 .... Construct Flood Control Measures
- F20 .... Protect & Restore Natural Flood Mitigation Features
- F21 .... Preserve Floodplains as Open Space
- F22 .... Increase Awareness of Flood Risk & Safety
- F23 .... Educate Property Owners about Flood Mitigation Techniques

**High Wind Events**

- SW1 ... Adopt & Enforce Building Codes
- SW2... Promote or Require Site & Building Design Standards to Minimize Wind Damage
- SW3... Assess Vulnerability to Severe Wind
- SW4... Protect Power Lines & Infrastructure
- SW5... Retrofit Residential Buildings
- SW6... Retrofit Public Buildings & Critical Facilities
- SW7... Increase Severe Wind Awareness

**Severe Winter Weather**

- WW1.. Adopt & Enforce Building Codes
- WW2.. Protect Buildings & Infrastructure
- WW3.. Protect Power Lines
- WW4.. Reduce Impacts to Roadways
- WW5.. Conduct Winter Weather Risk Awareness Activities
- WW6.. Assist Vulnerable Populations

**Tornado**

- T1 ..... Encourage Construction of Safe Rooms
- T2 ..... Require Wind-Resistant Building Techniques
- T2 ..... Conduct Tornado Awareness Activities

<sup>70</sup> Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013

**Wildfire**

- WF1 ..... Map & Assess Vulnerability to Wildfire
- WF2 ..... Incorporate Wildfire Mitigation in the Comprehensive Plan
- WF3 ..... Reduce Risk through Land Use Planning
- WF4 ..... Develop a Wildland Urban Interface Code
- WF5 ..... Require or Encourage Fire-Resistant Construction Techniques
- WF6 ..... Retrofit At-Risk Structure with Ignition-Resistant Materials
- WF7 ..... Create Defensible Space around Structures & Infrastructure
- WF8 ..... Conduct Maintenance to Reduce Risk
- WF9 ..... Implement a Fuels Management Program
- WF10 ..... Participate in the Firewise® Program
- WF11 ..... Increase Wildfire Awareness
- WF12 ..... Educate Property Owners about Wildfire Mitigation Techniques

**Multi-Hazards**

- MU1 ..... Assess Community Risk
- MU2 ..... Map Community Risk
- MU3 ..... Prevent Development in Hazard Areas
- MU4 ..... Adopt Regulations in Hazard Areas
- MU5 ..... Limit Density in Hazard Areas
- MU6 ..... Integrate Mitigation into Local Planning
- MU7 ..... Strengthen Land Use Regulations
- MU8 ..... Adopt & Enforce Building Codes
- MU9 ..... Create Local Mechanisms for Hazard Mitigation
- MU10 ..... Incentivize Hazard Mitigation
- MU11 ..... Monitor Mitigation Plan Implementation
- MU12 ..... Protect Structures
- MU13 ..... Protect Infrastructure & Critical Facilities
- MU14 ..... Increase Hazard Education & Risk Awareness
- MU15 ..... Improve Household Disaster Preparedness
- MU16 ..... Promote Private Mitigation Efforts

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**Road Washout**

*Photo Credit: Town of Jackson*

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