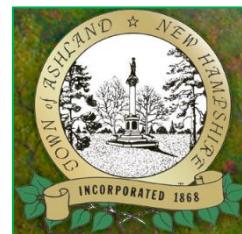


# Ashland, NH

## Hazard Mitigation

### Plan Update 2025



This Plan integrates the following:

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

April 16, 2025  
Final Plan

Prepared for the Town of Ashland and NH Homeland Security & Emergency  
Management

By

The Ashland Hazard Mitigation Planning Team

With assistance from Mapping and Planning Solutions

A  
S  
H  
L  
A  
N  
D

*“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**

June E. Garneau, Owner/Planner  
Mapping and Planning Solutions  
PO Box 283  
91 Cherry Mountain Place  
Twin Mountain, NH 03595  
jgarneau@mappingandplanning.com  
(603) 991-9664 (cell)

**Cover Photos:**

**Collins Street Inland Flooding** - <https://www.facebook.com/photo.php?fbid=675200111454765&set=pb.100068943468430.-2207520000&type=3>  
**I-93 Severe Winter Weather** - <https://www.facebook.com/ashlandpoliceNH/photos/pb.100068943468430.-2207520000/1071833803156452/?type=3>  
**Route 132 High Wind Event** - <https://www.facebook.com/ashlandpoliceNH/photos/pb.100068943468430.-2207520000/974188479587652/?type=3>  
**Police Cruiser** - <https://www.facebook.com/photo/?fbid=620076261665544&set=a.174158641558917>  
**Fire Engine 2** - <https://www.firenews.org/nh/a/ashland/ashlandnh.html>

## Table of Contents

<b>ACKNOWLEDGMENTS .....</b>	<b>5</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>7</b>
<b>CHAPTER 1: HAZARD MITIGATION PLANNING PROCESS .....</b>	<b>9</b>
A. AUTHORITY & FUNDING .....	9
B. PURPOSE & HISTORY OF THE FEMA MITIGATION PLANNING PROCESS .....	9
C. JURISDICTION.....	10
D. SCOPE OF THE PLAN & FEDERAL & STATE PARTICIPATION .....	10
E. PUBLIC & STAKEHOLDER INVOLVEMENT .....	11
F. INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS, AND TECHNICAL INFORMATION .....	14
G. HAZARD MITIGATION GOALS .....	15
H. HAZARD MITIGATION PLANNING PROCESS & METHODOLOGY .....	16
I. HAZARD MITIGATION BUILDING BLOCKS & TABLES .....	17
J. NARRATIVE DESCRIPTION OF THE PROCESS.....	18
<b>CHAPTER 2: COMMUNITY PROFILE .....</b>	<b>25</b>
A. INTRODUCTION .....	25
B. EMERGENCY SERVICES.....	26
C. ASHLAND'S CURRENT & FUTURE DEVELOPMENT TRENDS.....	27
<i>Table 2.1: Town Statistics .....</i>	<i>29</i>
<b>CHAPTER 3: HAZARD IDENTIFICATION, RISK ASSESSMENT &amp; PROBABILITY .....</b>	<b>33</b>
A. HAZARD IDENTIFICATION .....	33
B. RISK ASSESSMENT .....	33
C. PROBABILITY.....	34
<i>Table 3.1: Hazard Identification &amp; Risk Assessment (HIRA).....</i>	<i>35</i>
D. NATIONAL FLOOD INSURANCE PROGRAM (NFIP) STATUS.....	36
<i>Table 3.2: Historic Hazard Identification .....</i>	<i>38</i>
<b>CHAPTER 4: CRITICAL INFRASTRUCTURE &amp; KEY RESOURCES (CIKR) .....</b>	<b>47</b>
<i>Table 4.1 - Emergency Response Facilities (ERFs) &amp; Evacuation.....</i>	<i>47</i>
<i>Table 4.2 – Non-Emergency Response Facilities (NERFs).....</i>	<i>49</i>
<i>Table 4.3 – Facilities &amp; Populations to Protect (FPPs).....</i>	<i>49</i>
<i>Table 4.4 – Potential Resources (PRs).....</i>	<i>50</i>
<b>CHAPTER 5: HAZARD EFFECTS IN ASHLAND.....</b>	<b>51</b>
A. IDENTIFYING VULNERABLE CRITICAL INFRASTRUCTURE & KEY RESOURCES (CIKR).....	51
B. CALCULATING THE POTENTIAL LOSS .....	52
C. NATURAL HAZARDS .....	53
D. TECHNOLOGICAL & HUMAN-CAUSED HAZARDS.....	63

**CHAPTER 6: CURRENT PLANS, POLICIES, AND MUTUAL AID ..... 69**

A. ANALYSIS OF THE EFFECTIVENESS OF CURRENT PROGRAMS..... 69

*Table 6.1: Capabilities Assessment..... 69*

**CHAPTER 7: LAST MITIGATION PLAN..... 75**

A. DATE OF LAST PLAN..... 75

*Table 7.1: Accomplishments since the Last Plan..... 75*

**CHAPTER 8: NEW MITIGATION STRATEGIES & STAPLEE ..... 81**

A. MITIGATION STRATEGIES BY TYPE..... 81

B. POTENTIAL MITIGATION STRATEGIES BY HAZARD..... 82

C. STAPLEE METHODOLOGY..... 84

D. TEAM’S UNDERSTANDING OF HAZARD MITIGATION ACTION ITEMS..... 85

*Table 8.1: Potential Mitigation Action Items & the STAPLEE..... 85*

**CHAPTER 9: IMPLEMENTATION SCHEDULE FOR PRIORITIZED ACTION ITEMS..... 91**

A. PRIORITY METHODOLOGY ..... 91

B. WHO, WHEN, HOW? ..... 92

*Table 9.1: The Mitigation Action Plan ..... 92*

**CHAPTER 10: ADOPTING, MONITORING, EVALUATING, AND UPDATING THE PLAN ..... 101**

A. HAZARD MITIGATION PLAN MONITORING, EVALUATION, AND UPDATES..... 101

B. INTEGRATION WITH OTHER PLANS ..... 103

C. PLAN APPROVAL & ADOPTION..... 104

**CHAPTER 11: SIGNED COMMUNITY DOCUMENTS AND APPROVAL LETTERS ..... 105**

A. PLANNING SCOPE OF WORK & AGREEMENT ..... 105

B. APPROVED PENDING ADOPTION (APA) FROM FEMA ..... 109

C. FORMAL APPROVAL LETTER FEMA..... 110

D SIGNED CERTIFICATE OF ADOPTION ..... 111

E. CWPP APPROVAL LETTER FROM DNCR ..... 113

F. ANNUAL OR POST HAZARD REVIEW FORMS ..... 115

**CHAPTER 12: APPENDICES..... 123**

APPENDIX A: BIBLIOGRAPHY..... 125

APPENDIX B: HAZARD MITIGATION ASSISTANCE (HMA) ..... 127

APPENDIX C: THE EXTENT OF NATURAL HAZARDS..... 129

APPENDIX D: NH MAJOR DISASTER & EMERGENCY DECLARATIONS..... 147

APPENDIX E: HAZARD MITIGATION PLANNING – LIST OF ACRONYMS ..... 152

APPENDIX F: POTENTIAL MITIGATION IDEAS..... 153

## 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 for 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 Ashland Hazard Mitigation Plan, approved on October 31, 2019.**

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

**Approval Notification Dates for 2025 Update**

Approved Pending Adoption (APA) .....February 6, 2025  
Jurisdiction Adoption: .....February 24, 2025  
CWPP Approval: .....March 4, 2025  
**\*Plan Approval Date (FEMA): .....April 16, 2025**  
Receipt of FEMA Letter .....April 22, 2025  
Plan Distribution (MAPS):.....April 25, 2025

*\*The start of the next five-year clock*

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

The Town of Ashland 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:

- Steve Heath .....Ashland Fire Chief & Emergency Management Director
- Joe Wood .....Ashland Firefighter
- Andy Fitch .....Ashland Select Board Member
- Fred Welch .....Ashland Town Manager
- Luann McAndrews .....Ashland Finance Assistant
- William Ulwick .....Ashland Police Chief
- Dan Uhlman .....Belletetes of Ashland
- Craig Moore .....Ashland Public Works Director
- Kendall Hughes .....Ashland Health Officer & Firefighter
- Marissah Gallien .....Ashland Finance Director
- Pat Tucker .....Ashland Town Clerk
- Devon Thibeault .....Ashland Building Inspector
- Kathleen DeWolfe .....Ashland Planning Board Member
- Harry Gallien .....Ashland Electrical Supervisor
- Robert Bousquet .....Ashland Assistant Emergency Management Director & Firefighter
- Guy Donnelly.....Ashland Elementary School Principal
- Samatha Leahy .....Ashland Firefighter
- Efrain Gonzales.....Ashland Firefighter & Emergency Medical Technician
- Andrew Benton.....Ashland Water & Sewer Director
- Lieutenant Paquette.....Ashland Firefighter
- Angel Ekstrom.....Central NH Regional Public Health Network Emergency Preparedness  
Coordinator
- Jennifer Gilbert.....NH OSI State Floodplain Management Program Coordinator
- Lynne Doyle .....NH HSEM State Hazard Mitigation Planner
- Paul Hatch.....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. Ashland would also like to thank FEMA and NH HSEM as the primary funding sources for this Plan.

## Executive Summary



The Ashland 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 Ashland Hazard Mitigation Planning Team (HMPT), interested stakeholders, the general 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 Ashland 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.

**Mitigation action items for natural hazards are the main focus of this Plan;** NH Homeland Security & Emergency Management (HSEM) determined the natural hazard when writing the 2023 NH Hazard Mitigation Plan. However, this Plan addresses technological and human-caused hazards in addition to natural hazards, as shown below.

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

- 1) Severe Winter Weather
- 2) Dam Failure
- 3) Extreme Temperatures
- 4) Inland Flooding
- 5) Infectious Disease
- 6) Lightning
- 7) Tropical/Post Tropical Cyclones
- 8) High Wind Events
- 9) Drought
- 10) Landslide
- 11) Earthquake
- 12) Wildfire

### TECHNOLOGICAL & HUMAN-CAUSED HAZARDS

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

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 Ashland 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). Also, this Plan 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 Ashland 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:

Ashland Hazard Mitigation Plan Update 2025 .....	the Plan or this Plan
Ashland .....	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 Ashland 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 Ashland 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 Ashland 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 Ashland 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 Ashland 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.

---

<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 Ashland, Grafton 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 methods of treatment 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.

---

<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 Ashland 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 Ashland. A press release (see below) was posted at the Town Offices and on the Town’s website and calendar. 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. Ashland has no colleges or universities; local school officials were invited to attend meetings.

- 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
- Land Owners
  - Home Owners Association(s)
  - Forest Management
  - Developers & Builders
  - Major Businesses

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

---

**Press Release**

---

FOR IMMEDIATE RELEASE  
Updated: October 6, 2023

Contact: June Garneau  
603-991-9664

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

The Ashland Fire Chief/EMD met with June Garneau of Mapping and Planning Solutions and other team members from Ashland to work on the required five-year update to the **2019 Ashland Hazard Mitigation Plan**. The Town and Mapping and Planning Solutions are conducting a series of Hazard Mitigation meetings to develop the Plan over the next few months.

During these public meetings, the Team will address natural, technological, and human-caused hazards such as Inland Flooding, Long-Term Utility Outages, and Transport Accidents; the Team will also 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 funding should a natural disaster occur. The planning processes are made possible by grants from FEMA.

The Hazard Mitigation Planning Team (HMPT) is currently being formed. Ashland citizens and any interested stakeholders are invited to participate. The next meeting is scheduled for **Thursday, November 9, 2023, from 9:00 AM to 11:00 AM** via "Zoom". The public is encouraged to attend all meetings. All interested parties should contact Chief Heath, Fire Chief & EMD, by email at [firechief@ashland.nh.gov](mailto:firechief@ashland.nh.gov) to be included in the process; interested parties will be added to the Zoom meeting invitation list. Future meetings are planned for December 21, January 25, February 22, and March 21.

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).

At this time the emergency management team is initiating the revision of our 2019 Hazard Mitigation Plan. We are inviting all stakeholders, including local and regional agencies, citizens, businesses and other interested parties from Ashland to participate.

**MEETINGS:**

All residents are welcome to attend the Hazard Mitigation Plan Update meetings either in person at the Fire Department, 9 Main Street , or via Zoom.  
Zoom links will be posted as they become available.

Meetings will be held on Thursdays starting at 9am

Meeting dates are as follows:

October 5th, 2023

November 9th, 2023 [https://us06web.zoom.us/j/81539337268?](https://us06web.zoom.us/j/81539337268?pwd=UWlxODVqcVZaWnpHUEhDZmhXNVdrZz09)

[pwd=UWlxODVqcVZaWnpHUEhDZmhXNVdrZz09](https://us06web.zoom.us/j/81539337268?pwd=UWlxODVqcVZaWnpHUEhDZmhXNVdrZz09)

**Meeting ID:** 815 3933 7268      **Passcode:** 314408

December 21st, 2023

January 25th, 2024

February 22nd, 2024

March 21st, 2024

## Emergency Management Meeting

**WHEN:** November 9, 2023 @ 9:00 am  Calendar


**WHERE:** Utility Conference Room  
6 Collins Street

<https://us06web.zoom.us/j/81539337268?pwd=UWlxODVqcVZaWnpHUEhDZmhXNVdrZz09>

**Meeting ID:** 815 3933 7268


**Passcode:** 314408

Lastly, the Planner sent a monthly calendar (see below) and email inviting stakeholders to participate in planning meetings being held by MAPS. EMDs, Police Chiefs, Fire Chiefs, Rangers, and other state, federal, and private officials were included in this email blast. Ashland’s neighbors, Plymouth, Campton, Sandwich, Holderness, New Hampton, and Bridgewater, are part of MAPS’ monthly email.



### Upcoming Zoom Meetings

Colored by county  
January 15, 2024 – September 11, 2024



Day	Date	Time	Town/Location	Plan Type	HSEM Field Rep	County
Monday	1/15/24	6:30 PM	Randolph Zoom Meeting	HMP	Candi Tibbetts	Coos
Tuesday	1/16/24	6:00 PM	Franconia Zoom Meeting	HMP	Paul Hatch	Grafton
Thursday	1/18/24	2:00 PM	Bath Zoom Meeting	HMP	Paul Hatch	Grafton
Wednesday	1/24/24	10:00 AM	Sandwich Zoom Meeting	HMP	Candi Tibbetts	Carroll
Wednesday	1/24/24	2:00 PM	Alton Zoom Meeting	EOP	Liz Gilboy	Belknap
Thursday	1/25/24	9:00 AM	Ashland Zoom Meeting	HMP	Paul Hatch	Grafton
Tuesday	1/30/24	6:00 PM	Erroll Zoom Meeting	EOP	Candi Tibbetts	Coos

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.

Ashland had excellent participation in developing this Plan. The Fire Chief/Emergency Management Director (EMD), Assistant EMD, Police Chief, Public Works Director, Water & Sewer Director, Electric Supervisor, Building Inspector, and Health Officer participated in meetings. The Town Manager, Select Board and Planning Board members, Finance Director and Assistant Finance Director, Town Clerk, Ashland Elementary School Principal, a business owner, and multiple firefighters also participated in meetings. Comments made by all team members, including the public, were integrated into the narrative discussion and incorporated into the document. Although the public was informed about the planning meetings, only the local business owner participated.

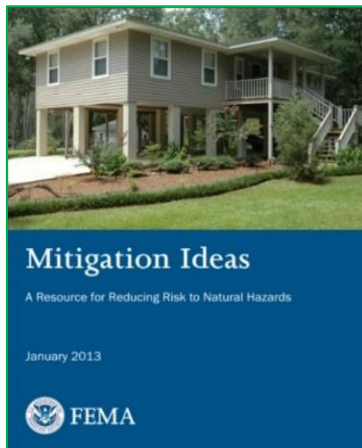
§201.6(b) requires that there be an open public involvement process in the formation of a plan. This process shall provide an opportunity for the public to comment on the Plan during its formation as well as an opportunity for any neighboring communities, businesses, and others to review any existing 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**

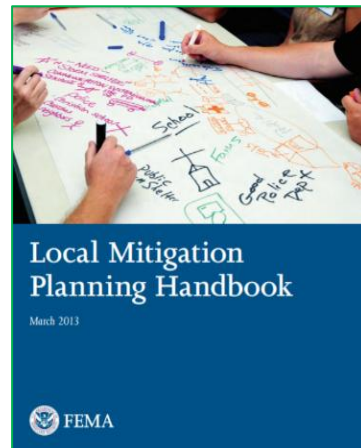
The planning process included a complete review of the Ashland Hazard Mitigation Plan 2019 for updates, development changes, and accomplishments. The Team worked with the Planner to identify pertinent information from the reviewed documents; this information was then added to the appropriate place in 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 Ashland Hazard Mitigation Plan 2019 .....	Compare & Contrast
Ashland Master Plan (2014) .....	Community Information
Ashland Annual Reports (2023).....	Fire Report & Development
Other Hazard Mitigation Plans (Hanover, Greenland, Enfield).....	Formats & Mitigation Ideas
The Ashland Subdivision Regulations (2014).....	New Development Regulations
The Ashland Site Plan Review Regulations (2007).....	Commercial Regulations
The Ashland Zoning Ordinance (2023).....	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 2023 for Ashland .....	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 goals in the State of New Hampshire Multi-Hazard Mitigation Plan Update 2023.<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 AN 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 cross-talk 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*

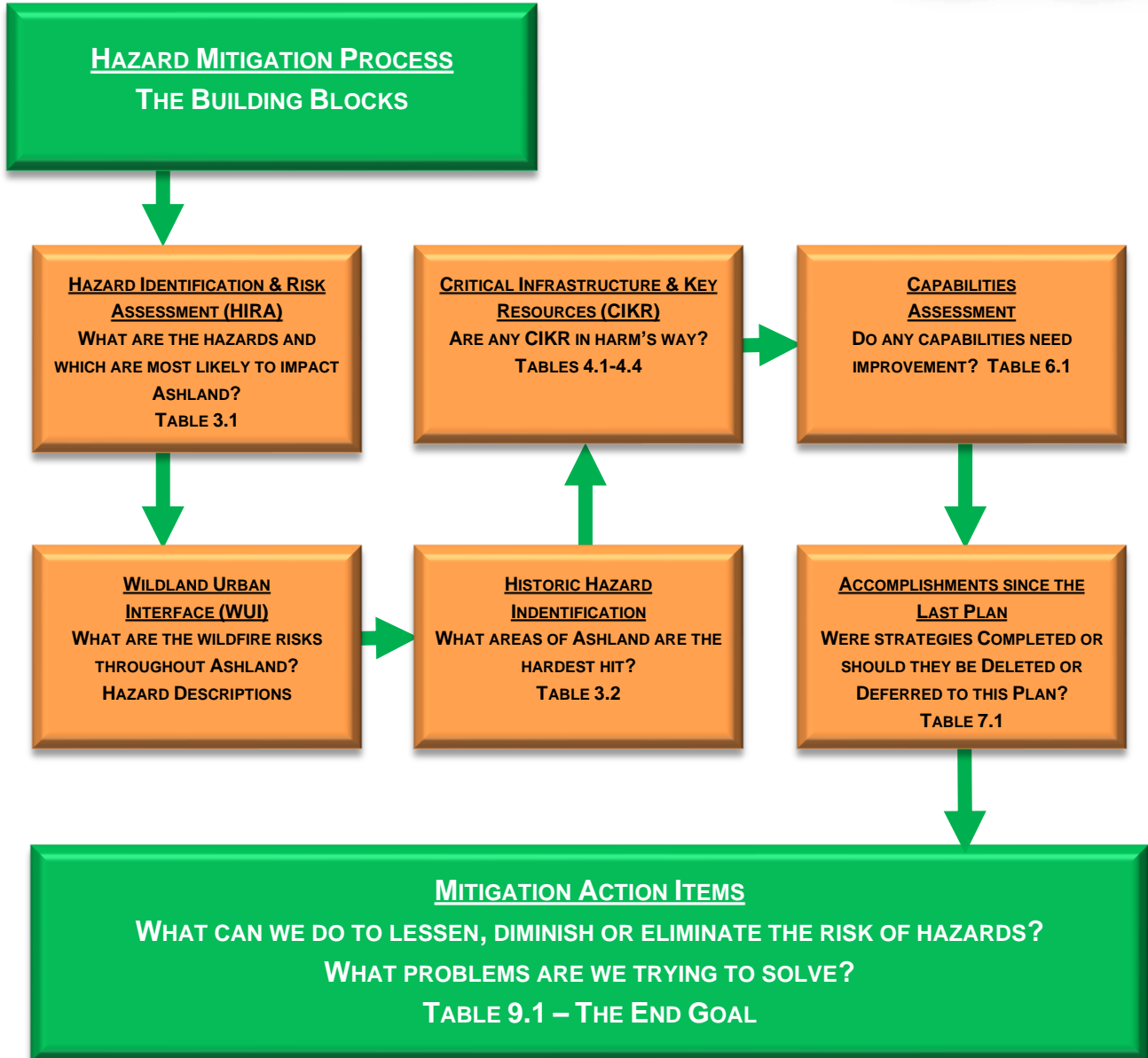
Step 11: Review the Plan before submission to HSEM for APA (Approved Pending Adoption)

Step 12: Adopt and monitor the Plan

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

The foundation for this mitigation plan was the previous plan; each completed table had its starting point 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 review of the 2019 Ashland Hazard Mitigation Plan. Using the 2019 plan as a base, each element of the old plan was examined and revised to reflect changes in development and the Community's priorities. Strategies from the past were also reassessed and improved upon for the future.

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

MEETING 1, OCTOBER 5, 2023

The first virtual meeting with the Ashland Hazard Mitigation Team was held on October 5, 2023. Meeting attendance included Steve Heath (Fire Chief & Emergency Management Director), Joe Wood (Firefighter), Andy Fitch (Select Board), Fred Welch (Town Manager), Luann McAndrews (Finance Assistant), William Ulwick (Police Chief), Dan Uhlman (Belletetes Lumber), Craig Moore (Public Works Director), Kendall Hughes (Health Officer & Firefighter), Marissah Gallien (Finance Director), Pat Tucker (Town Clerk), Devon Thibeault (Building Inspector), Kathleen DeWolfe (Planning Board), Harry Gallien (Electric Supervisor), Robert Bousquet (Assistant Emergency Management Director), Olin Garneau (Planner, Mapping & Planning Solutions), and June Garneau (Planner, 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 Ashland with summer and winter homes. It was determined that Ashland has around a 35% change in population in summer and winter due to the influx of seasonal tourists. This change can place an additional burden on the emergency responders.

Meeting 1 – October 5, 2023

**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) Thursday, November 9, 2023, @ 9:00 AM
- b) Thursday, December 21, 2023, @ 9:00 AM
- c) Thursday, January 25, 2023, @ 9:00 AM
- d) Thursday, February 22, 2023, @ 9:00 AM
- e) Thursday, March 21, 2023, @ 9:00 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 and Dam Failure were determined to be the most significant natural hazards to affect 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 Ashland. 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 and Hazard Descriptions not finished, the Planner reviewed what would occur at the next meeting and thanked the Team. The next meeting was set for November 8, 2023.

MEETING 2, NOVEMBER 9, 2023

Virtual meeting attendance included Steve Heath, William Ulwick, Craig Moore, Kendall Hughes, Marissah Gallien, Devon Thibeault, Kathleen DeWolfe, Harry Gallien, Guy Donnelly (SAU 2 Principal), Samantha Leahy (Firefighter), 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 that the Town data was accurate; no changes were made. 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 this table either.

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 Grafton County. The Team described the events during each disaster in Ashland in each instance.

Next on the agenda were *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).

With time running out, the Planner thanked the Team for their work and assigned homework to team members, requesting that the Public Works Director prepare a list of road and culvert projects that should be completed within the next five years. The Planner also asked the Team to consider current plans, policies, mutual aid, and projects completed since the prior hazard mitigation plan. The next meeting was scheduled for Thursday, December 21, 2023.

MEETING 3, DECEMBER 21, 2023

Virtual meeting attendance included Steve Heath, Fred Welch, Luann McAndrews, William Ulwick, Kendall Hughes, Devon Thibeault, Kathleen DeWolfe, Harry Gallien, Robert Bousquet, Olin Garneau, and June Garneau.

First on the agenda was a review of the last meeting, including *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 Ashland, it was noted that the WUI would cover most of the Town due to the abundance of forested land. Mitigation strategies were discussed to protect structures and educate citizens about wildfire risk.

Meeting 2 – November 9, 2023

**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 (did not finish)

**2) Today's Topics**

- a) Review...
  - i) Table 2.1, Town Statistics
  - ii) Table 3.1, Hazard Identification & Risk Assessment (HIRA)
- b) Finish...
  - i) Hazard Descriptions
- c) 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) Thursday, December 21, 2023, @ 9:00 AM
- b) Thursday, January 25, 2023, @ 9:00 AM
- c) Thursday, February 22, 2023, @ 9:00 AM
- d) Thursday, March 21, 2023, @ 9:00 AM

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.

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 capabilities 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*.

*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.

Lastly, the Planner 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 Ashland (see right).

With time running out, the Planner adjourned the meeting and promised to write statements to support the concepts and ideas expressed for *Tables 6.1 and 7.1*. The next meeting was scheduled for January 25, 2023.

**MEETING 4 – JANUARY 25, 2024**

Virtual meeting attendance included Steve Heath, Andy Fitch, Fred Welch, Luann McAndrews, William Ulwick, Craig Moore, Kendall Hughes, Marissah Gallien, Devon Thibeault, Efrain Gonzalez (Firefighter/EMT), Christina Rambo (NH Department of Environmental Services), Olin Garneau, 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*.

**Meeting 3 – December 21, 2023**

**1) Last Meeting**

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

**2) Today’s Topics**

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

**3) Homework**

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

**4) Future Meetings**

- a) Thursday, January 25, 2023, @ 9:00 AM
- b) Thursday, February 22, 2023, @ 9:00 AM
- c) Thursday, March 21, 2023, @ 9:00 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)

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.

This review helped the Team understand how these tables served as a building block 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**dministrative, **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 began work 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).

The Planner explained to the Team what would occur during the next meeting, which was set for February 22, 2024. The meeting was adjourned.

**Meeting 4 – January 25, 2024**

**1) Last Meeting**

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

**2) Today's Topics**

- a) Review...
  - i) Table 6.1, Capabilities Assessment
  - ii) Table 7.1, Past Hazard Mitigation Plan 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) Thursday, February 22, 2023, @ 9:00 AM
- b) Thursday, March 21, 2023, @ 9:00 AM

MEETING 5 – FEBRUARY 22, 2024

Virtual meeting attendance included Steve Heath, Fred Welch, Luann McAndrews, William Ulwick, Craig Moore, Kendall Hughes, Marissah Gallien, Pat Tucker, Devon Thibeault, Kathleen DeWolfe, Harry Gallien, Andrew Benton (Water & Sewer Director), Olin Garneau, and June Garneau.

The meeting began where we had left off in Tables 9.1 & 8.1. After considering each strategy forwarded from Tables 6.1 & 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-three “Mitigation Action Items” that they felt were achievable and could help diminish the impact of natural hazards in the future.

With time running out in the meeting, the Planner explained what would occur at the next meeting; all that remained was the ranking and prioritizing of the Action Items. The next meeting was set for March 21, 2024, and the meeting was adjourned.

MEETING 6 – MARCH 21, 2024

Virtual meeting attendance included Steve Heath, Craig Moore, Kendall Hughes, Devon Thibeault, Kathleen DeWolfe, Harry Gallien, Efrain Gonzalez, Lieutenant Paquette (Police Department), Angel Ekstrom (Central NH Regional Public Health Network), Olin Garneau, and June Garneau.

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.

Meeting 5 – February 22, 2024

**1) Last Meeting**

- a) Reviewed...
  - i) Table 6.1, Capabilities Assessment
  - ii) Table 7.1, Past Hazard Mitigation Plan Assessment
- b) Worked on...
  - i) Table 9.1, Mitigation Action Plan (did not finish)
  - ii) STAPLEE (did not finish)

**2) Today’s Topics**

- a) Finish...
  - i) Table 9.1, Mitigation Action Plan
  - ii) STAPLEE
- b) Work on...
  - i) Ranking & Priority

**3) Homework**

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

**4) Future Meetings**

- a) Thursday, March 21, 2024, @ 9:00 AM

Meeting 6 – March 21, 2024

**1) Last Meeting**

- a) Finished...
  - i) Table 9.1, Mitigation Action Plan
  - ii) STAPLEE

**2) Today’s Topics**

- a) Review...
  - i) Table 9.1, Mitigation Action Plan
  - ii) STAPLEE
- b) Work on...
  - i) Ranking & Priority

**3) Homework**

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

**4) Future Meetings**

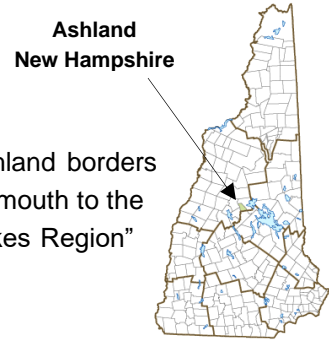
- a) \_\_\_\_\_

THIS PAGE INTENTIONALLY LEFT BLANK

## Chapter 2: Community Profile

### A. INTRODUCTION

Ashland is a beautiful community in Grafton County in central New Hampshire. Ashland borders Holderness to the north and east, New Hampton to the south, and Bridgewater and Plymouth to the west. Ashland is in the lakes region of central New Hampshire and is within the “Lakes Region” Tourism Region.



### TOWN GOVERNMENT

A five-member Select Board governs the Town of Ashland, with a Town Manager overseeing the Town's day-to-day operations. The Town's departments include but are not limited to Fire, Police, Public Works, Planning, Zoning, and Conservation. The largest employer in Ashland is Rochester Shoe Tree Co., Inc., with 90+ employees, followed by Freudenberg-NOK and Common Man, with 50+ employees.

### DEMOGRAPHICS & HOUSING

Ashland's population has increased from 1,917 in 1990 to 1,938 in 2020, showing an increase of 21, according to the US Census 2020.<sup>6</sup> This data represents a growth rate of approximately 1.1%.

There are an estimated 1,337 housing units, most of which are occupied (966), while vacant housing units total 371, thus confirming the presence of second homes. The estimated median household income is \$53,367, and the median age is 32.3 years.<sup>7</sup>

### EDUCATION & CHILD CARE

Ashland students in grades K-8 attend Ashland Elementary School. Students in grades 9-12 attend school in the Pemi-Baker Regional School District with Campton, Holderness, Plymouth, Rumney, Thornton, and Wentworth. There are no colleges, universities, or childcare facilities in Ashland, but Plymouth State University is in nearby Plymouth.

**Incorporated:** 1868

**Origin:** Once the southwest portion of Holderness known as the village section, Ashland was not incorporated until 1868. The name Ashland was in honor of the birthplace and Kentucky estate of Henry Clay, Secretary of State and Senator from Kentucky. The name was suggested by Colonel Thomas Cheney, who had been assistant Sargent-at-Arms in Congress during Clay's service in Washington, and an active participant in the formation of the Republican Party in New Hampshire. The geographic center of New Hampshire is located three miles east of Ashland.

**Villages and Place Names:** unknown

**Population, Year of the First Census Taken:** 885 residents in 1870

**Population Trends:** Population change for Ashland totaled 587 over 56 years, from 1,473 in 1960 to 2,060 in 2016. The largest decennial percent change was a 13 percent increase between 1970 and 1980, the only decade that population increased over ten percent. The 2016 Census estimate for Ashland was 2,060 residents, which ranked 139th among New Hampshire's incorporated cities and towns.

**Population Density and Land Area, 2016 (US Census Bureau):** 182.0 persons per square mile of land area. Ashland contains 11.3 square miles of land area and 0.5 square miles of inland water area.

*Source: Economic & Labor Market Information Bureau, NH Employment Security, June 2024; Received 7/13/2023*

<sup>6</sup> US Census 2020

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

### NATURAL FEATURES

The Town of Ashland covers approximately 11.3 square miles of land area and 0.5 square miles of inland water. The mountains, hills, and lakes of central New Hampshire dominate the Community. The highest peak is Hicks Hill, at 1,386' above sea level. The lowest elevation in the Town is 558' above sea level near the center of the Town.

Vegetation is typical of northern New England, including deciduous and conifer forests, open fields, swamp and riverine areas. The terrain lends itself to an abundance of small ponds, streams, and rivers, most notably the Squam River, the Pemigewasset River, and Little Squam Lake.

### TRANSPORTATION

Three major roadways run through Ashland: I-93, US Route 3, and NH Route 175. I-93 travels north-south along Ashland's western border from Holderness in the north to New Hampton in the South. US Route 3 travels from New Hampton in the south, through Ashland, veering north and traveling northeast into Holderness. NH Route 175 cuts off the northeast corner of Ashland, running to and from Holderness. Other smaller and less traveled roadways lend access to other areas of the Town. All roadways in Ashland are susceptible to hazards such as road flooding and high winds leading to downed trees in the roadways and potential hazardous materials spills.

## **B. EMERGENCY SERVICES**

### EMERGENCY OPERATIONS CENTER & EMERGENCY MANAGEMENT DIRECTOR

The Town of Ashland 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 Ashland, the designated EOC is the Fire Station.

### FIRE DEPARTMENT & EMS

The Ashland Fire Department is an on-call fire department providing quality fire and emergency medical services to the residents and visitors of Ashland 24 hours a day, 365 days a year. The department staffs a part-time Chief and 30 paid-on-call firefighters and operates one station within the Community. Plymouth Fire Department (primary) and Ashland Fire Department provide emergency medical transportation. The Ashland Fire Department participates with Lakes Region Mutual Fire Aid and other area departments.

### POLICE DEPARTMENT

The Ashland Police Department is a full-time department providing quality law enforcement services to the residents and visitors of Ashland. The department staffs a full-time Chief, six full-time, and two part-time officers. The Ashland Police Department has mutual aid with the NH State Police – Troop F, the Grafton County Sheriff's Office, and surrounding towns.

**PUBLIC WORKS**

The Ashland Public Works Department (PWD) operates year-round, 24 hours daily, as needed. The department staffs a full-time Director, four full-time and two part-time employees. The department’s mission is to support the citizens of Ashland 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**

Ashland’s closest medical facility is Spears Memorial Hospital in Plymouth (7 miles). An alternative medical facility is Concord Hospital-Laconia in Laconia (18 miles).

**EMERGENCY SHELTER(S)**

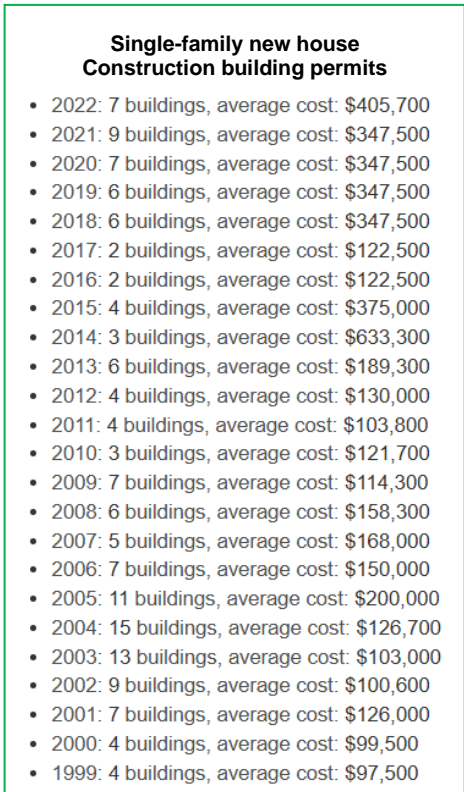
The primary shelter is where evacuees are directed during an emergency. Ashland's designated primary shelter is the Ashland Elementary School, which offers a large sleeping area, restrooms, and kitchen facilities. The school has an emergency generator hookup to keep the building operational during power outages. **Action Item #29** in this Plan is to obtain and install a permanent generator at Ashland Elementary School. The designated secondary shelter for the Town is Plymouth State University in Plymouth.

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

Nearly every New Hampshire community experienced a significant drop in new home construction after the Great Recession of 2008. Ashland was no exception. Between 2009 and 2017, single-family new home construction in Ashland was consistent with New Hampshire trends. However, unlike other areas of the State, single-family house construction remained slow, with a slight increase, through 2022, as shown in the chart (see right) from City-Data.com.<sup>8</sup>

Since the pandemic began in 2020, development in New England has undergone several changes. One of the most significant changes was occasionally used homes modified as permanent residents for those wishing to flee the cities. Lot line adjustments and minor subdivisions were also quite common. Then, real estate boomed, at least during 2021 and through most of 2022, only to settle to more moderate, consistent levels.

In Ashland, development has been steady and very well-regulated. Three subdivisions are currently under consideration in Ashland, including one with approximately 150 rental units and another with five units designated for senior housing. While formal submissions have yet to be made, two additional subdivisions are also being contemplated. The Planning Board encourages applicants to consult and maintain open dialogue, ensuring that all zoning requirements and state regulations are met. Site inspections are conducted when necessary to confirm compliance, particularly in potential hazard zones, and fire protection measures are mandated where appropriate.



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

The Town's steep slopes ordinance and Squam Lake overlay regulations are strictly adhered to, ensuring that roads, driveways, and buildings are developed safely and sustainably. Additionally, extensive wellhead protection areas and the Pemi overlay safeguard the Community's water quality and environmental health.

The Planning Board reported in the 2023 annual report, *“The Ashland Planning Board has had a busy year, dealing with review of regulations, informal consultations, boundary adjustments, lot mergers, small business changes, and large development concepts.”*<sup>9</sup> It later states, *“According to New Hampshire law, a planning board has certain regulatory duties, including site plans for non-residential (commercial) and multi-family development, and for subdivision of land. Several small business changes have been approved through Planning Board processes, including a landscaping company, a wholesale coffee roaster, and a counseling services office. Lot mergers have been approved in the former Woodmill subdivision and other lot line adjustments have been made along North Ashland Road. A new cell tower installation has also been approved near North Ashland Road.”*

*The new ownership of Owl's Nest Vineyard Course (formerly White Mountain Country Club) has had several informal consultations with the Planning Board and continues to present plans for approval of changes. A residential development on Thompson Street is in the process of obtaining approvals from DES (Department of Environmental Services) and preparing site plans. Expansion of a small multi-family complex of duplexes on Winter Street was approved and residential plans for the former Catholic Church property are progressing. All of these ongoing projects have made use of informal consultation with the Planning Board before submitting formal project plans. We encourage any project, large or small, to use this informal discussion process as a first step.*<sup>10</sup>

The Ashland 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. Ashland'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 and recommended by the Fire Department. 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, the Site Plan Review process, 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.

---

<sup>9</sup> Town Ashland, 2023 Annual Report, Planning Board Report, page 31

<sup>10</sup> Ibid

**TABLE 2.1: TOWN STATISTICS**

Table 2.1 - Town Statistics				
Census Population Data	2020	2010	2000	1990
<b>Ashland, NH - Census Population Data</b>	<b>1,938</b>	<b>2,076</b>	<b>1,966</b>	<b>1,917</b>
<b>Grafton County</b>	<b>91,126</b>	<b>89,118</b>	<b>81,826</b>	<b>74,998</b>
<i>30-year Growth Rate</i>	1.10%	<i>Growth Rate = 2020POP-1990POP/1990POP</i>		
<i>Elderly Population-% over 65 (2022 ACS 5-Year)</i>	21.3%			
<i>Median Age (2022 ACS 5-Year)</i>	32.3			
<i>Median Household Income (2022 ACS 5-Year)</i>	\$53,367			
<i>Poverty Rate (2022 ACS 5-Year)</i>	24.7% (47% Wall Street Journal)			
<i>Change in Population-Summer (%)</i>	35%			
<i>Change in Population-Winter (%)</i>	35%			
<b>Housing Statistics (2022 ACS 5-Year)</b>				
<i>Total Housing Units</i>	1,337			
<i>Occupied Housing Units</i>	966			
<i>Vacant Housing Units</i>	371			
<b>Assessed Building Values</b>				
Types buildings	Value	1% Damage	5% Damage	
<i>Residential</i>	\$215,803,220	\$2,158,032	\$10,790,161	
<i>Manufactured Housing</i>	\$5,819,030	\$58,190	\$290,952	
<i>Commercial</i>	\$34,616,310	\$346,163	\$1,730,816	
<i>Tax Exempt</i>	\$26,094,070	\$260,941	\$1,304,704	
<i>Utilities</i>	\$28,849,400	\$288,494	\$1,442,470	
<i>Totals</i>	\$311,182,030	\$3,111,820	\$15,559,102	
<i>The above chart shows the 2023-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: Town of Ashland 2023 Annual Town Report, page 65</i>				
<b>Regional Coordination</b>				
<i>County</i>	Grafton			
<i>Tourism Region</i>	Lakes			
<b>Municipal Services &amp; Government</b>				
<i>Town Hall or Town Office</i>	Town Office			
<i>Town Manager or Administrator</i>	Yes, Town Manager			
<i>Select Board (5-member)</i>	Yes, elected			
<i>Planning Board</i>	Yes, appointed			
<i>School Board</i>	Yes, elected			
<i>Zoning Board of Adjustment</i>	Yes, appointed			
<i>Conservation Commission</i>	Yes, appointed			
<i>Master Plan</i>	Yes, March 26, 2014			
<i>Emergency Operation Plan (EOP)</i>	Yes, September 19, 2016			
<i>Hazard Mitigation Plan (HMP)</i>	Yes, October 31, 2019			

Table 2.1 - Town Statistics	
<i>Zoning Ordinances</i>	Yes, March 14, 2023
<i>Subdivisions Regulations</i>	Yes, November 5, 2014
<i>Site Plan Review Regulations</i>	Yes, October 3, 2007
<i>Capital Improvement Plan (CIP)</i>	No active committee
<i>Capital Reserve Funds (CRF)</i>	Yes, reviewed annually
<i>Building Permits Required</i>	Yes
<i>Adopted IBC &amp; IRC</i>	Yes
<i>Town Web Site</i>	Yes, www.ashlandnh.org
<i>Floodplain Ordinance</i>	Yes, part of the Zoning Ordinance, updated March 2023
<i>National Flood Insurance Program (NFIP) Member</i>	Yes, April 2, 1986
<i>Flood Insurance Rate Maps (DFIRMs)</i>	February 20, 2008
<i>Flood Insurance Rate Study (FIS)</i>	February 20, 2008
<b>Percent of Local Assessed Valuation by Property Type - 2022 (NH Department of Revenue)</b>	
<i>Residential Buildings</i>	81.2%
<i>Commercial Land &amp; Buildings</i>	15.2%
<i>Other (including Utilities)</i>	3.6%
<b>Emergency Services</b>	
<i>Town Emergency Warning Systems</i>	Genasys (formerly CodeRED/NH ENS)
<i>School Emergency Warning System</i>	ALMA
<i>Emergency Page</i>	Yes
<i>Facebook Pages</i>	Police Department, Parks & Recreation Department, Firefighters Association & Library
<i>Other Social Media</i>	No
<i>ListServ</i>	No
<i>Local Newspapers</i>	Record Enterprise (Meredith) & Laconia Daily Sun (Laconia)
<i>Public Access TV</i>	PBTv Channel 3 (Plymouth)
<i>Local TV Stations</i>	WMUR Channel 9 (Manchester)
<i>Local Radio Stations</i>	WLNH 98.3 FM (Gilford), WPCR 91.7 FM (PSU) & The Planet 100.1 FM (Franklin)
<i>Police Department</i>	Yes, full-time Chief, six full-time, and two part-time officers
<i>Police Dispatch</i>	Plymouth Dispatch
<i>Police Mutual Aid</i>	NH State Police - Troop F, Grafton County Sheriff's Office & surrounding town's police departments
<i>Animal Control Officer</i>	No, the Police Department handles animal control
<i>Fire Department</i>	Yes, part-time Chief & 30 paid-on-call firefighters
<i>Fire Dispatch</i>	Lakes Region Mutual Fire Aid
<i>Fire Mutual Aid</i>	Lakes Region Mutual Fire Aid
<i>Fire Stations</i>	One
<i>Fire Wardens</i>	Yes

<b>Table 2.1 - Town Statistics</b>	
<i>Emergency Medical Services (EMS)</i>	Yes, the Ashland Fire Department
<i>EMS Dispatch</i>	Lakes Region Mutual Fire Aid
<i>Emergency Medical Transportation</i>	Plymouth Fire Department (primary) & Ashland Fire Department
<i>HazMat Team</i>	Central NH HazMat Team
<i>Established Emergency Management Director (EMD)</i>	Yes
<i>Established Assistant EMD</i>	Yes
<i>Line of Succession (if EMD is unavailable)</i>	1st...Assistant EMD
	2nd...Fire Lieutenant/Health Officer
	3rd...to be determined
<i>Public Health Network</i>	Central NH Regional Public Health Network
<i>Health Officer</i>	Yes
<i>Deputy Health Officer</i>	Yes
<i>Building Inspector</i>	Yes
<i>Established Public Information Officer (PIO)</i>	No
<i>Nearest Hospital</i>	Speare Memorial Hospital, Plymouth (7 miles)
<i>Alternative Hospitals</i>	Concord Hospital-Laconia, Laconia (18 miles)
<i>Primary EOC</i>	Fire Station (generator)
<i>Secondary EOC</i>	Main Office at Ashland Elementary School
<i>Primary Shelter</i>	Ashland Elementary School
<i>Secondary Shelter</i>	Plymouth State University (generator)
<i>Household Pet Shelter</i>	Tirone Gymnasium (no generator; can use the portable generator from the Electric Department)
<i>Large Animal &amp; Livestock Shelter</i>	To be determined
<i>Local Humane Society &amp; Veterinarians</i>	Northern Lakes Veterinary Hospital (Ashland) & NH Humane Society (Laconia)
<b>Utilities</b>	
<i>Town Sewer</i>	Municipal 40% (downtown area primarily) & private septic
<i>Public Works Department</i>	Yes, full-time Director, four full-time & two part-time employees
<i>Miles of Class V Roads</i>	17.97 paved, 2.26 gravel, 20.23 total miles
<i>NH Public Works Mutual Aid</i>	Yes
<i>Water Supply</i>	Ashland Water Department 40-50% & private wells
<i>Wastewater Treatment Plant</i>	Yes
<i>Electric Supplier</i>	Ashland Electric
<i>Natural Gas Supplier</i>	None
<i>Cellular Telephone Access</i>	Yes, limited in some places
<i>Solar Arrays</i>	No
<i>Pipelines</i>	No
<i>Gas lines</i>	No
<i>High-Speed Internet</i>	Yes
<i>Telephone Company</i>	Consolidated Communications & Spectrum

<b>Table 2.1 - Town Statistics</b>	
<b>Transportation</b>	
<i>Primary Evacuation Routes</i>	I-93, US Route 3 & NH Route 132 & 175
<i>Secondary Evacuation Routes</i>	Winona Road, North Ashland Road & Owl Brook Road
<i>Nearest Interstate</i>	I-93, Exit 24 (local access)
<i>Nearest Airstrips</i>	Plymouth Regional (2,380 ft. turf runway)
<i>Nearest Commercial Airport(s)</i>	Lebanon Municipal Airport (52 miles)
	Manchester-Boston Regional Airport, Manchester (55 miles)
	Portland International Jetport, Portland, ME (86 miles)
<i>Public Transportation</i>	No
<i>Railroad</i>	Hobo-Winnepesaukee Railroad (State of NH, seasonal)
<b>Education &amp; Childcare</b>	
<i>Elementary/Middle Schools</i>	Ashland Elementary School (grades K-8)
<i>High Schools</i>	Plymouth Regional High School (grades 9-12) is part of the Pem-Baker Regional School District with Campton, Holderness, Plymouth, Rumney, Thornton & Wentworth.
<i>School Administrative Unit (SAU)</i>	SAU 2
<i>Private Schools</i>	None
<i>Colleges/Universities</i>	None
<i>Licensed Childcare Facilities</i>	None
<b>Fire Statistics (NH Division of Forests &amp; Lands, Fire Warden Report, and the Town)</b>	
<i>Wildfire Fires (2022 &amp; 2023)</i>	No
<i>Grafton County Fire Statistics (2023)</i>	15 fires, 5.78 acres
<i>State Forest Fires Statistics (2022)</i>	99 fires, 64.5 acres
<p><i>Unless otherwise noted, 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 7/13/2023, <a href="https://www.nhes.nh.gov/elmi/products/cp/profiles-pdf/ashland.pdf">https://www.nhes.nh.gov/elmi/products/cp/profiles-pdf/ashland.pdf</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>11</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 Ashland. 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 32. The reasons for exclusion are further explained below.

#### State Hazard

#### Reason for Exclusion from this Plan

- \*Coastal Flooding ..... Distance away from the sea
- \*Solar Storms & Space Weather ..... The Team felt this was not something the Town could manage
- \*Avalanche ..... No known areas of avalanches
- 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>12</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>11</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>12</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**

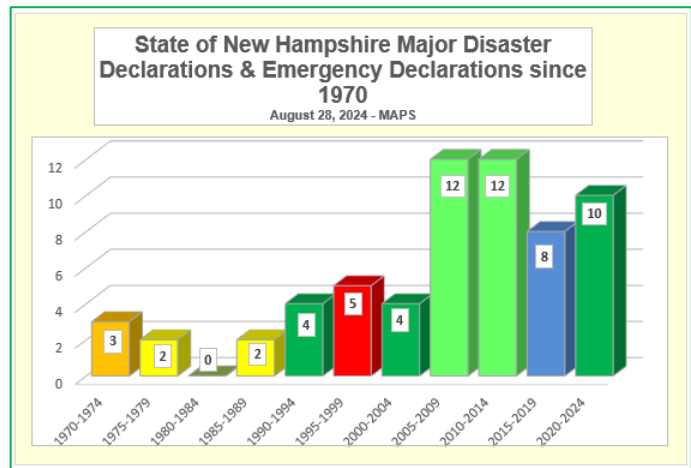
The determination of the probability of occurrence is contained within Column D in Table 3.1, which assesses hazards based on the likelihood that the hazards will occur within 25 years. The probability scores indicate whether the identified hazard has a *Very Low, Low, Moderate, High, or Very High* probability.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

Ashland is reasonably safe from natural, technological, and human-caused hazards. However, due to Ashland’s geographic location, with 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>13</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>14</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 Ashland, should become increasingly aware of climate change’s impact on the hazards they have already experienced and anticipate an increase in their probability.

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

Any potential disaster in Ashland 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 become quickly 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>13</sup> State Mitigation Planning Policy Guide, FEMA, Released April 19, 2022, page 6  
<sup>14</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%)	<b>Probability</b>				<b>Severity</b>	<b>Relative Threat</b>	<b>Very High</b> 12.0 & 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	<b>High</b> 9.0-11.9
3=Moderate (41-60%)							<b>Medium</b> 6.0-8.9
4=High (61-80%)							<b>Low</b> 3.0-5.9
5=Very High (81-100%)							<b>Very Low</b> 0.0-2.9
Natural Hazards							
1) Severe Winter Weather	2.00	4.00	4.00	4.00	3.33	13.33	<b>Very High</b>
2) Dam Failure	5.00	5.00	5.00	2.00	5.00	10.00	<b>High</b>
3) Extreme Temperatures	2.00	2.00	2.00	4.00	2.00	8.00	<b>Medium</b>
4) Inland Flooding	1.00	4.00	2.00	3.00	2.33	7.00	<b>Medium</b>
5) Infectious Disease	3.00	1.00	3.00	3.00	2.33	7.00	<b>Medium</b>
6) Lightning	2.00	2.00	2.00	3.00	2.00	6.00	<b>Medium</b>
7) Tropical/Post Tropical Cyclones	1.00	3.00	3.00	2.00	2.33	4.67	<b>Low</b>
8) High Wind Events	1.00	2.00	1.00	3.00	1.33	4.00	<b>Low</b>
9) Drought	1.00	2.00	1.00	3.00	1.33	4.00	<b>Low</b>
10) Landslide	1.00	2.00	1.00	2.00	1.33	2.67	<b>Very Low</b>
11) Earthquake	1.00	3.00	3.00	1.00	2.33	2.33	<b>Very Low</b>
12) Wildfire	1.00	3.00	1.00	1.00	1.67	1.67	<b>Very Low</b>
Technological & Human-Caused Hazards							
1) Long-Term Utility Outage	3.00	3.00	3.00	2.00	3.00	6.00	<b>Medium</b>
2) Terrorism & Violence	2.00	3.00	3.00	2.00	2.67	5.33	<b>Low</b>
3) Hazardous Materials	3.00	2.00	2.00	2.00	2.33	4.67	<b>Low</b>
4) Aging Infrastructure	2.00	2.00	2.00	2.00	2.00	4.00	<b>Low</b>
5) Conflagration	4.00	4.00	4.00	1.00	4.00	4.00	<b>Low</b>
6) Mass Casualty Incidents	3.00	1.00	1.00	2.00	1.67	3.33	<b>Low</b>
7) Transport Accidents	3.00	3.00	3.00	1.00	3.00	3.00	<b>Low</b>
8) Cyber Events	1.00	1.00	1.00	2.00	1.00	2.00	<b>Very Low</b>
9) Known & Emerging Contaminants	1.00	1.00	1.00	1.00	1.00	1.00	<b>Very Low</b>

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

Ashland entered the National Flood Insurance Program (NFIP) on April 2, 1986. Ashland has a relatively small floodplain with approximately 1.27 square miles of land in the 100-year floodplain<sup>15</sup>, .5 square miles of which is inland water. The floodplain areas of Ashland are primarily along the Pemigewasset and Squam Rivers and around Little Squam Lake. Although Ashland is likely to experience flooding on several roads and along most small rivers and streams, only the areas along the Pemigewasset and Squam Rivers are indicated in the most recent Digital Flood Insurance Rate Maps (FIRM). The latest Flood Insurance Rate Studies (FIRS) and Digital Flood Insurance Rate Maps (DFIRMS) are dated February 20, 2008. The latest DFIRM and FIS are incorporated by reference when amended in the Floodplain Development Ordinance.

According to the FEMA, there are 11 NFIP policies in effect in Ashland, including eight single-family, two other residential, and one non-residential policy. There have been seven paid losses for a total of \$133,341. FEMA also reports five repetitive losses among two buildings.<sup>16</sup>

**FLOODPLAIN DEVELOPMENT ORDINANCE**

The Town has adopted Article 4, Section 4.9, Flood Hazard Areas, as part of the Ashland Zoning Ordinance.

Section 4.9 states, *“This ordinance adopted pursuant to the authority of RSA 674:16 shall be known as the Town of Ashland Floodplain Development Ordinance. The regulations in this Ordinance shall overlay and supplement the regulations in the Town of Ashland Zoning Ordinance, and shall be considered part of the Zoning Ordinance for purposes of administration and appeals under state law...The following regulations in this ordinance shall apply to all lands designated as special flood hazard areas by the Federal Emergency Management Agency (FEMA) in its Flood Insurance Rate Maps dated April 2, 1986, which are declared to be a part of this ordinance and are hereby incorporated by reference.”*<sup>17</sup>

The Ashland Floodplain Development Ordinance, a part of the Town's Zoning Ordinance, lays out regulations for all lands deemed special flood hazard areas by FEMA. Key sections include:

- Section 4.9.1: Definition of terms.
- Section 4.9.2: All development in special flood hazard areas requires a permit.
- Section 4.9.3: The Building Inspector reviews permit applications to ensure safety from flooding.

<sup>15</sup> GIS Analysis of Grafton County DFIRM (Digital Flood Insurance Rate Map)

<sup>16</sup> FEMA Region I, Flood Management & Insurance Branch; received by MAPS on October 16, 2024

<sup>17</sup> Town of Ashland Zoning Ordinance, Article 4, Section 4.9



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.jsp](http://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp)

**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>

- Section 4.9.4: Regulations regarding water and sewer systems to prevent floodwater infiltration and contamination.
- Section 4.9.5: Required information for the Building Inspector concerning building elevations and floodproofing certifications.
- Section 4.9.6: Certification that all necessary permits have been received before granting a building permit.
- Section 4.9.7: Regulations for riverine situations, including maintaining flood-carrying capacity and not increasing flood levels.
- Section 4.9.8: Determination of 100-year flood elevation and regulations for construction standards, including lowest floor elevation and floodproofing.
- Section 4.9.9: Process for variances and appeals, including proof, notification, and record-keeping.

The Planning Board initiates and the Select Board enforces the ordinance, ensuring NFIP standards compliance. The Floodplain Administrator oversees substantial improvement and damage determinations, permitting, and post-construction compliance. The Town promotes NFIP benefits and mitigation strategies to homeowners and developers. The Town uses the Floodplain Development 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 Ashland Zoning Ordinance can be found on the Town's website.<sup>18</sup>

Ashland'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.

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

The Team understands that the NFIP's benefits also extend to structures outside the 100-year floodplain. They felt it worthwhile to have NFIP brochures and information available at the Town Office for current homeowners and potential developers. Several flood-related mitigation strategies have been added to this Plan. The Town will continue to work with the Bureau of Economic Affairs and carefully monitor its compliance with the NFIP.

<sup>18</sup> [https://ashlandnh.org/wp-content/uploads/2019/08/zoning\\_2018\\_corrected2\\_aug2019.pdf](https://ashlandnh.org/wp-content/uploads/2019/08/zoning_2018_corrected2_aug2019.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, 2023, no significant flooding has occurred in Ashland.				
<b>A summary of flood events, including Major Disaster &amp; Emergency Declarations in the State &amp; regionwide</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), 2024 (DR-4761)			
<b>A detailed summary of flood events in the Community</b>				
<b>Inland Flooding</b> (Heavy Rain)	July 11, 1973	All Ten NH Counties	<b>Major Disaster Declaration DR-399:</b> Ashland experienced lake and river flooding. The Squam River flooded, cutting access in some parts to and from parts of the Community.	FEMA, 2019 HMPT & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	January 21, 1974	Belknap, Carroll, Cheshire & Grafton	<b>Major Disaster Declaration DR-411:</b> This storm affected the neighboring town of Plymouth, but there was no significant impact in Ashland.	FEMA, 2019 HMPT & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Inland Flooding</b> (Heavy Rain)	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 resulting from the severe storms and flooding in October. Ashland experienced no significant impact.	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). Ashland experienced no significant impact.	FEMA, 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). Ashland experienced no significant impact.	FEMA, 2019 HMPT & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain) <b>High Wind Events</b> (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. Ashland experienced substantial flooding, road washouts, and property damages on August 4, 2008. A young girl passed away due to flood waters.	FEMA, 2019 HMPT & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	May 26-30, 2011	Coos & Grafton County	<b>Major Disaster Declaration DR-4006:</b> Flooding and hail occurred due to a severe storm on May 26-30, 2011, in Coos & Grafton Counties (Memorial Day Weekend Storm). Ashland experienced no significant impact.	FEMA, 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>Inland Flooding</b> (Heavy Rain)	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 and Sullivan Counties and southern Grafton County. Ashland experienced no significant impact, although the Fire Department participated in the Alstead flooding during this period.	FEMA, 2019 HMPT & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	July 1-2, 2017	Grafton & Coos	<b>Major Disaster Declaration DR-4329:</b> The Federal Emergency Management Agency (FEMA) announced that federal disaster assistance was available to supplement state and local recovery efforts in the areas affected by severe storms and flooding from July 1- 2, 2017, in two New Hampshire Counties. Ashland experienced no significant impact, although the Fire Department assisted with water rescues in Plymouth and Campton.	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. Ashland experienced trees and powerlines down. Ashland Electric Department received FEMA funding for this October storm.	FEMA, 2019 HMPT & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Inland Flooding</b> (Heavy Rain)	July 11-12, 2019	Grafton	<b>Major Disaster Declaration, DR 4457:</b> The Federal Emergency Management Agency announced a major disaster declaration for several severe storms and flooding from July 11-12, 2019, in one New Hampshire County. No significant impact in Ashland.	FEMA & 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. Ashland had rain and snow, but the Public Works Department handled the snow accumulation.	FEMA & 2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	May 1, 2023	Townwide	Ashland experienced heavy rains, leading to road and driveway washouts and a flooded basement. The road damage was minimal, mostly shoulder erosion due to overwhelmed ditches. Levitt Hill Road, Hick's Hill Road, and River Street sustained the most damage. The Town did submit for damage reimbursement, but the County did not reach the threshold for FEMA disaster funding.	2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	July 9-17, 2023	Coos, Grafton, Belknap, Sullivan & Cheshire	<b>Major Disaster Declaration, DR-4740:</b> The Federal Emergency Management Agency announced a major disaster declaration and notification of individual and public assistance on September 14, 2023, for five NH Counties. No significant impact in Ashland	FEMA & 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, likened to a 100-year flood event, struck multiple areas in New Hampshire, causing widespread damage to rivers, roads, and bridges. Ashland experienced heavy rain, but no major damage occurred. One road was closed for a couple of hours due to water over it. A few basements were also flooded. Ashland Fire Department assisted the surrounding communities.	2025 HMPT
<b>Inland Flooding</b> (Heavy Rain)	January 9-14, 2024	Grafton & Rockingham	<b>Major Disaster Declaration, DR-4771:</b> Severe storms brought significant winter rains and flooding to towns in two counties in New Hampshire. There was no significant impact in Ashland.	FEMA & 2025 HMPT
<b>B. Wildfires:</b> 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 Ashland.				
<b>A summary of wildfire events, including Major Disaster &amp; Emergency Declarations in the State and other recent large fires</b>				
<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 Grafton County or Ashland.	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 Carrol County at Shaw Mountain. This fire did not reach Grafton County or Ashland.	FEMA & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<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. This fire did not reach Grafton County or Ashland.	Local Resources & 2025 HMPT
<b>Wildfire</b> (Stoddard Fire)	April 2016	Cheshire County	<b>Fire Management Assistance Declaration, FM-5123:</b> Stoddard, NH. The Stoddard Fire burned 190 acres in April 2016 and caused the evacuation of 17 homes; Class D fire. This fire did not reach Grafton County or Ashland.	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; Class E fire. This fire did not reach Grafton County or Ashland.	Local Resources & 2025 HMPT
<b>Wildfire</b> (Dilly Cliff Fire)	October 2017	Grafton County	<b>The Dilly Cliff Fire:</b> This fire occurred on the Lost River Gorge Trail in North Woodstock off Route 112 (Lost River Road); Class C: Human-caused; 75 acres. The Dilly Cliff Fire was determined to be extinguished 36 days later. This fire did not reach Ashland, but fire crews were sent from Ashland to assist.	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. This fire did not reach Grafton County or Ashland.	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. This fire did not reach Grafton County or Ashland.	Local Resources & 2025 HMPT
<b>No wildfires of significance have occurred in Ashland since the 2019 Hazard Mitigation Plan was completed.</b>				2025 HMPT
<p><b>C. High Wind Events, including Tropical/Post Tropical Cyclones, Tornadoes, Downbursts, and Windstorms:</b> 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 Ashland.</p>				
<p><b>A summary of high wind events &amp; tropical &amp; post-tropical cyclone events, including Major Disaster &amp; Emergency Declarations in the State &amp; regionwide</b></p>				
<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
<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

Type of Event	Date of Event	Location	Description	Source
<b>A detailed summary of high wind &amp; tropical &amp; post-tropical cyclone events in the Community</b>				
<b>Tropical/Post Tropical Cyclones</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 Ashland.  (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>Tropical/Post Tropical Cyclones</b> (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. Ashland experienced no significant impact.	FEMA, 2019 HMPT & 2025 HMPT
<b>Tropical/Post Tropical Cyclones</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 or pets came to Ashland.	FEMA, 2019 HMPT & 2025 HMPT
<b>Tropical/Post Tropical Cyclones</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> 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. Ashland experienced only minor impacts from Tropical Storm Irene, mostly on the golf course; however, the Pemigewasset River crested at 21.7 feet in Plymouth, 8.7 feet above flood stage. Local hydro experienced an accumulation of debris necessitating removal.	FEMA, 2019 HMPT & 2025 HMPT
<b>Tropical/Post Tropical Cyclones</b> (Hurricane Sandy)	October 26-November 8, 2012	<b>DR-4095:</b> Belknap, 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. Ashland experienced no significant impact.	FEMA, 2019 HMPT & 2025 HMPT

**D. Severe Winter Weather, including Nor'easters, Blizzards & Ice Storms:** 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 the prior hazard mitigation plan, no significant winter weather events have occurred in Ashland.

**A summary of severe winter weather events, including Major Disaster & Emergency Declarations in the State & regionwide**

<b>Severe Winter Weather</b> (Ice Storms)	1942, 1969, 1970, 1979, 1991, 1998 ( <b>DR-1199</b> ), 2008 ( <b>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</b> ), 2001 ( <b>EM-3166</b> ), 2003 ( <b>EM-3177</b> ), 2003 ( <b>EM-3193</b> ), 2004, 2005 ( <b>EM-3207</b> ), 2005 ( <b>EM-3208</b> ), 2005 ( <b>EM-3211</b> ), 2008 ( <b>EM-3297</b> ), 2009, 2011 ( <b>EM-3344 &amp; DR-4049</b> ), 2013 ( <b>EM-1405</b> ), 2015 ( <b>DR-4209</b> ), 2017 ( <b>DR-4316</b> ), 2018 ( <b>DR-4371</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

Type of Event	Date of Event	Location	Description	Source
<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 had trouble with snow removal because of the great depths that had fallen from December 1968 to April 1969. The Public Works Department handled the heavy snow accumulation in Ashland.	2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (High Winds, Coastal Flooding & Snowstorm)	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 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. The Public Works Department handled the heavy snow accumulation in Ashland.	FEMA, 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 Public Works Department handled the heavy snow accumulation in Ashland. Trees were down and power lines, roads were closed, difficulty with accessibility. Out of power for about eight hours.	FEMA, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	March 5-7, 2001	Cheshire, Coos, Grafton, Hillsborough, Merrimack, & Strafford	<b>Emergency Declaration EM-3166:</b> The emergency declaration covers jurisdictions with record and near-record snowfall from a late winter storm in March 2001, which affected six New Hampshire counties. The Public Works Department handled the heavy snow accumulation in Ashland.	FEMA, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	December 25, 2001	Townwide	Ashland experienced a 24" snowstorm on Christmas Day.	2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	December 2020	Townwide	Ashland experienced 3' of snow, but the Public Works Department handled the heavy snow accumulation.	2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	January 1, 2022	Townwide	Ashland experienced a 27" snowstorm on Christmas Day.	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 Public Works Department handled the heavy snow accumulation in Ashland.	FEMA, 2019 HMPT & 2025 HMPT
<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 Grafton was \$137,118. <b>Emergency Declaration EM-3208:</b> The total aid for the January storm in Grafton was \$213,539. <b>Emergency Declaration EM-3211:</b> This storm was not declared in Grafton County. During the 2005 winter season, the Public Works Department handled the heavy snow accumulation in Ashland.	FEMA, 2019 HMPT & 2025 HMPT

Type of Event	Date of Event	Location	Description	Source
<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. Ashland experienced icing on Leavitt Hill, Hicks Hill, and Peppercorn Roads. Trees fell across roads, and there were minor power outages but no structural damage. The Public Works Department handled the heavy snow accumulations with assistance from the Ashland Fire Department.	FEMA, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	February 23-March 3, 2010	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	<b>Major Disaster Declaration: DR-1892:</b> Flood and wind damage occurred in southern NH, including six counties, resulting in 330,000 homes without power. More than \$2 million was obligated by FEMA by June 2010. Ashland experienced no significant impact.	FEMA, 2019 HMPT & 2025 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 Ashland. The Public Works Department handled the heavy snow accumulation in Ashland.	FEMA, 2019 HMPT & 2025 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 Public Works Department handled the heavy snow accumulation in Ashland.	FEMA, 2019 HMPT & 2025 HMPT
<b>Severe Winter Weather</b> (Snowstorm)	March 14, 2017	Townwide	<b>Presidential Disaster Declaration DR-4316:</b> Although this declaration did not include Grafton County, the Team stated that it was significant enough to postpone the Town Meeting on the evening of March 14, 2017. The Public Works Department handled the heavy snow accumulation in Ashland.	FEMA, 2019 HMPT & 2025 HMPT

**E. Earthquakes:** 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 Ashland.

**A summary of earthquakes with a magnitude of 4.0 or more significant in the State & regionwide**

<b>Earthquakes</b>	6/11/1638 (Central NH, 6.5), 10/29/1727 (Off Coastline, 6.0-6.3), 11/18/1755 (Off Coastline, 5.8), 11/10/1810 (Portsmouth, NH, 4.0), 7/23/1823 (Off Hampton, NH, 4.1), 12/19/1882 (Concord, NH, Unknown), 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	State of NH Multi-Hazard Mitigation Plan, Update 2018
--------------------	---	---	---

Type of Event	Date of Event	Location	Description	Source
<b>A detailed summary of earthquakes that may have been felt in the Community since 1940 with a magnitude of 3.0 or greater</b>				
Earthquake	December 20, 1940	Tamworth, NH	Magnitude 5.3	State of NH Multi-Hazard Mitigation Plan, Update 2018, 2019 HMPT & 2025 HMPT
Earthquake	December 24, 1940	Tamworth, NH	Magnitude 5.6	
Earthquake	June 26, 1964	Salisbury, NH	Magnitude 3.2	
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 - felt in Ashland, but no damage occurred	
Earthquake	April 25, 2023	Sandwich, NH	Magnitudes 2.9 & 1.8 - felt in Ashland, but no damage occurred	

**F. Drought:** Drought is generally not as damaging or disruptive as 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 prior hazard mitigation plan, no significant droughts have occurred in Ashland.

**A summary of drought in the State & regionwide**

<b>Drought</b>	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 2018
----------------	---	---	---

**A summary of drought in the Community since 1929**

<b>Drought</b>	1929-1936	Statewide	Regional	State of NH Multi-Hazard Mitigation Plan, Update 2018, 2019 HMPT & 2025 HMPT
<b>Drought</b>	1939-1944	Statewide	Severe in the southeast and moderate elsewhere	
<b>Drought</b>	1947-1950	Statewide	Moderate	
<b>Drought</b>	1960-1969	Statewide	The lengthiest recorded regional continuous spell of less-than-average precipitation	
<b>Drought</b>	2001-2002	Statewide	The third worst drought on record	
<b>Drought</b>	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. Ashland experienced moderately dry conditions, and a few private wells dried up.	

Type of Event	Date of Event	Location	Description	Source
Drought	2020-2021	Statewide	A declared drought for 2020-2021, with NH's north country being impacted more than the southern communities. No significant impact in Ashland.	State of NH Multi-Hazard Mitigation Plan, Update 2018, 2019 HMPT & 2025 HMPT
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. No significant impact in Ashland.	

**G. Miscellaneous Past or Potential Hazards:** 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 the prior hazard mitigation plan, no significant miscellaneous hazards have occurred in Ashland.

Transport Accident	January 2, 2015	I-93	Due to a sudden blinding snow squall, 50 cars were involved in a pile-up on I-93 between exits 23-25. Mutual aid responded along with 48 wreckers; the incident took three hours to clean up.	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"). Plymouth State University used the Quality Inn in Ashland to quarantine COVID-19-positive students.	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 and public assistance as a result of the impact of COVID-19.	FEMA & 2025 HMPT

**H. Other Hazards:** Identified hazards with no specific example of occurrence.

Natural Hazards	<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>
Dam Failure	
Lightning	
Landslides	
Technological & Human-caused Hazards	
Terrorism & Violence	
Hazardous Materials	
Aging Infrastructure	
Conflagration	
Mass Casualty Incident	
Cyber Events	
Know & Emerging Contaminants	

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 State 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.**

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

Team discussion and brainstorming identified Critical Infrastructure & Key Resources (CIKR) within Ashland. 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 & EMS services, primary EOC & COOP site for the Town Offices	All Hazards & Conflagration	2
Town Offices & Police Department (no generator)	Town government, records & law enforcement	All Hazards	1
Electric Department & Public Works Department (portable generator)	Electric supply, heavy equipment, salt, sand & gravel	All Hazards & Hazardous Materials	1
Tirone Gymnasium (no generator; can use the portable generator from the Electric Department)	Shelter & Pet Shelter	All Hazards	1
Helicopter Landing Zones			
L.W. Packard Ballfield	Helicopter landing zone	All Hazards	1
Ashland Elementary Fields	Helicopter landing zone	All Hazards	1
Evacuation Routes			
Interstate 93	Primary evacuation route	All Hazards	1
US Route 3	Primary evacuation route	All Hazards	1
US Route 3 (northern River St. intersection)	Primary evacuation route	All Hazards & Inland Flooding	2
US Route 3 (southern River St. intersection)	Primary evacuation route	All Hazards & Dam Failure	1
NH Route 132	Primary evacuation route	All Hazards, Inland Flooding & Dam Failure	2
NH Route 175	Primary evacuation route	All Hazards & Inland Flooding	1
Winona Road	Secondary evacuation route	All Hazards & Inland Flooding	1
North Ashland Road	Secondary evacuation route	All Hazards & Inland Flooding	2
Owl Brook Road	Secondary evacuation route	All Hazards & Inland Flooding	1

<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>	
<b>Bridges &amp; Culverts on the Evacuation Routes</b>			
North Ashland Road @ Spring Brook	Bridge on an evacuation route	All Hazards	1
Scenic View Road @ Owl Brook	Bridge on an evacuation route	All Hazards	1
Main Street @ Squam River	Bridge on an evacuation route	All Hazards & Dam Failure	2
Depot Street @ Ames Brook	Bridge on an evacuation route	All Hazards & Inland Flooding	2
I-93 North @ Squam River	Bridge on an evacuation route	All Hazards	1
I-93 South @ Squam River	Bridge on an evacuation route	All Hazards	1
I-93 North @ Railroad Track	Bridge on an evacuation route	All Hazards	1
I-93 South @ Railroad Track	Bridge on an evacuation route	All Hazards	1
I-93 North @ US Route 3	Bridge on an evacuation route	All Hazards	1
I-93 South @ US Route 3	Bridge on an evacuation route	All Hazards	1
North Ashland Road @ I-93N	Bridge on an evacuation route	All Hazards	1
North Ashland Road @ I-93S	Bridge on an evacuation route	All Hazards	1
Collins Street @ Squam River	Bridge not on an evacuation route	All Hazards & Inland Flooding	3
Winter Street @ Squam River	Bridge not on an evacuation route	All Hazards & Inland Flooding	2
<b>Dams</b>			
Squam Lake Dam @ Squam River (River Street & Route 3)	High-hazard dam (State)	All Hazards & Dam Failure	3
Grist Mill Pond Dam @ Squam River (20 Main Street)	High-hazard dam (Private)	All Hazards & Dam Failure	3
Ashland Sewage Lagoon Dam (Collins Street)	Significant-hazard (Town)	All Hazards & Dam Failure	3
Northwood Renewable (Mill Pond Lane)	Low-hazard dam (Private)	All Hazards & Dam Failure	3
Pettitt Dam @ Unnamed stream (Sanborn Road)	Low-hazard dam (Private)	All Hazards & Dam Failure	2
Squam River Hydro (6 Mill Street)	Non-menace dam (Private)	All Hazards & Dam Failure	3
Preston Dam (runoff) (off Lambert Road)	Non-menace dam (Private)	All Hazards & Dam Failure	1
Cold Spring Brook Dam @ Cold Spring Brook (between Interstate and North Ashland Road)	Exempt (Private)	All Hazards & Dam Failure	1
Five additional dams are listed as ruins, removed, or not built by DES.			

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

Non-Emergency Response Facilities (NERFs)			
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.			
Facility	Type of Facility	Hazard Risk	
Squam River Power (Scribner Building)	Penstock	All Hazards	1
Ashland Well Head	Water supply	All Hazards	1
Ashland Water Tower	Water supply	All Hazards	1
Ashland Water Treatment Facility	Wastewater treatment	All Hazards & Inland Flooding	2
Pumping Station (Riverside Drive)	Water supply	All Hazards & Inland Flooding	2
Pumping Station (148 River Street)	Water supply	All Hazards & Inland Flooding	2
Pumping Station (242 River Street)	Water supply	All Hazards & Inland Flooding	2
Verizon Wireless Cell Tower	Communications	All Hazards	1
Radio Repeater (off Peppercorn)	Communications	All Hazards & Wildfires	2
Transfer Station	Transfer station & hazardous materials disposal	All Hazards	1
Eversource Facility	Electric supply	All Hazards	1

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

Facilities & People to Protect (FPPs)			
FPPs are facilities that need protection because of their importance to the town and residents who may need help during a hazardous event.			
Facility	Type of Facility	Hazard Risk	
Common Man Commons	Senior housing	All Hazard & Transport Accidents	2
White Mountain Court	Senior housing	All Hazards	1
Ashland Elementary School	School	All Hazards	1
Ashland Booster Club	Gathering of people	All Hazards	1
American Legion Hall	Gathering of people	All Hazards	1
St. Mark's Episcopal Church	Gathering of people & historic (NRHP)	All Hazards	1

Facilities & People to Protect (FPPs)			
FPPs are facilities that need protection because of their importance to the town and residents who may need help during a hazardous event.			
Facility	Type of Facility	Hazard Risk	
Ashland Community Church	Gathering of people	All Hazards	1
Whipple House	Historic & one apartment (NRHP)	All Hazards	1
Ashland Gristmill and Dam	Historic (NRHP)	All Hazards	1
Ashland Junior High School	Historic (NRHP)	All Hazards	1
Ashland Railroad Station	Historic (NRHP)	All Hazards	1
Ashland Town Hall	Historic (NRHP)	All Hazards	1
First Free Will Baptist Church and Vestry	Historic (NRHP)	All Hazards	1
Tri-County Cap Building (old school)	Historic & gathering of people	All Hazards	1
Whitten House	Historic	All Hazards	1

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

Potential Resources (PRs)
PRs are potential resources that could be helpful for emergency response in the case of a hazardous event.
Please refer to the Resource Inventory List in the Ashland Emergency Operations Plan for additional resources.

## Chapter 5: Hazard Effects in Ashland

### 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

All CIKR in Ashland were identified in GIS; this list was then narrowed by those in the FEMA floodplain. Thirteen CIKR were found in the FEMA flood zone as shown in the chart to the right. These CIKR are expected to be in or near water and are only a threat during significant flooding. No other CIKR were found to be in the designated FEMA floodplain although it is expected that many non-CIKR buildings and private homes are within the FEMA floodplain. Town officials should consider all at-risk properties when a flood hazard is likely.

ID	ALL_H	NAME	Hazmit_Type
9	ERFB	Scenic View Rd @ Owl Brook	Evac Bridge
10	ERFB	Main St @ Squam River	Evac Bridge
11	ERFB	Depot St @ Ames Brook	Evac Bridge
12	ERFB	I93N @ Squam River	Evac Bridge
13	ERFB	I93S @ Squam River	Evac Bridge
20	ERFB	Collins @ Squam River	Important Bridge
21	ERFB	Winter St @ Squam River	Important Bridge
22	ERFD	Squam Lake Dam	Dam
23	ERFD	Grist Mill Pond Dam	Dam
24	ERFD	Squam River Hydro	Dam
25	ERFD	Northwood Renewable	Dam
28	ERFD	Cold Spring Brook Dam	Dam
30	ERFD	Penstock	Dam; Penstock

Ashland’s CIKR were also identified and listed in Chapter 4; each CIKR was analyzed for its flooding potential. Several facilities were identified as having inland flooding potential. These included nearly all of Ashland’s identified evacuation routes, several bridges, the wastewater treatment facility, and the pumping stations. Please refer to Chapter 4, Tables 4.1-4.4 for more information.

#### 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. This area is where the urban environment interfaces with the wildland environment and is the most prone to wildfire risk.

ID	ALL_HA	NAME	Hazmit_Type
4	ERF	Ashland Elementary School	Primary Shelter
7	ERFH	Elementary Field	Heli LZ
14	ERFB	I93N @ Railroad Track	Evac Bridge
15	ERFB	I93S @ Railroad Track	Evac Bridge
16	ERFB	I93N @ US Route 3	Evac Bridge
17	ERFB	I93S @ US Route 3	Evac Bridge
25	ERFD	Northwood Renewable	Dam
26	ERFD	Sewage Lagoon Dam	Sewage Lagoon Dam
28	ERFD	Cold Spring Brook Dam	Dam
31	NERF	Ashland Wellhead	Water Supply
32	NERF	Water Tower	Water Supply
37	NERF	Verizon Cell Tower	Cell Tower
40	NERF	Eversource	Electric Supply

The traditional WUI was initially developed to identify human-interface areas that may exceed the typical length of fire hoses. This WUI would virtually cover the entire town in forested and more rural communities like Ashland. 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.

Many structures were found to be in the traditional WUI. However, only 13 CIKR were found in the WUI, as seen in the chart above. An analysis of these CIKR reveals the importance of these facilities and the need to ensure defensible space wherever possible.

Ashland Elementary School was determined to be in the WUI; however, it has some defensible space. The remaining primary facilities are within the 300' WUI buffer of roadways, therefore easily accessible by fire apparatus and hoses. Most of the Town's CIKR also have adequate defensible space.

There are numerous dead-end streets in Ashland, some of which may have higher than average wildfire risk due to the distance between structures, the number of old-growth softwoods that line the streets, and the lack of a second egress. There are also large areas that are more susceptible to wildfire than others - Hicksville, Peppercorn, Pease, and Sanborn Roads, and Island Drive are at higher risk.

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 above, the entire Town of Ashland, including many structures, is thought to be in the WUI because it is so heavily forested; therefore, most structures in the Town can be assumed to be in the WUI.

No facilities at high risk for wildfires were identified in Tables 4.1-4.4. However, many additional structures in Ashland are expected to be prone to wildfires, particularly, as suggested above, in neighborhoods with limited egress and a canopy of old-growth trees or where forests completely surround structures. Mitigation strategies were discussed to protect structures and educate the citizens about the wildfire risk.

**Table 3.1, The Hazard Threat Analysis, is used to evaluate the probability and the potential impact of all hazards.**

**B. CALCULATING THE POTENTIAL LOSS**

It is difficult to determine 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.

MS-1 Assessed Value of All Structures 2023 Town Report			
2023-MS1	Value	1% Damage	5% Damage
Residential	\$215,803,220	\$2,158,032	\$10,790,161
Manufactured Housing	\$5,819,030	\$58,190	\$290,952
Commercial	\$34,616,310	\$346,163	\$1,730,816
Tax-Exempt	\$26,094,070	\$260,941	\$1,304,704
Utilities	\$28,849,400	\$288,494	\$1,442,470
<b>Total</b>	<b>\$311,182,030</b>	<b>\$3,111,820</b>	<b>\$15,559,102</b>

This Plan assumes that the potential loss from the identified natural hazards would range from **\$0 to \$3,111,820** or **\$3,111,820 to \$15,559,102**, based on the 2023 MS1 total structure value of **\$311,182,030**. (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 for 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.

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

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 ..... High  
 Estimated Structure Loss Value ..... \$3,111,820 to \$15,559,102

**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. Power outages, extreme cold, and impacts on infrastructure are all effects of past winter storms felt in Ashland. These impacts are a risk to the Community, including isolation, especially to older people (21.3%) 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.

As shown in Table 3.2, snowstorms and nor’easters have struck Ashland. Most recently, in December of 2023, heavy rain and snow occurred, but the Public Works Department could keep up with the accumulation. The Team also reported a three-foot snowstorm in early 2020 that was also readily handled by the Public Works Department.

Although the Public Works Department handles usual snow amounts without difficulty, poor weather conditions often impact Ashland’s roads. Travel can be difficult with heavy traffic, particularly on Interstate 93, US Route 3, and NH Routes 132 and 175, which are the State’s responsibilities. Poor road conditions may hinder fire and other emergency responses.

**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 Public Works 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.

There have been significant ice storms in New Hampshire, but in two of the most significant events (1979 and 2010), Ashland had no damage. Luckily, the 1998 Ice Storm was less impactful in Ashland than in other parts of the State. In Ashland, trees and power lines were down at elevations over 1,000 feet, and there were short-term power outages.

The 2008 Ice Storm was also less impactful than elsewhere in the State. Some trees and power lines were affected; however, power loss was minimal, and there was no significant damage to property. Between efforts by the Ashland Electric Company and the Public Works Department, the Town does a great job preparing for and cleaning up after significant winter storms.

Since the last hazard mitigation plan, Ashland 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.



*Interstate 93, Winter Storm  
Photo Credit: Ashland Police*

**2) DAM FAILURE**

Hazard Identification & Risk Assessment (HIRA) .....	High
Probability .....	Low
Estimated Structure Loss Value .....	\$3,111,820 to \$15,559,102

Flooding potential due to dam failure is a serious concern in Ashland. There are seven active dams in Ashland (see Table 4.1), two of which are classified as high-hazard dams: the Squam Lake Dam and the Grist Mill Pond Dam. The Ashland Sewage Lagoons are classified as a significant hazard, the remaining active dams are either low hazard or non-menace. The Ashland Fire Department maintains copies of the Emergency Operations Plans (EOPs) for the Grist Mill Pond Dam (private) and the Squam Lake/River Street Dam (Department of Environmental Services (DES)), the Town's two high-hazard dams.

The Team reported that the private dams in Ashland are an issue. Although inspections have been done on Ashland's privately owned dams and deficiencies have been noted by the State, no orders for repair have been enforced. The Town Manager states,

*"The State Inspectors check the dams on their schedule without any notice to the Town. We have only the knowledge that is contained in the State Inspectors report that is issued sometime after the inspection is completed. The Town has no input into the inspection and does not participate in the actual inspection.*

*The Town does receive a copy of the inspection report and the orders issued to the dam owner regarding items that must be corrected usually with a time schedule for the required work. The required work in our case is not accomplished and is reported again on the next inspection with a new schedule for the completion of the work required that is not accomplished without penalty. We have been through this cycle several times without results on the required repair work.*

*Since there is no shared information on required repairs we are forced to wait until the next report to see if any work has been accomplished. So far none has been accomplished so far as we see."<sup>19</sup>*

Four dams are in bad condition and are estimated to be 20 years behind on work that needs to be done. The concern is that a failure of the dams on the Squam River above the Grist Mill Dam, and failure of the Grist Mill Dam, could cause a cascading effect, taking out dams further downstream and threatening the Mill area, Collins Street, River Street, and properties along the river. In addition, the failure of the Northwoods Renewable Dam on Mill Pond Lane can potentially affect homes below it.

Due to the lack of information and documentation from the dam's owner and the State, the Town cannot pinpoint specific populations at risk, additional risk profiles, or inundation areas.

The State owns the Squam Lake Dam; all other dams in Ashland are privately owned, except for the town-owned sewer lagoons. As reported by the Town, multiple reports of dam inefficiencies from DES have expressed the need for repairs; however, none of the required repairs have been accomplished.

The Team has added a mitigation action item to lobby the State to request enforcement of the repairs, particularly at the Grist Mill Dam, although Squam Lake Dam is included. The Town continues to monitor dam conditions through inspection reports but has no authority to do the repairs. Dam failure due to lack of maintenance and repairs on the private dams could cause catastrophic consequences for the Community. Therefore, the structure loss value due to potential dam failures was estimated to be between 1%-5% of the total structure value.

---

<sup>19</sup> Fred Welch, Ashland Town Manager, email, 1/26/2024; on file at MAPS

**3) EXTREME TEMPERATURES**

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

***Extreme Cold & Heat***

Winter temperatures in Ashland 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 Ashland is 21.3%, and the estimated poverty rate is 24.7% of the total population<sup>20</sup>. No deaths or illnesses due to cold or heat have been reported in Ashland since the prior hazard mitigation plan.

***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 most vulnerable populations. The Town provides warnings and recommendations regarding extreme temperatures on the emergency webpage and other social media. It has designated the Fire Station as a “cooling or warming center.

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.

**4) INLAND FLOODING**

Hazard Identification & Risk Assessment (HIRA) .....	Medium
Probability .....	Moderate
Estimated Structure Loss Value .....	\$3,111,820 to \$15,559,102

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.

---

<sup>20</sup> American Community Survey, 2022 ACS 5-Year Estimate

Based on the Grafton County Floodplain Map and as described in Chapter 3, Section D, Ashland has a relatively small 100-year floodplain, with approximately 1.27 square miles of land in the flood zone<sup>21</sup>, .5 square miles of which is inland water. The floodplain areas of Ashland are primarily along the Pemigewasset and Squam Rivers and around Little Squam Lake. Although Ashland is likely to experience flooding on several roads and along most small rivers and streams, only the areas along the Pemigewasset and Squam Rivers are indicated in the most recent Digital Flood Insurance Rate Maps (FIRM).

100-year flood events are not common in Ashland; however, with the impacts of climate change, the chance for flood events is elevated. Table 3.2 details the inland flooding events that have historically occurred; since 2017, several storms have had minor impact on trees, ditch lines, road edges, and powerlines. Except for the golf course, which floods whenever there is substantial rainfall, no major inland flooding events have occurred since the prior hazard mitigation plan in 2019. Please refer to Table 3.2 for more details on inland flooding events.

The Public Works Department cares for nearly 18 miles of paved roads and 2.26 miles of gravel roads. The State maintains several major arteries, including I-93, US Route 3, and NH Routes 175 and 132. Nonetheless, significant rain, particularly if combined with rapid snow melt, can cause considerable damage to Ashland's roads. While staying within its budget, the Public Works Department has been very proactive in maintaining and repairing 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. However, some houses could be impacted if the Squam River flooded. Flooding on Owl Brook would likely be more impacted by trees and debris falling into the water.

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.

**5) INFECTIOUS DISEASE**

Hazard Identification & Risk Assessment (HIRA) .....	Medium
Probability .....	Moderate
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>22</sup>*

---

<sup>21</sup> GIS Analysis of Grafton County DFIRM (Digital Flood Insurance Rate Map)

<sup>22</sup> Infectious diseases, Overview, <https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173>

Infectious diseases and epidemics or pandemics present a possible threat to Ashland. Ashland 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. In fact, the United States and the world have been coping with the COVID-19 pandemic for nearly four 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.

Ashland's unique geography attracts hikers and recreation enthusiasts year-round, leading to a population increase of approximately 35% during the summer and winter. The influx of visitors and the events held at local facilities can elevate the risk of spreading infectious diseases. Additionally, churches, meeting houses, and social venues are potential hotspots for outbreaks. High school students in Ashland attend Plymouth Regional High School, serving students from the neighboring towns of Campton, Holderness, Plymouth, Rumney, Thornton, and Wentworth. This intermingling and interactions at sports events and club activities can introduce infectious diseases into the community.

With assistance from public health networks, town officials did their best to mitigate the onset of COVID-19 in Ashland. To help mitigate the crisis, the Town Office remained open with mitigation measures in place. Initially, the schools went virtual. The Fire Department administered COVID shots on request, and Plymouth State University moved students to the Ashland Quality Inn for quarantine. The Town continues to encourage social distancing and protecting the most vulnerable citizens. There are no nursing homes in Ashland; however, there are two senior housing facilities.

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.

Ashland'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) .....	Medium
Probability .....	Moderate
Estimated Structure Loss Value .....	\$0 to \$3,111,820

Lightning strikes have occurred in Ashland as a result of 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.

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) TROPICAL/POST-TROPICAL CYCLONES**

Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	Low
Estimated Structure Loss Value .....	\$3,111,820 to \$15,559,102

Damaging winds due to tropical and post-tropical cyclones (hurricanes) are considered a medium risk, primarily because of Ashland'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.

Tropical Storm Irene in 2011, the remnants of Hurricane Irene, brought heavy rain and wind to Ashland but did not create significant structural damage in the Community; Ashland's emergency responders responded to requests from surrounding towns during Tropical Storm Irene. Tropical Storm Sandy had little impact in Ashland, except for heavy rain. Since the prior hazard mitigation plan, no tropical or post-tropical cyclones have reached Ashland.

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 1% and 5% of the total assessed structure value.

**8) HIGH WIND EVENTS**

Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	Moderate
Estimated Structure Loss Value .....	\$0 to \$3,111,820

***Isolated High Wind Events***

Isolated high winds and downdrafts are likely to occur in Ashland. 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. Much of the land cover in Ashland is forested.

The Team noted that high winds often occur in Ashland, although no areas of the Community are more prone than others. The Team also noted that Ashland Electric and other utilities have increased their trimming efforts. The Public Works Department and Ashland Electric have repeatedly removed downed trees.

***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. It has winds that blow in a circular fashion, leaving behind downed trees lying 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 Ashland, a microburst would be more likely than a tornado. Since the previous hazard mitigation plan, Ashland 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.

**9) DROUGHT**

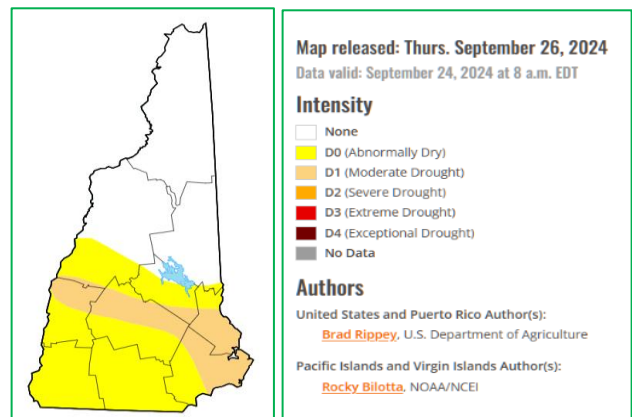
Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	Moderate
Estimated Structure Loss Value .....	\$0 to \$3,111,820

A drought, an extended period without precipitation, could elevate the risk of wildfire and blow-downs 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>23</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, Ashland has abundant open fields, although it is not a predominately agricultural community.

Only four significant droughts occurred before 2000, while three have occurred in just the past eight years (2016, 2020, and 2022). During the 2016 drought, the Team reported the loss of a few dug wells and springs; other wells went low but were not dry. The 2020-21 and 2022 droughts had little or no effect on Ashland. Water for fire suppression was not impacted, and no water bans were enacted in the recent droughts.

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 northern NH. 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 September 26, 2024, New Hampshire has abnormally dry conditions in the lower part of the State and moderate drought in a section (see image).<sup>24</sup>



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.

<sup>23</sup> <https://www.des.nh.gov/climate-and-sustainability/>  
<sup>24</sup> <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NH>

**10) LANDSLIDES & EROSION**

Hazard Identification & Risk Assessment (HIRA) ..... Very Low  
Probability ..... Low  
Estimated Structure Loss Value ..... \$0 to \$3,111,820

Landslides and erosion are primarily caused by heavy rainfall, steep terrain, and riverbank overflow. These events threaten homes, buildings, and local roads, especially in areas with unstable slopes. Ashland has implemented ordinances to mitigate the risks of constructing structures, driveways, and roads on steep slopes.

Historically, landslides and erosion have had minimal impact on Ashland, with the northern part of the Town being more prone than others. The impacts of landslides and erosion in Ashland have included land loss along riverbanks, road washouts, overburdened culverts, and changes in river courses.

With a low probability of occurrence, landslides and erosion currently do not threaten any structures in Ashland. Should any structural loss occur, it would likely be localized. Therefore, the estimated structure loss value is projected to be between 0% and 1% of the total assessed structure value.

**11) EARTHQUAKE**

Hazard Identification & Risk Assessment (HIRA) ..... Very Low  
Probability ..... Very Low  
Estimated Structure Loss Value ..... \$3,111,820 to \$15,559,102

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 (4.7 magnitude) in October 2012, with its epicenter in Hollis Center, ME. The Team noted that the Hollis earthquake was felt in Ashland, but no damage occurred. A more recent earthquake, with a magnitude of 2.9, occurred in Sandwich in April 2023. Ashland also felt this quake, but there were no damage reports. Many small earthquakes, such as this, frequently occur in New Hampshire.<sup>25</sup>

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, particularly if it occurred in Ashland Village. Therefore, the potential structure loss value due to earthquakes was determined to be between 1% and 5% of the total assessed structure value.

---

<sup>25</sup> United States Geological Survey (USGS), Earthquake Hazards Program (<https://www.usgs.gov/programs/earthquake-hazards>)

**12) WILDFIRE**

Hazard Identification & Risk Assessment (HIRA) .....	Very Low
Probability .....	Very Low
Estimated Structure Loss Value .....	\$3,111,820 to \$15,559,102

There are two potential losses with a 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 Ashland.

New Hampshire forests are described as consisting primarily of mixed forests. Some fires in the State 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>26</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 Ashland, as they are throughout the State, but often, burning occurs without the proper permits. Sometimes, it’s 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. To help mitigate the effects of wildfire, the Ashland Fire Department strives to improve and maintain firefighting equipment, maintain water resources, and manage a Capital Reserve Fund to help pay costs for new equipment. The 2023 Annual Report for the Ashland Fire Department reports 139 fire calls, representing 24% of its activity in 2023.<sup>27</sup> Ashland has had no significant wildfires since the last hazard mitigation plan.

Significant wildfires in New Hampshire are not 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 Bemis Fire in Crawford Notch, and the Centennial Fire in Shelburne. The Ashland Fire Department assisted in the Dilly Cliff Fire in Woodstock.

Given the right conditions - drought, lightning, human interface – there is potential for a significant wildfire. 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.

---

<sup>26</sup> [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fswdev3\\_009827.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fswdev3_009827.pdf)

<sup>27</sup> Ashland 2023 Annual Report, Ashland Fire Department, page 36

**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 Ashland. The estimated structure loss was not determined for these hazards.

**1) LONG-TERM UTILITY OUTAGE**

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

Although rare, long-term utility outages of five or more days have occurred in Ashland due to local line damage from high winds, severe storms, and problems with the power grid. A significant or extended power outage lasting more than a week could result in hardship for individual residents, particularly senior citizens, and other vulnerable populations. The Team reported that long-term power outages have diminished due to utility companies' efforts to trim trees and branches near power lines. Ashland Electric is the electric supplier in Ashland.

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. 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. The Team felt that many residents are self-sufficient and are now equipped with generators and woodstoves.

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

**2) 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>28</sup>*

Ashland has several soft targets. In addition to the Town Hall and Elementary School, treatment plants, water and sewer lines, and dams could be impacted. Other soft targets, such as senior housing, churches, small businesses, and lodging facilities, could also be targeted.

Highways could also be at risk; any closure of Interstate 93, Route 3/25, or 175 in Ashland would cause state-wide disruptions in the transportation system. Disruption of these significant routes could affect Ashland'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. There has been no significant terrorist or violent incident since the prior hazard mitigation plan.

---

<sup>28</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)

**3) HAZARDOUS MATERIALS**

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

Hazardous material in fixed locations is a concern in many New Hampshire communities and Ashland. 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.

Several businesses that use and store chemicals daily are of particular concern in Ashland. These businesses include Freudenberg NOK (solvents), Ashland Lumber, Mobil & Irving Gas Stations (underground gas tanks), Ashland Water Department (caustic soda and chlorine), and the Verizon Switching Station (battery supply). The only Tier II reporting companies are Freudenberg and Verizon. No factories are felt to be a high risk. 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.

**4) AGING INFRASTRUCTURE**

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

*“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>29</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>30</sup> The American Society of Civil Engineers gave NH an overall C- in its 2017 report card.<sup>31</sup>

The Team provided a grade on infrastructure in Ashland – overall it is a work in progress. Aging infrastructure is a concern in Ashland as it is throughout New Hampshire and the United States. In Ashland, it was noted that the Police Station is inadequate, but the Fire Station is okay. The Town Hall needs some work, but nothing that is significantly concerning. The Highway Department garage is in good shape, as are the Town’s roads; most have been upgraded in recent years, some due to past storms. Although the Electric Department is also in good shape and everything is functional, there is an aging electrical distribution system, and the substation needs upgrades. Some of the Town’s

---

<sup>29</sup> <https://www.infrastructurereportcard.org/wp-content/uploads/2016/10/2017-NH-Report-Card-hq-with-cover.pdf>  
<sup>30</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>31</sup> Ibid

water lines also need upgrades; lines that remain in need are on Thompspon, Highland, and Winona Roads. Initially installed in the 1950s, water lines in this area can result in water quality issues.

The Team reported that bridges are also in good shape, and none are red-listed. Several dams in Town, some of which need repair, are discussed earlier in this Chapter.

This plan includes several mitigation action items in Table 9.1 to address aging infrastructure. These include upgrading two culverts, improving the Community Center, and building a new Police Station.

**5) CONFLAGRATION**

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

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 Ashland, there is a potential for a conflagration on Main Street and in the Mill Area. Many of the buildings in these areas are older and close to one another, creating the opportunity for a fire to move from building to building with ease. A sizeable uncontrolled fire could spread across the Community when combined with high winds. In 1938, Ashland suffered a major conflagration; in 1989, a smaller one occurred.

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 along Ashland’s highways, and even close Interstate 93. The impact on communication, power, and transportation would likely be temporary, but damage to homes and businesses could be significant.

**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>32</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.

An MCI could happen anywhere in Ashland, but more likely on Interstate 93 and NH Routes 3/25 and 175. These roads are heavily traveled year-round but are particularly dangerous during winter storms. Animal crossings and poor weather can set up the conditions for an MCI. In addition, with students traveling to Plymouth for high school, the potential for an MCI is increased. Fortunately, there have been no reported MCIs since the last hazard mitigation plan. The Fire Department maintains plans for transportation accidents.

---

<sup>32</sup> DeValle Institute Learning Center; <https://delvalle.bphc.org/mod/wiki/view.php?pageid=89>

**7) TRANSPORT ACCIDENTS**

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

Although there have been no HazMat accidents in more than five years, I-93, which runs north-south for the length of the Town, is a serious concern. Trucks traveling this major New England interstate are often loaded with chemicals and other dangerous substances. The contents of many of these vehicles are unknown, while other vehicles, such as trucks hauling fuel and propane, are common. Potential causes of hazardous materials accidents on I-93 include weather conditions, wildlife crossings, driver fatigue, and speed. Impacts could include fires, water supply contamination, toxic plumes, and more.

The possibility of vehicular accidents involving hazardous materials is identified as low but potential in Ashland. The Town’s major roads, Interstate 93, US Route 3/25, and NH Route 175, are known to be used by vehicles carrying hazardous materials, particularly Interstate 93. These roadways traverse the Ashland area, traveling through terrain with little population and, at other times, through more densely populated areas.

US Route 3 (also US Route 25) is a busy crossroads in the State. Where Route 3 becomes Main Street in Ashland, there is a high density of structures; many are older buildings. This busy crossroads sees an extraordinary amount of traffic through the winding streets of the Village Center. Trucks of all sizes and student and tour buses are common sites on Route 3/25. In addition, large and small vehicles make deliveries to the Town’s citizens often through the Village.

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

Although losses could be relatively high in property and structural damage in a hazardous materials incident, depending on the scope and location of the incident, the Team did not report any hazardous materials incidents since the prior hazard mitigation plan. If an incident were to occur, the losses are expected to be localized and unlikely in densely populated areas, where the speed limit is reduced.

**8) CYBER EVENTS**

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

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>33</sup>

<sup>33</sup> PPD-41; <https://obamawhitehouse.archives.gov/the-press-office/2016/07/26/presidential-policy-directive-united-states-cyber-incident>

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 did not report any cyber-attacks on town facilities, although local businesses have been threatened. The threat is certainly real. The Town stores essential documents on a server at the Town Hall with backup off-site and in the “cloud”. Ashland’s departments, except for the Police Department, use the same server and backup facilities. Security on computer networks, off-site backup, and user education are vital to protecting sensitive town information and data.

**9) KNOWN & EMERGING CONTAMINANTS**

Hazard Identification & Risk Assessment (HIRA) ..... Very Low  
Probability ..... Very 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. However, emerging contaminants have not been historically monitored due to either a lack of laboratory capabilities or an understanding of the risk posed to human health.

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. 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.

There are no PFOAs currently none to be impacting Ashland. However, there are areas of leaching at several mill locations and areas where creosote can be found near the dock in the mill area and the electric building. These issues have been mitigated by the Department of Environmental Services (DES). About half of Ashland’s residents have private well water; the other half is supplied primarily downtown for residents and buildings. Because of the abundant use of private wells, radon and arsenic contamination in the aquifer may be a concern. Town officials should encourage testing by individual homeowners for known and emerging contaminants.

THIS PAGE INTENTIONALLY LEFT BLANK

## 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 does not 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
Public Education & Awareness	The Town of Ashland is very well situated to provide public information and outreach to its citizens.	Emergency Management Director & Other Departments	Good	<b>Improvements Needed:</b> The Town has a website and an Emergency Management webpage with some emergency-related links, including a link to Genasys (formerly CodeRED/NH ENS). This emergency webpage is a great way to provide outreach to residents on emergency preparedness and mitigation techniques property owners can use to reduce or eliminate the impact of natural hazards. This strategy was deferred to this Plan to continue providing vital information and links on the Emergency Management webpage to educate the public on general and seasonal mitigation techniques. The Town can also get information via social media platforms (see Table 2.1). <b>Action Item #7 (also in Table 7.1)</b>
Genasys	Genasys (formerly CodeRED/NH ENS) is a reverse calling warning system that uses landline phone numbers. Genasys does not include cell and unlisted numbers or email addresses. SAU 2 and Ashland Elementary School use "ALMA", a reverse calling system for school activities and emergency notification.	Emergency Management Director	Inadequate	<b>Improvements Needed:</b> Genasys (formerly CodeRED/NH ENS) is an excellent warning system, but it only stores residents' landline phone numbers. The Town has continuously provided information to residents about CodeRED, in the past. This strategy was deferred to continue providing public outreach to encourage all residents to contact Genasys to add cell numbers, emails, and unlisted numbers and verify the information. Use the Town's website, a possible brochure at the Town Office, social media platforms, or a sign-up at Town Meeting. <b>Action Item #8 (also in Table 7.1)</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
National Flood Insurance Program (NFIP) & Floodplain Ordinance (part of Zoning Ordinance)	The National Flood Insurance Program (NFIP) addresses both the need for flood insurance and the need to lessen the devastating consequences of flooding. 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 in the 100-year floodplain, as identified on the FEMA Flood Maps dated February 20, 2008, in Ashland.	Planning Board & Select Board	Good (Flood Ordinance works well)	<b>Improvements Needed:</b> The Town developed a flood ordinance and became a National Flood Insurance Program (NFIP) member on April 2, 1986. The Town's Flood Ordinance works well to successfully prohibit or force compliance to the ordinance for building and substantial improvements to structures within the FEMA flood zone. The Flood Ordinance was last amended in 2023. This strategy was deferred to this Plan to continue compliance with the NFIP, obtain NFIP brochures to have available at the Town Offices, and provide public outreach regarding the benefits of membership in the NFIP, whether or not properties are in the FEMA floodplain. This strategy was also deferred to provide vital information on flood mitigation techniques that can be taken to protect individual homes and properties using the Town's website or social media pages. Provide links to the NFIP, Ready.gov, and other pertinent websites. <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.	Fire Department & Police Department	Inadequate	<b>Improvements Needed:</b> Ashland is about 50% compliant with E-911 signage. This strategy was deferred to this Plan to consider ways to get this signage more compliant so that emergency responders can better assist the public in need. Use public outreach opportunities such as an Emergency Management webpage or social media to promote better compliance and develop other means of increasing compliance. The Town could purchase and install signage, improve the ordinance and "fine" to make them more stringent, or provide signs for residents to install themselves to promote compliance better. <b>Action Item #2 (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	Inadequate	<b>Improvements Needed:</b> NIMS and ICS training has been done by most first responders. Although this is preparedness, this strategy was deferred to this Plan to continue providing NIMS (IS-700) and ICS (ICS 100 and ICS 200) training to new first responders and town officials as they become elected/appointed. <b>Action Item #5 (also in Table 7.1)</b>
Pressurized, Dry Hydrants & other Water Resources	Ashland Fire Department and the Water Department maintain pressurized and dry hydrants. The Community has approximately 200 pressurized hydrants, three dry hydrants, and multiple locations for water drafting.	Fire Department & Water Department	Excellent	<b>Improvements Needed:</b> Pressurized hydrants, dry hydrants, and drafting sites throughout Ashland provide water resources for firefighting. This strategy was deferred to maintain the pressurized hydrants (Water Department), the dry hydrants, and other water resources (Fire Department) to help mitigate the effects of structure fires and wildfires. <b>Action Item #3 (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.	Public Works Department	Good	<b>Improvements Needed:</b> As trees become damaged and threaten structures and town roads, the Public Works Department and Ashland Electric remove them. The NH DOT 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 7.1)</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
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 Ashland Public Works Department and the NH DOT clean the drainage basins once a year, and after significant flooding events, culverts are repaired as needed.	Public Works Department	Excellent	<b>Improvements Needed:</b> The Ashland Public Works Department does an excellent job cleaning and repairing drainage basins and culverts and has developed a stormwater maintenance program in coordination with the Lakes Region Planning Commission. This strategy was deferred for the continued maintenance and improvements of all drainage and culvert systems and ongoing communication with the LRPC to keep the stormwater plan up-to-date. <b>Action Item #4 (also in Table 7.1)</b>
Master Plan (2014)	A Master Plan includes goals, objectives, and expectations for the future development of the Town.	Planning Board	Good	<b>Improvements Needed:</b> The Ashland Master Plan was last fully updated in 2014 but is currently being updated chapter by chapter. This strategy was deferred to continue updating the Master Plan according to the State's recommendations and consider including a natural hazards section and a discussion on climate change and action items from this Plan in future updates. <b>Action Item #33 (also in Table 7.1)</b>
Ashland Hazard Mitigation Plan (2019)	A hazard mitigation plan is designed to address natural, technological, and human-caused 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	Good	<b>Improvements Needed:</b> The Ashland Hazard Mitigation Plan (2019) is being updated to this Plan. This strategy was deferred to review this Plan, the Ashland Hazard Mitigation Plan 2025, annually and to update the Plan again in 2029. <b>Action Item #17 (also in Table 7.1)</b>
Emergency Generators	The Town has emergency backup power at some of the Town's Critical Infrastructure & Key Resources (CIKR). The Town would benefit from permanent generators for Ashland Elementary School (primary shelter and secondary EOC), the Electric/Highway Facility, the Fire Station, the Water & Sewer Facility, and the Town Offices/Police Station.	Emergency Management Director	Inadequate	<b>Improvements Needed:</b> Although Ashland has emergency backup power at some of the Town's Critical Infrastructure & Key Resources (CIKR), the Town could benefit from permanent generators for Ashland Elementary School, the Electric/PWD Facility, the Fire Station, and the Town Offices/Police Station. This strategy was deferred to obtain and install emergency generators for Ashland Elementary School, the Electric/Highway Facility, the Fire Station, the Water & Sewer Facility, and the Town Offices/Police Station to improve the effectiveness of these facilities during a disaster. <b>Action Items #16, #29, #31, and #32 (also in Table 7.1)</b>
Emergency Action Plan (Dams)	Dam Emergency Action Plans are designed to notify and outline evacuation procedures should a dam failure occur.	DES & Private	Adequate (State Dam) & Inadequate	<b>Improvements Needed:</b> The Fire Department has copies of the dam EOPs for the Grist Mill (private) and the Squam Lake-River Street (State) Dams. These are the only two high-hazard dams needing an EOP in Ashland. This strategy was deferred to call the owners of other dams to inquire about the safety of dams and to acquire dam EOPs if available. <b>Action Items #26 (also in Table 7.1)</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Shelter Training	The Tirone Gymnasium at the Ashland Elementary School is the designated primary shelter (American Red Cross Partner Managed), and Plymouth State University is the designated secondary shelter. A pet shelter policy has been established with the Central NH Public Health Network, and the Towns of Lincoln and Hebron have shelter trailers.	Emergency Management Director	Inadequate (for training)	<b>Improvements Needed:</b> The Tirone Gymnasium at Ashland Elementary School (ARC Partner managed) is designated as the primary shelter, and a Shelter Management Plan has been developed. This strategy was deferred to assign personnel to develop a Shelter Management Team and to schedule shelter training. <b>Action Item #25 (also in Table 7.1)</b>
Capital Improvement Program (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	Inadequate	<b>Improvements Needed:</b> The Ashland Capital Improvement Program has no active committee. A CIP is generally reviewed to ensure the program's goals are achieved. This strategy was deferred to revitalize the CIP and review this Plan upon its approval to incorporate actions from it. <b>Action Item #18 (also in Table 7.1)</b>
Emergency Operation Center (EOC)  Table Top Exercises (TTX)	The Ashland Fire Station is the designated Emergency Operations Center, where emergency responders gather to receive important emergency-related information and guidance.	Emergency Management Director	Inadequate	<b>Improvements Needed:</b> The Ashland EOC is well-equipped and ready to be activated. This strategy was deferred to provide Table Top Exercises (TTX) and full-scale drills to better prepare town officials and emergency responders for disasters or emergencies. <b>Action Item #30 (also in Table 7.1)</b>
Subdivision Regulations (2014)  Zoning Ordinance (2023)  Site Plan Review Regulations (2007)	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. The Site Plan Review Regulations allow the Town to regulate commercial development.	Select Board & Planning Board	Good	<b>Improvements Needed:</b> Ashland's regulations address setbacks, road frontage, and the size of the lot. Regulations also address driveways, structures, roads, erosion and sediment control, and maintaining adequate stormwater flow. This strategy was deferred to review the Town's planning mechanisms, including but not limited to the Subdivision, Zoning, Site Plan Review, and Floodplain 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, beefing up erosion and sediment control policies (currently in review). <b>Action Items #19 &amp; #20 (also in Table 7.1)</b>
Emergency Operation Plan (2016)	An Emergency Operations Plan identifies the response procedures and capabilities of the Town of Ashland in the event of a natural, technological, or human-caused hazard.	Emergency Management Director	Good	<b>Improvements Needed:</b> The Ashland Emergency Operations Plan (EOP) was last updated in 2016 and is overdue for an update based on the State's 5-year recommendation. The new EOP should include an EOC Call Alert List, a detailed Resource Inventory List, and Player Packets. This strategy was deferred to this Plan to update the EOP. <b>Action Item #24 (also in Table 7.1)</b>
Wellhead Protection Program	A wellhead protection plan aims to prevent the contamination of groundwater used for drinking water. The area is the surface and subsurface area surrounding the public water supply where contaminants are likely to reach.	Water & Sewer Department	Excellent	<b>Improvements Needed:</b> The Ashland Water Department has identified a wellhead protection area. As suggested by the State, the Town should review the wellhead protection plan to make it more compliant with state regulations and better protect the public water supply. Work with the State to identify new locations for wells due to the proximity to the highway. <b>Action Item #23</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Burning Index	New Hampshire Forests & Lands (DNCR) has a burning index that measures the risk for wildfires and how likely fires are to start on a given day. It also evaluates the potential damages wildfires can create, the number of people needed to fight them, and the type of equipment that might be needed.	NH Hampshire Forests & Lands (DNCR) & Fire Department	Good	<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. This strategy was deferred to get a fire danger sign for the Fire Station to keep the residents better informed of burning conditions. <b>Action Item #21</b>
Emergency Training	Fire, Police, and EMS personnel training for all fire, law enforcement, and EMS situations.	Fire Chief, Police Chief & 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 & EMS training is done locally or through Lakes Region Fire Mutual Aid, the State of New Hampshire Fire & EMS Training Facilities, or the Fire Academy. Police training includes many aspects of law enforcement response, including active shooter and terrorism. Police training is done locally or through the NH Police Academy. Although training is preparedness, not mitigation, it has been included in this Plan. <b>Action Item #6</b>
Building Code & Permits	The Town has adopted the International Building Codes (IBC) and International Residential Codes (IRC) by reference. The Town requires builders to follow the adopted codes for new construction to meet national standards for flood, wind, earthquake, fire, and snow load.	Select Board & Planning Board	Excellent	<b>No Improvements Needed:</b> The Town of Ashland has a part-time Building Inspector, and the building notification process requires builders to abide by the International Building Codes (IBC) and the International Residential Codes (IRC), which the Town has adopted by reference. <b>(also in Table 7.1)</b>
Local Road Design Standards	Local road design standards are specifications for constructing new roads in a community.	Select Board & Public Works Department	Excellent	<b>No Improvements Needed:</b> Local road standards have been established to provide specifications for building new roads and upgrading old 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. There was discussion about amending regulations to include the Select Board as an approving entity within the Subdivision Regulations to accept new roads.
Bridge Maintenance Program	There are currently no red-listed bridges in the Community. Inspection and clean-up of bridges occur annually. The State inspects all bridges every other year and maintains them regularly.	Public Works Department	Excellent	<b>No Improvements Needed:</b> The Ashland Public Works Department has established a short and long-term bridge maintenance and replacement schedule. Currently, there are no "red-listed" bridges in the Town.
NH Forest and 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).

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Capital Reserve Fund (CRF)	A Capital Reserve fund is a type of 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 to finance 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 Ashland 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 Ashland Fire Department to inspect all commercial, public assembly, and rental properties (3 units or more). The Ashland Fire Department does its best to provide timely inspections based on available staffing.
Mutual Aid Agreements (Fire, Police, PWD & 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 & Public Works Department & EMS	Excellent	<b>No Improvements Needed:</b> The Ashland Fire Department has a mutual aid agreement with Lakes Region Mutual Fire Aid and performs emergency medical services (EMS) for the residents. The Ashland Police Department has mutual aid agreements with surrounding towns, the NH State Police (Troop F), the Grafton County Sheriff's Office, and Fish & Game. The Public Works Department is a NH Public Works Mutual Aid Association member. The Fire Department will call upon the Plymouth Fire Department for medical transportation. Ashland Electric Department has mutual aid with all municipal plants in New England. All mutual aid systems in Ashland work well.
State Health Department 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 Central NH Regional Public Health Emergency Annex.	Central NH Regional Public Health Network	Excellent	<b>No Improvements Needed:</b> The State Public Health Plan assists the Community as part of the services provided by the Central NH Regional Public Health Network. The Ashland Health Officer attends public health meetings whenever possible. The Ashland Fire Station is a Multi-Agency Coordinating Entity (MACE) facility.
Shoreland Water Quality 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 Ashland complies with and exceeds the Shoreland Water Quality Protection Act regulations. Compliance with the Act is encouraged.
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	Good	<b>No Improvements Needed:</b> Facebook pages are maintained by the Police Department, Parks & Recreation Department, Firefighter's Association, and the Library. These social media accounts work very well to keep the citizens of Ashland informed about things happening in their town.

## Chapter 7: Last Mitigation Plan

### A. DATE OF LAST PLAN

Based on the Disaster Mitigation Act (DMA) of 2000, Ashland has developed hazard mitigation plans in the past. The most recent update was formally approved in 2019. The Ashland 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. Five additional columns not shown here – *Type of Hazard, Responsible Department, Funding or Support, Estimated Cost, and Total* – can be found in the 2019 Hazard Mitigation Plan.

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

New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
<p><b>Action Item #1:</b> Provide robust information on an Emergency Webpage on the Town's website for educating the public on hazard mitigation and preparedness measures (MU14) by adding to the Town's website a webpage that will include such information as emergency contacts, shelter locations, evacuation routes (SW7, WF11 &amp; T3), methods of emergency alerting, 911 compliance, water saving techniques (D9), earthquake risk and mitigation activities that can be taken in residents' homes (EQ7), steps homeowners can take to protect themselves and their properties when extreme temperatures occur (ET1 &amp; ET4), safety measures that can be taken during hail (HA3) and lightning storms (L2), 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 (WW5). Provide homeowners with information on how to protect their homes from power outages (WW3). Develop ways to provide notification to citizens. (Tables 6.1 &amp; 7.1)</p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deferred:</b> The Town has developed a website and an Emergency Management webpage with some emergency-related links, including a link to Genasys (formerly CodeRED/NH ENS). This emergency webpage is a great way to provide outreach to residents on emergency preparedness and mitigation techniques property owners can use to reduce or eliminate the impact of natural hazards. This strategy was deferred to this Plan to continue providing vital information and links on the Emergency Management webpage to educate the public on general and seasonal mitigation techniques. The Town can also get information via social media platforms (see Table 2.1). <b>Action Item #7 (also in Table 6.1)</b></p>

New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
<p><b>Action Item #2:</b> Provide public outreach to encourage all residents to contact CodeRED to add cell numbers, unlisted numbers, emails and to verify information using the website, a possible brochure, or a sign-up at Town Meeting and/or available social media. <b>(MU14) (Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><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 continuously provided information to residents about CodeRED, the former system. This strategy was deferred to continue providing public outreach to encourage all residents to contact Genasys to add cell numbers, emails, and unlisted numbers and verify the information. Use the Town's website, a possible brochure at the Town Office, social media platforms, or a sign-up at Town Meeting. <b>Action Item #8 (also in Table 6.1)</b></p>
<p><b>Action Item #3:</b> Through Public Outreach and the Town's website, educate homeowners regarding the risks of building in 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 and information to the website and actively work with residents to ensure they are in compliance with the Town's Floodplain Ordinance. <b>(F22 &amp; F23) (Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deferred:</b> The Town developed a flood ordinance and became a National Flood Insurance Program (NFIP) member on April 2, 1986. The Town's Flood Ordinance works well to successfully prohibit or force compliance to the ordinance for building and substantial improvements to structures within the FEMA flood zone. The Flood Ordinance was last amended in 2023. This strategy was deferred to this Plan to continue compliance with the NFIP, obtain NFIP brochures to have available at the Town Offices, and provide public outreach regarding the benefits of membership in the NFIP, whether or not properties are in the FEMA floodplain. This strategy was also deferred to provide vital information on flood mitigation techniques that can be taken to protect individual homes and properties using the Town's website or social media pages. Provide links to the NFIP, Ready.gov, and other pertinent websites. <b>Action Item #9 (also in Table 6.1)</b></p>
<p><b>Action Item #4:</b> Provide public outreach to the citizens of Ashland regarding fire safety, the Firewise program, and mitigation techniques that can be used to protect homes from wildfires using an Emergency Webpage on the Town's website. Post important information and notices of red flag burning days through mailings and obtain and have available Firewise brochures to educate homeowners on methods to reduce fire risk around their homes <b>(WF10)</b>. Provide Firewise brochures to those residents seeking burn permits and 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. <b>(WF12) (Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deferred:</b> The Town has continuously posted important fire information and notices of red flag burning days on the Town's website and has had Firewise® brochures available. This strategy was deferred to continue having 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>Action Item #10</b></p>
<p><b>Action Item #5:</b> Provide reminders to residents using multiple sources, including a town emergency webpage, to maintain private and Class VI roads to allow for emergency vehicular access. <b>(WF12 &amp; MU15)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deferred:</b> The Town has continuously promoted private mitigation efforts and provided public outreach to the citizens of Ashland on the importance of maintaining private roads to allow for safe access for fire apparatus into wildland-urban interface neighborhoods and properties. This education will help ensure accessibility for emergency response and decrease the wildfire risk. This strategy was deferred to continue these efforts and outreach to protect the Community better. <b>Action Item #11</b></p>
<p><b>Action Item #6:</b> Educate the Town's residents about the need to obtain building permits and the risks associated with inadequate building. Add a link to the Town's website to the State's adopted codes. <b>(MU14) (Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deleted:</b> The Town of Ashland has a part-time Building Inspector, and the building notification process requires builders to abide by the International Building Codes (IBC) and the International Residential Codes (IRC), which the Town has adopted by reference. This strategy was deleted as the system in place works well. <b>(also in Table 6.1)</b></p>

New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
<p><b>Action Item #7:</b> Develop and maintain a functional needs population list with the Electric Department to serve as an effective tool during an emergency. <b>(ET3 &amp; WW6)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Deleted:</b> The Town has completed a functional needs with the Electric Department. The functional needs list and the Good Morning program list are updated annually. Therefore, this strategy is deleted.</p>
<p><b>Action Item #8:</b> Consider ways to improve 911 signage compliance so that emergency responders can better assist the public at the time of need, perhaps through the purchase of signs by the Town and/or through continued public outreach. <b>(MU14) (Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deferred:</b> The Town has continuously informed the residents about E-911 compliance. Ashland is about 50% compliant with E-911 signage. This strategy was deferred to this Plan to consider ways to get this signage more compliant so that emergency responders can better assist the public in need. Use public outreach opportunities such as an Emergency Management webpage or social media to promote better compliance and develop other means of increasing compliance. The Town could purchase and install signage, improve the ordinance and "fine" to make them more stringent, or provide signs for residents to install themselves to promote compliance better. <b>Action Item #2 (also in Table 6.1)</b></p>
<p><b>Action Item #9:</b> The Emergency Management Director to encourage all town officials and new hires to provide NIMS (IS-700) &amp; ICS (ICS 100 &amp; ICS 200) training to new first responders and to new Town officials as they become elected and/or appointed. <b>(Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deferred:</b> NIMS and ICS training has been done by most first responders; however, training by other town officials is lacking. Although this is preparedness, this strategy was deferred to this Plan to continue providing NIMS (IS-700) and ICS (ICS 100 and ICS 200) training to new first responders and town officials as they become elected/appointed. <b>Action Item #5 (also in Table 6.1)</b></p>
<p><b>Action Item #10:</b> Routinely inspect the functionality of all fire hydrants and maintain and repair all hydrants and other water resources in Ashland. Consider other areas of the Community that have limited water resources and address these issues by installing new hydrants, fire ponds and/or cisterns. <b>(WF8) (Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deferred:</b> Pressurized hydrants, dry hydrants, and drafting sites throughout Ashland provide water resources for firefighting. The Fire Department and Water Department maintain these hydrants regularly. This strategy was deferred to maintain the pressurized hydrants (Water Department), the dry hydrants, and other water resources (Fire Department) to help mitigate the effects of structure fires and wildfires. <b>Action Item #3 (also in Table 6.1)</b></p>
<p><b>Action Item #11:</b> In addition to work that is done by and with local utility companies, continue to monitor and maintain brush cutting, drainage system maintenance and tree removal as part of a tree maintenance program and create defensible space around power lines, oil and gas lines and other infrastructure. Work to reduce wildfire risk by clearing dead vegetation, cutting high grass and other fuel loads in the Community. <b>(SW4, WF7, WF9 &amp; F14) (Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deferred:</b> As trees become damaged and threaten structures and town roads, the Public Works Department and Ashland Electric remove them. The NH DOT 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></p>
<p><b>Action Item #12:</b> Maintain drainage and culvert systems, participate in the stormwater program with the LRPC and the State, and improve culverts as needed in the Community. <b>(F5 &amp; F14) (Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deferred:</b> The Ashland Public Works Department does an excellent job cleaning and repairing drainage basins and culverts, and a written Culvert &amp; Stormwater Maintenance Plan has been developed with LRPC to ensure continuity of actions and efficient stormwater management. This strategy was deferred for continued maintenance and to update the Culvert &amp; Stormwater Maintenance Plan as changes and upgrades occur. <b>Action Item #4 (also in Table 6.1)</b></p>
<p><b>Action Item #13:</b> When updating or reviewing the Master Plan, incorporate a Natural Hazards section and mitigation action items from this Plan. <b>(MU6) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan; updated annually)</p>	<p><b>Completed &amp; Deferred:</b> The Ashland Master Plan was last updated in 2014 but is currently being updated chapter by chapter. This strategy was deferred to update the Master Plan according to the State's recommendations and consider including a natural hazards section and a discussion on climate change and action items from this Plan in future updates. <b>Action Item #33 (also in Table 6.1)</b></p>

New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
<p><b>Action Item #14:</b> Maintain the flow of stormwater on Owl Brook Road #1 with annual spring maintenance and cleaning to ensure the unobstructed flow of stormwater. <b>(F13) (SADES_ID #8579)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deleted:</b> The Public Works Department has maintained the stormwater flow on Owl Brook Road #1. This strategy was deleted as maintenance on Owl Brook Road #1 is done regularly.</p>
<p><b>Action Item #15:</b> Maintain the flow of stormwater on Owl Brook Road #2 with annual spring maintenance and cleaning to ensure the unobstructed flow of stormwater. <b>(F13) (SADES_ID #8580)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan)</p>	<p><b>Completed &amp; Deleted:</b> The Public Works Department has maintained the stormwater flow on Owl Brook Road #2. This strategy was deleted as maintenance on Owl Brook Road #2 is done regularly.</p>
<p><b>Action Item #16:</b> Provide an annual review of the Ashland Hazard Mitigation Plan Update 2019. Include a review of the status of "Action Items" listed in this Plan to encourage completion and get approval from the local elected body on an annual basis. <b>(MU11) (Table 6.1)</b></p>	<p><b>Short Term Ongoing</b> (For the life of the Plan; updated annually)</p>	<p><b>Completed &amp; Deferred:</b> The Ashland Hazard Mitigation Plan (2019) is being updated to this Plan. This strategy was deferred to review this Plan, the Ashland Hazard Mitigation Plan 2025, annually and to update the Plan again in 2029. <b>Action Item #17 (also in Table 6.1)</b></p>
<p><b>Action Item #17:</b> Obtain funding and install a generator at the Electric/Highway Department, a critical facility, to ensure its availability and usage during an emergency. <b>(Tables 6.1 &amp; 7.1)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deferred:</b> Although Ashland has emergency backup power at some of the Town's Critical Infrastructure &amp; Key Resources (CIKR), the Town could benefit from a permanent generator for the Electric/PWD Facility. This strategy was deferred to obtain and install an emergency generator for the Electric/PWD Facility to improve the effectiveness of this facility during a disaster. <b>Action Item #32 (also in Table 6.1)</b></p>
<p><b>Action Item #18:</b> Obtain funding and install a generator at the Town Hall/Police Department, a critical facility important for the continuity of government and law enforcement, to ensure its availability and usage during an emergency. <b>(Tables 6.1 &amp; 7.1)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deferred:</b> Although Ashland has emergency backup power at some of the Town's Critical Infrastructure &amp; Key Resources (CIKR), the Town could benefit from a permanent generator for the Town Offices/Police Station. This strategy was deferred to obtain and install an emergency generator for the Town Offices/Police Station to improve the effectiveness of this facility during a disaster. <b>Action Item #31 (also in Table 6.1)</b></p>
<p><b>Action Item #19:</b> Contact the owners of other dams (with the exception of the Grist Mill Dam and River Street Dam) to inquire about the safety of dams and to acquire dam plans if available. <b>(Tables 6.1 &amp; 7.1)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Completed &amp; Deferred:</b> The Fire Department has copies of the dam EOPs for the Grist Mill and River Street Dams. This strategy was deferred to call the owners of other dams to inquire about the safety of dams and to acquire dam EOPs if available. <b>Action Item #26 (also in Table 6.1)</b></p>
<p><b>Action Item #20:</b> Research and consider locations that can be utilized as a secondary in-town shelter, such as the American Legion Building or the Booster Club. <b>(Table 7.1)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deferred:</b> This strategy from the prior plan was not done due to oversight. This strategy was deferred to research and consider locations that can be utilized as a secondary in-town shelter, such as the American Legion Building or the Booster Club. <b>Action Item #22</b></p>
<p><b>Action Item #21:</b> Assign personnel for the development of a Shelter Management Team and schedule shelter training to ensure readiness. <b>(Table 6.1)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deferred:</b> The Town has not established a Shelter Management Team due to oversight. This strategy was deferred to assign personnel to develop a Shelter Management Team and to schedule shelter training. <b>Action Item #25 (also in Table 6.1)</b></p>
<p><b>Action Item #22:</b> Complete the work required for the Septage Receiving Plant and explore and prioritize spending for other water and sewer projects. <b>(Table 6.1)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months) (Septage Receiving Plant)  Ongoing for prioritization</p>	<p><b>Completed &amp; Deferred:</b> The Ashland Water &amp; Sewer Department has been working with the State to upgrade the identified areas of the system. The estimated 6.5 million dollar plan includes building an all-new Septage Receiving Plant at the lagoons. DES permits have been received, and state and federal funding is in place. This strategy was deferred to complete the Septage Receiving Plant and continue exploring and prioritizing spending for other water and sewer projects. <b>Action Item #28</b></p>

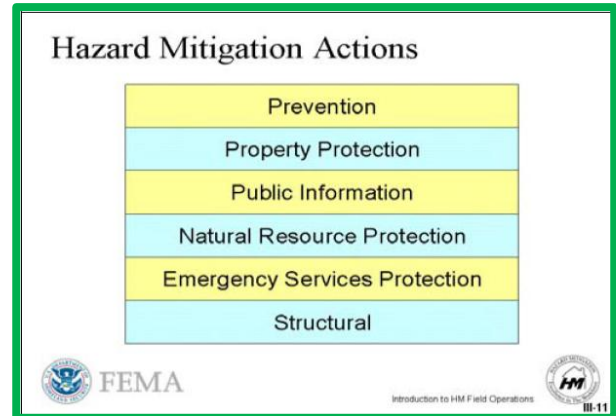
New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
<p><b>Action Item #23:</b> Obtain more sandbags for use in future flood emergencies and to have on-hand particular should a failure of Squam Lake Dam occur.</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Completed &amp; Deleted:</b> The Town obtained some sandbags to have on hand, particularly should a failure of Squam Lake Dam occur. This strategy was deleted as there is an adequate supply of sandbags.</p>
<p><b>Action Item #24:</b> Using this Hazard Mitigation Plan and other town documents, complete a comprehensive review and revitalization of the CIP to make it more effective. Also, reactivate the CIP. (Table 6.1)</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deferred:</b> The Ashland Capital Improvement Program has no active committee due to staffing and oversight. A CIP is generally reviewed to ensure the program's goals are achieved. This strategy was deferred to revitalize the CIP and review this Plan upon its approval to incorporate actions from it. <b>Action Item #18 (also in Table 6.1)</b></p>
<p><b>Action Item #25:</b> Improve the flow of stormwater in 2019 on Libby Lane by upgrading the aging 45' steel-corrugated round culvert with a 15" x 45' smooth bore plastic culvert. (F13) (SADES_ID #8206)</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Completed &amp; Deleted:</b> The Public Works Department upgraded the aging 45' steel-corrugated round culvert with a 15" x 45' smooth bore plastic culvert to alleviate flooding on Libby Lane; therefore, this strategy was deleted.</p>
<p><b>Action Item #26:</b> A warrant article is in place to rebuild the infrastructure on Thompson Street (#1); this will include rebuilding/replacing all catch basins and culverts while also improving water and sewer; engineering for the project has been completed; if this passes at Town Meeting 2019, the 45' corrugated aluminum culvert will be replaced to improve the flow of stormwater. (F13) (SADES_ID #8396)</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Partially Completed &amp; Deferred:</b> This strategy from the prior plan has been in the works for several years, and some progress has been made. It was deferred to study the infrastructure issues on Thompson Street #1 &amp; 2 and to incorporate improvements for appropriation at the 2024 Town Meeting. <b>Action Item #27</b></p>
<p><b>Action Item #27:</b> A warrant article is in place to rebuild the infrastructure on Thompson Street (#2); this will include rebuilding/replacing all catch basins and culverts while also improving water and sewer; engineering for the project has been completed; if this passes at Town Meeting 2019, the 40' corrugated steel culvert will be replaced to improve the flow of stormwater. (F13) (SADES_ID #8397)</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Partially Completed &amp; Deferred:</b> This strategy is combined with Action Item #26 from the prior plan and <b>Action Item #27</b> in this Plan.</p>
<p><b>Action Item #28:</b> Improve the flow of stormwater on Highland Street by upgrading the 50' corrugated steel round culvert with a 15" x 50' smooth bore plastic culvert; build new head walls and excavate the entrance and exit to improve the flow of stormwater. (F13) (SADES_ID #8480)</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Completed &amp; Deleted:</b> Work has been completed on Highland Street. Although the culvert was not replaced, the headwalls were repaired, and the entrance and exit were cleaned to support better stormwater flow. This strategy is completed; therefore, it is deleted.</p>
<p><b>Action Item #29:</b> Improve the flow of stormwater on Sanborn Road #1 by cleaning and flushing the 34.7' concrete culvert at this location and excavating the entrance to improve drainage. (F13) (SADES_ID #8302)</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deleted:</b> This strategy has been completed. The Highway Department has cleaned, flushed, and excavated at the entrance to the culvert on Sanborn Road #1 to improve the stormwater flow. This type of regular maintenance is performed twice a year. This action item is completed; therefore, it was deleted.</p>
<p><b>Action Item #30:</b> Improve the flow of stormwater on Sanborn Road #2 by cleaning and flushing the 38.9' smooth plastic culvert at this location and excavating the entrance to improve drainage. (F13) (SADES_ID #8304)</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deleted:</b> This strategy has been completed. The Highway Department has cleaned, flushed, and excavated at the entrance to the culvert on Sanborn Road #2 to improve the stormwater flow. This type of regular maintenance is performed twice a year. This action item is completed; therefore, it was deleted.</p>
<p><b>Action Item #31:</b> Improve the flow of stormwater on Sanborn Road #3 by cleaning and flushing the 24' corrugated steel culvert at this location and excavating the entrance to improve drainage. (F13) (SADES_ID #8307)</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deleted:</b> This strategy has been completed. The Highway Department has cleaned, flushed, and excavated at the entrance to the culvert on Sanborn Road #3 to improve the stormwater flow. This type of regular maintenance is performed twice a year. This action item is completed; therefore, it was deleted.</p>
<p><b>Action Item #32:</b> Improve the flow of stormwater on Sanborn Road #4 by cleaning and flushing the 26' corrugated steel culvert at this location and excavating the entrance to improve drainage. (F13) (SADES_ID #8309)</p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deleted:</b> This strategy has been completed. The Highway Department has cleaned, flushed, and excavated at the entrance to the culvert on Sanborn Road #4 to improve the stormwater flow. This type of regular maintenance is performed twice a year. This action item is completed; therefore, it was deleted.</p>

New Mitigation Project	Time Frame	Completed, Deleted, or Deferred
<p><b>Action Item #33:</b> Improve the flow of stormwater on North Ashland Road #1 by flushing the 50' concrete round culvert and excavating the entrance and exit to remove debris and increase the flow of stormwater. <b>(F13) (SADES_ID #8541)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deleted:</b> This strategy has been completed. The Highway Department has cleaned, flushed, and excavated at the entrance to the culvert on North Ashland Road #1 to improve the stormwater flow. This type of regular maintenance is performed twice a year. This action item is completed; therefore, it was deleted.</p>
<p><b>Action Item #34:</b> Improve the flow of stormwater on North Ashland Road #2 by flushing the 41' concrete round culvert and excavating the entrance and exit to remove debris and increase the flow of stormwater. <b>(F13) (SADES_ID #8542)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deleted:</b> This strategy has been completed. The Highway Department has cleaned, flushed, and excavated at the entrance to the culvert on North Ashland Road #2 to improve the stormwater flow. This type of regular maintenance is performed twice a year. This action item is completed; therefore, it was deleted.</p>
<p><b>Action Item #35:</b> Improve the flow of stormwater on Wadleigh Road by upgrading the 40' corrugated steel round culvert with a 15" x 40' smooth bore plastic culvert; build new head walls and excavate the entrance and exit to improve the flow of stormwater. <b>(F13) (SADES_ID #8576)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Deferred:</b> This strategy from the prior plan was not done due to budget constraints and oversight; however, it is scheduled for spring 2024. This strategy was deferred to improve stormwater flow on Wadleigh Road by upgrading the 40' corrugated steel round culvert with a 15" x 40' smooth bore plastic culvert and building new headwalls. <b>Action Item #13</b></p>
<p><b>Action Item #36:</b> Improve the flow of stormwater on North Ashland Road #3 by upgrading the 40.7' concrete round culvert with a 15" smooth bore plastic culvert. Build new head walls and excavate the entrance and exit to improve the flow of stormwater. <b>(F13) (SADES_ID #8558)</b></p>	<p><b>Short Term</b> (1 year or less: 0-12 months)</p>	<p><b>Partially Completed &amp; Deferred:</b> Although some improvements have been made, this strategy from the prior plan was unsuccessful due to budget constraints. This strategy was deferred to replace the 40' by 15" culvert with a smooth bore plastic culvert of the same size. This strategy was also deferred to build new headwalls and to excavate the entrance to improve stormwater flow. <b>Action Item #14</b></p>
<p><b>Action Item #37:</b> Obtain funding and install a permanent generator at the Ashland Elementary School (primary shelter &amp; secondary EOC) to ensure its availability and usage during an emergency. <b>(Tables 6.1 &amp; 7.1)</b></p>	<p><b>Medium Term</b> (2-3 years: 13-36 months)</p>	<p><b>Deferred:</b> Although Ashland has emergency backup power at some of the Town's Critical Infrastructure &amp; Key Resources (CIKR), the Town could benefit from a permanent generator for Ashland Elementary School. This strategy was deferred to obtain and install an emergency generator for Ashland Elementary School to improve the effectiveness of this facility during a disaster. <b>Action Item #29 (also in Table 6.1)</b></p>
<p><b>Action Item #38:</b> Using the 2016 Emergency Operations Plan and available resources at the EOC, plan and hold additional Table Top Exercises (TTX) and/or full-scale drills to prepare for and improve the emergency response. <b>(Table 6.1)</b></p>	<p><b>Medium Term</b> (2-3 years: 13-36 months)</p>	<p><b>Deferred:</b> Training of the Emergency Operations Plan was not done due to staffing and oversight. This strategy was deferred to provide Table Top Exercises (TTX) and full-scale drills to better prepare town officials and emergency responders for disasters or emergencies. <b>Action Item #30 (also in Table 6.1)</b></p>
<p><b>Action Item #39:</b> Using this Hazard Mitigation Plan as a guide and other town documents, complete a comprehensive review of the current subdivision regulations and recommend changes to decrease the potential for future hazards. <b>(WF2, MU4, MU6) (Table 6.1)</b></p>	<p><b>Medium Term</b> (2-3 years: 13-36 months)</p>	<p><b>Completed &amp; Deferred:</b> Ashland's regulations were reviewed in conjunction with the prior hazard mitigation plan. This strategy was deferred to review the Town's planning mechanisms, including but not limited to the Subdivision, Zoning, Site Plan Review, and Floodplain Regulations, and to discuss changes that may mitigate the occurrence of and damage from the natural hazards identified in this Plan. <b>Action Items #19 &amp; #20 (also in Table 6.1)</b></p>
<p><b>Action Item #40:</b> Update the Ashland Emergency Operations Plan and include "Player Packets" for Lead Agencies and an analysis of the impact of natural hazards on Critical Infrastructure and Key Resources that may be needed during an emergency. <b>(Tables 6.1)</b></p>	<p><b>Long Term</b> (3-5 years: 37-60 months)</p>	<p><b>Completed &amp; Deferred:</b> The Ashland Emergency Operations Plan (EOP) was last updated in 2016 and is overdue for an update based on the State's 5-year recommendation. The new EOP should include an EOC Call Alert List, a detailed Resource Inventory List, and Player Packets. This strategy was deferred to this Plan to update the EOP. <b>Action Item #24 (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 up-size 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 Ashland, 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 all aspects of managing and tracking potential emergency planning action items. For instance, the Team knew that some of these action items were more appropriately identified as preparedness or readiness issues. As no other established planning mechanisms recognize 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 2,000 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 Ashland 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 Ashland 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	3	3	3	1	1	3	3	17
		<i>Political: Special requirements for designated scenic roads; some people resist tree-cutting, must give them the wood products that result</i> <i>Legal: Can't cut on private land without permission</i>							
<b>Action Item #2:</b> Consider ways to make this signage more compliant so emergency responders can better assist the public. 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, improve its ordinance, or provide signs for residents to install themselves to promote better compliance. Currently, there is a building ordinance that requires signage for occupancy. Residents purchase their own signs, adhering to the ordinance, to acquire an occupancy permit for new construction. (MU14) (Tables 6.1 & 7.1)	<u>Affected Location</u> -Townwide  <u>Type of Activity</u> -Prevention -Public Education & Awareness -Emergency Service Protection -Property Protection -Natural Resource Protection	3	3	3	2	3	3	3	20
		<i>Political: Some people will want their own signs and not want to comply; some do not want numbers at all</i>							

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<b>Action Item #3:</b> Inspect the functionality of all hydrants. Maintain, repair, and improve all hydrants and other water resources in Ashland. Consider other community areas with limited water resources and address these issues. Work with local landowners to gain access to available water resources to help mitigate the effects of wildfires. Identify locations in the Town that would benefit from installing dry hydrants, drafting sites, cisterns, or fire ponds. <b>(WF8, MU12 &amp; MU13) (Tables 6.1 &amp; 7.1)</b>	<p><b>Affected Location</b> -Areas of town without water resources</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection</p>	3	3	3	3	3	3	3	21
		<i>No apparent difficulty with this action item</i>							
<b>Action Item #4:</b> Maintain, improve, and update culverts and ditches in the Community and work with the Lakes Region Planning Commission to maintain and update the written stormwater maintenance plan to ensure more efficient stormwater management. <b>(F5) (Tables 6.1 &amp; 7.1)</b>	<p><b>Affected Location</b> -Culverts &amp; Ditches</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection</p>	3	3	3	3	3	3	3	21
		<i>No apparent difficulty with this action item</i>							
<b>Action Item #5:</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) and ICS (ISC100 and ISC200). Additionally, the EMD should encourage key personnel to learn about and become adept with WEB-EOC. <b>(Emergency Preparedness) (Tables 6.1 &amp; 7.1)</b>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection</p>	3	3	2	3	3	3	3	20
		<i>Administrative: Time may be an issue</i>							
<b>Action Item #6:</b> The Fire Chief, Police Chief, EMS Director, and the EMD 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 the Lakes Region Fire Mutual Aid and the State of New Hampshire at the NH Fire and Police Academies. <b>(Table 6.1)</b>	<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
		<i>No apparent difficulty with this action item</i>							
<b>Action Item #7:</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. Also, 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><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Public Education &amp; Awareness -Property Protection</p>	3	3	3	3	3	3	3	21
		<i>No apparent difficulty with this action item</i>							
<b>Action Item #8:</b> Provide public outreach to encourage all residents to contact Genasys to add cell numbers, unlisted numbers, and emails and verify the 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><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Public Education &amp; Awareness -Emergency Service Protection</p>	3	3	3	3	3	3	3	21
		<i>No apparent difficulty with this action item</i>							

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<p><b>Action Item #9:</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	2	3	3	2	19
<p><b>Action Item #10:</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 and the safe disposal of household waste and yard materials. <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 #11:</b> To promote private mitigation efforts, provide public outreach to the citizens of Ashland on the importance of maintaining private roads to allow for safe access for fire apparatus into wildland-urban interface neighborhoods and properties. This education will help ensure accessibility for emergency response and decrease the wildfire risk. <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	2	3	2	18
<p><b>Action Item #12:</b> Provide public outreach to the citizens of Ashland regarding the availability of the Fire Station as a "cooling or warming center" during times of extended high temperatures and severe winter weather. <b>(ET3 &amp; WW6)</b></p>	<p><b>Affected Location</b> -Ashland Fire Station</p> <p><b>Type of Activity</b> -Prevention -Public Education &amp; Awareness</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #13:</b> Improve the stormwater flow on Wadleigh Road by upgrading the 40' corrugated steel round culvert with a 15" x 40' smooth bore plastic culvert and building new headwalls. <b>(F13) (Table 7.1)</b></p>	<p><b>Affected Location</b> -Wadleigh Road</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection -Structural Project</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #14:</b> Replace the 40' by 15" culvert with a smooth bore plastic culvert of the same size. Build new headwalls and excavate the entrance to improve stormwater flow. <b>(F13) (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 -Structural Project</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 #15:</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. (WF2)	<u>Affected Location</u> -Townwide	3	3	3	3	3	3	3	21
	<u>Type of Activity</u> -Prevention -Property Protection -Natural Resource Protection	<i>No apparent difficulty with this action item</i>							
<b>Action Item #16:</b> Obtain funding and install a permanent generator at the Ashland Fire Station to improve the effectiveness of this facility during a disaster. (MU13) (Table 6.1 & 7.1)	<u>Affected Location</u> -Ashland Fire Station	3	3	3	2	3	2	2	18
	<u>Type of Activity</u> -Prevention -Emergency Service Protection	<i>Political: Some people may not want to spend money on this project.</i> <i>Economical: Budget constraints</i> <i>Environmental: There may be environmental concerns.</i>							
<b>Action Item #17:</b> Complete annual reviews of the Ashland 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. (MU11) (Tables 6.1 & 7.1)	<u>Affected Location</u> -Townwide	3	3	3	3	3	3	3	21
	<u>Type of Activity</u> -Prevention	<i>No apparent difficulty with this action item</i>							
<b>Action Item #18:</b> Reestablish a Capital Improvement Committee and review the Capital Improvement Program (CIP) to ensure that the program's goals will be achieved and assist the Town's departments with planned purchases of equipment and supplies. Once re-established, the Committee should review the CIP after the approval of this Plan to integrate concepts, ideas, and action items from it. (MU6) (Table 6.1 & 7.1)	<u>Affected Location</u> -Townwide	3	3	3	3	3	3	3	21
	<u>Type of Activity</u> -Prevention -Emergency Service Protection	<i>No apparent difficulty with this action item</i>							
<b>Action Item #19:</b> Review the Ashland Subdivision, Zoning, Floodplain, and Site Plan Review 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) (Table 6.1 & 7.1)	<u>Affected Location</u> -Townwide	3	3	3	3	3	3	3	21
	<u>Type of Activity</u> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	<i>No apparent difficulty with this action item</i>							
<b>Action Item #20:</b> Consider changes in the Ashland Subdivision Regulations that will provide language requiring water for fire suppression and better erosion and sediment control in new subdivisions. (WF2, F1 & MU6) (Table 6.1 & 7.1)	<u>Affected Location</u> -Townwide	3	3	3	3	3	3	3	21
	<u>Type of Activity</u> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	<i>No apparent difficulty with this action item</i>							
<b>Action Item #21:</b> Obtain a fire danger sign for the Fire Station or another more suitable location to keep the residents better informed of the current burning conditions. (WF11) (Table 6.1)	<u>Affected Location</u> -Townwide	3	3	3	3	3	3	3	21
	<u>Type of Activity</u> -Prevention -Public Education & Awareness	<i>No apparent difficulty with this action item</i>							
<b>Action Item #22:</b> Research and consider locations that can be utilized as a secondary in-town shelter, such as the American Legion Building or the Booster Club. (Emergency Preparedness) (Table 7.1)	<u>Affected Location</u> -TBD	3	3	3	3	3	3	3	21
	<u>Type of Activity</u> -Emergency Service Protection	<i>No apparent difficulty with this action item</i>							

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<b>Action Item #23:</b> Work with the State to identify new locations for wells due to the proximity to the highway. (MU13) (Table 6.1)	<u>Affected Location</u> -Townwide	3	3	3	3	3	3	3	21
	<u>Type of Activity</u> -Prevention -Public Education & Awareness -Emergency Service Protection -Property Protection -Natural Resource Protection -Structural Project	<i>No apparent difficulty with this action item</i>							
<b>Action Item #24:</b> Update the Ashland 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. (Emergency Preparedness) (Tables 6.1 & 7.1)	<u>Affected Location</u> -Townwide	3	3	3	3	3	3	3	21
	<u>Type of Activity</u> -Prevention -Emergency Service Protection	<i>No apparent difficulty with this action item</i>							
<b>Action Item #25:</b> Assign personnel for the development of a Shelter Management Team and schedule shelter training. (Emergency Preparedness) (Tables 6.1 & 7.1)	<u>Affected Location</u> -Ashland Elementary School	3	3	2	3	3	3	3	20
	<u>Type of Activity</u> -Prevention -Public Education & Awareness	<i>Administrative: There may be difficulty finding volunteers.</i>							
<b>Action Item #26:</b> Lobby the State to request the enforcement of required repairs at the Grist Mill Dam & the Squam Lake Dam before the lack of repairs causes a catastrophic dam failure, leading to substantial flooding in Ashland. (Table 6.1 & 7.1)	<u>Affected Location</u> -Grist Mill Dam -Squam Lake Dam	3	3	3	1	1	3	1	15
	<u>Type of Activity</u> -Prevention -Emergency Service Protection	<i>Political: Dam owners are litigious and keep suing the Town over the problem, thinking the Town is responsible</i> <i>Legal: The Town does not own the dams</i> <i>Environmental: Yes, because dams are not maintained</i>							
<b>Action Item #27:</b> Study the aging infrastructure issues on Thompson Street #1 & 2 and work on improvements to the stormwater system after appropriation at the 2024 Town Meeting. Perform mitigation work as engineering studies and local authorities recommend to improve stormwater flow. (F7, F5, & F13) (Table 7.1)	<u>Affected Location</u> -Thompson Street	2	2	3	1	3	1	2	14
	<u>Type of Activity</u> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection -Structural Project	<i>Social: Traffic inconveniences</i> <i>Administrative: Will be contracted out</i> <i>Political: Some people will not see the need to fix a particular area of town over another.</i> <i>Economical: Budget constraints</i> <i>Environmental: Will need stormwater and DES permitting.</i>							
<b>Action Item #28:</b> Complete the Septage Receiving Plant project and explore and prioritize spending for other water and sewer projects. (MU13) (Table 7.1)	<u>Affected Location</u> -Septage Receiving Plant	3	3	3	3	3	1	3	19
	<u>Type of Activity</u> -Prevention -Structural Project	<i>Environmental: Will need permits</i>							
<b>Action Item #29:</b> Obtain funding and install a permanent generator at the Ashland Elementary School to improve the effectiveness of this facility during a disaster. (MU13) (Table 6.1 & 7.1)	<u>Affected Location</u> -Ashland Elementary	3	3	3	2	3	2	2	18
	<u>Type of Activity</u> -Prevention -Emergency Service Protection	<i>Political: Some people may not see the need for a generator at the school.</i> <i>Legal: Need SAU permission</i> <i>Economical: Budget constraints</i> <i>Environmental: May need permits</i>							

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<b>Action Item #30:</b> Provide Table Top Exercises (TTX) and full-scale drills to better prepare town officials and emergency responders for disasters or emergencies. <b>(Emergency Preparedness) (Tables 6.1 &amp; 7.1)</b>	<u><b>Affected Location</b></u> -Townwide	3	3	3	3	3	3	3	21
	<u><b>Type of Activity</b></u> -Prevention -Public Education & Awareness -Emergency Service Protection	<i>No apparent difficulty with this action item</i>							
<b>Action Item #31:</b> Obtain funding and install a permanent generator at the Ashland Town Office/Police Department to improve the effectiveness of this facility during a disaster. <b>(MU13) (Table 6.1 &amp; 7.1)</b>	<u><b>Affected Location</b></u> -Town Office & PD	3	3	3	2	3	2	2	18
	<u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection	<i><b>Political:</b> Some people may not want to spend money on this project.  <b>Economical:</b> Budget constraints  <b>Environmental:</b> There may be environmental concerns.</i>							
<b>Action Item #32:</b> Obtain funding and install a permanent generator at the Ashland Electric/PWD facility to improve the effectiveness of this facility during a disaster. <b>(MU13) (Table 6.1 &amp; 7.1)</b>	<u><b>Affected Location</b></u> -Electric/PWD Facility	3	3	3	2	3	2	2	18
	<u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection	<i><b>Political:</b> Some people may not want to spend money on this project.  <b>Economical:</b> Budget constraints  <b>Environmental:</b> There may be environmental concerns.</i>							
<b>Action Item #33:</b> Review this Plan, the Ashland 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>	<u><b>Affected Location</b></u> -Townwide	3	3	3	3	3	3	3	21
	<u><b>Type of Activity</b></u> -Prevention	<i>No apparent difficulty with this action item</i>							

## 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, those that 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 2027 – 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 Department of Public Works and Ashland Electric remove them. The NH Department of Transportation (NH DOT) does 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, Wildfires, Severe Winter Weather & Inland Flooding	Department of Public Works & Ashland Electric	Local	Life of the Plan	Low Cost
A-2	<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 50% compliant with the proper E911 signage.</p> <p><b>Action Item #2:</b> Consider ways to make this signage more compliant so emergency responders can better assist the public. 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, improve its ordinance, or provide signs for residents to install themselves to promote better compliance. Currently, there is a building ordinance that requires signage for occupancy. Residents purchase their own signs, adhering to the ordinance, to acquire an occupancy permit for new construction. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Code Enforcement Officer & Fire Department	Local	Life of the Plan	Very Low Cost
A-3	<p><b>Problem Statement:</b> Pressurized hydrants, dry hydrants, and drafting sites throughout Ashland provide water resources for firefighting. This maintenance and future improvements of these hydrants need to continue. Some areas of the Town could benefit from additional water resources for firefighting.</p> <p><b>Action Item #3:</b> Inspect the functionality of all hydrants. Maintain, repair, and improve all hydrants and other water resources in Ashland. Consider other community areas with limited water resources and address these issues. Work with local landowners to gain access to available water resources to help mitigate the effects of wildfires. Identify locations in the Town that would benefit from installing dry hydrants, drafting sites, cisterns, or fire ponds. <b>(WF8, MU12 &amp; MU13) (Tables 6.1 &amp; 7.1)</b></p>	Wildfires & Conflagration	Fire Department & Water Department	Local	Life of the Plan	Very Low Cost

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
A-4	<p><b>Problem Statement:</b> The Ashland Public Works Department works to clean and repair drainage basins and culverts, and a written stormwater maintenance plan has been developed with the Lakes Region Planning Commission to ensure continuity of actions and efficient stormwater management. Updates to this plan will need to continue.</p> <p><b>Action Item #4:</b> Maintain, improve, and update culverts and ditches in the Community and work with the Lakes Region Planning Commission to maintain and update the written stormwater maintenance plan to ensure more efficient stormwater management. <b>(F5) (Tables 6.1 &amp; 7.1)</b></p>	Inland Flooding	Department of Public Works	Local	Life of the Plan	Low Cost
A-5	<p><b>Problem Statement:</b> Although first responders, including firefighters, have received NIMS &amp; ICS training, not all of Ashland's town officials have.</p> <p><b>Action Item #5:</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) and ICS (ISC100 and ISC200). Additionally, the EMD should encourage key personnel to learn about and become adept with 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
A-6	<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 #6:</b> The Fire Chief, Police Chief, EMS Director, and the EMD 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 the Lakes Region Fire Mutual Aid and the State of New Hampshire at the NH Fire and Police Academies. <b>(Table 6.1)</b></p>	Wildfires & Conflagration	Fire Department, Police Department, & Emergency Management Director	Local & Grants	Life of the Plan	Very Low Cost
A-7	<p><b>Problem Statement:</b> The Town's website has an emergency management webpage with some 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 #7:</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. Also, 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	Emergency Management Director, other Department Heads & Website Administrator	Local	Life of the Plan	Very Low Cost

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
A-8	<p><b>Problem Statement:</b> Genasys (formerly CodeRED/NH ENS) is an excellent warning system, but it 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 #8:</b> Provide public outreach to encourage all residents to contact Genasys to add cell numbers, unlisted numbers, and emails and verify the 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	Emergency Management Director & Website Administrator	Local	Life of the Plan	Very Low Cost
A-9	<p><b>Problem Statement:</b> Residents and builders may not be aware of flood regulations and 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 #9:</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	Emergency Management Director, Building Inspector (flood plain administration) & Website Administrator	Local	Life of the Plan	Very Low Cost
A-10	<p><b>Problem Statement:</b> Although the Town does a great job using its website 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 #10:</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 and the safe disposal of household waste and yard materials. <b>(WF10 &amp; WF12) (Table 7.1)</b></p>	Wildfire & Conflagration	Emergency Management Director, Website Administrator, Town Administrator & Public Works Department	Local	Life of the Plan	Very Low Cost
A-11	<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 #11:</b> To promote private mitigation efforts, provide public outreach to the citizens of Ashland on the importance of maintaining private roads to allow for safe access for fire apparatus into wildland-urban interface neighborhoods and properties. This education will help ensure accessibility for emergency response and decrease the wildfire risk. <b>(MU16) (Table 7.1)</b></p>	Wildfires & Conflagration	Town Administrator & Website Administrator	Local	Life of the Plan	Very Low Cost

ASHLAND, 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-12	<p><b>Problem Statement:</b> Although public outreach has been done to advise the citizens of Ashland of the possibility of using the Fire Station as a cooling shelter in times of extended high temperatures and as a warming center in times of extended cold temperatures, additional public outreach needs to be done.</p> <p><b>Action Item #12:</b> Provide public outreach to the citizens of Ashland regarding the availability of the Fire Station as a "cooling or warming center" during times of extended high temperatures and severe winter weather. <b>(ET3 &amp; WW6)</b></p>	Extreme Temperatures & Severe Winter Weather	Town Administrator & Website Administrator	Local	Life of the Plan	Very Low Cost
B-1	<p><b>Problem Statement:</b> There are stormwater issues on Wadleigh Road and aging infrastructure.</p> <p><b>Action Item #13:</b> Improve the stormwater flow on Wadleigh Road by upgrading the 40' corrugated steel round culvert with a 15" x 40' smooth bore plastic culvert and building new headwalls. <b>(F13) (Table 7.1)</b></p>	Aging Infrastructure & Inland Flooding	Public Works	Local	Short Term	Very Low Cost
B-2	<p><b>Problem Statement:</b> There are aging infrastructures and stormwater issues on North Ashland Road #3.</p> <p><b>Action Item #14:</b> Replace the 40' by 15" culvert with a smooth bore plastic culvert of the same size. Build new headwalls and excavate the entrance to improve stormwater flow. <b>(F13) (Table 7.1)</b></p>	Aging Infrastructure & Inland Flooding	Public Works	Local	Short Term	Very Low Cost
B-3	<p><b>Problem Statement:</b> This Plan, the Ashland Hazard Mitigation Plan Update 2025, will need to be approved again as a Community Wildfire Protection Plan (CWPP).</p> <p><b>Action Item #15:</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)</b></p>	Wildfire & Conflagration	Mapping & Planning Solutions	Local	Short Term	Very Low Cost
B-4	<p><b>Problem Statement:</b> Although Ashland has emergency backup power at many of the Town's Critical Infrastructure &amp; Key Resources (CIKR), a permanent generator should be installed at the Ashland Fire Station, the location of the Town's Emergency Operations Center.</p> <p><b>Action Item #16:</b> Obtain funding and install a permanent generator at the Ashland Fire Station to improve the effectiveness of this facility during a disaster. <b>(MU13) (Table 6.1)</b></p>	Long-Term Utility Outages	Emergency Management Director	Local & Grants	Short Term	Medium Cost
B-5	<p><b>Problem Statement:</b> This Plan, the Ashland Hazard Mitigation Plan Update 2025, will require an annual review and a complete update in five years.</p> <p><b>Action Item #17:</b> Complete annual reviews of the Ashland 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	Short Term & Long Term	Low Cost

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
B-6	<p><b>Problem Statement:</b> The Ashland Capital Improvement Program currently does not have a working committee.</p> <p><b>Action Item #18:</b> Reestablish a Capital Improvement Committee and review the Capital Improvement Program (CIP) to ensure that the program's goals will be achieved and assist the Town's departments with planned purchases of equipment and supplies. Once re-established, the Committee should review the CIP after the approval of this Plan to integrate concepts, ideas, and action items from it. <b>(MU6) (Table 6.1 &amp; 7.1)</b></p>	All Hazards	Select Board	Local	Short Term	Very Low Cost
B-7	<p><b>Problem Statement:</b> The Ashland Subdivision, Zoning, and Site Plan Review 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.</p> <p><b>Action Item #19:</b> Review the Ashland Subdivision, Zoning, Floodplain, and Site Plan Review 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 &amp; 7.1)</b></p>	All Hazards	Planning Board	Local	Short Term	Very Low Cost
B-8	<p><b>Problem Statement:</b> The Ashland Subdivision Regulations have been recently updated and are in good shape. However, water availability for fire suppression and erosion and sediment controls should be considered.</p> <p><b>Action Item #20:</b> Consider changes in the Ashland Subdivision Regulations that will provide language requiring water for fire suppression and better erosion and sediment control in new subdivisions. <b>(WF2, F1 &amp; MU6) (Table 6.1 &amp; 7.1)</b></p>	All Hazards	Planning Board	Local	Short Term	Very Low Cost
B-9	<p><b>Problem Statement:</b> The Fire Department receives regular email notifications of the burning index from NH Forests &amp; Lands. This notification is made daily during the fire danger season. However, there is no fire danger sign in Ashland.</p> <p><b>Action Item #21:</b> Obtain a fire danger sign for the Fire Station or another more suitable location to keep the residents better informed of the current burning conditions. <b>(WF11) (Table 6.1)</b></p>	Wildfire & Conflagration	Fire Chief	Local & Grants	Short Term	Low Cost
B-10	<p><b>Problem Statement:</b> A local secondary shelter location has not been established.</p> <p><b>Action Item #22:</b> Research and consider locations that can be utilized as a secondary in-town shelter, such as the American Legion Building or the Booster Club. <b>(Emergency Preparedness) (Table 7.1)</b></p>	All Hazards	EMD	Local	Short Term	Very Low Cost
B-11	<p><b>Problem Statement:</b> The wellhead protection area should be reviewed, and new well locations, because of their proximity to the highway, should be considered.</p> <p><b>Action Item #23:</b> Work with the State to identify new locations for wells due to the proximity to the highway. <b>(MU13) (Table 6.1)</b></p>	All Hazards	Water & Sewer	Local	Short Term	Very Low Cost

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
B-12	<p><b>Problem Statement:</b> The Ashland Emergency Operations Plan (EOP) was last updated in 2016 and is past due for its 5-year update.</p> <p><b>Action Item #24:</b> Update the Ashland 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>(Emergency Preparedness) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Emergency Management Director	Local & Grants	Short Term	Low Cost
B-13	<p><b>Problem Statement:</b> The Tirone Gymnasium at the Ashland Elementary School (ARC Partner managed) is designated as the primary shelter, and a Shelter Management Plan has been developed. However, a Shelter Management Team has not been developed.</p> <p><b>Action Item #25:</b> Assign personnel for the development of a Shelter Management Team and schedule shelter training. <b>(Emergency Preparedness) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Emergency Management Director	Local	Short Term	Very Low Cost
B-14	<p><b>Problem Statement:</b> High-hazard dams in NH require the development of a Dam Emergency Action Plan. Ashland has two high-hazard dams, the Squam Lake Dam on River Street and the Grist Mill Dam. The EMD has copies of EAPs for both of these dams. The Town owns neither of these dams and notes that repairs required by DES are not being completed at the Grist Mill Dam or the Squam Lake Dam.</p> <p><b>Action Item #26:</b> Lobby the State to request the enforcement of required repairs at the Grist Mill Dam and the Squam Lake Dam before the lack of repairs causes a catastrophic dam failure, leading to substantial flooding in Ashland. <b>(MU13) (Table 6.1 &amp; 7.1)</b></p>	Inland Flooding & Dam Failure	Emergency Management Director & Town Administrator	Local	Short Term	Very Low Cost
C-1	<p><b>Problem Statement:</b> The Thompson Street Project has been approved, and some progress has been made; however, the project needs completion.</p> <p><b>Action Item #27:</b> Study the aging infrastructure issues on Thompson Street #1 &amp; 2 and work on improvements to the stormwater system after appropriation at the 2024 Town Meeting. Perform mitigation work as engineering studies and local authorities recommend to improve stormwater flow. <b>(F7, F5, &amp; F13) (Table 7.1)</b></p>	Aging Infrastructure & Inland Flooding	Public Works & Water & Sewer	Local & Grants	Medium Term	High Cost
C-2	<p><b>Problem Statement:</b> The Ashland Water &amp; Sewer Department has been working with the State to upgrade the identified areas of the system. The estimated 6.5 million dollar plan includes building an all-new Septage Receiving Plant at the lagoons. DES permits have been received, and state and federal funding is in place, but the project is incomplete.</p> <p><b>Action Item #28:</b> Complete the Septage Receiving Plant project and explore and prioritize spending for other water and sewer projects. <b>(MU13) (Table 7.1)</b></p>	All Hazards	Water & Sewer	Local & Grants	Medium Term	High Cost

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
C-3	<p><b>Problem Statement:</b> Ashland has emergency backup power at many of the Town's Critical Infrastructure &amp; Key Resources (CIKR). However, a permanent generator should be installed at the Ashland Elementary School, a potential shelter.</p> <p><b>Action Item #29:</b> Obtain funding and install a permanent generator at the Ashland Elementary School to improve the effectiveness of this facility during a disaster. <b>(MU13) (Table 6.1 &amp; 7.1)</b></p>	Long-Term Utility Outages	Emergency Management Director	Local & Grants	Medium Term	Low Cost
C-4	<p><b>Problem Statement:</b> A Table Top Exercise (TTX) and other full-scale drills should be completed to better prepare for an incident requiring the opening of the Emergency Operations Center (EOC).</p> <p><b>Action Item #30:</b> Provide Table Top Exercises (TTX) and full-scale drills to better prepare town officials and emergency responders for disasters or emergencies. <b>(Emergency Preparedness) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Emergency Management Director	Local & Grants	Medium Term	Very Low Cost
D-1	<p><b>Problem Statement:</b> Ashland has emergency backup power at many of the Town's Critical Infrastructure &amp; Key Resources (CIKR). However, a permanent generator should be installed at the Ashland Town Office and Police Department.</p> <p><b>Action Item #31:</b> Obtain funding and install a permanent generator at the Ashland Town Office/Police Department to improve the effectiveness of this facility during a disaster. <b>(MU13) (Table 6.1 &amp; 7.1)</b></p>	Long-Term Utility Outages	Emergency Management Director	Local & Grants	Long Term	High Cost
D-2	<p><b>Problem Statement:</b> Although Ashland has emergency backup power at many of the Town's Critical Infrastructure &amp; Key Resources (CIKR), a permanent generator should be installed at the Electric/PWD facility.</p> <p><b>Action Item #32:</b> Obtain funding and install a permanent generator at the Ashland Electric/PWD facility to improve the effectiveness of this facility during a disaster. <b>(MU13) (Table 6.1 &amp; 7.1)</b></p>	Long-Term Utility Outages	Emergency Management Director	Local & Grants	Long Term	High Cost
D-3	<p><b>Problem Statement:</b> The Ashland Master Plan (2014) is reviewed annually and may need an update in 2024 based on the State's 10-year recommendation; however, the Planning Board is updating one chapter at a time. It does not have a "Natural Hazards" section or discuss climate change.</p> <p><b>Action Item #33:</b> Review this Plan, the Ashland 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></p>	All Hazards	Planning Board	Local	Long Term	Very Low Cost

THIS PAGE INTENTIONALLY LEFT BLANK

## 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 Office. 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 effect 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. Ashland 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, obtaining sandbags, and several road projects, including Libby Lane, Thompson Street, and Highland Street. As a result, the Town was able to integrate these actions into other town activities, budgets, plans, and mechanisms.

The Town of Ashland has agreed to incorporate a Community Wildfire Protection Plan (CWPP) into this planning document, the Ashland 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:

#### **ASHLAND MASTER PLAN**

Traditionally, Master Plans are updated every 5 to 10 years. A complete update of Ashland's Master Plan was completed in 2014 and is due for a recommended update in 2024. 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 #33**).

#### **ASHLAND EMERGENCY OPERATIONS PLAN 2016 (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 Ashland EOP was completed in 2016. An update for the Emergency Operations Plan is expected to be completed after completing this Plan in 2025. The new EOP will incorporate elements from this hazard mitigation plan (**Action Items #24**).

#### **TOWN BUDGET & CAPITAL RESERVE FUNDS**

The Town of Ashland maintains 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 ASHLAND ORDINANCES & SUBDIVISION REGULATIONS**

As time goes by and the needs of the Town 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 Items #19 & #20**).

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 planning 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 October 5, 2023. 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

#### ASHLAND HAZARD MITIGATION PLAN UPDATE



---

#### **PARTIES TO THE AGREEMENT**

Mapping and Planning Solutions  
Town of Ashland, NH

Current Plan Expiration: 10/30/2024  
BRIC2021 Grant Expiration: 8/3/2025

This agreement between the Town of Ashland (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 Ashland 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) / Federal Emergency Management Agency (FEMA). When adopted, the Plan guides the Town's 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. These meetings will be held online unless unanticipated circumstances prevail. MAPS will provide any materials, handouts, and maps necessary to understand each step in the planning process fully.<sup>34</sup>
- 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.

---

<sup>34</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 coordinate and collaborate with other federal, state, and local agencies.
- 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 the risk severity of each.
- MAPS will author, edit and prepare the Plan for review by the Team before submitting the Plan to HSEM/FEMA for conditional approval. Upon conditional approval by HSEM/FEMA, MAPS will provide the Planning Team with the necessary documents for plan adoption by the Ashland 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 Ashland Hazard Mitigation Plan at its office.
- Once final documents are received, MAPS will print and distribute the Plan. The final documents include the FEMA formal letter of approval and the approved Community Wildfire Protection Plan (CWPP) document. 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.
- As an added service, MAPS will provide all "Quarterly Reports" HSEM requires 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 Ashland.
- 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 contact 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 meetings and offer assistance to MAPS in developing the work program to 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, 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 adoption and final approval from HSEM/FEMA 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.*
  - *Review and assess the accomplishments of the Plan annually.*
  - *Review, assess, and completely update the Plan in five years.*

**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.
  - 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 .....\$300.00Total 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 the required 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 Ashland, 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 8/3/2025, the end of the Period of Performance (POP, 8/4/2022-8/3/2025).
- **Ownership of Material:** The Town shall own all maps, reports, documents, and other materials produced during the project period presented in .pdf or hardcopy form. 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 owns all Excel, Word, and PowerPoint documents; these documents will not be shared or available to the Town of Ashland.
- **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 Ashland. 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 Ashland 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 95 Hazard Mitigation Plans and more than 90 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**

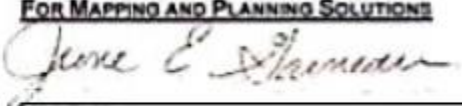
June Garneau  
Mapping and Planning Solutions  
PO Box 283, 91 Cherry Mountain Place  
Twin Mountain, NH 03595  
jgarneau@mappingandplanning.com  
(603) 991-9664 (cell)

**For the Town of Ashland**

Stephen Heath, Fire Chief & EMD  
Town of Ashland  
PO Box 856  
Ashland, NH 03217  
(603) 968-7772  
Firechief@ashland.nh.gov

The signatures below indicate acceptance of and agreement to the details outlined in this agreement.

FOR THE TOWN OF ASHLAND, NH  
  
Signature  
  
\_\_\_\_\_  
8/21/23  
Date

FOR MAPPING AND PLANNING SOLUTIONS  
  
Signature  
June Garneau, Owner  
July 14, 2023

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

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

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



Neiderbach, Josiah <josiah.neiderbach@

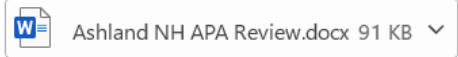
To firechief@ashland.nh.gov

Cc FEMA-R1-MitigationPlans; Doyle, Lynne; DOS: Hazard Mitigation; Brown, Austin; Norman, Dena; Markesich, Christopher; +1 other

Reply Reply All Forward

Thu 2/6/2025 4:30 PM

This message was sent with High importance.



Dear Official:

The FEMA Region 1 Mitigation Division has determined the *Ashland, NH Hazard Mitigation Plan Update 2025* meets all applicable FEMA Mitigation Planning requirements (Local Mitigation Planning Policy Guide, effective April 19, 2023), except its adoption by: Town of Ashland, NH.

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:

- Building Resilient Infrastructure and Communities (BRIC)
- Flood Mitigation Assistance (FMA)
- Hazard Mitigation Grant Program (HMGP)
- HMGP Post-Fire
- 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 202-265-7769 and [josiah.neiderbach@fema.dhs.gov](mailto:josiah.neiderbach@fema.dhs.gov).

Sincerely,


Jay

Josiah (Jay) Neiderbach, Mitigation Planner  
Floodplain Management and Insurance Branch | Mitigation Division | DHS / FEMA, Region I  
M: 202.265.7769 E: [josiah.neiderbach@fema.dhs.gov](mailto:josiah.neiderbach@fema.dhs.gov)

Attachment: FEMA Local Mitigation Plan Review Tool

Signatures are scanned facsimiles; original signatures are on file.

C. FORMAL APPROVAL LETTER FEMA

<p>U.S. Department of Homeland Security                  Federal Emergency Management Agency                  200 Brattle Street                  Cambridge, MA 02142</p>  <p>April 16, 2025</p> <p>Robert M. Buxton, Director                  New Hampshire Homeland Security and Emergency Management                  33 Hazen Dr.                  Concord, NH 03305</p> <p>Director Buxton:</p> <p>The U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region 1 Mitigation Division has approved the <i>Ashland, NH Hazard Mitigation Plan Update 2025</i> effective April 16, 2025 through April 15, 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.</p> <p>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.</p> <p>With this plan approval, the Town of Ashland, 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.</p> <p>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.</p>	<p>Robert M. Buxton, Director                  Page 2</p> <p>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 <a href="mailto:josiah.neiderbach@fema.dhs.gov">josiah.neiderbach@fema.dhs.gov</a>.</p> <p>Sincerely,</p> <p><b>CHRISTOPHER J MARKESICH</b>                  Digitally signed by CHRISTOPHER J MARKESICH                  Date: 2025.04.18 09:50:20 -0400</p> <p>Christopher Markesich                  Floodplain Management and Insurance Branch Chief                  Mitigation Division   DHS, FEMA Region 1</p> <p>cc: Austin Brown, Mitigation &amp; 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</p>
---	---

Signatures are scanned facsimiles; original signatures are on file.

***D SIGNED CERTIFICATE OF ADOPTION***

**CERTIFICATE OF ADOPTION**

**ASHLAND, NH**

**SELECT BOARD**

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

WHEREAS, the Town of Ashland 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 Ashland 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

WHEREAS, public and committee meetings were held between October 5, 2023, and March 21, 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 Ashland; and

WHEREAS, the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural hazards that impact the Town of Ashland 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 Ashland eligible for funding to alleviate the impacts of future hazards; now, therefore, be it

RESOLVED by the Select Board:

1. The Plan is hereby adopted as an official plan of the Town of Ashland;
2. The respective officials identified in the mitigation action items of the Plan are hereby directed to pursue the implementation of the recommended actions assigned to them;
3. Future revisions and plan maintenance required by 44 CFR 201.6 and FEMA are hereby 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 on the progress of the Plan's action items to the Select Board.

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

Adopted this day, the 24<sup>th</sup> of February, 2025

**Select Board Chair**

[Signature]  
Signature

ANDREW D. FITZ  
Print Name

**Select Boar Vice-Chair**

[Signature]  
Signature

Ann-Marie Barney  
Print Name

**Member of the Select Board**

[Signature]  
Signature

CHRIS JANOSA  
Print Name

**Member of the Select Board**

[Signature]  
Signature

Meghan Semiao  
Print Name

**Member of the Select Board**

[Signature]  
Signature

CHARLES BOZZELLO  
Print Name

**Emergency Management Director**

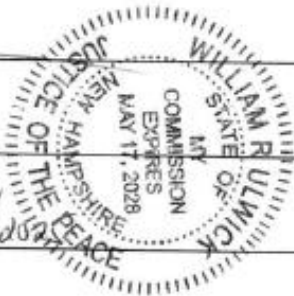
[Signature]  
Signature

Stephen L. Heath  
Print Name

IN WITNESS WHEREOF, the undersigned has affixed their signature and the Notary Seal on this day, 24, 2025

[Signature]  
Notary

Expiration  
02/24/2028  
Dates



Signatures are scanned facsimiles; original signatures are on file.

**E. CWPP APPROVAL LETTER FROM DNCR**

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

Several public meetings and committee meetings were held between October 5, 2023, and March 21, 2024, regarding the development and review of the Ashland Hazard Mitigation Plan Update 2025. The Ashland Hazard Mitigation Plan Update 2025 contains potential future projects to mitigate hazard and wildfire damage in the Town of Ashland.

The Fire Chief/ Emergency Management Director and the Select Board desires that this Plan be accepted by the Department of Natural and Cultural Resources (DNCR) as a Community Wildfire Protection Plan, having adhered to the requirements of said plan.

The Select Board and the Fire Chief/Emergency Management Director approve the Ashland 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 Ashland**

APPROVED and SIGNED this day, February 24<sup>th</sup>, 2025.



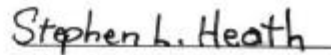
Chairman of the Select Board



Fire Chief/ Emergency Management Director



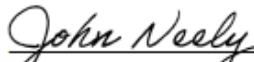
Printed Name



Printed Name

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

APPROVED and SIGNED this day, March 4, 2025.



Forest Ranger – NH Division of Forest and Lands, DNCR

APPROVED and SIGNED this day, March 4, 2025.



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

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

PAGE LEFT INTENTIONALLY BLANK

**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.

Ashland, 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.

Ashland, 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 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.

Ashland, 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 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.

Ashland, 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 



## 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

THIS PAGE INTENTIONALLY LEFT BLANK

## 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**
  - Ashland Hazard Mitigation Plan, 2019
  - Enfield Hazard Mitigation Plan, 2022
  - Hanover Hazard Mitigation Plan, 2023
  - Greenland Hazard Mitigation Plan, 2023
- **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 Ashland, Received, 7/13/2023, Census 2000 and Revenue Information derived from this site;
  - <http://www.nhes.nh.gov/elmi/products/cp/profiles-htm/Ashland.htm>

### Photos

- Photos are taken by MAPS unless otherwise noted.

### Map Images

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

### **Wildfire 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/>

### **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 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>35</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 are eligible to apply for funding. The funding amount is pre-calculated and based on historical FMAG declarations and is reassessed every fiscal year.

**FLOOD MITIGATION ASSISTANCE (FMA)**

FMA is a competitive grant program that provides funding to 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). The program is funded by an annual congressional appropriation and, since 2016, has made \$160 million available for mitigation projects.

<b>MITIGATION PROJECTS</b>	<b>HMGP</b>	<b>HMGP POST FIRE</b>	<b>BRIC</b>	<b>FMA</b>
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>35</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 amount of funding is based on a 6% set-aside of the assistance FEMA provides following major disaster declarations through the Public Assistance and Individuals and Households Program. The BRIC program was designed to foster innovation and provides a yearly grant cycle, offering applicants a consistent source of funding.

**PRE-DISASTER MITIGATION (PDM)**

PDM is a grant program that helped 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 for 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>36</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>36</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**

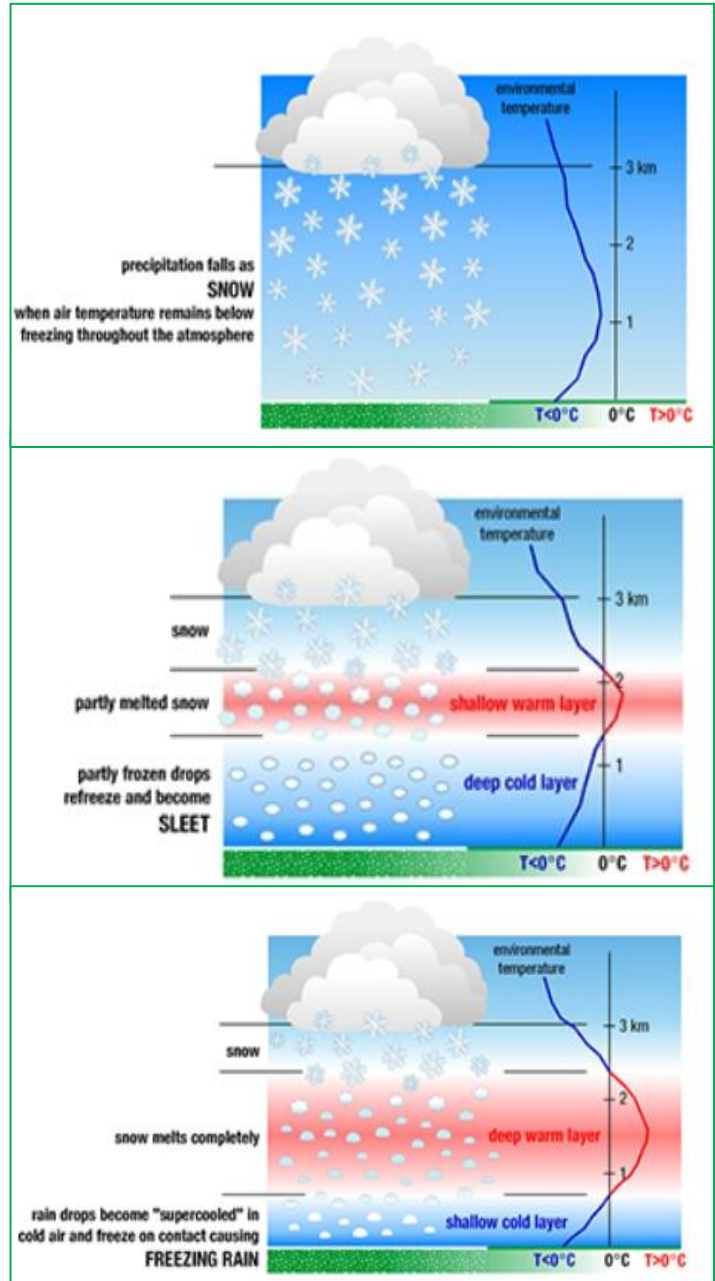
A winter storm can range from moderate snow to blizzard conditions. Blizzard conditions are considered blinding wind-driven snow over 35 mph that lasts several days. A severe winter storm deposits four or more inches of snow for 12 hours or six inches for 24 hours.

**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>37</sup>



Types of Severe Winter Weather  
NOAA – National Severe Storms Laboratory

<sup>37</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 predicated ice storms.<sup>38</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
0	< 0.25	< 15	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	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	
2	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	
3	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	
4	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	
5	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	

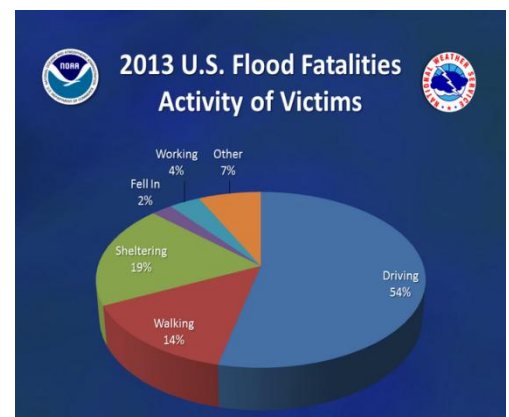
(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

**\*INLAND FLOODING**

**General Flooding Conditions**

Floods are defined as a temporary overflow of water onto lands that are 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 a lot of 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>38</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>39</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>40</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>39</sup> <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/vol2-appC.pdf>

<sup>40</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, and 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.

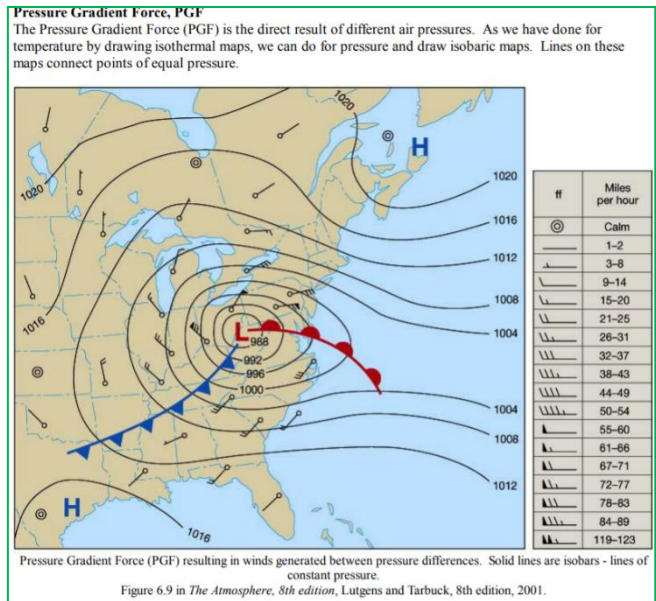
**Erosion**

Erosion is the wearing away of lands, 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>41</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>42 43</sup>



<sup>41</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>42</sup> NOAA; <https://w1.weather.gov/glossary/index.php?letter=w>  
<sup>43</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 speeds. 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>44</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, automobiles, etc., will create secondary damage to structures.

<sup>44</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. Comparing a microburst and the larger macroburst shows that both 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>45</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>46</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>45</sup> NOAA - [https://www.noaa.gov/jetstream/wind\\_damage](https://www.noaa.gov/jetstream/wind_damage)

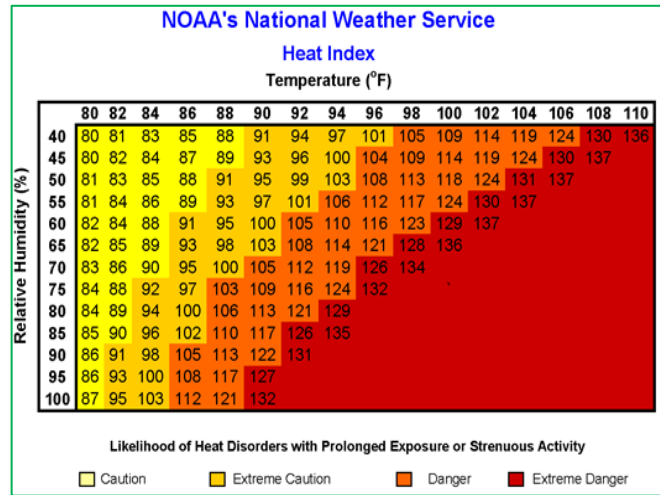
<sup>46</sup> NOAA, Storm Prediction Center, <https://www.spc.noaa.gov/faq/tornado/beaufort.html>

**\*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.

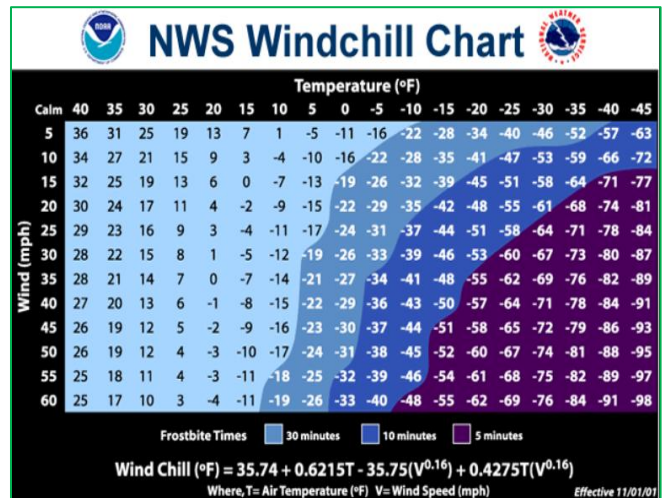
Most heat disorders occur when a victim is overexposed to heat or has over-exercised for their age and physical condition. Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat.



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>47</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 windchill due to wind and temperature.<sup>48</sup>



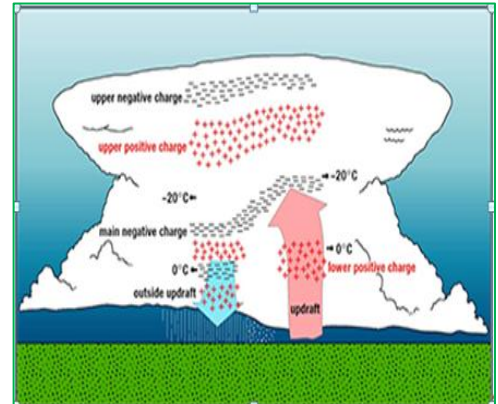
<sup>47</sup> NOAA; <https://www.weather.gov/safety/heat-index>  
<sup>48</sup> National Weather Service; <https://www.weather.gov/safety/cold-wind-chill-chart>

**\*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>49</sup>

Thunder, a result of lightning, is created when the “lightning channel heats the air to around 18,000 degrees Fahrenheit...”<sup>50</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 frequency of cloud-to-ground lightning 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 coasts. 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>51</sup>

<sup>49</sup> NOAA National Severe Storms Laboratory, <https://www.nssl.noaa.gov/education/svrwx101/lightning>

<sup>50</sup> Ibid

<sup>51</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>52</sup>

There are two major potential losses with a wildfire: 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>52</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>53</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>54</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>55</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>53</sup> National Hurricane Center; <https://www.nhc.noaa.gov/aboutsshws.php>

<sup>54</sup> Ibid

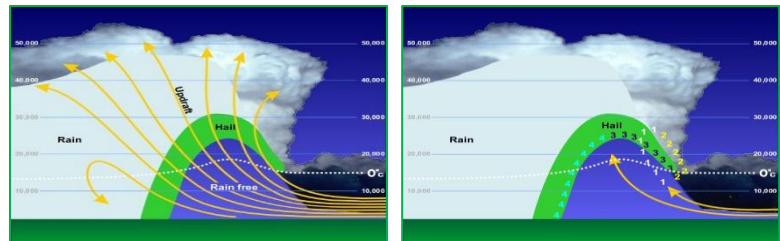
<sup>55</sup> [https://www.wpc.ncep.noaa.gov/research/mcs\\_web\\_test\\_test\\_files/Page1637.htm](https://www.wpc.ncep.noaa.gov/research/mcs_web_test_test_files/Page1637.htm)

**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>56</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>57</sup> The charts to the right show how hail is formed.<sup>58</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>59</sup>

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

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.

<sup>56</sup> NOAA National Severe Storms Laboratory; <https://www.nssl.noaa.gov/education/svrwx101/hail/>

<sup>57</sup> <https://www.pinterest.com/pin/126171227030590678/>

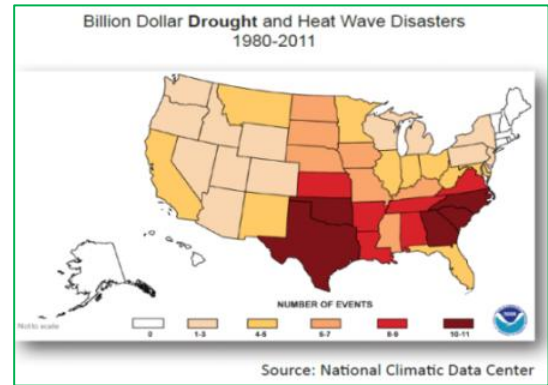
<sup>58</sup> <https://www.noaa.gov/jetstream/hail>

<sup>59</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 the growing season or living conditions of plants and animals. 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 how they affect different geographic, topographic, and geologic areas. Therefore, consideration of many measurements is required to determine the severity of the landslide event.<sup>60</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>61</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>62</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>63</sup>*

---

<sup>60</sup> State of New Hampshire Multi-Hazard Mitigation Plan Update 2023 & <https://oas.org/dsd/publications/Unit/oea66e/ch10.htm>

<sup>61</sup> <https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173>

<sup>62</sup> <https://www.dhhs.nh.gov/programs-services/disease-prevention/infectious-disease-control>

<sup>63</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

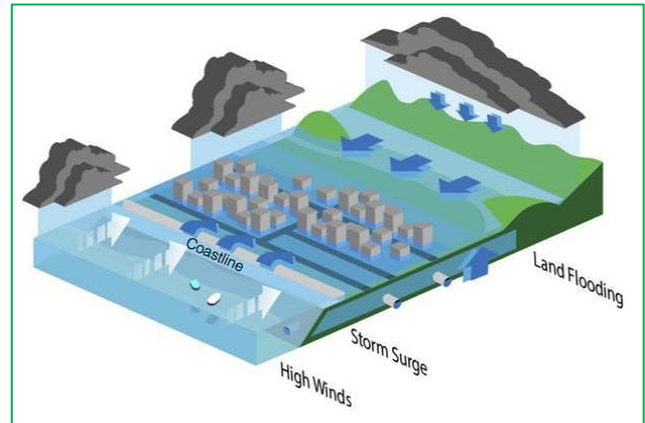
Outbreak .....Disease that has the same definition as an epidemic but is often used for a more limited geographic area

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**

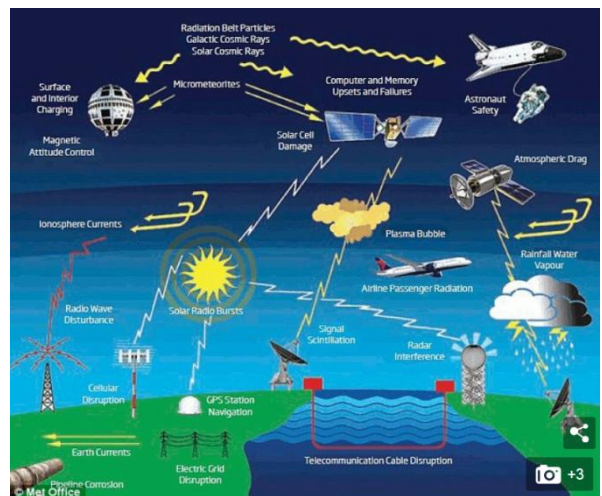
Coastal areas are particularly susceptible to flooding, erosion, storm surge, and sea-level rise due to tropical and post-tropical cyclones, heavy rain events, gale-force winds, and other natural phenomena. The 2023 State Hazard Mitigation Plan states, “Coastal flooding is defined by the National Oceanic and Atmospheric (NOAA) as flooding which occurs when there are significant storms, such as tropical and extratropical cyclones (NWS Internet Services Team, 2009).”<sup>64</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>65</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>66</sup>

<sup>64</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>65</sup> Ibid, page 127

<sup>66</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>67</sup>

Geomagnetic Storms				
Scale	Description	Effect	Physical Measure	Average Frequency (1 cycle = 11 years)
G 5	Extreme	<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. <b>Spacecraft operations:</b> May experience extensive surface charging, problems with orientation, uplink/downlink, and tracking satellites. <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.).	Kp. = 9	4 per cycle (4 days per cycle)
G 4	Severe	<b>Power systems:</b> Possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid. <b>Spacecraft operations:</b> May experience surface charging and tracking problems; corrections may be needed for orientation problems. <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.).	Kp. = 8, including a 9-	100 per cycle (60 days per cycle)
G 3	Strong	<b>Power systems:</b> Voltage corrections may be required; false alarms are triggered on some protection devices. <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. <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.).	Kp. = 7	200 per cycle (130 days per cycle)
G 2	Moderate	<b>Power systems:</b> High-latitude power systems may experience voltage alarms; long-duration storms may cause transformer damage. <b>Spacecraft operations:</b> Corrective actions to orientation may be required by ground control; possible changes in drag affect orbit predictions. <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.).	Kp. = 6	600 per cycle (360 days per cycle)
G 1	Minor	<b>Power systems:</b> Weak power grid fluctuations can occur. <b>Spacecraft operations:</b> Minor impact on satellite operations possible. <b>Other systems:</b> Migratory animals are affected at this and higher levels; aurora is commonly visible at high latitudes (northern Michigan and Maine).	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	<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. <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. <b>Other systems:</b> Complete blackout of HF (high frequency) communications possible through the polar regions and position errors make navigation operations extremely difficult.	10 <sup>5</sup>	Fewer than 1 per cycle
S 4	Severe	<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. <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. <b>Other systems:</b> Blackout of HF radio communications through the polar regions and increased navigation errors over several days are likely.	10 <sup>4</sup>	3 per cycle

<sup>67</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 are 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 flow of snow 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>68</sup>



<sup>68</sup> Copyright Richard Armstrong, NSIDC, <https://nsidc.org/learn>

“All that is necessary for an avalanche is a mass of snow and a slope for it 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 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>69</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 on a daily or hourly basis.”<sup>70</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>71</sup>

<sup>69</sup> NSIDC, <https://www.sierraavalanchecenter.org/introduction-north-american-avalanche-danger-scale>

<sup>70</sup> Copyright Richard Armstrong, NSIDC, <http://nsidc.org/cryosphere/snow/science/avalanches.html>

<sup>71</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 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, likened 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	<b>Major Disaster Declaration DR-1199:</b>
DR-1144	Severe Storms/Flooding	October 20-23, 1996	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	<b>Major Disaster Declaration DR-1144:</b>
DR-1077	Storms/Floods	October 20-November 15, 1995	Carroll, Cheshire, Coos, Grafton, Merrimack & Sullivan	<b>Major Disaster Declaration DR-1077:</b>
EM-3101	High Winds & Record Snowfall	March 13-17, 1994	All Ten NH Counties	<b>Emergency Declaration EM-3101:</b>
DR-923	Severe Coastal Storm	October 30-31, 1991	Rockingham	<b>Major Disaster Declaration DR-923:</b>
DR-917	Hurricane Bob, Severe Storm	August 18-20, 1991	Carroll, Hillsborough, Rockingham & Strafford	<b>Major Disaster Declaration DR-917:</b>
DR-876	Flooding, Severe Storm	August 7-11, 1990	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, & Sullivan	<b>Major Disaster Declaration DR-876:</b>
DR-789	Severe Storms & Flooding	March 30 - April 11, 1987	Carroll, Cheshire, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	<b>Major Disaster Declaration DR-789</b>
DR-771	Severe Storms & Flooding	July 29-August 10, 1986	Cheshire, Hillsborough & Sullivan	<b>Major Disaster Declaration DR-771:</b>
EM-3073	Flooding	March 15, 1979	Coos	<b>Emergency Declaration EM-3073:</b>
DR-549	High Winds, Tidal Surge, Coastal Flooding & Snow	February 16, 1978	All Ten NH Counties	<b>Major Disaster Declaration DR-549:</b> Blizzard of 1978
DR-411	Heavy Rains, Flooding	January 21, 1974	Belknap, Carroll, Cheshire & Grafton	<b>Major Disaster Declaration DR-411:</b>
DR-399	Severe Storms & Flooding	July 11, 1973	All Ten NH Counties	<b>Major Disaster Declaration DR-399:</b>
DR-327	Coastal Storms	March 18, 1972	Rockingham	<b>Major Disaster Declaration DR-327:</b>
DR-11	Forest Fire	July 2, 1953	Carroll	<b>Major Disaster Declaration DR-11:</b>

**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 Society
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>72</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>72</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

THIS PAGE INTENTIONALLY LEFT BLANK

**The Town of Ashland**

Stephen Heath  
Fire Chief & EMD  
PO Box 856  
Ashland, NH 03217  
firechief@ashland.nh.gov  
(603) 968-7772



**Rainbows Over Little Squam Lake**

**Photo Credit:** - <https://www.facebook.com/photo/?fbid=1176587982681033&set=a.174158638225584>

**Mapping and Planning Solutions**

June Garneau  
Owner/Planner  
PO Box 283  
91 Cherry Mountain Place  
Twin Mountain, NH 03595  
jgarneau@mappingandplanning.com  
(603) 991-9664 (cell)