

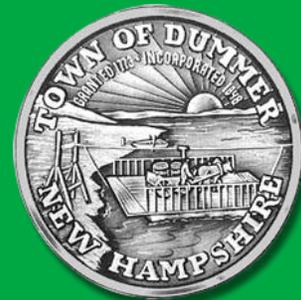
# Dummer, NH Hazard Mitigation Plan Update 2024



This Plan integrates the following:

- Hazard Mitigation Plan Update
- Community Wildfire Protection Plan

Final for Town Adoption  
May 23, 2024



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

By

The Dummer Hazard Mitigation Planning Team with assistance from Mapping and Planning Solutions

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

*-Dwight D. Eisenhower*

### HAZARD MITIGATION PLAN DEFINITIONS

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

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

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



**Plan Prepared and Authored By**

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**Cover Photos: Past hazards in Dummer**  
**Photo Credit: Butch Loven**

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## Acknowledgments

This Plan integrates elements to qualify it as a Community Wildfire Protection Plan (CWPP), according to the US Forest Service and the NH Department of Natural & Cultural Resources (DNCR). The Plan was created through a grant from NH Homeland Security & Emergency Management (HSEM). The following organizations have contributed invaluable assistance and support 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 Dummer Hazard Mitigation Plan, approved on September 13, 2017.**

**This Plan was funded under the Building Resilient Infrastructure & Communities Grant Program (BRIC2020)**

**Approval Notification Dates for 2024 Update**

Approved Pending Adoption (APA) ..... May 21, 2024  
 Jurisdiction Adoption: ..... \_\_\_\_\_, 2024  
 CWPP Approval: ..... \_\_\_\_\_, 2024  
**\*Plan Approval Date (FEMA): ..... \_\_\_\_\_, 2024**  
 Receipt of FEMA Letter ..... \_\_\_\_\_, 2024  
 Plan Distribution (MAPS): ..... \_\_\_\_\_, 2024

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

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

The Town of Dummer 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:

- Chris Holt.....Dummer Planning Board, Representative to the Select Board & Emergency Management Officer
- Cindy Rineer.....Dummer Administrative Assistant
- Dave Dubey.....Dummer Select Board Member, Zoning Board of Adjustment Chair & Emergency Management Officer
- Jill Dubey.....Dummer Health Officer & Planning Board Member
- Gus Ouellette.....Dummer Select Board Chair & Emergency Management Officer
- Judy Marcou.....Dummer Town Clerk
- Ben Lewis.....Dummer Road Agent (former)
- Alex Fuchs.....Milan-Dummer Ambulance Assistant Director
- Tyler St. Peter.....Milan-Dummer Ambulance Director
- Gary Dube.....Dummer Planning Board Chair & Zoning Board of Adjustment Member
- Tammi Dube.....Dummer Deputy Administrative Assistant
- Heidi Holt.....Dummer Citizen
- Zina Schmidt.....North County Regional Public Health Network Emergency Preparedness Coordinator
- Jennifer Gilbert.....NH OSI State Floodplain Management Program Coordinator
- Lynne Doyle.....NH HSEM State Hazard Mitigation Planner
- Candi Tibbetts.....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. Dummer would also like to thank FEMA and NH HSEM as the primary funding sources for this Plan.

## Executive Summary



The Dummer Hazard Mitigation Plan Update 2024 was compiled to assist the Town in reducing and mitigating future losses from natural and other hazardous events. The Plan was developed by the Dummer 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 2017 Dummer Hazard Mitigation Plan. To produce an accurate and current planning document, the HMPT used the 2017 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 | 7) Landslides                       |
| 2) High Wind Events      | 8) Lightning                        |
| 3) Infectious Disease    | 9) Drought                          |
| 4) Wildfire              | 10) Tropical/Post Tropical Cyclones |
| 5) Extreme Temperatures  | 11) Dam Failure                     |
| 6) Inland Flooding       | 12) Earthquake                      |

### TECHNOLOGICAL & HUMAN-CAUSED HAZARDS

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

Dummer Hazard Mitigation Plan Update 2024 .....	the Plan or this Plan
Dummer .....	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 Dummer 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 Dummer 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 Dummer Hazard Mitigation Plan Update 2024 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 Dummer 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 Dummer Hazard Mitigation Plan Update 2024 is a planning tool to reduce future losses from natural, technological, and human-caused hazards as required by the Disaster Mitigation Act of 2000. This Plan does not constitute a section of the Town's Master Plan. However, mitigation action items from this Plan may be incorporated into future Master Plan updates.

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

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

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

### **C. JURISDICTION**

This Plan addresses one jurisdiction – the Town of Dummer, Coos 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.

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

**E. PUBLIC & STAKEHOLDER INVOLVEMENT**

Public and stakeholder involvement was stressed during the initial meeting, and community officials were given a matrix of potential team members (see below). Community officials were urged to contact as many people as possible to participate in the planning process, including residents, officials, and residents from surrounding communities. The Town of Dummer 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 Dummer. A press release (see below) was posted on the Town Hall Bulletin Board, the Dummer website, and the Town’s 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. Dummer 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

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**Press Release**

FOR IMMEDIATE RELEASE  
Updated: March 31, 2023

Contact: June Garneau  
603-991-9664

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

The Dummer Select Board/Emergency Management Officials met with June Garneau of Mapping and Planning Solutions and other team members from Dummer to work on the required five-year update to the **2017 Dummer 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 planning team will address natural, technological, and human-caused hazards such as Inland Flooding, Long-Term Utility Outage, 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. Dummer citizens and any interested stakeholders are invited to participate. The next meeting is scheduled for **Thursday, April 27, 2023, from 6:00 PM to 8:00 PM** via “Zoom”. The public is encouraged to attend all meetings. All interested parties should contact Gus Ouellette, Select Board Chair/Emergency Management Official, by email, [rouellette@gmail.com](mailto:rouellette@gmail.com), to be included in the process; interested parties will be added to the Zoom meeting invitation list. Future meetings are planned for June 22, July 27, August 24, and September 28, all at 6:00 PM.

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).

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. Dummer’s neighbors, Errol, Milan, and Stark, are part of MAPS’ monthly email. Three additional unincorporated places also border Dummer–Odell, Millsfield, and Cambridge.



### Upcoming Zoom Meetings

Colored by county  
August – November 2023



Day	Date	Time	Town/Location	Plan Type	HSEM Field Rep	County
Monday	8/14/23	10:00 AM	Sugar Hill Zoom Meeting	HMP	Paul Hatch	Grafton
Wednesday	8/16/23	9:00 AM	Lancaster Zoom Meeting	HMP	Candi Tibbetts	Coos
Tuesday	8/22/23	6:00 PM	Haverhill Zoom Meeting	MP	N/A	Grafton
Thursday	8/24/23	10:00 AM	Claremont Zoom Meeting	COOP	Liz Gilboy	Sullivan
Thursday	8/24/23	6:00 PM	Dummer Zoom Meeting	HMP	Candi Tibbetts	Coos
Wednesday	9/6/23	1:00 PM	Lyme Zoom Meeting	HMP	Paul Hatch	Grafton
Tuesday	9/12/23	1:00 PM	Milford Zoom Meeting	EOP	Jill Piwoski	Hillsborough
Tuesday	9/12/23	6:00 PM	Franconia Zoom Meeting	HMP	Paul Hatch	Grafton
Thursday	9/14/23	2:00 PM	Bath Zoom Meeting	HMP	Paul Hatch	Grafton
Monday	9/18/23	1:00 PM	Boscawen Zoom Meeting	EOP	Liz Gilboy	Merrimack
Wednesday	9/20/23	9:00 AM	Lancaster Zoom Meeting	HMP	Candi Tibbetts	Coos
Thursday	9/21/23	10:00 AM	Claremont Zoom Meeting	COOP	Liz Gilboy	Sullivan
Monday	9/25/23	1:00 PM	Tamworth Zoom Meeting	HMP	Candi Tibbetts	Carroll
Tuesday	9/26/23	6:00 PM	Haverhill Zoom Meeting	MP	N/A	Grafton
Thursday	9/28/23	6:00 PM	Dummer Zoom Meeting	HMP	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.

§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

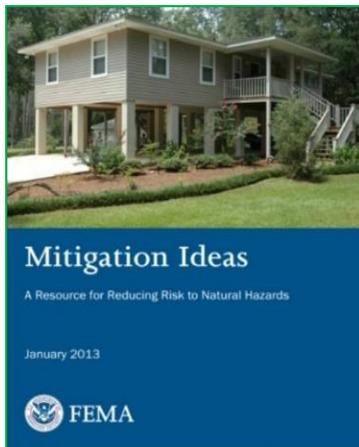
Dummer had excellent participation in developing this Plan. All three members of the Select Board, who were serving as the Emergency Management Director (EMD), the Administrative Assistant, the Health Officer, the Town Clerk, the Road Agent, and others, attended meetings. Comments made by all team members, including the citizen who attended, were integrated into the narrative discussion and incorporated into the document.

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

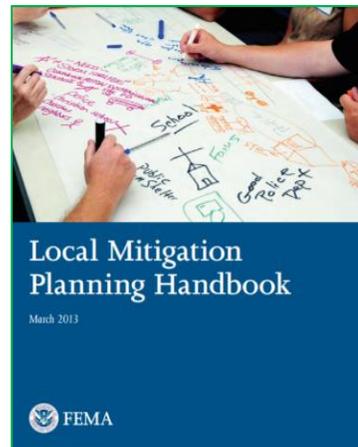
The planning process included a complete review of the Dummer Hazard Mitigation Plan 2017 for updates, development changes, and accomplishments. The Team worked with the Planner to identify pertinent information from the reviewed documents; this information was then added to the appropriate place in 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 Dummer Hazard Mitigation Plan 2017.....	Compare & Contrast
Dummer Master Plan (2019).....	Community Information
Dummer Annual Reports (2023).....	Fire Report & Development
Other Hazard Mitigation Plans (Hanover, Greenland, Enfield).....	Formats & Mitigation Ideas
The Dummer Subdivision Regulations (2023).....	New Development Regulations
The Dummer 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 2022 for Dummer.....	Structure Evaluation
The Economic & Labor Market Information Bureau Community Profile.....	Population Trends
The American Community Survey (ACS2022, 2018-2022).....	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*

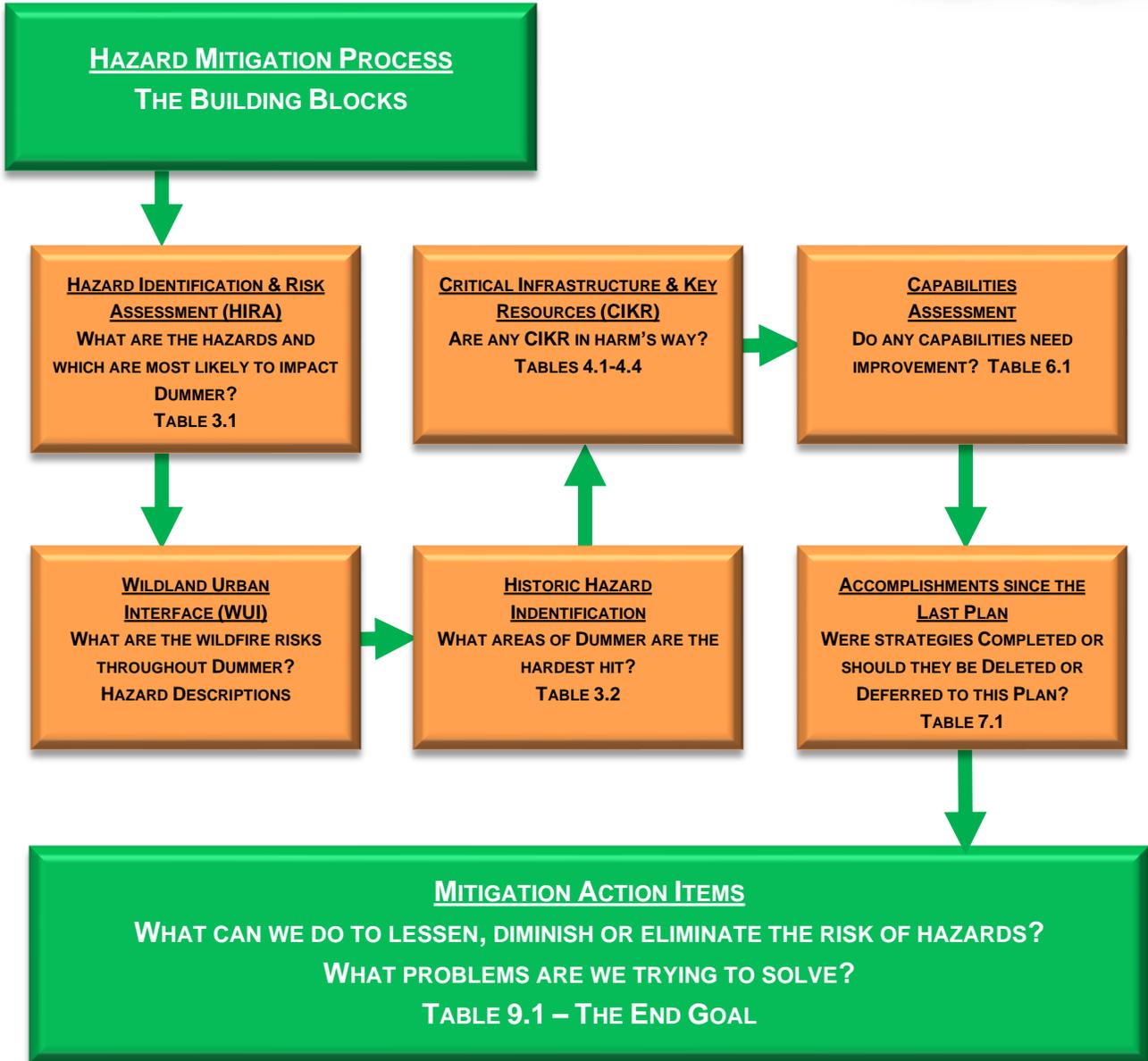
Step 11: Review the Plan before submission to HSEM for APA (Approved Pending Adoption)

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 2017 Dummer Hazard Mitigation Plan review. Using the 2017 plan as a base, each element of the old plan was examined and revised to reflect changes that had taken place in development and the priorities of the Community. Also, referring to the 2017 plan, strategies from the past were reassessed and improved upon for the future.

The following narrative explains how the 2017 Dummer Hazard Mitigation Plan was used during each step of the planning process to make revisions that resulted in this Plan.

**MEETING 1, MARCH 30, 2023**

The first virtual meeting of the Dummer Hazard Mitigation Team was held on March 30, 2023. Meeting attendance included Chris Holt (Select Board & Emergency Management Official), Cindy Rineer (Administrative Assistant), Dave Dubey (Select Board & Emergency Management Official), Jill Dubey (Health Officer), Gus Ouellette (Select Board Chair & Emergency Management Official), Judy Marcou (Town Clerk), Ben Lewis (Road Agent), Alex Fuchs (Milan-Dummer Ambulance Assistant Director), Tyler St. Peter (Milan-Dummer Ambulance 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 Dummer with summer and winter homes. However, it was determined that Dummer does not have a significant influx of seasonal tourists.

**Meeting 1 – March 30, 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, April 27, 2023, @ 6:00 PM
  - b) Thursday, June 22, 2023, @ 6:00 PM
  - c) Thursday, July 27, 2023, @ 6:00 PM
  - d) Thursday, August 24, 2023, @ 6:00 PM
  - e) Thursday, September 28, 2023, @ 6:00 PM

<sup>5</sup> Documents emailed to the team before the first 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 most significant risks to the Community. Twelve natural hazards and eight technological and human-caused hazards were identified. After analyzing the natural hazards in *Table 3.1*, Severe Winter Weather and High Wind Events were designated "Very High" risk natural hazards for the Town.

Having completed *Table 3.1*, the Team started working on descriptions of each hazard and how they could impact the Community. To gain more knowledge of the impact of these hazards, the Planner asked the Team to describe each hazard as it relates to Dummer. 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.

Hazard descriptions were not finished, but time was running out in the meeting. The Planner reviewed what would occur at the next meeting and thanked the Team; the next meeting was set for April 27, 2023.

**MEETING 2, APRIL 27, 2023**

Virtual meeting attendees included Cindy Rineer, Dave Dubey, Jill Dubey, Gus Ouellette, Judy Marcou, Ben Lewis, Gary Dube (Zoning Board), Tammi Dube (Deputy Administrative Assistant), 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. The Team felt that Extreme Temperatures were too low on the list and made adjustments to suit the Town better.

The Team finished the Hazard Descriptions that started at the previous meeting, and then the Planner explained the Wildland Urban Interface (WUI) to the Team. This area is determined to be where the urban environment interfaces with the wildland environment and is the most prone to wildfire risk. In Dummer, it was noted that the WUI would cover the entire Town due to the abundance of forested land. Mitigation strategies were discussed to protect structures and educate citizens about wildfire risk. The Planner also took some time to discuss development trends in the Town; the Team noted a few development projects, but most were smaller projects not in hazard-prone areas.

Next, the Team worked 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 Coos County. The Team described the events during each disaster in Dummer in each instance.

Lastly, the Team worked on *Tables 4.1–4.4, Critical Infrastructure & Key Resources (CIKR)*. The Emergency Response Facilities (ERFs), the Non-Emergency Response Facilities (NERFs), the Facilities & Populations to Protect (FPPs), and the Potential Resources (PRs) from the 2017 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 Road Agent prepare a list of road and culvert projects that should be completed within the next five years. The Planner also asked the Team to start thinking about mitigation ideas. The next meeting was scheduled for Thursday, June 22, 2022, and the meeting was adjourned.

**Meeting 2 – April 27, 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
  - iii) 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, June 22, 2023, @ 6:00 PM
- b) Thursday, July 27, 2023, @ 6:00 PM
- c) Thursday, August 24, 2023, @ 6:00 PM
- d) Thursday, September 28, 2023, @ 6:00 PM

**MEETING 3, JUNE 22, 2023**

Virtual meeting attendees included Cindy Rineer, Dave Dubey, Jill Dubey, Judy Marcou, Ben Lewis, Tammi Dube, Olin Garneau, and June Garneau.

The Planner first brought the Team through a review of what had occurred at the previous meetings: Table 2.1, Table 3.1, and Tables 4.1-4.4. No changes were made to these tables.

*Table 7.1, Accomplishments since the Last Plan*, pre-populated with data from the 2017 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 2017 plan had been completed or partially completed by the Town. Some were deleted as they were no longer useful or considered emergency preparedness, not mitigation. Still, others were deferred for consideration as new action items for this Plan. The Planner promised to translate her notes into paragraphs to review at the next meeting.

Next, the Team worked on *Table 6.1, Current Plans, Policies & Mutual Aid*; like other tables, this table was also pre-populated with information from the 2017 plan. Looking closely at the existing policies from the last plan and current mechanisms that are in place, the Team determined if each plan, policy, or mutual aid system should be designated as “No Improvements Needed” or “Improvements Needed” based on the “Key to Effectiveness” found in Chapter 6.

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

With all agenda items completed, 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 July 27, 2023.

**Meeting 3 – June 22, 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**

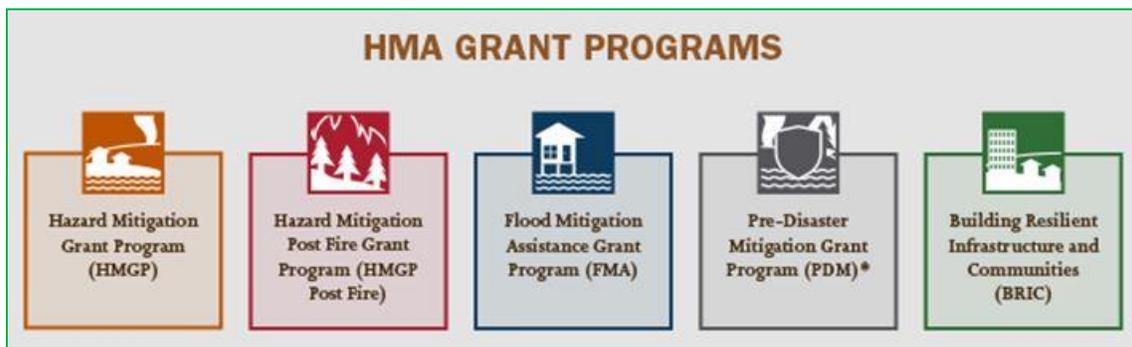
- a) Review...
  - i) Table 3.1, Hazard Identification & Risk Assessment (HIRA)
  - ii) Table 3.2, Historic Hazard Identification
  - iii) Tables 4.1-4.4, Critical Infrastructure & Key Resources
- b) Work on...
  - i) Table 6.1, Current Plan, Policies & Mutual Aid
  - ii) Table 7.1, Past Hazard Mitigation Plan Assessment

**3) Homework**

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

**4) Future Meetings**

- a) Thursday, July 27, 2023, @ 6:00 PM
- b) Thursday, August 24, 2023, @ 6:00 PM
- c) Thursday, September 28, 2023, @ 6:00 PM



**MEETING 4 – JULY 27, 2023**

Virtual meeting attendance included Chris Holt, Cindy Rineer, Dave Dubey, Jill Dubey, Gus Ouellette, Judy Marcou, Ben Lewis, Heidi Holt (Citizen), Zina Schmidt (North Country Regional Public Health Network), 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.

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.

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 Planner also encouraged team members to explore the link on the agenda for the FEMA Mitigation Idea booklet to see if any of the strategies in this book would be helpful in Dummer (see above).

**Meeting 4 – July 27, 2023**

**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, Current Plan, Policies & Mutual Aid
  - ii) Table 7.1, Past Hazard Mitigation Plan Assessment

**2) Today's Topics**

- a) Review...
  - i) Table 6.1, Current Plan, Policies & Mutual Aid
  - 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, August 24, 2023, @ 6:00 PM
- b) Thursday, September 28, 2023, @ 6:00 PM

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

Work on this table included the STAPLEE process, as shown in Chapter 8. Using virtual handouts shown 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.

With Tables 8.1 and 9.1 complete, the ranking and prioritizing of each action item was all that remained. The Planner displayed one last document that explained the ranking and prioritizing methodology (Chapter 9, Section A) and adjourned the meeting. The next meeting was set for August 24, 2023.

**MEETING 5 – AUGUST 24, 2023**

Virtual meeting attendance included Cindy Rineer, Dave Dubey, Gus Ouellette, Judy Marcou, Ben Lewis, Gary Dube, Tammi Dube, Olin Garneau, and June Garneau.

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

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 – August 24, 2023**

**1) Last Meeting**

- a) Reviewed...
  - i) Table 6.1, Current Plan, Policies & Mutual Aid
  - ii) Table 7.1, Past Hazard Mitigation Plan Assessment
- b) Worked on...
  - 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**

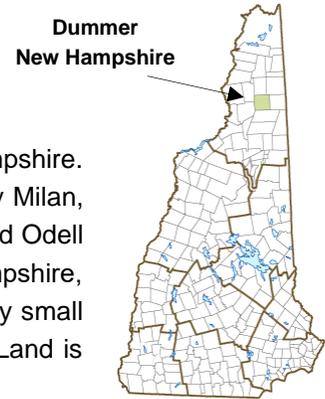
- a) Review materials sent by MAPS
- b) Digital Photos – contributions welcome

**4) Future Meetings**

- a) Thursday, September 28, 2023, @ 6:00 PM

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

## Chapter 2: Community Profile



### A. INTRODUCTION

Dummer is a beautiful community in Coos County in the north-central part of New Hampshire. Dummer is bordered to the east by Cambridge (Unincorporated Place), to the south by Milan, to the north by Errol and Millsfield (Unincorporated Place), and to the west by Stark and Odell (Unincorporated Place). Located in the “Great North Woods” tourist region of New Hampshire, Dummer has abundant forested land and rivers and wonderful mountain vistas. A very small amount of land within the exterior boundaries of the White Mountain National Forest Land is located in the southwest corner of Dummer, close to the Milan and Stark town lines.

### TOWN GOVERNMENT

A three-member Board of Selectmen governs the Town of Dummer. The Town’s departments include, but are not limited to, Planning, Zoning, and Conservation. Dummer does not have a fire or police department; however, it does have a highway department.

### DEMOGRAPHICS & HOUSING

Dummer’s population has decreased from 322 in 1990 to 306 in 2020, showing a decrease of 16, according to the US Census 2020.<sup>6</sup> This data represents a negative growth rate of approximately 4.97%.

There are an estimated 251 housing units in Dummer. According to the ACS, 212 are single-family units, while 39 are other units, thus confirming the presence of second homes. The estimated median household income is \$66,250, and the median age is 53.5 years.<sup>7</sup>

### EDUCATION & CHILD CARE

Dummer students in grades K-6 attend school in Milan, while students in grades 7-12 attend school in Berlin, Gorham, or Groveton. The Economic & Labor Market Community Profile notes no colleges, universities, or licensed childcare facilities.<sup>8</sup>

**Incorporated:** 1848

**Origin:** Dummer was named for Governor William Dummer of Massachusetts, whose achievements included a peace treaty with the Indians that lasted nearly twenty years. Also named for Governor Dummer was Fort Dummer, one of the earliest Indian forts in New England, situated near what is now Brattleboro, Vermont; Governor Dummer Academy in Massachusetts, one the earliest private academies in New England; and the town of Dummerston, Vermont. Although first granted in 1773, Dummer was not incorporated until 1848. Within ten years, there were two sawmills, with access to the Upper Ammonoosuc River providing water power for mills and transportation of timber to the paper mills in Berlin.

**Villages and Place Names:** Paris

**Population, Year of the First Census Taken:** 7 residents in 1810

**Population Trends:** Population change for Dummer totaled 73 over 50 years, from 225 in 1970 to 298 in 2020. The 2022 Census estimate for Dummer was 310 residents, which ranked 226th among New Hampshire’s incorporated cities and towns, the ninth smallest community.

**Population Density and Land Area, 2022 (US Census Bureau):** 6.5 persons per square mile of land area. Dummer contains 48.0 square miles of land area and 1.3 square miles of inland water area.

*Source: Economic & Labor Market Information Bureau, NH Employment Security, October 23; Received 6/12/2023*

<sup>6</sup> US Census 2020

<sup>7</sup> American Community Survey (ACS 2021) 5-Year Estimate Data; data in Table 2.1 differs as it is from the ACS 2022

<sup>8</sup> Economic & Labor Market Information Bureau, NH Employment Security, October 23, Community Response 6/12/2023

### NATURAL FEATURES

Dummer covers approximately 48.0 square miles of land area and 1.3 square miles of inland water. The Community has an abundance of mountains, rivers, and streams typical of northern New Hampshire. The largest peak is Cow Mountain (2,289' above sea level). The lowest elevation in Town is 1,175' above sea level at the Androscoggin River; all of the Community is over 1,000' above sea level, leaving it vulnerable to ice storms.

Vegetation is typical of northern New England, including deciduous and conifer forests, open fields, swamps, and riverine areas. The terrain lends itself to an abundance of small ponds, streams, and rivers, most notably the Androscoggin River. Despite the abundance of rivers in Dummer, the Town remains relatively dry except for floodplain areas along the Androscoggin and at Pontook Reservoir.

### TRANSPORTATION

There is one major roadway which runs through Dummer. NH Route 16 travels from Milan in the south to Errol in the north. Other smaller and less traveled roadways include Hill Road, Dummer Pond Road, Newell Brook Road, and Mud Pond Road.

NH Route 16, a busy and well-traveled road, is a major north-south route for residents, tourists, and commercial vehicles.

## ***B. EMERGENCY SERVICES***

### EMERGENCY OPERATIONS CENTER & EMERGENCY MANAGEMENT DIRECTOR

The Emergency Management Director (EMD) position in Dummer 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 major emergency or disaster. In Dummer, the designated EOC is the Selectmen's Office (downstairs Town Hall), with a secondary EOC designated at the Library. The Select Board holds the current EMD position in Dummer.

### FIRE DEPARTMENT, EMS, & MEDICAL FACILITIES

As stated above, Dummer does not have its own fire department and must rely on services from the neighboring towns of Milan and Stark, whose fire departments cover Dummer. Likewise, Milan-Dummer Ambulance covers emergency medical services in the Town.

Dummer's closest medical facility is Androscoggin Valley Hospital in Berlin (8 miles, 25 beds). If the need arises, an alternative medical facility is Weeks Medical Center in Lancaster (35 miles, 25 beds).

### HIGHWAY DEPARTMENT

The Dummer Highway Department operates on a year-round, 24-hour basis as needed. The Highway Department's mission is to support the citizens of Dummer through the safe operation, proper maintenance, and future development of highways, supporting infrastructure and utilities in a manner that is cost conscience without sacrificing quality.

**EMERGENCY SHELTER(S)**

Evacuees are directed to the primary shelter during an emergency. In Dummer, the designated primary shelter is the Dummer Community Church, which offers a large sleeping area, bathrooms, kitchen facilities, and a generator.

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

Nearly every New Hampshire community experienced a significant drop in new home construction after the Great Recession of 2008. Dummer saw very slow new single-family construction for the last 20 years, with a minor exception in 2021, as shown in the chart (see right) from City-Data.com.<sup>9</sup>

Since the pandemic began in 2020, development in New England has undergone several changes. One of the most significant changes was occasionally using 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 levels by the fall.

In Dummer, development has been slow, steady, and very well-regulated. Some secondary homes have been converted to year-round use, and like the rest of the state, there were some minor subdivisions and lot line adjustments. The Team reported that no large subdivisions or new town-owned facilities have been built since the last hazard mitigation plan that compromised the Town's hazard vulnerability. No future large subdivisions had been proposed as of this Plan's writing, and no new public facilities were planned.

The Dummer Planning Board's process for all subdivision 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. Dummer's regulations address wetland areas and stormwater flow. New development approval requires fire mitigation provisions as appropriate. All development that has occurred or is proposed in hazard-prone areas has been closely monitored and mitigated to reduce the Town's hazard vulnerability.

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

As a very 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> City-Data.com; <http://www.city-data.com/city/Dummer-New-Hampshire.html>

TABLE 2.1: TOWN STATISTICS

Table 2.1 - Town Statistics				
<b>Census Population Data</b>	<b>2020</b>	<b>2010</b>	<b>2000</b>	<b>1990</b>
<b>Dummer, NH - Census Population Data</b>	<b>306</b>	<b>304</b>	<b>309</b>	<b>322</b>
<b>Coos County</b>	<b>31,268</b>	<b>33,055</b>	<b>33,156</b>	<b>34,879</b>
30-year Growth Rate	-4.97%	Growth Rate = 2020POP-1990POP/1990POP		
Elderly Population-% over 65 (2022 ACS 5-Year)	22.9%			
Median Age (2022 ACS 5-Year)	53.2			
Median Household Income (2022 ACS 5-Year)	\$75,000			
Poverty Rate (2022 ACS 5-Year)	15.0%			
Change in Population-Summer Weekends (%)	20%			
Change in Population-Winter Weekends (%)	0% (snowbirds)			
Housing Statistics (2022 ACS 5-Year)				
Total Housing Units	280			
Occupied Housing Units	124			
Vacant Housing Units	156			
Assessed Building Values				
Types buildings	Value	1% Damage	5% Damage	
Residential	\$21,119,000	\$211,190	\$1,055,950	
Manufactured Housing	\$989,400	\$9,894	\$49,470	
Commercial	\$452,500	\$4,525	\$22,625	
Tax Exempt	\$546,500	\$5,465	\$27,325	
Utilities	\$64,097,500	\$640,975	\$3,204,875	
Totals	\$87,204,900	\$872,049	\$4,360,245	
The above chart shows the 2022-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 Dummer Annual Report, 2022				
Regional Coordination				
County	Coos			
Tourism Region	Great North Woods			
Municipal Services & Government				
Town Hall	Town Hall			
Town Manager or Administrator	No			
Select Board (3-member)	Yes, elected			
Planning Board	Yes, elected			
School Board	Yes, elected			
Zoning Board of Adjustment	Yes, elected			
Conservation Commission	No			
Master Plan	Yes, 2019 (reviewed annually)			
Emergency Operation Plan (EOP)	Yes, July 27, 2021			
Hazard Mitigation Plan (HMP)	Yes, September 13, 2017			
Zoning Ordinances	Yes, last updated in 2023			

<b>Table 2.1 - Town Statistics</b>	
<i>Subdivisions Regulations</i>	Yes, last updated in 2022 & 2023
<i>Site Plan Review Regulations</i>	No
<i>Capital Improvement Plan (CIP)</i>	No
<i>Capital Reserve Funds (CRF)</i>	Yes, reviewed annually
<i>Building Permits Required</i>	Yes
<i>Adopted IBC &amp; IRC</i>	Yes, the Zoning Ordinance suggests compliance
<i>Town Web Site</i>	Yes, www.dummernh.com
<i>Floodplain Ordinance</i>	Yes, part of the Zoning Ordinance
<i>National Flood Insurance Program (NFIP) Member</i>	Yes, March 1, 1995
<i>Flood Insurance Rate Maps (DFIRMs)</i>	February 20, 2013
<i>Flood Insurance Rate Study (FIS)</i>	February 20, 2013
<b>Percent of Local Assessed Valuation by Property Type - 2022 (NH Department of Revenue)</b>	
<i>Residential Buildings</i>	33.9%
<i>Commercial Land &amp; Buildings</i>	0.5%
<i>Other (including Utilities)</i>	65.5%
<b>Emergency Services</b>	
<i>Town Emergency Warning System</i>	Genasys (CodeRED/NH ENS)
<i>School Emergency Warning System</i>	One Call
<i>Emergency Page</i>	No
<i>Facebook Pages</i>	No
<i>Other Social Media</i>	No
<i>ListServ or Subscription Service</i>	No
<i>Local Newspapers</i>	Berlin Sun (once weekly) and Berlin Reporter (once weekly)
<i>Public Access TV</i>	No
<i>Local TV Stations</i>	WMUR Channel 9, Manchester & WMTW Channel 8, Portland, ME
<i>Local Radio</i>	WHOM 94.9 FM (Mount Washington), WPKQ 103.7 FM (North Conway), WOTX 93.7 FM (Lunenburg, VT), WLTM 96.7 FM (Littleton), NHPR 107.1 FM (Berlin) & NHPR 91.9 FM (Littleton)
<i>Police Department</i>	No, NH State Police and Coos County Sheriff's Office
<i>Police Dispatch</i>	N/A
<i>Police Mutual Aid</i>	N/A
<i>Animal Control Officer</i>	No
<i>Fire Department</i>	No, Milan Fire Department
<i>Fire Dispatch</i>	Berlin Dispatch
<i>Fire Mutual Aid</i>	Northern New Hampshire Fire Mutual Aid District
<i>Fire Stations</i>	N/A
<i>Fire Warden</i>	Yes
<i>Emergency Medical Services (EMS)</i>	Milan-Dummer Ambulance
<i>EMS Dispatch</i>	Berlin Dispatch
<i>Emergency Medical Transportation</i>	Milan-Dummer Ambulance

<b>Table 2.1 - Town Statistics</b>	
<i>HazMat Team</i>	Contact the State Fire Marshal or HSEM
<i>Established Emergency Management Director (EMD)</i>	No, Select Board
<i>Established Deputy EMD</i>	No
<i>Line of Succession (if the Chairman is unavailable)</i>	EMD responsibility would fall to the next ranking Select Board Member
<i>Public Health Network</i>	North Country 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>	Androscoggin Valley Hospital, Berlin (8 miles, 25 beds)
<i>Primary EOC</i>	Selectmen's Office (no generator)
<i>Secondary EOC</i>	Library (no generator)
<i>Primary Shelter</i>	Dummer Community Church (generator)
<i>Secondary Shelter</i>	Town Hall (no generator)
<i>Shelters</i>	Milan Village School (no generator)
	Deer Mountain Lodge B & B (limited lodging)
<i>Household Pet Shelter</i>	No, but possibly the Milan Village School or Lombardi Kennels
<i>Large Animal &amp; Livestock Shelter</i>	No
<i>Local Humane Society &amp; Veterinarians</i>	North Country Animal Hospital (Gorham), Lancaster Veterinary Hospital (Lancaster), Bethel Animal Hospital (Bethel, ME), Cape Horn Pet Clinic (Northumberland) and Riverside Rescue (Lunenburg, VT)
<b>Utilities</b>	
<i>Town Sewer</i>	Private septic
<i>Road Agent</i>	Yes, full-time Road Agent & Deputy
<i>Miles of Class V Roads</i>	Five paved, four gravel, nine total
<i>NH Public Works Mutual Aid</i>	Yes
<i>Water Supply</i>	Private wells
<i>Wastewater Treatment Plant</i>	No
<i>Electric Supplier</i>	Eversource Energy
<i>Natural Gas Supplier</i>	None
<i>Cellular Telephone Access</i>	Good
<i>Solar Arrays</i>	No, tax exemption on property assessed value for residents
<i>Pipelines</i>	Portland Natural Gas
<i>High-Speed Internet</i>	Limited
<i>Telephone Company</i>	Consolidated Communications
<b>Transportation</b>	
<i>Primary Evacuation Routes</i>	NH Routes 16, 110 & 110A & East Side River Road
<i>Secondary Evacuation Routes</i>	Bogg Brook Road
<i>Nearest Interstate</i>	I-93, Exit 41 (55 miles)

<b>Table 2.1 - Town Statistics</b>	
<i>Nearest Airstrip</i>	Berlin Municipal (5,200 ft. asphalt runway)
<i>Nearest Commercial Airports</i>	Portland International Jetport, Portland, ME (110 Miles)
	Manchester-Boston Regional Airport, Manchester (143 Miles)
<i>Public Transportation</i>	No
<i>Railroad</i>	St. Lawrence & Atlantic (active)
<b>Education &amp; Childcare</b>	
<i>Elementary Schools</i>	Grades K-6 tuitioned to Milan Village School
<i>Middle/High Schools</i>	Grades 7-12 tuitioned to Berlin (Dummer has a choice, Groveton, Berlin, Gorham)
<i>School Administrative Unit (SAU)</i>	SAU 20
<i>Private Schools</i>	No
<i>College(s)/Universities</i>	No
<i>Licensed Child Care Facilities</i>	No
<b>Fire Statistics (NH Division of Forests &amp; Lands, Fire Warden Report, and the Town)</b>	
<i>Wildfire Fires (2022)</i>	None
<i>Coos County Fire Statistics (2023)</i>	8 fires, 12.88 acres
<i>State Forest Fires Statistics (2023)</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, October 2023. Community Response Received 6/12/2023, <a href="https://www.nhes.nh.gov/elmi/products/cp/profiles-pdf/dummer.pdf">https://www.nhes.nh.gov/elmi/products/cp/profiles-pdf/dummer.pdf</a>.</i></p>	

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## 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>10</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 Dummer. 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 33. 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
Conflagration .....	No known areas for a conflagration event

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>11</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>10</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>11</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**

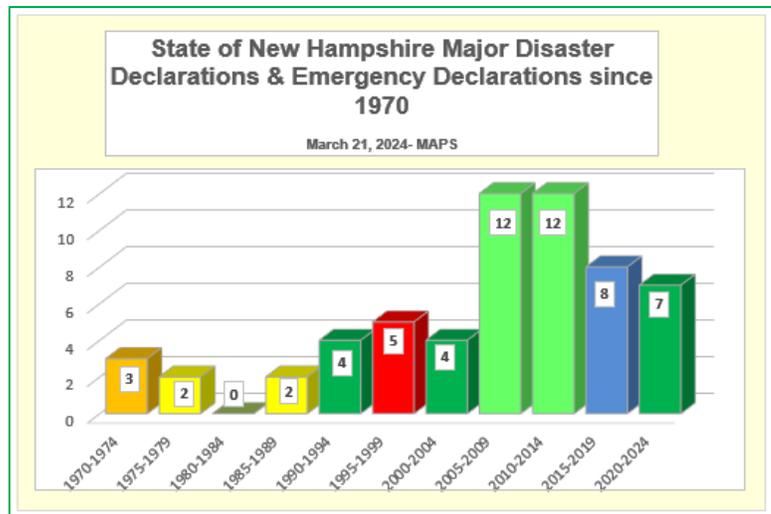
The determination of the probability of occurrence is contained within Column D in Table 3.1, which assesses hazards based on the likelihood that the hazards will occur within 25 years. The probability scores indicate whether the identified hazard has a *Very Low, Low, Moderate, High, or Very High* probability.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

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

**HAZARD PROBABILITY & CLIMATE CHANGE**

Although not identified as a natural hazard in this Plan, no plan can be considered complete without discussing climate change’s impact on weather patterns. *“Climate change increases the frequency, duration and intensity of natural hazards, such as wildfires, extreme heat, drought, storms, heavy precipitation and sea level rise. Communities are feeling the impacts of a changing climate now.”*, FEMA stated in its State Mitigation Plan Mitigation Policy Guide<sup>12</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>13</sup> The decade beginning in 2020 includes seven disaster declarations: DR-4516 and EM-3445, DR-4622, DR-4624, DR-4693, DR-4740, and DR-4761.



Communities in New Hampshire, such as Dummer, should become increasingly aware of climate change’s impact on the hazards already experienced and anticipate an increase in probability in the future.

For its small part, Dummer has installed a wood chip boiler at the Town Hall to get rid of oil and promotes private solar efforts through tax incentives.

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

Any potential disaster in Dummer 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>12</sup> State Mitigation Planning Policy Guide, FEMA, Released April 19, 2022, page 6

<sup>13</sup> Derived from FEMA’s record of disasters; categorized by decade since 1970 by the Planner

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

Table 3.1 - Hazard Identification & Risk Assessment (HIRA)							
Scoring for Probability	Column A	Column B	Column C	Column D	Column E	Column F	Risk
1=Very Low (0-20%)	Probability				Severity	Relative Threat	Very High 20.0 & up
2=Low (21-40%)	Human Impact	Property Impact	Business Impact	Occurrence within 25 years	Average of Human, Property & Business Impact (A+B+C)/3	Risk Severity x Occurrence D x E	High 15.0-19.9
3=Moderate (41-60%)							Medium 10.0-14.9
4=High (61-80%)							Low 5.0-9.9
5=Very High (81-100%)							Very Low 0.0-4.9
Natural Hazards							
1) Severe Winter Weather	5.00	5.00	5.00	5.00	5.00	25.00	Very High
2) High Wind Events	3.00	5.00	5.00	5.00	4.33	21.67	Very High
3) Infectious Disease	5.00	1.00	3.00	5.00	3.00	15.00	High
4) Wildfire	3.00	3.00	3.00	4.00	3.00	12.00	Medium
5) Extreme Temperatures	2.00	3.00	3.00	4.00	2.67	10.67	Medium
6) Inland Flooding	2.00	3.00	3.00	4.00	2.67	10.67	Medium
7) Landslides	1.00	3.00	1.00	5.00	1.67	8.33	Low
8) Lightning	1.00	2.50	2.00	3.00	1.83	5.50	Low
9) Drought	2.00	3.00	1.00	2.00	2.00	4.00	Very Low
10) Tropical/Post Tropical Cyclones	1.00	3.00	2.00	2.00	2.00	4.00	Very Low
11) Dam Failure	1.00	3.00	2.00	1.00	2.00	2.00	Very Low
12) Earthquake	1.00	1.00	1.00	1.00	1.00	1.00	Very Low
Technological & Human-caused Hazards							
1) Mass Casualty Incidents	4.00	3.00	2.00	5.00	3.00	15.00	High
2) Long-Term Utility Outage	3.00	3.00	2.00	3.00	2.67	8.00	Low
3) Transport Accidents	2.00	3.00	1.00	3.00	2.00	6.00	Low
4) Terrorism & Violence	3.00	3.00	1.00	2.50	2.33	5.83	Low
5) Aging Infrastructure	1.00	3.00	1.00	3.00	1.67	5.00	Low
6) Cyber Events	1.00	1.00	2.00	3.00	1.33	4.00	Very Low
7) Hazardous Materials	2.00	2.00	1.00	2.00	1.67	3.33	Very Low
8) Known & Emerging Contaminants	1.00	1.00	1.00	1.00	1.00	1.00	Very Low

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

Dummer entered the National Flood Insurance Program (NFIP) on March 1, 1995. Using GIS analysis and the most recent Coos County DFIRM, it was found that Dummer has a very small floodplain of approximately 3.19 square miles of land in the 100-year floodplain and .071 square miles in the 200-year floodplain. The floodplain areas of Dummer are primarily along the shores of the Androscoggin River and in the marshland north of the Pontook Dam in the Pontook Reservoir. Using GIS and 1-foot aerial imagery, several structures were found in the FEMA floodplain, particularly along NH Route 16 north of the Pontook Dam, closer to the Cambridge town line. Dummer is likely to experience flooding on several roads and along most rivers and streams. However, the overall flood risk due to riverine and 100-year flood events is relatively low compared to other NH communities. The latest Flood Insurance Rate Studies (FIRS) and Digital Flood Insurance Rate Maps (DFIRMS) are dated February 20, 2013. The latest DFIRM and FIS are incorporated by reference when amended in the Floodplain Development Ordinance.

According to the Office of Strategic Initiatives (OSI), two NFIP policies are in effect in Dummer, both single-family units, for \$353,000 in the amount of insurance in force. There have been no paid losses for a total of \$0.00. The BEA/OSI also reports no repetitive losses.<sup>14</sup>

**FLOODPLAIN DEVELOPMENT ORDINANCE**

In the “Town of Dummer Floodplain Development Ordinance,”<sup>15</sup> the Town clearly defines floodplain regulations and illustrates compliance with the National Flood Insurance Program.

The Ordinance begins with the following (*italicized copy is directly from the Ordinance*):

*“Certain areas of the Town of Dummer, New Hampshire are subject to periodic flooding, causing serious damages to properties within these areas. Relief is available in the form of flood insurance as authorized by the National Flood Insurance Act of 1968. Therefore, the National Flood Insurance Program, and agrees to comply with the requirements of the National Flood Insurance Act of 1968 (P.L. 90-488, as amended) as detailed in this Floodplain Management Ordinance.*

*This ordinance, adopted pursuant to the authority of RSA 674:57, shall be known as the Town of Dummer Floodplain Management Ordinance. and shall be considered part of the Zoning Ordinance for the purposes of administration and appeals under state law. If any provision of this ordinance differs or appears to conflict with any provision of the Zoning Ordinance or other ordinance or regulation, the provision imposing the greater restriction or more stringent standard shall be controlling.*

<sup>14</sup> NH Office of Strategic Initiatives (OSI); Jennifer Gilbert, October 10,m 202

<sup>15</sup> Article VII, Floodplain Development Ordinance, Zoning Ordinance, Town of Dummer; January 17, 2013



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>

The following regulations in this ordinance shall apply to all lands designated as special flood hazard areas by the Federal Emergency Management Agency (FEMA) on its "Flood Insurance Study for the County of Coos, NH dated January 20, 2013, together with the associated Flood Insurance Rate Maps (FIRM) dated January 20, 2013, which are declared to be a part of this ordinance and are hereby incorporated by reference."

Elements of the Dummer Floodplain Development Ordinance include<sup>16</sup>:

- Item I**      **Definition of Terms**
- Item II**      **Permitted Development**  
*"All proposed development in any special flood hazard shall require a permit."*
- Item III**      **Construction Requirements: Substantial Improvements**  
Requirement for the Board of Selectmen to review *"all building permit applications for new construction or substantial improvements to determine whether proposed building sites will be reasonably safe from flooding."* Item III goes on to discuss requirements to prevent flooding.
- Item IV**      **Construction Requirements: Water and Sewer Systems**  
Specifications for water and sewer systems
- Item V**      **Permit Requirements: Substantial Improvements**  
Requirements for certification of floodproofing
- Item VI**      **Other Permits Required**  
The requirement for the applicant to obtain all necessary permits (i.e., from governmental agencies)
- Item VII**      **Submission Requirements**  
Specification for riverine situations, floodways, and watercourses and coordination with the Wetlands Board of New Hampshire (DES) and stating *"No encroachments, including fill, new construction, substantial improvements, and other development are allowed within the floodway that would result in any increase in flood levels within the community during the base flood discharge"*.
- Item VIII**      **Permit Review Requirements**  
This item details further specifications for Zone A, AE (and others) and the determination of the 100-year flood elevation, new construction and substantial improvements, and manufactured homes—recreational vehicles and lowest floor regulations, which include the permit review requirements.
- Item IX**      **Variances and Appeals**  
This item includes a description of the variance and appeals process. It states, *"Any order, requirement, decision or determination of the Board of Selectmen made under this ordinance may be appealed to the Zoning Board of Adjustment as set forth in RSA 676:5"*.
- Item X**      **Appeals**  
Among other details, Item X states, *"All appeals and applications made to the Board of Adjustment shall be in writing, on forms prescribed by the Board. Every appeal or application shall refer to the specific provisions of the Ordinance involved, and shall exactly set forth the interpretation that is claimed, the use for which the special permit is sought, or the details of the variance that is applied for and the grounds on which it is claimed that the variance should be granted, as the case may be."*

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<sup>16</sup> Items in italic are taken directly from the Dummer Floodplain Development Ordinance

**Item XI Rehearings**

Item XI states, “Within twenty (30) days after any decision or order of the Zoning Board of Adjustment, any party to the action or proceeding, or any person directly affected thereby, may apply for a rehearing in respect to any matter determined in the action or proceeding or covered or included in the order in accord with RSA 677:2... The Board of Adjustment shall, within 10 days after a Motion for Rehearing is filed, either grant or deny the motion or suspend the order or decision complained of pending further consideration.”

**Item XII Miscellaneous Legal Provisions**

Item XII outlines discussions of other legal provisions related to the Ordinance.

Dummer’s Floodplain Development Ordinance meets or exceeds state regulations about building or substantially improving properties in the floodplain. The Planning Board and all other regulatory boards within the Town know and comply with the National Flood Insurance Program. 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.

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

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

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

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

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

**TABLE 3.2: HISTORIC HAZARD IDENTIFICATION**

**Key for Table 3.2**

2017 HMPT ..... 2017 Hazard Mitigation Planning Team  
 2024 HMPT ..... 2024 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 on a townwide basis. Since October 29-November 1, 2017, no significant flooding has occurred in Dummer.				
<b>A summary of flood events, including Major Disaster &amp; Emergency Declarations in the State and regionwide</b>				
<b>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>Flooding</b> 1970-1979	1972 (DR-327), 1973 (DR-399), 1974 (DR-411), 1976, 1978 (DR-549), 1979 (EM-3073)			
<b>Flooding</b> 1980-1989	1986 (DR-771), 1987 (DR-789)			
<b>Flooding</b> 1990-1999	1990 (DR-876), 1991 (DR-923), 1991 (DR -917), 1995, 1996 (DR-1077), 1996 (DR-1144), 1998 (DR-1231)			
<b>Flooding</b> 2000-2009	2003 (DR-1489), 2005 (DR-1610), 2006 (DR-1643), 2007 (DR-1695), 2008 (DR-1787), 2008 (DR-1799)			
<b>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>Flooding</b> 2020 - Present	2021 (DR-4622), 2021 (DR-4624), 2022 (DR-4693), 2023 (DR-4740)			
<b>A detailed summary of flood events in the Community</b>				
<b>Inland Flooding</b> (Local Road)	Annually, during Spring, Snowmelt or Heavy Rain	Philips Brook/Paris Road	Spring and fall storms, heavy snowmelt, and beaver dams cause road washouts and flooding.	2011 HMPT & 2017 HMPT & 2024 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Inland Flooding</b> (Local Road)	Annually, during Spring, Snowmelt or Heavy Rain	Hawkins Road	Spring and fall storms and heavy snowmelt cause road washouts and flooding. The aging culvert on Hawkins Road has been upgraded, and stormwater issues have been mitigated.	2011 HMPT & 2017 HMPT & 2024 HMPT
<b>Inland Flooding</b> (Local Road)	Annually, during Spring, Snowmelt or Heavy Rain	Blake Road	Spring and fall storms and heavy snowmelt cause road washouts and flooding. Blake Road is a steep hill with no drainage, leading to road washouts. This road has been reditched and graded, and more gravel has been applied to mitigate the problem. There are still occasional washouts, but nothing significant.	2011 HMPT & 2017 HMPT & 2024 HMPT
<b>Inland Flooding</b> (Local Road)	Future	Sewell Lary Hill Road	Ground saturation could threaten the structural integrity of some structures. Sewell Lary Hill Road is a private road; residents have made some mitigation improvements.	2011 HMPT & 2017 HMPT & 2024 HMPT
<b>Inland Flooding</b> (Local Road)	Annually, during Spring, Snowmelt or Heavy Rain	Witham Road	Witham Road near Hill Road floods annually due to snowmelt and heavy rain. This is a steep hill with no drainage. Mitigation has been done on Witham Road near Hill Road, but the road will occasionally wash out. Ditches and culverts have been cleaned, and material has been added to mitigate the situation. This is no longer a big issue.	2017 HMPT & 2024 HMPT
<b>Inland Flooding</b> (Local Road)	Annually, during Spring, Snowmelt or Heavy Rain	Pontook Estates Road	Pontook Estates Road floods annually due to snowmelt and heavy rain. In 2022, some improvements were made at Pontook Estates Road. Mitigation measures may have halted the stormwater issues.	HMPT 2017
<b>Inland Flooding</b> (Heavy Rain)	Memorial Day Weekend, 1986	NH Route 16	On Memorial Day Weekend, there was rain, rapid snowmelt, ice jams, and high water on the Androscoggin River. The water almost went over the Seven Island Bridge; NH Route 16 was closed for 4-5 days.	2017 HMPT & 2024 HMPT
<b>Inland Flooding</b> (Heavy Rain)	August 7-11, 1990	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, & Sullivan	<b>Major Disaster Declaration DR-876:</b> NH Route 16 may have been closed for some time because of flood waters over the highway.	FEMA & 2024 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). No significant impact in Dummer.	FEMA, 2017 HMPT & 2024 HMPT
<b>Inland Flooding</b> (Heavy Rain & Tornado)	July 24- August 14, 2008	Belknap, Carroll & Grafton & Coos	<b>Major Disaster Declaration DR-1787:</b> A period of severe storms and flooding from July 24 to August 14; a tornado occurred on July 24, 2008. No significant impact in Dummer.	FEMA, 2017 HMPT & 2024 HMPT
<b>Inland Flooding</b> (Local Road)	2009	NH Route 16	NH Route 16 washed out, creating a large hole and closure of the road for several months. Clearcutting and a failed beaver dam contributed to the flooding.	2011 HMPT & 2017 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). In Dummer, there was road flooding and washouts on Ferry, Holt, Forbush, Blake, Hill, and Witham Roads. The Town received approximately \$5,500 in FEMA post-disaster funding.	FEMA, 2017 HMPT & 2024 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Inland Flooding</b> (Tropical Storm Irene)	August 26-September 6, 2011	<b>EM 3333:</b> All Ten NH Counties <b>DR-4026:</b> Seven NH Counties	<b>Major Disaster Declaration DR-4026 &amp; Emergency Declaration EM-3333:</b> See below, Section C	FEMA & 2024 HMPT
<b>Inland Flooding</b> (Local Road)	March 1, 2016	Philips Brook/Paris Road	An ice jam caused Philips Brook to overflow onto Paris Road, making it impassable. Road repair required many yards of gravel and crushed gravel; this flooding worsened the fluvial erosion that began before Tropical Storm Irene. A rip rap and bank stabilization project was performed but was unsuccessful. Heavy winds the night before also fell trees on wires.	2017 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. In Dummer, there was road flooding and washouts on Holt, Forbush, Blake, and Witham Roads. The Town received approximately \$4,400 in FEMA post-disaster funding.	FEMA & 2024 HMPT
<b>Inland Flooding</b> (Heavy Rain) & <b>Long Term Utility Outage</b>	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. In Dummer, there was wind, rain, and road damage on Blake, Ferry, and Witham Roads. Many trees were down, particularly on Holt Road. The power was out for several days. The Town received approximately \$6,400 in FEMA post-disaster funding.	FEMA & 2024 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-4369:</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 declaration was declared in four of the State's ten counties. Dummer had no significant impact, and the Road Agent handled the snow accumulation.	FEMA & 2024 HMPT
<b>Inland Flooding</b> (Heavy Rain)	May 1, 2023	Townwide	Dummer had heavy rain and high winds, but no significant damage occurred.	FEMA & 2024 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. Dummer had heavy rain and high winds, but no significant damage occurred.	FEMA & 2024 HMPT
<b>Inland Flooding</b> (Heavy Rain)	December 18, 2023	Townwide	A significant rainstorm similar to a 100-year flood struck multiple areas in NH, causing widespread damage to rivers, roads, and bridges. This storm may be declared a Major Disaster Declaration. Dummer had heavy rain and high winds, but no significant damage occurred.	FEMA & 2024 HMPT

Type of Event	Date of Event	Location	Description	Source
<p><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 on a townwide basis. Since the prior hazard mitigation plan, no significant wildfire events have occurred in Dummer.</p>				
<p><b>A summary of wildfire events, including Major Disaster and Emergency Declarations in the State and other recent large fires</b></p>				
Wildfire (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 Coos County or Dummer.	Local Resources & 2024 HMPT
Wildfire (Shaw Mountain Fire)	July 2, 1953	Carroll County	<b>Major Disaster Declaration DR-11:</b> This wildfire occurred in Carroll County at Shaw Mountain. This fire did not reach Coos County or Dummer.	FEMA & 2024 HMPT
Wildfire (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 Coos County or Dummer.	Local Resources & 2024 HMPT
Wildfire (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 Coos County or Dummer.	FEMA & 2024 HMPT
Wildfire (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 Coos County or Dummer.	Local Resources & 2024 HMPT
Wildfire (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 Coos County or Dummer.	Local Resources & 2024 HMPT
Wildfire (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 Coos County or Dummer.	Local Resources & 2024 HMPT
Wildfire (Centennial Fire)	May 9, 2022	Appalachian Trail	<b>The Centennial Fire,</b> caused by an out-of-control campfire, burned 48 acres along the Appalachian Trail (state land). There was a multi-agency response but no structural damage or injuries.	2024 HMPT
<p><b>A detailed summary of wildfire events in the Community</b></p>				
No wildfires of significance have occurred in Dummer since the 2017 Hazard Mitigation Plan was completed.				2024 HMPT

Type of Event	Date of Event	Location	Description	Source
<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 on a townwide basis. Since the prior plan, no significant high-wind events have occurred in Dummer.</p>				
<p><b>A summary of high wind events and tropical/post-tropical cyclone events, including Major Disaster and Emergency Declarations in the State and 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 (Tornadoes)</b>	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
<p><b>A detailed summary of high wind and tropical and post-tropical cyclone events in the Community</b></p>				
<b>Tropical/Post Tropical Cyclone (Great New England Hurricane)</b>	September 21, 1938	All Ten NH Counties	<p><b>The Great New England Hurricane:</b> Statewide, multiple deaths occurred, and damages in NH were about \$12.3 million in 1938 dollars (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 Dummer.</p> <p><i>(Source <a href="http://nhpr.org/post/75th-anniversary-new-englands-greatest-hurricane">http://nhpr.org/post/75th-anniversary-new-englands-greatest-hurricane</a>)</i></p>	FEMA & 2024 HMPT
<b>Tropical/Post Tropical Cyclone (Hurricanes Carol &amp; Edna)</b>	August 31, 1954	All Ten NH Counties	<p><b>Hurricanes Carol &amp; Edna:</b> Hurricane Carol resulted in extensive tree and power line damage and significant crop losses. Localized flooding and winds measuring over 100 mph also occurred. Hurricane Carol was followed by Hurricane Edna just 12 days later, which caused already weakened trees to fall. Although there was no local recollection, it was expected that the damage would have been similar to the rest of the State in Dummer.</p> <p><i>(Source: <a href="http://www.wmur.com/Timeline-History-Of-NH-Hurricanes/11861310">http://www.wmur.com/Timeline-History-Of-NH-Hurricanes/11861310</a>)</i></p>	FEMA & 2024 HMPT
<b>Tropical/Post Tropical Cyclone (Hurricane Katrina evacuation)</b>	August 29- October 1, 2005	All Ten NH Counties	<p><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 Dummer.</p>	FEMA, 2017 HMPT & 2024 HMPT
<b>Tropical/Post Tropical Cyclone (Tropical Storm Irene)</b>	August 26- September 6, 2011	<b>EM 3333:</b> All Ten NH Counties <b>DR-4026:</b> Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan	<p><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. No significant impact in Dummer.</p>	FEMA, 2017 HMPT & 2024 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Tropical/Post Tropical Cyclone</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. No significant impact in Dummer.	FEMA, 2017 HMPT & 2024 HMPT
<b>High Wind Events</b> (Windstorm)	April 2016	Hill Road	Two high wind events within one week of each other fell trees on wires; power outages lasted for four and a half hours.	FEMA, 2017 HMPT & 2024 HMPT
<b>D. Severe Winter Weather, including Nor'easters, Blizzards, and Ice Storms:</b> Severe winter weather in NH may include heavy snowstorms, blizzards, nor'easters, and ice storms, particularly at elevations over 1,000 feet above sea level. Generally speaking, NH will experience at least one of these hazards during winter; however, most NH communities are well prepared for such hazards. Severe winter weather and ice storms can impact the Community townwide. Since December 22-25, 2022, no significant winter weather events have occurred in Dummer.				
<b>A summary of severe winter weather events, including Major Disaster and Emergency Declarations in the State and regionwide</b>				
<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 & 2024 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> , 2022 <b>(DR-4693)</b>		The major severe winter weather events with snowfalls exceeding 2' in parts of the State. Power and transportation systems were disrupted.	FEMA & 2024 HMPT
<b>A detailed summary of severe winter storm events in the Community</b>				
<b>Severe Winter Weather</b> (Snowstorm)	Winter of 1968- 69	All Ten NH Counties	The winter of 1968-69 brought record amounts of snow to New Hampshire. Pinkham Notch at the base of Mount Washington recorded more than 75" of snowfall in four days at the end of February 1969 and snow that had already fallen in previous storms. NH experienced difficulty with snow removal because of the great depths that had fallen from December 1968 to April 1969. Dummer reported heavy snow accumulations and recalled running out of places to put the snow.	2017 HMPT & 2024 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 more 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 Road Agent handled the heavy snow accumulation that fell in Dummer.	FEMA, 2017 HMPT & 2024 HMPT

Type of Event	Date of Event	Location	Description	Source
<b>Severe Winter Weather</b> (Snowstorm & High Winds)	March 13-17, 1994	All Ten NH Counties	<b>Emergency Declaration EM-3101:</b> The Road Agent handled the heavy snow accumulation in Dummer.	FEMA & 2024 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, severely impacting the 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 throughout Dummer. Due to the significant tree damage, there were multiple road closures, townwide debris, and power outages for up to seven days. The Town received approximately \$6,600 in FEMA post-disaster funding.	FEMA, 2017 HMPT & 2024 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 Road Agent handled the heavy snow accumulation that fell in Dummer.	FEMA, 2017 HMPT & 2024 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 Road Agent handled the heavy snow accumulation that fell in Dummer.	FEMA, 2017 HMPT & 2024 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 in NH for costs incurred in three snowstorms that hit the state in 2005. The total aid for all three storms was \$6,892,0237 (January: \$3,658,114; February: \$1,121,727; March: \$2,113,182). <b>Emergency Declaration EM-3207:</b> The total aid for the January storm in (Belknap: \$125,668; Carroll: \$52,864; Cheshire: \$134,8305; Grafton: \$137,118; Hillsborough: \$848,606; Merrimack: \$315,936; Rockingham: \$679,628; Strafford: \$207,198; Sullivan: \$48,835) <b>Emergency Declaration EM-3208:</b> The total aid for the January storm in (Carroll: \$91,832; Cheshire: \$11,0021; Coos: \$11,6508; Grafton: \$213,539; Sullivan: \$68,288) <b>Emergency Declaration EM-3211:</b> The total aid for the March storm in (Carroll: \$73,964; Cheshire: \$118,902; Hillsborough: \$710,836; Rockingham: \$445,888; Sullivan: \$65,088)  During the 2005 winter season, the Road Agent handled the heavy snow accumulation in Dummer.	FEMA & 2024 HMPT
<b>Severe Winter Weather</b> (Snowstorm & Ice Storm)	2007	Townwide	There was heavy snow throughout the winter. Overall accumulations posed a threat of roof collapses. The Road Agent handled the heavy snow accumulation that fell in Dummer.	2011 HMPT

Type of Event	Date of Event	Location	Description	Source
Severe Winter Weather (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 entire 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. Dummer experienced some loss of power from heavy snow and ice on trees for about 6 hours. The higher elevations got hit hard with ice, causing some forest damage. The Road Agent handled the heavy snow accumulations that fell in Dummer.	FEMA, 2017 HMPT & 2024 HMPT
Severe Winter Weather (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 countries (Snowtober). Leaves were still on trees, contributing to multiple power outages in Dummer. The Road Agent handled the heavy snow accumulations that fell in Dummer.	FEMA, 2017 HMPT & 2024 HMPT
Severe Winter Weather (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 Road Agent handled the heavy snow accumulations that fell in Dummer.	FEMA, 2017 HMPT & 2024 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 on a townwide basis. Since the prior plan, no significant earthquakes have been felt in Dummer.

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

Earthquakes	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 (Ossipee, NH, 5.5-5.8), 12/24/40 (Ossipee, NH, 5.5-5.8), 1/19/1982 (Laconia, NH, 4.0), 11/20/1988 (Berlin, NH, 4.0), 4/6/1989 (Berlin, NH, 4.1), 10/16/2012 (Hollis Center, ME, 4.0)	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
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Type of Event	Date of Event	Location	Description	Source
<b>A detailed summary of earthquakes that may have been felt in the Community since 1960</b>				
Earthquake	June 26, 1964	Salisbury, NH	Magnitude 3.2	United States Geological Society (USGS), State of NH Multi-Hazard Mitigation Plan Update & 2024 HMPT
Earthquake	June 15, 1973	Quebec/ME border	Magnitude 4.8	
Earthquake	December 25, 1977	Hopkinton, NH	Magnitude 3.2	
Earthquake	June 28, 1981	Sanbornton, NH	Magnitude 3.0	
Earthquake	January 19, 1982	Sanbornton, NH	Magnitude 4.5	
Earthquake	October 25, 1986	Northfield, NH	Magnitude 3.9	
Earthquake	October 20, 1988	Milan, NH	Magnitude 3.9	
Earthquake	November 22, 1988	Milan, NH	Magnitude 3.2	
Earthquake	April 6, 1989	Berlin, NH	Magnitude 3.5	
Earthquake	October 6, 1992	Canterbury, NH	Magnitude 3.4	
Earthquake	August 21, 1996	Livermore, NH	Magnitude 3.8	
Earthquake	June 16, 1995	Lisbon, NH	Magnitude 3.8	
Earthquake	January 10, 1999	Merrimac, MA	Magnitude 3.1 & 3.0	
Earthquake	January 27, 2000	Fremont, N	Magnitude 3.0	
Earthquake	September 26, 2010	Canterbury, NH	Magnitude 3.2	
Earthquake	October 16, 2012	Hollis Center, ME	Magnitude 4.7	
Earthquake	February 15, 2018	East Kingston, NH	Magnitude 2.7	
Earthquake	February 4, 2022	Gorham, NH	Magnitude 2.9; felt in Dummer, but no damage was reported.	
Earthquake	April 25, 2023	Center Sandwich	Magnitude 2.9	
Earthquake	December 23, 2023	Concord, NH	Magnitude 2.7	
<b>F. Drought:</b> 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 on a townwide basis. Since 2022, no significant droughts have occurred in Dummer.				
<b>A summary of drought in the State &amp; regionwide</b>				
Drought	1775, 1840, 1882, 1910's, 1929-1936, 1939-1944, 1947-1950, 1960-1969, 1999; 2001-2002, 2016-2017, 2020-2021, 2022	Occurrences of severe droughts in recorded New Hampshire history.		State of NH Multi-Hazard Mitigation Plan, Update 2018

Type of Event	Date of Event	Location	Description	Source
<b>A summary of drought in the Community since 1929</b>				
Drought	1929-1936	Statewide	Regional	State of NH Multi-Hazard Mitigation Plan, Update 2018, 2017 HMPT & 2024 HMPT
Drought	1939-1944	Statewide	Severe in the southeast and moderate elsewhere	
Drought	1947-1950	Statewide	Moderate	
Drought	1960-1969	Statewide	The lengthiest recorded regional continuous spell of less-than-average precipitation	
Drought	2001-2002	Statewide	The third worst drought on record	
Drought	2016-2017	Statewide	A declared drought for the summers of 2016 and 2017, moderating from extreme in southern New Hampshire to dry in the northern communities. No significant impact in Dummer.	
Drought	2020-2021	Statewide	A declared drought for 2020-2021, with NH's north country being impacted more than the southern communities. In Dummer, at least one dug well dried up.	
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. In Dummer, at least a few dug wells dried up.	
<b>G. Miscellaneous Past or Potential Hazards:</b> Natural, technological, and human-caused hazards and other unusual hazardous events have been noted throughout New Hampshire and can impact the Community townwide. One concern is transporting hazardous material through communities by rail and tractor-trailer. Since Covid-19 ended on May 1, 2023, no significant miscellaneous hazards have occurred in Dummer.				
Infectious Disease	January 2020-May 11, 2023	All Ten NH Counties	<b>Major Disaster Declaration, DR-4516:</b> The Federal Emergency Management Agency ("FEMA") within the US Department of Homeland Security is giving public notice of its intent to assist the State of New Hampshire, local and tribal governments, and specific private nonprofit organizations under the major disaster declaration issued by the President on April 3, 2020, as a result of the Coronavirus Disease 2019 ("COVID-19").	FEMA & 2024 HMPT
Infectious Disease	January 2020-May 11, 2023	All Ten NH Counties	<b>Emergency Declaration EM-3445:</b> Ten county declaration to provide individual assistance and public assistance as a result of the impact of COVID-19	FEMA & 2024 HMPT
Mass Casualty Incident	October 1, 2022	Route 16	Two motorcycles and a car collided on Route 16, seriously injuring passengers and riders. Two people were seriously injured, and four were transported.	2024 HMPT
<b>H. Other Hazards:</b> Identified hazards with no specific example of occurrence.				
<b>Natural Hazards</b>		<p>Although the Team did not identify specific examples or past occurrences of these hazards, it felt worthwhile to list them as potential hazards to the Town. These hazards can potentially impact the Community either locally or townwide.</p> <p>See <i>Table 3.1, Hazard Threat Analysis</i>, and Chapter 5 for more details on these hazards.</p> <p>Historic hazard events were derived from the following sources unless noted otherwise:</p> <ul style="list-style-type: none"> <li>Website for NH Disasters: <a href="https://www.nh.gov/safety/divisions/hsem/disaster/documents/NHDisasterInfo.pdf">https://www.nh.gov/safety/divisions/hsem/disaster/documents/NHDisasterInfo.pdf</a></li> <li>FEMA Disaster Information: <a href="https://www.fema.gov/disaster">https://www.fema.gov/disaster</a></li> <li>The Tornado Project: <a href="https://www.tornadoproject.com/alltorns/nhtorn.htm">https://www.tornadoproject.com/alltorns/nhtorn.htm</a></li> <li>The Disaster Center (NH): <a href="https://www.disastercenter.com/newhamp/tornado.html">https://www.disastercenter.com/newhamp/tornado.html</a></li> <li>United State Geological Survey (earthquakes); <a href="https://www.usgs.gov/programs/earthquake-hazards">https://www.usgs.gov/programs/earthquake-hazards</a></li> </ul>		
Landslide & Erosion				
Lightning & Hail				
<b>Technological Hazards</b>				
Aging Infrastructure				
Hazardous Materials				
Dam Failure				
Known & Emerging Contaminants				
<b>Human-Caused Hazards</b>				
Transport Accidents				
Terrorism & Violence				
Cyber Events				

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

Team discussion and brainstorming identified Critical Infrastructure & Key Resources (CIKR) within Dummer. 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	
Town Hall Selectmen's Office (downstairs) Community Room (upstairs)	Town government, primary EOC, secondary shelter & heli-landing zone	All Hazards	1
Highway Garage	Heavy equipment, sand, gravel & diesel	All Hazards	1
Community Church (generator)	Primary shelter & heli-landing zone	Inland Flooding	2
Library	Secondary EOC	All Hazards	1
Heli-landing Zones			
Berlin Municipal Airport (Milan)	Heli-landing zone	All Hazards	1
Several other locations could be used as helicopter landing zones, including open fields and roadways on either side of the river.			
Evacuation Routes			
NH Route 16	Primary evacuation route	Inland Flooding	3
NH Route 110A	Primary evacuation route	Inland Flooding	1
NH Routes 110	Primary evacuation route	Inland Flooding	2
Hill Road	Primary evacuation route	Inland Flooding	1
East Side River Road	Primary evacuation route	Inland Flooding	3
Hill Road to Blake Road to Bog Brook Road	Secondary evacuation route	Inland Flooding	3
It is noted that East Side River Road to Bridge Street in Milan (bridge over Androscoggin River) is critically important for those residents who reside on the east side of the river as this is the only viable route out of this area.			
Bridges & Culverts on the Evacuation Routes			
Route 16 @ Newell Brook	Bridge on evacuation route	Inland Flooding	2
Route 16 @ Island Brook	Causeway on evacuation route	Inland Flooding	2
Route 16 @ Pontook Reservoir (north)	Causeway on evacuation route	Inland Flooding	2
Route 16 @ Pontook Reservoir/Pond Brook (south)	Causeway on evacuation route	Inland Flooding	2
Dams			
Pontook Reservoir Dam	Low hazard dam	Inland Flooding	2
Fire Pond Dam	Non-menace dam	Inland Flooding	2
The Department of Environmental Services (DES) reports eight additional dams in Dummer. Five of these are in ruins, one is exempt, one is not built, and one is breached. There are no high-hazard dams in Dummer.			

**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. NEFRs would include facilities to protect public health and safety and act as backup emergency facilities when needed.			
Facility	Type of Facility	Hazard Risk	
Pontook Dam & Reservoir	Flood control & recreation	Inland Flooding	2
Pontook Hydro Dam	Hydro dam (may be requested to hold back water)	Inland Flooding	2
Aircraft Beacon @ Hawkins Road	Aviation beacon	Wildfires	2

**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	
Community Church	Gathering of people	Inland Flooding	2
Pontook Dam & Reservoir	Flood control & recreation	Inland Flooding	2
Pontook Hydro Dam	High-risk location	Inland Flooding	2
Town Hall	Gathering of people & shelter	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 Dummer Emergency Operations Plan for additional resources.

## Chapter 5: Hazard Effects in Dummer

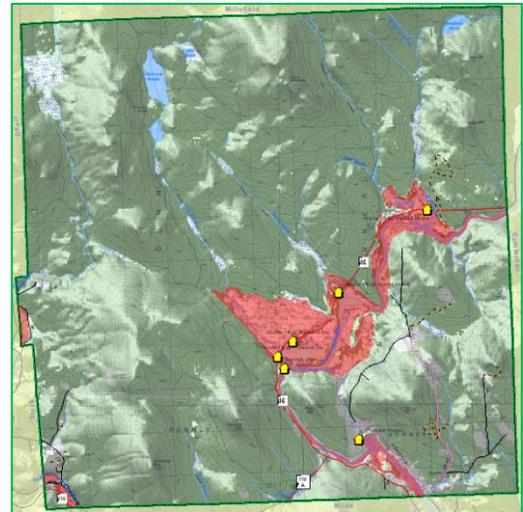
### A. IDENTIFYING VULNERABLE CRITICAL INFRASTRUCTURE & KEY RESOURCES (CIKR)

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

Dummer’s CIKRs were identified and listed in Chapter 4; each CIKR was analyzed for its flooding potential. This analysis and the transparent red area in the GIS map image to the right indicate the floodplain. The yellow house icons represent the floodplain's six Emergency Support Facilities (ERFs).

Four of these CIKRs are bridges on the evacuation route. The other two CIKRs in the floodplain are dams on the Androskoggin River. No other CIKRs were found to be in the designated flood zone. Other structures were found through GIS analysis to be in the floodplain; Town officials should keep all flood-prone structures in mind when a flood hazard is likely. Swampy areas can be seen beneath the floodplain layer.



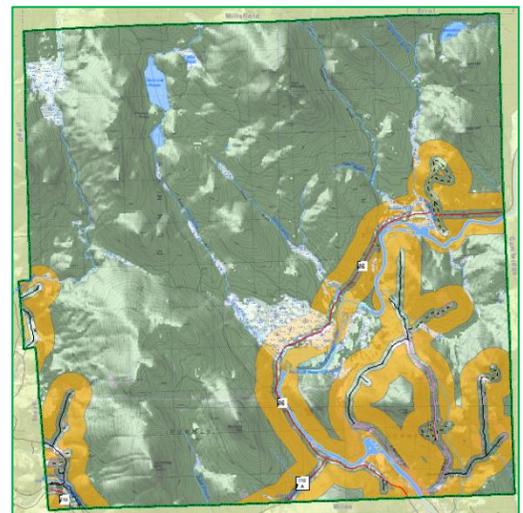
When working on Table 4.1, the Team noted that the Community Church, the designated shelter, could be subject to inland flooding, although it is not in the floodplain. In addition, the evacuation routes, bridges and culverts, and local dams are all subject to inland flooding. Please refer to Chapter 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. The orange symbology in the map snip to the right shows the traditional WUI In Dummer. This area is where the urban environment interfaces with the wildland environment and is the most prone to wildfire risk.

The traditional WUI was initially developed to identify human-interface areas that may exceed the typical length of fire hoses. 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.



None of Dummer’s CIKR were determined to be in the WUI; these primary facilities are within the 300’ WUI buffer of roadways and, therefore, easily accessible by fire apparatus and hoses. The Town’s CIKRs also have adequate defensible space.

As seen in the map image above, the entire east side of Dummer has limited access, as there is only one road in and out of this area. There are also multiple dead-end streets, and the entire area is heavily forested, creating a high wildfire risk. In particular, the Bayview area, Middle Street, Ferry, Witham, and Holt Roads are particularly susceptible. Emergency response to this area can also be challenging, particularly if Bridge Street is closed. Likewise, response to the west side of Dummer could be compromised if Route 16 in Milan is closed.

No particular facilities at high risk for wildfires were identified in Tables 4.1-4.4. However, it is expected that many structures in Dummer 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. Because Dummer is so forested, it can be assumed that nearly every structure in the Town is within the Wildland Urban Interface. Mitigation strategies were discussed to protect structures and educate the citizens about the wildfire risk.

**B. CALCULATING THE POTENTIAL LOSS**

It is difficult to ascertain the dollar amount of damage caused by hazards because the damage will depend on the hazard’s extent and severity, making each hazard event somewhat unique. Therefore, we have assumed that hazards could damage 0-1% or 1-5% of the Town’s structures. Structure damage depends on the nature of the hazard and whether or not the impact is localized.

MS-1 Assessed Value of All Structures 2022 Town Report			
2022-MS1	Value	1% Damage	5% Damage
Residential	\$21,119,000	\$211,190	\$1,055,950
Manufactured Housing	\$989,400	\$9,894	\$49,470
Commercial	\$452,500	\$4,525	\$22,625
Tax-Exempt	\$546,500	\$5,465	\$27,325
Utilities	\$64,097,500	\$640,975	\$3,204,875
Total	\$87,204,900	\$872,049	\$4,360,245

This Plan assumes that the potential loss from the identified natural hazards would range from **\$0 to \$872,049** or **\$872,049 to \$4,360,245**, based on the 2022 MS1 total structure value of **\$87,204,900**. (See chart above)

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

**C. NATURAL HAZARDS**

The descriptions below represent the **local impact** on the Community 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 .....	Very High
Estimated Structure Loss Value .....	\$872,049 to \$4,360,245

**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 Dummer. These impacts are a risk to the Community, including isolation, especially to the elderly (22.9%) 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 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.

Dummer experiences 2-3 foot snowstorms nearly every year, but the more remarkable years include the record-breaking accumulation of 1968-69 and the ice damage in 1998. Dummer's most recent significant winter storm event was DR-4369 (see Inland Flooding in Table 3.2). Heavy, wet snow fell during this event, but the Road Agent could handle the accumulation.

Although Dummer's Road Agent handles usual snow amounts without difficulty, Dummer's roads are often impacted by poor weather conditions, and this, combined with the hilly terrain, can make travel difficult. Severe winter snowstorms or blizzards can shut all of Dummer's roads down temporarily and thus prevent many of the Town's citizens from going to work. Travel can be difficult with heavy traffic, particularly on NH Routes 16, 110, 110A, and East Side River Road, 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 Road Agent, 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.

As noted above, the 1998 Ice Storm inflicted major damage to all of Dummer; trees were down everywhere in Town, power was out for up to seven days, and it took a week to clean up from the damage. Fortunately, neither the 1979 nor the 2008 Ice Storms had an impact.

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

**2) HIGH WIND EVENTS**

Hazard Identification & Risk Assessment (HIRA) .....	Very High
Probability .....	Very High
Estimated Structure Loss Value .....	\$0 to \$872,049

**Isolated High Wind Events**

Due to the geographic location of Dummer and its location in the Androscoggin River Valley, isolated high winds occur almost daily. These unpredictable wind events can fall timber, block roadways, down power lines, and impair emergency response. Old-growth softwood is susceptible, particularly when the water table is high in the spring. Almost all of Dummer’s land cover is forested with a mix of both hardwood and softwood trees.

High winds are often a threat to structures and forestry interests. Much of Dummer’s forest is a “working” forest; loss of the “working forest” could result in loss of tax revenue for the Town. Dummer’s location in the mountains and along the Androscoggin River helps create a “wind-tunnel” effect. Structure damage has occurred in the past. Down drafts affecting aircraft could also create loss of life, hazardous conditions, and wildfires; the Team reported that local pilots have indicated that the nearby Berlin Regional Airport (Milan) is one of New England’s windiest airports.

Highwind events have accompanied recent NH storms. One storm in October 2017 (DR-4355) was particularly impactful in Dummer. There was road, tree, and power line damage on several roads. Blake, Ferry, Witham, and Holt Roads were impacted, and power was out for several days in parts of the Community. Damage was insignificant during other wind and rain events, as shown in Table 3.2.

The Team noted that the power companies have increased their trimming efforts. The Road Agent and the power companies 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 direction, 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 Dummer, a microburst would be more likely than a tornado. Since the previous hazard mitigation plan, Dummer has had no reports of downbursts or tornadoes.

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

3) INFECTIOUS DISEASE

Hazard Identification & Risk Assessment (HIRA) ..... High
Probability ..... Very High
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.”17

Infectious diseases and epidemics or pandemics present a possible threat to Dummer. Dummer 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.



Dummer’s geography provides hikers and summer and winter recreation enthusiasts opportunities to visit the Town; both summer and winter visitors often pass through or stay in Dummer to enjoy the beauty of this rural community. Dummer’s proximity to the Canadian border, its influx of summer visitors and residents, and its substantial elderly population increase this concern. Illnesses may be brought to Dummer from other places, which could severely burden Dummer’s already limited resources. In addition, Dummer’s school children attend school in nearby communities, thus increasing the risk of exposure. Churches, meeting houses, social facilities, sports teams, and clubs can also invite infectious disease outbreaks.

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

The CDC recommends that persons, particularly those who are medically compromised or over 65, receive the newest booster shot. Recommendations for children are similar.

In coordination with Milan-Dummer Ambulance, Dummer’s EMD (Select Board) 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.

17 Infectious diseases, Overview, https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173

**4) WILDFIRE**

Hazard Identification & Risk Assessment (HIRA) .....	Medium
Probability .....	High
Estimated Structure Loss Value .....	\$872,049 to \$4,360,245

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 Dummer.

The Team described the forests of Dummer as consisting primarily of mixed forests. Some fires are “duff” fires, the burning of *“the layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.”*<sup>18</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 Dummer, 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 (particularly the 1998 Ice Storm) 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 forest trails creates additional risks. To help mitigate the effects of wildfire, the Milan Fire Department, which serves Dummer, improves and maintains firefighting equipment, maintains water resources, and manages funding options to help pay costs for new equipment. Dummer has had no significant wildfires since the last hazard mitigation plan.

Six large fires have occurred in the State in the not-so-distant past. These include the Bemis Fire in Crawford Notch, the Dilly Cliff Fire in Woodstock, the Covered Bridge Fire in Albany, the Bayle Mountain Fire in Ossipee, the Centennial Fire in Shelburne, and the Stoddard Fire in Stoddard. See Table 3.2 for more information on wildfires.

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

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<sup>18</sup> [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fswdev3\\_009827.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fswdev3_009827.pdf)

**5) EXTREME TEMPERATURES**

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

**Extreme Cold & Heat**

Winter temperatures in Dummer 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. Numerous 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 elderly population in Dummer is 22.9%, and the estimated poverty rate is 15.0% of the total population<sup>19</sup>. Since the prior hazard mitigation plan, no deaths or illnesses due to cold or heat have been reported in Dummer.

**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 its webpage and other social media.

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.

**6) INLAND FLOODING**

Hazard Identification & Risk Assessment (HIRA) .....	Medium
Probability .....	High
Estimated Structure Loss Value .....	\$872,049 to \$4,360,245

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

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

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<sup>19</sup> American Community Survey, 2022 ACS 5-Year Estimate

Based on the Coos County Floodplain Map and as described in Chapter 3, Section D, Dummer has a relatively small 100-year floodplain that follows along the Androscoggin River's banks and around the Pontook Reservoir. Several significant inland flooding events have occurred since the past hazard mitigation plan. See Table 3.2 for more details on inland flooding in Dummer.

NH Route 16 is roughly parallel to the Androscoggin River, fed by many smaller rivers and streams. NH Route 16 often floods near Pontook Dam and Middle Street because of rapid snowmelt and the swelling of these smaller rivers and streams. In addition, East Side River Road has been underwater several times in the past. Many Dummer roads are long and winding; they often have aging or undersized culverts and poor engineering designs. The continuous erosion of roads makes for a daunting task of "up-keep" by the Town's Road Agent.

The erosion of Paris Road is concerning in Dummer, particularly when the bend in Philips Brook causes ice jams. Ice washes over the road, at times causing road washouts and scouring. As Philips Brook has changed its course over the years, erosion along the brook and at Paris Road has worsened.

While staying within budget, the Road Agent has been proactive in maintaining and repairing ditches and culverts and 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 Road Agent cares for approximately five miles of paved roads, four miles of gravel roads, and more than 140 culverts. In addition, several major arteries are maintained by the State. Nonetheless, significant rain, particularly if combined with rapid snow melt, can cause considerable damage to Dummer's roads.

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

**7) LANDSLIDES**

Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	High
Estimated Structure Loss Value .....	\$0 to \$872,049

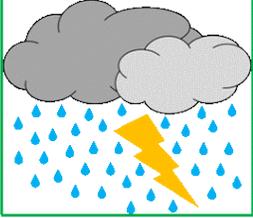
Landslides are often associated with heavy rains, steep terrain, and the overflow of riverbanks. Landslides often occur where unstable slopes threaten to collapse on homes, buildings, and local roads.

No known areas of Dummer were identified as landslide-prone; there have been no landslides since the prior hazard mitigation plan. Tree cover and regulated timbering help prevent unstable soils. This section of the Plan and the identification of landslides in Table 3.2 primarily represent erosive issues on Paris Road at Philips Brook.

Roadway erosion is discussed in the Inland Flooding section of this chapter. Landslides alone are not significant issues in Dummer; no structures appear to be in harm's way. In the unlikely event that structure loss would be experienced in any landslide event, it would be localized; therefore, the structure loss value was estimated to be between 0% and 1% of the total assessed structure value.

8) LIGHTNING

Hazard Identification & Risk Assessment (HIRA) .....	Low
Probability .....	Moderate
Estimated Structure Loss Value .....	\$0 to \$872,049



Lightning strikes have occurred in Dummer 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. The Team noted that severe thunder and lightning storms are happening more often than before; several lightning strikes are documented yearly. The frequency of lightning strikes could be increased by climate change and the pattern of weather that brings storms from the west and along the Androscoggin River.

Also concerning are the heavy rains that thunderstorms can produce and the subsequent erosion of ditches and roadways. See Inland Flooding in this chapter.

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.

9) DROUGHT

Hazard Identification & Risk Assessment (HIRA) .....	Very Low
Probability .....	Low
Estimated Structure Loss Value .....	\$0 to \$872,049

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>20</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. Dummer is almost entirely forested, but there is one small deer farm. In addition to approximately 20 deer, wild and exotic birds are also kept on this farm. A significant drought, therefore, could impact the forested lands and potentially affect the deer farm.

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

<sup>20</sup> <https://www.des.nh.gov/climate-and-sustainability/>

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 February 13, 2024, New Hampshire has no drought.<sup>21</sup>

The estimated loss value above, based on a 0% to 5% risk, reflects the potential for not only lost woodlands and the potential for wildfire but also the possible economic impact on the deer farm and other small businesses in the Community.

**10) TROPICAL/POST TROPICAL CYCLONES**

Hazard Identification & Risk Assessment (HIRA) ..... Very Low  
Probability ..... Low  
Estimated Structure Loss Value ..... \$0 to \$872,049



Damaging winds due to tropical and post-tropical cyclones (hurricanes) are considered a medium risk, primarily because of Dummer'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 down-graded to post-tropical cyclones when they reach northern New Hampshire.

Tropical Storms Irene and Sandy did not significantly impact Dummer, although all of New Hampshire experienced heavy rain. Communities closer to the higher elevations of the White Mountains, such as Gorham, had significant flooding from Tropical Storm Irene. However, Dummer's roadways, its small rivers and streams, and the Androscoggin River were not impacted. Dummer was fortunate as major flooding and damage occurred in many other New Hampshire and Vermont towns. Since the prior hazard mitigation plan, no tropical or post-tropical cyclones have reached Dummer.

Hail often results from significant thunder and lightning storms, which can be associated with tropical storm events. Summer storms, very tropical, post-tropical, or locally generated, may produce hail large enough to damage roofs, siding, and automobiles. Damage from hail could also result in failed crops, thus impacting the local economy and individual citizens. However, it is noted that Dummer is not a heavily farmed community.

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 and associated hail events was determined to be between 0% and 1% of the total assessed structure value.

<sup>21</sup> <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NH>

**11) DAM FAILURE**

Hazard Identification & Risk Assessment (HIRA) .....	Very Low
Probability .....	Very Low
Estimated Structure Loss Value .....	\$872,049 to \$4,360,245

Two active dams are listed by the Department of Environmental Services (DES) in Dummer. These include the Pontook Reservoir Dam (low hazard) and the Fire Pond Dam (non-menace). DES lists eight additional dams, but they are either in ruins, exempt, not built, or breached. There are no high-hazard dams in Dummer.

Within Dummer, there is one water control dam, the Pontook Reservoir Dam; failure of this in-town dam on the Androscoggin River would have a minimal impact; however, failure of any of the dams further upstream on the Androscoggin River could result in a “ripple effect” and a significant impact. It was decided that although the threat from a potential failure of the Pontook Dam is minimal, dam failure upstream poses a significant potential threat.

Of most concern is the Aziscohos Dam in northern Maine. Should the Aziscohos Dam experience a total failure, flood waters would likely cause a domino effect for the dams downstream, including the Errol Dam. Inundation studies indicate that flood waters would take several hours to reach Milan Village. Significant damage could occur to the bridge connecting Milan to Dummer, thus hindering emergency response efforts. Dummer could experience significant flooding along not only NH Route 16 but on East River Road as well, particularly in one cluster of homes on NH Route 16.

Town officials receive FERC correspondence, copies of Emergency Action Plans for the upstream dams, and electronic updates when warranted. In addition, notification is made to town officials when the water level at the Pontook changes.

Although road and structural damage could potentially occur from dam failure, the overall risk would be relatively low unless there is a dam breach further up the Androscoggin River. Based on dam failure upstream, the estimated loss structure value, including damage to the dam, the bridge, roads, and several properties, is between 1% and 5% of the total assessed structure value.

**12) EARTHQUAKE**

Hazard Identification & Risk Assessment (HIRA) .....	Ver Low
Probability .....	Very Low
Estimated Structure Loss Value .....	\$872,049 to \$4,360,245

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 earthquake in October 2012, with its epicenter in Hollis Center, ME. The Team noted that the Hollis earthquake was felt in Dummer, but no damage occurred. A 2.9 earthquake occurred in Gorham on February 4, 2022; this earthquake was also felt in Dummer, but again, no damage occurred. Small earthquakes, such as the one in Gorham, frequently occur in New Hampshire, as shown in Table 3.2.

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

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

**1) MASS CASUALTY INCIDENTS**

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

A Mass Casualty Incident (MCI) is defined as “any number of casualties that exceed the resources normally available from local resources”<sup>22</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 Dummer, but more likely on NH Route 16. This road is heavily traveled year-round but is particularly dangerous during winter storms. Animal crossings and poor weather can set up the conditions for an MCI. In addition, with students traveling to other communities for school, the potential for an MCI is increased. Tour buses in the fall are also a concern; even a minivan accident would be considered an MCI in Dummer. Fortunately, there have been no reported MCIs since the last hazard mitigation plan.

**2) LONG-TERM UTILITY OUTAGE**

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

Although rare, long-term utility outages of five or more days have occurred in Dummer 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 the elderly, disabled, or poor. The Team reported that long-term power outages have diminished due to utility companies' efforts to trim trees and branches near power lines.

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 all 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 could have a significant impact.

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<sup>22</sup> DeValle Institute Learning Center; <https://delvalle.bphc.org/mod/wiki/view.php?pageid=89>

**2) TRANSPORT ACCIDENTS**

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

The main road through Dummer is NH Route 16, a major thoroughfare running north from southern NH and into Maine. Large trucks carry a variety of unknown materials to industrial centers, residences, or the remaining paper mill in Gorham. Commercial carriers such as UPS and FedEx are not mandated to disclose their freight and chemicals to use at the paper mill. However, not as dangerous as in the past, delivery trucks continue to make their way through Dummer. In addition, a small portion of a major rail line runs through the southwest corner of the town, thus increasing the opportunity for hazardous material transport and a potential disaster.



The probability of vehicular accidents involving hazardous materials is identified as potentially moderate in Dummer. The Town’s major road, NH Route 16, is known to be used by vehicles carrying hazardous materials, a common delivery route for tankers to and from Canada.

Many of Dummer’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 Dummer are susceptible to hazards such as road flooding and high winds leading to downed trees in the roadways and potentially hazardous materials spills.

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

**3) TERRORISM & VIOLENCE**

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

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>23</sup>

The quiet town of Dummer is not a particularly likely target. NH Route 16 is a possible route for terrorists, and the Pontook Station Hydro Dam (Brookfield) is a potential terrorist target. However, the concern for terrorism is low, particularly when there are much higher-value targets in New England. Nonetheless, terrorism is identified as a remote, although possible hazard for the Town; homegrown terrorism is more likely than national or international terrorism. There has been no significant terrorist or violent incident since the prior hazard mitigation plan.

<sup>23</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)

Highways could also be targets; any closure of NH Route 16 in Dummer would cause state-wide disruptions in the transportation system. Disruption of this significant route could affect Dummer’s local economy. With easy access to and from Canada via Dummer’s major highway, NH Route 16, the Town could also be a route for would-be terrorists. Other soft targets, such as the Town Hall and the Community Church, could also be targeted.

**5) AGING INFRASTRUCTURE**

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

*“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>24</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>25</sup> The American Society of Civil Engineers gave NH an overall C- in its 2017 report card.<sup>26</sup>

Aging infrastructure is a concern in Dummer as it is throughout New Hampshire and the United States. In Dummer, older roads and aging culverts are part of the Town’s aging infrastructure, but the Highway Department does a good job staying on top of issues. In addition, the Town Hall was built in 1938 and is not designed to house a shelter, as the bathroom is not on the shelter level. General repairs for the Town Hall are done routinely, and there are Capital Reserve Funds (CRF) for the Town Hall, the Highway facility, and roads. Several mitigation action items in Table 9.1 are included in this Plan to address aging infrastructure.

**6) CYBER EVENTS**

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

Presidential Policy Directive (PPD-41) describes a cyber incident as *“An event occurring on or conducted through a computer network that actually or imminently jeopardizes the integrity, confidentiality, or availability of computers, information or communications systems or networks, physical or virtual infrastructure controlled by computers or information systems, or information resident thereon. For purposes of this directive, a cyber incident may include vulnerability in an information system, system security procedures, internal controls, or implementation that could be exploited by a threat source.”<sup>27</sup>*

With the increased use of computers and the internet, cyber events could include targets such as banks, hospitals, schools, churches, town, 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.

<sup>24</sup> <https://www.infrastructurereportcard.org/wp-content/uploads/2016/10/2017-NH-Report-Card-hq-with-cover.pdf>  
<sup>25</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>26</sup> Ibid  
<sup>27</sup> PPD-41; <https://obamawhitehouse.archives.gov/the-press-office/2016/07/26/presidential-policy-directive-united-states-cyber-incident>

The Team did not report any cyber-attacks, but the threat is certainly real. The Town stores essential documents on a server at the Town Hall; the information is also stored in the “cloud”. Security on computer networks, off-site backup, and user education are vital to protecting sensitive town information and data.

**7) HAZARDOUS MATERIALS**

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

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

Dummer has few areas susceptible to damage from a fixed hazardous material event; there are no large fuel depots or factories that would be at risk. Dummer is relatively safe from hazardous materials incidents; however, the Portland Natural Gas line that runs through the Town poses some 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.

**8) 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.

Dummer’s residents rely on private well water; thus, radon and arsenic contamination in the aquifer may be a concern. Town officials should encourage testing by individual homeowners for known and emerging contaminants.

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## 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
Genasys	Genasys is a reverse calling warning system that uses listed phone numbers. Genasys does not include cell and unlisted numbers or email addresses. SAU 20 uses "One Call", a reverse calling system for school activities and emergency notification.	Select Board	Good	<b>Improvements Needed:</b> Genasys (formerly CodeRED/NH ENS) is an excellent warning system that only stores resident hardline 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 Hall, social media platforms, or a sign-up at Town Meetings. <b>Action Item #8 (also in Table 7.1)</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
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.	Milan Fire Department & Milan-Dummer Ambulance	Good	<b>Improvements Needed:</b> Dummer is about 70% 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 the Town's website or social media to promote better compliance and develop other means of increasing compliance. The Town could purchase and install signage, create an ordinance and "fine", or provide signs for residents to install themselves to promote compliance better. <b>Action Item #2 (also in Table 7.1)</b>
Dry Hydrants & other Water Resources	Milan Fire Department maintains the dry hydrants and drafting sites for Dummer. There are two dry hydrants in the Community and multiple locations for water drafting.	Milan Fire Department	Good	<b>Improvements Needed:</b> Dry hydrants (2) and drafting sites throughout Dummer provide water resources for firefighting. This strategy was deferred to maintain the two dry hydrants and other water resources to help mitigate the effects of structure fires and wildfires. Milan Fire Department undertakes this task. <b>Action Item #3 (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.	Select Board	Inadequate	<b>Improvements Needed:</b> Most first responders have done NIMS and ICS training. 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 #6 (also in Table 7.1)</b>
Public Education & Awareness	The Town of Dummer is well situated to provide public information and outreach to its citizens.	Select Board & Administrative Assistant	Good	<b>Improvements Needed:</b> The Town has a website; however, there is no "Emergency Management" tab or any emergency-related links. An emergency web page 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 develop and provide vital information and links on an "Emergency Management" tab to educate the public on general and seasonal mitigation techniques. The Town could also establish social media platforms to release information to the residents. <b>Action Item #7 (also in Table 7.1)</b>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
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.	Road Agent	Excellent	<b>Improvements Needed:</b> As trees become damaged and threaten structures and town roads, the Road Agent removes them. The NH DOT and Eversource do 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 #5 (also in Table 7.1)</b>
Master Plan (2019)	A Master Plan includes goals, objectives, and expectations for the future development of the Town.	Planning Board	Good	<b>Improvements Needed:</b> The Dummer Master Plan was last updated in 2019 and will not be ready for a recommended complete update until 2029, which is outside the scope of this Plan. This strategy was deferred to update the Master Plan according to the State's 10-year recommendation and consider including a natural hazards section and a discussion on climate change and action items from this Plan in future updates. Dummer reviews their Master Plan every five years. <b>Action Item #19 (also in Table 7.1)</b>
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 located in the 100-year floodplain, as identified on the FEMA Flood Maps, which in Dummer are dated February 20, 2013.	Planning Board & Select Board	Good	<b>Improvements Needed:</b> The Town developed a flood ordinance and became a National Flood Insurance Program (NFIP) member on March 1, 1995. 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 Hall, 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>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
<p>Zoning Regulations (2023)</p> <p>Subdivision Regulations (2023)</p> <p>Flood Ordinance (part of Zoning)</p>	<p>Zoning and Subdivision Regulations and the Flood Ordinance help regulate development, particularly in hazardous areas of the community, such as floodplains.</p>	<p>Planning Board &amp; Select Board</p>	<p>Good</p>	<p><b>Improvements Needed:</b> The Town's regulatory mechanisms, the Zoning Ordinance, Subdivision Regulations, and the Floodplain Ordinance should be reviewed and updated after this hazard mitigation plan is completed. This review should include a review of the status of the action items in this Plan and a determination by the respective boards to consider climate change and the impacts the hazards identified in this Plan can have on the Town. <b>Action Item #18 (also in Table 7.1)</b></p>
<p>Emergency Generators</p>	<p>The Town Hall, the primary EOC, and the secondary shelter would benefit from a permanent generator.</p>	<p>Select Board</p>	<p>Inadequate</p>	<p><b>Improvements Needed:</b> The Town Hall is the designated primary EOC and secondary shelter; however, there is no backup power should there be a long-term utility outage. This strategy was deferred to obtain and install an emergency generator for the Town Hall to improve the effectiveness of these facilities during a disaster. <b>Action Item #21 (also in Table 7.1)</b></p>
<p>Emergency Operation Plan (2021)</p>	<p>An Emergency Operations Plan identifies the response procedures and capabilities of the Town of Dummer in the event of a natural, technological, or human-caused hazard.</p>	<p>Select Board</p>	<p>Good</p>	<p><b>Improvements Needed:</b> The Dummer Emergency Operations Plan (EOP) was last updated in 2021 and will not be ready for an update until 2026 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></p>
<p>Culvert &amp; Stormwater Maintenance Plan</p>	<p>A Culvert &amp; Storm Water Maintenance Plan includes an inventory of all culverts and ditches in the Community and a record of the location, size, etc. The Dummer Road Agent and the NH DOT clean the drainage basins once a year, and after significant flooding events, culverts are repaired as needed.</p>	<p>Road Agent</p>	<p>Good</p>	<p><b>Improvements Needed:</b> Although the Dummer Road Agent does an excellent job cleaning and repairing drainage basins and culverts, a written Culvert &amp; Stormwater Maintenance Plan should be developed to ensure continuity of actions and efficient stormwater management. This strategy was deferred to develop a written Culvert &amp; Stormwater Maintenance Plan detailing the size, material, installation date, recommended date for improvement, GPS location, and any associated problems (i.e., flooding). <b>Action Items #22 (also in Table 7.1)</b></p>
<p>Dummer Hazard Mitigation Plan (2017)</p>	<p>A hazard mitigation plan addresses natural, technological, and human-caused hazards and the risk these pose to the Community. A hazard mitigation plan creates action items that will make the Community safer by lessening or eliminating the effects of hazards.</p>	<p>Select Board</p>	<p>Good</p>	<p><b>Improvements Needed:</b> The Dummer Hazard Mitigation Plan (2017) is being updated to this Plan. This strategy was deferred to review this Plan, the Dummer Hazard Mitigation Plan 2024, annually and to update the Plan again in 2029. <b>Action Item #13</b></p>

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Radio Communications	Radio communications are vital for emergency response to all types of hazards. Radios should be interoperable and up to date with current technology.	Select Board & Road Agent	Good	<b>No Improvements Needed:</b> Dummer's emergency responders have good radio communications and interoperability. The Road Agent is often difficult to reach due to radio "dead spots" and poor cell service. An extra radio has become available for the town truck, and there is no current mitigation for the dead spots; therefore, no improvements are needed. <b>(also in Table 7.1)</b>
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	Good	<b>No Improvements Needed:</b> The system in place with NH Forests & Lands (DNCR) and the local fire warden works well. The public is aware of fire permitting requirements. This strategy was deleted as the Town feels the program works as intended and is out of the Town's control. <b>(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.	Department of Environmental Services (DES), David Marios & Dummer Power Company	Good	<b>No Improvements Needed:</b> The Town has copies of all of the Androscoggin River dam plans (Pontook Reservoir, Fire Pond Dam, Androscoggin River Dam); therefore, this strategy was deleted. <b>(also in Table 7.1)</b>
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 and the resources needed to fight them.	NH Hampshire Forests & Lands (DNCR) & Fire Department	Excellent	<b>No Improvements Needed:</b> The Milan 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. Milan also has fire danger signs in place. Dummer felt that the fire danger signs in Milan were adequate; therefore, this strategy was deleted. <b>(also in Table 7.1)</b>
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.	Road Agent	Excellent	<b>No Improvements Needed:</b> Dummer has one town-owned bridge on Old Route 110 in West Dummer. This bridge was recently replaced with a wider full-span bridge. This strategy was deleted as there are no red-listed bridges in Dummer.
Building Code & Permits	The Town has adopted International Building Codes (IBC) and International Residential Codes (IRC). It 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	Good	<b>No Improvements Needed:</b> The Town of Dummer has a Building Inspector. The permitting process requires builders to abide by the International Building Codes (IBC) and the International Residential Codes (IRC), which the State of New Hampshire has adopted. This system works as it should.

Current Program or Activity	Description	Managing Department	How Effective	Improvements Needed
Capital Reserve Fund (CRF)	A Capital Reserve fund is an account on a town's balance sheet reserved for long-term capital investment projects or any other significant and anticipated expense(s) that will be incurred. Reserve funds are set aside to partially ensure adequate funding 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 Dummer Capital Reserve Funds work well and are part of the Town Warrant at the annual Town Meeting.
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 North Country Regional Public Health Emergency Annex.	North Country 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 North Country Regional Public Health Network. The Dummer Health Officer attends public health meetings whenever possible.
Local Road Design Standards	Local road design standards are specifications for constructing new roads in a community.	Select Board & Road Agent	Good	<b>No Improvements Needed:</b> Local Road Standards have been established to provide specifications for building new roads to ensure that the Town does not assume ownership of substandard roads. The Town will not assume ownership of roads not built to Class V standards. Acceptance of new roads is voted on at Town Meetings as a Warrant Article. The Road Standards work as they should.
Shoreland Water Quality Protection Act (formerly the Comprehensive Shoreland Protection Act)	The Shoreland Water Quality Protection Act (SWQPA) establishes minimum standards for using and developing shorelands adjacent to the State's public water bodies.	State of NH	Good	<b>No Improvements Needed:</b> The Town of Dummer follows the regulations detailed in the Shoreland Water Quality Protection Act. Compliance with the Act is encouraged.

## Chapter 7: Last Mitigation Plan

### A. DATE OF LAST PLAN

Based on the Disaster Mitigation Act (DMA) of 2000, Dummer has developed hazard mitigation plans in the past. The most recent update was formally approved in 2017. The Dummer Hazard Mitigation Plan Update 2024 updates the 2017 plan.

Below are the action items that were identified in the 2017 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 2017 Hazard Mitigation Plan. Additional columns not shown here – *Hazard Addressed, Responsible Department, Funding or Support, Time Frame, and Estimated Cost* – can be found in the 2017 Hazard Mitigation Plan.

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

Final Priority	Mitigation Action Item	Completed, Deleted, or Deferred
0-1	<p><b>Action Item #1:</b> The Board of Selectmen (serving as the EMD) and one other town officials to sign up with the Emergency Notification System (ENS) and to provide public education so that residents can add their cell numbers, emails, and unlisted phone numbers. (Table 7.1)</p>	<p><b>Completed &amp; Deferred:</b> Genasys (formerly CodeRED/NH ENS) is an excellent warning system, but it only stores resident hardline 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 Hall, social media platforms, or a sign-up at Town Meeting. <b>Action Item #8 (also in Table 6.1)</b></p>

Final Priority	Mitigation Action Item	Completed, Deleted, or Deferred
0-2	<p><b>Action Item #2:</b> Consider ways to improve 911 signage compliance so that emergency responders can better assist the public at the time of need; perhaps through public outreach by mail or through the website. <b>(MU14)</b></p>	<p><b>Completed &amp; Deferred:</b> Dummer is about 70% 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 the Town's website or social media to promote better compliance and develop other means of increasing compliance. The Town could purchase and install signage, create an ordinance and "fine", or provide signs for residents to install themselves to promote compliance better. <b>Action Item #2 (also in Table 6.1)</b></p>
0-3	<p><b>Action Item #3:</b> Educate residents who live on private roads and long driveways of the importance of maintaining their roads for first responders by adding information to the Town's website. <b>(WF8)</b></p>	<p><b>Completed &amp; Deferred:</b> To promote private mitigation efforts and provide public outreach to the citizens of Dummer on the importance of maintaining private roads to allow for safe access for fire apparatus into wildland-urban interface neighborhoods and properties. This will help to ensure accessibility for emergency response and decrease the risk of wildfire. <b>Action Item #11</b></p>
0-4	<p><b>Action Item #4:</b> Improve the flow of storm water throughout the Community by continuing the usual maintenance of culverts and ditches. <b>(F13)</b></p>	<p><b>Completed &amp; Deferred:</b> The Dummer Road Agent does an excellent job cleaning and repairing drainage basins throughout the Town. This strategy was deferred for continued maintenance of the drainage system in town. <b>Action Item #4</b></p>
0-5	<p><b>Action Item #5:</b> Create a voluntary database to identify those individuals at high risk of death, such as the elderly, homeless, etc. by developing a survey that asks for next of kin notification or other persons who can assist if needed; voluntary basis based on HIPAA. <b>(ET3 &amp; WW6)</b></p>	<p><b>Completed &amp; Deleted:</b> The Town has not established a functional needs list due to concerns about the upkeep and maintenance of such a list. This strategy was deleted as the Town felt this would not be worth the effort with so few citizens in Dummer.</p>
0-6	<p><b>Action Item #6:</b> Repair non-functioning hydrants and develop a more formal maintenance program and appropriate recording keeping for future use and conduct regular maintenance of all fire hydrants to reduce risk. <b>(WF7) (Table 7.1)</b></p>	<p><b>Completed &amp; Deferred:</b> Dry hydrants (2) and drafting sites throughout Dummer provide water resources for firefighting. This strategy was deferred to maintain the two dry hydrants and other water resources to help mitigate the effects of structure fires and wildfires. Milan Fire Department undertakes this task. This strategy was also deferred to research the possibility of a new drafting site in the Bayview Area. <b>Action Item #3 (also in Table 6.1)</b></p>
0-7	<p><b>Action Item #7:</b> Encourage all town officials and new hires to take NIMS 700 and ICS 100 and 200. <b>(Table 6.1)</b></p>	<p><b>Completed &amp; Deferred:</b> Most first responders have done NIMS and ICS training. 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 #6 (also in Table 6.1)</b></p>

Final Priority	Mitigation Action Item	Completed, Deleted, or Deferred
0-8	<p><b>Action Item #8:</b> Establish an interactive emergency webpage for educating the public on hazard mitigation and preparedness measures (MU14) by adding to the website information 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). (Table 7.1)</p>	<p><b>Completed &amp; Deferred:</b> The Town has a website; however, there is no "Emergency Management" tab or any emergency-related links. An emergency web page 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 develop and provide vital information and links on an "Emergency Management" tab to educate the public on general and seasonal mitigation techniques. The Town could also establish social media platforms to release information to the residents. <b>Action Item #7 (also in Table 6.1)</b></p>
0-9	<p><b>Action Item #9:</b> Obtain and have available "Firewise" brochures to educate homeowners on methods to reduce fire risk around their homes (WF10); provide "Firewise" brochures to those residents seeking burn permits; 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; add a link to Firewise and other State fire prevention websites. (WF12) (Table 7.1)</p>	<p><b>Completed &amp; Deferred:</b> The Town has done an excellent job reminding residents of the local fire danger, but more can be done. The strategy was deferred to promote structure fire and wildfire mitigation on the Town's website and obtain and have available Firewise® brochures to educate homeowners on wildfire mitigation. Add a Firewise® link to the website and provide Firewise® brochures to those residents seeking burn permits. <b>Action Item #10</b></p>
0-10	<p><b>Action Item #10:</b> The Fire Warden will continue to follow up on issued burn permits to ensure burning is taking place according to the permit request. (Table 7.1)</p>	<p><b>Deleted:</b> The system with NH Forests &amp; Lands (DNCR) and the local fire warden works well. The public is aware of fire permitting requirements. This strategy was deleted as the Town feels the program works as intended and is out of the Town's control. (also in Table 6.1)</p>
0-11	<p><b>Action Item #11:</b> Continue to provide public education on wildfires to both students at the elementary school and to adults. (WF11) (Table 7.1)</p>	<p><b>Deleted:</b> Education on wildfires is handled by the Milan Fire Department; therefore, this strategy was deleted.</p>
0-12	<p><b>Action Item #12:</b> Continue program to mow roadsides and cut limbs and branches in an effort to mitigate the effects of wind damage to power lines and structures and to ensure defensible space for mitigating wildfires; continue tree maintenance program to reduce or eliminate the damage that may result during a natural hazard such as a wildfire, windstorm, hurricane or tropical storm. (SW4 &amp; WF7)(Table 6.1)</p>	<p><b>Completed &amp; Deferred:</b> As trees become damaged and threaten structures and town roads, the Road Agent removes them. The NH DOT and Eversource do 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 #5 (also in Table 6.1)</b></p>

Final Priority	Mitigation Action Item	Completed, Deleted, or Deferred
1-1	<p><b>Action Item #13:</b> Locate a copy of the current Androscoggin River Dam plans and participate in practice &amp; drill activities for failure of upstream dams to improve response, based not only on complete failure of one or all of these dams but also other levels of breach; establish an adequate system of notification; contact Brookfield Power. <b>(F7) (Table 6.1)</b></p>	<p><b>Completed &amp; Deleted:</b> The Town has obtained copies of the Androscoggin River dam plans. This strategy was deleted as it has been completed.</p>
1-2	<p><b>Action Item #14:</b> Continue to review and update the Master Plan and consider adding a natural hazard section and action items from this Plan. <b>(MU6) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Completed &amp; Deferred:</b> The Dummer Master Plan was last updated in 2019 and will not be ready for a recommended complete update until 2029, which is outside the scope of this Plan. This strategy was deferred to update the Master Plan according to the State's 10-year recommendation and consider including a natural hazards section and a discussion on climate change and action items from this Plan in future updates. Dummer reviews their Master Plan and updates it every five years. <b>Action Item #19 (also in Table 6.1)</b></p>
1-3	<p><b>Action Item #15:</b> Advise the public about the local flood hazard, flood insurance and flood protection measures <b>(F10)</b> by obtaining and keeping on hand a supply of NFIP brochures to have available in the Town Offices; give NFIP materials to homeowners and builders when proposing new development or substantial improvements; encourage property owners to purchase flood insurance <b>(F22)</b>, whether or not they are in the flood zone and provide appropriate links to the NFIP and Ready.gov on the Town's website. <b>(Tables 6.1 &amp; 7.1)</b></p>	<p><b>Completed &amp; Deferred:</b> The Town developed a flood ordinance and became a National Flood Insurance Program (NFIP) member on March 1, 1995. The Town's Flood Ordinance works well to successfully prohibit or force compliance with 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 Hall, 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>
2-1	<p><b>Action Item #16:</b> Consider purchasing a fire danger sign (Smokey the Bear) that would provide notification to both sides of the Community. <b>(WF11) (Table 7.1)</b></p>	<p><b>Deleted:</b> The Milan Fire Department receives the regular notification of the burning index via email from NH Forests &amp; Lands. This notification is made daily during the fire danger season. Milan also has fire danger signs in place. Dummer felt that the fire danger signs in Milan were adequate; therefore, this strategy was deleted. <b>(also in Table 6.1)</b></p>
2-2	<p><b>Action Item #17:</b> Consider revising the subdivision regulations to include limits on driveway slope, the slope upon which new construction can take place and to require prospective builders to install fire suppression techniques such as cisterns and fire ponds. <b>(MU4) (Table 6.1)</b></p>	<p><b>Completed &amp; Deferred:</b> The Town's regulatory mechanisms, the Zoning Ordinance, Subdivision Regulations, and the Floodplain Ordinance should be reviewed and updated after this hazard mitigation plan is completed. This review should include a review of the status of the action items in this Plan and a determination by the respective boards to consider climate change and the impacts the hazards identified in this Plan can have on the Town. <b>Action Item #18 (also in Table 6.1)</b></p>

Final Priority	Mitigation Action Item	Completed, Deleted, or Deferred
2-3	<b>Action Item #18:</b> Improve communications capabilities with the Road Agent. <b>(Table 6.1)</b>	<b>Completed &amp; Deleted:</b> The Road Agent is often difficult to reach due to radio "dead spots" and poor cell service. An extra radio has become available for the Town Truck; therefore, this strategy is deleted. <b>(also in Table 6.1)</b>
2-4	<b>Action Item #19:</b> Fund and obtain a permanent generator or a solar panel solution for the Town Hall/Office Building as the downstairs (office) is the designated Primary EOC and the upstairs (hall) is the designated Secondary Shelter. <b>(MU13) (Tables 6.1 &amp; 7.1)</b>	<b>Completed &amp; Deferred:</b> The Town Hall is the designated primary EOC and secondary shelter; however, no backup power generator was installed for use during a long-term utility outage. This strategy was deferred to obtain and install an emergency generator for the Town Hall to improve the effectiveness of these facilities during a disaster. <b>Action Item #21 (also in Table 6.1)</b>
2-5	<b>Action Item #20:</b> Improve the flow of storm water on Philips Brook by dredging the brook and changing the path of brook back to its original flow; ice can also be pushed onto the road and cause flooding; consider stabilizing and riprapping the bank of Philips Brook until more long-term solutions can be found. <b>(F13) (ER5) (Table 7.1)</b>	<b>Partially Completed &amp; Deferred:</b> Some work has been done to mobilize the bank of Philips Brook; however, more stabilization is needed. This strategy was deferred to continue dredging and stabilizing Philips Brook to alleviate the bank erosion. <b>Action Item #23</b>
2-6	<b>Action Item #21:</b> Develop a written storm water maintenance plan in order to ensure more efficient storm water management; include location, size, age and type of culverts. <b>(F5) (Table 7.1)</b>	<b>Deferred:</b> Although the Dummer Road Agent does an excellent job cleaning and repairing drainage basins and culverts, a written Culvert & Stormwater Maintenance Plan should be developed to ensure continuity of actions and efficient stormwater management. This strategy was deferred to develop a written Culvert & Stormwater Maintenance Plan detailing the size, material, installation date, recommended date for improvement, GPS location, and any associated problems (i.e., flooding). <b>Action Item #22 (also in Table 6.1)</b>
3-1	<b>Action Item #22:</b> Update the Emergency Operations Plan to increase the Town's ability to respond to disasters and to mitigate future or continued occurrences; incorporate this Plan as an annex to the Emergency Operations Plan. <b>(Tables 6.1 &amp; 7.1)</b>	<b>Completed &amp; Deferred:</b> The Dummer Emergency Operations Plan (EOP) was last updated in 2021 and will not be ready for an update until 2026 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>

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## 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 Dummer, 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 300 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 Dummer 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 Dummer 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 the four projects in this table, the Road Agent hopes to continue to improve stormwater flow by upgrading culverts throughout the Community based on priorities, paving, and the budget.	<u>Affected Location</u> -Townwide	3	3	2	3	3	3	2	19
	<u>Type of Activity</u> -Prevention -Emergency Service Protection -Structural Project	<i>Administrative: Time and funding must be available</i> <i>Environmental: DES permits may be needed for some</i>							
<b>Action Item #2:</b> Improve E-911 signage compliance so that emergency responders can better assist the public in their time of need. Use all available public outreach opportunities, including the Town's website, an Emergency Management webpage, a possible brochure, available social media platforms, and local newsletters. Milan-Dummer Ambulance is leading this project; costs will be the residents' responsibility. (MU14) (Tables 6.1 & 7.1)	<u>Affected Location</u> -Townwide	3	3	3	2	3	3	3	20
	<u>Type of Activity</u> -Prevention -Public Education & Awareness -Emergency Service Protection -Property Protection -Natural Resource Protection	<i>Political: People may want their own signs</i>							
<b>Action Item #3:</b> Inspect the functionality of all hydrants and maintain and repair all hydrants and other water resources in Dummer. Consider other community areas with limited water resources and address these issues by installing new hydrants, fire ponds, and cisterns. (WF8) (Tables 6.1 & 7.1)	<u>Affected Location</u> -Dry Hydrants -Water resources	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>							

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<p><b>Action Item #4:</b> Maintain and monitor all stormwater and drainage systems in Dummer to ensure their ability to handle heavy rainstorms and rapid snowmelt. <b>(F13) (Table 7.1)</b></p>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection -Structural Project</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #5:</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 wildfire risk by clearing dead vegetation and cutting high grass and other fuel loads in the Community. <b>(SW4, WF7, WF9 &amp; F14) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection</p>	3	3	3	2	3	3	3	20
<p><b>Action Item #6:</b> The Select Board, acting as 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>(Tables 6.1 &amp; 7.1)</b></p>	<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
<p><b>Action Item #7:</b> Provide robust information on an emergency management web page 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 strategies for drought, earthquakes, tornadoes, severe winter weather, lightning, and climate change. Provide information on infectious diseases, encourage homeowners to install carbon monoxide monitors and alarms, and monitor radon in their homes. Offer residents and business owners reminders to clear snow from roofs during high accumulation snow years. <b>(MU14, SW7, WF11, D9, T3, EQ7, ET1, ET4, L2, HA3, WW5) (Tables 6.1 &amp; 7.1)</b></p>	<p><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
<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 community's website, a possible brochure, available social media platforms, local newsletters, or a sign-up at Town Meeting. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Public Education &amp; Awareness -Emergency Service Protection</p>	3	3	3	3	3	3	3	21

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<p><b>Action Item #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 in the Town Offices. When proposing new developments or substantial improvements, give NFIP materials to homeowners and builders. Encourage property owners to purchase flood insurance, whether or not they are in the flood zone, and provide appropriate links to the NFIP and Ready.gov on an emergency webpage or available social media platforms. Through Public Outreach, educate homeowners regarding the risks of building in the flood zone and measures to reduce flooding. Actively work with residents and builders to ensure they comply with the town's Floodplain Ordinance. <b>(F10, F22 &amp; F23) (Tables 6.1 &amp; 7.1)</b></p>	<p><b>Affected Location</b> -Areas prone to flooding</p> <p><b>Type of Activity</b> -Prevention -Public Education &amp; Awareness -Property Protection</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #10:</b> Post important information on the town's Emergency Management webpage and notices of red flag burning days. Obtain and have available Firewise® brochures to educate homeowners on methods to reduce fire risk around their homes and provide a link to Firewise® on the emergency page of the town's website. Provide Firewise® brochures to those residents seeking burn permits (if not obtained online); advise residents of the importance of maintaining defensible space, the safe disposal of household waste, and the removal of dead or dry leaves, needles, twigs, and combustible materials from roofs, decks, eaves, porches, and yards. <b>(WF10 &amp; 12) (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 suggest to the citizens of Dummer 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 to ensure accessibility for emergency response and decrease the risk of wildfire. <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	3	3	3	3	21
<p><b>Action Item #12:</b> Obtain approval of this hazard mitigation 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>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention -Property Protection -Natural Resource Protection</p>	3	3	3	3	3	3	3	21
<p><b>Action Item #13:</b> Provide an annual review of the Dummer Hazard Mitigation Plan Update 2024, including a review of the status of the "Action Items" listed in this plan to encourage completion. Determine whether the Plan's goals have been met. Obtain approval from the local elected body annually and provide a complete plan update in five years. <b>(MU11) (Table 6.1)</b></p>	<p><b>Affected Location</b> -Townwide</p> <p><b>Type of Activity</b> -Prevention</p>	3	3	3	3	3	3	3	21

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<p><b>Action Item #14:</b> Improve the current 42" x 20' culvert on Paris Road by upgrading it to a 48" x 30' culvert to improve stormwater flow. Keep tabs on the beaver problem and mitigate the issue as needed. <b>(F13)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection</p>	3	3	3	3	3	3	2	20
		<p><i>Environmental: Will need DES permitting</i></p>							
<p><b>Action Item #15:</b> Improve a second culvert on Paris Road. Upgrade the current 15" x 20' culvert with a new metal culvert measuring 15" x 30'. Based on inspection, a second culvert may be needed. <b>(F13)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection</p>	3	3	3	3	3	3	2	20
		<p><i>Environmental: DES permitting will be required</i></p>							
<p><b>Action Item #16:</b> Improve the road structure and the stormwater flow on Blake Road by increasing the length of the current culvert from 24" x 20' to 24" by 30'. <b>(F13)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection</p>	3	3	3	3	3	3	3	21
		<p><i>No apparent difficulty with this action item</i></p>							
<p><b>Action Item #17:</b> Improve the 15" x 32' metal culvert by upgrading it to an 18" x 40' concrete culvert to improve stormwater flow. <b>(F13)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection</p>	3	3	3	3	3	3	3	21
		<p><i>No apparent difficulty with this action item</i></p>							
<p><b>Action Item #18:</b> Review the Dummer Subdivision, Zoning, and Floodplain Regulations to consider changes that will enhance mitigation efforts across the Community. Update these planning mechanisms and integrate elements from this hazard mitigation plan where possible, including consideration for climate change and the action items in this Plan. <b>(WF2, F1 &amp; MU6) (Tables 6.1 &amp; 7.1)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection</p>	3	3	3	3	3	3	3	21
		<p><i>No apparent difficulty with this action item</i></p>							
<p><b>Action Item #19:</b> Review this Plan, the Dummer Hazard Mitigation Plan Update 2024, whenever an annual review of the Master Plan is done, and consider incorporating a discussion on climate change, a natural hazards section, and mitigation action items from this plan. <b>(MU6) (Tables 6.1 &amp; 7.1)</b></p>	<p><u><b>Affected Location</b></u> -Townwide</p> <p><u><b>Type of Activity</b></u> -Prevention</p>	3	3	3	3	3	3	3	21
		<p><i>No apparent difficulty with this action item</i></p>							
<p><b>Action Item #20:</b> Lobby the state to ditch along Hill and East Side River Roads to mitigate potential washouts, icing, and ponding. Lobby the State to rebuild the subsurface and repave these roads, particularly Hill Road, to repair the rough patches that are very evident. <b>(F13)</b></p>	<p><u><b>Affected Location</b></u> -East Side River Road &amp; Hill Road</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection</p>	3	3	3	3	3	3	3	21
		<p><i>No apparent difficulty with this action item</i></p>							
<p><b>Action Item #21:</b> Obtain and install an emergency generator for the Town Hall to improve the effectiveness of these facilities during a disaster. <b>(MU13) (Tables 6.1 &amp; 7.1)</b></p>	<p><u><b>Affected Location</b></u> -Dummer Town Hall</p> <p><u><b>Type of Activity</b></u> -Prevention -Emergency Service Protection</p>	3	3	3	2	3	1	3	18
		<p><i>Political: Some people may not see the need for a generator; it may not be supported if the Town pays for all of it</i> <i>Economical: Budget constraints</i></p>							

Proposed Mitigation Action Items	Type of Activity	S	T	A	P	L	E	E	TTL
<p><b>Action Item #22:</b> Develop and maintain a written stormwater maintenance plan to ensure more efficient stormwater management. In this plan or "inventory", include the location, installation date, GPS coordinates, material, type, size, age, and expected replacement date of all culverts, catch basins, and drainage ditches in the community. <b>(F5) (Tables 6.1 &amp; 7.1)</b></p>	<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	2	3	3	3	3	20
<p><b>Action Item #23:</b> Dredge and stabilize Philips Brook to alleviate the bank erosion that is occurring and flooding that is occurring on Paris Road. <b>(ER5) (Table 7.1)</b></p>	<p><b>Affected Location</b> -Philips Brook on Paris Road</p> <p><b>Type of Activity</b> -Prevention -Emergency Service Protection -Property Protection -Structural Project</p>	3	3	1	1	3	1	1	13
<p><b>Action Item #24:</b> Update the Dummer Emergency Operations Plan to coincide with the new state 18-ESF format. Include an analysis of the impact of natural hazards on Critical Infrastructure &amp; Key Resources 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. Integrate elements of this hazard mitigation plan into future EOP updates. <b>(MU6) (Tables 6.1 &amp; 7.1)</b></p>	<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

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## Chapter 9: Implementation Schedule for Prioritized Action Items

### A. PRIORITY METHODOLOGY

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

#### CATEGORY A

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

#### CATEGORY B

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

#### CATEGORY C

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

#### CATEGORY D

Category D includes those items that would take a significant funding effort, 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 2024-2029 (0-60 months)
<b>Short Term</b> .....	1 year 2024-2025 (0-12 months)
<b>Medium Term</b> .....	2 years starting in 2025 – 2027 (12 – 36 months)
<b>Long-term</b> .....	3 years starting in 2026 – 2029 (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> <i>There are four culvert improvement projects listed in this table. However, there are more than 70 culverts and many ditching and grading projects throughout Dummer, many of which are aging and should be replaced over the next five years.</i></p> <p><b>Action Item #1:</b> In addition to the four projects in this table, the Road Agent hopes to continue to improve stormwater flow by upgrading culverts throughout the Community based on priorities, paving, and the budget.</p>	Inland Flooding & Aging Infrastructure	Road Agent	Local & Grants	Life of the Plan	Based on Budget
A-2	<p><b>Problem Statement:</b> <i>The Town has continuously used public outreach to remind residents of the need for proper E-911 signage. However, the Town is currently only about 70% compliant with the proper E-911 signage.</i></p> <p><b>Action Item #2:</b> Improve E-911 signage compliance so that emergency responders can better assist the public in their time of need. Use all available public outreach opportunities, including the Town's website, an Emergency Management webpage, a possible brochure, available social media platforms, and local newsletters. Milan-Dummer Ambulance is leading this project; costs will be the residents' responsibility. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Milan-Dummer Ambulance	Local	Life of the Plan	Very Low Cost
A-3	<p><b>Problem Statement:</b> <i>Dry hydrants (2) and drafting sites throughout Dummer provide water resources for firefighting. Water resource maintenance is needed to ensure water availability while fighting wildfires.</i></p> <p><b>Action Item #3:</b> Inspect the functionality of all hydrants and maintain and repair all hydrants and other water resources in Dummer. Consider other community areas with limited water resources and address these issues by installing new hydrants, fire ponds, and cisterns. <b>(WF8) (Tables 6.1 &amp; 7.1)</b></p>	Wildfire	Milan Fire Department	Local	Life of the Plan	Very Low Cost
A-4	<p><b>Problem Statement:</b> <i>The Dummer Road Agent does an excellent job cleaning and repairing drainage basins throughout the Town. This work needs to continue.</i></p> <p><b>Action Item #4:</b> Maintain and monitor all stormwater and drainage systems in Dummer to ensure their ability to handle heavy rainstorms and rapid snowmelt. <b>(F13) (Table 7.1)</b></p>	Inland Flooding	Road Agent	Local & Grants	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-5	<p><b>Problem Statement:</b> As trees become damaged and threaten structures and town roads, the Road Agent removes them. The NH DOT and Eversource do this for state roads as needed. There is a need to continue to work to keep this hazard to a minimum.</p> <p><b>Action Item #5:</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 wildfire risk by clearing dead vegetation and cutting high grass and other fuel loads in the Community. (SW4, WF7, WF9 &amp; F14) (Tables 6.1 &amp; 7.1)</p>	High Wind Events, Wildfire, Severe Winter Weather-Ice Storms & Inland Flooding	Road Agent & Select Board	Local	Life of the Plan	Low Cost
A-6	<p><b>Problem Statement:</b> Although first responders, including firefighters, have received NIMS and ICS training, not all Dummer town officials have.</p> <p><b>Action Item #6:</b> The Select Board, acting as 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. (Tables 6.1 &amp; 7.1)</p>	All Hazards	Select Board/Emergency Management Director	Local	Life of the Plan	Very Low Cost
A-7	<p><b>Problem Statement:</b> Although the Town can provide public outreach via its website, there is no emergency management webpage to keep residents informed about emergency preparedness and hazard mitigation.</p> <p><b>Action Item #7:</b> Provide robust information on an emergency management web page 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 strategies for drought, 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. (MU14, SW7, WF11, D9, T3, EQ7, ET1, ET4, L2, HA3, WW5) (Tables 6.1 &amp; 7.1)</p>	All hazards, including High Wind Events, Drought, Earthquake, Extreme Temperatures, Lightning, Severe Winter Weather, Wildfire & Infectious Disease	Administrative Assistant	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 that only stores landline resident 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 community's website, a possible brochure, available social media platforms, local newsletters, or a sign-up at Town Meeting. <b>(MU14) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Administrative Assistant	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 NFIP. They also may 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 in the Town Offices. When proposing new developments or substantial improvements, give NFIP materials to homeowners and builders. Encourage property owners to purchase flood insurance, whether or not they are in the flood zone, and provide appropriate links to the NFIP and Ready.gov on an emergency webpage 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	Administrative Assistant	Local	Life of the Plan	Low Cost
A-10	<p><b>Problem Statement:</b> Although the Town does a good job promoting wildfire preparedness, residents may not be aware of the steps they can take to reduce the fire risk at their homes.</p> <p><b>Action Item #10:</b> Post important information on the town's Emergency Management webpage and notices of red flag burning days. Obtain and have available Firewise® brochures to educate homeowners on methods to reduce fire risk around their homes and provide a link to Firewise® on the emergency page of the town's website. Provide Firewise® brochures to those residents seeking burn permits (if not obtained online); advise residents of the importance of maintaining defensible space, the safe disposal of household waste, and the removal of dead or dry leaves, needles, twigs, and combustible materials from roofs, decks, eaves, porches, and yards. <b>(WF10 &amp; 12) (Table 7.1)</b></p>	Wildfire	Administrative Assistant	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-11	<p><b>Problem Statement:</b> Residents may not be aware of the importance of maintaining their private roads to allow access to emergency responders and to prevent wildfires.</p> <p><b>Action Item #11:</b> To promote private mitigation efforts, provide public outreach to suggest to the citizens of Dummer 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 to ensure accessibility for emergency response and decrease the risk of wildfire. <b>(MU16) (Table 7.1)</b></p>	Wildfire	Administrative Assistant	Local	Life of the Plan	Very Low Cost
B-1	<p><b>Problem Statement:</b> This Plan, the Dummer Hazard Mitigation Plan Update, 2024, will need to be approved again as a Community Wildfire Protection Plan (CWPP).</p> <p><b>Action Item #12:</b> Obtain approval of this hazard mitigation 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	Mapping & Planning Solutions	Local	Short Term	Very Low Cost
B-2	<p><b>Problem Statement:</b> This Plan, the Dummer Hazard Mitigation Plan Update 2024, will require an annual review and a complete update in five years.</p> <p><b>Action Item #13:</b> Provide an annual review of the Dummer Hazard Mitigation Plan Update 2024, including a review of the status of the "Action Items" listed in this plan to encourage completion. Determine whether the Plan's goals have been met. Obtain approval from the local elected body annually and provide a complete plan update in five years. <b>(MU11) (Table 6.1)</b></p>	All Hazards	Select Board/Emergency Management Director	Local	Short Term & Long Term	Low Cost
B-3	<p><b>Problem Statement:</b> One culvert on Paris Road is in a swamp and is significantly aging; the bottom of the culvert has rotted out. When the river backs up, road flooding results. Beavers exacerbate this.</p> <p><b>Action Item #14:</b> Improve the current 42" x 20' culvert on Paris Road by upgrading it to a 48" x 30' culvert to improve stormwater flow. Keep tabs on the beaver problem and mitigate the issue as needed. <b>(F13)</b></p>	Inland Flooding & Aging Infrastructure	Road Agent	Local & Highway Block Grants	Short 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-4	<p><b>Problem Statement:</b> A second culvert on Paris Road is in a swamp and is significantly aging; the bottom of the culvert has also rotted out. A temporary culvert from five years ago is no longer adequate. Road flooding events take place when there are ice jams on the river.</p> <p><b>Action Item #15:</b> Improve a second culvert on Paris Road. Upgrade the current 15" x 20' culvert with a new metal culvert measuring 15" x 30'. Based on inspection, a second culvert may be needed. <b>(F13)</b></p>	Inland Flooding & Aging Infrastructure	Road Agent	Local & Highway Block Grants	Short Term	Low Cost
B-5	<p><b>Problem Statement:</b> Blake Road is subject to sinkholes whenever there is a large amount of rain. The current culvert is deteriorating due to age.</p> <p><b>Action Item #16:</b> Improve the road structure and the stormwater flow on Blake Road by increasing the length of the current culvert from 24" x 20' to 24" by 30'. <b>(F13)</b></p>	Inland Flooding & Aging Infrastructure	Road Agent	Local & Highway Block Grants	Short Term	Low Cost
B-6	<p><b>Problem Statement:</b> The culvert on Ferry Road has decayed, and it is too short to do the job. During springtime, there is washing out of the road on either end of the culvert.</p> <p><b>Action Item #17:</b> Improve the 15" x 32' metal culvert by upgrading it to an 18" x 40' concrete culvert to improve stormwater flow. <b>(F13)</b></p>	Inland Flooding & Aging Infrastructure	Road Agent	Local & Highway Block Grants	Short Term	Low Cost
B-7	<p><b>Problem Statement:</b> The Dummer Subdivision, Zoning, and Floodplain 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 #18:</b> Review the Dummer Subdivision, Zoning, and Floodplain Regulations to consider changes that will enhance mitigation efforts across the Community. Update these planning mechanisms and integrate elements from this hazard mitigation plan where possible, including consideration for climate change and the action items in this Plan. <b>(WF2, F1 &amp; MU6) (Tables 6.1 &amp; 7.1)</b></p>	All hazards including Wildfire & Inland Flooding	Planning Board	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
C-1	<p><i><b>Problem Statement:</b> The Dummer Master Plan was last updated in 2019 and will not be ready for a recommended complete update until 2029, which is outside the scope of this Plan. As the Master Plan is updated and reviewed, it should consider elements in this hazard mitigation plan.</i></p> <p><b>Action Item #19:</b> Review this Plan, the Dummer Hazard Mitigation Plan Update 2024, whenever an annual review of the Master Plan is done, and consider incorporating a discussion on climate change, a natural hazards section, and mitigation action items from this plan. <b>(MU6) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Planning Board	Local	Medium Term	Very Low Cost
C-2	<p><i><b>Problem Statement:</b> East Side River Road and Hill Road (major evacuation routes) are in overall poor condition and need ditching to eliminate minor flooding and puddling on the road surface.</i></p> <p><b>Action Item #20:</b> Lobby the state to ditch along Hill and East Side River Roads to mitigate potential washouts, icing, and ponding. Lobby the State to rebuild the subsurface and repave these roads, particularly Hill Road, to repair the rough patches that are very evident. <b>(F13)</b></p>	Inland Flooding	Emergency Management Director	Local	Medium Term	Very Low Cost
D-1	<p><i><b>Problem Statement:</b> The Town Hall is the designated primary EOC and secondary shelter; however, no backup power generator has been installed for use during a long-term utility outage.</i></p> <p><b>Action Item #21:</b> Obtain and install an emergency generator for the Town Hall to improve the effectiveness of these facilities during a disaster. <b>(MU13) (Tables 6.1 &amp; 7.1)</b></p>	Long Term Utility Outage	Select Board/Emergency Management Director	Local & Grants	Long Term	Medium Cost
D-2	<p><i><b>Problem Statement:</b> Although the Dummer Road Agent does an excellent job cleaning and repairing drainage basins and culverts, a written Culvert &amp; Stormwater Maintenance Plan should be developed to ensure continuity of actions and efficient stormwater management.</i></p> <p><b>Action Item #22:</b> Develop and maintain a written stormwater maintenance plan to ensure more efficient stormwater management. In this plan or "inventory", include the location, installation date, GPS coordinates, material, type, size, age, and expected replacement date of all culverts, catch basins, and drainage ditches in the community. <b>(F5) (Tables 6.1 &amp; 7.1)</b></p>	Inland Flooding	Road Agent	Local	Long 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
D-3	<p><i>Problem Statement: Some work has been done to mobilize the bank of Philips Brook; however, more stabilization is needed.</i></p> <p><b>Action Item #23:</b> Dredge and stabilize Philips Brook to alleviate the bank erosion that is occurring and flooding that is occurring on Paris Road. <b>(ER5) (Table 7.1)</b></p>	Erosion	AMCOE, Select Board & Road Agent	Local & Grants	Long Term	High Cost
D-4	<p><i>Problem Statement: The Dummer Emergency Operations Plan (EOP) was last updated in 2021 and will need to be updated again in 2026.</i></p> <p><b>Action Item #24:</b> Update the Dummer Emergency Operations Plan to coincide with the new state 18-ESF format. Include an analysis of the impact of natural hazards on Critical Infrastructure &amp; Key Resources 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. Integrate elements of this hazard mitigation plan into future EOP updates. <b>(MU6) (Tables 6.1 &amp; 7.1)</b></p>	All Hazards	Select Board/Emergency Management Director	Local & Grants	Long Term)	Low Cost

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## 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 Hall. 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. Dummer completed its last hazard mitigation plan in 2017 and has completed several projects. Examples in Table 7.1 include providing ongoing fire and flood education, completing the EOP, and performing some bank stabilization work along Philips Brook. As a result, the Town was able to integrate these actions into other town activities, budgets, plans, and mechanisms.

The Town of Dummer has agreed to incorporate a Community Wildfire Protection Plan (CWPP) into this planning document, the Dummer Hazard Mitigation Plan Update 2024. 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:

### **DUMMER MASTER PLAN**

Traditionally, Master Plans are updated every 5 to 10 years. A complete update of Dummer's Master Plan was completed in 2019 and is due for a recommended update in 2029. The Master Plan does not include a Natural Hazards section nor integrate elements of the 2017 HMP. Future reviews and updates of the Master Plan will consider integrating concepts, ideas, and action items from this Hazard Mitigation Plan (**Action Item #19**).

### **DUMMER EMERGENCY OPERATIONS PLAN 2021 (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 Dummer EOP was completed in 2021. An update for the Emergency Operations Plan is expected to be completed after completing this Plan in 2026. The new EOP will incorporate elements from this hazard mitigation plan (**Action Items #24**).

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

The Town of Dummer maintains Capital Reserve Funds (CRFs) for major expenditures. The CRFs 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 DUMMER 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 Item #18**).

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 March 30, 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



#### PARTIES TO THE AGREEMENT

Mapping and Planning Solutions  
Town of Dummer, NH

Current Plan Expiration: 9/12/2022  
BRIC2020 Grant Expiration: 12/22/2024

This agreement between the Town of Dummer (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 Dummer Hazard Mitigation Plan Update (the plan).

#### **Agreement**

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

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

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

#### **Scope of Work**

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

- MAPS will collect the necessary data to complete the plan and meet the requirements of the FEMA Plan Review Tool by working with the planning team (the team) and taking public input.
- With the team's assistance, MAPS will coordinate and facilitate two-hour virtual meetings to complete the project; generally, meetings are held monthly and do not exceed eight. These meetings will be held online unless unanticipated circumstances prevail. MAPS will provide any materials, handouts, and maps necessary to fully understand each step in the planning process.<sup>28</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.

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<sup>28</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 for conditional approval. Upon conditional approval by HSEM, MAPS will provide the planning team with the necessary documents for plan adoption by the Dummer 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 Dummer Hazard Mitigation Plan at its office.
- Once final documents are received, MAPS will print and distribute the plan. The final documents include the HSEM formal approval email, the FEMA formal letter of approval, and the approved Community Wildfire Protection Plan (CWPP) documents. MAPS will provide the town with one hard copy of the plan containing all signed documents and approvals and a flash drive containing these same documents in digital form. Additional flash drives may be requested at an additional cost. Copies of the plan will be distributed by MAPS to collaborating agencies, including, but not limited to, HSEM, FEMA, the Department of Natural and Cultural Resources (DNCR), and the US Forest Service.
- MAPS will provide all "Quarterly Reports" required by HSEM for this project's duration. These quarterly reports will be done online, and a copy of the report will be forwarded to the primary contact for Dummer.
- 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 public meetings to develop the plan and offer assistance to MAPS in developing the work program, which will produce the plan.
- The town shall gain the support of stakeholders for the recommendations found within the plan.
- The town shall provide public access for all meetings and provide public notice at the start of the planning process and at the time of adoption, as required by FEMA and the Code of Federal Regulations (CFRs).
- The proposed plan shall be submitted to the Select Board for consideration and adoption.
- After adoption and final approval from HSEM is received, the town will:
  - *Distribute copies of the plan as it sees fit throughout the local community.*
  - *Develop a team to monitor and work toward completing the determined Action Items.*
  - *Publicize the plan to the community and ensure citizen awareness.*
  - *Encourage the integration of priority projects into the town's Capital Improvement Plan (if available).*
  - *Integrate mitigation strategies and priorities from the plan into other town planning documents.*

**Terms**

- **Fees & Payment Schedule:** The contract price is limited to \$6,999.75; 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).....\$3,300.00
  - 3. Final payment upon project completion and receipt of the final hard copy of the plan.....\$199.75Total Fees.....\$6,999.75

- **Payment Procedures:** The payment procedure is as follows:
  - MAPS will invoice the town according to the schedule above
  - The town will pay MAPS
  - The town will forward the MAPS invoice along with an invoice from the town on letterhead to HSEM
  - HSEM will reimburse the town for the monies paid to MAPS

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

- **Required Matching Funds:** This project's total cost under BRIC2020 is \$9,333, with a federal share of \$6,999.75 and a matching amount of \$2333.25 (75%/25% split). Matching funds are the responsibility of the Town of Dummer, 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 BRIC2020. Per the grant agreement between the town and HSEM, all work must be completed by 12/22/24, the end of the Period of Performance.

- **Ownership of Material:** The town shall own all maps, reports, documents, and other materials produced during the project period; each party may keep file copies of any generated work. MAPS shall have the right to use work products collected during the planning process; however, MAPS shall not use any data in such a way as to reveal personal or public information about individuals or groups which could reasonably be considered confidential.

- **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 Dummer. 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 Dummer 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 80 Hazard Mitigation Plans and more than 80 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**

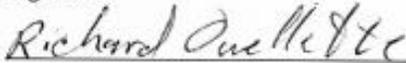
June Garneau  
Mapping and Planning Solutions  
PO Box 283, 91 Cherry Mountain Place  
Twin Mountain, NH 03595  
jgarneau@mappingandplanning.com

**For the Town of Dummer**

The Dummer Select Board  
Town of Dummer  
75 Hill Road  
Dummer, NH 03538  
(603) 449-2468

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

**FOR THE TOWN OF DUMMER, NH**

  
Signature  
  
  
Date

**FOR MAPPING AND PLANNING SOLUTIONS**

  
Signature  
June Garneau, Owner  
April 10, 2023

Signatures are scanned facsimiles; original signatures are on file.

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

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

 Neiderbach, Josiah <josiah.neiderbach@townofdummer.com>  
To: Townofdummer@gmail.com  
Cc: Surette, Melissa; FEMA-R1-MitigationPlans; Doyle, Lynne; DOS: Hazard Mitigation; Brown, Austin; Norman, Dena; jgarneau@mappingandplanning.com

Reply Reply All Forward

Tue 5/21/2024 11:20 AM

 You replied to this message on 5/21/2024 4:17 PM.  
This message was sent with High importance.

 Dummer NH APA Review.docx 94 KB

Dear Official:

The FEMA Region 1 Mitigation Division has determined the *Dummer, NH Hazard Mitigation Plan Update 2024* meets all applicable FEMA Mitigation Planning requirements (Local Mitigation Planning Policy Guide, effective April 19, 2023), except its adoption by: Town of Dummer, 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 202-285-7769 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: 202.285.7769 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**

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INSERTION OF FINAL APPROVAL LETTER FROM  
FEMA

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

***D SIGNED CERTIFICATE OF ADOPTION***

**CERTIFICATE OF ADOPTION**

**DUMMER, NH**

**SELECT BOARD**

**A RESOLUTION ADOPTING THE DUMMER, NH HAZARD MITIGATION PLAN UPDATE 2024**

WHEREAS, the Town of Dummer 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 Dummer has received Approved Pending Adoption (APA) status from the Federal Emergency Management Agency (FEMA) for its Hazard Mitigation Plan Update 2024 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held between March 30, 2023, and August 24, 2023, regarding the development and review of the Hazard Mitigation Plan Update 2024 and

WHEREAS, the Plan specifically addresses hazard mitigation strategies and plan maintenance procedures for the Town of Dummer; and

WHEREAS, the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural hazards that impact the Town of Dummer 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 Dummer 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 Dummer;
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;

**Dummer, Hazard Mitigation Plan Update Certificate of Adoption, page two**

- 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.

Adopted this day, the \_\_\_\_\_ of \_\_\_\_\_, 2024

**Select Board Chair  
Serving as Emergency Management Director**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print Name

**Member of the Select Board**

**Member of the Select Board**

\_\_\_\_\_  
Signature

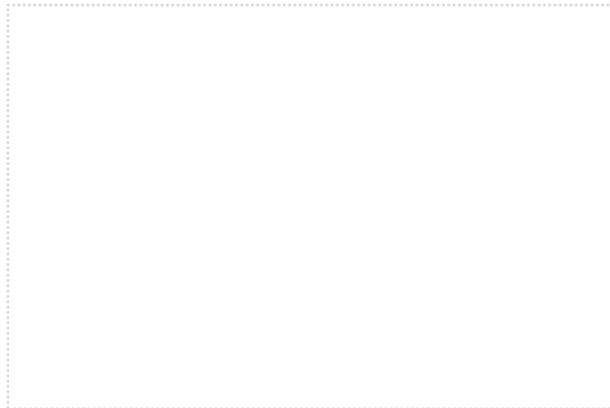
\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

**IN WITNESS WHEREOF**, the undersigned has affixed their signature and their notary stamp on this day, the \_\_\_\_ day of \_\_\_\_\_, 2024.

Notary Stamp



\_\_\_\_\_  
Notary – Printed Name

\_\_\_\_\_  
Notary - Signature

\_\_\_\_\_  
Expiration

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

**E. CWPP APPROVAL LETTER FROM DNCR**

**Dummer, NH  
A Resolution Approving the  
Dummer, NH Hazard Mitigation Plan Update 2024  
As a Community Wildfire Protection Plan**

Several public meetings and committee meetings were held between March 30, 2023, and August 24, 2023, regarding the development and review of the Dummer Hazard Mitigation Plan Update 2024. The Dummer Hazard Mitigation Plan Update 2024 contains potential future projects to mitigate hazard and wildfire damage in the Town of Dummer.

The Milan Fire Chief, along with the Select Board Chair, acting as Emergency Management Director, 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 Chair and the Milan Fire Chief approve the Dummer Hazard Mitigation Plan Update 2024 and understand that with approval by DNCR, this Plan will also serve as a Community Wildfire Protection Plan.

**For the Town of Dummer**

APPROVED and SIGNED this day, \_\_\_\_\_, 2024.

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

\_\_\_\_\_  
Printed Name

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

\_\_\_\_\_  
Printed Name

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

APPROVED and SIGNED this day, \_\_\_\_\_, 2024.

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

APPROVED and SIGNED this day, \_\_\_\_\_, 2024.

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

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

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

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

**CHECK ALL THAT APPLY**

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

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

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

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

Dummer, 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 2024 Hazard Mitigation Plan Update

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**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.

Dummer, 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 2024 Hazard Mitigation Plan Update

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Please use the reverse side for additional notes 



YEAR THREE - Annual or Post Hazard Review Form

CHECK ALL THAT APPLY

Annual Review - Year Three: \_\_\_\_\_ (Date)

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

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

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

Dummer, 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 2024 Hazard Mitigation Plan Update

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Please use the reverse side for additional notes 



YEAR FOUR - Annual or Post Hazard Review Form

CHECK ALL THAT APPLY

Annual Review - Year Four: \_\_\_\_\_ (Date)

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

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

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

Dummer, 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 2024 Hazard Mitigation Plan Update

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Please use the reverse side for additional notes 



## Chapter 12: Appendices

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

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## APPENDIX A: BIBLIOGRAPHY

### Documents

- **Local Hazard Mitigation Planning Policy Guide**, FEMA, April 19, 2023
- **Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards**, FEMA, January 2013
- **Hazard Mitigation Unified Guidance**, FEMA, July 12, 2013
- **Hazard Mitigation Assistance Guidance**, FEMA, February 27, 2015
- **Hazards Mitigation Plans**
  - Dummer Hazard Mitigation Plan, 2017
  - 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, October 2023; Community Response for Dummer, Received, 6/12/2023, Census 2000 and Revenue Information derived from this site;
  - <http://www.nhes.nh.gov/elmi/products/cp/profiles-htm/Dummer.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 Granit, 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>29</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>HMA Eligible Activities</b>				
<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>29</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>30</sup>

**Who is eligible to apply?**

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	-	-

**Cost-share requirements**

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>30</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**

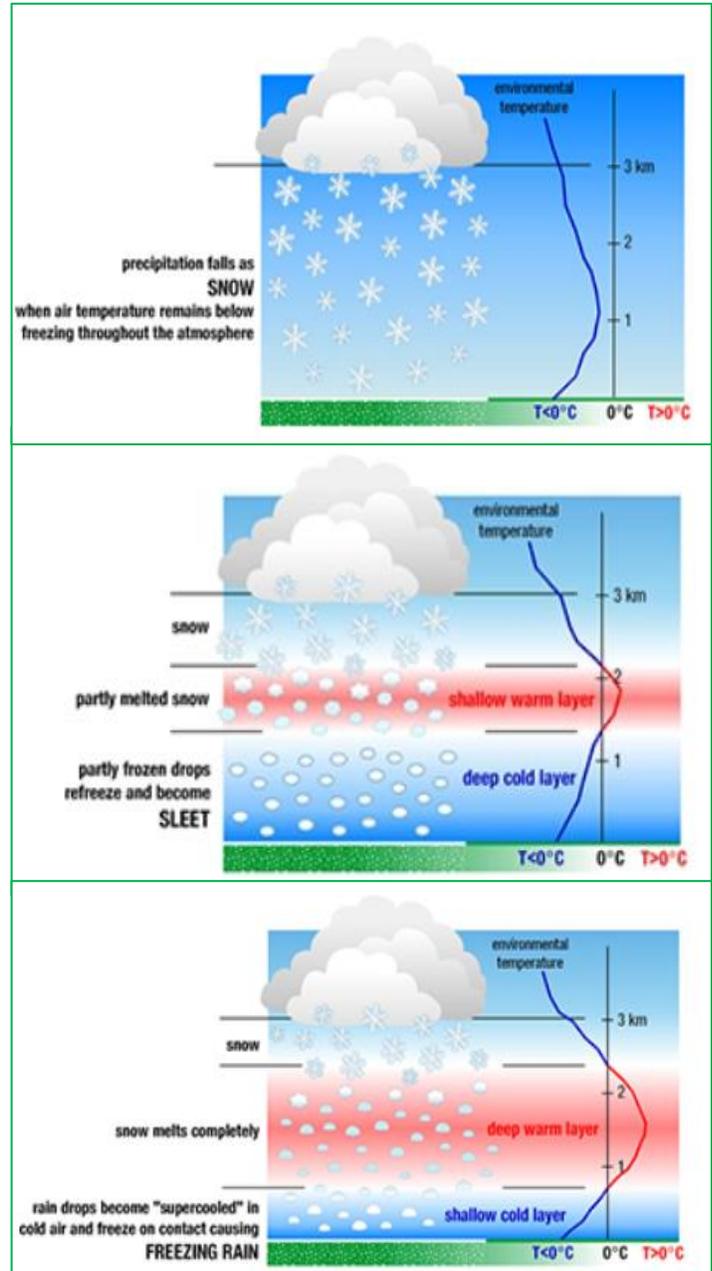
A winter storm can range from moderate snow to blizzard conditions. Blizzard conditions are considered blinding wind-driven snow over 35 mph that lasts several days. A severe winter storm deposits four or more inches of snow for 12 hours or six inches for 24 hours.

**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>31</sup>



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

<sup>31</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>32</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	

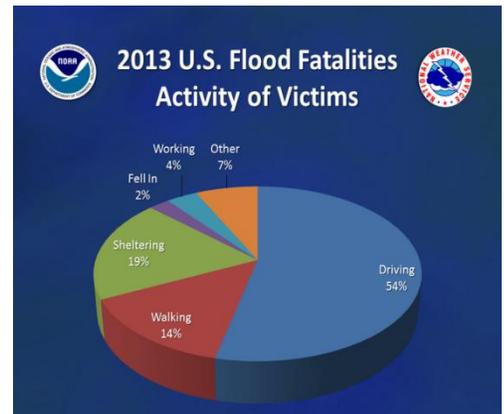
(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

**\*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>32</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>33</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>34</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>33</sup> <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/vol2-appC.pdf>

<sup>34</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.

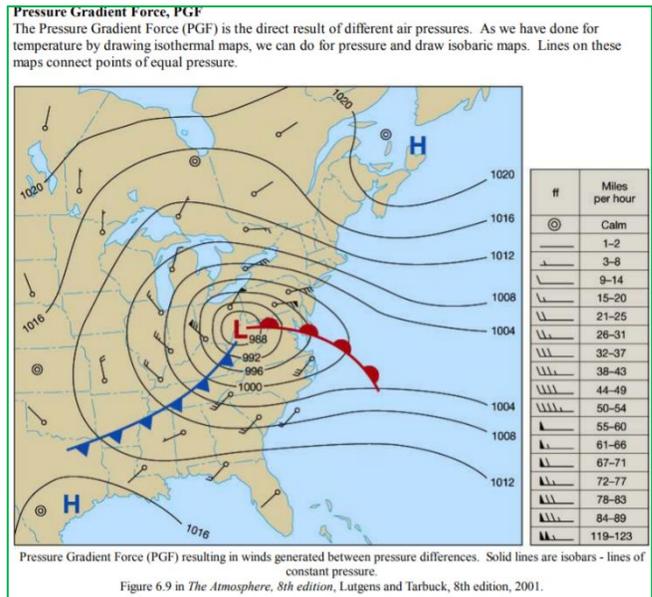
**Erosion**

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>35</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>36 37</sup>



<sup>35</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>36</sup> NOAA; <https://w1.weather.gov/glossary/index.php?letter=w>  
<sup>37</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>38</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>38</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>39</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>40</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 bring 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>39</sup> NOAA - [https://www.noaa.gov/jetstream/wind\\_damage](https://www.noaa.gov/jetstream/wind_damage)

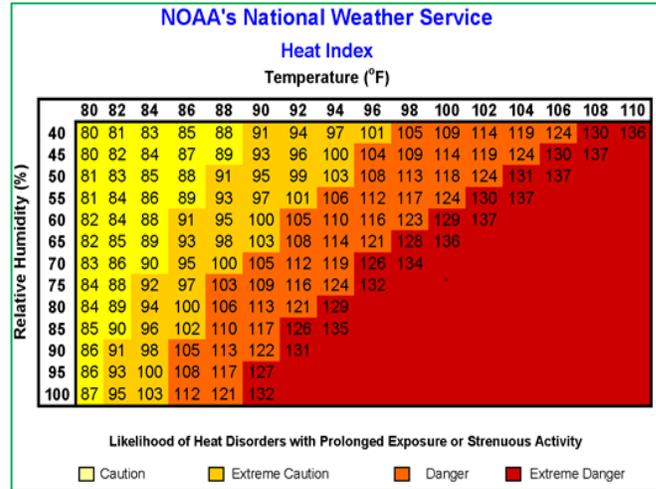
<sup>40</sup> NOAA, Storm Prediction Center, <https://www.spc.noaa.gov/faq/tornado/beaufort.html>

**\*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.

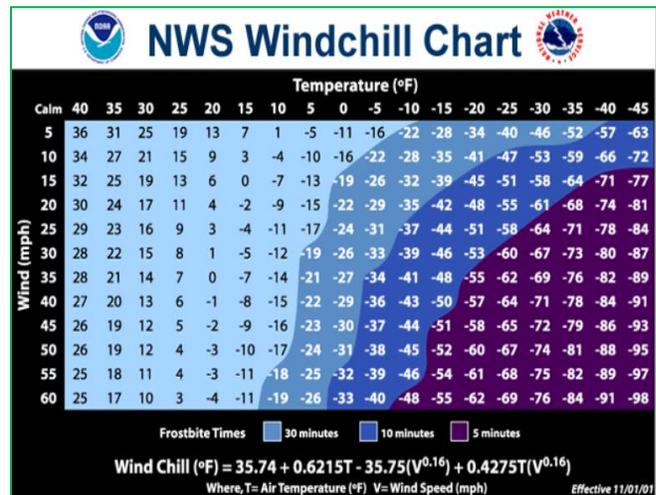
Most heat disorders occur when a victim is overexposed to heat or has over-exercised for their age and physical condition. Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat.



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>41</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>42</sup>



<sup>41</sup> NOAA; <https://www.weather.gov/safety/heat-index>

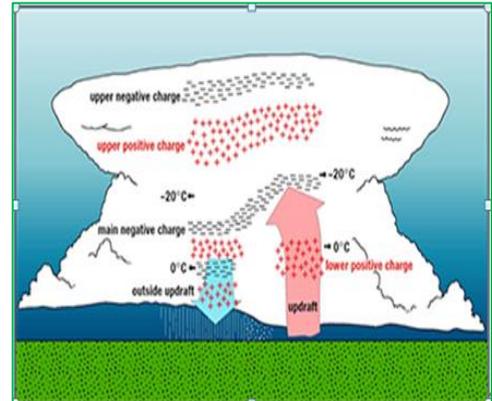
<sup>42</sup> National Weather Service; <https://www.weather.gov/safety/cold-wind-chill-chart>

**\*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>43</sup>

Thunder, a result of lightning, is created when the “lightning channel heats the air to around 18,000 degrees Fahrenheit...”<sup>44</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>45</sup>

<sup>43</sup> NOAA National Severe Storms Laboratory, <https://www.nssl.noaa.gov/education/svrwx101/lightning>

<sup>44</sup> Ibid

<sup>45</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>46</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>46</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>47</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>48</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>49</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>47</sup> National Hurricane Center; <https://www.nhc.noaa.gov/aboutsshws.php>

<sup>48</sup> Ibid

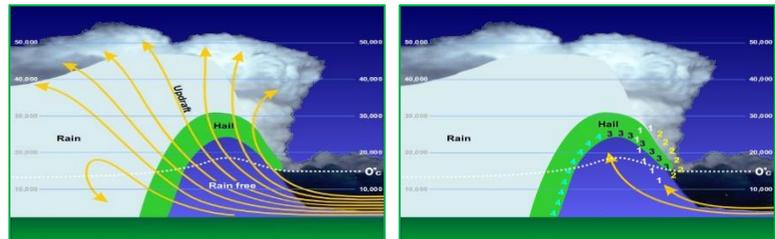
<sup>49</sup> [https://www.wpc.ncep.noaa.gov/research/mcs\\_web\\_test\\_test\\_files/Page1637.htm](https://www.wpc.ncep.noaa.gov/research/mcs_web_test_test_files/Page1637.htm)

**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>50</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>51</sup> The charts to the right show how hail is formed.<sup>52</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 scales relative to each other. 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>53</sup>

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

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

<sup>50</sup> NOAA National Severe Storms Laboratory; <https://www.nssl.noaa.gov/education/svrwx101/hail/>

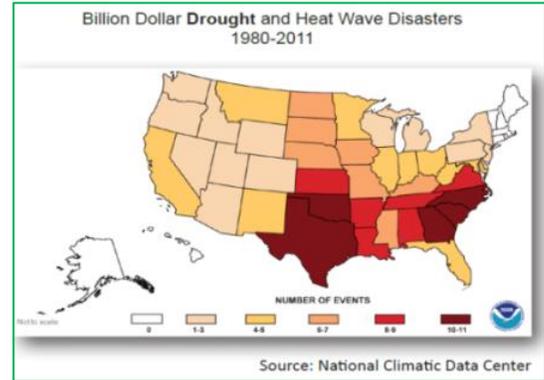
<sup>51</sup> <https://www.pinterest.com/pin/126171227030590678/>

<sup>52</sup> <https://www.noaa.gov/jetstream/hail>

<sup>53</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>54</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>55</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>56</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>57</sup>*

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<sup>54</sup> State of New Hampshire Multi-Hazard Mitigation Plan Update 2023 & <https://oas.org/dsd/publications/Unit/oea66e/ch10.htm>

<sup>55</sup> <https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173>

<sup>56</sup> <https://www.dhhs.nh.gov/programs-services/disease-prevention/infectious-disease-control>

<sup>57</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.

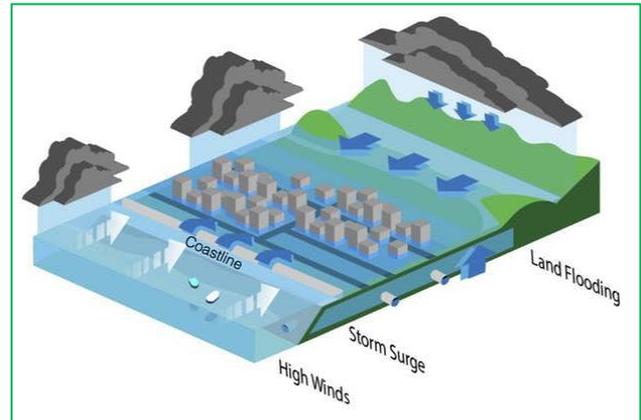
The pandemic remains an evolving worldwide crisis, affecting millions of workers in the United States and presenting significant economic results. Although most people confirmed with COVID-19 eventually recover, and many have been vaccinated, the virus remains a risk for the elderly and compromised individuals.

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**

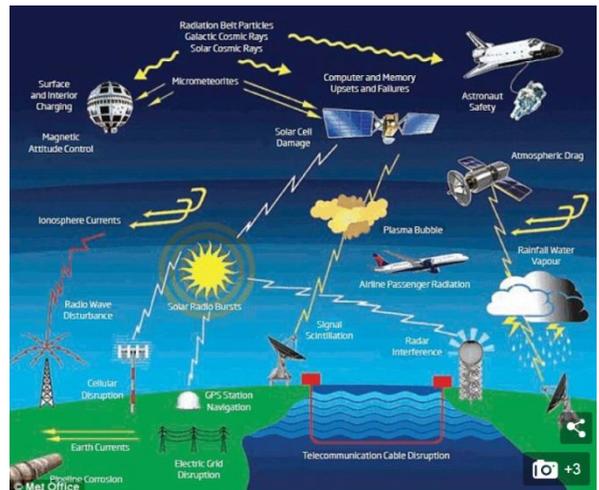
Coastal areas are particularly susceptible to flooding, erosion, storm surge, and sea-level rise due to tropical and post-tropical cyclones, heavy rain events, gale-force winds, and other natural phenomena. The 2023 State Hazard Mitigation Plan states, “Coastal flooding is defined by the National Oceanic and Atmospheric (NOAA) as flooding which occurs when there are significant storms, such as tropical and extratropical cyclones (NWS Internet Services Team, 2009).”<sup>58</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>59</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>60</sup>

<sup>58</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>59</sup> Ibid, page 127

<sup>60</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>61</sup>

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

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

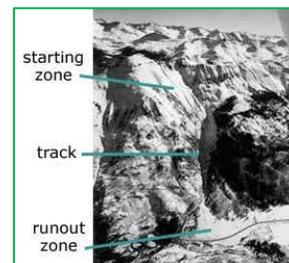
<sup>61</sup> Extent charts taken from <https://www.weather.gov/akq/SpaceWeather>

Solar Radiation Storms				
S 3	Strong	<p><b>Biological:</b> Radiation hazard avoidance is recommended for astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.</p> <p><b>Satellite operations:</b> Single-event upsets, noise in imaging systems, and a slight reduction of efficiency in solar panels are likely.</p> <p><b>Other systems:</b> Degraded HF radio propagation through the polar regions and navigation position errors likely.</p>	10 <sup>3</sup>	10 per cycle
S 2	Moderate	<p><b>Biological:</b> Passengers and crew in high-flying aircraft at high latitudes may be exposed to elevated radiation risk.</p> <p><b>Satellite operations:</b> Infrequent single-event upsets are possible.</p> <p><b>Other systems:</b> minor effects on HF propagation through the polar regions and navigation at polar cap locations possibly affected.</p>	10 <sup>2</sup>	25 per cycle
S 1	Minor	<p><b>Biological:</b> None.</p> <p><b>Satellite operations:</b> None.</p> <p><b>Other systems:</b> Minor impacts on HF radio in the polar regions.</p>	10	50 per cycle

Radio Blackout				
Scale	Description	Effect	Physical Measure	Average Frequency (1 cycle = 11 years)
R 5	Extreme	<p><b>HF Radio:</b> Complete HF (high frequency) radio blackout on the entire sunlit side of the Earth, lasting for a number of hours. This results in no HF radio contact with mariners and on-route aviators in this sector.</p> <p><b>Navigation:</b> Low-frequency navigation signals used by maritime and general aviation systems experience outages on the sunlit side of the Earth for many hours, causing loss in positioning. Increased satellite navigation errors in positioning for several hours on the sunlit side of Earth, which may spread into the night side.</p>	X20 (2 x 10 <sup>-3</sup> )	Less than 1 per cycle
R 4	Severe	<p><b>HF Radio:</b> HF radio communication blackouts on most of the sunlit side of Earth for one to two hours. HF radio contact lost during this time.</p> <p><b>Navigation:</b> Outages of low-frequency navigation signals cause increased errors in positioning for one to two hours. Minor disruptions of satellite navigation possible on the sunlit side of Earth.</p>	X10 (10 <sup>-3</sup> )	8 per cycle (8 days per cycle)
R 3	Strong	<p><b>HF Radio:</b> Wide area blackout of HF radio communication, loss of radio contact for about an hour on sunlit side of Earth.</p> <p><b>Navigation:</b> Low-frequency navigation signals degraded for about an hour.</p>	X1 (10 <sup>-4</sup> )	175 per cycle (140 days per cycle)
R 2	Moderate	<p><b>HF Radio:</b> Limited blackout of HF radio communication on the sunlit side, loss of radio contact for tens of minutes.</p> <p><b>Navigation:</b> Degradation of low-frequency navigation signals for tens of minutes.</p>	M5 (5 x 10 <sup>-5</sup> )	350 per cycle (300 days per cycle)
R 1	Minor	<p><b>HF Radio:</b> Weak or minor degradation of HF radio communication on sunlit side, occasional loss of radio contact.</p> <p><b>Navigation:</b> Low-frequency navigation signals are degraded for brief intervals.</p>	M1 (10 <sup>-5</sup> )	2000 per cycle (950 days per cycle)

**AVALANCHE**

According to the National Snow & Ice Data Center, an avalanche is a rapid 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 for every month of the year.<sup>62</sup>



<sup>62</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 very large avalanches in specific areas; or very large avalanches in isolated areas.
2 Moderate		Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.	Natural avalanches unlikely; human-triggered avalanches possible.	Small avalanches in specific areas; or large avalanches in isolated areas.
1 Low		Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.	Natural and human-triggered avalanches unlikely.	Small avalanches in isolated areas or extreme terrain.
Safe backcountry travel requires training and experience. You control your own risk by choosing where, when and how you travel.				

An avalanche has three main parts (see the image above). The first and most unstable is the “starting zone”, where the snow can “fracture” and slide. “Typical starting zones are higher up on slopes. However, given the right conditions, snow can fracture at any point on the slope.”<sup>63</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>64</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>65</sup>

<sup>63</sup> NSIDC, <https://www.sierraavalanchecenter.org/introduction-north-american-avalanche-danger-scale>

<sup>64</sup> Copyright Richard Armstrong, NSIDC, <http://nsidc.org/cryosphere/snow/science/avalanches.html>

<sup>65</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-4761	Inland Flooding	December 17-21, 2023	Coos, Grafton & Carroll	<b>Major Disaster Declaration, DR-4761:</b> A significant rain storm, 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.
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.

Number	Hazard	Date of Event	Counties	Description
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 Stafford 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).
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.

Number	Hazard	Date of Event	Counties	Description
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.
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)

Number	Hazard	Date of Event	Counties	Description
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>
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>

<b>Number</b>	<b>Hazard</b>	<b>Date of Event</b>	<b>Counties</b>	<b>Description</b>
<b>DR-917</b>	Hurricane Bob, Severe Storm	August 18-20, 1991	Carroll, Hillsborough, Rockingham & Strafford	<b>Major Disaster Declaration DR-917:</b>
<b>DR-876</b>	Flooding, Severe Storm	August 7-11, 1990	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, & Sullivan	<b>Major Disaster Declaration DR-876:</b>
<b>DR-789</b>	Severe Storms & Flooding	March 30-April 11, 1987	Carroll, Cheshire, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	<b>Major Disaster Declaration DR-789</b>
<b>DR-771</b>	Severe Storms & Flooding	July 29-August 10, 1986	Cheshire, Hillsborough & Sullivan	<b>Major Disaster Declaration DR-771:</b>
<b>EM-3073</b>	Flooding	March 15, 1979	Coos	<b>Emergency Declaration EM-3073:</b>
<b>DR-549</b>	High Winds, Tidal Surge, Coastal Flooding & Snow	February 16, 1978	All Ten NH Counties	<b>Major Disaster Declaration DR-549:</b> Blizzard of 1978
<b>DR-411</b>	Heavy Rains, Flooding	January 21, 1974	Belknap, Carroll, Cheshire & Grafton	<b>Major Disaster Declaration DR-411:</b>
<b>DR-399</b>	Severe Storms & Flooding	July 11, 1973	All Ten NH Counties	<b>Major Disaster Declaration DR-399:</b>
<b>DR-327</b>	Coastal Storms	March 18, 1972	Rockingham	<b>Major Disaster Declaration DR-327:</b>
<b>DR-11</b>	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>66</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>66</sup> Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013

**Wildfire**

- WF1 ..... Map & Assess Vulnerability to Wildfire
- WF2 ..... Incorporate Wildfire Mitigation in the Comprehensive Plan
- WF3 ..... Reduce Risk through Land Use Planning
- WF4 ..... Develop a Wildland Urban Interface Code
- WF5 ..... Require or Encourage Fire-Resistant Construction Techniques
- WF6 ..... Retrofit At-Risk Structure with Ignition-Resistant Materials
- WF7 ..... Create Defensible Space around Structures & Infrastructure
- WF8 ..... Conduct Maintenance to Reduce Risk
- WF9 ..... Implement a Fuels Management Program
- WF10 ..... Participate in the Firewise® Program
- WF11 ..... Increase Wildfire Awareness
- WF12 ..... Educate Property Owners about Wildfire Mitigation Techniques

**Multi-Hazards**

- MU1 ..... Assess Community Risk
- MU2 ..... Map Community Risk
- MU3 ..... Prevent Development in Hazard Areas
- MU4 ..... Adopt Regulations in Hazard Areas
- MU5 ..... Limit Density in Hazard Areas
- MU6 ..... Integrate Mitigation into Local Planning
- MU7 ..... Strengthen Land Use Regulations
- MU8 ..... Adopt & Enforce Building Codes
- MU9 ..... Create Local Mechanisms for Hazard Mitigation
- MU10 ..... Incentivize Hazard Mitigation
- MU11 ..... Monitor Mitigation Plan Implementation
- MU12 ..... Protect Structures
- MU13 ..... Protect Infrastructure & Critical Facilities
- MU14 ..... Increase Hazard Education & Risk Awareness
- MU15 ..... Improve Household Disaster Preparedness
- MU16 ..... Promote Private Mitigation Efforts

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*Androskoggin River*  
*Photo Credit: Butch Loven*

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