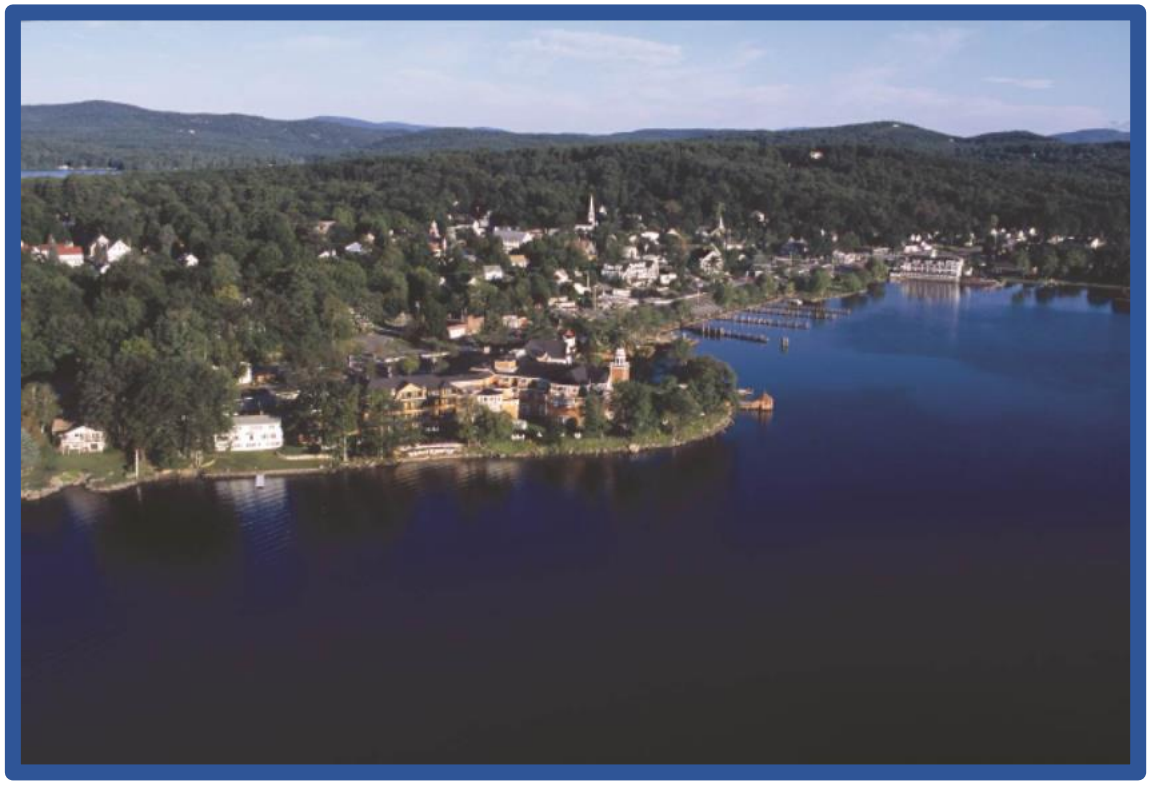
Town of Meredith, New Hampshire
Hazard Mitigation Plan Update, 2024

August 26, 2024



Meredith Bay

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The Town of Meredith, New Hampshire
Hazard Mitigation Plan, Update 2024

"By failing to prepare, you are preparing to fail"
~ Benjamin Franklin

"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."

~ Local Mitigation Plan Review Guide, FEMA, October 1, 2011)

Single Jurisdiction Plan Update Prepared by:
The Meredith 2022 Hazard Mitigation Update Committee

Funding for this Plan was provided by:
The Town of Meredith

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Title: **Town of Meredith, New Hampshire** **Hazard Mitigation Plan, Update 2024 – Single Jurisdiction** Origination Date: **2009** Prepared By: **The 2022 Meredith Hazard Mitigation Planning Committee** Review Date: **October 2024** Version: **1.3** Adopted Date: **December 4, 2024**	
Approval(s)	
Chief Michael Harper	***Jack Wozmak***
Meredith Police Chief/EMD	**Meredith Interim Town Manager**
Date: 10.21.2024	**Date: 10.21.2024**

Local Points of Contact:

For more information about this plan, please consult the following points of contact (POCs)

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Meredith, New Hampshire Hazard Mitigation Plan Review Information:

New Hampshire – State Review	
State Reviewer(s) and Title:	**Lynne Doyle, State Hazard Mitigation Planner**
State Review Date:	**10/22/2024**
FEMA Review	
FEMA Reviewer(s) and Title:	**Josiah Neiderbach, Mitigation Planner FEMA Region 1**
Date Received in FEMA Region	**10/22/2024**
• **Plan Not Approved**	
• **Plan Approvable Pending Adoption**	**10.25.2024; Signed Adoption Received 12/6/2024**
• **Plan Approved**	**12/9/2024; (HHPD is included in this approval)**

Record of Amendments & Modifications

NOTE: For detailed information on future updates, see Appendix I: Monitor, Evaluate and Update

Date	Entered by	Description
12.2019	P. Warren, Committee L. Kaufman,	Stand-alone Emergency Shelter Guidance
3.2020	P. Warren, Committee, L. Kaufman,	Appendices for: Emergency Shelter Guidance Emergency Pet Shelter
10.2021	P. Warren, L. Kaufman,	Addition of Infectious Disease/Pandemic Appendix to Emergency Shelter Guidance Updates to Partners and Stakeholders
6.2022 – 7.2022	2022 HMP Update Committee	Review and update 2015 HMP Plan to meet FEMA 2022 standards.
8.1.2022	2022 HMP Update Committee	Complete and finalize update to 2015 HMP Plan
8.15.2022	Board of Selectmen	Formal Adoption of the 2022 HMP.
6.7.2023	R. Carpenter	Returned for review by FEMA
12.18.2023	R. Carpenter	Updates to plan with new FEMA guidelines
8.26.2024	R. Carpenter	Updates finalized with HSEM. Sent to FEMA for review.
10.21.2024	R. Carpenter	Updates in line with State HMP Updates per FEMA guidance.
10.25.2024	R. Carpenter	HMP Approvable Pending Adoption received from Josiah Neiderbach, FEMA Region 1

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ACRONYMS and ABBREVIATIONS

CDC	Center for Disease Control
CIP	Capital Improvement Plan
CERT	Community Emergency Response Team
COVID-19	Coronavirus disease 2019
DES	New Hampshire Department of Environmental Services
DHHS	New Hampshire Department of Health and Human Services
DMA	Disaster Mitigation Act
DOT	New Hampshire Department of Transportation
DPW	Department of Public Works
EAP	Emergency Action Plan
EMD	Emergency Management Director
ESSR	The Elementary and Secondary School Emergency Relief Fund
FD	Fire Department
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
H1N1	“Swine Flu” influenza A
H5N1	Avian influenza A
HHH	Hampshire Hospitality Holdings, LLC
HHPD	High Hazard Potential Dams
HMPG	Hazard Mitigation Planning Grant
HMP	Hazard Mitigation Plan
HSEM	New Hampshire Homeland Security and Emergency Management
HTID	High Threat Infectious Disease Plan
LAL	Lightning Activity Level
LEOP	Local Emergency Operations Plan
LRPC	Lakes Region Planning Commission
LRPPH	Lakes Region Partnership for Public Health
MCM	Medical Countermeasures
NIMS	National Incident Management System
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
PB	Planning Board
PD	Police Department
POC	Point of Contact
POD	Point of Distribution
PSU	Plymouth State University
STAPLEEE	Social, Technical, Administrative, Political, Legal, Economic, and Environmental
Town Mgr.	Town Manager
UNH	University of New Hampshire
USACE	US Army Corps of Engineers
WHO	World Health Organization
WRBP	Winnipesaukee River Basin Program

EXECUTIVE SUMMARY

The Meredith Hazard Mitigation Plan Update 2024 (the Plan) addresses the single jurisdiction of Meredith, New Hampshire. It was compiled to assist the Town of Meredith in reducing and mitigating future losses from natural, technological or human-caused hazardous events. The plan was developed by participants of the Meredith Hazard Mitigation Committee (The Committee), interested stakeholders and the general public, with assistance from Lisa C. Kaufman (The Consultant) and contains statements of policy adopted by the Board of Selectmen in Chapter VI. The Plan contains the tools necessary to identify specific hazards and aspects of existing and future mitigation efforts.

The Plan is an update to the Meredith Hazard Mitigation Plan Update 2015. To produce an accurate and current planning document, the planning team used the 2015 plan as a foundation. This allowed The Committee to build upon the plan and update with more timely information. The Committee began the update to the Plan prior to the arrival of 2019 of the Coronavirus (COVID-19) in the United States. The bulk of the planning was put on hold to attend to current and ongoing response to the pandemic and the safety of community members.

The Committee agreed that most of the hazards identified in the 2015 Plan continue today; with the addition of wildfire and earthquake, along with the expansion of types of severe wind hazards, changes to health hazards: infectious disease (to include pandemic & COVID-19), and consolidating most winter hazards. The Committee determined those natural and human-related hazards which pose at least a moderate risk, based on a rating system detailed in Chapter III, are shown below:

Hazards that post at least a Moderate Risk to the Town of Meredith	
Aging Infrastructure	Transportation and Hazardous Materials
Cyber Event	Health Hazards: Infectious Disease
Dam Failure	Lightning
Earthquake	Severe Wind: Downburst, Hail, Hurricane, Tornado
Extreme Temperature	Severe Winter Weather
Fire: Wildfire, Conflagration	Water Contamination
Flooding	

There have been a few minor changes to the list of Critical Facilities. The Committee identified numerous existing programs related to hazard mitigation including the following:

Existing Plans, Regulations and Practices Supporting Hazard Mitigation in the Town of Meredith	
Code Enforcement	National Flood Insurance Program
Conservation Subdivision Ordinance	Police, Fire, EMT Training
Emergency Operations Plan	School Emergency Operation Plan
Emergency Power Generation	Site Plan Review Regulations
Emergency Response Training and Drills	Subdivision Regulations
Floodplain Ordinance	Town Communications Network

Existing Plans, Regulations and Practices Supporting Hazard Mitigation in the Town of Meredith	
Hazard Mitigation Plan 2015	Waukewan Dam Emergency Action Plan 2022
Meredith Community Plan	Zoning Ordinance
Mutual Aid Agreements	

Some of the Actions from the 2015 Plan have either been completed or are no longer pertinent. In its effort to further reduce the vulnerability of the town to future hazards, The Committee developed a list of 31 general and hazard-specific actions. These actions were prioritized based on local criteria; some identified actions are intended to mitigate hazards while others are aimed at preparedness or response. Discussions were held regarding how implementation might occur over the next five years. The results of these discussions are summarized in Table 21: *Implementation Schedule for Mitigation Actions by Time Frame.*

Since the State's release of its updated 2023 NH State Hazard Mitigation Plan, this plan has been updated as well to be consistent with the State's findings. While more declared incidents have been included in this plan, there have been no changes to the overall findings regarding additional impacts from disasters, growth and development, previous mitigation projects, or the planning process and reported hazard mitigation strategies for the Town of Meredith.

As more work is being done to complete the update to the community master plan, the outcome and recommendations will be inclusive of the hazard mitigation strategies included in this plan.

CHAPTER I: PLANNING PROCESS

A. BACKGROUND

The ultimate purpose of 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". [1]

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."[2]

New Hampshire Homeland Security and Emergency Management's (HSEM) goal is to have all New Hampshire communities complete a local hazard mitigation plan as a means 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 completion of this hazard mitigation plan.

The Meredith Hazard Mitigation Plan Update, 2022 is a planning tool to use 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 places emphasis on local mitigation planning. It requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans as a condition to receiving Hazard Mitigation Grant Program (HMGP) project grants. Local governments must review this plan yearly and update this plan every five years to continue program eligibility. It must be noted here that The Committee began the update to the Plan prior to the arrival of 2019 COVID-19 in the United States with full intent on meeting the 5-year review. While review of the Meredith Hazard Mitigation Plan, Update 2015 (HMP) began and some planning was done, e.g., the stand-alone Meredith Emergency Shelter

[1] Disaster Mitigation Act (DMA) of 2000, Section 101, b1 & b2
[2] Disaster Mitigation Act (DMA) of 2000, Section 322a

Guidance, the majority of planning was put on hold to attend to ongoing and current response to the COVID-19 pandemic. The health and safety of the citizens of Meredith was/is paramount

In order to be eligible to receive disaster related Federal Emergency Management Agency (FEMA) grant funding to be used for hazard mitigation projects and actions that will ultimately reduce and mitigate future losses from natural or human hazard events, FEMA has required that all communities within the state of New Hampshire establish local hazard mitigation plans. In response to this requirement, the NH Department of Safety's Division of Homeland Security and Emergency Management (HSEM) and the nine regional planning commissions in the state entered into agreements to aid communities with plan development and update. The plan development process generally followed the steps outlined in FEMA's *Local Mitigation Planning Handbook (2022)*[3]

B. AUTHORITY

The town of Meredith Hazard Mitigation Plan Update, 2022 was prepared pursuant to The Disaster Mitigation Act of 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), creating the framework for state, local, tribal and territorial governments to engage in hazard mitigation planning to receive certain types of non-emergency disaster assistance. Requirements and procedures to implement hazard mitigation planning provisions may be found in the Code of Federal Regulations, Stafford Act Title 44, Chapter 1, Part 201 (44 CFR Part 201).

Since the Disaster Mitigation Act of 2000 amended the Stafford Act, additional laws have been passed that help to shape hazard mitigation policy. These revisions are included in the Sandy Recovery Improvement Act (SRIA) of 2013, the National Flood Insurance Act of 1968, and the Water Infrastructure Improvements for the Nation (WIIN) Act of 2016.

C. FUNDING SOURCE

The Plan was funded by the Town of Meredith.

D. PURPOSE

The Meredith Hazard Mitigation Plan is a planning tool to be used by the town of Meredith, as well as other local, state, and federal government entities, in their efforts to reduce the negative effects from natural and human-related hazards. The Plan contains statements of policy as outlined in the FEMA's *Local Mitigation Planning Handbook (2022)*

[3] FEMA Local Mitigation Planning Policy Guide, FP206-21-0002 Released 6.18.2022, Effective 6.19.2023: https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf

All other sections of this plan are support and documentation for informational purposes only and are not included as a statement of policy.

E. SCOPE OF PLAN

The scope of this Plan includes the identification of natural and human-related hazards affecting the town of Meredith, as identified by The Committee. Chapter III discusses the identification and review of these hazards. The plan also describes the process through which actions intended to mitigate these hazards were developed and prioritized.

F. METHODOLOGY

The Town Manager, along with the Emergency Management Director (EMD), initiated the hazard mitigation update process in the town of Meredith in the fall of 2019. Together, they established the Meredith Hazard Mitigation Planning Update Committee for the purpose of updating a long-range plan for hazard mitigation. The Committee consisted of representatives from the departments of Police, Fire, Public Works, Community Development, Assessing, and Administrative Services, the Town Manager, the School Administrator, and the Code Enforcement Officer. All in person and/or virtual (Zoom) meetings were open to the public.

Using FEMA's *Local Mitigation Planning Handbook (FP206-21-0002, 4.19.22), Mitigation Planning Workshop materials (2012),* and the *Local Mitigation Planning Handbook (2022*) as guidance, The Committee reviewed and updated various elements of the town's 2015 Hazard Mitigation Plan. The Consultant and The Committee reviewed and referenced a variety of plans, studies, reports, and technical information during the development of this Plan Update; a list of these resources can be found in Appendix A and I. Data on property valuation was gathered through correspondence with the Town Assessor.

The Committee began review of the 2015 HMP Plan in November 2019. Due to the onset of the COVID-19 pandemic meetings and planning was limit and/ or postponed. Meetings to update the Plan resumed and were held from June 2022 through July 2022 both via conference calls and in person. The following timeline shows the dates and corresponding Committee actions. Members of The Committee reviewed each section of the plan and together with The Consultant updated information on hazards in New Hampshire and Meredith. Sections of the existing plan were revised and, in some cases, reformatted in order to develop a more comprehensive document. Meeting agendas were posted in Town Hall, on the Town website, and at the Post Office and are included in Appendix D.

Committee Meetings

March 4, 2020 *Committee Meeting:*
Meredith Town Hall Annex –
Open to the Public, Planning Partners and Stakeholders
Hazard Mitigation Plan Overview
FEMA HMP Policy Updates
Town Of Meredith Emergency Shelter Guidance
Set Schedule for Future Meetings
Public Input

June 2022: *Multiple email and teleconference meetings:*
Overview of update process and objectives
Discussion of Development Trends since 2015
Overview of Emergency Shelter Guidance (part of updates that began in 2019)
Identify Hazard Events since 2015
Review of FEMA *Local Mitigation Planning Policy Guide, 2022* and checklist
Local Capabilities - Existing Plans and Policies
Status of Meredith Emergency Shelter Guidance

July 8, 2022: *Updated DRAFT plans sent for review to Committee Members for review and input:*

July 19, 2022: *Committee Meeting:*
Meredith Town Hall Annex –
Open to the Public, Planning Partners and Stakeholders
Status of 2015 Mitigation Actions
Review and updates to critical areas of HMP
Review of Plan Gaps
Risk Assessment

July 26, 2022: *Committee Meeting:*
Meredith Town Hall Annex
Open to the Public, Planning Partners and Stakeholders
Town Goals
Problems
Potential mitigation actions
Finalize 2022 HMP information/updates

Public and Stakeholder Involvement

A variety of Hazard Mitigation Planning stakeholders were invited to join the Hazard Mitigation, Update 2022 Planning Committee to represent all facets of the community to include underserved and socially vulnerable populations within the community and within the school district. The Committee included the Interim Town Manager, Community Planning Director, Town Planner, School Assistant Superintendent, School Facilities Director, Interim Police Chief & EMD, Fire Chief, DPW Director, Water and Sewer Superintendent, Assessor, Code Enforcement Officer and The Consultant.

Specific opportunities for public input occurred at each meeting. Local businesses, members of the public and members of the community who represent underserved and socially vulnerable populations within the community and school population and the neighboring communities of New Hampton, Center Harbor, Laconia, Moultonborough, and Sanbornton were encouraged to attend all meetings through press releases and other public postings (Appendix C).

No comments were received from the public during plan development.

G. EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The planning process included a complete review of the Meredith Hazard Mitigation Plan of 2015 for updates, development changes and accomplishments. In addition, as noted in Appendix A (Resources, Existing Plans, Studies and Reports) and in footnotes located throughout the plan many other documents were used to create this mitigation plan. The following list is representative, not all-inclusive of the documents reviewed.

Existing Plans, Regulations and Practices Supporting Hazard Mitigation in the Town of Meredith	
Code Enforcement	National Flood Insurance Program
Conservation Subdivision Ordinance	Police, Fire, EMT Training
Emergency Operations Plan	School Emergency Operation Plan
Emergency Power Generation	Site Plan Review Regulations
Emergency Response Training and Drills	Mutual Aid Agreements
Floodplain Ordinance	Subdivision Regulations
Hazard Mitigation Plan 2015	Town Communications Network
Meredith Annual Report	Waukewan Dam Emergency Action Plan 2022
Meredith Community Plan	Zoning Ordinance

Other technical manuals, federal and state laws as well as research data were combined with these elements to produce this integrated hazard mitigation plan. Please refer to the Plan's footnotes.

H. ACKNOWLEDGMENTS

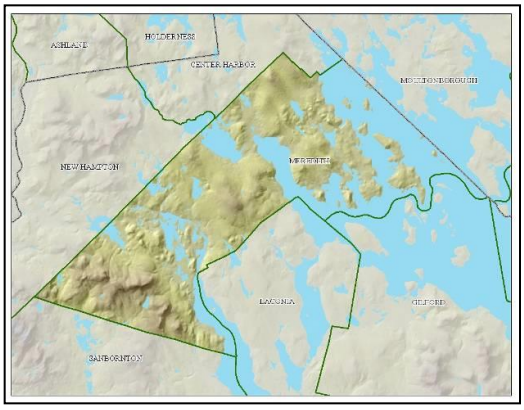
The Town of Meredith would like to thank the Meredith Hazard Mitigation Planning Committee, Local and Regional agencies and public and private Partners and Stakeholders for the time and effort spent to complete the update to this plan. The following people have attended meetings or been instrumental in completing this plan:

Name	Agency/Affiliation
Lt. Mike Harper	Meredith Interim Police Chief/Emergency Management Director
Chief Ken Jones	Meredith Fire Chief
Chris Janosa	Meredith Interim Town Manager
Robert Carpenter	Meredith Director of Administrative Services
John Edgar	Meredith Community Development Director
John Greenwood	Meredith Building Inspector
Jim Commerford	Meredith Assessor
Mike Faller	Meredith Department of Public Works Director
Brian McCall	Meredith Water and Sewer Superintendent
Vint Choiniere	Meredith Parks and Recreation Director
Angela Labrecque	Meredith Town Planner
Trisha Temperino	Assistant Superintendent, Inter-Lakes School District
Brian Swanker	Facilities Manager, Inter-Lakes School District

Many thanks for all of the hard work and efforts given by each and every one of you. This plan would not exist without your knowledge and experience. The Town of Meredith would also like to acknowledge the New Hampshire Homeland Security & Emergency Management (HSEM) and thank them for their time and guidance. Additionally, we would like to acknowledge the work of Lisa C. Kaufman, Behavioral Health Emergency Planning Consultant, who helped guide The Committee and manage the updated document. (lckaufmanpss@gmail.com)

CHAPTER II: COMMUNITY PROFILE

A. GEOGRAPHY



The town of Meredith is located in the northern portion of Belknap County, in the Lakes Region of New Hampshire. The town is bounded to the northwest by Center Harbor and New Hampton, easterly by Lake Winnipesaukee and Laconia, and southerly by the town of Sanbornton. The town experiences a substantial influx of seasonal people.

The town of Meredith consists of 40.3 square miles, of which there are approximately 14.2 square miles of inland water. The most prominent surface waters include Lake Winnipesaukee, Lake Waukewan, Wickwas Lake, Pemigewasset Lake, Winnisquam Lake, and Spectacle and Randlett Ponds. A total of thirteen brooks feed the major waterbodies, many of which are located in areas of steep slopes. The topography of Meredith consists of rolling hills interrupted by narrow valleys and steep mountains. The majority of the steepest slopes are located in the southwestern portion of Meredith, where the highest peaks (Ladd Mountain, Leavitt Mountain, Saddle Hill, Bachelder Hill, and Meredith Hill) are located.

B. WEATHER CONDITIONS

Like many New England towns, Meredith's temperatures and precipitation vary greatly. January temperatures range from an average high of 30 degrees Fahrenheit to an average low of 8 degrees Fahrenheit. July temperatures range from an average high of 81 degrees Fahrenheit to an average low of 55 degrees Fahrenheit. Annual precipitation totals average between 42 and 48 inches, where the distribution is slightly lower in the winter months when compared to summer months. Meredith averages about 70 inches of snow per year.[4]

C. PUBLIC SERVICES

A five-member Board of Selectmen governs the Town of Meredith. The Town employs a full-time Town Manager that oversees all town departments.

The town Fire Department (FD), composed of 20 on-call firefighters 3 Interns, 10 per diem, is overseen by a full-time Fire Chief. The Police Department (PD) consists of a full-time Police Chief, 13 full-time and 7 part-time officers, and 4 dispatchers. The Department of Public Works (DPW) has a full-time Director and 22 full-time staff who maintain over 87 miles of town roads. The Water and Sewer Department is staffed by 4 full-time employees, including the Superintendent and 3

[4] http://www.city-data.com/city/Meredith-New-Hampshire.html,

operators. The Recreation Department staffs 5 full-time personnel who operate the Meredith Community Center (the designated emergency shelter). Most departments have slightly lower staffing levels than in 2015; the impact to services has been minor.

What was referred to as the Lakes Region General Hospital in the 2015 Plan changed ownership in 2021 and the locations are now referred to as: The Concord Hospital-Laconia and the Concord Hospital-Franklin. The Concord Hospital-Laconia is 11 miles to the south in Laconia, Speare Memorial Hospital in Plymouth is 18 miles to the northwest, and Concord Hospital-Franklin is 23 miles from Meredith. Stewarts Ambulance, located in Meredith, provides emergency medical service for the community.

Interstate 93 runs north/south through the western tip of Meredith. NH Route 104 runs generally west-east connecting I-93 to US Route 3 (north-south) and NH Route 25 (east-west) just outside of the Village area.

Public water and sewer services are available to the Village area and several areas along the lake shores. Most of the town is served by NH Electric Cooperative, except for the western edge of town near I-93 which is served by Eversource

D. LAND USE AND DEVELOPMENT TRENDS

Like many Lakes Region communities, the population of Meredith grew rapidly between 1960 and 1980, nearly doubling the number of residents. The growth rate in the 1990s was also quite high (Table 1). Since then, it has slowed a bit and is projected to continue at a rate of 5% or less per decade (Table 2). The median age of residents continues to rise (36.2 years in 1990, 42.5 years in 2000, 48.7 years in 2010 and 50.6 years in 2022[5]) with a much larger proportion of residents over the age of 50 today as opposed to twenty years ago.

Table 1: Year-Round Population, 1980-2020

Year	1980	1990	2000	2010	2020[6]
Belknap County Change	---	15%	14%	7%	6%
Belknap County Population	---	---	---	60,088	63,750
Meredith Change	---	4%	23%	5%	8%
Meredith Population	4,646	4,837	5,943	6,241	6,739
NH Change	---	20%	11%	7%	5.50%
NH Population	---	---	---	1,316,470	1,388,992

[5] World Populations Review Meredith New Hampshire Population 2022 https://worldpopulationreview.com/us-cities/meredith-nh-population

[6] United States Census Bureau – Quick Facts, June 2022 https://www.census.gov/quickfacts/fact/table/meredithtownbelknapcountynewhampshire/PST045221

Table 2: Meredith, NH Projected Year-Round Population, 2020-2040

Year	2020	2020	2025	2030	2035	2040
Population	6,291	6,371	6,457	6,561	6,664	6,771
Change	---	1.2%	1.3%	1.6%	1.6%	1.6%

Seasonal Population

Meredith is located in the heart of the lakes Region on the shores of lake Winnipesaukee, approximately seven miles from I-93. Approximately 43% of Meredith's taxable parcels are either waterfront of have deeded waterfront access. The peak season generally runs from Memorial Day through Labor Day. In addition to the resident population, the peak season population includes a major second home, seasonal resident population (seasonal dwelling occupancies) and a significant transient population associated with hotels, bed and breakfast inns, campgrounds, summer camps and short-term rentals (transient occupancies). Meredith's seasonal peak population is summarized in (the Table) below.

Table 3: Meredith, NH Seasonal Peak Population Estimate 2022

2020 Resident Population	6,662
Increased Occupancy of Year-Round Water-Related Dwellings	1,078
Seasonal Dwelling Occupancy	8,585
Sub Total: Estimated Seasonal Population Influx	12,962
Transient Occupancy: campgrounds, lodging & summer camps	3,299
Total	19,624 *

* This figure is an estimate of occupancies only and does not include day visitors, local employment, or resident staff.

The estimated number of housing units in Meredith in 2019 was 4,972[7], an increase of 244 units since the 2010 Census[8]. Most of that growth occurred in recent years; between 2015 and 2019 Meredith averaged 27.6 new building permits on single family homes[9]. The 2010 Census identified 1,710 of Meredith's housing units (36%) as seasonal.

Accordingly, impacts to the transportation network and demand for a multitude of town services (Police, Fire, EMS, Water & Sewer, licenses and registrations, building permits, public parks and programs, public health, etc.) increase exponentially during the summer season.

While there is some variability over the years, the Traffic Volume Reports from the NH Department of Transportation indicate no consistent changes in traffic volumes in the last several years along the major roadways in Meredith. Table 4 indicates the Average Annual Daily Traffic counts,

[7] Meredith: Community Profile meredith NH - Community Profile | Economic & Labor Market Information Bureau | NH Employment Security

[8] New Hampshire: 2010 – Population and Housing Units Count. New Hampshire: 2010 (census.gov)

[9] Town of Meredith, *2021 Annual Report* https://www.meredithnh.org/home/news/2021-town-report

measured in vehicles per day. As this is a projected average over the entire year, there are certainly many summer days when the volume of traffic on any one of these roads far exceeds these figures.

Table 4: Meredith Traffic Counts[10]

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC

Bureau of Planning, Traffic Section, Traffic Reports *18-Feb-16*

STAT.	TYPE	LOCATION	FC	2008	2009	2010	2011	2012	2013	2014	2015
Town: MEREDITH											
295021	22	US 3 (DANIEL WEBSTER HWY) SOUTH OF NH 104 (SB-NB) (21295093-21295094)	06	*	14000	*	*	13000	*	*	14000
295022	02	NH 104 WEST OF CHASE RD (EB-WB) (01295003-01295004)	06	11636	11169	11632	11586	11595	11678	11658	12020
295046	82	US 3 (DANIEL WEBSTER HWY) SOUTH OF NH 25	06	*	*	16000	*	*	11000	*	*
295047	82	NH 25 (WHITTIER HWY) WEST OF PLEASANT ST	06	*	21000	*	*	15000	*	*	21000
295048	82	US 3/NH 25 (DANIEL WEBSTER HWY) NORTH OF MAIN ST (SB-NB) (81295014-81295015)	07	*	*	6500	*	*	5600	*	*
295049	82	US 3 (DANIEL WEBSTER HWY) AT LACONIA TL (SB-NB) (81295091-81295092)	06	5900	*	8600	*	*	6900	*	*
295050	82	MEREDITH CENTER RD AT LACONIA TL	07	*	*	2800	*	*	3200	*	*
295051	62	NH 25 (WHITTIER HWY) AT CENTER HARBOR TL (SB-NB) (61295016-61295017)	06	*	*	12000	*	*	12000	*	*
295052	82	PEASE RD SOUTH OF NH 104	07	*	*	1500	*	*	2100	*	*
295053	82	NH 104 WEST OF US 3	06	*	*	11400	*	*	9700	*	*
295060	82	BLAKE RD SOUTH OF MERCIER DR	09	*	80	*	*	80	*	*	80
295061	82	MEREDITH CENTER RD NORTH OF MARION LANE	07	*	4000	*	*	3600	*	*	3800
295090	02	I-93 BETWEEN EXITS 22-23 (SB-NB) (01295001-01295002)	01	22000	*	*	23000	*	*	25000	*

Development during the past five years has been guided towards areas that are fairly low risk. The town's comprehensive planning ordinances and policies have worked to ensure that the vulnerability of the town due to new development has not increased.

Currently, there is no significant development planned that would increase the hazard vulnerability to the Town nor is there a significant impact expected from growth in the year round population (see Table 2 above).

The Community Development department, along with the Planning Board and Zoning Board, continue to work together to maintain current ordinances and land use regulations that will support hazard mitigation across the community to include impacts from long-term weather patterns and other areas of climate change, especially in regards to water quality.

Any updates to the Master Plan will incorporate these risks into the overall suggestions and recommendations as well as information gathered in asset management studies for water, waste and storm water and road quality.

[10] State of New Hampshire Department of Transportation (DOT) Bureau of Traffic, Bureau of Planning, Traffic Section, Traffic Reports https://www.nh.gov/dot/org/operations/traffic/tvr/locations/documents/meredith.pdf

CHAPTER III: RISK ASSESSMENT

A. IDENTIFYING HAZARDS

The town of Meredith is prone to a variety of natural and man-made hazards. The *2018 Multi-Hazard Mitigation Plan*, developed by the New Hampshire Department of Safety's Division of Homeland Security and Emergency Management identified the following hazards as those posing a risk to Belknap County communities.[11] After review of the 2015 Plan, and taking into account current hazard(s) of concern and climate change that have affected Meredith and New Hampshire as a whole, the 2022 Committee included detailed pandemic information to Health Hazards: Infectious Disease to the Belknap County Infectious Disease hazards.

Table 5: Belknap County Hazards

Aging Infrastructure	Health Hazards: Infectious Disease
Cyber Events	Lightning
Dam Failure	Severe Winter Weather
Earthquake	Transportation and Hazardous Materials
Extreme Temperature	Wildfire
Flooding	

The Committee reviewed all of the hazards identified in the 2015 Plan. That Plan identified the following hazards events as the greatest threats to the town at that time (Table 6).

Table 6: Hazards identified in the 2015 Meredith Hazard Mitigation Plan

High Risk	Moderate Risk
Blizzard/Snow Storm	Conflagration
Thunder Storm/Lightning	Dam Failures
Vehicle Accidents/Hazardous Materials Spills	Earthquake
Water Contamination – Lake Waukewan	Flood
	Hurricane
	Ice Storm
	Nor'easter
	Oil Spills
	Tornado/Downburst
	Recreational Activities
	Water Contamination

The Committee also reviewed historical information from internet sources about past hazard events in and near Meredith since 2015. Through this review of state-wide hazards, past regional and local events, and with discussion, The Committee identified the hazards listed in Table 7 as the

[11] State of New Hampshire Multi Hazard Mitigation Plan, Updated 2018 https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2015/11/State-of-New-Hampshire-Multi-Hazard-Mitigation-Plan-Update-2018_FINAL.pdf f

current hazards of greatest concern to the town of Meredith. While the effects of climate change can be part of the high and moderate risks identified for the Town of Meredith, there is no history of these effects and will have to be part of the future strategy planning.

Table 7: Hazards of Concern Meredith Hazard Mitigation Plan, Update 2022

Aging infrastructure	Health Hazards: Infectious Disease
Cyber Events	Lightning
Dam Failure	Severe Wind: Downburst, Hail, Hurricane, Tornado
Earthquake	Severe Winter Weather
Extreme Temperature	Transportation and Hazardous Materials
Fire: Wildfire, Conflagration	Water Supply Contamination
Flooding	

As a note, severe wind events now include Tornado, Downburst and Hurricane, and all Severe Winter Weather events have been combined in a single category. The Committee has noted Health Hazards: Infectious Disease in this table. Health Hazards: Infectious Disease in the Plan addresses a broad spectrum of concerns. The 2022 Update Committed agreed to combine *Motor Vehicle and Hazardous Materials* into a *Transportation and Hazardous Materials* category that includes all types of transportation. While recreational activities are an important aspect of life in Meredith and accidents associated with such activities sometimes require emergency services, they are not hazards in and of themselves and are not included in this Plan.

B. PROFILING HAZARDS: Meredith, NH

The Committee reviewed the various hazards that might occur in Meredith and assessed the Probability of such an event occurring in Meredith. This process began by taking the risk rating matrix from the previous plan, reviewing the hazards, past occurrences, specific areas of concern, and revising the Probability of Occurrence rating using the following categories:

- **Unlikely:** Less than 1% probability of occurrence in the next year or a recurrence interval of more than every 100 years.
- **Occasional:** 1 to 10 percent probability of occurrence in the next year or a recurrence interval of 11 to 100 years.
- **Likely:** 10 to 90 percent probability of occurrence in the next year or a recurrence interval of 1 to 10 years
- **Highly Likely**: 90 to 100 percent probability of occurrence in the next year or a recurrence interval of less than 1 year.

Table 8: Probability of Hazard Occurrence

Meredith **Hazard Type**	**Location** Negligible (<10%), Limited (10-25%), Significant (25-75%), Extensive (>75%)	**Extent (Magnitude/ Strength)** Weak, Moderate, Severe, Extreme	**Probability of Occurrence** Unlikely, Occasional, Likely, Highly Likely
Blizzard/Snow Storm	Extensive	Moderate	Highly Likely
Conflagration	Significant	Severe	Occasional
Dam Failure - Others	Negligible	Weak	Unlikely
Dam Failure - Waukewan	Limited	Severe	Unlikely
Drought	Significant	Moderate	Occasional
Earthquake	Extensive	Moderate	Occasional
Extreme Temperature	Extensive	Moderate	*Occasional
Flood	Limited	Moderate	Likely
Hail	Negligible	Weak	Occasional
Hurricane	Significant	Severe	Occasional
Ice Jam	Negligible	Weak	Unlikely
Ice Storm	Significant	Moderate	Likely
Landslide	Negligible	Weak	Unlikely
Lightning	Limited	Moderate	Highly Likely
Nor'easter	Extensive	Moderate	Likely
Tornado/Downburst/ Thunderstorm	Significant	Moderate	Highly Likely
Wildfire	Limited	Moderate	Occasional
Human-Related Events			
Aging Infrastructure	Limited	Severe	*Occasional
Aircraft Accident	Negligible	Moderate	Unlikely
Cyber Incidents	Limited	Moderate	*Occasional
Health Hazards: Infectious Disease	Extensive	Severe	Highly Likely
Mass Casualty/Terrorism	Negligible	Moderate	Unlikely
Transportation and Hazardous Materials	Limited	Moderate	Likely
Oil Spills	Negligible	Moderate	Occasional
Recreational Activities	Negligible	Weak	Highly Likely
Water Contamination - Others	Limited	Weak	Unlikely
Water Contamination - Waukewan	Limited	Severe	Likely

*Has been Unlikely, anticipated to become Occasional.

Notes: Radon and rabies were considered; The Committee felt they were not of sufficient concern to public safety to include in this plan. Lightning was considered as a separate hazard, while thunderstorms were grouped with tornado/downburst.

Location

- **Negligible:** <10 percent of planning area or isolated single-point occurrences.
- **Limited** 10 to 25 percent of the planning area or limited single-point occurrences.
- **Significant** 25 - 75 percent of the planning area or frequent single-point occurrences.
- **Extensive** 75 - 100 percent of the planning area or consistent single-point occurrences.

Extent

- **Weak:** limited magnitude, slow onset, short duration, little damage.
- **Moderate:** moderate magnitude, moderate onset speed, moderate duration, some damage or loss of service for days.
- **Severe:** Severe magnitude, fast speed of onset, long duration, devastating damage and loss of service for weeks
- **Extreme:** Extreme magnitude, immediate onset, extended duration, catastrophic damage, uninhabitable conditions.

Probability of Future Events

- **Unlikely:** <1% probability of occurrence in the next year or a recurrence interval of more than every 100 years.
- **Occasional:** 1 to 10 percent probability of occurrence in the next year or a recurrence interval of 11 to 100 years.
- **Likely:** 10 to 90 percent probability of occurrence in the next year or a recurrence interval of 1 to 10 years
- **Highly Likely:** 90 to 100% probability of occurrence in the next year or a recurrence interval of less than 1 year.

Each of the hazards that The Committee identified as likely or highly likely to occur in Meredith is profiled below. In addition, Conflagration is addressed in this section: it is a hazard that is of concern in a couple of specific areas. The likely location of each hazard, the extent of the hazard, and the probability of an occurrence in Meredith is described below. While noted as *Occasional, The Committee also included Cyber Events and Extreme Temperature in the descriptive section. As the occurrence of these two hazards were discussed as “borderline likely”, The Committee agreed that they should be included and monitored annually for any significant increase in occurrence. The extent is a description of “how bad the hazard could get”. A list of events prior to 2022 is included in Appendix E. For more information on individual hazards, please see Appendix G.

Aging Infrastructure

For purposes of this document aging infrastructure is defined as the aging of the town of Meredith’s operating systems and physical structures. These include but are not limited to water mains, the water tower, sewer system and pipes and pumps near the Lake Winnipesaukee. Also included could be: culverts, local roads and bridges and any physical/plant systems in town.

Location: Aging infrastructure is a concern in Meredith, throughout New Hampshire and the country. It is the continued deterioration of roads, bridges, culverts, ports, railroads, wastewater facilities, airports, dams, utilities and public water and sewage systems. In Meredith, an immediate concern would be to develop a written asset management plan of all of the structures, systems, and tangible assets in order to quantitatively work on a maintenance and replacement schedule across the organization.

Extent: The Meredith Water Department staff continues proactively to maintains the water treatment plant, two water booster stations, 18 miles of aging water mains, well over 100 hydrants

and the town's 1.5-million-gallon water tower. The Meredith Sewer Department maintains the collection system which consists of over 20 miles of sewer mains, 5 lift stations and sewer main cleaning activities to keep everything flowing properly.[12] The town is committed to evaluating the critical infrastructure and developing an asset management maintenance plan.

Conflagration

Conflagration is an extensive, destructive fire in a populated area that endangers lives and affects multiple buildings.

Location: Meredith has several areas of town vulnerable to conflagration, including the village center, characterized by densely clustered older structures; and abundant seasonal camps, many consisting of numerous wooden structures clustered together on the lake shorelines. Seasonal and full-time residential developments on the 45 islands in town, campgrounds, and condominiums are also susceptible to a major fire due to the number of older structures in close proximity to each other, most of which do not contain fire suppression systems.

Extent: Bear Island is the largest island and one of the leading fire safety concerns for the community given that access is by water only and that the island is predominately wooded with residential development. Most of the residential development that has taken place on the two-mile long island is situated on the shores of the island. Inland firefighting capabilities on the island are limited to the NH Electric Coop access lane that runs the length of the island. The town has recently increased its ability to fight residential structure fires from the water by retrofitting the town's fireboat. Additionally, a docking slip has been donated to the town which provides easy access in the event of an island fire.

January 28, 2021: Massive Fire at Meredith Marina on Bayshore

History: The city of Laconia was the site of one of the most devastating structural fires to occur in the state of New Hampshire. The 1903 Great Lakeport Fire consumed more than 100 homes; two churches, two factories, a large mill, a power plant, and a fire station. Wolfeboro's history includes a significant fire in the winter of 1956 and is considered a small conflagration. On April 12, 2009 the Alton Bay Christian Conference Center complex caught fire, resulting in an 11-alarm fire and destroying more than 40 structures. In May of 2009 there was a fire on Bear Island caused by trees on power lines, burning about a half-acre of land; no structures were damaged or injuries reported.

As seen from a drone in the photo above, on January 28, 2021 a massive fire destroyed the Meredith Marina Service Building on Bayshore Drive along with six boats. Equipment and

[12] Meredith Water and Sewer: https://www.meredithnh.org/water-sewer

personnel from eight fire departments assisted Meredith Fire in battling the blaze. Estimates indicated that the damages could reach $1 million[13]

Probability of Occurrence: Occasional

Cyber Events

Location: With the increased use of computers and the internet: personal, business and governmental, there has been an increase in cyber events. Cyber events can include an ever-increasing variety of entities, these could include but are not limited to banks, churches, City/Town government processes, hospitals, schools, Local, Regional and State emergency operations and critical infrastructure. Cyber events have been known to take place from small towns to large cities, counties and states. They can cause significant disruption to regular business practices, critical services, the exposure of personal and/or proprietary data and can be the cause of financial expenditures.

Extent: Although cyber-attacks have not significantly impacted Meredith, the threat is real. Towns in New Hampshire susceptible to attack, " … in March (2016), the Trojan horse malware called *Emote*t, infected Portsmouth's computer network. The malware sought out electronic address books, collected email addresses and then sent fake emails that appeared to be from city officials and gave recipients the impression that they must pay an invoice from the city and instructed them to click a link for details. The city later submitted an insurance claim of $156,813 to cover the costs for managing the attack". [14]

Probability of Occurrence: *Occasional
(******Has been Unlikely, anticipated to become Occasional)

Dam Failure

Critical infrastructure like dams and levees provide recreation, water supply, floodplain management, energy and other important functions. Dam owners and operators can be private, non-profit or public. They are important participants/stakeholders in local mitigation planning processes.

The National Dam Safety Program Act (Pub. L. 92‑367), as amended, 33 U.S.C. § 467f-2, authorizes FEMA to provide High Hazard Potential Dams (HHPD) Rehabilitation Grant Program assistance for the rehabilitation of dams that fail to meet minimum dam safety standards and pose unacceptable risk to life and property. To be eligible for HHPD grants, local governments with jurisdiction over the area of an eligible dam must have an approved local hazard mitigation plan that includes all dam risks

[13] Laconia Daily Sun: https://www.laconiadailysun.com/news/local/marina-fire-damage-could-reach-1-million/article_298ca0ea-6274-11eb-88a2-a3639a015b4c.html
[14] New Hampshire Municipal Association: https://www.nhmunicipal.org/town-city-article/cybersecurity-best-practices-municipalities

Location: A potential source of flooding is associated with a dam break at any of the 15 active dam sites in Meredith. The Lake Waukewan Dam is a privately owned dam in the center of Meredith Village. It is the only High Hazard dam in Meredith.

Extent: Dams in New Hampshire are classified by the New Hampshire Department of Environmental Services (DES) Dams Bureau. The four dam hazard classifications (Non-Menace, Low Hazard, Significant Hazard and High Hazard[15]) are based on the potential losses associated with a dam failure (see Appendix G for a detailed description). High (H) and Significant (S) Hazard dams have the highest potential for damage; this could include damage to state or municipal roadways as well as structures. There are fifteen active dams in Meredith (Table 9); one is High Hazard, one is Significant Hazard, five are Low Hazard, and the remainder are either Non-Menace Hazard dams or exempt dams.

There is a 35' drop in elevation between Lake Waukewan and Lake Winnipesaukee. At the top of this elevation decline is the Waukewan dam. The dam is not the traditional embankment structure, but rather it is an engineered surge and overflow structure. The dam is owned by a private entity, Hampshire Hospitality Holdings, LLC (HHH); however, it is also the control structure for the town's public drinking water source and potential flood mitigation from high lake and stream levels in Meredith, Center Harbor, and New Hampton. In order to facilitate communication among these entities and lessen potential impacts it is essential to have a clear plan of action in the event of an emergency.

Lake Waukewan Dam from Mill Falls

High Hazard dams are required to have Emergency Action Plans, which identify areas that are at risk in the event of a dam failure. A formal inundation pathway map detailing the pathway of floodwaters in the event of a failure and detailing the potential losses is included in the 2022 Lake Waukewan Dam Emergency Action Plan[16]. The town of Meredith works with the Dam owners, HHH and is included in the current Emergency Action Plan (EAP) for the Lake Waukewan Dam, 2.2022 that addresses risks, vulnerabilities, and short- and long-term strategies for the ongoing mitigation of High Hazard Potentials (HHPD). Additionally, key Meredith personnel are included in the DES Operation, Maintenance and Response Form (9.3.2021) which notes Dam maintenance monitoring.

The Town plays a key role in partnering with HHH in the overall response should an incident occur, realizing that there is a limiting factor in not owning the dam directly. Strong cooperation between the Town, the private entity, and the State in developing action plans has been key in the

[15] NH DES Environmental Fact Sheet: *Classification of Dams in New Hampshire, 2020*
https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/db-15.pdf

[16] Waukewan Dam Emergency Action Plan 2-22-2022

coordination of efforts surrounding the dam and its impact to the community and surrounding areas.

The Town is currently coordinating efforts with HHH in order to secure grant funding for required updates and improvements. This continued relationship will allow us to remain included in any long-term vulnerability strategies concerning the Dam.

While communication remains a key component of any response plan, Hampshire Hospitality Holdings, LLC remains the responsible party for oversight, improvements, and any action plans associated with the Waukewan Dam.

Table 9: Dams in Meredith

DAMCODE	HAZCL	NAME	RIVER	STATUS	TYPE
155.01	H	LAKE WAUKEWAN DAM	TR LAKE WINNIPESAUKEE	ACTIVE	CONCRETE
155.22	S	CLEARWATER CAMP LAGOON DAM	NA	ACTIVE	EARTH
155.02	L	WICKWAS LAKE DAM	DOLLOFF BROOK	ACTIVE	CONCRETE
155.25	L	CAMP LAWRENCE SEWAGE LAGOON	NA	ACTIVE	EARTH
155.26	L	CAMP NOKOMIS SEWAGE LAGOON	NA	ACTIVE	EARTH
155.20	L	ANNALEE DETENTION POND DAM	RUNOFF	ACTIVE	EARTH
155.04	L	MEREDITH RESERVOIR DAM	TR LAKE WAUKEWAN	ACTIVE	EARTH
155.05	NM	RANDLETT POND DAM	HERMIT BROOK	ACTIVE	EARTH
155.08	NM	FARM POND DAM	NATURAL SWALE	ACTIVE	EARTH
155.09	NM	FIRE POND DAM	NATURAL SWALE	ACTIVE	EARTH
155.29	NM	WAUKEWAN VILLAGE RETENTION POND	NONE	PENDING	EARTH
155.10	NM	PAGE BROOK DAM	PAGE BROOK	ACTIVE	EARTH
155.16	NM	VILLAGE WEST DETENTION POND DAM	RUNOFF	ACTIVE	EARTH
155.23	NM	MEREDITH CLOSED LANDFILL DET #1	RUNOFF	PENDING	EARTH
155.24	NM	MEREDITH CLOSED LANDFILL DET 2	RUNOFF	PENDING	EARTH
155.14	NM	KUHARIC POND DAM	UNNAMED STREAM	ACTIVE	EARTH
155.06	NM	WILDLIFE POND DAM	UNNAMED STREAM	ACTIVE	EARTH
155.07	NM	RECREATION POND DAM	UNNAMED STREAM	ACTIVE	EARTH
155.11		PRESCOTT PARK DIKE	HAWKINS BROOK	EXEMPT	EARTH
155.13		HARTS TURKEY FARM POND DAM	RUNOFF	NOT BUIL	EARTH
155.15		VILLAGE WEST DETENTION POND DAM	RUNOFF	EXEMPT	EARTH
155.12		DETENTION POND DAM	RUNOFF	EXEMPT	EARTH
155.21		DM MANAGEMENT DET POND DAM	RUNOFF	EXEMPT	EARTH
155.17		MEREDITH WOODS DET POND 1 DAM	RUNOFF	EXEMPT	EARTH
155.19		MEREDITH WOODS DET POND 2B DAM	RUNOFF	EXEMPT	EARTH
155.18		MEREDITH WOODS DET POND 2A	RUNOFF	EXEMPT	EARTH

History: No dam failures were reported.

Probability of Occurrence: Unlikely

Drought

Location: Drought conditions could affect all areas within the town of Meredith.

Extent: A drought is generally not as damaging or disruptive as other natural hazards due to the timeframe in which it occurs. Droughts can take months or years to evolve into a hazardous situation and can take as long or as short a time to reverse its effects on the community. Effects include, but are not limited to, decreased ground water, decreased stream flow, and lower levels in lakes and rivers.

History: Since 1990 New Hampshire has had a state Drought Emergency Plan, which identifies four levels of action indicating the severity of the drought: Alert, Warning, Severe, and Emergency. There have been five extended droughts in New Hampshire in the past century: 1929 – 1936, 1939 – 1944, 1947 – 1950, 1960 – 1969, and 2001 – 2002. The US Drought Monitor began in 2000.[17] While drought conditions can change rapidly, current data (Mid July 2022) recognized drought conditions in the Northeast United States: "The dryness in the region has allowed for drought expansion this week…a new area of severe drought in eastern Massachusetts…moderate drought was expanded in Maine, New Hampshire and Vermont."[18]

Probability of Occurrence: Occasional

Earthquake

Location: An earthquake could affect all areas of Meredith, though the Village area with its multi-story (and in some cases masonry buildings) is at greater risk. One of two major faults in New Hampshire runs through neighboring Sanbornton.

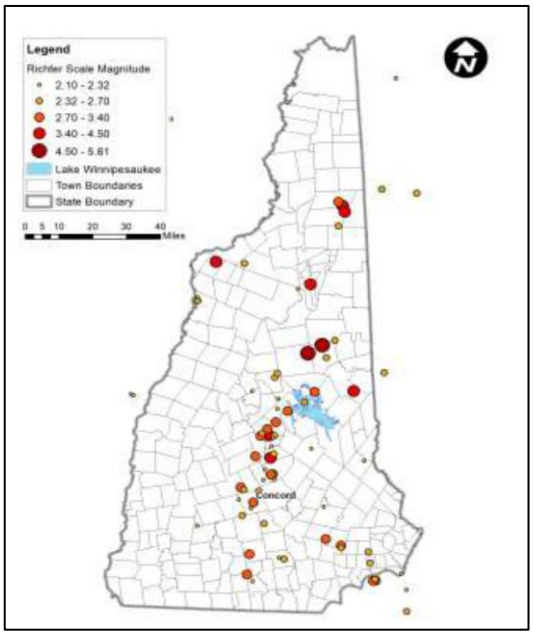
Extent: An earthquake is a series of vibrations induced in the Earth's crust by the abrupt rupture and rebound of rocks in which elastic strain has been slowly accumulating. Earthquakes are commonly measured using *magnitude*, or the amount of seismic energy released at the epicenter of the earthquake. The Richter magnitude scale is a mathematical device used to compare the size of earthquakes, shown below in Table 10.[19]

Table 10: Richter Magnitude Scale

Magnitude	Earthquake Effects
2.5 or less	Usually not felt, but can be recorded by seismograph.
2.5 to 5.4	Often felt, but only causes minor damage.
5.5 to 6.0	Slight damage to buildings and other structures.
6.1 to 6.9	May cause a lot of damage in very populated areas.
Magnitude	**Earthquake Effects**
7.0 to 7.9	Major earthquake. Serious damage.
8.0 or greater	Great earthquake. Can totally destroy communities near the epicenter.

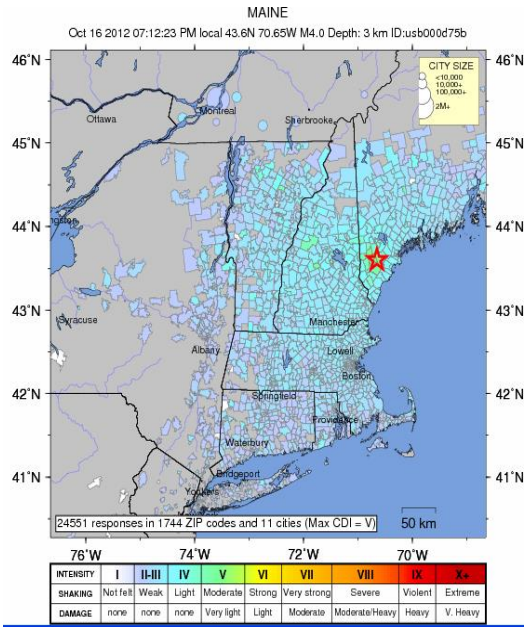
[17] US Drought Monitor http://droughtmonitor.unl.edu/.
[18] National Integrated Drought Information System (NIDIS) https://www.drought.gov/states/new-hampshire
[19] US Geological Society http://pubs.usgs.gov/gip/earthq4/severitygip.html

New Hampshire is considered to be in an area of moderate seismic activity with respect to other regions of the country. This means the state could experience large (6.5-7.0 magnitude) earthquakes, but they are not likely to occur as frequently as in a high hazard area like the Pacific coast. There is the potential for nearby earthquakes to register 5.5 on the Richter Scale, causing slight damage to buildings and structures. Due to the unique geology of New Hampshire, earthquake propagation waves travel up to 40 times further than they do in the western United States, possibly enlarging the area of damage.[20] The strongest earthquakes to strike New Hampshire occurred December 20 and 24, 1940 in the town of Ossipee. Both earthquakes had a magnitude of 5.5 and were felt over an area of 400,000 square miles. Damage to structures included collapsed chimneys, cracked walls, and broken pipes. Evidence of ground cracks in the region was also noted.



History: On average, every other year the Lakes Region experiences an earthquake, though these earthquakes are mild and go mostly undetected by people. The earliest known damaging event occurred on October 29, 1727, with an epicenter off the coastline of New Hampshire or Maine. The strongest damaging quakes with an epicenter in the state occurred at Tamworth on December 20 and 24, 1940, both with a measured magnitude of 5.8. At least 262 earthquakes with magnitudes greater than 1.4 and epicenters within New Hampshire have occurred since 1728. According to NH DES, the most memorable quake (Gaza Epicenter) was recorded with a magnitude of 4.7 west of Laconia on January 19, 1982, but only minor damage occurred.

A search of the USGS National Earthquake Information Center database shows that since 1977 there have been 12 earthquakes with a magnitude of at least 3.0 within a 100 km (62 mi.) radius of Meredith; the largest was magnitude 4.5.[21] Two such earthquakes have occurred since 2008; a 3.4 event in 2010 centered in Penacook, NH and a 4.0 quake in southern Maine shook the region on October 16, 2012. The adjacent image above indicates the communities where people reported feeling this event.[22] The record is complete enough to allow seismologists to compute occurrence probabilities for earthquakes in New England ranging from magnitude 4.6 to 6.0. Thus, earthquakes



Areas where the October 16, 2012 earthquake were felt

[20] http://www.nh.gov/safety/divisions/hsem/NaturalHazards/index.html
[21] USGS. http://earthquake.usgs.gov/earthquakes/eqarchives/epic/
[22] USGS, Earthquake Archive Search. https://earthquake.usgs.gov/earthquakes/search/

will continue to occur in New Hampshire with at least the same frequency and magnitude as in the past[23] For updates on earthquake information in New Hampshire see Appendix G.

Probability of Occurrence: Occasional

Extreme Temperature

Location: Temperatures in New Hampshire have risen 3 °F since the beginning of the 20th century. Observed and projected effects of the temperature increase can be found in the National Oceanic and Atmospheric Administration (NOAA) State Climate Summary for New Hampshire[24] Extreme temperature can have an effect on both citizens, structure and environment in the town of Meredith. Winter temperature in Meredith can fall below -30°F. While extreme cold temperatures are of concern, Meredith residents appear to cope well. This may be due to early warning alerts, the use of generators, wood and pellet stoves. However, there is always the possibility of frozen/burst pipes that could affect both residential and commercial structures and the safety of those living in a single or multi-use dwelling(s).

In the summer months summer temperatures, have been recorded up to and over 100°F. There is an increasing concern and focus on extreme heat conditions, which seem to be increasingly more common. A heatwave with temperatures above 95° for a week or more, could substantially impact elderly and other vulnerable populations. Extreme heat can also be a factor in widespread drought and wildfires.

Extreme temperatures, both cold and heat could be combined with a power failure that could affect heat, air conditioning, the ability to cook and could result in no potable water. Extreme temperature events, especially if combined with long-term utility outages could substantially affect local vulnerable populations, i.e., the very young, the elderly, those with access and functional needs and the homeless. These events could have life threatening results.

Extent: Meredith provides local warnings regarding temperatures utilizing the town website, social media: *Twitter.* Additionally, working with the Inter-Lakes School District, they can utilize the school messaging system; this is an opt in system for those who are associated with the school system. The Islands also have an opt-in inter-island messaging system that is accessible by Meredith Fire. Should it be necessary the Town of Meredith has included provisions in both the Local Emergency Operations Plan (LEOP) and the Emergency Shelter Guidance for the opening of a warming/cooling center to accommodate residents who may require a safe, short-term location for their wellbeing.

The affect that extreme temperatures currently or in the future can have on the Meredith is believed to be primarily an economic impact. Additionally, there could be costs associated with emergency response, and if necessary, the costs related to setting up a warming/cooling center or

[23] NH DES Environmental fact sheet: https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/geo-3.pdf

[24] NOAA National Centers for Environmental Information | State Climate Summaries 2022 150-NH: https://statesummaries.ncics.org/downloads/NewHampshire-StateClimateSummary2022.pdf

an Emergency Shelter. The costs at this time would be difficult to estimate. This is a hazard that the 2022 Committee has noted and will continue to review going forward.

Probability of Occurrence: Occasional

Flooding

Location: The Meredith Flood Insurance Rate Maps (FIRM) show the flood boundaries in the event of a 100-year flood, defined as having a one percent chance of flooding each year. These maps date from June 3, 1988. The maps identify floodplains along nearly every stream in town and several of the ponds.

Though historically there have not been high instances of shoreline flooding the potential always exists for a major flood event to occur. Of greatest concern are the waterfront properties on the three largest waterbodies, Lake Winnipesaukee, Lake Winnisquam and Lake Waukewan and the associated tributaries. Potential flooding on these three lakes is reduced by the use of water level controls that regulate lake water levels. Other areas of past and potential future flooding have been identified as Page Pond, Weed Pond, Camp Waldron Road, Winona Shores Road, Winona Road, Reservoir Dam, Randlett Pond Dam, and Wickwas Lake Dam. Additionally, washouts have occurred under the railroad trestle at Monkey Pond (see image above).

A continuing concern of The Committee is the more non-traditional areas of flooding; areas of steep slopes and soils with limited capacity to accept volumes of rainwater rapidly. This 'sheet flow' or flash flooding has been shown to be a significant threat in recent years.

Several instances of localized culvert flooding have been identified. Specific areas of concern sections of Chase Road, Hermit Woods Road, and Waukewan Road. Short-term flooding occurs along Bonny Shores Road, Sawmill Shores Road, Chemung Road, Reservoir Road, Black Brook Road, Wall Street, Meredith Neck Road, and at the intersection of US Route 3 and NH Route 25 in the village area. Many of the culverts of concern are located on less traveled roads in town. Areas of greatest concern should be prioritized and included in a Local Transportation Improvement Plan.

Extent: Flooding is defined as a temporary overflow of water onto lands that are not normally covered by water. It results from the overflow of rivers and tributaries or inadequate drainage. Flooding is most commonly associated with structures and properties located within the 1% annual (or 100-year) floodplain. Areas in this floodplain have been identified as having a one percent chance of flooding any given year. The US Geological Survey (USGS) has stream gauges on many of

the larger rivers around the state to track flow levels, none exist on any of the streams in Meredith.[25]

Stormwater management is a topic that has become quite relevant in land use planning in Meredith. Increased concentrations of water runoff can lead to damage to property and infrastructure through erosion and washout. Development causes greater potential for culvert and road washouts. It can also increase the potential for flooding on neighboring properties if stormwater is not properly designed and incorporated on-site. Impeded stream flows and steep slope degradation can also contribute to stormwater flooding. During Committee meetings, this led to a discussion of the responsibilities of the landowner vs. those of the town.

The town reported that most of the flooding that has occurred recently has been in upland areas and was associated with extended or heavy rainfalls. Weather records for the region do indicate that the number of heavy rainfall events (greater than 4" in 24 hours) per decade has increased over the last thirty years and is projected to increase further.[26]

History:
For a history of declared and undeclared flood events in Belknap County, see Appendix E.

Probability of Occurrence: Flooding – Likely

Health Hazards: Infectious Disease

Location: 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."[27] Additionally, Numerous diseases such as West Nile Virus and Lyme Disease are transmitted to humans and some animals through insects.[28]

An epidemic is an outbreak of a disease, generally isolated to one area. The disease spreads easily person-to-person and can cause serious illness. "A pandemic is an epidemic of an infectious disease that has spread across a large region, for instance multiple continents or worldwide, affecting a substantial number of individuals:[29] An infectious disease outbreak could impact anyone in town. Transmission of germs and diseases between people is accelerated in a close living and socializing environment. Schools, and congregate care centers for the elderly are good places for transmission to occur.

[25] US Geological Survey, Current Water Data for New Hampshire https://waterdata.usgs.gov/nh/nwis/rt
[26] Wake, Cameron, et.al., "Climate Change in New Hampshire: Past, Present, and Future" (2014) https://scholars.unh.edu/cgi/viewcontent.cgi?article=1002&context=sustainability
[27] Mayo Clinic, Infectious diseases, Overview, https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173
[28] UNH Cooperative Extension, http://nhbugs.org/hemlock-woolly-adelgid.
[29] Wikipedia: https://en.wikipedia.org/wiki/Pandemic

Table 11: Magnitude and Severity of Infectious Diseases

Endemic	Constant presence and/or usual prevalence of a disease or infection agent in a population within a geographic area
Hyperendemic	The persistent, high levels of disease occurrence
Cluster	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
Epidemic	An increase, usually sudden, in the number of cases of a disease above what is normally expected
Outbreak	The same as epidemic, but over a much smaller geographical area
Pandemic	Epidemic that has spread over several countries or continents, usually affecting many people

Extent: Lessons learned from the current COVID-19 Pandemic are ongoing. What is known is that the pandemic has adversely affected people's livelihoods, health and our food systems across the globe [30] and has created "havoc" on the national economy and the economy in New Hampshire.[31] COVID-19 had a significant impact on travel and tourism in Meredith, and therefore the local economy. Dining, capacity, and quarantine concerns limited area businesses in both patrons and available employees thus having a negative impact on the economy as did lagging supply chain issues. These supply chain issues also impacted stores for a variety of goods that became very limited.

The Inter-Lakes School District's response to COVID-19 included an approved Mitigation and Response Plan that met the Elementary and Secondary School Emergency Relief Fund (ESSER) requirement: Safe Return to In-Person Instruction and Continuity of Service. As part of the plan the District had a COVID 19 Team that met frequently to make recommendations to the School Board. This team included the following stakeholders: School Board, Administration, Principals, Staff, Nursing Staff, Students, Parents and Volunteers with a Public Health Background and expertise.

History: In the spring of 2006, Avian influenza A (H5N1) was spread by migrating birds from Asia to Europe and Africa. Between 2005 and 2006, the Avian Influenza H5N1 virus infected 81 people and killed 52 in 10 countries in Asia and Africa**.** Most of the H5N1 cases were a result of human contact with infected poultry and the spread of the virus has not continued beyond that person. Although no human-to-human cases were been reported, viruses have the ability to mutate. The significance of the H5N1 pandemic is, that it brought local, state, and federal attention to the need for pandemic emergency preparedness plans.[32]

[30] World Health Organization https://www.who.int/news/item/13-10-2020-impact-of-covid-19-on-people's-livelihoods-their-health-and-our-food-systems
[31] University of New Hampshire (UNH) https://carsey.unh.edu/what-is-new-hampshire/sections/economy/covid-19
[32] Avian Influenza: preparing for a pandemic: https://www.aafp.org/pubs/afp/issues/2006/0901/p783.html

In 2009, the World Health Organization (WHO) declared a global H1N1 pandemic.[33] The H1N1 flu, commonly known as Swine flu, is primarily caused by the H1N1 strain of the influenza virus. H1N1 is a type of influenza A virus, it can spread "human to human" through respiratory droplets from coughs or sneezes, much like seasonal influenza.[34]

The State of New Hampshire's Department of Health and Human Services has been preparing for pandemic influenza since 2001, with many iterations of pandemic response plans in the following years. In 2017 the US Department of Health and Human Services (USHHS) released an update to the *HHS Pandemic Influenza Plan to* include lessons learned and successes of last decade. In 2019, NH updated their *Pandemic Influenza Response Plan*. The purpose was to align past NH plans more closely USHHS recommendations and with best practices for community preparedness and resilience, disaster risk and core capabilities management, and evidence- based decision-making structures already in place in many of the state's emergency response documents.
On December 31, 2019 the World Health Organization's (WHO) Country Office in the People's Republic of China picked up a media statement by the Wuhan Municipal Health Commission from their website on cases of 'viral pneumonia' in Wuhan, People's Republic. January 11, 2020, Chinese media reported the first death from this yet unnamed virus. Human coronaviruses were first identified in the mid-1960s. They are named for the crown-like spikes on their surface. COVID-19 is a disease caused by a new strain of coronavirus. 'CO' stands for corona, 'VI' for virus, and 'D' for disease. Formerly, this disease was referred to as '2019 novel coronavirus' or '2019-nCoV.[35] The United States (US) reported its first confirmed case of the novel coronavirus on January 21, 2020. While cases had been reported in Asia, this was the first case reported in the WHO Region of the Americas. Through February into early March the novel coronavirus spread across the globe. On March 11, 2020, the WHO declared the Novel Coronavirus Disease, COVID-19 a pandemic. On that same day a national emergency was declared in the United States concerning the COVID-19 outbreak. By March 13 Europe had become the epicenter of the pandemic.[36] On Monday, March 2, 2020, Dr. Benjamin Chan, New Hampshire's state epidemiologist, announced the state's first case of the COVID-19 virus.[37] Vaccinations for COVID-19 began to be distributed in the United States in late December 2020. They continue to be developed and made available to all US citizens based on age/dose.[38]

The New Hampshire Division of Public Health services in the Department of Health and Human Services is updating and working on the Pandemic Appendix of the High Threat Infectious Disease (HTID) Plan. In the event of a novel strain of influenza occurring in NH, it the *NH Pandemic Influenza Response Plan* will be activated in conjunction with the *NH HTID Plan* and other state and local emergency response plans.[39]

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[33] World Health Organization (WHO) H1N1 Pandemic https://www.cdc.gov/h1n1flu/who
[34] Center for Disease Control (CDC) H1N1 https://www.cdc.gov/h1n1flu/qa.htm
[35] Center for Disease Control (CDC) Human Coronavirus https://www.cdc.gov/coronavirus/general-information.html
[36] World Health Organization (WHO) Timeline: WHO's COVID-19 Response https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline
[37] ABC News https://abcnews.go.com/Health/wireStory/authorities-confirm-hampshires-1st-case-coronavirus-69340222
[38] Health and Human Services Coronavirus Vaccines https://www.hhs.gov/coronavirus/covid-19-vaccines/index.html
[39] NH DHHS Division of Public Health Services - *Draft* High Threat Infectious Disease Plan

As evidenced by the COVID-19 pandemic, novel strain influenza can present a unique public health emergency due locally, regionally, nationally and worldwide; this level of impact has in many areas crippled critical infrastructure and essential services, as well as having an overall impact on the economy. Included below is the COVID-19 summary report for the State of New Hampshire as of June 30, 2022[40]

New Hampshire COVID-19 Summary Report

(Data updated as of June 30, 2022, 9:00 AM)

- Number of Persons with COVID-19*332,120*
  - New Cases for the Previous Week *1,671*
  - Deaths Attributed to COVID-19 *2,585 (1%)*
  - Total Current COVID-19 Cases *2,016*
- Current Hospitalizations Treated for COVID-19 *17*

Until COVID-19, the 2012-13 seasonal influenza was the most severe in New Hampshire than any of the previous decade; 35 deaths occurred statewide, the most since 1997.[41] However, as noted above the ongoing COVID-19 pandemic continues to affect our community in multiple ways. The effect of the ongoing COVID-19 pandemic continues to be evaluated locally, nationally and globally.

Probability of Occurrence: Health Hazards: Infectious Disease –Highly Likely

High Winds (Thunderstorm/Tornado/Downburst/Hurricane)

Location: On average, six tornadoes touch down somewhere in New England each year. There is no way of knowing where or when the next damaging tornado will strike as they are among the most unpredictable weather phenomena. Downbursts are 10 times more likely to occur than tornadoes but often go unreported. All areas of town are susceptible to damage from high winds.

Extent: Meredith is at risk of several types of natural events associated with high winds; including hurricanes, microbursts, macrobursts, tornadoes, and nor'easters.

Hurricanes are large, cyclonic storms with sustained winds of at least 74 miles per hour. Tropical depressions and hurricanes form over the Atlantic Ocean and often come ashore in the southeastern United States, frequently moving up the Eastern Seaboard. Occasionally such storms come ashore along the northeast coast. Sustained high winds and heavy rains for 12 – 36 hours are characteristic of tropical depressions and hurricanes. The strength of hurricanes are classified on a scale from 1 up to 5 based on factors such as wind speed and barometric pressure.

[40] New Hampshire COVID-19 Response https://www.covid19.nh.gov

[41] NH Department of Health and Human Services
https://www.dhhs.nh.gov/sites/g/files/ehbemt476/files/documents/2021-12/1213summary.pdf

Tornadoes are violent rotating storms that extend to the ground with winds that can reach 300 miles per hour. They are produced from thunderstorms and can uproot trees and buildings. For full descriptions of hurricane and tornado classification systems, see Appendix G.

2012 downburst in Tilton NH

According to the National Oceanic and Atmospheric Administration (NOAA) a downburst is a strong downdraft, rotational in nature, which causes damaging winds on or near the ground. Winds can exceed 130 mph.[42] Downbursts fall into two categories based on their size:

- microbursts, which cover an area less than 2.5 miles in diameter, and
- macrobursts, which cover an area at least 2.5 miles in diameter.

History:
For a history of declared and undeclared High Wind: Thunderstorms, Tornado, Downbursts, Hurricanes related events in Belknap County, see Appendix E

https://www.wmur.com/article/waterspout-spotted-on-lake-winnipesaukee-3/5191556#!bPv9ky

Probability of Occurrence: Highly Likely (Hurricane – Occasional)

Lightning

Location: Thunderstorms occur mainly in the summertime; some can be anticipated and detected well in advance while others are "pop-up" storms that are limited in size and duration. Exactly where and when lightning will strike is unknown. Lightning can strike anywhere in town. Every year significant lightning strikes occur, particularly on the Meredith Neck peninsula. The concern that lightning might ignite a home or wildfire on the neck is quite high due to the number of seasonal homes, amount of forested area, and limited access.

[42] *Weather Glossary.* National Oceanic and Atmospheric Administration, https://w1.weather.gov/glossary/index.php?word=downburst

Extent: Thunderstorms have several threats associated with them including heavy rain, high wind, and lightning. The discharge of lightning causes an intense sudden heating of air. The air rapidly expands when heated then contracts as it cools, causing a shock wave that we hear as thunder. This shock wave is sometimes powerful enough to damage windows and structures. These giant sparks of electricity can result in fire or electrical damage to property or electrocution of people. Lightning damages cost the insurance industry more than $5 billion annually in the United States.[43] The National Weather Service does utilize a six-point scale (Table 12) for characterizing lightning activity called the Lightning Activity Level (LAL) based on frequency of ground strikes along with rainfall and ground conditions.[44]

Table 12: Lighting Activity Level

LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five-minute period.
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5-minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced Lightning is frequent, 11 to 15 cloud to ground strikes in a 5-minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5-minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.

History:
The Committee noted that half a dozen strikes have occurred ~~in the past couple years~~ since 2020, causing some minor structural damage but no deaths or injuries due to lightning. The potential for damage or injury exists within any of the many thunderstorms that pass overhead each year, especially in the summertime.

Probability of Occurrence: Highly Likely

Transportation and Hazardous Materials

Location: US Route 3 and NH Routes 25, 104 and 106 are heavily traveled roads for truck traffic that lie close to numerous surface water bodies, including Lakes Winnipesaukee and Waukewan (the town drinking water source) in Meredith. NH Route 25 is a major east-west corridor for the transport of oil from Portland, ME to central and western portions of New Hampshire.

The railroad runs along both Lake Waukewan, the towns water source, and Lake Winnipesaukee. This rail line is primarily used for passenger rail between Meredith and Laconia aboard the

[43] *National Lightning Safety Institute webpage,* http://www.lightningsafety.com/nlsi_lls/nlsi_annual_usa_losses.htm
[44] NWS Glossary webpage, https://w1.weather.gov/glossary

Winnipesaukee Scenic Railroad. This is a seasonal, tourist rail service however, access to the railroad for freight can also be coordinated with New England Southern Railroad.

Air service is primarily out of the Laconia Municipal Airport, located approximately 9 miles south/southeast of the town center. Sea planes also have the ability to land on Meredith Bay in Lake Winnipesaukee.

Extent: Hazardous material spill is a non-intentional event where hazardous chemicals can pollute the environment, including surface water, ground water, and/or air and can have a negative, potentially life-threatening impact on people. The costs associated with a hazardous material spill can vary greatly dependent on the substance, quantity, and resources threatened. Costs associated with spill containment and clean up that involve water resources are certain to be higher.

A review of accident data provided by the NH Department of Transportation for the years 1996-2000 on US Route 3 and intersecting roadways indicate that nearly 25 percent of accidents reported occurred at or in close proximity to NH Route 25. Though the data does not show a definitive increase in accidents reported, the volume of traffic on these major routes continues to be among the highest in the Lakes Region. The Central New Hampshire HazMat Team is exploring methods of documenting the transport of hazardous materials throughout the region to get a clearer picture of local and regional threats and needed precautions or response capabilities.

The intersection of US Route 3 and NH Route 25 is within several hundred feet of Lake Winnipesaukee at Meredith Bay. The potential for a motor vehicle accident involving hazardous materials is high as this route is part of the National Highway System. This designation, coupled with the proximity to the lake, heightens concerns for potential water contamination in the event of a spill.

Oil Tanker on NH Route 25

In addition to distributing fuel to central locations in the region, tankers travel throughout the area daily to fulfill their home heating fuel deliveries. Most oil tankers have the capacity to carry 1,000 gallons of home heating oil. A week-long survey conducted by the Meredith Fire Department found that a majority of the materials being transported through the village area were petroleum products. The Meredith Fire Department has enough spill containment equipment to control a small spill. Large spills would exceed the town's equipment and manpower capacity. The state's spill response team should be alerted immediately if a spill is large or if it is near a waterbody, regardless of the size.

History: Shortly after the turn of the 20th Century, the Town of Meredith witnessed the beginning of change from oil to propane with new installations of water, heating, and cooling appliances both in commercial and residential settings. To date, in new residential homes, 98.5% are built with propane fired appliances. The increase of propane in the community has increased the severity of possible hazardous material incidents in transportation, storage, and everyday use.

Propane Tanker Rollover: Livingston Road, Meredith Winter 2022

There have been no significant incidents for this hazard at this time.

Probability of Occurrence: Likely

Severe Winter Weather (Snow Storms, Nor'easters, Ice Storms)

Location: Snow and Ice Storms can affect the entire town. Severe winter weather occurs frequently in the northeast and the possibility exists for residents to have to withstand several days without power. No one area of the town and region is at greater risk than another, but there are segments of the population that are more at risk. These include the elderly, people that are in need of regular medical care, and young children. These weather events can vary greatly based on slight differences in temperature, humidity, and elevation. Some events will produce a combination of winter weather types.

Extent:

A heavy snowstorm can be defined as one which deposits four or more inches of snow in a twelve-hour period. The region typically receives greater than 66" of snow annually.[45] The nearest airport weather station is ten miles to the south in Gilford, NH. Records there indicate that eight or more inches have fallen in a single day on most dates from late November through mid-March but the average snowfall on any day from November through April is less than an inch. This record also shows that deposits of more than ten inches have happened in each of these months and on several days in February the area has seen more than fifteen and even twenty inches of snow in one day.

In the winter months, the region may experience blizzard conditions. A blizzard is characterized by sustained winds or frequent gusts to 35 miles per hour or greater and considerable amounts of falling or blowing snow that last for a duration of three hours or longer. The combination of winds and snow reduce visibility to less than a quarter mile.[46]

New Hampshire generally experiences at least one or two nor'easters each year with varying degrees of severity. A nor'easter is defined as a large anticyclone weather system that resides near

[45] *Northeast States Emergency Consortium,* http://nesec.org/winter-storms/

[46] "Winter storm terms," https://community.fema.gov/ProtectiveActions/s/article/Winter-Storm-Alerts-and-Warnings

the New England region. These storms have the potential to inflict more damage than many hurricanes because high winds can last from twelve hours to three days, while the duration of hurricanes ranges from six to twelve hours. A nor'easter also has the potential to sustain hurricane force winds, produce torrential rain, and create blizzard conditions in winter months.

Average Monthly Snowfall at Laconia Municipal Airport[47]

The average snowfall (solid line) accumulated over the course of a sliding 31-day period centered on the day in question, with 25th to 75th and 10th to 90th percentile bands. The thin dotted line is the corresponding average rainfall.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Snowfall	15.4″	15.9″	10.1″	2.5″	0.1″	0.0″	0.0″	0.0″	0.0″	0.2″	3.2″	12.2″

An ice storm coats trees, power lines, streets, vehicles, and roofs with a very slick and heavy coating of ice. In the winter of 1998, a major ice storm crippled much of New Hampshire, coating everything with as much as three inches of ice. The U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory estimates a 40 – 90-year return period for an event with a uniform ice thickness of between 0.75 and 1.25 inches. Ten years later (2008), however, New Hampshire was struck again by another severe ice storm.

The Sperry-Piltz Ice Accumulation (SPIA) Index is being used to forecast and classify ice storms based on a combination of the average thickness of ice coating (referencing expected temperature and precipitation levels) and wind speed; ratings range from 0 to 5.[48] The SPIA Index was first used in the United States in 2009 and is now beginning to be utilized by the National Weather Service.

[47] Weather Spark https://weatherspark.com/y/147274/Average-Weather-at-Laconia-Municipal-Airport-New-Hampshire-United-States-Year-Round

[48] National Outages/SPIA Northeast webpage, http://www.spia-index.com/nelce.php

Table 13: Sperry-Piltz Ice Accumulation Index

The Sperry-Piltz Ice Accumulation Index, or "SPIA Index" – Copyright, February, 2009

ICE DAMAGE INDEX	* AVERAGE NWS ICE AMOUNT (in inches) *Revised-October, 2011	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.)

History: For a history of declared and undeclared Severe Winter Weather events in Belknap County, and the state as a whole, see Appendix E. These events go back as far as 1958 and include assumed statewide events in 1973, 1974, and 1978. The first Belknap County specific is listed as 1990.

Probability of Occurrence: Highly Likely (Ice Storm – Likely)

<u>Water Contamination</u>

Location: The proximity of Meredith's Water and Sewer Department treatment plant to the open waters of Lake Waukewan heighten the concerns related to municipal water supply contamination. Located directly across the street from the Waukewan Beach, the water treatment facility houses a sewer pumping station.

Extent: Sewer line breaks in this area have the potential for water contamination. This risk is minimized due to the fact that the water intake is located approximately 1,700 feet from shore and 35 feet deep. The Committee noted that the risk to Lake Waukewan is significantly higher than it is to other waterbodies in town since it is the municipal drinking water source. Many thousands of gallons of waste are transported through this area with an aging infrastructure system.

History: In the past decade, Meredith experienced a sewer line break on the shores of Lake Winnipesaukee. The break was associated with thousands of gallons of sewage being leaked out of the system. Municipal sewer in Meredith is part of the regional Winnipesaukee River Basin Program (WRBP) for which the main treatment plant is located in Franklin. Meredith Department of Public Works (DPW) was able to contain the effluent and make the needed repairs to the line. The potential does exist for breaks to this above ground system to occur again in the future. The WRBP maintains a maintenance facility in Laconia which has a professional staff that is able to perform nearly all tasks required for the maintenance and repair of the WRBP system.

Probability of Occurrence: Unlikely

Wild Fire

Location: Many portions of Meredith are within the wildland urban interface[49], areas where human development meets or intermingles with undeveloped wildland and vegetative fuels that are both fire dependent and fire prone.[50] Of greatest concern are islands with homes on them which are only accessible by boat, such as Bear Island.

Extent: A wildfire is defined as a fire in wooded, potentially remote areas that may endanger lives. New Hampshire has about 500 wild land fires each year; most of these burn less than half an acre. Much of the Lakes Region is forested and susceptible to fire. The National Wildfire Coordinating Group (NWCG)[51] has defined seven classes of wildfire based on size:

- Class A - one-fourth acre or less;
- Class B - more than one-fourth acre, but less than 10 acres;
- Class C - 10 acres or more, but less than 100 acres;
- Class D - 100 acres or more, but less than 300 acres;
- Class E - 300 acres or more, but less than 1,000 acres;
- Class F - 1,000 acres or more, but less than 5,000 acres;
- Class G - 5,000 acres or more.

History: In 2021, there were zero wildfires in Belknap County. Across the state, 66 total wildfires burned a total of 86 acres in the same year[52]. While the actual incidents are low, the hazard remains a risk to all citizens. There have been no significant wildfires in Meredith over the last decade.

Probability of Occurrence: Occasional

Summary

It is cost prohibitive to make the built environment resistant to the most devastating natural hazards that could occur, though reasonable measures can be taken to minimize loss of life and property damage. Meredith may be affected by an unavoidable extraordinary circumstance such as a violent earthquake, but historically, events of this magnitude have been infrequent. Those natural events that are common to the northeast also have common elements of concern for public safety. These include the potential for long-term power outages, the potential need for short-term sheltering facilities, and the availability of equipment and trained personnel. Key to loss prevention in these relatively common event scenarios is pre-event planning that critically assesses communications within the community, mutual aid resources regionally, public awareness and education, and emergency response training.

[49] The 2010 Wildland-Urban Interface in the Conterminous United States, https://www.fs.fed.us/nrs/pubs/rmap/rmap_nrs8.pdf

[50] Wildland Urban Interface, June 2022. https://www.usfa.fema.gov/downloads/pdf/publications/wui-issues-resolutions-report.pdf

[51] National Wildfire Coordinating Group, https://www.nwcg.gov/term/glossary/size-class-of-fire

[52] 2021 Annual Report, Town of Meredith. https://www.meredithnh.org/home/news/2021-town-report

CHAPTER IV: VULNERABILITY ASSESSMENT, Meredith, NH

A. INVENTORY ASSETS

Tables 14 and 15 address the critical facilities, infrastructure, and populations to protect in Meredith. The list of public critical infrastructure for the town of Meredith (Table 14) was reviewed by The Committee and the values updated by the Town Assessor (2022).

Table 14: Value of Public Critical Facilities

NAME	TYPE	CLASSIFICATION	STRUCTURAL VALUE 2022
Central Fire Station	Public Service, 2nd EOC	Essential Services	$2,211,100
Inter-Lakes Elementary School	School	Shelter/Population to Protect	$5,816,900
Inter-Lakes Middle-High School	School	Shelter/Population to Protect	$10,430,300
Meredith Center Fire Station	Public Service	Essential Services/Shelter	$318,000
Meredith Community Center	Public Service	Shelter/Population to Protect	$3,748,900
Meredith DPW, Total	Public Service	Essential Services	$1,468,500
Municipal Water System: Includes Water Tower	Public Service	Essential Services	$1,316,200
Police Station	EOC	Essential Services	$1,543,600
Town Annex	Public Service	Essential Services	$326,000
Town Hall	Public Service	Essential Services	$468,200
		Total Value	$27,647,700

Table 15 expands beyond the public facilities in Table 14 to include infrastructure and other structures and services to protect in order to minimize additional risk to hazards. To develop Table 15, The Committee broadened the list beyond public facilities and rated the vulnerability of each facility, infrastructure, or population to the identified hazards and the potential impact of climate change to already identified hazards. The Hazard Vulnerability rating was based on a scale of 1-3 with 1 indicating little or no risk.

Table 15: Vulnerability of Critical Facilities

Facility/Infrastructure	Flood	Dam Failure	Conflagration	Earthquake	Lightning	Hurricane	Tornado/ Downburst	Blizzard/ Snow Storm	Ice Storm	Nor' easter	MVA Haz Mat Spill	Water Contamination	Oil Spills	Infectious Disease	Recreational Activities	Wildfire	Totals
Assisted Living Facilities	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16
Cell Tower(s)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16
Daycares	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16

Facility/Infrastructure	Flood	Dam Failure	Conflagration	Earthquake	Lightning	Hurricane	Tornado/ Downburst	Blizzard/ Snow Storm	Ice Storm	Nor' easter	MVA Haz Mat Spill	Water Contamination	Oil Spills	Infectious Disease	Recreational Activities	Wildfire	Totals
Inter-Lakes Elementary School	1	1	1	3	2	2	1	2	2	2	1	2	1	2	1	1	25
Inter-Lakes Middle-High School	1	1	1	3	2	2	1	2	2	2	2	2	1	2	1	1	26
Inter-Lakes Medical Center	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16
Meredith Central Fire Station	2	1	1	2	2	2	2	2	2	2	2	1	2	1	1	1	26
Meredith Center Fire Station	1	1	1	1	2	2	1	2	2	2	1	1	1	1	1	1	21
Meredith Community Center - Shelter	1	1	1	1	1	2	1	2	2	2	1	1	1	1	1	1	20
Meredith DPW, Garage	1	1	1	1	2	2	1	2	2	2	2	2	2	1	1	1	24
Meredith DPW, Office	2	1	1	1	2	2	1	2	2	2	1	1	1	1	1	1	22
Meredith DPW, Solid Waste	1	1	1	1	2	2	1	2	2	2	1	1	1	1	1	1	21
Meredith Police Station, EOC	1	1	1	1	1	2	2	2	2	2	2	1	2	1	1	1	23
Meredith Water & Sewer Dept.	2	1	1	2	2	2	1	2	2	2	1	1	1	1	1	1	23
Mobile Home Parks/ Campgrounds	1	1	2	2	2	2	1	1	2	2	1	1	1	1	1	2	23
Municipal Wastewater system	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	19
Municipal Water System	2	3	2	2	2	2	1	1	2	2	2	3	2	1	1	1	29
NH Routes 3/25 Intersection	2	3	2	1	1	2	1	2	2	2	2	1	1	1	1	1	25
NH Route 25 East and West	2	3	2	1	1	2	1	2	2	2	2	1	1	1	1	1	25
NH Route 104 East	1	1	1	1	1	2	1	2	2	2	2	1	1	1	1	1	21
NH Route 106 South	1	1	1	1	1	2	1	2	2	2	2	1	1	1	1	1	21
Power Sub-stations	1	1	2	2	1	1	2	1	2	1	2	1	1	1	1	1	21
Problem Culverts	3	3	1	1	1	1	1	1	2	1	1	1	1	1	1	1	21
Sewer Pump Stations	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	19
Significant Community Sites:																	
Meredith Main Street	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17
Populated Islands	1	1	2	1	2	1	2	1	1	1	1	1	1	1	1	2	20
Waukewan Canal	2	3	1	3	1	1	1	1	1	1	1	1	1	1	1	1	21
Special Needs Populations	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	17
Town Annex	1	1	1	2	2	2	1	2	2	2	1	1	1	1	1	1	22
Town Hall	1	1	1	3	2	2	1	2	2	2	1	1	1	1	1	1	23
US Route 3 North and South	2	3	2	1	1	2	1	2	2	2	2	1	1	1	1	1	25
Verizon Building	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16
Water Booster Stations	1	1	1	2	2	2	1	1	2	2	1	3	1	1	1	1	23
Water Supply - District System	1	3	1	2	1	1	1	1	1	1	2	3	2	1	2	1	24
Totals	46	50	40	51	48	53	37	50	55	53	45	42	38	35	34	35	

*Has been Unlikely, anticipated to become Occasional.

Notes: Radon and rabies were considered, The Committee felt they were not of sufficient concern to public safety to include in this plan. Lightning was considered as a separate hazard, while thunderstorms were grouped with tornado/downburst.

Impact - Human, Property, Business

Low: There is little likelihood that injury or death will result from this hazard. The damage to land and property will likely be limited. Essential services and other services that residents and visitors depend upon will not be interrupted.

Moderate: There is some likelihood that injury or death will result from this hazard. There will likely be some damage to land and property. There will likely be some interruption of essential services and other services that residents and visitors depend upon for hours of days.

High: It is quite likely that injury or death will result from this hazard. There will be damage to multiple properties. Essential services and other services that residents and visitors depend upon be likely be interrupted for days.

Catastrophic: Multiple injuries or deaths will likely result from this hazard. Damage to properties will be widespread and extensive. Essential services and other services that residents and visitors depend upon be likely be interrupted for days or weeks.

Overall Risk

Low: Two or more criteria fall in lower classifications or the event has a minimal impact on the planning area. This rating is sometimes used for hazards with a minimal or unknown record of occurrences or for hazards with minimal mitigation potential.

Medium: The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is sometimes used for hazards with a high extent rating but very low probability rating.

High: The criteria consistently fall in the high classifications and the event is likely/highly likely to occur with severe strength over a significant to extensive portion of the planning area.

The *Critical Facilities and Potential Hazards Map* (Appendix F) identifies the location of the critical facilities in relation to mapped hazard areas.

B. IMPACT OF HAZARDS

The Committee agreed that since the impact of *Aging Infrastructure, Cyber Events* and *Extreme Temperature* continue to be locally evaluated, these areas would not be included in the *Impact of Hazards* section in the 2022 update. They will be considered for future updates.

The 2022 assessed value of the critical facilities identified in Section A are listed in Table 13, totaling $27,647,700. This does not; however, include the contents of the building and does not necessarily reflect the cost of full replacement. Also not reflected in this assessment is the value of built infrastructure such as streets, sidewalks, bridges, curbs, drainage, and utility transmission lines. These values can also be used to determine potential loss estimates in the event that a natural or manmade hazard damages a part of or an entire facility. Many of the facilities listed here are privately owned but represent structures or service that The Committee considered to be essential in terms of mitigating vulnerability to hazards.

The 2022 assessed value of all of the structures in Meredith is $1,258,570,700. The value of the residential structures in town totals $1,063,302,518 (more than 80% of the total). The value of the commercial/industrial structures in Meredith is $106,935,482 and the value of the tax-exempt structures (including the structures such as the Fire Stations, Town Hall, and churches) is $73,247,400. An additional $15,085,300 of structural value is classified as public utilities.

The impact of a hazard is the potential degree of damage that could occur in Meredith. This incorporates the assessed value of each critical facility and the vulnerability of these facilities and various populations and places to protect. The rating scale used in Table 14 (p. 48-49) looked at the potential impact on humans, property, and businesses

Conflagration

The structures in Meredith most susceptible to damage from conflagration are those in the high-density areas such as the village area, populated islands, and mobile home parks or camping areas. Many of the town's critical facilities are located in the village area. The total 2022 assessed value of structures on Bear Island is $21,115,400. Any portion of these structures is at risk given the relative difficulty for firefighting access. Drought conditions and the relatively frequent lightning storms increase the likelihood of a fire. During the past several years the fire department provided hand tools and training to residents of Bear Island so that they could provide some initial control if a fire were to ignite.

Preventative programs designed to increase the defensible space of structures in wooded environments can effectively decrease the potential losses. Further building and safety assessments would benefit the community by providing information on the community's level of preparedness to respond to such an event. Although it can be cost-prohibitive, retrofitting the older structures with sprinkler systems would also decrease the risk of conflagration.

Assuming 2% - 5% town-wide damage to buildings, fire could result in $25,171,414 – 62,928,535 in damages.

The potential for impact to the Town of Meredith due to conflagration is High.

Dam Failure

It is estimated that the extent of potential damage in the event of a dam break would include damage to Meredith Bay Corporation buildings, US Route 3 and NH Route 25, and Meredith's Hesky Park. Heavy damage in Hesky Park is estimated by the Meredith DPW to cost the town of Meredith $500,000 for manpower, equipment, and replacement costs. This estimate is for town of Meredith expenses only. As with all High Hazard dams, the potential for the loss of life exists. The costs of the loss of life were not calculated. For extensive damage to occur in Hesky Park, it is likely that State and private property damage will occur as well; the cost of which has not been estimated. Though the likelihood of damage extending back to Main Street is not high, should a flood event cause Main Street damage, the losses for the town of Meredith are estimated to be over one million dollars.

Lake Waukewan Dam Spillway from Mill Falls – NH Route 25 in background

Other associated costs are uncertain. US Route 3 is heavily traveled and represents not only an important connection to Lakes Region communities but is also essential to emergency response for Meredith and surrounding communities. In the event of damage to US Route 3

emergency response would likely be impeded. US Route 3 and Main Street represent the only means of passage between Lake Waukewan and Lake Winnipesaukee. Damage to both the US Route 3 Bridge and Main Street, would significantly hamper emergency operations.

The Lake Waukewan Dam was ranked by the Meredith Hazard Mitigation Committee as one of the leading potential hazards in the community given the proximity to high traffic areas along Main Street and US Route 3, downtown development, and the age of the dam. Perhaps the greatest concern, beyond the very real potential for loss of life, is a dam failure coincident with another major event. An example of one such scenario is a 100-year flood event leading to a Waukewan dam failure. Meredith is likely to experience emergency response needs in the event of a 100-year flood. Given that US Route 3 represents a critical emergency response and evacuation route and the likelihood that damage will occur to US Route 3 in the event of a dam failure, serious limitations could exist to the effectiveness of emergency response. In the event that damage to Main Street was associated with a dam failure, as well as US Route 3, the only existing passages between sections of Meredith south of and those sections north of the Waukewan Canal would be cut off from each other. This would require that emergency response vehicles travel around Lake Waukewan or rely on mutual aid from adjacent communities.

There is also concern that a dam failure at Lake Waukewan would result in significant impacts to the town's drinking water system due to a potentially sudden drop in lake level. This may affect the pressure needed for the water withdrawal pump.

The Town of Meredith continues to work with the Dam owners, Hampshire Hospitality Holdings, LLC (HHH) and is included in the current Emergency Action Plan (EAP) for the Lake Waukewan Dam, 2.2022. The current EAP addresses risks, vulnerabilities, and short- and long-term strategies for the ongoing mitigation of High Hazard Potentials (HHPD) for the Lake Waukewan Dam.

The potential for impact to the Town of Meredith due to dam failure is considered: High to Catastrophic.

Drought

A drought is defined as a long period of abnormally low precipitation, especially one that affects growing or living conditions[53]. The impacts of drought are indicated through measurements of soil moisture, groundwater levels, and stream flow. The effects of drought on these indicators is variable and not dependent on one another. For example, increased rain could increase stream flow, but if the ground is too hard to absorb water, it won't improve the soil moisture.

The characteristics of drought indicate that the effects are widespread throughout the community, but the extent is considered moderate with the probability of occurrence occasional.

The impacts of drought to the community can vary and be challenging to calculate. Increased fire risk, reduction in crops, diminished water supply and the potential impact to tourism are all factors

[53] Drought | National Geographic Society

that could be considered. As there is no direct structure loss that can be contributed to drought, no damages are being calculated for this hazard.

Earthquake

Damage from an earthquake generally falls into two types; Structural and Nonstructural.[54]

- **Structural Damage** is considered any damage to the load bearing components of a building or other structure.
- **Nonstructural Damage** is considered any portion not connected to the superstructure. This includes anything added after the frame is complete.

According to the NH Division of Homeland Security and Emergency Management, some of the issues likely to be encountered after a damaging earthquake could be:

- Total or partial collapse of buildings, especially un-reinforced masonry structures and those not built to seismic codes.
- Damage to roads and bridges from ground settlement and structural damage.
- Mass Causalities.
- Loss of electric power.
- Loss of telecommunication systems.
- Fires from gas line ruptures and chimney failures.
- Total or partial loss of potable and firefighting water systems from pipe ruptures.
- Hazardous Material incidences.
- Loss of critical capabilities from structural and nonstructural damages.
- Lack of mutual aid support.

The NH HSEM also notes that a "cascade of disasters" typically occurs after a damaging earthquake. For example:

- Damage to gas lines and chimneys result in fires that are difficult to extinguish due to damage to the road, water systems, fire and police stations.
- Structural and Nonstructural damage cause many injuries, but because of damage to health care facilities and emergency response facilities, there is a slow or nonexistent response.
- Responders are slowed in their response because of Hazardous Material incidents.
- Flooding due to dam failures.

According to the US Geologic Survey, the overall earthquake risk to the state is high due to the built environment; which means that many structures in the state are old or not built to withstand an earthquake. Damage from the 1940 earthquakes in Ossipee included some damage to most of the chimneys in the epicenter region of Ossipee, ranging from cosmetic cracks to total collapse. Sections of several foundations collapsed and at least one house rotated on its foundation. In the town of Conway, 15 miles from the epicenter, one house was lost to fire when sparks in a cracked chimney started the blaze. Splits found in the rafters and trusses temporarily closed Ossipee High School. No damages were associated with the October 2012 earthquake but the potential does

[54] FEMA Earthquake damage: https://www.fema.gov/node/reducing-risks-non-structural-earthquake-damage

exist for some damages to occur.[55] More current earthquake activity is noted in Appendix G. It is noted that there is potential for significant damages due to earthquakes, however, the seismic activity noted in Appendix G has not, to-date affected the town of Meredith.

While all structures in Meredith are susceptible to damage by an earthquake, those that are taller, older, and constructed of masonry are most susceptible to damage. A relatively large earthquake in all likelihood would impact the roads including the bridges, limiting the ability of emergency services to be rendered. The fire department would have some response problems if the bridges were impacted, although in most cases there are alternate options, requiring redeployment of apparatus and people or mutual aid assistance.

According to the NH Division of Homeland Security and Emergency Management and the US Geological Survey, the overall earthquake risk to the state is high. This is because the majority of the built environment of New Hampshire is old or not built to modern earthquake standards. Hence, they would be unable to withstand earthquakes of significant magnitude. In the past, New Hampshire's building code did not include earthquake design requirements. Therefore, existing buildings, bridges, water supply lines, electrical power lines, and facilities have rarely been designed with earthquakes in mind.

All structures in Meredith are susceptible to damage by an earthquake, the critical facilities (Police Station and Community Center) have been built to the newer building codes which incorporate seismic protections. Assuming 1% - 2% town-wide damage to buildings, an earthquake could result in $12,585,707 – 25,171,414 in damages any given year.

The potential for impact to the Town of Meredith due to an earthquake would be High.

Flooding

Flooding, from heavy rains carries great risk for the town of Meredith. Floods could impact dams and bridges and have the potential to cause damage to roads, properties, and structures, as well as loss of life.

The town of Meredith actively participates in the National Flood Insurance Program (NFIP) through the administration of its floodplain ordinance by the Selectmen and Code Enforcement Officer. This includes correspondence with the NH Floodplain Manager regarding specific issues and periodically updating the town's floodplain ordinance. By actively participating in the NFIP property owners are able to purchase flood insurance through the FEMA program.

Winona Road, August 2008 Flash Flood

[55] USGS Interactive maps http://earthquake.usgs.gov/earthquakes/eventpage/usb000d75b#pager

The town has been in the program since August 4, 1975. Flood Insurance Rate Maps (FIRM) were developed by FEMA and are dated June 3, 1988; they have not been updated since then and no Digital FIRMs have been developed. There is no Flood Insurance Study (FIS) for Belknap County. According to the State Floodplain Manager, neither upgrading FIRMs nor development of an FIS for Belknap County are part of FEMA's current priorities.[56]

The town's Floodplain Ordinance was last revised in 2010 and adopted at Town Meeting; it is a Level C regulation, which is appropriate for a community which has Base Flood Elevations shown on its FIRMs.

The Code Enforcement Officer is responsible for making determinations of substantial improvement and substantial 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 Code Enforcement Officer, in coordination with any other applicable community official(s), shall be responsible for the following:

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

The Code Enforcement Officer is responsible for maintaining floodproofing and elevation certificates. In 2009 the town had a Community Assistance Visit with the NH Floodplain Manager and General Technical Assistance in 2011. The Planning Board (PB) and Planning Department actively maintain an up-to-date floodplain ordinance and periodically evaluate it as well as the Subdivision and Site Plan Review Regulations for compliance with federal and state standards.

Taking the steps to maintain involvement in the NFIP such as participating in NFIP training, reviewing and revising floodplain regulations, and distributing information regarding building codes and the NFIP can reduce the impact of flooding to the town and also ensures that property owners will maintain their ability to purchase flood insurance through the FEMA program.

[56] NFIP State Coordinator, NH Office of Planning and Development

The town of Meredith has a wetlands ordinance and has two dozen designated as well as six prime wetlands; additionally, the town requires buffers around a number of streams limiting how close development can occur to these waterbodies.[57]

Water Resource	Protective Buffer Setbacks	Leachbed Setbacks
1. Designated Prime Wetland	150'	125'
2. Designated Wetland	100'	100'
3. Non-designated Wetlands	50'	75'
4. Non-designated Exempt Wetland	N/A	N/A
5. Designated Brook or Stream	100'	100'
6. Non-designated Brook or Stream	75'	75'
7. Lakes or Ponds	N/A	75' - 125'
8. Water Storage or Impoundment	N/A	75'

There are currently twenty-two buildings with NFIP flood insurance policies in force. Of these, eighteen are residential properties and four are non-residential, with a total insurance value $6,057,300. Since 1975 there have been six losses paid out for a total of $74,288, with zero repetitive losses.[58] Fifteen of the insured properties are in the A-Zone (1% chance of an annual flood), the seven other properties are in the B, C, and X Zones (less than 1% chance of an annual flood - Moderate to Low-Risk Areas). [59]

All new structures in town must have a local Building Permit, which requires that the owner indicate whether the structure is within the floodplain; the 1988 FIRM maps are available at the Town Hall.

Potentially damaging flooding has occurred along sections of Chase Road, Hermit Woods Road, and Waukewan Road. Short-term flooding occurs along Boony Shores Road, Sawmill Shores Road, Chemung Road, Reservoir Road, Black Brook Road, Wall Street, Meredith Neck Road, and at the intersection of US Route 3 and NH Route 25 in the village area.

The potential for impact to the Town of Meredith due to flooding is High.

[57] Meredith Zoning Ordinance https://library.municode.com/nh/meredith/codes/code_of_ordinances?nodeId=PTIIZOLAUSRE_ARTVESDIDIRE_D-9WARECOOVDI

[58] NFIP State Coordinator, Office of Planning and Development, July 2022.

[59] FEMA https://www.fema.gov/glossary/flood-insurance-rate-map-firm

Health Hazard: Infectious Disease

The concerns associated with an infectious disease include local capacity to respond to not only the residents of Meredith but also any visitors. There would need to be an effort to, not only treat those who are suffering but also prevent the further spread of the disease.

Meredith has a large seasonal population that fluctuates throughout the year, but a far greater number in the summer. The influx of seasonal residents and visitors could compound the severity of an infectious disease by a number of factors. These factors include the transient population serving as infectious agents, spreading the disease further and increasing the burden on medical personnel for care and treatment.

Meredith partners with the Lakes Region Partnership for Public Health (LRPPH)[60] for resources and training. Inter-Lakes Middle-High School is a point of distribution (POD). "PODs are community locations at which state and local agencies dispense and administer medical countermeasures (MCMs) to the public. MCMs such as vaccines, antiviral drugs, antibiotics. Antitoxins, and chemical antidotes are used to effectively prevent, mitigate, or treat adverse health effects of an intentional, accidental or naturally occurring public health emergency"[61] A health emergency would not impact structures, but the facilities providing services that would be impacted the most are the schools and the shelter(s). However, a pandemic, as evidenced by COVID-19, which began in 2019 and is going, can have a high impact on the local Meredith economy, general operations and services. The Committee is currently unable to estimate costs of the ongoing COVID-19 pandemic.

The potential for impact to the Town of Meredith re: Health Hazard: Infectious Disease, due to the current impact of the COVID-19 pandemic is, and could continue to be High.

High Winds (Tornado, Downburst, Hurricane)

Tornados and downbursts could strike anywhere in town with little, if any warning. While individual events may be small and rare, their impacts could be devastating. All structures, especially older ones, which are not necessarily built to the current building code standards, could be at risk.

Damage can occur to most structures in town as a result of downed trees in any high wind event, including the commonly occurring thunderstorms. These winds can bring down limbs and trees, causing damage to structures as well as pulling down power and telephone lines and blocking roads. This is particularly the case along private roadways that may only get limited cutback of vegetation. Because hurricanes form over the ocean and move relatively slowly, people usually have time to prepare for the event. However, this also means that once the storm arrives, heavy rain and wind can be expected for couple of days.

All structures in Meredith are susceptible to damage by high wind events, whether through thunderstorms, downburst, or tornado (though newer structures such as the Police Station and

[60] Lakes Region Partnership for Public Health: http://www.lakesregionchamber.org/list/member/partnership-for-public-health-1824

[61] Center for Disease Control (CDC): https://www.cdc.gov/cpr/readiness/healthcare/closedPODtoolkit.htm

Community Center meet stricter code requirements regarding wind protection). Assuming 1% to 5% town-wide damage to buildings, high winds could result in $12,585,707 to $62,928,535 in damages.

The potential for impact to the Town of Meredith due to high winds is High.

Lightning

Although the numbers have trended downward in recent decades, during the last half of the twentieth century more people were killed in the United States each year by lightning than by any other weather event. It can also wreak havoc with electrical and communications systems.

Power outages, whether associated with natural or man-made hazards have the potential to cause great disruption to residents and the functioning of the town. There is back-up power for most municipal facilities. As indicated in Table 14, lightning could have an impact on many of the town's critical facilities.

Forest fires or structural fires can result from lightning strikes. Lightning can injure or kill people near the strike. Structures that are not grounded are the most susceptible to damage. The impact of lightning could be similar to either wildfire or conflagration. All structures in Meredith are susceptible to damage by lightning and resulting fires. The town's computer and communication systems could also be impacted by lightning. Assuming 1% town-wide damage to buildings, each year lightning could result in $12,585,707 in damages.

The potential for impact to the Town of Meredith due to lightning is Moderate

Transportation and Hazardous Materials

The release of hazardous materials along one of the roadways, railways or within the bay in Meredith has the capacity to cause substantial damage in the town; there are many variables that could affect the degree of impact, including the nature of the material, the location of the accident and its proximity to surface and groundwater, as well as structures.

There is concern by The Committee that the effects of a hazardous material spill along these routes could impact the town's Essential Services, populations and environmental features. A greater understanding of the types and quantities of products that are transported through Meredith would provide information on the community's level of preparedness to respond to such an accident.

The town of Meredith Fire Department has enough spill containment equipment to control a small spill. Large spills would exceed the town's capacity to manage the spill with the current supplies and is dependent on Central New Hampshire HazMat Team for additional support. It is considered that the sooner a spill is attended to, the less likely the need would be for an alternative water source. It is estimated that the treated water supply (contained in two tanks) in Meredith is limited to a two-day supply. Serious contamination, that requires the water treatment to shut down for an extended period of time may exceed the town's storage capacity.

An accident leading to the release of oil or other toxic materials near any of Meredith's numerous water bodies could have substantial impacts on the environment and the economy. Lake Waukewan supplies water to 3,000 people plus the bulk of the businesses in town.

A hazardous materials accident would not likely impact structures; rather the impact would be environmental. The NH Lakes Association notes that a reduction in water quality could lead to a substantial loss of income to the 30 communities of the Lakes Region.

The potential for impact to the Town of Meredith re: Transportation and Hazardous Materials is seen as Moderate.

Severe Winter Weather (Snow storms/Ice Storms)

Downed limbs and wires and unplowed or untreated roads can severely limit emergency access to many residences. The potential for very cold temperatures and loss of power can quickly compound the issue. A severe ice storm struck central and southern New Hampshire and New England on December 11, 2008. Over 400,000 people were without power, some for over two weeks, and overall damages exceeded $15 million. There has been no recent direct impact regarding power outages in the town of Meredith.

During an ice storm the major threats to a community come from structural damage due to heavy loads on roofs, interruptions of services such as electricity, fuel, water, and communications, as well as hazardous road conditions. The build-up of snow and ice on trees can knock limbs and trees onto power lines along most town roads. In order to keep these roads cleared town plows and contractors hired for winter road maintenance have to work around the clock – placing a large physical burden on people and financial burden on the town.

The costs associated with past winter storm cleanup efforts provide the best estimates for future loss potential. The 1998 and 2008 ice storms resulted in debilitating winter weather causing the need for temporary shelters. Public Works reimbursable costs associated with cleanup was in excess of $300,000. December 2020, there were forecast for 6-7" of snow and the accumulated snowfall was 42". While the overall cost for additional snow removal support was less than $10,000, the impact on town services due to mobility and available time to do normal business tasks was significant.

Extended periods of power loss in the winter, heighten the need for use of potential sheltering facilities with emergency power generation. At risk populations include the elderly, young and those with compromised health. Meredith is finalizing a Emergency Shelter Guidance in order to facilitate future response activities. Additionally, work could be done through Meredith Code Enforcement to determine if the identified community critical facilities are structurally at risk from heavy snow and ice loads. Generally flat roofed buildings, such as the schools and town office, are most at risk.

Most critical facilities in Meredith were identified as being vulnerable to snow or ice event. Flat-roofed buildings are all susceptible to damage from snow and ice loads.

All structures in Meredith are susceptible to damage by winter weather events, whether through ice storms, blizzards, or the heavy, wet snow often associated with a nor'easter. Assuming 1% to 5% town-wide damage to buildings, winter weather could result in $12,585,707 to $62,928,535 in damages annually.

The potential for impact to the Town of Meredith due to severe winter weather is seen as High.

Water Contamination

The costs associated with a past sewer line break provide the best estimates for future loss potential. In September of 1999 a crack in a 30" concrete sewer line led to a leak in close proximity to the lake. The State of New Hampshire contracted with a private business to make the needed line repairs. The cost of the repairs totaled $3,100 for parts and labor. Research produced no records that indicated the cleanup costs or associated environmental impact. The schools and water and sewer infrastructure are the facilities that would be most directly impacted by water contamination.

The potential for impact to the Town of Meredith due to water contamination could be High.

Wildfire

In the southwestern section of town firefighters have limited access to potential wildfire areas but fires in these areas would have limited impact on structures; there are no critical facilities in this region. There are some water resources, including dry hydrants, in this area. The most susceptible areas tend to be rather remote and relatively few structures would be impacted. Assuming 1% town-wide damage to buildings, each year wildfire could result in $12,585,707 in damages.

Bear Island Fire 5.25.2009 www.bearisland.org

The potential for impact to the Town of Meredith due to wildfire is Moderate.

C. SUMMARY OF RISK

A matrix was created to determine an overall hazard risk assessment rating. Each criterion (area that might be impacted, hazard extent, frequency of occurrence, and impact) was given a rating to show which hazards are the greatest threat to the community. Impact was determined by rating the potential impact to human health, damage to property, and the impact to businesses and services in the town. These ratings were transformed into numerical values 4, 3, 2, and 1, with 4 as the highest level and 1 as the lowest level. Overall level of risk was determined by multiplying the values of these four factors together (Table 16).

It should be noted that the ranking of individual hazards for the purposes of planning discussion

should not in any way diminish the potential severity of the impacts of a given hazard event. Further, hazards ranked as low risk may have the impact of increasing the risk of other hazards when they occur. For example, in the event of a drought, the risk of woodland fire may be greater. In combination, hazard events may have the impact of overwhelming existing emergency response systems.

Table 16: Risk Assessment Hazards information

Meredith	**Location**	**Extent (Magnitude / Strength)**	**Probability of Occurrence**	**Impact - Human, Property, Business**	**Overall Risk**
Hazard Type	1: Negligible (<10%) 2: Limited (10-25%) 3: Significant (25-75%) 4: Extensive (>75%)	1: Weak 2: Moderate 3: Severe 4: Extreme	1: Unlikely 2: Occasional 3: Likely 4: Highly Likely	1: Low 2: Moderate 3: High 4: Catastrophic	**1-20: Low** **21-55: Medium** **60+: High**
Blizzard/Snow Storm	4	2	4	2.5	**80**
Conflagration	3	3	2	3	**54**
Dam Failure - Others	1	1	1	3	**3**
Dam Failure - Waukewan	2	3	1	4	**24**
Drought	3	1	2	2	**12**
Meredith	**Location**	**Extent (Magnitude / Strength)**	**Probability of Occurrence**	**Impact - Human, Property, Business**	**Overall Risk**
Hazard Type	1: Negligible (<10%) 2: Limited (10-25%) 3: Significant (25-75%) 4: Extensive (>75%)	1: Weak 2: Moderate 3: Severe 4: Extreme	1: Unlikely 2: Occasional 3: Likely 4: Highly Likely	1: Low 2: Moderate 3: High 4: Catastrophic	**1-20: Low** **21-55: Medium** **60+: High**
Earthquake	4	2	2	3	**48**
Extreme Temperature*	4	1	1.5	2	**12**
Flood	2	2	3	3	**36**
Hail	1	1	2	2	**4**
Hurricane	3	3	2	2	**36**
Ice Jam	1	1	1	1	**1**
Ice Storm	3	2	3	3	**54**
Landslide	1	1	1	1	**1**
Lightning	2	2	4	2	**32**
Nor'easter	4	2	3	3	**72**
Tornado/Downburst/ Thunderstorm	3	2	4	3.5	**84**
Wildfire	2	2	2	2	**16**
Human-Related Events					
Aging Infrastructure	3	3	1.5	4	**54**
Aircraft Accident	1	2	1	1	**2**

Cyber Event	2	3	1.5	3	**27**
Health Hazard: Infectious Disease	4	2	4	3	**96**
Mass Casualty/ Terrorism	1	2	1	1	**2**
Transportation and Hazardous Materials	2	2	3	2	**24**
Oil Spills	1	2	2	2	**8**
Recreational Activities	1	1	4	1	**4**
Water Contamination - Others	2	1	1	3	**6**
Water Contamination - Waukewan	2	3	3	3	**54**

Overall Risk

Low: Two or more criteria fall in lower classifications or the event has a minimal impact on the planning area. This rating is sometimes used for hazards with a minimal or unknown record of occurrences or for hazards with minimal mitigation potential.

Medium: The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is sometimes used for hazards with a high extent rating but very low probability rating.

High: The criteria consistently fall in the high classifications and the event is likely/highly likely to occur with severe strength over a significant to extensive portion of the planning area.

CHAPTER V: MITIGATION STRATEGIES

A. CURRENT PLANS, POLICIES, AND REGULATIONS

The planning decisions that affect community growth patterns have evolved over the years as Meredith has developed. Many local programs have the effect of mitigating disasters; some of these have been in effect for years, others were implemented since the development of the initial Meredith Hazard Mitigation Plan. The current Committee reviewed existing mitigation strategies and pertinent documents, including but not limited to: the zoning ordinance, subdivision regulations, emergency management plan and site plan regulations. The following strategies detail existing plans and regulations related to hazard mitigation to include the impact on underserved and socially vulnerable populations. As no history of changes in long-term weather patterns and other aspects of climate change have not been seen, the potential for any additional impact of these events has not been identified. In areas where the Town has identified being Fair or Poor, resources, to include manpower and finances, can be looked at as a potential solution to the problem. In areas where the town has no, or limited, resources that can impact the outcome, it will work with those entities to find solutions that can improve the outlook of the impact to the Town. The review of existing capabilities (Table 17) and the status Actions (Table 17) utilized these categorizations:

- **Poor**: The policy, plan, mutual aid system, or action does **not work as well as it should** and **often** falls short of meeting its goals.
- **Fair**: The policy, plan, mutual aid system, or action does **not work as well as it should** and **sometimes** falls short of meeting its goals.
- **Good**: The policy, plan, mutual aid system, or action does **works well** and **is achieving its goals**.
- **Excellent:** The policy, plan, mutual aid system, or action does **works very well** and **often exceeds its goals.**
- **Untested:** The policy, plan, mutual aid system, or action has not yet been utilized or tested.

Table 17: Existing Protections and Policies

Entity	Description	Comment	How Effective	Future Actions
Capital Improvement Plan (CIP)	The CIP is a planning and management tool used by local government officials to create a 5-year plan for capital improvements.	The Meredith CIP was most recently updated in the fall of 2024.	Good	Continue to monitor and update the CIP annually.
Communications Network:	The Town of Meredith maintains an active town communications network. It includes an updated Partners & Stakeholders contact list and local emergency alert network(s). There are redundancies in phones and radios to reduce the likelihood of interruption by lightning or other manmade or natural occurrences.	Police and DPW communications are 2 separate towers. Fire Communications are integrated with the Lakes Region Mutual Fire Aid Association (LRMFAA)	Good	As technology advances, the network will continue to be reviewed and updated as necessary.
Community Emergency Response Team (CERT)	The CERT program educates volunteers about disaster preparedness for the hazards that may impact their area and trains them in basic disaster response skills. These volunteers can be deployed to support local and regional disasters.	The CERT for the Lakes Region, that covers Meredith, is maintained regionally	Good	Locally Maintain communication with Regional CERT program director(s)

Entity	Description	Comment	How Effective	Future Actions
Community Emergency Shelter	An emergency shelter is a place for people to live temporarily when they cannot live in their current residence. An emergency shelter typically specializes in people fleeing a specific type of situation, such as natural or man-made disasters. The designated location for the Meredith Emergency Shelter is the Meredith Community Center	The local emergency shelter is housed at the Meredith Community Center. Which can also be used as a warming/cooling center Needs that exceed those available at this Shelter are coordinated with DHHS and LRPPH to access the Regional Emergency Center [Laconia Middle School)	Good	Complete the Meredith Emergency Shelter Guidance and Exercise the Guidance
Dam Emergency Action Plans (EAP):	The required Plans are in place for dams located within the community. In addition to maintaining the Plans, routine dam inspections are performed on-site as prescribed by the New Hampshire Department of Environmental Service's Dams Bureau.	The EAP for the Meredith Dam(s) are current. Waukewan Dam is privately held (Hampshire Hospitality Holding, LLC) and the EAP was updated in February 2022.	Fair	Meredith continues to strengthen communication between owner/operators, state, and community.
Local Emergency Operations Plan (LEOP)	A tool for identifying resources and responding to incidents to include Mass Casualty and Terrorism events.	Was last updated in 2023.	Good	Review and revise as necessary recommendations in LEOP.
Fire Department:	The Fire Department actively participates in the Lakes Region Mutual Aid.	The Fire Dept. conducts active fire prevention outreach on a regular basis with school groups, and regular rotating features on the town website and in the weekly newspaper.	Excellent	No changes needed. Note: Major Exercise in planning process for 2023

Entity	Description	Comment	How Effective	Future Actions
Fire Suppression/Insurance Services Office (ISO) Rating:	Firefighting capacity is increased in remote areas of the community through a cistern requirement that is imposed by the Fire Chief dependent on the number of homes in a proposed development.	"Water supply requirement" could be cistern or dry hydrant. 3/3YB (the 3Y is for the rural and island locations outside of the village water system)	Good	Island Associations is working on placing AED on the islands
Floodplain Ordinance:	Meredith has been involved in the National Flood Insurance Program (NFIP) since June 1988. Prior to participation in the program, a flood study was conducted to delineate special flood hazard areas inundated by a 100-year flood event. The flood Insurance Rate Maps for Meredith dated June 3, 1988 serve as the most recent representation of the potential flood areas in Meredith. Meredith maintains a Floodplain Ordinance that restricts the types of development that can occur in the floodplain.	No change - amended in 2010 Level C regulations Administered by the Code Enforcement Officer. Elevation Certificates are maintained. applicant required to identify on Building Permit. Materials on NFIP provided to applicants.	Good	Continue to provide materials and training for staff
Hazard Mitigation Plan	A tool for identifying and mitigating hazards	Last reviewed 2019-2022	Good	Maintain and Improve the Plan annually, to be updated by 2029
Hazardous Materials Guidance:	The Town of Meredith works in conjunction with the Central NH Hazmat Team. Hazardous Materials handling and mitigation are also addressed in the EOP and the Meredith Community Plan	Meredith maintains communication and coordination, including on the topic of materials being transported through town with local and regional subject matter experts	Good	Training for hazardous materials is ongoing with emergency responders in the community.

Entity	Description	Comment	How Effective	Future Actions
Local Public Health Services	Meredith works in conjunction with the Lakes Region Partnership for Public (LRPPH) in Laconia		Good	Maintain and improve communication with the LRPPH.
Mapping	Meredith works in conjunction with 911 to map street address numbers/building locations	Currently applying 911 addressing guidelines	Good	Continue to coordinate with 911
Meredith Community Plan	Meredith Community Plan is a public document which contains specific proposals for future land uses and public improvements the Town of Meredith	An update to this Plan is in process.	Good	Anticipates adoption 2022-2023.Incorporate appropriate elements/reference 2022 HMP
Mutual Aid:	• DPW is part of the New Hampshire Mutual Aid agreements program. The program facilitates the creation of partnering agreements and fashioning protocol(s) for requesting and receiving mutual aid. • Fire is with the Lakes Region Mutual Fire Aid (35 Communities). Fire is also part of a State Fire Mutual Aid agreement. • Police has standing Mutual Aid agreements with surrounding communities.		Excellent	
National Incident Management System (NIMS) Compliance:	NIMS guides all levels of government, nongovernmental organizations and the private sector to work together to prevent, protect against, mitigate, respond to and recover from incidents	Police, Fire, EMT Training is maintained by the Town to ensure compliance with NIMS. Status of Town requirements for REQs for NIMS: Training: • Emergency Response Staff: Most have the first two levels of training. • The School Incident Command team has at least Level 4 training.	Excellent	Maintain current status and train new and future, Town and School employees to meet NIMS compliance

Entity	Description	Comment	How Effective	Future Actions
Police Department	• The Police Department actively participates in the Belknap County Sheriff's Department Mutual Aid and has formal mutual aid agreements with surrounding towns. • The Police Department is also a member of the Belknap Regional Special Operations Unit.	No change	Excellent	No changes needed.
Power Generation:	Emergency power generation is currently available in both the Police and Fire Stations (the primary and secondary Emergency Operations Centers). An emergency generator is also available at the Community Center (Emergency Shelter) so it can be used as a shelter in the event it is necessary.	Sewer & Water Department also has back-up power. Sewer & Water also has an emergency plan for the water system (2011). The Committee noted that many more homeowners now have installed back-up power generation - much more self-sufficient than in 1998.	Good	There is no back-up power at the schools. Emergency power cannot run the school buildings. Can the school be wired up for "plug and play"? School will develop a plan to address how the schools can adapt to still educate students or still keep the building running should the power go out.
Public Works:	Meredith actively participates in the NH Mutual Aid for Public Works Program. The program provides for the compilation of a list of resources available from participating communities and the resources that may be required to address specific emergency need	No change	Excellent	No changes needed.

Entity	Description	Comment	How Effective	Future Actions
School Resource Officer (SRO) Program:	The SRO program serves as a mitigation tool for violence in schools. The ultimate goal is to maintain and improve the safety of the learning environment in our schools through the reduction and prevention of school violence and drug abuse. The Inter-Lakes School District is an active participant in this program.		Excellent	The program will continue to reviewed and updated based on current best practices
Subdivision and Site Plan Review Regulations:	Meredith's Site Plan Review Regulations address several aspects of hazard mitigation which include provisions for adequate fire protection, designation of flood hazard areas, runoff and drainage calculations, and erosion controls.	The Meredith Community Development Department is responsible for updating the plan and interactions with the community as they relate to hazard mitigation and local development	Good	Continue to update using best practices.
Water Resources Plan for Rural Fire Protection	This plan will identify, evaluate, and map water resource sites available to local and mutual aid fire personnel for firefighting purposes.	Reference NFPA 1142: Standard on Water Supplies for Suburban and Rural Fire Fighting	Good	• Add more water supply resources throughout the community. • Additional dry hydrant capacity was recommended in the Water Resources Plan for Rural Fire Protection.
Waukewan- Winona Watershed Plan (2016)	The Waukewan-Winona watershed lies within five towns in the Lakes Region of NH; Meredith, New Hampton, Center Harbor, Holderness, and Ashland. The plan addresses prevalent concerns of the watershed region	Followed EPA guidelines and reduce threats to the Town's water supply.	Good	Continue to implement water protection as recommended by the watershed advisory committee and plan
Winnipesaukee River Basin Project	Regional sewer system for sections of a number of the Lakes Region Community.	Aging infrastructure. Pipes and pumps are near the lake. If compromised, it could have a large impact on water quality. No maintenance plans.	Fair	While the infrastructure is regional, maintenance is a local responsibility. A local maintenance

Entity	Description	Comment	How Effective	Future Actions
				plan should be developed.
Zoning Ordinance/ Building Code:	The Meredith zoning ordinance is a rule that defines how property in specific geographic zones can be used. Zoning ordinances detail whether specific geographic zones are acceptable for residential or commercial purposes	Zoning Ordinance is updated annually.	Good	Continue to review and update as applicable protections for mitigating flooding and erosion problems

B. STATUS OF 2015 ACTIONS

The 2015 HMP contained more than 32 recommendations. A review of the status of these actions reveals that 8 have been completed or are no longer considered pertinent. The status of the mitigation actions recommended in the 2015 plan is indicated in Table 18 as either, Completed, Deleted, or Deferred. Some of the deleted Actions are now listed above as *Existing Protections and Policies* (Table 17). Deferred Actions (or deferred portions of Actions) were carried forward to be considered as new Mitigation Actions (Table 19). Comments, suggestions for further action, and an indication of whether the action works to mitigate the hazard or improve preparedness and response capabilities are also included.

Table 18: Status of Actions from the 2015 Hazard Mitigation Plan

Potential Hazards	2015 Actions	Mitigation or Preparedness/ Response	Status 2022: Completed, Deleted, Deferred	Comments	Evaluation	Further Action
Dam Failure, Flood, Water Contamination	Work with NH Dam Bureau to ensure that all feasible actions for protecting the integrity of the Waukewan dam are identified along with the parties responsible for implementation.	Mitigate	Deferred	Ongoing	Good	Continue with progress
All	When LEOP is updated, reference HMP.	Prep/Resp	Completed (2017)	Update completed in 2023.	Good	Review and update as necessary until 2028.
Dam Failure, Flood	Ensure that EMD checks in annually with Dam Bureau and dam owner regarding condition of Waukewan Dam.	Mitigate	Completed	Ongoing	Good	
Dam Failure, Flood	LEOP, HMP, and Water Resources Plan should reference the Waukewan Dam Emergency Action Plan.	Prep/Resp	Deferred	Current plans being updated aware to include Dam EAP	Excellent	Confirm references
Flood	Upgrade drainage along Wall Street.	Mitigate	Completed		Excellent	
All	Complete development of Shelter Plan and test it.	Prep/Resp	Deferred	Ongoing	Untested	

Potential Hazards	2015 Actions	Mitigation or Preparedness/ Response	Status 2022: Completed, Deleted, Deferred	Comments	Evaluation	Further Action
Flood	Encourage NH DOT to upgrade drainage at the intersection of US Route 3 and NH Route 25.	Mitigate	Deferred		Good	
All	Work with mapping consultant to ensure that all GIS data is up to date. Data includes natural constraints, floodplains, flood hazard areas, critical facilities, population centers, potential spill area, potential fire area, evacuation routes, dams, hydrants.	Mitigate	Deferred	Needs to be better identified going forward	Good	
Wildfire	Develop new water sources for firefighting - one per year: a. at Mer16: Upper New Hampton Rd. b. Mer17: Pickerel Pond, Windsong Place at Boat Ramp, c. at Mer28: Chase Rd. Draft site, d. at Mer11: West Rd. Beach, e. Move Mer26 dry hydrant to Town Docks.	Prep/Resp	Deferred		Poor	
Wildfire, Conflagration	Increase FD funds for water drafting site development, fire equipment, and training.	Prep/Resp	Deferred		Good	
All	Keep up to date with vulnerable populations and their special needs, Including three assisted living facilities.	Prep/Resp	Deferred	Ongoing	Good	Exercise of plans with local assisted living facilities

Potential Hazards	2015 Actions	Mitigation or Preparedness/ Response	Status 2022: Completed, Deleted, Deferred	Comments	Evaluation	Further Action
Flood	Encourage FEMA to update FIRM maps with aerial overlays [digitized flood maps] for Belknap County.	Mitigate	Deferred	Ongoing	Untested	
Flood	Dredge Monkey Pond	Mitigate	Deleted		Excellent	Studied by engineering firm determined full-scale dredging is NOT recommended
Wildfire, Conflagration	Evaluate the Class VI roads for accessibility and establish a maintenance plan per state statute [emergency lane statute, RSA 231:59-a]	Prep/ Resp	Deferred	Some areas have been addressed		Continue Ongoing
Wildfire, Conflagration	Map and assess water sites and other resources along woods roads and trails for wildland firefighting.	Prep/ Resp	Completed	Periodical update mapping as warranted		
Flood	Complete development and implement Stormwater/ LID regulations.	Mitigate	Completed		Excellent	
Flood	Upgrade culvert along Chemung Road	Mitigate	Completed		Excellent	
Water Contamination	Establish a monitoring program for cyanobacteria and explore treatment methods.			Ongoing		
All	Include a recommendation in the next Community Plan update to incorporate elements of the Hazard Mitigation Plan.	Mitigate	Deferred	Currently being updated	Good	Will incorporate HMP recommendations
All	Create standards for driveways for new lots through the subdivision process that address slope, width, and access for emergency response.	Mitigate	Deferred	Ongoing	Untested	

Potential Hazards	2015 Actions	Mitigation or Preparedness/ Response	Status 2022: Completed, Deleted, Deferred	Comments	Evaluation	Further Action
All	Create guidelines for the development of driveways for lots of record that address slope, width, and access for emergency response.	Mitigate	Deferred	Ongoing	Untested	
Flood	Upgrade drainage along Hermit Woods Road at Chemung Road intersection.	Mitigate	Completed		Excellent	
Earthquake, Tornado/ Downburst, Hurricane, Nor'easter	Replace DPW facility incorporating recommendations for structural soundness (high wind, earthquake).	Mitigate	Deferred	Construction mostly completed in 2024.	Good	Complete building
Flood	Encourage NH DOT to upgrade drainage along Meredith Neck Road and Barnard Ridge Road. Engage other stakeholders, such as FEMA in discussions.	Mitigate	Deferred		Untested	
Wildfire, Conflagration	Upgrade and maintain the Class VI roads for accessibility as identified in Action 30.	Mitigate	Deferred	Research funding sources	Poor	
Transp./HAZMAT, Oil/Propane Spills, Water Contamination	Continue working on action items outlined in the Waukewan Watershed Management Plan: a. Maintain communication with CNHEPC on the issue of the transport of hazardous materials through town. b. Develop spill prevention plan for Waukewan watershed. c. Consider protection of Lake Waukewan from culvert inflows into Monkey Pond by using permanent protective methods such as, booms and wedge gates.	Mitigate	Deferred	Detailed drainage mapping and monitoring for the Reservoir Brook sub-watershed	Good	

Potential Hazards	2015 Actions	Mitigation or Preparedness/ Response	Status 2022: Completed, Deleted, Deferred	Comments	Evaluation	Further Action
Flood	Upgrade stone box culvert on Chase Road	Mitigate	Deferred	Ongoing	Good	Continue ongoing work: permits, materials etc.
All	Purchase and install generators for school buildings that are critical facilities.	Prep/Resp	Deferred	Include in EOP and review for future funding opportunities	Poor	
All	Purchase and install generators for Fire Department, Treatment plant, and Town Hall.	Prep/Resp	Deferred	Treatment Plant completed. Fire Dept. should be completed in 2023 Town Hall being evaluated	Good	
Flood	Complete vulnerability assessment on contributing area and impervious surfaces, slopes, soil, pipe sizes, ditch runs for potentially flood-prone areas in town and that are in close proximity to culverts, dams, and bridges to determine relationship to flooding in town, including upland areas.	Mitigate	Deferred	Evaluate problem culvert address on a sub-watershed basis Locate funding source(s)	Poor	
Flood	Upgrade box culvert on Reservoir Road	Mitigate	Completed		Excellent	

- NH RSA 674:2(e) does allow for the inclusion of a natural hazards chapter in a local master plan. As the Meredith Community Plan is updated, the Planning Board should consider including this plan as part of the master plan.

- While not a mitigation action on its own, a Capital Improvements Program (CIP) is a tool that can be useful in helping a community budget for a variety of expensive, capital projects, including those that mitigate hazards. Meredith utilizes its CIP actively as a budgeting tool and will incorporate those recommendations from this plan which meet the CIP threshold.

- Those elements of this plan that are appropriate, will be included in the next Meredith Local Emergency Operations Plan (LEOP)

C. MITIGATION GOALS AND TYPES OF ACTIONS

In the 2015 Plan, The Committee affirmed its support for the goals stated in the State HMP at the time. While the overall goals of the town of Meredith have not changed substantially since then, the form in which they are stated has. The general goals below are similar to the goals in the earlier plan while the hazard-specific goals address specific local concerns.

General Goals:

1. Improve upon the protection of the residents of Meredith and its visitors from all hazards, raise general awareness, and reduce the liability to the town from hazard events.
2. Reduce the potential impact of hazard events on Meredith's critical support services, facilities, and infrastructure.
3. Improve emergency preparedness.
4. Improve the response and recovery capability of Meredith to hazard events.
5. Reduce the potential impact of hazard events on private and public property, the natural environment, and economic resources.

Hazard Specific:

Flooding

6. Minimize the impact that a flood would have on life, property, and infrastructure along Lake Winnipesaukee, Lake Waukewan, the associated floodplains, along with various streams of the town of Meredith.

Fire

7. Reduce the risk of loss of life, and damage to property and infrastructure due to structural or wildfires.
8. Reduce the impact on life, structures, and infrastructure (especially communications infrastructure) as a result of a lightning strike.

Hazardous Materials/Water Contamination

9. Minimize the impact to life, property, and the environment during a hazardous materials spill.

Severe Winter Weather

10. Minimize the impact of severe winter weather on people living in or visiting Meredith along with structures and infrastructure.

Severe Wind: Downburst, Hail, Hurricane, Tornado

11. Reduce the likelihood of damage or loss of life due to high wind events.

Health Hazard: Infectious Disease

12. Minimize the impact that a health hazard/infectious disease may have on the people in the town of Meredith.

Earthquake

13. Minimize the impact that an earthquake may have on the structures, infrastructure, and people in the town of Meredith.

There are a number of **types of actions** that communities may take to reduce the likelihood that a hazard might impact the community. These include:

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

D. POTENTIAL ACTIONS

Through a review of the risk assessment and local vulnerabilities, a number of Problem Statements were identified and refined by The Committee. Multiple brainstorming sessions yielded an updated list of mitigation strategies to address these current problems. As noted earlier, actions or portions of actions which were deferred from the previous plan were brought forward in this table and considered along with new ideas; all were then treated as potential actions and prioritized in a similar manner (Section E). Table 19 lists the problems and actions along with the hazard(s) that they address and notes whether the action addresses existing structures/infrastructure or future (new) structures/infrastructure as well as which goal(s) they address and the type of mitigation action each represents. The ID numbers are used simply for tracking purposes; they do not indicate any sort of prioritization. Note: The goals and their numbers are listed in Section C.

Table 19: Problems and Actions Indicating Hazard, Structure, Goal, and Type of Action

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Mitigate / Prep-Resp.	New or Existing	Goal	Type
All	1	Aging Infrastructure can lead to multiple hazards across the community	Evaluate the critical infrastructure, develop and asset management maintenance plan and reference in Community Plan and HMP	Prep/Resp.	N	1,2,3,5,6,7,9,12	Structure/ Infrastructure Local Plans
All	2	Integrating planning efforts leads to coordination and effectiveness.	Include a recommendation in the next Community Plan update to incorporate elements of the Hazard Mitigation Plan.	Mitigate	E	1.2.3.4.5	Local Plan
All	3	Integrating planning efforts leads to coordination and effectiveness.	When LEOP is updated, reference HMP.	Prep/Resp.	E	1.2.3.4.5	Local Plan
All	4	Ensure that the town has appropriate Sheltering capacity and procedures.	Complete development of Shelter Plan and test it.	Prep/Resp.	E	1.2.3.4	Local Plan
All	5	Substandard roads and driveways can lead to erosion and limit access by emergency services.	Create guidelines for the development of driveways for lots of record that address slope, width, and access for emergency response.	Mitigate	E	1.2.4.5.6	Local Plan
All	6	Substandard roads and driveways can lead to erosion and limit access by emergency services.	Create standards for driveways for new lots through the subdivision process that address slope, width, and access for emergency response.	Mitigate	E	1.2.4.5.6	Local Plan

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Mitigate / Prep-Resp.	New or Existing	Goal	Type
All	7	Up to date data enhances planning efforts and decision-making.	Work with mapping consultant to ensure that all GIS data is up to date. Data includes natural constraints, floodplains, flood hazard areas, critical facilities, population centers, potential spill area, potential fire area, evacuation routes, dams, hydrants.	Mitigate	E	1.3.4.5	Local Plan
All	8	Critical facilities should have back-up power, enabling service to continue.	Purchase and install generators for school buildings that are critical facilities.	Prep/Resp.	E	1.2.3.4.5	Structure/ Infrastructure
All	9	Critical facilities should have back-up power, enabling service to continue.	Purchase and install generators for Fire Department, Police Department and Town Hall.	Prep/Resp.	E	1.2.3.4.5	Structure/ Infrastructure
All	10	Some populations may need special assistance during an event.	Keep up to date with vulnerable populations and their special needs, notably the three elderly care facilities.	Prep/Resp.	E	1.2.3.4.5.	Local Plan
All	11	Emergency Communication with Community Residents	Investigate reverse 9-1-1 and the like communication methods	Prep/Resp.	N	1,2,3,4,5	Structure/ Infrastructure Local Plans
All	12	The need for a plan to for local transportation as it relates to the aftermath of a local hazard, e.g., flooding, hazardous materials spill, etc.	Investigate the need for a Local Transportation Impact Plan as it relates to all potential local hazards	Prep/Resp.	N	1,2,3,4,5,9	Local Plan
Cyber Event	13	The threat of a Cyber event incapacitating Town, School, networks is a reality.	Following best practices (State and Federal), review and add as necessary security on computer networks and provide user education around cyber threats to employees.	Prep/Resp.	N	1,2,3,4,5	Structure/ Infrastructure Local Plans

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Mitigate / Prep-Resp.	New or Existing	Goal	Type
Dam Failure, Flood	14	Integrating planning efforts leads to coordination and effectiveness.	LEOP, HMP, and Water Resources Plan should reference the Waukewan Dam Emergency Action Plan.	Prep/Resp.	E	1.2.3.4.5.6	Local Plan
Dam Failure, Flood	15	Waukewan dam flows through the center of town and controls the lake level. Its operation or failure could impact numerous residences and businesses.	Ensure that EMD checks in annually with Dam Bureau and dam owner regarding condition of Waukewan Dam.	Mitigate	E	1.2.3.4.5.6	Local Plan
Dam Failure, Flood, Water Contamination	16	Waukewan dam flows through the center of town and controls the lake level. Its operation or failure could impact numerous residences and businesses.	Work with NH Dam Bureau to ensure that all feasible actions for protecting the integrity of the Waukewan dam are identified along with the parties responsible for implementation.	Mitigate	E	1.2.5.6	Structure/ Infrastructure
Earthquake, Tornado/ Downburst, Hurricane, Nor'easter	17	Critical facilities should be resilient to hazards, enabling service to continue.	Replace DPW facility incorporating recommendations for structural soundness (high wind, earthquake).	Mitigate	E	1.2.5.10.11. 12	Structure/ Infrastructure
Flood	18	Potentially damaging. Has gotten close to topping road.	Upgrade stone box culvert on Chase Road	Mitigate	E	1.2.5.6	Structure/ Infrastructure
Flood	19	Short-term flooding. Floods during heavy rains	Encourage NH DOT to upgrade drainage at the intersection of US Route 3 and NH Route 25.	Mitigate	E	1.2.5.6	Structure/ Infrastructure
Flood	20	Flash flooding. Sheet flow, RR trestle blew out	Encourage NH DOT to upgrade drainage along Meredith Neck Road and Barnard Ridge Road. Engage other stakeholders, such as FEMA in discussions.	Mitigate	E	1.2.5.6	Structure/ Infrastructure

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Mitigate / Prep-Resp.	New or Existing	Goal	Type
Flood	21	Understanding local drainage conditions can lead to efficient use of resources in mitigating the impacts of heavy rain events on municipal resources.	Complete vulnerability assessment on contributing area and impervious surfaces, slopes, soil, pipe sizes, ditch runs for potentially flood-prone areas in town and that are in close proximity to culverts, dams, and bridges to determine relationship to flooding in town, including upland areas.	Mitigate	E	1.2.5.6	Local Plan
Flood	22	Understanding local drainage conditions can lead to efficient use of resources in mitigating the impacts of heavy rain events on state roads which run through the town.	Encourage NH DOT to complete a vulnerability assessment on state roads for slopes, soil, pipe sizes, and ditch runs for flood-prone areas in town.	Mitigate	E	1.2.5.6	Local Plan
Flood	23	Up to date data enhances planning efforts and decision-making. Correcting boundaries can add extra expense to home-owners and business-owners.	Encourage FEMA to update FIRM maps with aerial overlays [digitized flood maps] for Belknap County.	Mitigate	E	1.2.5.6	Local Plan
Transp./HAZMAT, Oil/Propane Spills, Water Contamination	24	There is a great deal of material transported through Meredith. An accident could release harmful materials near residences, business, or water resources.	Continue working on action items outlined in the Waukewan Watershed Management Plan: a. Maintain communication with CNHEPC on the issue of the transport of hazardous materials through town. b. Develop spill prevention plan for Waukewan watershed. c. Consider protection of Lake Waukewan from culvert inflows into Monkey Pond by using permanent protective methods such as, booms and wedge gates.	Mitigate	E	1.2.3.4.5.9	Structure/ Infrastructure Local Plans
Water Accessibility	25	Address single source of holding capacity for treated water	Investigate the need and location for an additional treated water storage facility	Prep/Resp.	N	1,2,3,4,5,	Structure/ Infrastructure

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Mitigate / Prep-Resp.	New or Existing	Goal	Type
Water Contamination	26	Lake Waukewan is the town's water source. Ensuring its safety will protect people and businesses.	Establish a monitoring program for cyanobacteria and explore treatment methods.	Prep/Resp.	E	1.2.3.4.5.9	Local Plan
Water Redundancy	27	Main water treatment plant redundancy	Feasibility study of water treatment Intake	Mitigate	N	1,2,3,4,5	Structure/ Infrastructure
Wildfire, Conflagration	28	Ensuring reliable water sources for firefighting will improve response and may limit injury, loss of life, and property damage.	Increase FD funds for water drafting site development, fire equipment, and training.	Prep/Resp.	E	1.2.3.4.5.7	Structure/ Infrastructure
Wildfire, Conflagration	29	Gaining access to the more remote areas of town could result in better control of forest fires.	Evaluate the Class VI roads for accessibility and establish a maintenance plan per state statute [emergency lane statute, RSA 231:59-a]	Prep/Resp.	E	1.2.3.4.5.7	Local Plan
Wildfire, Conflagration	30	Gaining access to the more remote areas of town could result in better control of forest fires.	Upgrade and maintain the Class VI roads for accessibility as identified in ID Action #29	Mitigate	E	1.2.3.4.5.7	Structure/ Infrastructure
Wildfire	31	Ensuring reliable water sources for firefighting will improve response and may limit injury, loss of life, and property damage.	Develop new water sources for firefighting - one per year: a. at Mer16: Upper New Hampton Rd. b. Mer17: Pickerel Pond, Windsong Place at Boat Ramp, c. at Mer28: Chase Rd. Draft site, d. at Mer11: West Rd. Beach, e. Move Mer26 dry hydrant to Town Docks.	Prep/Resp.	E	1.2.3.4.5.7	Structure/ Infrastructure

The Committee identified the various costs and benefits associated with each action. The cost represents what the town estimates it will cost in terms of dollars or staff hours to implement each action. Table 20 shows the costs as well as the various benefits associated with each action.

Table 20: Actions by Hazard Type – Estimated Cost and Potential Funding

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Comment	Cost ($ or Hours)	Potential Funding
			Under $10,000 or under 200 hours			
Flood	23	Up to date data enhances planning efforts and decision-making. Correcting boundaries can add extra expense to home-owners and business-owners.	Encourage FEMA to update FIRM maps with aerial overlays [digitized flood maps] for Belknap County.	This has been discussed with the State Floodplain Manager. FEMA has stated that this is not one of their priorities and is not funded.	4 Staff hours/ year	Operating Budget
All	10	Some populations may need special assistance during an event.	Keep up to date with vulnerable populations and their special needs, notably the three elderly care facilities.		10 hours Staff Time	Operating Budget
Dam Failure, Flood	15	Waukewan dam flows through the center of town and controls the lake level. Its operation or failure could impact numerous residences and businesses.	Ensure that EMD checks in annually with Dam Bureau and dam owner regarding condition of Waukewan Dam.	Dam Emergency Plans are on file with state but local communication & coordination has not occurred.	10 hours/ year	Operating Budget
Dam Failure, Flood, Water Contamination	16	Waukewan dam flows through the center of town and controls the lake level. Its operation or failure could impact numerous residences and businesses.	Work with NH Dam Bureau to ensure that all feasible actions for protecting the integrity of the Waukewan dam are identified along with the parties responsible for implementation.		10 hours/ year	Operating Budget
All	2	Integrating planning efforts leads to coordination and effectiveness.	Include a recommendation in the next Community Plan update to incorporate elements of the Hazard Mitigation Plan.	NH RSA 674:2(e) does allow for the inclusion of a natural hazards chapter in a local master plan.	20 hours Staff Time	Operating Budget

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Comment	Cost ($ or Hours)	Potential Funding
			Under $10,000 or under 200 hours			
Flood	22	Understanding local drainage conditions can lead to efficient use of resources in mitigating the impacts of heavy rain events on state roads which run through the town.	Encourage NH DOT to complete a vulnerability assessment on state roads for slopes, soil, pipe sizes, and ditch runs for flood-prone areas in town.	Dependent on DOT participation	20 hours Staff Time	Operating Budget
ALL	11	Emergency Communication with Community Residents	Investigate reverse 9-1-1 and the like communication methods		25 hours Staff Time	Operating Budget
Dam Failure, Flood	14	Integrating planning efforts leads to coordination and effectiveness.	LEOP, HMP, and Water Resources Plan should reference the Waukewan Dam Emergency Action Plan.		40 hours Staff Time	Operating Budget
Flood	19	Short-term flooding. Floods during heavy rains	Encourage NH DOT to upgrade drainage at the intersection of US Route 3 and NH Route 25.	These are state roads. Incorporate into current redesign of intersection by NH DOT.	40 hours Staff Time	Operating Budget
Flood	20	Flash flooding. Sheet flow, RR trestle blew out	Encourage NH DOT to upgrade drainage along Meredith Neck Road and Barnard Ridge Road. Engage other stakeholders, such as FEMA in discussions.	This is a state road. Drainage structures are adequate, if maintained. Maintenance by the state has been poor.	40 hours Staff Time	Operating Budget
Wildfire, Conflagration	29	Gaining access to the more remote areas of town could result in better control of forest fires.	Evaluate the Class VI roads for accessibility and establish a maintenance plan per state statute [emergency lane statute, RSA 231:59-a]	Note: Stoneham Rd. was upgraded for this purpose. Insufficient funding. Roads are mapped.	40 hours Staff Time	Operating Budget
All	3	Integrating planning efforts leads to coordination and effectiveness.	When LEOP is updated, reference HMP.	LEOP will be updated in 2022.	50 hours Staff Time	Operating Budget, HSEM

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Comment	Cost ($ or Hours)	Potential Funding
			Under $10,000 or under 200 hours			
All	4	Ensure that the town has appropriate Sheltering capacity and procedures.	Complete development of Shelter Plan and test it.	Development is mostly complete; assignments still need to be made. The Plan has not yet been executed.	100 hours Staff Time	Operating Budget, HSEM
Transp./HAZMAT, Oil/Propane Spills, Water Contamination	24	There is a great deal of material transported through Meredith. An accident could release harmful materials near residences, business, or water resources.	Continue working on action items outlined in the Waukewan Watershed Management Plan: a. Maintain communication with CNHEPC on the issue of the transport of hazardous materials through town. b. Develop spill prevention plan for Waukewan watershed. c. Consider protection of Lake Waukewan from culvert inflows into Monkey Pond by using permanent protective methods such as, booms and wedge gates.		120 hours Staff Time	NH DES, NH HSEM
Hazard	**ID**	**Problem Statement**	**Meredith: Proposed Actions**	**Comment**	**Cost ($ or Hours)**	**Potential Funding**
			$10,000 - $99,999 or 200 - 1,999 hours			
Cyber Event	13	The threat of a Cyber event incapacitating Town, School, networks is a reality.	Following best practices (State and Federal), review and add as necessary security on computer networks and provide user education around cyber threats to employees.	$80,000/ year	Unknown	Operating Budget, Grant
Wildfire, Conflagration	28	Ensuring reliable water sources for firefighting will improve response and may limit injury, loss of life, and property damage.	Increase FD funds for water drafting site development, fire equipment, and training.	This may include exploring potential grant match to extend the purchasing power of local funds.	$10,000/year	Operating Budget, USDA, DRED

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Comment	Cost ($ or Hours)	Potential Funding
			$10,000 - $99,999 or 200 - 1,999 hours			
All	7	Up to date data enhances planning efforts and decision-making.	Work with mapping consultant to ensure that all GIS data is up to date. Data includes natural constraints, floodplains, flood hazard areas, critical facilities, population centers, potential spill area, potential fire area, evacuation routes, dams, hydrants.	Works to support all departments town-wide.	$10,000/year	Operating Budget
All	5	Substandard roads and driveways can lead to erosion and limit access by emergency services.	Create guidelines for the development of driveways for lots of record that address slope, width, and access for emergency response.	Note that these are guidelines for existing lots.	$50,000	Operating Budget
All	6	Substandard roads and driveways can lead to erosion and limit access by emergency services.	Create standards for driveways and roads for new lots through the subdivision process that address slope, width, and access for emergency response.	Note that this is for developing standards to be applied to new lots.	$50,000	Operating Budget
Wildfire	31	Ensuring reliable water sources for firefighting will improve response and may limit injury, loss of life, and property damage.	Develop new water sources for firefighting - one per year: A. at Mer16: Upper New Hampton Rd. B. Mer17: Pickerel Pond, Windsong Place at Boat Ramp, C. at Mer28: Chase Rd. Draft site, D. at Mer11: West Rd. Beach, E. Move Mer26 dry hydrant to Town Docks.	Insufficient funding. Mer26 dry hydrant at Church Landing is not adequate for the building.	$45,000 total (individual costs vary)	Operating Budget, Grant

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Comment	Cost ($ or Hours)	Potential Funding
			At least $100,000 or 2,000 hours			
Water Redundancy	27	Main water plant redundancy	Engineering feasibility study of water treatment Intake		$100,000 100 Staff Hours	Operational Budget Grant
ALL	12	The need for a plan for local transportation as it relates asset management and to the aftermath of a local hazard, e.g., flooding, hazardous materials spill, etc.	Investigate the need for a Local Transportation Impact Plan as it relates to all potential local hazards would include asset management/review		$100,000 Staff hrs. 150	Grant, Operating Budget
All	1	Aging Infrastructure can lead to multiple hazards across the community	Evaluate the critical infrastructure, develop and asset management maintenance plan and reference in Community Plan and HMP	Final Cost dependent upon evaluation of critical needs	2000+ Staff Hours	Operating Budget Warrant
Water Contamination	26	Lake Waukewan is the town's water source. Ensuring its safety will protect people and businesses.	Establish a monitoring program for cyanobacteria and explore treatment methods.	Water & Sewer seeking funds for this.	$250,000	NH DES
Flood	18	Potentially damaging. Has gotten close to topping road.	Upgrade stone box culvert on Chase Road		$300,000	CIP, FEMA
All	9	Critical facilities should have back-up power, enabling service to continue.	Purchase and install generators for Fire Department, Police Department, and Town Hall.	Upgraded generator for water treatment facility will enable surplus to upgrade other facilities.	$350,000	Operating Budget Warrant article
All	8	Critical facilities should have back-up power, enabling service to continue.	Purchase and install generators for school buildings that are critical facilities.	Not done due to funding.	$500,000	HSEM, SAU, Warrant Article

Hazard	ID	Problem Statement	Meredith: Proposed Actions	Comment	Cost ($ or Hours)	Potential Funding
			At least $100,000 or 2,000 hours			
Flood	21	Understanding local drainage conditions can lead to efficient use of resources in mitigating the impacts of heavy rain events on municipal resources.	Complete vulnerability assessment on contributing area and impervious surfaces, slopes, soil, pipe sizes, ditch runs for potentially flood-prone areas in town and that are in close proximity to culverts, dams, and bridges to determine relationship to flooding in town, including upland areas.	Most flooding/washout of roads now occurs in upland areas as a result of saturation during heavy rain events. Explore the possibility of LRPC providing some technical assistance.	Greater than $500,000	CIP, FEMA
Water Accessibility	25	Address single source of holding capacity for treated water storage facility.	Investigate the need and location for an additional treated water storage facility.		> than $1Million	FEMA/HSEM Grant Warrant
Earthquake, Tornado/ Downburst, Hurricane, Nor'easter	17	Critical facilities should be resilient to hazards, enabling service to continue.	Replace DPW facility incorporating recommendations for structural soundness (high wind, earthquake).		> than $1Million	Warrant, Bond issue
Wildfire, Conflagration	30	Gaining access to the more remote areas of town could result in better control of forest fires.	Upgrade and maintain the Class VI roads for accessibility as identified in Action ID# 29.	Final cost depends upon amount of work identified.	Unknown	Operating Budget

E. PRIORITIZATION OF ACTIONS

In 2015, as The Committee began the process of prioritizing the identified actions, they considered the standard tool for project prioritization: the *Social, Technical, Administrative, Political, Legal, Economic, and Environmental* (STAPLEE) method. To gain a better understanding of the STAPLEE method a link to a clear definition is provided in the Vermont document: STAPLEE Evaluation Criteria for Mitigation Actions[62] The 2015 Committee agreed that the tool could be expanded to more accurately reflect the priorities of the town of Meredith. In addition to the standard STAPLEE categories, the 2015 Committee considered whether a particular action impacted Life Safety and Protected Property within Meredith, as well as whether there was a Local Champion for the project and if the action augmented other Local Objectives. The 2015 Committee also changed the STAPLEE term "Economic" to "Cost". After a review of the STAPLEE process and the reasoning for the changes made by the 2015 Committee, the 2022 HMP Update Committee agreed that they would continue to use the adapted tables for the Meredith updated 2022 HMP.

The STAPLEE tool had The Committee consider eleven separate aspects for each Action, including the Costs. This section contains a summary of rankings for each of the proposed Mitigation Actions by the 2022 Committee. For each action, the benefits and costs of implementing the Action (under each of the eleven categories) was considered and scored -1, 0, 1 with a 'minus one' indicating that the costs outweighed the benefits in a particular category, a 'one' meant that the benefits were greater that the costs, and a 'zero' meant that the while there are costs associated with the project, they are balanced out by the benefits. The eleven category scores were summed for an overall project total. A maximum total score is 11, the minimum is -11. These ratings were arrived at through committee discussion and group consensus. Table 21 shows the Actions grouped by anticipated cost, then ordered by their overall score.

[62] STAPLEE Evaluation Criteria for Mitigation Actions - Vermont https://vem.vermont.gov/sites/demhs/files/documents/STAPLEE%20Evaluation%20Criteria%20for%20Mitigation%20Actions%20Guide_2.pdf

Table 21: Prioritization Details

Only score in those categories that you feel are pertinent and those that you feel comfortable giving input. Scoring: 1 = Highly effective or feasible, 0 = Neutral, -1 = Ineffective or not feasible				Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Objectives	Cost	**Total**
Hazard	**ID**	**Meredith: Proposed Actions**	**Responsible Party**												
		Under $10,000 or under 200 hours													
All	11	Investigate reverse 9-1-1 and the like communication methods	EMD	1	1	1	0	1	1	1	0	0	0	0	6
Dam Failure, Flood, Water Contamination	16	Work with NH Dam Bureau to ensure that all feasible actions for protecting the integrity of the Waukewan dam are identified along with the parties responsible for implementation.	EMD	1	1	1	0	0	1	0	0	0	0	0	4
Wildfire, Conflagration	29	Evaluate the Class VI roads for accessibility and establish a maintenance plan per state statute [emergency lane statute, RSA 231:59-a]	FD, DPW	1	1	1	0	0	0	0	0	0	0	1	4
All	3	When LEOP is updated, reference HMP.	EMD	1	1	1	0	0	1	0	0	0	0	0	4
Transp./ HAZMAT, Oil/Propane Spills, Water Contamination	24	Continue working on action items outlined in the Waukewan Watershed Management Plan: a. Maintain communication with CNHEPC on the issue of the transport of hazardous materials through town. b. Develop spill prevention plan for Waukewan watershed. c. Consider protection of Lake Waukewan from culvert inflows into Monkey Pond by using permanent protective methods such as, booms and wedge gates.	FD, Comm. Dev., DPW	1	1	1	0	0	1	0	0	0	0	0	4

Hazard	ID	Meredith: Proposed Actions	Responsible Party	Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Objectives	Cost	Total
		Under $10,000 or under 200 hours													
Dam Failure, Flood	15	Ensure that EMD checks in annually with Dam Bureau and dam owner regarding condition of Waukewan Dam.	EMD	1	1	1	0	0	0	0	0	0	0	0	3
Dam Failure, Flood	14	LEOP, HMP, and Water Resources Plan should reference the Waukewan Dam Emergency Action Plan.	EMD	1	1	1	0	0	0	0	0	0	0	0	3
All	2	Include a recommendation in the next Community Plan update to incorporate elements of the Hazard Mitigation Plan.	Comm. Dev.	1	1	0	0	0	0	0	0	0	0	0	2
Flood	19	Encourage NH DOT to upgrade drainage at the intersection of US Route 3 and NH Route 25.	DPW, Comm. Dev.	1	1	1	-1	0	0	0	0	0	1	-1	2
Flood	20	Encourage NH DOT to upgrade drainage along Meredith Neck Road and Barnard Ridge Road. Engage other stakeholders, such as FEMA in discussions.	DPW, Comm. Dev.	1	1	1	-1	0	0	0	0	0	1	-1	2
All	4	Complete development of Shelter Plan and test it.	EMD	1	0	1	0	0	0	0	0	0	0	0	2
All	10	Keep up to date with vulnerable populations and their special needs, notably the three elderly care facilities.	EMD	1	0	0	0	0	0	0	0	0	0	0	1
Flood	23	Encourage FEMA to update FIRM maps with aerial overlays [digitized flood maps] for Belknap County.	Comm. Dev.	0	0	0	0	0	0	0	0	0	0	0	0

Hazard	ID	Meredith: Proposed Actions	Responsible Party	Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Objectives	Cost	Total
		$10,000 - $99,999 or 200 - 1,999 hours													
Flood	22	Encourage NH DOT to complete a vulnerability assessment on state roads for slopes, soil, pipe sizes, and ditch runs for flood-prone areas in town.	DPW, Comm. Dev.	0	0	0	0	0	0	0	0	0	0	0	0
All	12	Investigate the need for a local Transportation Impact Plan as it relates to all potential local hazards, would include asset management/review	DPW	1	1	1	0	0	1	0	0	0	1	1	6
Cyber Security	13	Following best practices (State and Federal), review and add as necessary security on computer networks and provide user education around cyber threats to employees.	Town Mgr.	1	1	1	0	1	0	0	1	0	0	1	6
Water Redundancy	27	Engineering feasibility study of water treatment Intake	Water Sewer	1	1	0	0	0	1	0	0	0	1	1	5
All	1	Evaluate the critical infrastructure, develop and asset management maintenance plan and reference in Community Plan and HMP	All Town Dept.	1	1	0	0	0	1	0	0	0	1	1	5
Wildfire	31	Develop new water sources for firefighting - one per year: a. at Mer16: Upper New Hampton Rd. b. Mer17: Pickerel Pond, Windsong Place at Boat Ramp, c. at Mer28: Chase Rd. Draft site, d. at Mer11: West Rd. Beach, e. Move Mer26 dry hydrant to Town Docks.	FD	1	1	1	1	-1	1	0	0	0	0	-1	3

Hazard	ID	Meredith: Proposed Actions	Responsible Party	Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Objectives	Cost	Total
		$10,000 - $99,999 or 200 - 1,999 hours													
Flood	18	Upgrade stone box culvert on Chase Road	DPW	1	1	1	1	0	-1	0	0	0	0	0	3
All	6	Create standards for driveways for new lots through the subdivision process that address slope, width, and access for emergency response.	Comm. Dev.	1	1	1	-1	0	0	0	0	0	0	0	2
Water Contamination	26	Establish a monitoring program for cyanobacteria and explore treatment methods.	W & S	0	0	0	0	0	1	1	0	0	0	0	2
Wildfire, Conflagration	28	Increase FD funds for water drafting site development, fire equipment, and training.	FD	1	1	0	0	-1	1	0	0	0	0	-1	1
All	5	Create guidelines for the development of driveways for lots of record that address slope, width, and access for emergency response.	Comm. Dev.	1	1	1	-1	-1	0	0	0	0	0	0	1
All	7	Work with mapping consultant to ensure that all GIS data is up to date. Data includes natural constraints, floodplains, flood hazard areas, critical facilities, population centers, potential spill area, potential fire area, evacuation routes, dams, hydrants.	Comm. Dev.	0	0	0	0	0	0	0	0	0	0	0	0

Hazard	ID	Meredith: Proposed Actions	Responsible Party	Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Objectives	Cost	Total
		At least $100,000 or 2,000 hours													
Water Accessibility	25	Investigate the need and location for an additional treated water storage facility	Water Sewer	1	1	1	0	0	0	1	0	1	1	1	7
All	9	Purchase and install generators for Fire Department, Police Department and Town Hall.	EMD	1	1	1	0	0	0	0	0	0	0	0	3
All	8	Purchase and install generators for school buildings that are critical facilities.	EMD, School Admin.	1	1	1	0	0	0	0	0	0	0	0	3
Flood	21	Complete vulnerability assessment on contributing area and impervious surfaces, slopes, soil, pipe sizes, ditch runs for potentially flood-prone areas in town and that are in close proximity to culverts, dams, and bridges to determine relationship to flooding in town, including upland areas.	DPW	1	1	1	-1	0	1	0	0	0	0	-1	2
Earthquake, Tornado/ Downburst, Hurricane, Nor'easter	17	Replace DPW facility incorporating recommendations for structural soundness (high wind, earthquake).	DPW, Town Mgr.	1	1	1	-1	0	1	0	0	0	0	-1	2
Wildfire, Conflagration	30	Upgrade and maintain the Class VI roads for accessibility as identified in Action ID# 29.	FD, DPW	1	1	1	0	0	0	0	0	0	0	-1	2

F. IMPLEMENTATION OF MITIGATION ACTIONS

There are many factors that influence how a town chooses to spend its energy and resources in implementing recommended actions. Factors include:

- Urgency
- How quickly an action could be implemented
- Likelihood that the action will reduce future emergencies
- Regulations required to implement the action
- Administrative burdens
- Time (both paid and volunteer)
- Funding availability
- Political acceptability of the action.

In the context of these factors, The Committee discussed the mitigation actions and relative level of priority, recognizing that some actions are of greater priority to different departments. This implementation schedule is a matrix (Table 22) indicating the estimated cost of implementation, potential funding sources, the parties responsible for bringing about these actions, and implementation time frame; listed in order of their Time Frame. Once the plan is approved the town will begin working on the actions listed below with an estimated completion date as noted in the Time Frame column of either short-term (within 1 year), medium term (2-3 years) and long term (3-5 years). To keep the plan current, the implementation schedule should be updated and re-evaluated on a regular basis as outlined in the monitoring section of this plan and a record of this progress documented in Appendix I.

Table 22: Implementation Schedule for Mitigation Actions by Time Frame

Table *22: Implementation Schedule for Mitigation Actions by Time Frame*							
Hazard	ID	Problem Statement	Meredith: Actions	Cost ($ or hours)	Potential Funding	Time Frame	Responsible Party
All	1	Aging Infrastructure can lead to multiple hazards across the community	Evaluate the critical infrastructure, develop an asset management maintenance plan and reference in Community Plan and HMP	2,000 staff hours	Operating Budget, Warrant	Short Term	Water Sewer Dept.

Table *22: Implementation Schedule for Mitigation Actions by Time Frame*							
Cyber Events	13	The threat of a Cyber event incapacitating Town, School, networks is a reality.	Following best practices (State and Federal), review and add as necessary security on computer networks and provide user education around cyber threats to employees.	$80,000/ year	Operating Budget, Grant	Short Term	Town Mgr.
Dam Failure, Flood	15	Waukewan dam flows through the center of town and controls the lake level. Its operation or failure could impact numerous residences and businesses.	Ensure that EMD checks in annually with Dam Bureau and dam owner regarding condition of Waukewan Dam.	10 hours/ year	Operating Budget	Short Term	EMD
Flood	19	Short-term flooding. Floods during heavy rains	Encourage NH DOT to upgrade drainage at the intersection of US Route 3 and NH Route 25.	40 hours Staff Time	Operating Budget	Short Term	DPW, Comm. Dev.
All	7	Up to date data enhances planning efforts and decision-making.	Work with mapping consultant to ensure that all GIS data is up to date. Data includes natural constraints, floodplains, flood hazard areas, critical facilities, population centers, potential spill area, potential fire area, evacuation routes, dams, hydrants.	$10,000/ year	Operating Budget	Short Term	Comm. Dev.
Wildfire, Conflagration	28	Ensuring reliable water sources for firefighting will improve response and may limit injury, loss of life, and property damage.	Increase FD funds for water drafting site development, fire equipment, and training.	$10,000/ year	Operating Budget, USDA, DRED	Short Term	FD
All	10	Some populations may need special assistance during an event.	Keep up to date with vulnerable populations and their special needs, notably the three elderly care facilities.	10 hours Staff Time	Operating Budget	Short Term	EMD

Table *22: Implementation Schedule for Mitigation Actions by Time Frame*							
Flood	23	Up to date data enhances planning efforts and decision-making. Correcting boundaries can add extra expense to home-owners and business-owners.	Encourage FEMA to update FIRM maps with aerial overlays [digitized flood maps] for Belknap County.	4 Staff hours/ year	Operating Budget	Short Term	Comm. Dev.
Wildfire, Conflagration	29	Gaining access to the more remote areas of town could result in better control of forest fires.	Evaluate the Class VI roads for accessibility and establish a maintenance plan per state statute [emergency lane statute, RSA 231:59-a]	40 hours Staff Time	Operating Budget	Short Term	FD, DPW
Flood	20	Flash flooding. Sheet flow, RR trestle blew out	Encourage NH DOT to upgrade drainage along Meredith Neck Road and Barnard Ridge Road. Engage other stakeholders, such as FEMA in discussions.	40 hours Staff Time	Operating Budget	Short Term	DPW, Comm. Dev.
Wildfire, Conflagration	30	Gaining access to the more remote areas of town could result in better control of forest fires.	Upgrade and maintain the Class VI roads for accessibility as identified in Action ID #29.	unknown	Operating Budget	Short Term	FD, DPW

Table *22: Implementation Schedule for Mitigation Actions by Time Frame*

MVA/HM, Oil Spills, Water Contamination	24	There is a great deal of material transported through Meredith. An accident could release harmful materials near residences, business, or water resources.	Continue working on action items outlined in the Waukewan Watershed Management Plan: a. Maintain communication with CNHEPC on the issue of the transport of hazardous materials through town. b. Develop spill prevention plan for Waukewan watershed. c. Consider protection of Lake Waukewan from culvert inflows into Monkey Pond by using permanent protective methods such as, booms and wedge gates.	120 hours Staff Time	NH DES, NH HSEM	Short Term	FD, Comm. Dev., DPW
All	8	Critical facilities should have back-up power, enabling service to continue.	Review and/or purchase and install generators for school buildings that are critical facilities.	$500,000	HMPG, SAU, Warrant Article	Short Term	EMD, School Admin.
All	9	Critical facilities should have back-up power, enabling service to continue.	Review and/or purchase and install generators for Fire Department, Police Department, and Town Hall.	$350,000	HMPG, Warrant article	Short Term	EMD
Flood	22	Understanding local drainage conditions can lead to efficient use of resources in mitigating the impacts of heavy rain events on state roads which run through the town.	Encourage NH DOT to complete a vulnerability assessment on state roads for slopes, soil, pipe sizes, and ditch runs for flood-prone areas in town.	20 hours Staff Time	Operating Budget	Short Term	DPW, Comm. Dev.

Table *22: Implementation Schedule for Mitigation Actions by Time Frame*

Earthquake, Tornado/ Downburst, Hurricane, Nor'easter	17	Critical facilities should be resilient to hazards, enabling service to continue.	Replace DPW facility incorporating recommendations for structural soundness (high wind, earthquake).	> $1.0 M	Warrant, Bond issue	Short Term	DPW, Town Mgr.
Dam Failure, Flood, Water Contamination	16	Waukewan dam flows through the center of town and controls the lake level. Its operation or failure could impact numerous residences and businesses.	Work with NH Dam Bureau to ensure that all feasible actions for protecting the integrity of the Waukewan dam are identified along with the parties responsible for implementation.	10 hours/ year	Grant/ Outside Funding	Short Term	EMD
All	3	Integrating planning efforts leads to coordination and effectiveness.	Updated in 2023	50 hours Staff Time	Operating Budget, HSEM	Long Term	EMD
All	11	Emergency Communication with Community Residents	Investigate reverse 9-1-1 and the like communication methods	40 Staff Hours	FEMA/HSEM Grant, Warrant, Operating Budget	Short Term	EMD
Dam Failure, Flood	14	Integrating planning efforts leads to coordination and effectiveness.	LEOP, HMP, and Water Resources Plan should reference the Waukewan Dam Emergency Action Plan.	40 hours Staff Time	Operating Budget	Short Term	EMD
All	4	Ensure that the town has appropriate Sheltering capacity and procedures.	Complete development of Shelter Plan and test it.	100 hours Staff Time	Operating Budget, HSEM	Short Term	EMD
Water Contamination	26	Lake Waukewan is the town's water source. Ensuring its safety will protect people and businesses.	Establish a monitoring program for cyanobacteria and explore treatment methods.	$100,000	NH DES	Short Term	W & S

Table *22: Implementation Schedule for Mitigation Actions by Time Frame*							
All	2	Integrating planning efforts leads to coordination and effectiveness.	Include a recommendation in the next Community Plan update to incorporate elements of the Hazard Mitigation Plan.	20 hours Staff Time	Operating Budget	Long term	Comm. Dev.
All	12	The need for a plan for local transportation as it relates to the aftermath of a local hazard, e.g., flooding, hazardous materials spill, etc.	Investigate the need for a Local Transportation Impact Plan as it relates to all potential local hazards	TBD	Grant	Short Term	DPW, EMD
Water Accessibility	25	Address single source of holding capacity for treated water storage facility	Investigate the need and location for an additional treated water storage facility	> $1.0 M	FEMA/HSEM Grant, Warrant	2024-2025	W&S
All	6	Substandard roads and driveways can lead to erosion and limit access by emergency services.	Create standards for driveways and roads for new lots through the subdivision process that address slope, width, and access for emergency response.	$50,000	Operating Budget	Short Term	Comm. Dev.
All	5	Substandard roads and driveways can lead to erosion and limit access by emergency services.	Create guidelines for the development of driveways for lots of record that address slope, width, and access for emergency response.	$50,000	Operating Budget	Short Term	Comm. Dev.
Water Redundancy	27	Main water treatment plant redundancy.	Engineering feasibility study of water treatment Intake	$50,000	Operating Budget	Short Term	W & S

Table *22: Implementation Schedule for Mitigation Actions by Time Frame*

Wildfire	30	Ensuring reliable water sources for firefighting will improve response and may limit injury, loss of life, and property damage.	Develop new water sources for firefighting - one per year: A. at Mer16: Upper New Hampton Rd. b. Mer17: Pickerel Pond, Windsong Place at Boat Ramp, c. at Mer28: Chase Rd. Draft Site, d. at Mer11: Wets Rd. Beach, Move Mer26 dry hydrant to Town Docks	$45,000 total (individual costs vary)	Operating Budget, grant	Short Term	FD
Flood	18	Potentially damaging. Has gotten close to topping road.	Upgrade stone box culvert on Chase Road	$300,000	CIP, FEMA	Medium Term	DPW
Flood	21	Understanding local drainage conditions can lead to efficient use of resources in mitigating the impacts of heavy rain events on municipal resources.	Complete vulnerability assessment on contributing area and impervious surfaces, slopes, soil, pipe sizes, ditch runs for potentially flood-prone areas in town and that are in close proximity to culverts, dams, and bridges to determine relationship to flooding in town, including upland areas.	$500,000	CIP, FEMA	Short Term	DPW

CHAPTER VI: PLAN MONITORING, EVALUATING, UPDATING ADOPTION

A. IMPLEMENTATION: PLAN MONITORING, EVALUATION AND UPDATES

Best practices allow for updates where and when necessary and will incorporate periodic monitoring and evaluation mechanisms to allow for review of successes and failures and general updates

The Town of Meredith Hazard Mitigation Plan Update, 2022 is a work in progress. Going forward, there are three situations which will prompt revisiting this plan:

1. At a minimum, the Plan will be reviewed annually or after any emergency event to assess whether the existing and suggested mitigation action items were successful. This review will focus on:
    a. The assessment of the plan's effectiveness, accuracy and completeness in monitoring of the implementation action items.
    b. A Review of recommended improvements to the plan as contained in the FEMA Local Mitigation Plan Review Tool[63] and address any weaknesses the town identified that the plan did not adequately address.
2. The Plan will be thoroughly updated every five years.
3. If/When the town adopts any major modifications to its land use planning documents, the jurisdiction will conduct a plan review and make changes as applicable.

The Committee will meet annually to review the Plan and provide a mechanism for ensuring that an attempt is made to incorporate the actions identified in the plan into ongoing town planning activities.

Essential elements of implementation require that all responsible parties for the various recommendations understand what is expected of them, and that they are willing to fulfill their role in implementation. It is therefore important to have the responsible parties clearly identified when the town adopts the final plan. Where appropriate it would be helpful to have any hazard mitigation activities identified in job descriptions.

Many of the actions in this plan rely on the town's operating budget along with grant funds available through FEMA and other sources such as those listed in Appendices B and H. The Emergency Management Director will work with the Town Manager and coordinate with the Department Heads and Selectmen to ensure that funds and staff time for these projects are available. The EMD and Hazard Mitigation Committee will work with the Town Manager, Selectmen, and Capital Improvements Plan (CIP) Committee to incorporate the various projects

[63] FEMA Local Mitigation Planning Policy Guide, April 2022
https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf

into subsequent budgets where appropriate. The EMD will also coordinate with the NH HSEM Field Representative to ensure that the town applies for appropriate grant funds.

For those mitigation actions which involve either revisions to the Subdivision Regulations or development of regulations or standards, the EMD and members of the Hazard Mitigation Committee will work with the Town Planner and Planning Board to develop appropriate language.

When appropriate, an effort will be made to incorporate this plan into the Local Emergency Operations Plan. Within a year after the town officially adopts the update to the Hazard Mitigation Plan, an attempt will be made to have hazard mitigation strategies integrated into these existing mechanisms and into all other ongoing town planning activities.

Each review, change, and/or response to an emergency event will trigger the After Action Review of the response against current plans and resources by the EMD and applicable Department Heads as well as the Town Manager and outside organizations that were involved in the response, if any. The results of such discussions will determine the applicability of the plan and what changes, if any, need to be made to properly address the hazard or emergency situation in question.

B. PLAN MAINTENANCE & PUBLIC INVOLVEMENT

The Meredith Hazard Mitigation Planning Committee and the Selectboard, in order to track progress and update the mitigation strategies identified in Chapter V - D & E, will review the Meredith Hazard Mitigation Plan every year and/or after a hazard event. The public and stakeholders will have the opportunity for future involvement as they will be invited to participate in any and all future reviews or updates of this plan. Public notice before any review or update will be given by such means as: press releases in local papers, using available social media, posting meeting information on the town website, Town Hall and at the Post Office, sending letters to federal, state and local organizations impacted by the plan and posting notices in public places in the town. This will ensure that all comments and revisions from the public and stakeholders will be considered.

Town of Meredith Emergency Management Director (EMD) is responsible for initiating Plan reviews and will consult with members of The Committee identified in this Plan. Changes will be made to the Plan to accommodate projects that have failed, are no longer consistent with the timeframe identified, are no longer consistent with the community's priorities, or lack funding resources. Priorities that were not ranked high, but identified as potential mitigation strategies, will be reviewed during the monitoring and update of this Plan to determine feasibility of future implementation. In keeping with the process of adopting the Plan, a public hearing will be held to receive public comment on the Plan.

Maintenance and updating will be held during the annual review period and the final product adopted by the Selectboard. The Committee will meet annually as part of this plan maintenance.

The EMD is also responsible for updating and resubmitting the plan to New Hampshire Homeland Security and Emergency Management to be re-approved every five years. The EMD will convene a plan update committee in late 2026 to begin updating this plan before it expires.

On behalf of the Meredith Hazard Mitigation Committee, the Emergency Management Director, under direction of the Selectboard, will be responsible for ensuring that town's departments and the public have adequate opportunity to participate in the planning process during the Plan's annual review and during any Hazard Mitigation Committee meetings. Administrative staff may be utilized to assist with the public involvement process.

For each committee meeting, and the annual update process, techniques that will be utilized for public involvement include:

- Provide invitations to municipal department heads;
  Post notices of meetings at the Town Hall, Post Office and on the Town website;
- Submit press releases for publication in the *Laconia Daily Sun*, along with other appropriate newspapers or media outlets.

Entities to invite to future Hazard Mitigation Plan updates include the Emergency Management Directors of the neighboring communities of New Hampton, Center Harbor, Laconia, Moultonborough, and Sanbornton.

C. PLAN APPROVAL AND ADOPTION

This plan was completed in a series of open meetings beginning in March 2019. The Plan was presented to the Town of Meredith governance and the public for review, submitted to HSEM for Conditional Approval (APA, Approved Pending Adoption), formally adopted by the Select Board and resubmitted to HSEM for Final Approval. Once Final Approval from HSEM is met, copies of the Town of Meredith Hazard Mitigation Plan Update, 2024 will be made available to the public and copies will be held by both HSEM and FEMA. Additionally, the HMP plan will be housed with the Meredith Emergency Management Director and the Town Manager.

NH Homeland Security & Emergency Management – Approved Pending Adoption

Good Morning,

The Department of Safety, Division of Homeland Security & Emergency Management (HSEM) has completed its review of the Meredith, NH Hazard Mitigation Plan and found it approvable pending adoption. Congratulations on a job well done!

With this approval, the jurisdiction meets the local mitigation planning requirements under 44 CFR 201 **pending HSEM's receipt of electronic copies of the adoption documentation with the final plan**.

The acceptable electronic format includes a PDF file and must be submitted to us via email at NH.HM@dos.nh.gov. Upon HSEM's receipt of these documents, notification of formal approval will be issued, along with the final Checklist and Assessment.

The approved plan will be submitted to FEMA on the same day the community receives the formal approval notification from HSEM. FEMA will then issue a Letter of Formal Approval to HSEM for dissemination that will confirm the jurisdiction's eligibility to apply for mitigation grants administered by FEMA and identify related issues affecting eligibility, if any. If the plan is not adopted within one calendar year of HSEM's Approval Pending Adoption, the jurisdiction must update the entire plan and resubmit it for HSEM review.

If you have questions or wish to discuss this determination further, please reply to this email or call 603-223-3650.

Thank you for submitting the Meredith, NH Hazard Mitigation Plan and again, congratulations on your successful community planning efforts.

Best,

Hazard Mitigation (JM)
New Hampshire Department of Safety, Division of Homeland Security & Emergency Management
Brian Eaton, Assistant Chief of Mitigation | State Hazard Mitigation Officer / Brian.E.Eaton@dos.nh.gov / (603) 227-8724
Vacant, Hazard Mitigation Coordinator
John Marcel, State Hazard Mitigation Planner / John.E.Marcel@dos.nh.gov / (603) 223-3650
Lynne Doyle, Program Assistant II / Lynne.E.Doyle@dos.nh.gov / (603) 227-8780

Adoption Document

TOWN OF MEREDITH

41 Main Street, Meredith, New Hampshire 03253-5861

Board of Selectmen

A RESOLUTION ADOPTING THE MEREDITH, NH HAZARD MITIGATION PLAN UPDATE 2024

WHEREAS, the Town of Meredith, NH recognizes the threat that natural hazards pose to people and property within the town of Meredith; and

WHEREAS, the Town of Meredith, NH has prepared a multi-hazard mitigation plan, hereby known as the Town of Meredith, New Hampshire Hazard Mitigation Plan, August 2024 in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS, the Town of Meredith, New Hampshire Hazard Mitigation Plan, August 2024 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Meredith from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Town of Meredith Selectboard demonstrates its commitment to hazard mitigation and achieving the goals outlined in the Town of Meredith, New Hampshire Hazard Mitigation Plan, August 2024.

NOW THEREFORE, BE IT RESOLVED BY THE TOWN OF MEREDITH, NH, THAT:

RESOLVED by the Board of Selectmen:

1. The plan is hereby adopted as an official plan of the town of Meredith;
2. The respective officials identified in the mitigation strategy of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them subject to appropriations;
3. Future revisions and Plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as a part of this resolution for a period of five (5) years from the date of this resolution;
4. An annual report on the progress of the implementation elements of the Plan shall be presented to the Board of Selectmen by the Emergency Management Director;
5. IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town

Seal or N[illegible] Date: This 4 Day of November, 2024.

KERRIA PARKER
NOTARY PUBLIC
State of New Hampshire
My Commission Expires
December 20, 2028

Michael Pelczar, Selectperson

Jeanie Forrester, Selectperson

Jonathan James, Selectperson

Lynn Leighton, Selectperson

Steven Aiken, Selectperson

FEMA – Final Approval Letter

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

FEMA

December 6, 2024

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

Director Buxton:

The U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region 1 Mitigation Division has approved the *Town of Meredith, New Hampshire Hazard Mitigation Plan Update, 2024* effective **December 9, 2024** through **December 8, 2029** in accordance with the planning requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; and Title 44 Code of Federal Regulations (CFR) Part 201.

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

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

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

Sincerely,

CHRISTOPHER J MARKESICH Digitally signed by CHRISTOPHER J MARKESICH
Date: 2024.12.09 17:22:51 -05'00'

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

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

www.fema.gov

APPENDIX A: REFERENCES, RESOURCES, EXISTING PLANS, STUDIES & REPORTS

Reference	Link/Contact Information
ABC News: NH 1st COVID-19 Case	https://abcnews.go.com/Health/wireStory/authorities-confirm-hampshires-1st-case-coronavirus-69340222
Avian Influenza: preparing for a pandemic	https://www.aafp.org/pubs/afp/issues/2006/0901/p783.html
Center for Disease Control (CDC):	
Closed POD Tool Kit	https://www.cdc.gov/cpr/readiness/healthcare/closedPODtoolkit.htm
H1N1	https://www.cdc.gov/h1n1flu/qa.htm
H1N1 Pandemic	https://www.cdc.gov/h1n1flu/who
H1N1: Response	http://www.cdc.gov/h1n1flu/cdcresponse.htm
Human Coronavirus Response	https://www.fema.gov/disaster/coronavirus
Pandemic Flu	https://www.cdc.gov/flu/pandemic-resources/index.htm
Cold Region Research and Engineering Laboratory (CRREL)	https://www.erdc.usace.army.mil/Locations/CRREL/
CityData: Meredith New Hampshire	http://www.city-data.com/city/Meredith-New-Hampshire.html,
"Climate Change in New Hampshire: Past, Present, and Future"	https://scholars.unh.edu/cgi/viewcontent.cgi?article=1002&context=sustainability
Disaster Mitigation Act, 2000	https://www.fema.gov/sites/default/files/2020-11/fema_disaster-mitigation-act-of-2000_10-30-2000.pdf
Earthquake Track	https://earthquaketrack.com/p/united-states/new-hampshire/recent

Reference	Link/Contact Information
Federal Emergency Management Agency (FEMA):	http://www.fema.gov/
Earthquake Damage	https://www.fema.gov/node/reducing-risks-non-structural-earthquake-damageaccessed
Information Systems	https://www.fema.gov/floodplain-management/community-rating-system
Flood Insurance Rate Map (FIRM)	https://www.fema.gov/glossary/flood-insurance-rate-map-firm
Local Mitigation Planning Policy Guide, FP206-21-0002	https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf
National Flood Insurance Program, Community Status Book	http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book
News and Events	http://www.fema.gov/news/event.fema?id=2118
Preparedness Community: Winter Storms, Alerts & Warnings	https://community.fema.gov/ProtectiveActions/s/article/Winter-Storm-Alerts-and-Warnings
Tornado, National Risk Index	https://hazards.fema.gov/nri/tornado
FEMA Webliography:	https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2019/05/Planning-Webliography.pdf
Interactive Hail Maps: Meredith	http://www.interactivehailmaps.com/local-hail-map/meredith-nh
Laconia Daily Sun	https://www.laconiadailysun.com/news/local/marina-fire-damage-could-reach-1-million/article_298ca0ea-6274-11eb-88a2-a3639a015b4c.html
Lakes Region Partnership for Public Health (LRPPH)	http://www.lakesregionchamber.org/list/member/partnership-for-public-health-1824

Reference	Link/Contact Information
Lakes Region Planning Commission:	https://www.lakesrpc.org/publicationslrpc.asp
Hazard Mitigation	https://www.lakesrpc.org/serviceshazards.asp
Development Activity in the Lakes Region, 2013 Annual Report	https://www.lakesrpc.org/publicationslrpc.asp
Lamont-Doherty Cooperative Seismic Network	http://www.ldeo.columbia.edu/LCSN/index.php,
Mayo Clinic, Infectious Disease Overview	https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173
Meredith Assessors Database	http://www.nh.gov/dot/org/operations/traffic/tvr/locations/index.htm
Meredith Community Plan	Is held by Community Development Department and available for review on the Meredith Town Website: https://www.meredithnh.org/community-development/pages/planning-documents
Meredith Hazard Mitigation Plan, Update 2015	http://www.nhdfl.org/fire-control-and-law-enforcement/fire-statistics.aspx
Meredith Site Plan Regulations (2018)	http://www.nh.gov/dot/org/operations/traffic/tvr/locations/index.htm
Meredith Subdivision Regulations	https://www.meredithnh.org/assessing-department
Meredith Zoning Ordinance (2022)	https://www.meredithnh.org/community-development/pages/master-plan
National Aeronautics and Space Administration (NASA):	https://www.nasa.gov/
NASA EARTHDATA Lightening Research at GHRC DAAC	https://ghrc.nsstc.nasa.gov/lightning/overview_otd.html
National Emergency Management Association	https://www.nemaweb.org

Reference	Link/Contact Information
National Fire Protection Agency: Firewise	https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA NFPA - Preparing homes for wildfire
National Lightning Safety Institute	http://lightningsafety.com/
Lightening Costs and Losses	http://www.lightningsafety.com/nlsi_lls/nlsi_annual_usa_losses.htm
National Oceanic and Atmospheric Administration:	https://www.noaa.gov/
Weather Glossary	https://w1.weather.gov/glossary/index.php?word=downburst
National Centers for Environmental Information	https://www.ncei.noaa.gov/access/monitoring/dyk/drought-definition
National Integrated Drought Information System (NIDIS)	https://www.drought.gov/states/new-hampshire
National Centers for Environmental Information | State Climate Summaries 2022 150-NH:	https://statesummaries.ncics.org/downloads/NewHampshire-StateClimateSummary2022.pdf
National Outages/SPIA, Northeast	http://www.spia-index.com/nelce.php
National Severe Storms Laboratory	https://www.nssl.noaa.gov/
National Weather Service:	https://www.weather.gov
Eastern Region Headquarters	https://www.weather.gov/erh/
Gray, Maine	https://www.weather.gov/gyx/
National Wildfire Coordinating Group	https://www.nwcg.gov/publications/pms205#letter_w
New Hampshire COVID-19 Response	https://www.covid19.nh.gov

Reference	Link/Contact Information
New Hampshire Electrical Cooperative	https://www.nhec.com/
New Hampshire Floodplain Management Program	https://www.nh.gov/osi/planning/programs/fmp/index.htm
New Hampshire Recreation Areas Flood Risk Management Projects:	https://www.nae.usace.army.mil/Missions/Recreation/New-Hampshire
NH State Hazard Mitigation Plan, 2018	https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2015/11/State-of-New-Hampshire-Multi-Hazard-Mitigation-Plan-Update-2018_FINAL.pdf
NH Department of Cultural Affairs:	https://www.nh.gov/nhculture/
Division of Historical Resources	http://www.nh.gov/nhdhr/
NH Department of Environmental Services (DES):	http://www.des.state.nh.us/
Classification of Dams in New Hampshire Fact Sheet, 2020	https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/db-15.pdf
Dam Removal and River Restoration	https://www.des.nh.gov/climate-and-sustainability/conservation-mitigation-and-restoration/dam-removal-and-river
Dam Safety, Maintenance and Management	https://www.des.nh.gov/water/dam-maintenance-and-management
NH Department of Health and Human Services:	https://www.dhhs.nh.gov/
2012-2013 Influenza Summary	https://www.dhhs.nh.gov/sites/g/files/ehbemt476/files/documents/2021-12/1213summary.pdf
Division of Public Health Service High Threat Infectious Disease Plan (*DRAFT*)	Appendix: Pandemic
Radon	https://www.dhhs.nh.gov/programs-services/environmental-health-and-you/radon

Reference	Link/Contact Information
NH Department of Natural & Cultural Resources:	https://www.dncr.nh.gov/
Division of Forests and Lands	hhtp://www.nhdfl.org
Division of Parks and Recreation	https://www.nhstateparks.org/
Natural Heritage Inventory	http://www.nhdfl.org/about-forests-and-lands/bureaus/natural-heritage-bureau/
NH Department of Safety: Hazard Mitigation	https://www.nh.gov/safety/divisions/hsem/HazardMitigation/index.html
NH Department of Transportation:	http://www.nh.gov/dot/index.htm
Bureau of Traffic, Bureau of Planning, Traffic Section, Traffic Reports	https://www.nh.gov/dot/org/operations/traffic/tvr/locations/documents/meredith.pdf
NH Fish and Game Department	http://www.wildlife.state.nh.us/
NH Governor's Office of Energy and Planning	http://www.nh.gov/oep/index.htm
NH Homeland Security and Emergency Management:	http://www.nh.gov/safety/divisions/HSEM/
Hazard Mitigation Section	http://www.nh.gov/safety/divisions/hsem/HazardMitigation/index.html
NH Municipal Association	https://www.nhmunicipal.org/town-city-article/cybersecurity-best-practices-municipalities
NH Regional Planning Commissions:	
Central NH Regional Planning Commission	http://www.cnhrpc.org/
Lakes Region Regional Planning Commission	http://www.lakesrpc.org/
Nashua Regional Planning Commission	https://www.nashuarpc.org/
North Country Council	http://www.nccouncil.org/

Reference	Link/Contact Information
NH Regional Planning Commissions: continued	
Rockingham Regional Planning Commission	http://www.rpc-nh.org/
Southern New Hampshire Regional Planning Commission	http://www.snhpc.org/
Southwest Regional Planning Commission	http://www.swrpc.org/
Strafford Regional Planning Commission	http://www.strafford.org/
Upper Valley Lake Sunapee Regional Planning Commission	http://www.uvlsrpc.org/
Northeast States Emergency Consortium, Inc. (NESEC)	http://www.nesec.org/
Winter Storms	http://nesec.org/winter-storms/
Plymouth State University (PSU) Weather Center	http://vortex.plymouth.edu
Sperry-Piltz Index, Northeast	http://www.spia-index.com/nelce.php
STAPLEE Evaluation Criteria for Mitigation Actions - Vermont	https://vem.vermont.gov/sites/demhs/files/documents/STAPLEE%20Evaluation%20Criteria%20for%20Mitigation%20Actions%20Guide_2.pdf
State of New Hampshire Dept. of Transportation (DOT):	
Bureau of Traffic, Bureau of Traffic, Bureau of Planning, Traffic Section. Traffic Reports	https://www.nh.gov/dot/org/operations/traffic/tvr/locations/documents/meredith.pdf
State of New Hampshire Multi-Hazard Mitigation Plan, Update 2018	https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2015/11/State-of-New-Hampshire-Multi-Hazard-Mitigation-Plan-Update-2018_FINAL.pdf
The Tornado Project Online	http://www.tornadoproject.com/

Reference	Link/Contact Information
University of New Hampshire (UNH):	
Cooperative Extension	http://nhbugs.org/hemlock-woolly-adelgid.
Economic Impact of COVID-19	https://carsey.unh.edu/what-is-new-hampshire/sections/economy/covid-19
United States Census Bureau: Quick Facts, June 2022	https://www.census.gov/quickfacts/fact/table/meredithtownbelknapcountynewhampshire/PST045221
US Army Corps of Engineers	http://www.usace.army.mil/
New Hampshire Recreation Areas Flood Risk Management Projects:	https://www.nae.usace.army.mil/Missions/Recreation/New-Hampshire
US Fish and Wildlife Service	http://www.fws.gov/
US Forest Service	http://www.fs.fed.us/
US Geological Society	http://pubs.usgs.gov/gip/earthq4/severitygip.html
US Geological Survey (USGS):	http://www.usgs.gov/
Current Water Data for New Hampshire	https://waterdata.usgs.gov/nh/nwis/rt
Interactive Earthquake Map	http://earthquake.usgs.gov/earthquakes/eventpage/usb000d75b#pager
Earthquake Archive Search	https://earthquake.usgs.gov/earthquakes/search/
Real Time Hydrologic Data	http://waterdata.usgs.gov/nwis/rt

Reference	Link/Contact Information
US Health and Human Services (DHHS):	
Coronavirus: COVID-19	https://www.hhs.gov/coronavirus/index.html
Coronavirus Vaccines	https://www.hhs.gov/coronavirus/covid-19-vaccines/index.html
US Department of Agriculture	http://www.usda.gov/wps/portal/usdahome
US Department of Commerce	http://www.commerce.gov/
US Department of the Interior	http://www.doi.gov/
US Drought Monitor	http://droughtmonitor.unl.edu/
Wake, Cameron, et.al., "Climate Change in New Hampshire: Past Present, and Future (2014)	https://scholars.unh.edu/cgi/viewcontent.cgi?article=1002&context=sustainability
Waukewan Dam Emergency Action Plan 2-22-2022	Hampshire Hospitality Holdings, LLC: (603) 279-5200
Weather Spark	https://weatherspark.com/y/147274/Average-Weather-at-Laconia-Municipal-Airport-New-Hampshire-United-States-Year-Round
Wikipedia:	
Pandemic	https://en.wikipedia.org/wiki/Pandemic
World Populations Review Meredith New Hampshire Population 2022	https://worldpopulationreview.com/us-cities/meredith-nh-population
World Health Organization (WHO):	
H1N1 Pandemic	https://www.cdc.gov/h1n1flu/who
World Health Organization (WHO): continued	
Impact of COVID-19 on People's Livelihoods, their Health and Our Food Systems	https://www.who.int/news/item/13-10-2020-impact-of-covid-19-on-people's-livelihoods-their-health-and-our-food-systems
Timeline: WHO's COVID-19 Response	https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline

APPENDIX B: MITIGATION FUNDING RESOURCES

There are numerous potential sources of funding to assist with the implementation of mitigation efforts. Two lists of state and federal resources are provided below. Some of these may not apply or be appropriate for Meredith. The NH Homeland Security and Emergency Management Field Representative for Belknap County can provide some assistance.

Different funding requirements as well as the complexity of the funding will determine the capability of our current staffing structure to be able to absorb the additional requirements. If necessary, staffing can be increased to assist with the additional requirements, or grant administrators can be contracted to assist in the overall grant process.

Funding Source	Grant/Program Title
NH Community Development Finance Authority:	• Community Development Block Grant (CDBG)
NH Department of Transportation:	• Highway Safety Program • Roadway Repair & Maintenance Program(s) • State Aid Bridge Program for Communities • Contribution to Damage Losses (RSA 235:34)
NH Division of Forests and Lands	• Various Forest and Lands Program(s)
NH Homeland Security & Emergency Management (HSEM):	• Hazard Mitigation Grant Program (HMGP) • Public Assistance and Hazard Mitigation • Flood Mitigation Assistance Program (FMAP) • Mitigation Assistance Planning (MAP) • Project Impact
NH Office of Strategic Initiatives:	• Various planning, development, energy, and • Natural resources
University of NH – Technology Transfer Center:	• Mutual Aid for Public Works
USDA, Natural Resources Conservation Service:	• Emergency Watershed Protection (EWP) Program

Federal Emergency Management Agency (FEMA)

FEMA makes funds available for mitigation efforts to reduce future costs associated with hazard damage.

Mitigation Funding Sources Program	Details	Notes
Flood Mitigation Assistance Program (FMA)	Provides funding to implement measures to reduce or eliminate the long-term risk of flood damage http://www.fema.gov/government/grant/fma/index.shtm	States and localities
Hazard Mitigation Planning Grant (HMPG)	Provides grants to implement long-term hazard mitigation measures after a major disaster declaration https://www.fema.gov/grants/mitigation/hazard-mitigation	Open
National Flood Insurance Program (NFIP)	Enables property owners to purchase insurance as a protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages http://www.fema.gov/business/nfip/	States, localities, and individuals
Pre-Disaster Mitigation Program (PDM)	Provides funds for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event http://www.fema.gov/government/grant/pdm/index.shtm	States, localities, and tribal governments

Environmental Protection Agency (EPA)

The EPA makes funds available for water management and wetlands protection programs that help mitigate against future costs associated with hazard damage.

Mitigation Funding Sources Program	Details	Notes
Clean Water Act Section 319 Grants	Grants for water source management programs including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and regulation. . https://www.epa.gov/nps/319-grant-program-states-and-territories	Funds are provided only to designated state and tribal agencies
Clean Water State Revolving Funds (CWSRF)	State grants to capitalize loan funds. States make loans to communities, individuals, and others for high-priority water-quality activities. https://www.epa.gov/cwsrf	States and Puerto Rico
Wetland Program Development Grants and EPA Wetlands Grant Coordinators	Funds for projects that promote research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. https://www.epa.gov/wetlands/wetland-program-development-grants-and-epa-wetlands-grant-coordinators	See website

Floodplain, Wetland and Watershed Protection Programs

US Army Corps of Engineers (USACE) and the U.S. Fish and Wildlife Service offer funding and technical support for programs designed to protect floodplains, wetlands, and watersheds.

Mitigation Funding Sources Program	Details	Notes
Planning Assistance to States (PAS)	Fund plans for the development and conservation of water resources, dam safety, flood damage reduction and floodplain management. https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Planning-Assistance-to-States	50 percent non-federal match
Army Corps of Engineers Flood Plain Management Services	Technical support for effective floodplain management. https://www.nae.usace.army.mil/Missions/Public-Services/Flood-Plain-Management-Services	See website
Army Corp of Engineers Environmental Laboratory	Guidance for implementing environmental programs such as ecosystem restoration and reuse of dredged materials. https://www.nae.usace.army.mil/Missions/Public-Services/Flood-Plain-Management-Services	See website
U.S. Fish & Wildlife Service National Coastal Wetlands Conservation Grants	Matching grants to states for acquisition, restoration, management or enhancement of coastal wetlands. https://www.fws.gov/service/national-coastal-wetlands-conservation-grants	States only. 50 percent federal share
U.S. Fish & Wildlife Service Partners for Fish and Wildlife Program	Program that provides financial and technical assistance to private landowners interested in restoring degraded wildlife habitat. https://www.fws.gov/program/partners-fish-and-wildlife	Funding for volunteer-based programs

Bureau of Land Management

The Bureau of Land Management (BLM) has two technical assistance programs focused on fire mitigation strategies at the community level.

Mitigation Funding Sources Program	Details	Notes
Community Wildfire Assistance	Focuses on mitigation/prevention, education, and outreach. National Fire Prevention and Education teams are sent to areas across the country at-risk for wildland fire to work with local residents. https://www.blm.gov/site-page/programs-public-safety-and-fire-fire-and-aviation-regional-information-montana-dakotas-3	See website
National Fire Protection Association (NFPA) Firewise USA®®	Effort to involve homeowners, community leaders, planners, developers, and others in the effort to protect people, property, and natural resources from the risk of wildland fire before a fire starts. http://www.firewise.org	See website

US Department of Housing and Urban Development

The Community Development Block Grants (CDBG) administered by HUD can be used to fund hazard mitigation projects.

Mitigation Funding Sources Program	Details	Notes
Community Development Block Grants (CDBG)	Grants to develop viable communities, principally for low and moderate income persons. CDBG funds available through Disaster Recovery Initiative. https://www.hud.gov/program_offices/comm_planning/cdbg	Disaster funds contingent upon Presidential disaster declaration
Disaster Recovery Assistance	Disaster relief and recovery assistance in the form of special mortgage financing for rehabilitation of impacted homes. https://www.hud.gov/info/disasterresources	Individuals
Neighborhood Stabilization Program	Funding for the purchase and rehabilitation of foreclosed and vacant property in order to renew neighborhoods devastated by the economic crisis. https://www.hud.gov/program_offices/comm_planning/nsp	State and local governments and non-profits

U.S. Department of Agriculture

There are multiple mitigation funding and technical assistance opportunities available from the USDA and its various sub-agencies: the Farm Service Agency, Forest Service, and Natural Resources Conservation Service.

Mitigation Funding Sources Program	Details	Notes
Smith-Lever Special Needs Competitive Grants Program	Grants to State Extension Services at 1862 Land-Grant Institutions to support education-based approaches to addressing emergency preparedness and disasters. https://www.nifa.usda.gov/grants/programs/smith-lever-special-needs-competitive-grants-program	Population under 20,000
USDA Rural Development Community Facilities Direct Loan & Grant Program	This program provides affordable funding to develop essential community facilities in rural areas. An essential community facility is defined as a facility that provides an essential service to the local community for the orderly development of the community in a primarily rural area, and does not include private, commercial or business undertakings. https://www.rd.usda.gov/programs-services/community-facilities/community-facilities-direct-loan-grant-program	Population under 20,000
USDA Farm Service Agency Disaster Assistance Programs	Emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland and livestock damaged by natural disasters. https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/index	Farmers and ranchers

Mitigation Funding Sources Program	Details	Notes
USDA Forest Service National Fire Plan	Funding for organizing, training, and equipping fire districts through Volunteer, State and Rural Fire Assistance programs. Technical assistance for fire related mitigation. http://www.forestsandrangelands.gov/	See website
USDA Forest Service Economic Action Program	Funds for preparation of Fire Safe plans to reduce fire hazards and utilize byproducts of fuels management activities in a value-added fashion. https://www.fs.usda.gov/working-with-us/grants	80% of total cost of project may be covered
USDA Natural Resources Conservation Service Financial Assistance Programs	Funds for implementing emergency measures in watersheds in order to relieve imminent hazards to life and property created by a natural disaster. https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial	See website
USDA Natural Resources Conservation Service Watershed Protection and Flood Prevention	Funds for soil conservation; flood prevention; conservation, development, utilization and disposal of water; and conservation and proper utilization of land. https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape	See website

Health and Economic Agencies

Alternative mitigation programs can be found through health and economic agencies that provide loans and grants aimed primarily at disaster relief.

Federal Loans and Grants for Disaster Relief

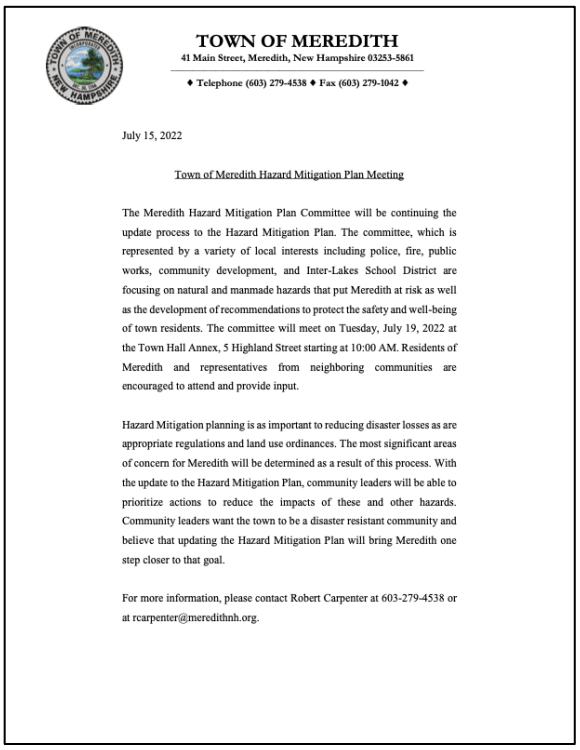
Mitigation Funding Sources Program	Details	Notes
Department of Health & Human Services Disaster Assistance for State Units on Aging (SUAs)	Grants awarded under this announcement are to provide disaster reimbursement and assistance funds to those State Units on Aging (SUAs), and federally recognized Tribal Organizations who are currently receiving a grant under Title VI of the Older Americans Act (OAA), as amended. https://www.grants-gov.net/grants_gov_display.php?program=HHS-2019-ACL-AOA-DASG-0313&image=195	Areas designated in a Disaster Declaration issued by the President
Economic Development Administration (EDA) Programs	Grants that support public works, economic adjustment assistance, and planning. Certain funds allocated for locations recently hit by major disasters. https://www.eda.gov/programs/eda-programs	The maximum investment rate shall not exceed 50 percent of the project cost

Mitigation Funding Sources Program	Details	Notes
U.S. Small Business Administration Funding Programs	Low-interest, fixed rate loans to small businesses for the purpose of implementing mitigation measures. Also available for disaster damaged property. https://www.sba.gov/funding-programs/loans	Must meet SBA approved credit rating

APPENDIX C: PUBLICITY AND INFORMATION

Prior to Committee meetings, public notification was made via press releases similar to the ones below, which were sent to the *Laconia Daily Sun* (prior to The Committee meetings). Public Meeting notifications were posted in Town Hall, the Post Office and the Meredith Town Website: https://www.meredithnh.org/

Additionally, several informational handouts and the 2015 Hazard Mitigation Plan were distributed to The Committee and made available at all meetings.



TOWN OF MEREDITH
41 Main Street, Meredith, New Hampshire 03253-5861
♦ Telephone (603) 279-4538 ♦ Fax (603) 279-1042 ♦

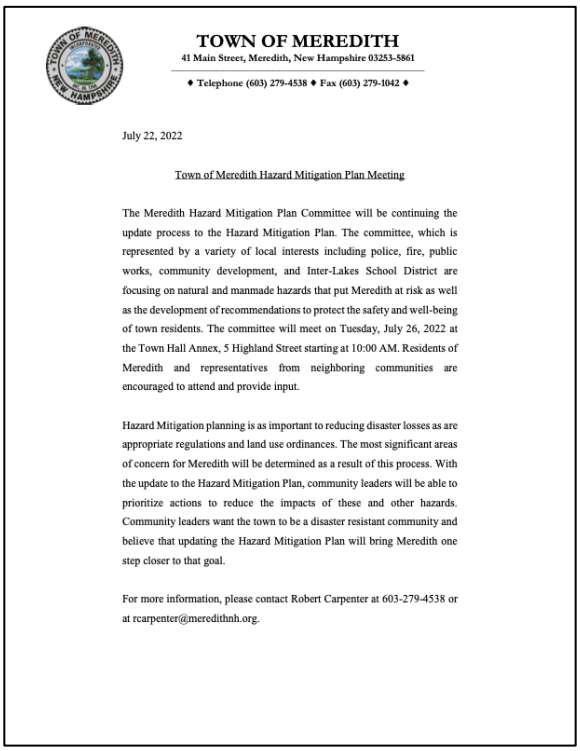
July 15, 2022

Town of Meredith Hazard Mitigation Plan Meeting

The Meredith Hazard Mitigation Plan Committee will be continuing the update process to the Hazard Mitigation Plan. The committee, which is represented by a variety of local interests including police, fire, public works, community development, and Inter-Lakes School District are focusing on natural and manmade hazards that put Meredith at risk as well as the development of recommendations to protect the safety and well-being of town residents. The committee will meet on Tuesday, July 19, 2022 at the Town Hall Annex, 5 Highland Street starting at 10:00 AM. Residents of Meredith and representatives from neighboring communities are encouraged to attend and provide input.

Hazard Mitigation planning is as important to reducing disaster losses as are appropriate regulations and land use ordinances. The most significant areas of concern for Meredith will be determined as a result of this process. With the update to the Hazard Mitigation Plan, community leaders will be able to prioritize actions to reduce the impacts of these and other hazards. Community leaders want the town to be a disaster resistant community and believe that updating the Hazard Mitigation Plan will bring Meredith one step closer to that goal.

For more information, please contact Robert Carpenter at 603-279-4538 or at rcarpenter@meredithnh.org.



TOWN OF MEREDITH
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♦ Telephone (603) 279-4538 ♦ Fax (603) 279-1042 ♦

July 22, 2022

Town of Meredith Hazard Mitigation Plan Meeting

The Meredith Hazard Mitigation Plan Committee will be continuing the update process to the Hazard Mitigation Plan. The committee, which is represented by a variety of local interests including police, fire, public works, community development, and Inter-Lakes School District are focusing on natural and manmade hazards that put Meredith at risk as well as the development of recommendations to protect the safety and well-being of town residents. The committee will meet on Tuesday, July 26, 2022 at the Town Hall Annex, 5 Highland Street starting at 10:00 AM. Residents of Meredith and representatives from neighboring communities are encouraged to attend and provide input.

Hazard Mitigation planning is as important to reducing disaster losses as are appropriate regulations and land use ordinances. The most significant areas of concern for Meredith will be determined as a result of this process. With the update to the Hazard Mitigation Plan, community leaders will be able to prioritize actions to reduce the impacts of these and other hazards. Community leaders want the town to be a disaster resistant community and believe that updating the Hazard Mitigation Plan will bring Meredith one step closer to that goal.

For more information, please contact Robert Carpenter at 603-279-4538 or at rcarpenter@meredithnh.org.

Sample advertising proof of Laconia Daily Sun public meeting notification:

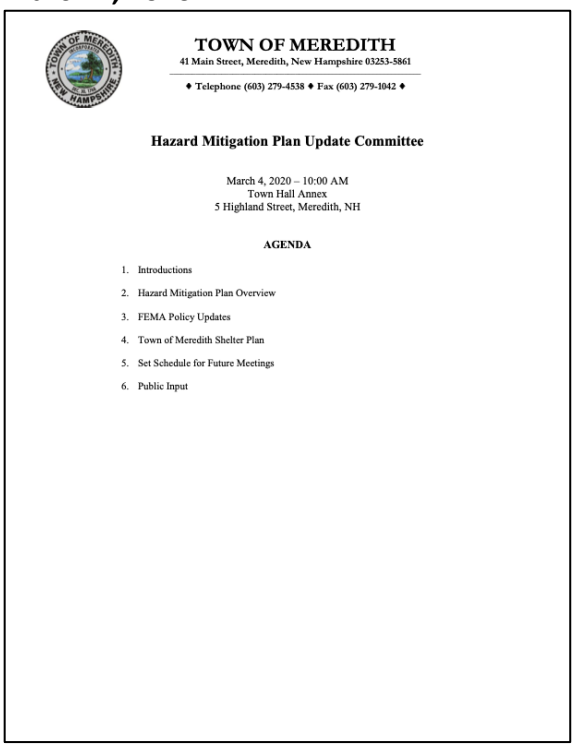
Town of Meredith
Hazard Mitigation Plan Meeting

The Meredith Hazard Mitigation Plan Committee will be meeting **July 19, 2022 at 10:00 am** at the Town Hall Annex, 5 Highland Street. For more information please go to www.meredithnh.org.

APPENDIX D: MEETING AGENDAS AND PARTICIPATION

This section contains copies of The Committee meeting agendas and a summary of participation. All Committee meetings were held in the Meredith Town Hall Annex. Agendas were developed by, and the initial meeting was chaired by the Meredith Town Manager, and subsequent meetings were chaired by the Meredith Director of Administrative Services. At each of the in-person meetings there was opportunity for public input. As a note multiple phone conferences were held during of the COVID-19 pandemic between the planner the, then Meredith Town Manager and various members of The Committee. General information was reviewed later at in-person public meetings.

Meeting Agenda and Attendees
March 4, 2020



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Hazard Mitigation Plan Update Committee

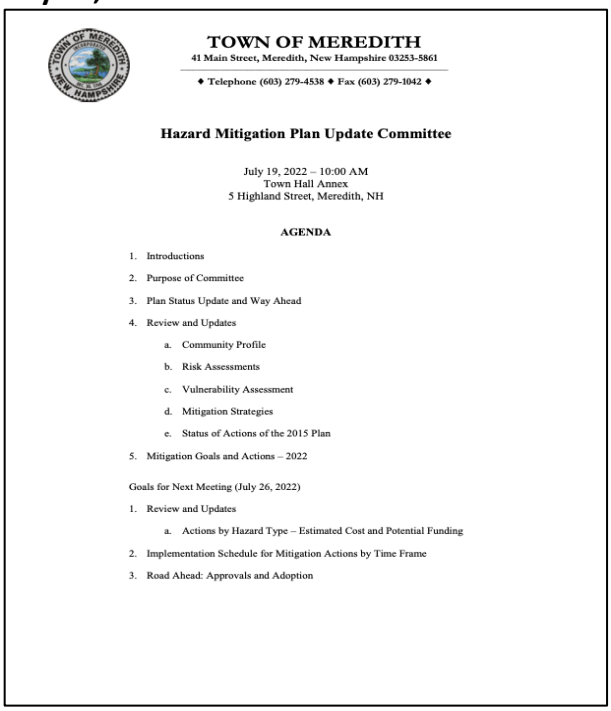
March 4, 2020 – 10:00 AM
Town Hall Annex
5 Highland Street, Meredith, NH

AGENDA

1. Introductions
2. Hazard Mitigation Plan Overview
3. FEMA Policy Updates
4. Town of Meredith Shelter Plan
5. Set Schedule for Future Meetings
6. Public Input

Phil Warren	Meredith Town Manager
Chief Kevin Morrow	Meredith Police Chief/EMD
Chief Ken Jones	Meredith Fire Chief
Chris Janosa	Meredith Executive Assistant
John Edgar	Meredith Community Development Director
Mike Faller	Meredith Department of Public Works
Frank Giordano	Water & Sewer Superintendent
Lisa C. Kaufman	Behavioral Health, Emergency Planning Consultant

Meeting Agenda and Attendees
July 19, 2022:



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Hazard Mitigation Plan Update Committee

July 19, 2022 – 10:00 AM
Town Hall Annex
5 Highland Street, Meredith, NH

AGENDA

1. Introductions
2. Purpose of Committee
3. Plan Status Update and Way Ahead
4. Review and Updates
   a. Community Profile
   b. Risk Assessments
   c. Vulnerability Assessment
   d. Mitigation Strategies
   e. Status of Actions of the 2015 Plan
5. Mitigation Goals and Actions – 2022

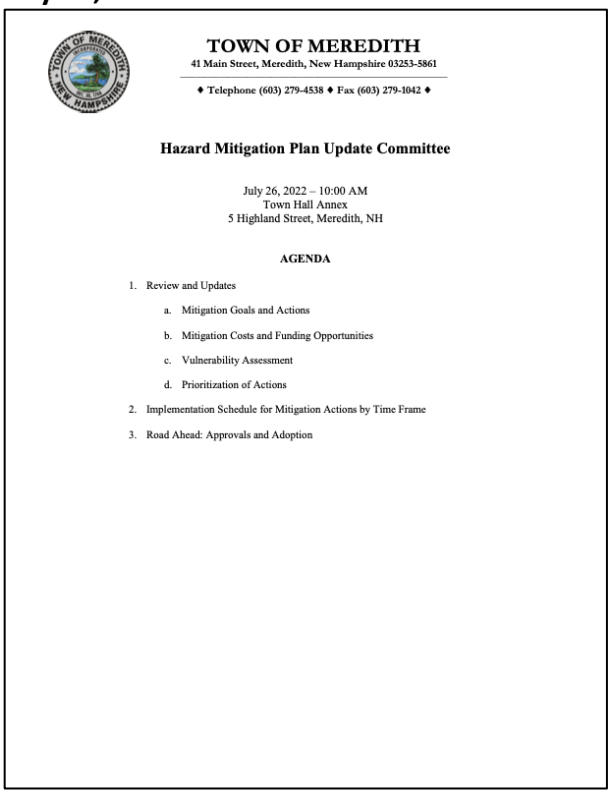
Goals for Next Meeting (July 26, 2022)

1. Review and Updates
   a. Actions by Hazard Type – Estimated Cost and Potential Funding
2. Implementation Schedule for Mitigation Actions by Time Frame
3. Road Ahead: Approvals and Adoption

Attendees:

Lt. Mike Harper	Meredith Interim Police Chief/EMD
Chief Ken Jones	Meredith Fire Chief
Chris Janosa	Meredith Interim Town Manager
Robert Carpenter	Meredith Director of Administrative Services
John Edgar	Meredith Community Development Director
John Greenwood	Meredith Building Inspector
Jim Commerford	Meredith Assessor
Mike Faller	Meredith Department of Public Works
Vint Choiniere	Meredith Parks and Recreation Director
Angela Labreque	Meredith Town Planner
Trish Temperino	Assistant Superintendent, Inter-lakes School District
Brian Swanker	Facilities Manager, Inter-Lakes School District
Lisa C. Kaufman	Behavioral Health, Emergency Planning Consultant

Meeting Agenda and Attendees
July 26, 2022



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Hazard Mitigation Plan Update Committee

July 26, 2022 – 10:00 AM
Town Hall Annex
5 Highland Street, Meredith, NH

AGENDA

1. Review and Updates
   a. Mitigation Goals and Actions
   b. Mitigation Costs and Funding Opportunities
   c. Vulnerability Assessment
   d. Prioritization of Actions
2. Implementation Schedule for Mitigation Actions by Time Frame
3. Road Ahead: Approvals and Adoption

Attendees:

Lt. Mike Harper	Meredith Interim Police Chief/EMD
Chief Ken Jones	Meredith Fire Chief
Chris Janosa	Meredith Interim Town Manager
Robert Carpenter	Meredith Director of Administrative Services
John Edgar	Meredith Community Development Director
John Greenwood	Meredith Building Inspector
Mike Faller	Meredith Department of Public Works
Brian McCall	Meredith Water and Sewer Superintendent
Vint Choiniere	Meredith Parks and Recreation Director
Angela Labreque	Meredith Town Planner
Lisa C. Kaufman	Behavioral Health, Emergency Planning Consultant

APPENDIX E: History of Disaster Declarations in New Hampshire

Per the current State of New Hampshire Multi Hazard Mitigation Plan – 2018[64], New Hampshire has received 51 disaster declarations, including Presidential Declarations (DR) and Emergency Declarations (EM), since 1953 that amount to over $197 million in federal assistance. These were the result of multiple hazard types, with the most common being flooding and severe winter weather events. Since the 2013 Plan, there have been 6 major disaster declarations.

The following are the tables adapted from the NH HMP 2023 Plan. Events that included Belknap County have been highlighted

Table E-1: List of Major Disaster Declarations

Disaster Declaration Date	Disaster Event	$ Amount	County(s) Declared
7.2.1953	Forest Fire	UNK	Shaw Mtn. Ossipee: 2500 acres burned
3.18.1972	Coastal Storms	UNK	Unknown
7.11.1973	Severe Storms, Flooding	UNK	Unknown
1.21.1974	Heavy Rains, Flooding	UNK	Unknown
2.16.1978	High Winds, Tidal Surge, Coastal Flooding	UNK	Unknown
8.27.1986	Severe Storms, Flooding	$1,005,000	Cheshire & Hillsborough
4.16.1987	Severe Storms, Flooding	$4,888,889	Carroll, Cheshire, Grafton, Hillsborough, Merrimack, Rockingham & Sullivan
8.29.1990	Flooding, Severe Storm	$2,297,777	**Belknap**, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan
9.1.1991	Hurricane Bob, Severe Storm	$2,293,449	**Statewide**
11.3.1991	Severe Coastal Storm	$1,500,000	Rockingham
1.3.1996	Storms, Floods	$2,220,384	Carroll, Cheshire, Coos Grafton, Merrimack & Sullivan
10.29.1996	Severe Storms, Flooding	$2,341,273	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan
1.15.1998	Ice Storms	12,446,202	**Belknap**, Carroll, Cheshire, coos, Grafton, Hillsborough, Merrimack, Strafford & Sullivan
7.2.1998	Severe Storms, Flooding	$3,420,120	**Belknap**, Carroll, Grafton, Merrimack, Rockingham & Sullivan
10.18.1999	Tropical Storm Floyd	$750,133	**Belknap,** Cheshire & Grafton
9.12.2003	Severe Storms, Flooding	$1,300,000	Cheshire & Sullivan
10.26.2005	Severe Storms, Flooding	$14,996,626+	**Belknap**, Cherise, Hillsboro, Merrimack, Sullivan & Grafton
5.25.2007	Severe Storms, Flooding	$17,691,586+	**Belknap**, Carroll, Hillsborough, Merrimack, Rockingham, Strafford & Grafton
4.27.2007	Severe Storms, Flooding	$27,000,000+	**Belknap**, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan
8.11.2008	Severe Storms, Tornado & Flooding	$1,691,240	**Belknap**, Carroll, Merrimack, Rockingham & Strafford
9.5.2008	Severe Storms, Flooding	$4,967,595	**Belknap**, Coos & Grafton
10.3.2008	Severe Storms, Flooding	$1,050,147	Hillsborough & Merrimack
1.2.2009	December '08 Ice Storm	$19,789,657	**Belknap**, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan
3.29.2010	Severe Winter Storm	$9,.103,138	Merrimack, Rockingham, Strafford & Sullivan

[64] State of NH Multi Hazard Mitigation Plan – 2018: https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2015/11/State-of-New-Hampshire-Multi-Hazard-Mitigation-Plan-Update-2018_FINAL.pdf

Disaster Declaration Date	Disaster Event	$ Amount	County(s) Declared
5.12.2010	Severe Storms, Flooding	$3,057,473	Rockingham & Hillsborough
7.22.2011	Severe Storms, Flooding	$1,664,140	Grafton & Coos
9.2.2011	Tropical Storm Irene	$19,789,657	**Belknap,** Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sulllivan
12.5.2011	October Nor'easter	$9,103,138	Merrimack, Rockingham, Strafford & Sullivan
6.15.2012	Severe Storms, Flooding	$3,057,473	Rockingham & Hillsborough
11.28.2012	Hurricane Sandy	$1,664,140	Grafton & Coos
3.19.2013	Severe Winter Storm	$19,789,657	**Belknap**, Carroll, Cheshire, coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan
8.2.2013	Severe Storms, Flooding & Landslides	$6,408,896	Cheshire, Grafton & Sullivan
3.25.2015	Severe Winter Storm & Snowstorm	$2,143,536	**Belknap** & Carroll
8.9.2017	Severe Storms, Flooding	$11,802,065	Grafton
1.2.2018	October 30 Storms & Flooding	$6,093,232	**Belknap**, Carroll, Coos, Grafton, Sullivan & Merrimack
6.8.2018	Severe Storms, Flooding	$13,117,866	Rockingham
6.8.2018	Severe Winter Storm & Snowstorm	$5,001,009	Carroll, Strafford & Rockingham
8.5.2019	Severe Storm & Flooding	$3,202,283	Statewide
4.3.2020	COVID-19	$ 203,266,928	Statewide
9.30.2021	Severe Storms & Flooding	$ 836,136	Statewide
10.4.2021	Severe Storms & Flooding	$1,293,973	Statewide
3.12.2023	Severe Winter Weather and Inland Flooding	$ 3,102,420	Statewide

Note: *Italicized* values are subject to change due to disaster being recently declared.

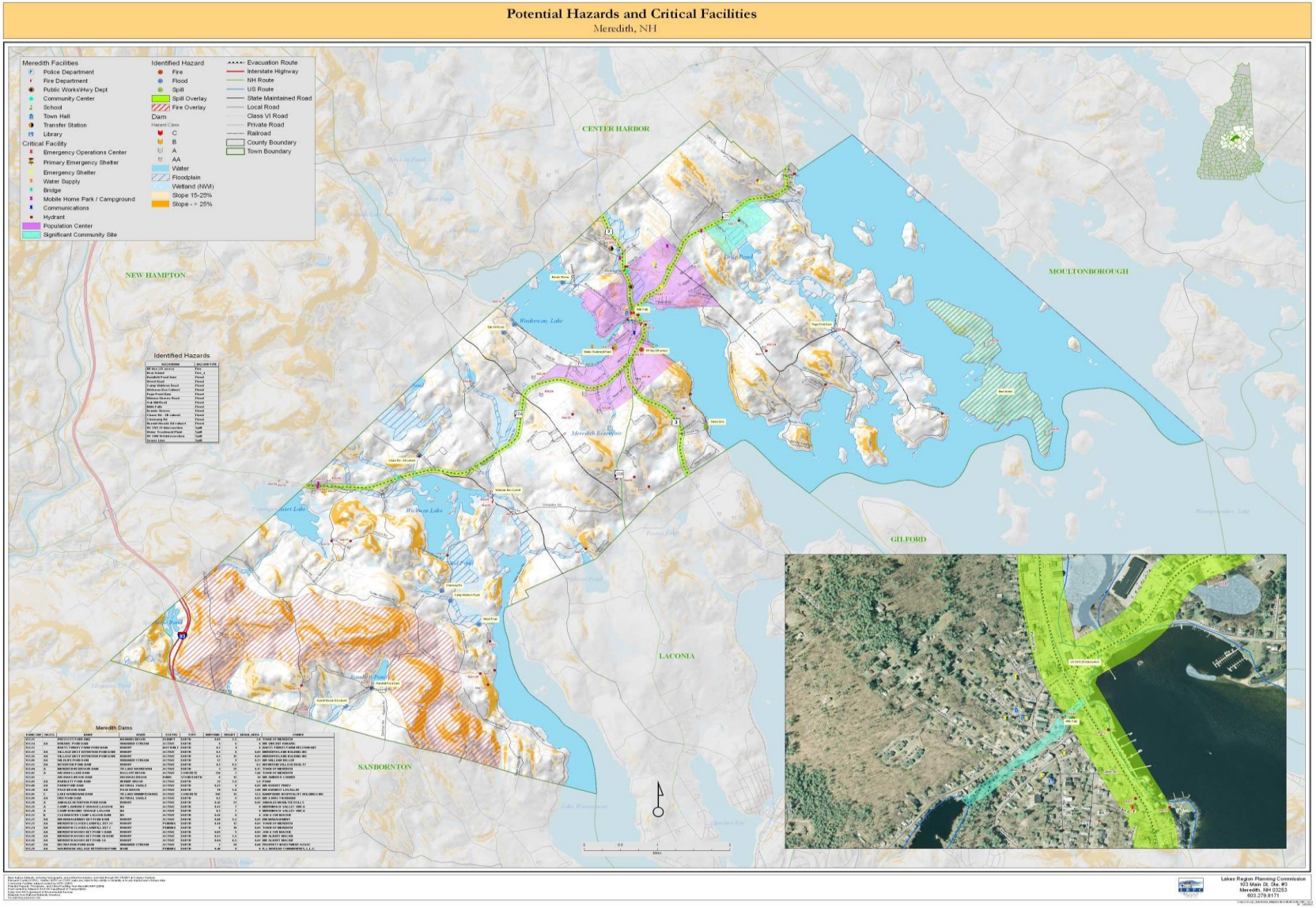
Table E-2: List of Emergency Declarations

Disaster Declaration Date	Disaster Event	$ Amount	County(s) Declared
3.15.1979	Flooding	UNK	UNK
3.16.1993	Blizzards, High Winds & Record Snowfall	$832,396	**Statewide**
3.28.2001	Snowstorm	$4,500,000	Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham & Strafford
3.11.2003	Snowstorm	$3,000,000	Cheshire, Hillsborough, Merrimack, Rockingham & Strafford
1.15.2004	Snow	$3,200,000	**Belknap**, Carroll, Cheshire, Coos, Grafton, Hillsboro, Merrimack & Sullivan
3.30.2005	Snow	$4,654,738	**Belknap**, Carroll, Cheshire, Grafton, Hillsboro, Merrimack, Rockingham, Strafford & Sullivan
3.30.2005	Snow	$1,417,129	Carroll, Cheshire, Coos, Grafton & Sullivan
4.28.2005	Snow	$2,677,536	Carroll, Cheshire, Hillsboro, Rockingham & Sullivan
9.19.2005	Hurricane Katrina Evacuation	$9,887.40	**Statewide**
12.13.2008	Severe Winter Storm	$900,000	**Belknap**, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan
8.27.2001	Hurricane Irene	$550,618.32	**Statewide**
11.1.2011	Severe storm	$0	**Statewide**
10.30.2012	Hurricane Sandy	$644,300.52	**Statewide**
3.13.2020	COVID-19	$ 203,266,928	**Statewide**

Table E3: List of Non-Declared Major Events since 2013

Event Date	Description	Impact	Location	Additional Information
1.2014	Fuel Oil Interruption During Extreme Cold	Lack of Oil Delivery	Capital Region	SEOC activated as a call Center to support customers running out of oil
4.15-16, 2014	Severe Storm, Flooding	$1.9M Damages	Coos, Carroll	Columbia Lyman Brook Bridge Destroyed
11.26-29, 2014	Severe Winter Storm	217,000 Outages	**Statewide**	5th largest power outage in New Hampshire history
4.21.2016	Stoddard Fire	$500,000 Damages	Stoddard, NH	SEOC activated to assist in large wildfire

APPENDIX F: CRITICAL FACILITIES & POTENTIAL HAZARDS MAP



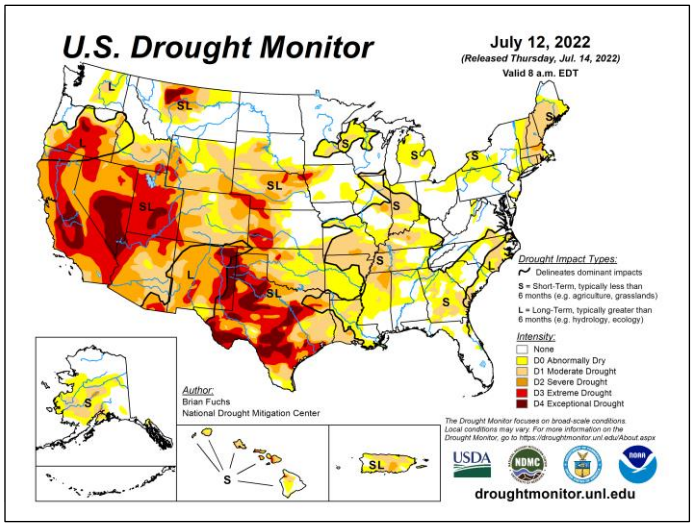
APPENDIX G: HAZARDS – SUPPLEMENTARY HAZARD INFORMATION

This section provides statewide or regional information regarding hazards. Some information is about hazards mentioned in the NH Hazard Mitigation Plan 2018 [65]. Other information either provides context or extra detail which supplements the locally important information addressed in Chapter III.

A. Drought, Flooding and Wildfire

Drought

NOAA and the National Centers for Environmental Information define drought as "a complex phenomenon which is difficult to monitor and define. Hurricanes, for example, have a definite beginning and end and can easily be seen as they develop and move. Drought, on the other hand, is the *absence* of water."[66] Drought occurs when less than the normal amount of water is available for extended periods of time. Effects may include decreased soil moisture, groundwater levels, streamflow, and lake, pond, and well levels may drop. Factors that may contribute to drought include reduced rain/snowfall, increased rates of evaporation, and increased water usage. New Hampshire generally receives adequate rainfall; it is rare that the state experiences extended periods of below normal water supplies.



GeoFact of the Day

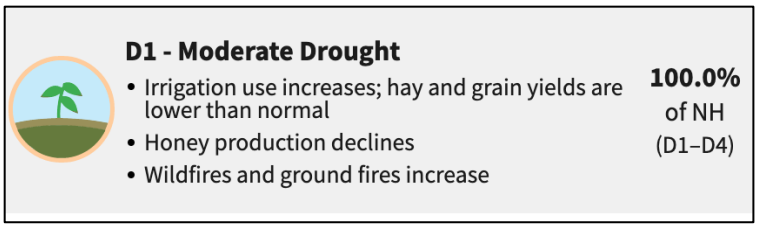
Since 1990 New Hampshire has had a state Drought Emergency Plan, which identifies four levels of action indicating the severity of the drought: Alert, Warning, Severe, and Emergency. There have been seven extended droughts in New Hampshire in the past century: 1929 – 1936, 1939 – 1944, 1947 – 1950, 1960 – 1969, 2001 – 2002, 2016 – 2017, and 2020 – 2023.. The US Drought Monitor began in 2000.[67] While drought conditions can change rapidly current data (Mid July 2022) recognized drought conditions in the Northeast United States: "The dryness in the region has allowed for drought expansion this week…a new area of severe drought in eastern Massachusetts…moderate drought was expanded in Maine, New Hampshire and Vermont."[68]

[65] NH State Hazard Mitigation Plan, 2018 https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2015/11/State-of-New-Hampshire-Multi-Hazard-Mitigation-Plan-Update-2018_FINAL.pdf

[66] NOAA and the National Centers for Environmental Information: https://www.ncei.noaa.gov/access/monitoring/dyk/drought-definition

[67] US Drought Monitor http://droughtmonitor.unl.edu/.

[68] National Integrated Drought Information System (NIDIS) https://www.drought.gov/states/new-hampshire



As noted above, the drought in the State of New Hampshire is currently considered Moderate, where there can be an increase in Wildfires and ground fires.

Drought.gov updates statistics weekly. The following are current as of 7.12.2022[69]:

- 1,316,470 people in New Hampshire are affected by drought
- 0 counties with USDA disaster designations
- 39th driest June was in 2022, over the past 128 years
- 50th driest year to date was in 2022, over the past 128 years

Based on the US Drought Monitor, the DES developed parameters to be used by the New Hampshire Drought Management Team. More information regarding the State response to drought can be found in the DES Drought Management Plan[70]

Table G-1: New Hampshire Drought Parameters

	WATCH D0 Abnormally Dry	ALERT D1 Moderate	WARNING D2 Severe	EMERGENCY D3 Extreme	DISASTER D4 Exceptional
Conditions to be used by NH Drought Management Team as basis for recommendations to the US Drought Monitor					
PRECIPITATION 1-month SPI 3-month SPI 6-month SPI 12-month SPI	<0.0 Not Applicable Not Applicable Not Applicable	Not Applicable <0.0 Not Applicable Not Applicable	Not Applicable <-1.0 Not Applicable Not Applicable	Not Applicable Not Applicable <-1.0 Not Applicable	Not Applicable Not Applicable Not Applicable <-1.0
STREAMFLOW 28-day streamflow 65% normal	Up to 1 Month	1-3 Months	3-6 Months	6-9 Months	>9Months
PALMER INDEX PDSI	Not Applicable	<0.0	<-1.0	<-2.0	<-3.0
GROUNDWATER	Not Applicable	Monthly Levels Drop Below Mean	Monthly Levels Persist Below Monthly Mean		Not Quantified

[69] NIDIS Drought.gov https://www.drought.gov/states/new-hampshire
[70] Drought Mgmt. Plan: https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/drought-managementplan.pdf

Flooding

"Flooding results from the overflow of rivers, their tributaries, and streams throughout the State, primarily from high precipitation events. Flash flooding is defined as a flow with a rapid rise in water level and extreme velocities in a river or stream, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters. Because of New Hampshire's steep terrain in the headwaters of watersheds, particularly outside of the coastal plain, flash floods also lead to river bank and bed erosion. Extreme precipitation events in recent years, such as Tropical Storm Irene, have led to buildings on the edges of streambanks becoming at risk to river erosion, or culvert failures. "[71]

Historically, the state's two largest floods occurred in 1936 and 1938. The 1936 flood was associated with snow melt and heavy precipitation. The 1938 flooding was caused by the Great New England Hurricane of 1938. Those floods prompted the construction of a series of flood control dams throughout New England, built in the 1950s and '60s. The New England District of the US Corps of Army Engineers constructed, operates and maintains 7 flood risk-management projects dams in NH.[72]

A series of floods in New Hampshire began in October 2005 with a flood that primarily affected the southwest corner of the state and devastated the town of Alstead. The flood killed seven people. It was followed by floods in May 2006 and April 2007 and a series of floods during the late summer and early fall of 2008.

Flooding in the Lakes Region is most commonly associated with structures and properties located within a floodplain. There are numerous rivers and streams within the region and significant changes in elevation, leading to some fast-moving water. The region also has a great deal of shoreline, making it exposed to rising water levels as well. Although historically, there have not been many instances of shoreline flooding, the potential always exists for a major flood event to occur.

Recent rain events have proven this is becoming an increasing concern as additional development is contributing to flood hazards. As areas are covered with impervious surfaces, less water is allowed to infiltrate, evaporate, or be transpired by vegetative growth and more of it runs off directly into surface drainages and water bodies. This increases the likelihood of flash floods and substantial overland flow. Of greatest concern are the waterfront properties on the lakes, ponds, and associated tributaries.

Culvert improvements and roadwork have been conducted throughout the region as a result of localized flooding events. Of particular concern in the region are areas of steep slopes and soils

[71] NH State Hazard Mitigation Plan, 2018 https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2015/11/State-of-New-Hampshire-Multi-Hazard-Mitigation-Plan-Update-2018_FINAL.pdf

[72] New Hampshire Recreation Areas Flood Risk Management Projects: https://www.nae.usace.army.mil/Missions/Recreation/New-Hampshire

with limited capacity to accept rapid volumes of rainwater. Roads and culverts in close proximity to these conditions are most at risk of localized flooding.

Flooding due to Dam Failure

Dam failure results in rapid loss of water that is normally held back by a dam. These types of floods can be extremely dangerous and pose a threat to both life and property. Dam classifications in New Hampshire are based on the degree of potential damages that a failure or disoperation of the dam is expected to cause. The classifications are designated as Non-Menace, Low Hazard, Significant Hazard, and High Hazard and are explained in detail in the NH DES NH DES Fact Sheet "Classification of Dams in New Hampshire", 2020,[73] and summarized in greater detail below in Table G-1.

The designations for these dams relate to damage that would occur if a dam were to break, not the structural integrity of the dam itself. In the Lakes Region, the Town of Alton was impacted by an earthen dam failure on March 12, 1996. Although listed in the NH Hazard Mitigation Plan as a significant hazard, it did result in the loss of one life.

[73] NH DES Fact Sheet "Classification of Dams in New Hampshire", 2020
https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/db-15.pdf

Table G-2: New Hampshire Dam Classifications

Classification	Description
Non-Menace	A dam that is not a menace because it is in a location and of a size that failure or misoperation of the dam would not result in probable loss of life or loss to property, provided the dam is either: • Less than 6 feet in height if it has a storage capacity greater than 50 acre-feet. • Less than 25 feet in height if it has a storage capacity of 15 to 50 acre-feet.
Low Hazard	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 any of the following: • 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 contaminated sediment if the storage capacity is less than 2-acre-feet and is located more than 250 feet from a water body or water course. • Reversible environmental losses to environmentally-sensitive sites.

Significant Hazard	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 any of the following:
	• No probable loss of lives.
	• 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 or public health losses, including one or more of the following:
	  ○ Damage to a public water system, as defined by 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 2 acre-feet or more.
	  ○ Damage to an environmentally-sensitive site that does not meet the definition of reversible environmental losses.

High Hazard	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 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 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. • Any other circumstance that would more likely than not cause one or more deaths.

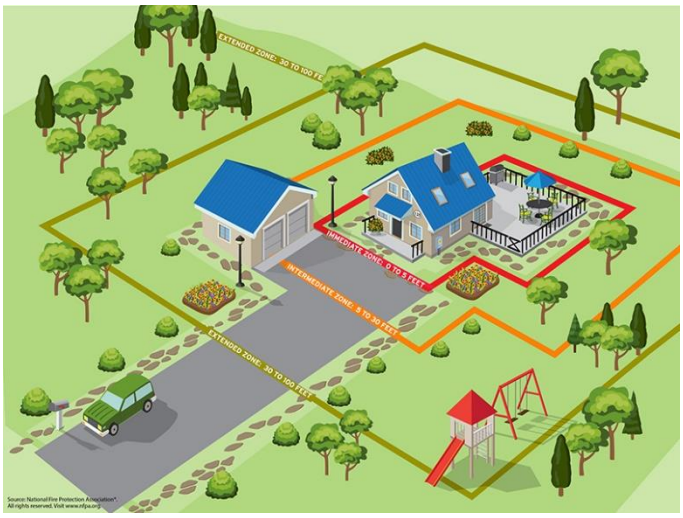
Wildfire

Wildfire is defined by the National Wildfire Coordinating Group (NWCG) as any non-structural fire, other than prescribed fire, that occurs in the Wildland. Wildland here is defined as consisting of vegetation or natural fuels.[74]

Several areas in the region are relatively remote in terms of access and firefighting abilities. Of greatest concern are those areas characterized by steep slopes and vast woodlands, with limited vehicular access. These areas include the Ossipee, Squam, Belknap, and Sandwich Mountain Ranges. As these once remote areas begin to see more development (the urban wildfire interface), care should be taken to ensure that adequate fire protection and buffers are established. Techniques include increased buffers between wooded areas and residential buildings, requirements for cisterns or fire ponds, a restriction on the types of allowable building materials such as shake roofs, and special considerations for landscaping. While historically massive wildfires have been western phenomena, each year hundreds of woodland acres burn in New Hampshire.

The greatest risk exists in the spring when the snow has melted and before the tree canopy has developed, and in the late summer – early fall. Appropriate planning can significantly reduce a community's vulnerability to wildfires. There are four-zone suggestions from the Firewise community program that could be potentially helpful for Meredith's homeowners.[75]

ZONE 4 is a natural zone of native or naturalized vegetation. In this area, use selective thinning to reduce the volume of fuel. Removing highly flammable plant species offers further protection while maintaining a natural appearance.



ZONE 3 is a low fuel volume zone. Here selected plantings of mostly low-growing and fire-resistant plants provide a decreased fuel volume area. A few well-spaced, fire-resistant trees in this zone can further retard a fire's progress.

ZONE 2 establishes a vegetation area consisting of plants that are fire resistant and low growing. An irrigation system will help keep this protection zone green and healthy.

ZONE 1 is the protection area immediately surrounding the house. Here vegetation should be especially fire resistant, well irrigated and carefully spaced to minimize the threat from intense flames and sparks.

[74] National Wildfire Coordinating Group: https://www.nwcg.gov/publications/pms205#letter_w
[75] National Fire Protection Association: Firewise: NFPA - Preparing homes for wildfire

A. Geological Hazards

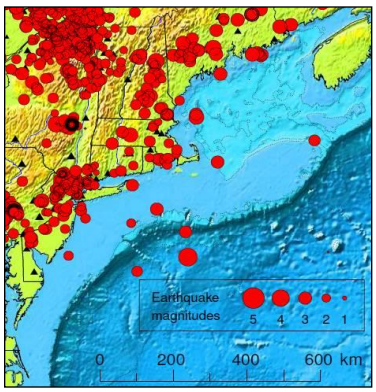
Earthquake

Notable New Hampshire earthquakes are listed in Table G-2 with the extent of the hazard expressed in the Modified Mercalli Intensity scale and the Richter Magnitude.[76]

Table G-3: NH Earthquakes of magnitude or intensity 4 or greater (1638-2007)

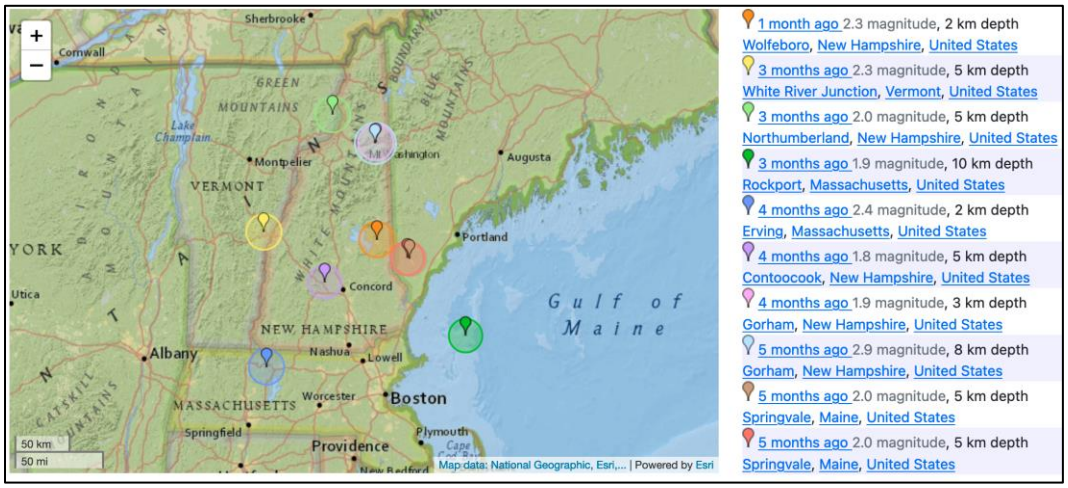
Location	Date	MMIntensity	Magnitude
Ossipee	December 24, 1940	7	5.5
Ossipee	December 20, 1940	7	5.5
Ossipee	October 9, 1925	6	4
Laconia	November 10, 1936	5	-
New Ipswich	March 18, 1926	5	-
Lebanon	March 5, 1905	5	-
Rockingham County	August 30, 1905	5	-
Concord	December 19, 1882	5	-
Exeter	November 28, 1852	5	-
Portsmouth	November 10, 1810	5	4
Off Hampton	July 23, 1823	4	4.1
15km SE of Berlin	April 6, 1989	-	4.1
5km NE of Berlin	October 20, 1988	-	4
W. of Laconia	January 19, 1982	-	4.7
Central NH	June 11, 1638	-	6.5

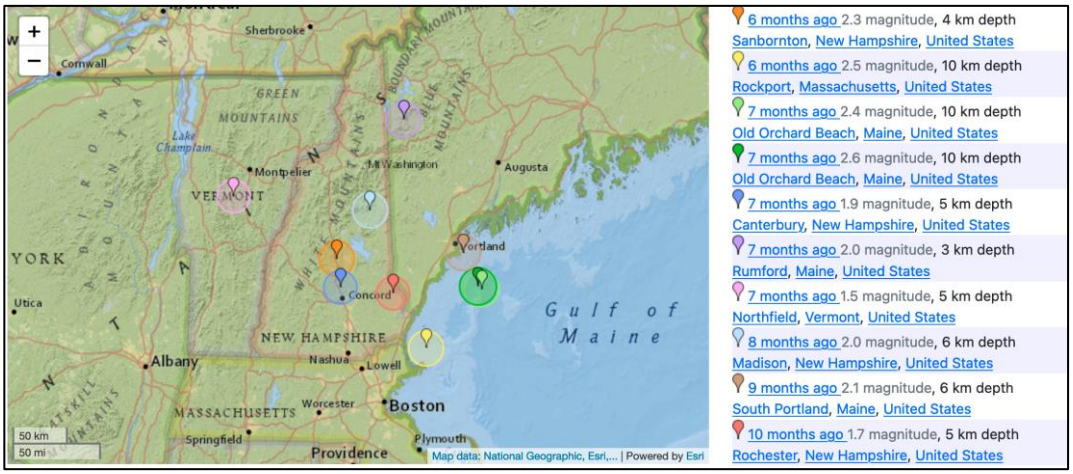
Earthquakes in the Northeast[77]
1990 – 2010

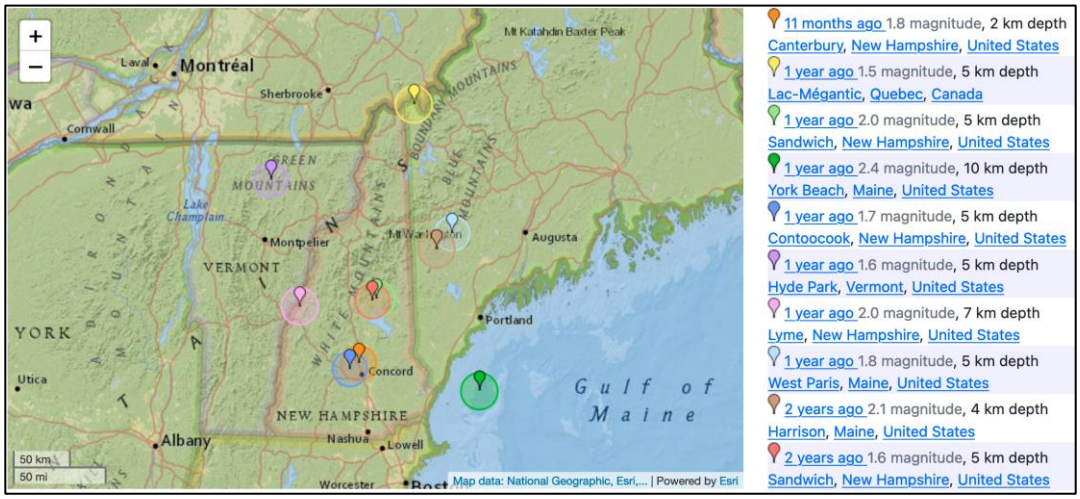


[76] http://earthquake.usgs.gov/learn/topics/mag_vs_int.php
[77] Lamont-Doherty Cooperative Seismic Network http://www.ldeo.columbia.edu/LCSN/index.php

Mapping of Earthquakes in NH and the region in the past in the 2 years[78]







[78] Earthquake track: https://earthquaketrack.com/p/united-states/new-hampshire/recent

Landslide

A landslide is the downward or outward movement of slope-forming materials reacting to the force of gravity, including mudflows, mudslides, debris flows, rockslides, debris avalanches, debris slides and earth flows. Landslides may be formed when a layer of soil atop a slope becomes saturated by significant precipitation and slides along a more cohesive layer of soil or rock. Although gravity becomes the primary reason for a landslide once a slope has become weak through a process such as the one just described, other causes can include: [79]

- Erosion by rivers or the ocean that creates over-steepened slopes through erosion of The slope's base. In the case of rivers, this can occur as a result of flash flooding
- Rock and soil slopes are weakened through saturation by snowmelt or heavy rains
- Earthquake creates stress that makes weak slopes fail—earthquakes of 4.0 magnitude and greater have been known to trigger landslides
- Wildfires (loss of vegetation)
- Excess weight from accumulation of rain or snow, stockpiling of rock or ore, the formation of waste piles, or building of man-made structures may stress weak slopes to the point of failure

As types and circumstances of landslides can greatly vary. Unlike Hurricanes, Tornados, Earthquakes and the like, currently there is no standardized scale to determine the severity of a landslide. In 2017 The New Hampshire Geological Survey, a part of NHDES, began undertaking the task of assembling individual town landslide information into a statewide geodatabase. The goal is to allow for greater precision in identifying locations of landslide risk. This information was derived from formally approved local hazard mitigation plans. Going forward the information could be used to identify areas of concern[80]

Although New Hampshire is mountainous, it consists largely of relatively old geologic formations that have been worn by the forces of nature for eons. Consequently, much of the landscape is relatively stable and the exposure to this hazard type is generally limited to areas in the north and north central portion of the state. Formations of sedimentary deposits and along the Connecticut and Merrimack Rivers also create potential landslide conditions.

Although the overall vulnerability for landslides in the state is low, there is considerable terrain susceptible to landslide action. This was exemplified in May of 2003 when the Old Man of the Mountain collapsed. The continuous action of freezing and thawing of moisture in rock fissures

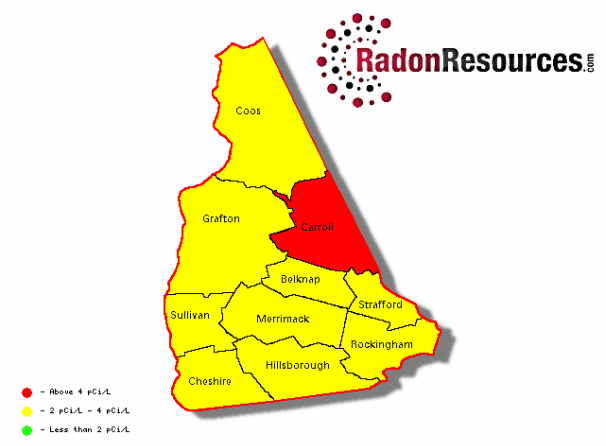
[79] USGS: https://landslides.usgs.gov/learn/ls101.php

[80] State of New Hampshire Multi-Hazard Mitigation Plan, 2018: https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2015/11/State-of-New-Hampshire-Multi-Hazard-Mitigation-Plan-Update-2018_FINAL.pdf

causes it to split and separate. This action occurs frequently on the steeply sloped areas of the state, increasing the risk of landslides. In addition to being susceptible to this freeze/thaw process, the Ossipee Mountain Range, Squam Range, and other mountains throughout the Lakes Region are also close to seismic faults and at risk to increased pressure to development. Consideration must be given to the vulnerability of man-made structures in these areas due to seismic and/or soils saturation-induced landslide activity. Landslide activities are also often attributed to other hazard events. For example, during a recent flood event, a death occurred when a mass of saturated soil collapsed. This death was attributed to the declared flood event.[81] Also, during the 2007 Nor'easter a landslide occurred in Milton, NH resulting in the temporary closure of NH Route 101.

Radon

Radon is a naturally occurring colorless, odorless radioactive gas usually associated with granite rock formations. The gas can seep into basements through the air. It can also be transported via water and is released once the water is aerated, such as during a shower. Extended exposure to radon can lead to higher rates of cancer in humans. Radon is not a singular event – it can take years or decades to see the effects. The NH Office of Community and Public Health's Bureau of Radiological Health indicates that one third of homes in New Hampshire have indoor radon levels that exceed the US Environmental Protection Agency's "action level" of 4 pCi/l.[82] The map at the below indicates that the potential for radon levels in Meredith area between 2 pCi/L and 4pCi/L according to the Environmental Protection Agency. [83]



Zone 1 **(1)**: Potential for radon levels above 4 pCi/L according to EPA
Zone 2 **(2)**: Potential for radon levels between 2 pCi/L and 4 pCi/L according to the EPA
Zone 3 **(3)**: Lowest EPA level with expected radon levels at or below 2 pCi/L

Radon levels are measured in picocuries per liter (pCi/L). It's recommended to have the lowest levels possible to reduce health risks. As small as that amount might sound, when dealing with radiation even a few picocuries can translate into serious health risks.

- A picocurie per liter measures how many picocuries of radon can be found in one liter of air.

[81] http://www.nh.gov/safety/divisions/hsem/NaturalHazards/index.html
[82] http://www.nh.gov/safety/divisions/hsem/NaturalHazards/index.html
[83] Radon Resources.com https://radonresources.com/directory/nh/

- A curie is a measurement of radioactivity.
- Each picocurie is a trillionth of one curie.[84]

B. Severe Wind: Downburst, Hail, Hurricane, Tornado

The Lakes Region is at risk of several types of natural events associated with high winds, including Nor'easters, downbursts, hail, hurricanes and tornadoes. The northeast is located in a zone that should be built to withstand 160 mile an hour wind gusts. A large portion of the northeast, including the Lakes Region, is in a designated hurricane susceptible region.

Hail

Hail can accompany the region's frequent summer thunderstorms. Hail can cause damage to crops and structural damage to vehicles. Hail is measured by the TORRO intensity scale, shown in Table G-5.

Table G-4: TORRO Hailstorm Intensity Scale

Code	Diameter	Description	Typical Damage
H0	5-9 mm*	Pea	No damage
H1	10-15 mm	Mothball	Slight damage to plants, crops
H2	16-20 mm	Marble, grape	Significant damage to fruit, crops, vegetation
H3	21-30 mm	Walnut	Severe damage to fruit/crops, damage to glass/plastic structures, paint & wood scored
H4	31-40 mm	Pigeon's egg	Widespread glass damage, vehicle bodywork damage
H5	41-50 mm	Golf ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	51-60 mm	Hen's egg	Aircraft bodywork dented; brick walls pitted
H7	61-75 mm	Tennis ball	Severe roof damage, risk of serious injuries
H8	76-90 mm	Large orange	Severe damage to aircraft bodywork
H9	91-100 mm	Grapefruit	Extensive structural damage. Risk of severe or fatal injuries to exposed persons
H10	>100 mm	Melon	Extensive structural damage. Risk of severe or fatal injuries to exposed persons

***mm** = millimeters (Approximate range since other factors (e.g., number, density of hailstones, hail fall speed, surface wind speed) affect severity
Source: http://www.torro.org.uk/torro/severeweather/hailscale.php

Although hailstorms are not particularly common in the Lakes Region, which averages fewer than two hailstorms per year, several have occurred in New Hampshire in the last decade. In 2007 and 2008 nearby Laconia experienced hail storms with no resulting damage, though reported hail sizes were as large as 1.25 inches (H4).

Current and historical accounts of hail and wind damage located near Meredith can be found at the website: Interactive Hail Maps:
http://www.interactivehailmaps.com/local-hail-map/meredith-nh

[84] National Radon Defense: https://www.nationalradondefense.com/radon-information/radon-levels.html

Hurricane

Hurricanes are severe tropical storms that have winds at least 74 miles per hour. In the Lakes Region they could produce heavy rain and strong winds that could cause flooding or damage buildings, trees, power lines, and cars.[85] Hurricanes are measured by the Saffir-Simpson Hurricane Scale: a 1-5 rating based on a hurricane's intensity using wind speed as the determining factor (Table G-4). The scale is used to give an estimate of the potential property damage and flooding expected from a hurricane landfall.

Table G-5: Saffir-Simpson Hurricane Scale

Category	Characteristics
1	Winds 74-95 mph (64-82 kts or 119-153 km/hr). Storm surge generally 4-5 ft above normal. No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Some damage to poorly constructed signs. Also, some coastal road flooding and minor pier damage.
2	Winds 96-110 mph (83-95 kts or 154-177 km/hr). Storm surge generally 6-8 feet above normal. Some roofing material, door, and window damage of buildings. Considerable damage to shrubbery and trees with some trees blown down. Considerable damage to mobile homes, poorly constructed signs, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of the hurricane center. Small craft in unprotected anchorages break moorings.
3	Winds 111-129 mph (96-113 kts or 178-209 km/hr). Storm surge generally 9-12 ft above normal. Some structural damage to small residences and utility buildings with a minor amount of curtainwall failures. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the center of the hurricane. Flooding near the coast destroys smaller structures with larger structures damaged by battering from floating debris. Terrain continuously lower than 5 ft above mean sea level may be flooded inland 8 miles (13 km) or more. Evacuation of low-lying residences with several blocks of the shoreline may be required.
4	Winds 130-156 mph (114-135 kts or 210-249 km/hr). Storm surge generally 13-18 ft above normal. More extensive curtainwall failures with some complete roof structure failures on small residences. Shrubs, trees, and all signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut by rising water 3-5 hours before arrival of the center of the hurricane. Major damage to lower floors of structures near the shore. Terrain lower than 10 ft above sea level may be flooded requiring massive evacuation of residential areas as far inland as 6 miles (10 km).
5	Winds greater than 156 mph (135 kts or 249 km/hr). Storm surge generally greater than 18 ft above normal. Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees, and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the center of the hurricane. Major damage to lower floors of all structures located less than 15 ft above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5-10 miles (8-16 km) of the shoreline may be required.

Source: http://www.nhc.noaa.gov/aboutsshs.shtml

According to NOAA the formation of Subtropical Storm Theta in the northeastern Atlantic Ocean made the 2020 season the most active on record. Theta was the 29th named storm. The previous record of 28 storms was set in 2005. Official records date to 1851.[86]

[85] http://www.fema.gov/hazard/hurricane/hu_about.shtm, visited January 25, 2011.

[86] NOAA https://www.noaa.gov/news/2020-atlantic-hurricane-season-takes-infamous-top-spot-for-busiest-on-record

New Hampshire has not experienced a severe hurricane since 1938. On September 21, 1938, a Category 3 hurricane claimed 13 lives in New Hampshire and many more throughout New England. Official records at the Weather Bureau in Concord show sustained winds of 56 miles per hour, but around the state, gusts around 100 miles per hour were reported, mostly due to topographical acceleration. The Merrimack River rose nearly 11 feet above its flood stage, *The Hanover Gazette* reported that in New Hampshire, 60,000 people were homeless and many areas were without power. Damages were estimated at $22 million.[87] Hurricane Bob, a category 2 storm, in 1991, was declared a major federal disaster in New Hampshire and is recorded as a severe storm in the state's history.[88]

Tornado/Downburst

Although tornadoes are locally produced, damage paths can be in excess of one mile wide and 50 miles long.[89] The Fujita Scale is used to measure the intensity of a tornado (or downburst) by examining the damage caused in the aftermath, shown in Table E-3.[90] An F2 tornado ripped through a 50-mile section of central NH in July of 2008 from Epsom to Ossipee leading to requests for federal disaster declarations in several counties.[91]

[87] http://www.nh.gov/safety/divisions/hsem/NaturalHazards/index.html,
[88] http://www.fema.gov/news/event.fema?id=2118
[89] FEMA Hazards: Tornadoes http://www.fema.gov/business/guide/section3e.shtm,
[90] http://www.tornadoproject.com/fscale/fscale.htm
[91] http://www.fema.gov/news/newsrelease.fema?id=45525 visited March 8, 2011.

Table G-6: The Fujita Scale

F-Scale #	Intensity Phrase	Wind Speed	Type of Damage
F0	Gale tornado	40-72 mph	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.
F1	Moderate tornado	73-112 mph	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	Significant tornado	113-157 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
F3	Severe tornado	158-206 mph	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
F4	Devastating tornado	207-260 mph	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
F5	Incredible tornado	261-318 mph	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged.
F6	Inconceivable tornado	319-379 mph	These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 wind that would surround the F6 winds. Missiles, such as cars and refrigerators would do serious secondary damage that could not be directly identified as F6 damage. If this level is ever achieved, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies.
Source: http://www.tornadoproject.com/fscale/fscale.htm			

The major damage from downbursts come from falling trees, which may take down power lines, block roads, or damage structures and vehicles. New Hampshire experienced three such events in the 1990s. One event occurred in Moultonborough on July 26, 1994 and was classified as a macroburst. It affected an area one-half mile wide by 4-6 miles in length.

The tornado/downburst risk for an individual community in New Hampshire is relatively low compared to many other parts of the country. Though the danger that these storms present may be high, the frequency of these storms is relatively low to moderate. *The Burlington Free Press* provided a history of Tornados New Hampshire and the associated damages and the in New Hampshire[92]

Table G7: New Hampshire Tornados and Associated damages 1951-2020

Year	# of Tornadoes	Direct Injury	Indirect Injury	Direct Fatality	Indirect Fatality	Property Damage
All	107	30	0	1	0	$12,641,000
2020	2	0	0	0	0	$5,000
2018	5	0	0	0	0	
2016	1	0	0	0	0	
2015	1	0	0	0	0	
2014	2	0	0	0	0	

[92] https://data.burlingtonfreepress.com/tornado-archive/new-hampshire/

Year	# of Tornadoes	Direct Injury	Indirect Injury	Direct Fatality	Indirect Fatality	Property Damage
2012	2	0	0	0	0	
2011	2	0	0	0	0	
2010	1	0	0	0	0	
2008	5	2	0	1	0	$2,027,000
2006	2	2	0	0	0	$3,000
2004	1	0	0	0	0	
1999	5	0	0	0	0	$100,000
1998	1	0	0	0	0	$30,000
1997	2	1	0	0	0	$750,000
1995	1	0	0	0	0	
1994	1	0	0	0	0	
1993	1	0	0	0	0	$5,000
1991	1	0	0	0	0	
1988	1	0	0	0	0	$250,000
1986	4	0	0	0	0	$3,250,000
1984	4	0	0	0	0	$775,000
1981	1	0	0	0	0	$2,500,000
1980	1	0	0	0	0	$250,000
1978	3	0	0	0	0	$27,750
1976	2	5	0	0	0	$250,000
1974	1	0	0	0	0	$2,500
1973	2	0	0	0	0	
1972	8	7	0	0	0	$330,250
1970	4	0	0	0	0	$325,000
1969	2	0	0	0	0	$27,500
1968	4	1	0	0	0	$77,500
1967	1	5	0	0	0	$25,000
1966	4	0	0	0	0	$257,500
1965	3	0	0	0	0	$52,500
1964	1	0	0	0	0	$25,000
1963	9	0	0	0	0	$855,000
1962	2	0	0	0	0	$27,500
1961	4	1	0	0	0	$257,500
1960	1	0	0	0	0	$2,500
1959	1	0	0	0	0	$25,000
1957	1	1	0	0	0	$25,000
1956	2	0	0	0	0	$25,250
1955	1	0	0	0	0	$25,000
1954	1	0	0	0	0	$25,000
1953	2	5	0	0	0	$25,250
1951	1	0	0	0	0	$2,500

APPENDIX H: FEMA WEBLIOGRAPHY

This document can be viewed in its entirety at: https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2019/05/Planning-Webliography.pdf [93] (6.2022)

Mitigation Planning Webliography		
FEMA Region I Mitigation Planning Contacts	Brigitte Ndikum-Nyada, Community Planner, CT, MA	(617) 956-7614 *brigitte.ndikum-nyada@fema.dhs.gov*
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	Nan Johnson, Community Planner, RI, VT	(617) 956-7672 *nan.johnson@fema.dhs.gov*
Regulatory Information	Disaster Mitigation Act of 2000 (DMA 2K)	*http://www.fema.gov/library/viewRecord.do?id=1935*
	Final Rule, 44 CFR 201.6	*http://www.fema.gov/pdf/help/fr02-4321.pdf*
Flood Related Hazards	FEMA Coastal Flood Hazard Analysis & Mapping	*https://www.fema.gov/coastal-flood-hazard-analysis-and-mapping*
	Floodsmart	*http://www.floodsmart.gov/floodsmart/*
	National Flood Insurance Program (NFIP)	*http://www.fema.gov/nfip*
	National Flood Hazard Layer	*https://msc.fema.gov/portal*
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[93] FEMA Webliography: https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2019/05/Planning-Webliography.pdf accessed 6.2020

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	Reducing Damage from Localized Flooding: A Guide for Communities, 2005 FEMA 511	*http://www.fema.gov/library/viewRecord.do?id=1448*
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Fire Related Hazards	Firewise	*http://www.firewise.org*
	NOAA Fire Event Satellite Photos	*http://www.ospo.noaa.gov/Organization/History/osei/*
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	Landslide Overview Map of the Conterminous United States	*http://landslides.usgs.gov/hazards/nationalmap/*
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	USGS Earthquake homepage	*http://quake.wr.usgs.gov*
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Wind-Related Hazards	ATC Wind Speed Web Site	*http://windspeed.atcouncil.org/*
	Community Hurricane Preparedness Tutorial	*http://meted.ucar.edu/hurrican/chp/hp.htm*

	National Hurricane Center	http://www.nhc.noaa.gov
	National Severe Storms Laboratory, 2009, "Tornado Basics"	http://www.nssl.noaa.gov/primer/tornado/tor_basics.html
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GIS and Mapping	Federal Geographic Data Committee (FGDC)	http://www.fgdc.gov
	FEMA GeoPlatform	http://fema.maps.arcgis.com/home/index.html
	FEMA Flood Map Service Center (MSC)	https://msc.fema.gov/portal/productAvailability
	Northeast States Emergency Consortium (NESEC)	http://www.nesec.org
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Data Gathering	National Information Sharing Consortium (NISC)	http://nisconsortium.org/
	ICLUS Data for Northeast Region	http://www.epa.gov/ncea/global/iclus/inclus_nca_northeast.htm
	National Climatic Data Center (NCDC)'s Online Climate Data	https://www.ncdc.noaa.gov/cdo-web/
	National Register of Historic Places	http://www.nps.gov/nr/about.htm
	National Water & Climate Center	http://www.wcc.nrcs.usda.gov/

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	National Weather Service	www.weather.gov
	Stormwater Manager's Resource Center SMRC	http://www.stormwatercenter.net
	The Hydrologic Engineering Center (HEC)	http://www.hec.usace.army.mil/
	Topography Maps and Aerial photos	http://www.terraserver.com/view.asp?tid=142
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	USGS Current Water Data for the Nation	http://waterdata.usgs.gov/nwis/rt
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	WinTR-55 Watershed Hydrology	http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/water/?&cid=stelprdb1042901
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	Planning for a Sustainable Future	http://www.fema.gov/media-library-data/20130726-1454-20490http://www.fema.gov/media-library-data/20130726-1454-20490-3505/fema364.pdf3505/fema364.pdf
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	Coastal Resilience: Advanced decision-making tools for coastal risk assessment	www.Coastalresilience.org

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EPA's Resilience and Adaptation in New England (RAINE) Climate Change Program	http://www.epa.gov/raine
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ICLEI Local Governments for Sustainability	http://www.icleiusa.org/
Institute for Sustainable Communities	http://www.sustainablecommunitiesleadershipacademy.org/
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IPCC Report: A changing climate creates pervasive risks but opportunities exist for effective responses	http://ipcc.ch/pdf/ar5/pr_wg2/140330_pr_wgII_spm_en.pdf http://sealevel.climatecentral.org/
Kresge Foundation Survey	http://www.kresge.org/news/survey-finds-communities-northeast-arehttp://www.kresge.org/news/survey-finds-communities-northeast-are-trying-plan-for-changes-climate-trying-plan-for-changes-climate- need-help-0
National Climate Assessment Northeast Chapter	http://ncadac.globalchange.gov/
National Fish, Wildlife and Plants Climate Adaptation Strategy	www.wildlifeadaptationstrategy.gov
NEclimateUS.org	http://neclimateus.org/
New England's Sustainable Knowledge Corridor	http://www.sustainableknowledgecorridor.org/site/
NOAA National Ocean Service (NOS)	http://oceanservice.noaa.gov/
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Sustainable Communities	http://www.Sustainablecommunities.gov
Sustainable Communities Initiative Resource Library	https://www.hudexchange.info/programs/sci/
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The Northeast Climate Research Center (NRCC) Cornell	http://www.nrcc.cornell.edu/
The Strategic Foresight Initiative (SFI)	http://www.fema.gov/pdf/about/programs/oppa/findings_051111.pdf
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Public Disaster Preparedness and Education	ASPCA: Disaster Preparedness for Pet Owners	http://www.aspca.org/pet-care/general-pet-care/disaster-preparedness
	Home Advisor: Hurricane facts and resources	http://www.improvenet.com/a/home-emergency-disaster-safety
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	Association of State Floodplain Managers (ASFPM)	www.floods.org
	Department of Housing & Urban Development	www.hud.gov
	Economic Development Administration (EDA)	https://www.eda.gov/
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	National Weather Service	www.weather.gov
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	New England States Emergency Consortium (NESEC)	www.nesec.org
	NOAA Coastal Services Center	http://www.csc.noaa.gov/
	Rockefeller Foundation	https://www.rockefellerfoundation.org/our-work/topics/resilience/
	Rural Economic and Community Development	www.rurdev.usda.gov
	Small Business Administration	www.sba.gov/disaster

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	Integrating Disaster Data into Hazard Mitigation Planning	https://www.fema.gov/media-library/assets/documents/103486
	Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning	http://www.fema.gov/media-library/assets/documents/4317
	Mitigation Best Practices Portfolio	http://www.fema.gov/mitigation-best-practices-portfolio
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	FEMA Resources Page	http://www.fema.gov/plan/mitplanning/resources.shtm
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	Plan Integration: Linking Local Planning Efforts	https://www.fema.gov/media-library/assets/documents/108893
	IS-318: Mitigation Planning for Local and Tribal Communities Independent Study Course	http://training.fema.gov/EMIWeb/IS/is318.asp
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	IS-328: Plan Review for Local Mitigation Plans	https://training.fema.gov/is/courseoverview.aspx?code=IS-328
	Building a Disaster-Resistant University	https://www.fema.gov/media-library/assets/documents/2288
	Local Mitigation Plan Review Guide	http://www.fema.gov/library/viewRecord.do?id=4859
	Beyond the Basics: Best Practices in Local Mitigation Planning	http://mitigationguide.org
	Local Mitigation Planning Handbook	http://www.fema.gov/library/viewRecord.do?id=7209
	State Mitigation Planning Key Topics Bulletins	https://www.fema.gov/media-library/assets/documents/115780
	Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards	http://www.fema.gov/library/viewRecord.do?id=6938

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APPENDIX I: MONITOR, EVALUATE, & UPDATE

Table I-1: Periodic 2022 Hazard Mitigation Plan Review Record

Meeting Schedule (dates)	Tasks Accomplished	How well (Or not-so-well) is implementation progressing?	Lead Parties	Public Involvement (citizens, neighboring communities)

Table I-2: Project Implementation Checklist

Note: Once the plan is approved the town will begin working on the actions listed below with an estimated completion date as noted in the Time Frame column.

Hazard	ID	Meredith: Actions	Potential Funding	Time Frame	Responsible Party	Status 2023	Status 2024	Status 2025	Status 2026
All	1	Evaluate the critical infrastructure, develop an asset management maintenance plan and reference in Community Plan and HMP	Operating Budget Warrant	**Short Term**	Water Sewer				
Cyber Events	13	Following best practices (State and Federal), review and add as necessary security on computer networks and provide user education around cyber threats to employees.	Operating Budget Grant	**Short Term**	Town Mgr.				
Dam Failure, Flood	15	Ensure that EMD checks in annually with Dam Bureau and dam owner regarding condition of Waukewan Dam.	Operating Budget	**Short Term**	EMD				
Flood	19	Encourage NH DOT to upgrade drainage at the intersection of US Route 3 and NH Route 25.	Operating Budget	**Short Term**	DPW, Comm. Dev.				
All	7	Work with mapping consultant to ensure that all GIS data is up to date. Data includes natural constraints, floodplains, flood hazard areas, critical facilities, population centers, potential spill area, potential fire area, evacuation routes, dams, hydrants.	Operating Budget	**Short Term**	Comm. Dev.				
Wildfire, Conflagration	28	Increase FD funds for water drafting site development, fire equipment, and training.	Operating Budget, USDA, DRED	**Short Term**	FD				
All	10	Keep up to date with vulnerable populations and their special needs, notably the three elderly care facilities.	Operating Budget	**Short Term**	EMD				

Hazard	ID	Meredith: Actions	Potential Funding	Time Frame	Responsible Party	Status 2023	Status 2024	Status 2025	Status 2026
Flood	23	Encourage FEMA to update FIRM maps with aerial overlays [digitized flood maps] for Belknap County.	Operating Budget	**Short Term**	Comm. Dev.				
Wildfire, Conflagration	29	Evaluate the Class VI roads for accessibility and establish a maintenance plan per state statute [emergency lane statute, RSA 231:59-a]	Operating Budget	**Short Term**	FD, DPW				
Flood	20	Encourage NH DOT to upgrade drainage along Meredith Neck Road and Barnard Ridge Road. Engage other stakeholders, such as FEMA in discussions.	Operating Budget	**Short Term**	DPW, Comm. Dev.				
Wildfire, Conflagration	30	Upgrade and maintain the Class VI roads for accessibility as identified in Action ID #29.	Operating Budget	**Short Term**	FD, DPW				
Transp./HAZMAT, Oil/Propane Spills, Water Contamination	24	Continue working on action items outlined in the Waukewan Watershed Management Plan: a. Maintain communication with CNHEPC on the issue of the transport of hazardous materials through town. b. Develop spill prevention plan for Waukewan watershed. c. Consider protection of Lake Waukewan from culvert inflows into Monkey Pond by using permanent protective methods such as, booms and wedge gates.	NH DES, NH HSEM	**Short Term**	FD, Comm. Dev., DPW				
All	8	Review and/or purchase and install generators for school buildings that are critical facilities.	HMPG, SAU, Warrant Article	**Short Term**	EMD, School Admin.				
All	9	Review and/or purchase and install generators for Fire Department, Police Department, and Town Hall.	HMPG, Warrant article	**Short Term**	EMD				

Hazard	ID	Meredith: Actions	Potential Funding	Time Frame	Responsible Party	Status 2023	Status 2024	Status 2025	Status 2026
Flood	22	Encourage NH DOT to complete a vulnerability assessment on state roads for slopes, soil, pipe sizes, and ditch runs for flood-prone areas in town.	Operating Budget	**Short Term**	DPW, Comm. Dev.				
Earthquake, Tornado/ Downburst, Hurricane, Nor'easter	17	Replace DPW facility incorporating recommendations for structural soundness (high wind, earthquake).	Warrant, Bond issue	**Short Term**	DPW, Town Mgr.				
Dam Failure, Flood, Water Contamination	16	Work with NH Dam Bureau to ensure that all feasible actions for protecting the integrity of the Waukewan dam are identified along with the parties responsible for implementation.	Grant/ Outside Funding	**Short Term**	EMD				
All	3	When LEOP is updated, reference HMP.	Operating Budget, HSEM	**Medium Term**	EMD				
All	11	Investigate reverse 9-1-1 and the like communication methods	FEMA/HSEM Grant Warrant Operating Budget	**Short Term**	EMD				
Dam Failure, Flood	14	LEOP, HMP, and Water Resources Plan should reference the Waukewan Dam Emergency Action Plan.	Operating Budget	**Medium Term**	EMD				
All	4	Complete development of Shelter Plan and test it.	Operating Budget, HSEM	**Short Term**	EMD				
Water Contamination	26	Establish a monitoring program for cyanobacteria and explore treatment methods.	NH DES	**Short Term**	W & S				

Hazard	ID	Meredith: Actions	Potential Funding	Time Frame	Responsible Party	Status 2023	Status 2024	Status 2025	Status 2026
All	2	Include a recommendation in the next Community Plan update to incorporate elements of the Hazard Mitigation Plan.	Operating Budget	**Short Term**	Comm. Dev.				
All	12	Investigate the need for a Local Transportation Impact Plan as it relates to all potential local hazards	Grant	**Medium Term**	DPW, EMD				
Water Accessibility	25	Investigate the need and location for an additional treated water storage facility	FEMA/HSEM Grant, Warrant	**Medium Term**	W&S				
All	6	Create standards for driveways and roads for new lots through the subdivision process that address slope, width, and access for emergency response.	Operating Budget	**Medium Term**	Comm. Dev.				
All	5	Create guidelines for the development of driveways for lots of record that address slope, width, and access for emergency response.	Operating Budget	**Medium Term**	Comm. Dev.				
Water Redundancy	27	Engineering feasibility study of water treatment Intake	Operating Budget	**Medium Term**	W & S				
Wildfire	30	Develop new water sources for firefighting - one per year: a. at Mer16: Upper New Hampton Rd. b. Mer17: Pickerel Pond, Windsong Place at Boat Ramp, c. at Mer28: Chase Rd. Draft site, d. at Mer11: West Rd. Beach, e. Move Mer26 dry hydrant to Town Docks.	Operating Budget, grant	**Short Term**	FD				
Flood	18	Upgrade stone box culvert on Chase Road	CIP, FEMA	**Medium Term**	DPW				

Hazard	ID	Meredith: Actions	Potential Funding	Time Frame	Responsible Party	Status 2023	Status 2024	Status 2025	Status 2026
Flood	21	Complete vulnerability assessment on contributing area and impervious surfaces, slopes, soil, pipe sizes, ditch runs for potentially flood-prone areas in town and that are in close proximity to culverts, dams, and bridges to determine relationship to flooding in town, including upland areas.	CIP, FEMA	**Short Term**	DPW				