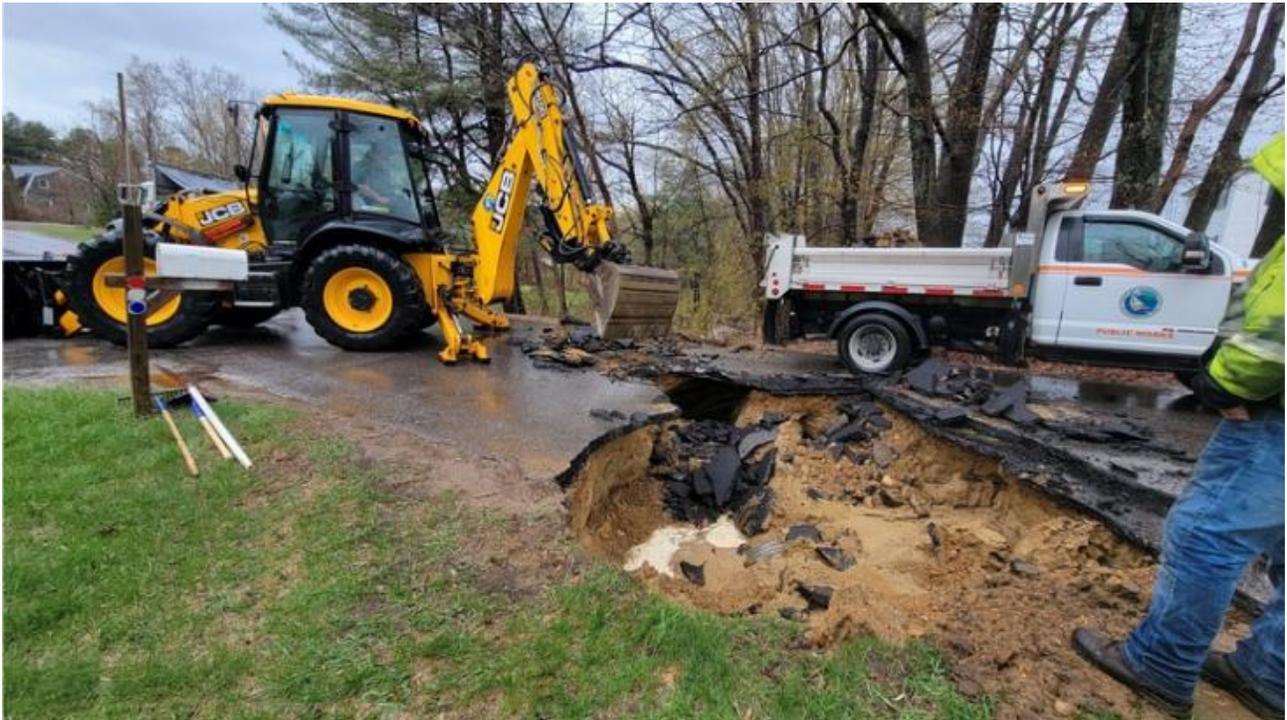


Town of Gilford, New Hampshire Hazard Mitigation Plan Update, 2025

Prepared by the: Gilford Hazard Mitigation Update Committee



Sinkhole on Linda Lane

Winter 2025

DRAFT

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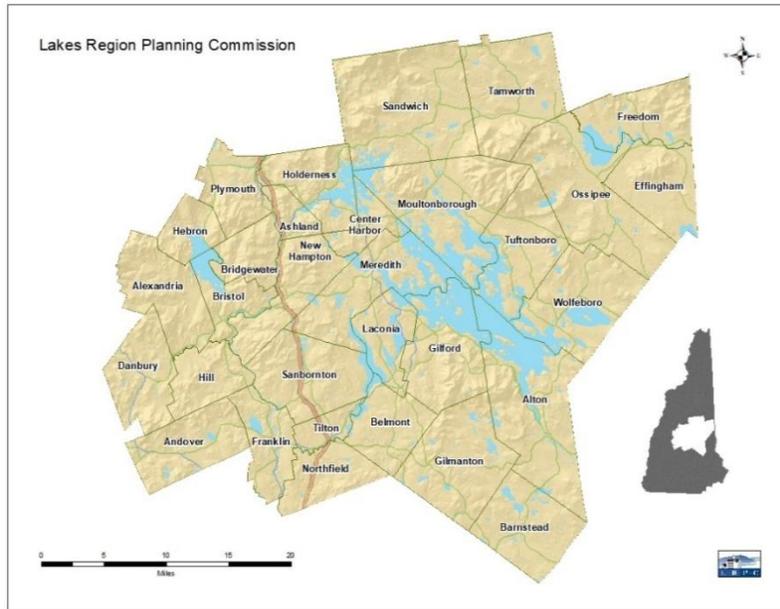
Town of Gilford, New Hampshire Hazard Mitigation Plan Update

Winter 2025

With Assistance from:
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Funding for this plan was provided by the NH Department of Safety, Homeland Security and Emergency Management, and with matching funds provided by the Lakes Region Planning Commission.



Lakes Region Planning Commission

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EXECUTIVE SUMMARY

The *Gilford Hazard Mitigation Plan Update* (the Plan) serves to reduce future losses from natural hazard events before they occur. The Plan was developed by the Gilford Hazard Mitigation Planning Update Committee (the Committee) with assistance from the Lakes Region Planning Commission and contains statements of policy adopted by the Board of Selectmen in Section VI.

The Committee agreed that some of the natural hazards identified in the 2018 Plan continue today; but the Committee's evaluation of past hazards and potential future events, along with their extent and impact resulted in a different assessment than in the past. The matrix below shows the natural hazards considered to be high risks.

Hazard Event	Overall Risk
Severe Winter Weather	High
High Wind Events	High
Inland Flooding	High

There have been only three minor changes to the town's Critical Facilities, and the list was updated to reflect those changes. Existing programs related to hazard mitigation include the following:

Existing Plans, Regulations and Practices Supporting Hazard Mitigation	
Hazard Mitigation Plan 2018	Subdivision Regulations (2012)
Code Enforcement	Site Plan Review Regulations (2012)
Zoning Ordinance (2024)	Master Plan (2016)
Floodplain Ordinance (2003)	School Emergency Operation Plan (2024)
Emergency Power Generation	Emergency Response Training and Drills

Some of the 20 Mitigation Actions from the 2018 Plan have either been completed (3) or are considered no longer pertinent (3). The fourteen remaining Mitigation Actions are being carried over and considered in this plan along with several new actions. There are actions within the plan that are on-going in nature, especially those pertaining to outreach and education. In its efforts to further reduce the vulnerability of the town to future hazards, new general and hazard-specific mitigation actions were developed and prioritized based on local criteria. A schedule for implementing proposed mitigation actions was developed.

The update to the NH State Hazard Mitigation Plan (HMP) in 2023 led to several changes to this plan, including adjustments to a few of the hazards considered, including the impacts of hazards on socially vulnerable populations, and consequently some of the stated hazard mitigation goals.

SECTION I: PLANNING PROCESS

A. BACKGROUND

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 hazard events, FEMA has required that municipalities 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 municipalities with plan development and updates. This plan development and update process generally followed the steps outlined in FEMA's *Local Mitigation Planning Policy Guide (2025)*.

B. AUTHORITY

This Hazard Mitigation Plan was prepared pursuant to Section 322, Mitigation Planning of the Robert T Stafford Disaster Relief and Emergency Assistance Act and Section 104 of the Disaster Mitigation Act (DMA) of 2000. Section 322 of DMA 2000 emphasizes the need for state, local and tribal entities to closely coordinate mitigation planning and implementation efforts.

C. FUNDING SOURCE

NH HSEM funded this update through FEMA's Hazard Mitigation Planning Grant (HMPG) program with local soft match (participants' time) and additional funds from the Lakes Region Planning Commission.

D. PURPOSE

The Gilford Hazard Mitigation Plan is a planning tool to be used by the town of Gilford, as well as other local, state, and federal government entities, in their efforts to reduce the negative effects from natural hazards. The Plan contains statements of policy as outlined in the Implementation Schedule for Mitigation Actions (Section V.F.) and in Section VI: Plan Adoption and Monitoring. All other sections of this plan are support and documentation for informational purposes only and are not included as a statement of policy.

Developing a hazard mitigation plan allows for the following:

- Increased education and awareness around threats, hazards, and vulnerabilities.
- Building partnerships for risk reduction which include government, organizations, businesses, and the public.
- Identifying long-term, broadly supported strategies for risk reduction.
- Developing local mitigation efforts that support local mitigation efforts.
- Identifying strategies and activities that focus resources on the greatest risks and vulnerabilities; and,
- Communicating priorities to potential sources of funding.

A FEMA-approved hazard mitigation plan is a requirement for receiving certain types of non-emergency disaster assistance including funding for mitigation projects including:

- Public Assistance
- Fire Management Assistance Grants (FMAG)
- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- High Hazard Potential Dam (HHPD)
- Building Resilient Infrastructure & Communities (BRIC).

Why Develop a Mitigation Plan?

The full cost of the damage resulting from natural hazards – personal suffering, loss of lives, disruption of the economy, loss of tax base – is difficult to measure. Our State is subject to many types of natural hazards: floods, severe winter weather, earthquakes, tornadoes, downbursts, tropical depressions/hurricanes, and wildfires, all of which can have significant economic and social impacts. Some, such as hurricanes, are seasonal and strike in predictable locations. Others, such as floods, can occur anytime of the year and almost anywhere in the State.

E. SCOPE OF PLAN

The scope of this Plan includes the identification of natural hazards affecting the town of Gilford, assessment of the threats these pose to the town, and the development & prioritization of mitigation actions to be implemented. Supplemental information regarding human-caused hazards that could impact Gilford and a few preparation/response actions, are included in Appendix G.

In the 2023 State Hazard Mitigation Plan (SHMP), three new areas of focus were introduced: inclusive planning for equitable outcomes, the impacts of climate change, and community lifelines. While these topics are not new, this is the first time that the New Hampshire SHMP addressed them in depth, not only relative to each hazard, but also by incorporating them throughout the Plan into over-arching goals and mitigation actions. While the connections were not always explicit or direct, an effort was made to incorporate these focus areas into the Gilford HMP where locally appropriate.

The scope of this Plan includes a review of natural hazards affecting the town, as identified by the Hazard Mitigation Planning Committee. The hazards considered under the scope of this plan include the relevant natural hazards that are outlined in the [State of New Hampshire's Hazard Mitigation Plan Update 2023](#). Some hazards identified in the State Plan were deemed not applicable to the Town of Gilford (i.e. Solar Storms & Space Weather and Avalanche).

F. METHODOLOGY

The Lakes Region Planning Commission (LRPC) corresponded with the Gilford Emergency Management Director (EMD) to initiate the hazard mitigation update process. The EMD established the Gilford Hazard Mitigation Planning Update Committee for the purpose of updating a plan for hazard mitigation. The Committee consisted of representatives from the Police, Fire, Planning, and Public Works departments, as well as Emergency Management Director (EMD), the Board of Selectmen (Town Administrator), and a School Representative.

The Committee developed the content of the Plan by following the process set forth in FEMA's *Local Hazard Mitigation Planning Guide (2025)*. Technical and historical information used during the development of this Plan Update was compiled from a variety of sources including local input as well as published information; a list of these resources can be found in Appendix I. Updated information on hazards in New Hampshire informed discussion of recommended mitigation actions.

Communication with committee members occurred at meetings and through correspondence. Meetings with the committee were open to the public. The committee reviewed and rated the risk of natural hazards to the town. They reviewed implementation progress and applicability of actions identified in the last plan. Existing challenges were identified. Additional mitigation actions were developed to address challenges/problems. All mitigation actions were evaluated, and an implementation schedule developed.

Neighboring municipalities were notified of Gilford's plan update. Some comments were received from the public during the development of the plan update through surveys, and these were incorporated into the risk analysis and development of mitigation actions phases of the process.

It is important to note that this is Gilford's Hazard Mitigation Plan (HMP). While all HMPs in the state (and country) must incorporate the elements set forth by FEMA, the plan update, "needs to reflect the unique situation and most effective path...to meet their specific needs"¹. Gilford, a small rural community, has done that by reviewing the existing plan and mitigation actions, considering what has and has not changed in the community since the last plan was adopted, identified problems associated with natural hazards, and developed a prioritized list of mitigation actions to address these problems and a plan to implement them.



¹ FEMA, *Local Hazard Mitigation Guide (2023)*, Section 3.1 Right-Sizing Plan Development and Update.

G. PUBLIC INVOLVEMENT

A variety of Hazard Mitigation Planning stakeholders were invited to join the Hazard Mitigation Planning Committee. Other specific opportunities for public input occurred at each meeting. EMDs in adjacent communities and organizations working with vulnerable and underserved communities were notified of the update process and encouraged to provide input (see emails and press release Appendix C). Organizations that work with socially vulnerable communities were invited to provide input during plan development. Local businesses, neighboring communities, academia, and members of the public were encouraged to attend all meetings through press releases and postings (Appendix C & D).

A survey was made available to members of the public at the Town Hall and by posting a link <https://arcg.is/1LaD943> and QR Code on the town website. More than one hundred and sixty (162) people submitted their concerns and comments which were shared with committee members (see Appendix D) and, where applicable, incorporated into the update. This resulted in refinement of the Risk Rating.



The Gilford Hazard Mitigation Committee was comprised of the following individuals.

Committee Representation	Person	Title
EMD (Emergency Management Director), Fire	Stephen Carrier	EMD, Fire Chief
Police	Kris Kelley	Chief
Fire	Brad Ober	Deputy Chief
Police	Adam VanSteensburg	Lieutenant
Public Works/Highway/Road Agent	Meghan Theriault	Director
Public Works/Highway/Road Agent	Roger Weeks	Operations Manager
Selectboard/Town Administrator	Scott Dunn	Town Administrator
Planner/Planning Board member	John Ayer	Planning & Land Use Director
School representative	Ken Mulleavey	SAU 73 B/G Supervisor
Additional participants:		
Lakes Region Planning Commission	Danielle Scadova-Vose	Regional Planner
Lakes Region Planning Commission	David Jeffers	Planning Manager
NH HSEM field representative	Kevin Partington	Community Liaison

The committee members listed above participated in several committee meetings, provided departmental information, contributed in their field of expertise, reviewed and commented on committee meeting notes, reviewed drafts of the Plan, and worked together to identify and prioritize mitigation projects. The draft plan was made available for committee and public review.

Many thanks for all the hard work and effort from each one of you. This plan would not exist without your knowledge and experience.

DRAFT

SECTION II: COMMUNITY PROFILE

A. GEOGRAPHY

The Town of Gilford is in the central portion of Belknap County in the Lakes Region of New Hampshire. Gilford shares boundaries with Alton to the east, Gilmanton to the south, and Belmont to the southwest. Gilford's western boundary abuts the city of Laconia. The northern portion of Gilford incorporates Lake Winnepesaukee and 21 of the lake's islands. Gilford is 50 miles to Manchester; 101 miles to Boston, MA; 298 miles to New York, NY; and 237 to Montreal, Canada.

Gilford consists of 38.8 square miles (24,832 acres) of land and 14.7 square miles (9,408 acres) of water. Gilford is part of the Merrimack River watershed. Lake Winnepesaukee dominates the northern portion of the town and the Gunstock, Black, Jewett, Poorfarm, and Meadow Brooks flow through town. Jewett and Black Brooks flow west into Laconia's Opechee and Paugus Bays. The other three brooks flow north and east into Lake Winnepesaukee. While Lake Winnepesaukee is the focal point of the northern section of Gilford, the Belknap Mountains dominate the eastern and southern portions of town. Peaks include Belknap (2,382'), Gunstock (2,245'), and Piper (2,044') Mountains along with Mount Rowe (1,680'). Forty percent of Gilford's land has a slope greater than 15%, and eighteen percent of the land has slope greater than 25%. To the west and north of the mountains the landscape is a mix of rolling hills and wetlands.

Governor's Island is home to many year-round and seasonal residents; it can be reached by a bridge, owned by the Town, located on the Laconia town line. Governor's Island is the only island accessible by car, all other islands require a boat or frozen lake to access. There are several other wooded islands in the lake that are part of the town of Gilford and home to seasonal residents.

B. WEATHER CONDITIONS

Like many New England towns, the temperature and precipitation in Gilford varies greatly. The average temperature for the area varies from 19 degrees Fahrenheit in January to 70 degrees Fahrenheit in July. The average annual precipitation is 40 inches.

The Public Works Director noted a concern related to changing weather and climate conditions resulting in flood hazards caused by rain events when the ground is frozen during winter months.

C. PUBLIC SERVICES AND INFRASTRUCTURE

A three-member Board of Selectmen governs the town of Gilford with the assistance of a Town Administrator. The Town holds its annual town meetings in March.

The Fire Department has 20 full-time staff members providing fire-rescue and ambulance service. The full-time Fire Chief also serves as the Emergency Management Director. The Police Department has 22 full-time officers, two part-time officers, five full-time communications staff, two part-time communications staff, two full-time support staff trained for communications as a secondary duty, three seasonal parking enforcement officers, one prosecutor, four volunteers, and one chaplain. The Police Department owns its own radio tower located on Mount Rowe. The Public Works Department has 25 full-time employees, two part-time employees, and four seasonal staff members who maintain over 180 lane miles of roadway.

Branches of Concord Hospital are available in Laconia 6.2 miles to the west, Franklin 18.6 miles to the west, and in Concord 33 miles to the south. Huggins Hospital in Wolfeboro is 23 miles to the east and Speare Memorial Hospital in Plymouth is 26.7 miles to the northwest.

NH Route 11 runs east-west along the banks of Lake Winnepesaukee in northern Gilford. And connects Laconia in the east and Alton in the west. US Route 3 runs through western part of town, joining with Laconia to the north and south. NH 11A is a major route in town consisting of the Town Hall, Public Works Department, Fire Station, and Police Station. NH 11B and NH11C are in the northwestern corner of town near the Laconia Municipal Airport.

Power is provided to Gilford residents and businesses by two utilities: Eversource serves most of the homes and business throughout the town, while the remainder is served by NH Electric Cooperative.

Much of Gilford is serviced by private wells and septic systems. Approximately 10% of the community is served by Laconia Water Works, including pressurized fire hydrants. This covers the Gilford Avenue area up into Wesley Woods and the Lakeshore Road commercial area to the Walmart plaza and Lake Street.

D. DEMOGRAPHICS AND POPULATION CHARACTERISTICS

Like many Lakes Region communities, the population of Gilford grew rapidly from 1980-2010, from 4,841 to 7,126 residents. Growth since then has slowed a bit. Population growth is projected to continue but at a slower pace in the foreseeable future. It should be noted that during the spring and summer seasons, the Bank NH Pavillion concert venue has a dramatic effect on the number of people in town on a given day.

Year-Round Population, 1980-2020 Census and Population Projections* 2030, 2040

Year	1980	1990	2000	2010	2020	2030*	2040*
Gilford Population	4,841	5,867	6,803	7,126	7,699	8,295	8,504
Gilford Change	/	21.2%	16.0%	4.7%	8.0%	7.7%	2.5%
NH Change	/	20.0%	11.0%	7.0%	4.6%	7.0%	2.6%

Sources: US Census and New Hampshire Office of Planning and Development Population Projections*

Some characteristics of a community’s population can put them at greater risk of being impacted by hazards. Utilizing Census data the NH Department of Health and Human Services (Environmental Public Health Tracking) developed a tool called the [Social Vulnerability Index](#). This tool references sixteen determinants of health associated with health and emergency response outcomes. The most recent data available through this index (2019-2023) indicate little Social Vulnerability for Gilford.

E. LAND USE AND DEVELOPMENT TRENDS

There are 5,286 housing units in Gilford, according to *Current Estimates and Trends in New Hampshire’s Housing Supply 2024*, published by the NH Department of Business and Economic Affairs. Seventy-seven percent of those are single family homes.

Gilford has a relatively high proportion of seasonal residents, compared with the Lakes Region average (2020) of 19.8%. The US Census indicates that while there has been slow growth in the number of housing units in Gilford, many of the seasonal (vacant) housing units were being converted to year-round (occupied). However, the Committee did note that they do not feel an increase of 64 units over 10 years is an accurate representation of what the town has experienced.

Housing Units - Gilford, NH 2010-2020

	2010	2020	Change
Total Housing Units	5,111	5,175	64
Occupied Housing Units	3,007	3,332	325
Vacant Housing Units	2,104	1,843	-261
% Seasonal (Vacant)	36.5%	32.9%	-3.6%

Development Trends

Existing land use has a strong influence on future development patterns. It is important to understand how land and other resources are currently used before recommendations can be developed regarding future land uses. Several factors have influenced Gilford’s current land use patterns, including natural resource constraints, the transportation network, economic development, and housing. Another significant factor is the influence of the Gilford Zoning Ordinance, which has been in place since its adoption in 1962. The Zoning Ordinance was completely revised in 1984 and has since been in place without significant change.

Development Activity: 2018 – 2024
(from Gilford Town Reports)

2018

- Building permit activity was up from the previous year
- Building of commercial storage and boat storage developments drove commercial construction permits
- 230 building permits were issued: 23 commercial building permits and 41 for single-family homes

2019

- Increase in the number of subdivisions
- 236 building permits issued: 12 commercial and 33 for single-family homes

2020

- Largest number of permits issued since 2002, and the second most building permits ever issued in a single year
- Conservation Commission purchased 65 acres of land on Belknap Mountain Road and the Lakes Region Conservation Trust purchased a conservation easement on the land
- 322 building permits issued: 17 commercial and 30 for single-family homes

2021

- Board of Adjustment reviewed 26 cases, which is as many cases in one year as in the prior four years combined
- 311 building permits issued: 12 commercial and 61 for single-family homes

2022

- Completion of a ClearChoiceMD medical office at Gilford Airport Commons
- Completion of a Michael's store at Lake Shore Marketplace
- The Planning Board reviewed a revised site plan for the development of a Starbucks and Citizen's Bank to be constructed in 2023
- The Planning Board drafted a short-term rental ordinance
- The Board of Adjustment saw another long year, reviewing 28 applications
- 293 building permits issued: 22 commercial and 44 for single-family homes

2023

- The short-term rental ordinance was adopted
- 312 building permits issued: 16 commercial, 45 for single-family homes, and 12 for new accessory apartments

2024

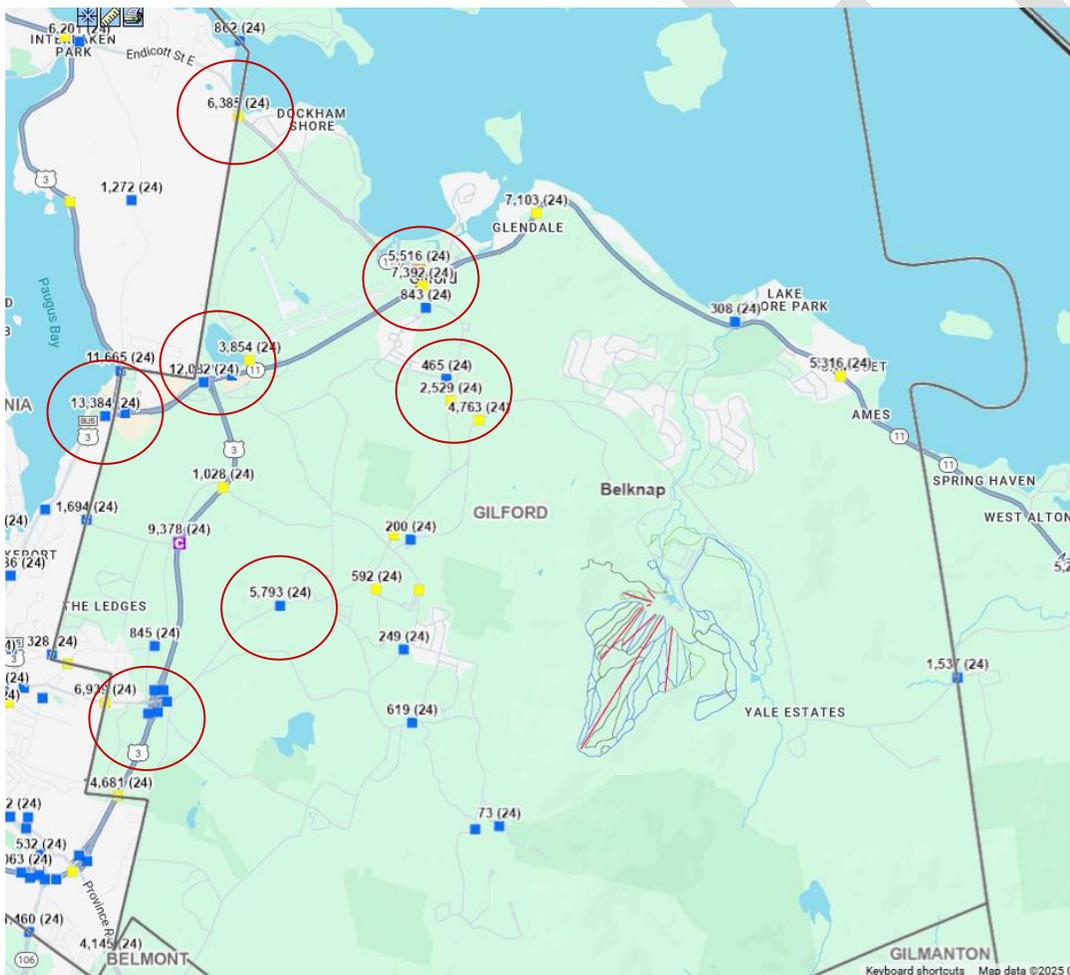
- Storage facilities were a large part of construction including commercial self-storage, boat storage, and airplane hangars
- 34 short-term rentals approved by the Planning Board
- 340 building permits issued: 20 commercial, 36 for single-family homes, and 6 for new accessory apartments

Traffic Volume

A standard measure of traffic volume is Average Annual Daily Traffic (AADT) counts, measured in vehicles per day.² 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 exceeds these figures. It should also be noted that the Bank NH Pavillion concert venue can drastically increase the amount of traffic on a given day. Similarly, Gunstock Mountain Ski Resort can also increase traffic. The number of seasonal residences and short-term rentals also play a part in increased seasonal traffic.

Below are seven selected locations throughout Gilford where traffic volume is measured on a regular basis. While there is some variability over the years, there has been very little change in traffic volume through Gilford over the last five years (with the exceptions of 2020 and 2021 due to COVID-related changes – and even these were minimal changes).

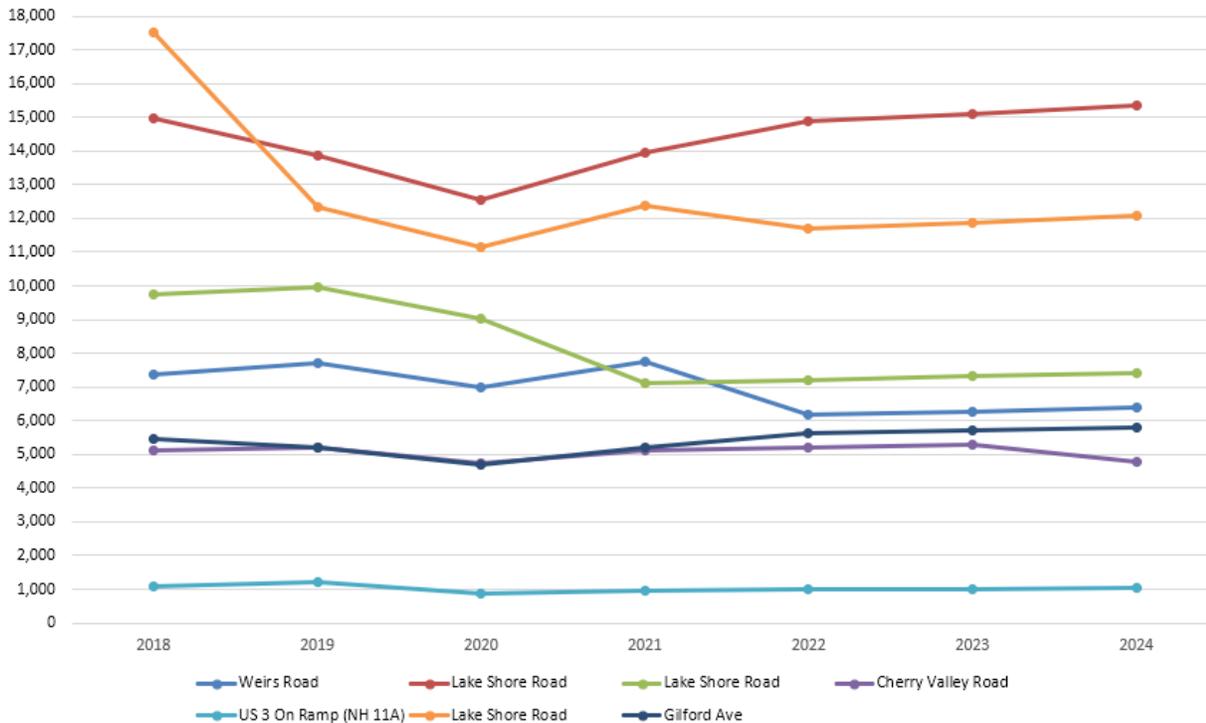
Traffic Counts in Gilford



² The complete set of current and historic Gilford Traffic Count volumes can be found at <https://nhdot.public.ms2soft.com/tcds/tsearch.asp?loc=Nhdot&mod=TCDS> using the NH DOT TDMS data mapping tool.

Gilford Traffic Counts: Select Locations 2018 - 2024								
Location ID	Located on	2018	2019	2020	2021	2022	2023	2024
82169049	Weirs Road	7,385	7,719	6,993	7,762	6,185	6,278	6,385
22245021	Lake Shore Road	14,969	13,851	12,549	13,929	14,868	15,091	15,348
62169072	Lake Shore Road	9,760	9,965	9,028	7,106	7,205	7,313	7,392
82169051	Cherry Valley Road	5,116	5,223	4,732	5,126	5,198	5,276	4,763
81169088	US 3 On Ramp (NH 11A)	1,094	1,233	879	976	990	1,005	1,022
82169056	Lake Shore Road	17,507	12,315	11,157	12,384	11,704	11,880	12,082

Gilford Traffic Volume Trend: Select Locations 2018 - 2024



Future Development

As defined in the Vision Statement of Gilford’s 2016 Master Plan, “Gilford will continue to be a slowly growing rural community where residents and visitors enjoy an abundance of natural resources and recreational amenities. It will continue to include both full-time residents and a large number of part-time/vacation residents whose permanent homes are in other towns and other states. [...] Gilford will continue to accommodate and be a good location for business including agricultural, retail, tourism, home-based, office, and manufacturing businesses.” Gilford has continued to see development growth, specifically in single-family homes and moderate commercial growth.

Overall, most of the committee members were of the opinion that the town is better protected from natural hazard events than it was at the time of the last update.

SECTION III: RISK ASSESSMENT

A. INVENTORY OF ASSETS

The Critical Facilities List for the Town of Gilford has been identified by the Gilford Hazard Mitigation Planning Committee. A critical facility is defined as a building, structure or location which is: vital to the emergency response; maintains an existing level of protection from hazards within the community and would create a secondary disaster if a hazard were to impact it. The Critical Facilities List for the Town of Gilford has been identified using the following categories:

CATEGORY 1: Primary Response Facilities

- Town Hall
- Police
- Fire
- Library
- Youth Center
- Shelters
- Department of Public Works
- Transfer Station

CATEGORY 2: Secondary Response Facilities

- Public Utilities
- Transportation
- Evacuation Routes

CATEGORY 3: Populations & Places to Protect

- Schools
- Daycares
- High Concentration Populations
- Elderly Facilities
- Mobile Home Co-ops

Gilford Critical Facilities				
Facility/Infrastructure	Location	Owner	Notes	Generator
Category 1: Primary Response Facilities				
Town Hall	47 Cherry Valley Road	Town of Gilford		Yes
Police Station	47 Cherry Valley Road	Town of Gilford		Yes
Fire Station	39 Cherry Valley Road	Town of Gilford		Yes
Department of Public Works	55 Cherry Valley Road	Town of Gilford		Yes
Gilford High School	88 Alvah Wilson Road	SAU 73	Red Cross shelter	Yes
Stone cellar Gunstock Recreation Area	719 Cherry Valley Road	Belknap County	Shelter	Yes
Laconia Middle School	150 McGrath St. Laconia	SAU 30	Regional shelter	Yes
Library	31 Potter Hill Road	Town of Gilford	cooling/warming	No
Gilford Youth Center	19 Potter Hill Road	Non-Profit	Evac center for school	No
Category 2: Secondary Response Facilities				
Town Docks	Dock Road	Town of Gilford		
Airport	65 Aviation Drive	Laconia Airport		
Sewer Pumping Stations, 3 locations		Town/State		
Belknap Mtn. Transmitter	Belknap Mountain	NH State Police		
Cell towers	Mt. Row & Belknap Mt.	Private		
Electrical Substations	Eversource Rt. 11	Private		
Telephone Facility @ Sawyer Meadows	Fairpoint	Private		
Transmission lines	Near Business Park	Private		
Hillside Medical Park	Maple Street	Private	Medical Supplies	
CVS	1371 Lakeshore Road	Private	Medical Supplies	
WalMart	1458 Lakeshore Road	Private	Medical Supplies	
Hannaford	1425 Lakeshore Road	Private	Medical Supplies	
Category 3: Populations and Places to Protect				
Gilford High School (shelter)	88 Alvah Wilson Road	SAU 73	High Population	Yes
Gilford Elementary School	78 Belknap Mountain Rd	SAU 73	High Population	
Gilford Middle School	72 Alvah Wilson Road	SAU 73	High Population	
Meadowbrook Farm - seasonal	Meadowbrook Lane	Private	High Population	
Gunstock	719 Cherry Valley Road	Private	High Population	
Gilford Library	31 Potter Hill Road	Town of Gilford		
Ready, Set, Grow!	401 Gilford Ave	Private	Daycare	
Miss Joanna's	72 Pinecrest Drive	Private	Daycare	
Little Learners	133 Saltmarsh Pond Rd	Private	Daycare	
Village Nursery	19 Potter Hill Road	Private	Daycare	
Learning by the Lakes	2 Airport Road	Private	Daycare	
York Village	York village Way	Private	Elderly	

Gilford Critical Facilities				
Facility/Infrastructure	Location	Owner	Notes	Generator
Category 3: Populations and Places to Protect				
Wesley Woods	Wesley Way	Private	Elderly	
Lake Breeze	9 Sargent's Place	Private	Mobile Home	
Mt. View Housing Coop	23 Liscom Circle	Private	Mobile Home	
Wood Smoke Meadow	365 Old Lakeshore Road	Private	Mobile Home	
Sargent's	7 Sargent Place	Private	Mobile Home	
Lakes Region Mobile Home Coop.	303 Old Lakeshore Road	Private	Mobile Home	
Edge of the Woods	320 Old Lakeshore Road	Private	Mobile Home	
Old Lake Shore Co-op	343 Old Lakeshore Road	Private	Mobile Home	

DRAFT

B. IDENTIFYING NATURAL HAZARDS

The town of Gilford is prone to a variety of natural, human-caused, and technological hazards. The following hazards were identified as posing a risk to Gilford in the 2018 Hazard Mitigation Plan.

Risk Rating (2018) - Natural Hazards

High	Medium	Low
Flood	Hurricane	Wildfire
Severe Winter Weather	Thunderstorm/Lightning	Tornado/Downburst
		Pandemic
		Conflagration
		Earthquake
		Drought
		Dam Failure
		Extreme Heat
		Hail

Risk Rating (2018) – Human-Caused Hazards

Medium	Low
Multiple Vehicle Accident	Boating Accident
Aircraft Accident	Drinking Water Contamination
Terrorism	Radioactive Event
Hazmat Transport	
Special Events	

While updating the Plan, the committee considered the hazards identified in the latest *State of New Hampshire Multi-Hazard Mitigation Plan (2023)*, developed by the New Hampshire Department of Safety’s Division of Homeland Security and Emergency Management, for identification and definition of hazards that might affect the town. Since the last local plan, the State Plan now utilizes a somewhat different hazard nomenclature, grouping some hazard types together, adding several hazards, and deleting some. All winter Weather events have been grouped under Severe Winter Weather. Extreme Temperature now encompasses both heat and cold. Hurricane is now Tropical & Post-Tropical Cyclone. Solar Storms & Space Weather is a newly specified natural hazard.

Following a review of the natural hazards identified in the 2023 State Plan and in Gilford’s 2018 Plan, as well as historical information from internet sources about past hazard events in and near Gilford since 2018, the following natural hazards were identified as posing the greatest risk to the town. Higher risk score indicates higher risk (See end of Section III for more information on risk ratings).

Gilford 2025 Hazards	Risk
Severe Winter Weather	36.00
High Wind Events (Torn./Downb.)	36.00
Inland Flooding (& Erosion)	28.00
Extreme Temps	15.00
Thunderstorm/Lightning	12.00
Wildfire	10.67
Tropical & Post-Tropical Cyclones	10.67
Infectious Diseases	9.33
Conflagration	8.00
Drought	6.67
Earthquake (>4.0)	4.00
Landslides	2.67
Dam Failure	2.00
Solar Storms & Space Weather	1.00
Avalanche	1.00

Due to topography and geography, coastal flooding, avalanche, and landslides were not considered pertinent by the committee. While there are some steep areas in town, the committee indicated that they are not severe enough to lead to avalanche or landslide nor is there development in that area. Dams are addressed under inland flooding. While solar storms and space weather were acknowledged as potentially impacting communications equipment, it was seen as a hazard which would impact the entire state and that remaining abreast of notices from NH HSEM regarding this hazard would be the wisest course of action.

The natural hazards with the highest relative risk ratings have only slightly changed with the addition of Tornado/Downburst now viewed locally as high risk. Similarly, since the last update, Extreme Temperatures, Wildfire, and Infectious Diseases are all now viewed locally as medium risk, not low risk.

Human-caused and Technological hazards are acknowledged in the State Hazard Mitigation Plan. They are not, however, required by FEMA to be addressed in local Hazard Mitigation Plans. The potential for long-term utility outage, hazardous materials, transportation accident, aging infrastructure, terrorism/violence, and conflagration events all have the potential to occur in Gilford. Any of these hazards that the committee felt applicable are addressed in Appendix G.

C. PROFILING NATURAL HAZARD EVENTS

This section of the plan **defines** each of the natural hazards that might impact Gilford. It also describes the **extent** of the hazard, the recent **history** of these events, the likely **location** of each hazard, as well as the **probability** of an occurrence in Gilford. These are listed alphabetically.

The **extent** is a description of “how bad the hazard could get” considering three factors: magnitude, onset, and duration.

- *Magnitude* is the size of the hazard, such as depth of floodwaters or wind speed.
- *Onset* is how quickly the hazard approaches. Depending on geography as well as the nature of the rainstorm, floodwaters might rise over a period of days, or it might take just a few hours to build up a concentrated flow.
- *Duration* is a matter of how long the hazard is present. A downburst or tornado exists for minutes or hours, while a hurricane or tropical depression can be around for days.

Within the Risk Assessment completed for this plan, **extent** was measured on a scale ranging from Weak through Moderate, Severe, and Extreme based on magnitude, onset, and duration.

Probability is a description of how likely it is that an event will occur in town within the next 10 years. Potential hazards were rated on a four-point descriptive scale including improbable, occasional, probable, and frequent. These were based mainly on past occurrences in the town, region, and state.

If a hazard event has occurred in the past it is listed under **history**, with a focus on those occurring since the last plan. If some parts of the town are more likely to be impacted by a particular hazard, either based on past events or local knowledge of geography, that is described under **location**.

Impact

The **impact** of a hazard is the potential degree of damage that could occur. To rate the impact of a hazard, the damages and consequences that might result from an event were considered in three separate areas Human, Property, and Business & Services. This incorporates the likelihood of injury or death, the assessed value of each critical facility, and the vulnerability of these facilities. It also anticipated disruption of services to residents and visitors. Four levels of impact were used, as defined here:

- Low: Limited structural damage, the town's ability to respond is not compromised, and residents can handle the hazard event without help from outside sources
- Moderate: Some structural damage, the town's ability to respond is compromised, regional or assistance is needed to survive and/or recover
- High: Substantial structural damage, the town's ability to respond is greatly compromised, state or federal assistance is necessary to survive and/or recover
- 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 would likely be interrupted for days or weeks.

The assessed value of the critical facilities identified in Section A totals more than \$95M. This does not, however, include the contents of the building. Also not reflected in this assessment is the value of built infrastructure such as streets, bridges, curbs, drainage, and utility transmission lines. These values can also be used to determine potential loss estimates in the event of a natural hazard event that damages a part of or an entire facility.

Of course, critical facilities are not the only resources at risk during a hazard event. There are numerous structures in town, both residential and commercial. The total valuation of the structures in Gilford is over \$2.3 billion dollars. If even a small percentage of those structures are destroyed or damaged during a hazard event, it could be quite costly to repair or replace. 84% of the structural valuation in Gilford comes from residential structures.

Gilford Structure Assessment

	Value - Structures 2024	1%	2%	5%
Residential	\$1,960,437,600	\$19,604,376	\$39,208,752	\$98,021,880
Manufactured Housing	\$54,228,500	\$542,285	\$1,084,570	\$2,711,425
Commercial	\$204,002,300	\$2,040,023	\$4,080,046	\$10,200,115
Tax Exempt	\$89,453,400	\$894,534	\$1,789,068	\$4,472,670
Utilities	\$27,339,930	\$273,399	\$546,799	\$1,366,997
Total	\$2,335,461,730	\$23,354,617	\$46,709,235	\$116,773,087

Source: MS-1 form in Gilford Annual Report 2024

Aging infrastructure, local implementation of land use and zoning laws, and various social vulnerabilities may increase the risk to natural hazards. Local jurisdictions are provided with the ability to address zoning through RSAs to adopt ordinances that can reduce risk to infrastructure and vulnerable individuals within their communities. By taking advantage of federal funding available through NH HSEM, NH DOT, and NH DHHS, Gilford can address the areas of greatest risk in town.

[Social Vulnerability](#) refers to the resilience of communities (the ability to survive and thrive) when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks. Socially Vulnerable Populations can include those who have special needs, such as, but not limited to, people without vehicles, people with disabilities, older adults, and people with limited English proficiency.³

The aspects considered in this plan focus on those socially vulnerable groups that comprise at least 10% of the residents or households according to the State Hazard Mitigation Plan. In Gilford this includes Individuals Aged 17 and Younger (20.3%), Individuals Aged 65 and Older (19.7%), Individuals experiencing Housing Cost Burden (16.3%), and Individuals with a Disability (14.5%).

³ NH State Hazard Mitigation Plan (2023), p. 70.

NATURAL HAZARDS

Below is a list of declared disasters or incidents listed on the HSEM Resource Center page for which public assistance was made available.

Incident Description	Event date, name	Declaration Type	DR #	Declaration Date	Total Funds
<i>Severe Storms and Flooding</i>	<i>Oct 30 Storms & Flooding</i>	<i>Major Disaster Declaration</i>	<i>4355</i>	<i>1/2/2018</i>	<i>\$12,434,377</i>
<i>Severe Weather and Flooding</i>	<i>March Coastal Storm</i>	<i>Major Disaster Declaration</i>	<i>4370</i>	<i>6/8/2018</i>	<i>\$895,861</i>
<i>Severe Winter Weather and Snowstorm</i>	<i>March 13 Blizzard</i>	<i>Major Disaster Declaration</i>	<i>4371</i>	<i>6/8/2018</i>	<i>\$3,477,506</i>
<i>Severe Storm and Flooding</i>	<i>July 11 Storms</i>	<i>Major Disaster Declaration</i>	<i>4457</i>	<i>8/15/2019</i>	<i>\$3,202,283</i>
<i>Public Health Outbreak</i>	<i>COVID-19</i>	<i>Emergency Declaration</i>	<i>EM 3445</i>	<i>3/13/2020</i>	<i>N/A</i>
<i>Public Health Outbreak</i>	<i>COVID-19</i>	<i>Major Disaster Declaration</i>	<i>DR 4516</i>	<i>4/3/2020</i>	<i>\$203,266,929</i>
<i>Severe Storms and Flooding</i>	<i>July 17-19 Flooding</i>	<i>Major Disaster Declaration</i>	<i>4622</i>	<i>9/30/2021</i>	<i>\$836,136.31</i>
<i>Severe Storms and Flooding</i>	<i>July 29-30 Flooding</i>	<i>Major Disaster Declaration</i>	<i>4624</i>	<i>10/4/2021</i>	<i>\$1,293,973.48</i>
<i>Severe Winter Weather and Inland Flooding</i>	<i>Dec. 22-25, 2022</i>	<i>Major Disaster Declaration</i>	<i>4693</i>	<i>3/12/2023</i>	<i>\$3,102,420.00</i>
<i>Severe Storms and Flooding</i>	<i>July 9-17, 2023 Flooding</i>	<i>Major Disaster Declaration</i>	<i>4740</i>	<i>9/14/2023</i>	<i>TBD</i>
<i>Severe Storms and Flooding</i>	<i>Dec. 17-21, 2023</i>	<i>Major Disaster Declaration</i>	<i>4761</i>	<i>2/27/2024</i>	<i>TBD</i>
<i>Severe Storms and Flooding</i>	<i>Jan. 9-14, 2024</i>	<i>Major Disaster Declaration</i>	<i>4771</i>	<i>4/19/2024</i>	<i>TBD</i>
<i>Severe Winter Storm and Flooding</i>	<i>April 3-5, 2024</i>	<i>Major Disaster Declaration</i>	<i>4799</i>	<i>7/10/2024</i>	<i>TBD</i>
<i>Severe Storms and Flooding</i>	<i>July 10-13, 2024</i>	<i>Major Disaster Declaration</i>	<i>4812</i>	<i>8/20/2024</i>	<i>TBD</i>

The information above was utilized as a guide for further discussion of hazards by the Committee with an emphasis on those most likely to impact Gilford. The following section describes the hazard, its **extent, probability** of occurrence, and **history**, likely **location**, its likely **impact** in Gilford. Hazard names are highlighted based on local risk (Orange - high, yellow – medium, blue – low).

AVALANCHE

An avalanche is a slope failure consisting of a mass of rapidly moving, fluidized snow that slides down a mountainside. The flow can be composed of snow, ice, water, soil, rocks, and trees. An avalanche is a large mass of snow and ice, falling, sliding, or flowing under the force of gravity. An avalanche can be comparable to a landslide, only with snow instead of earth.

Natural and human-caused snow avalanches most often result from structural weaknesses of mountainside and unstable snow and ice formations. Factors leading to these conditions include recent heavy snow, temperature, wind direction, snowpack conditions, slope angle, and slope orientation. Heavy snowfall followed by high winds often create areas of unstable snow accumulations that can be set in motion by human activities, such as hiking, ice climbing, skiing, and snowboarding.

There are three categories of avalanches:

- Soft Slab – consists of soft, low-density snow
- Hard Slab – consists of dense, hard-packed snow
- Loose Snow (also called sluffs or point releases) – release from a single point, typically on a very steep slope

Extent: Weak

The North American Public Avalanche Danger Scale (NAPADS) from the National Avalanche Center (www.avalanche.org) is a system that rates avalanche danger and provides general travel advice based on the likelihood, size, and distribution of expected avalanches. It consists of five levels, from least to highest amount of danger: 1 – Low, 2 – Moderate, 3 – Considerable, 4 – High, 5 – Extreme. Danger ratings are typically provided for three distinct elevation bands. Although the danger ratings are assigned numerical levels, the danger increases exponentially between levels. In other words, the hazard rises more dramatically as it ascends toward higher levels on the scale.

History: Records (NOAA Storm Events database) indicate no avalanches have occurred in Belknap County. There was no local knowledge of an avalanche occurring in Gilford.

Location: The mountainous regions of Carroll, Coos, and Grafton counties are at risk for avalanches, with the highest risk of avalanches occurring in the Presidential Range, particularly on Mount Washington. The committee determined that there are no locations in Gilford where avalanches would occur.

Probability of Occurrence: Improbable

Avalanches are a common occurrence in high terrain areas in New Hampshire during the winter and spring months. Early warning systems have resulted in less impact lately, however, as more people get involved in outdoor recreation, the number exposed to avalanche threat could increase.

Impact: Low

Avalanches present a significant threat to hikers, skiers, and other people recreating on the mountain. Falling ice and rocks can cause injury or death. Cracks, holes, and crevasses in the snowpack can cause individuals to become trapped or buried in snow, which can result in extreme cold injuries, suffocation, and possibly death. Twenty-five to thirty people die each year nationally from avalanches. As there are no known instances of, nor likely areas of avalanche, the impacts are considered low.

Impact on Vulnerable Communities: There are no known potential impacts associated with avalanche on Gilford’s vulnerable populations.

DROUGHT

Drought occurs when less than the normal amount of water is available for extended periods of time. It often, but not always, accompanies elevated temperatures. 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.

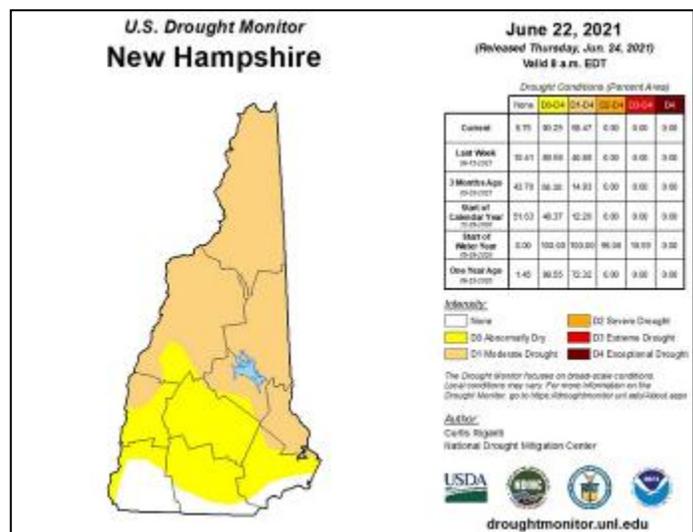
Drought is the absence of water due to below-average precipitation over an extended period, resulting in low stream flows, low surface water, and low groundwater levels. According to NOAA, the climatological community has defined four types of droughts to address their cause(s), timeframe, and effects:

- **Meteorological Drought:** Occurs when dry weather patterns dominate an area, resulting in a lack of precipitation
- **Hydrological Drought:** Occurs when low water supply becomes evident, especially in streams, reservoirs, and groundwater levels—usually after many months of meteorological drought
- **Agricultural Drought:** Occurs when crops become affected by drought conditions
- **Socioeconomic Drought:** Effects of supply and demand of commodities affected by drought conditions

Extent: Moderate

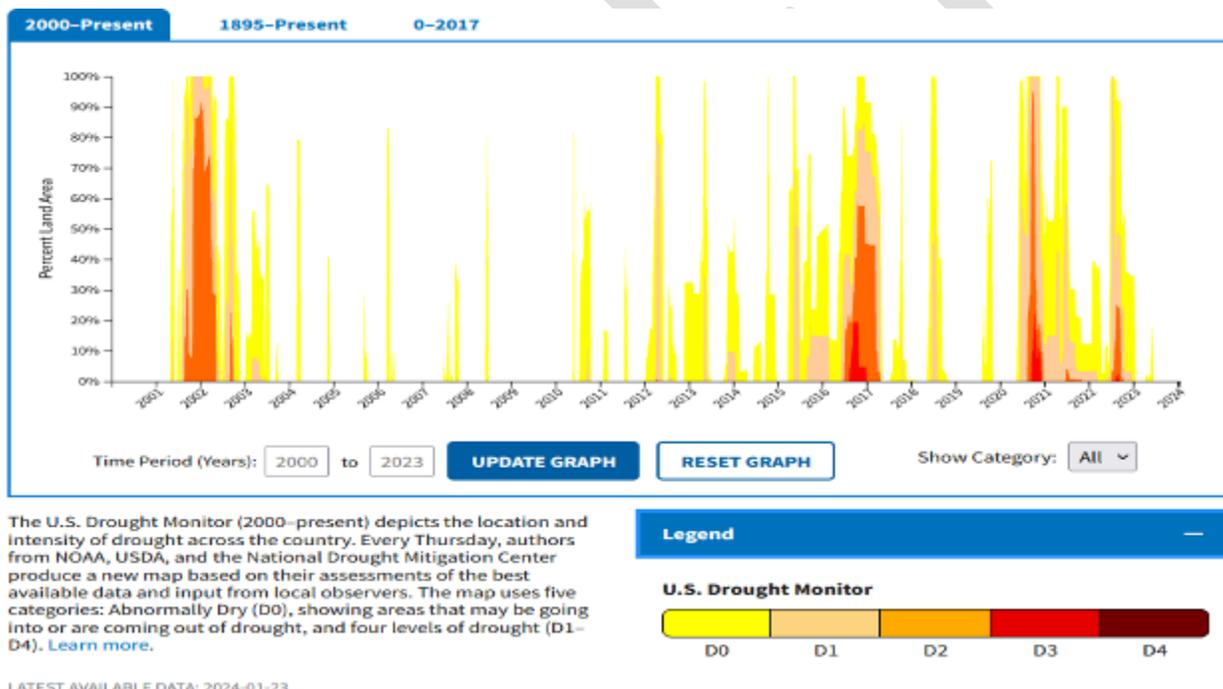
A drought can last for months, or even years. Since 1990 New Hampshire has had a state Drought Emergency Plan, which identifies four levels of action indicating the severity of the drought:

- Alert
- Warning
- Severe
- Emergency



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 precipitation, 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. The US Drought Monitor uses a five-level drought intensity scale ranging from Abnormally Dry to Exceptional Drought.

History: There have been five extended droughts in New Hampshire in the past century: 1929 to 1936, 1939 to 1944, 1947 to 1950, 1960 to 1969, and 2001 to 2002 and 2010. The statewide drought of 2001/02 had a minimal impact on water sources for fire protection in Gilford. While much of the country experienced drought conditions in 2012, New Hampshire received adequate precipitation. Moderate drought conditions existed in New Hampshire during parts of 2015, 2016 and into April of 2017. In 2020 the state experienced a severe drought (D2-D3) leading to water restrictions and \$500K of crop damages.



Location: Since drought is a state-wide or regional event, it would affect most areas of the town. Those with shallow (or dug) wells would likely be affected first. Drought can affect fire suppression where access to water for this purpose is limited.

Probability of Occurrence: Occasional

Impact: Low-Moderate

A severe drought can affect public water supply, increase the probability of fires, and impede fire suppression. Those areas with minimal fire protection are at a higher risk because of a prolonged drought. Those with shallow wells would also be affected by drought. The committee

discussed measures that can be taken to make water available both for consumption and fire suppression. Those with shallow wells would be affected by drought. Gilford is a heavily wooded community and many residences get their water from private wells.

Impact on Vulnerable Communities: Potential impacts associated with drought on Gilford’s vulnerable populations include:

- May be dependent upon others to travel
- May be dependent on a private water supply

Earthquake > 4.0 Richter

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.

Extent: Moderate 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

Richter 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.
7.0 to 7.9	Major earthquake. Serious damage.
8.0 or greater	Great earthquake. Can destroy communities near the epicenter.

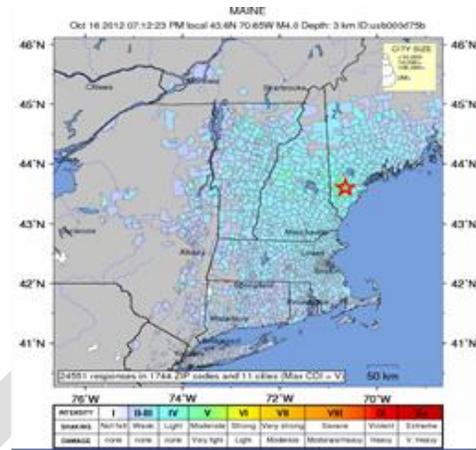
mathematical device used to compare the size of earthquakes, shown in the table above. Note: The 2023 NH State HMP now qualifies this hazard as *Earthquakes>4.0* as opposed to simply *Earthquakes*.

New Hampshire is in an area of moderate seismic activity with respect to other regions of the country. 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.⁴ 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.

However, if a large earthquake occurred in or around the town, it is assumed that structural damage would be moderate.

⁴<https://mm.nh.gov/files/uploads/hsem/documents/nh-state-hazard-mitigation-plan.pdf> visited January 6, 2025.

History: On average, every other year the Lakes Region experiences an earthquake, though these earthquakes are mild and go mostly undetected by people. However, earthquakes felt within the State of New Hampshire do not typically relate to epicenters within the state, instead they relate to those within surrounding states, Canada, and on the Atlantic seafloor.⁵ A search of the USGS National Earthquake Information Center database shows that since 1977 there have been 15 earthquakes with a magnitude of at least 3.0 within a 100 km (62 mi.) radius of Gilford; the largest was magnitude 4.7. Two such earthquakes have occurred since 2006; a 3.2 event in 2010 centered in Penacook, NH and a 4.7 quake in southern Maine shook the region on October 16, 2012. The image at right indicates the communities where people reported feeling this event.⁶



Areas where the October 16, 2012 earthquake

Location	Date	Magnitude
Hollis Center, ME	October 16, 2012	4.7
Sanbornton	January 19, 1982	4.5
7km SE of Scarborough, ME	April 26, 1957	4.4
Tamworth	December 24, 1940	5.6
Tamworth	December 20, 1940	5.3
Ossipee	October 9, 1925	4.0
2km SSE of South Paris, ME	August 21, 1918	4.2
Portsmouth	November 10, 1810	4.0
Central NH	June 11, 1638	6.5

Since the last plan (2018) there have been two earthquake events within 100 km of Gilford, neither reached a magnitude of 4.0. Gilford has not experienced any significant earthquakes.

Location: An earthquake of 4.0 or greater could affect all areas of Gilford, mainly multi-level structures and those that are either constructed of masonry or have masonry chimneys. Some bridges and dams might be impacted.

Probability of Occurrence: Improbable

⁵ <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/geo-3.pdf>, pg. 3, visited January 5, 2026.

⁶ USGS, Earthquake Archive Search. <https://earthquake.usgs.gov/earthquakes/map/>

Impact: Moderate

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 (buildings, bridges, dams, and power infrastructure) are old or not built to withstand an earthquake.

A relatively large earthquake would likely impact the roads, including bridges limiting the ability of emergency services to be rendered. Damages could range from cracked foundations, chimneys, and supports to full collapse. Structures that are taller, older, or built of masonry are most at risk.

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 exist for some damages to occur.

The fire department could have some response problems if the bridges were impacted, requiring redeployment of apparatus and people or mutual aid assistance. Areas of town with only one egress could become isolated from direct assistance.

All structures in Gilford are susceptible to damage by an earthquake. Assuming 1% town-wide damage to buildings, an earthquake could result in more than \$23 million in damages any given year. The Committee agreed that although there is a risk of earthquake, the risk of an earthquake with a magnitude of 4.0 or higher occurring within the next ten years is very improbable; therefore, the Committee determined the Town is not at an overall high risk.

Impact on Vulnerable Communities: Potential impacts associated with earthquakes on Gilford's vulnerable populations include:

- May have limited mobility for getting assistance, dependence upon others to travel
- Limited resources for seeking medical assistance

EXTREME TEMPERATURES

Extreme temperatures are a period of prolonged and/or excessive heat or cold that presents a danger to human health and life. Extreme Heat events occur because of above normal temperatures, which often coincide with high relative humidity, that increase the likelihood of heat disorders with prolonged exposure or strenuous activity. Heat related disorders include heat cramps, heat exhaustion, and heat stroke. High heat and humidity can also adversely affect air quality, leading to respiratory problems. Extreme heat can also damage or kill crops and animals (wild, farm, or domesticated), potentially presenting a risk to the economy.

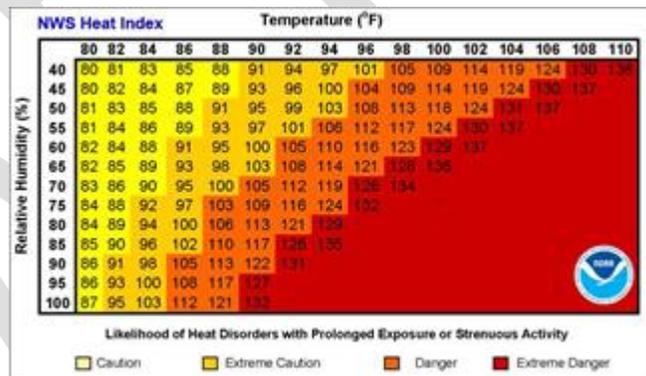
Extreme Cold events are caused by the southern transport of arctic airmasses into the Northeast. This effect is exacerbated when there are winds present that effectively lower the temperature that is perceived by the human body, known as the wind chill. The risk comes from

when the body is losing heat faster than it can produce it. Wind acts to carry heat away from the body, therefore amplifying the perceived temperature by the human body and reducing the body's core temperature. Cold disorders can include frostbite and hypothermia.

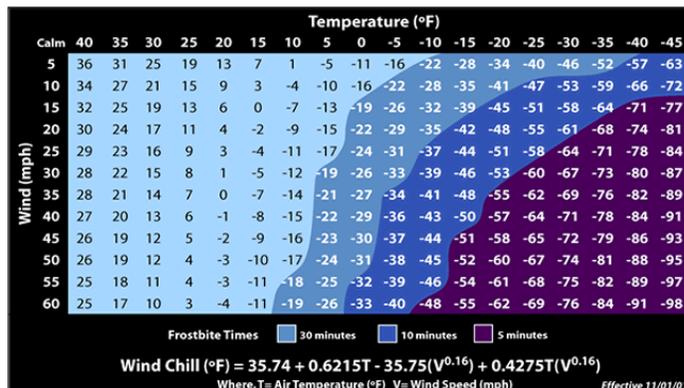
Frostbite occurs when uncovered skin/extremities are exposed to extreme cold and the body tissue is either injured or killed. Hypothermia is when the body is unable to heat itself at the rate it is being cooled and the body's core temperature begins to drop below normal values. A normal core body temperature is 98.6°F: mild hypothermia occurs when core body temperature drops between 90 to 95°F and severe hypothermia occurs at core body temperatures of below 90°F. If left untreated, hypothermia can result in unconsciousness and eventually death. Extreme cold can also damage or kill crops and animals (wild, farm, or domesticated), potentially presenting a risk to the economy.

Extent: Severe

- Heat Advisory—Two or more consecutive hours of Heat Index values of 95-99 °F for two or more days *OR* any duration of Heat Index values of 100-104 °F. A Heat Advisory is issued within 12 hours of the onset of extremely dangerous heat conditions.
- Excessive Heat Warning—Two or more hours with Heat Index values of 105 °F or greater. An Excessive Heat Warning is issued within 12 hours of the onset of extremely dangerous heat conditions.
- Excessive Heat Watches—Heat watches are issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.
- Excessive Heat Outlooks—Issued when the potential exists for an excessive heat event in the next 3-7 days. An outlook provides information to those who need considerable lead-time to prepare for the event.
- Wind Chill Watch: The National Weather Service (NWS) issues a wind chill watch when dangerously cold wind chill values are *possible*. As with a warning, adjust your plans to avoid being outside during the coldest parts of the day. Make sure your car has at least half a tank of gas and update your winter survival kit.
- Wind Chill Advisory: NWS issues a



Wind Chill Chart



wind chill advisory when seasonably cold wind chill values but not extremely cold values are expected or occurring. Be sure you and your loved ones dress appropriately and cover exposed skin when venturing outdoors. A Wind Chill Advisory is issued for New Hampshire is wind chill values are expected to be -20°F to -29°F and winds are greater than 5 mph.

- Wind Chill Warning: NWS issues a wind chill warning when dangerously cold wind chill values are expected or occurring. A Wind Chill Advisory is issued for New Hampshire is wind chill values are expected to be -30°F and winds are greater than 5 mph.

History:

Gilford has experienced regular extreme hot and cold temperatures annually since the last plan update. The Town of Gilford experiences extreme heat temperatures several days during the summer, but usually with little impact on the population.

Event Date	Event Description	Impacts	Location	Additional Information
July 1911	Heat Wave	Record high temperatures set in Concord, New Hampshire	Statewide	Extreme heat was recorded from July 3 rd through July 5 th , with high temperatures ranging from 101-102°F in Concord on these days. ¹¹⁴ These three days account for three of the top 10 hottest days on record for Concord, New Hampshire.
March 2012	Heat Wave	Record high temperatures set in Concord, New Hampshire	Statewide	High temperature records in Concord, New Hampshire were broken for 5 consecutive days, with the hottest day being 94°F.
September 2017	Heat Wave	High temperature records set across New Hampshire	Statewide	Mount Washington set record a daily high temperatures for four consecutive days. Manchester, Concord, and other areas across the State and New England also saw daily temperature records broken. ¹¹⁷
December 2017	Cold Wave	Record low temperatures set across New Hampshire	Statewide	Record low temperatures were set across the State as a result of a cold wave. Portsmouth saw a low of -1°F and Mount Washington saw a low of -33°F (with a wind chill of -51°). Wind Chill Advisories were posted in central and southern New Hampshire, and Wind Chill Warnings were posted for northern New Hampshire.
February 2018	One Day Winter Heat Wave	High temperature records set across New Hampshire	Statewide	Exceptionally strong high pressure ridge in place across the Eastern Seaboard. Record high temperatures were broken across the State. ¹¹⁸
2/3-2/4/2023	Wind Chill	Most areas recorded top 3 coldest wind chill readings on record.	Belknap County	-40 degrees F at Laconia Municipal Airport NOAA Events

Location:

Extreme temperatures can occur anywhere throughout the town of Gilford. Those at higher elevation and greater exposure to wind are most likely to be impacted by cold. People living in less accessible parts of town are more likely to be impacted during winter cold spells.

Probability of Occurrence: Probable

Impact: Low-Moderate

Heat related disorders include heat cramps, heat exhaustion, and heat stroke. Extreme heat can also damage or kill crops and animals (wild, farm, or domesticated), potentially presenting a risk to the economy. Facilities without generators and air-conditioners that house the elderly and disabled are very susceptible to human health issues. Utilities are also vulnerable as the demand for air-conditioners rises.

While most of the impact from extreme temperatures is on people and animals, there can also be structural impacts, especially from freezing and expansion of water in pipes and the resulting damages.

Impact on Vulnerable Communities: Potential impacts associated with extreme temperature events on Gilford’s vulnerable populations include:

- May have limited mobility for getting assistance/evacuation, dependence upon others to travel
- Limited resources for seeking medical assistance
- May have health conditions that make them more sensitive to climate conditions
- May spend more time outdoors increasing their exposure to heat and cold

HIGH WIND EVENT (THUNDERSTORM/TORNADO/DOWNBURST)

Gilford is likely to experience either of two types of high wind events that usually result from other severe storms and can occur at any time of the year: tornados and straight-line winds. A **tornado** is a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground. It is hard to see a tornado unless it forms a condensation funnel made up of water droplets, dust and debris.

Tornadoes are the most violent of all atmospheric storms. **Straight-line winds** describe any

thunderstorm wind that is not associated with rotation and is

usually used to differentiate from tornadic winds. There are several sub-types of straight-line winds, including **downdraft**, which is a small-scale column of air that rapidly sinks towards the ground; and **downburst**, which is the result of a downdraft, referred to as a **macroburst** when the area affected is greater than 2.5 miles and **microburst** when less than 2.5 miles.⁷

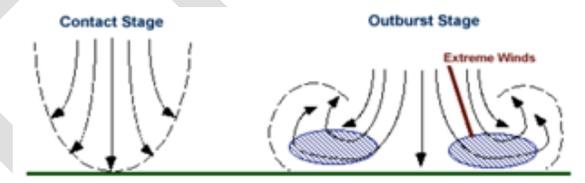


Image source: NH HSEM

Extent: Severe

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. 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.

The Enhanced Fujita Scale is used to categorize tornados based on a combination of wind speed and the type of damage that is observed.

⁷ <http://www.nssl.noaa.gov/education/svrwx101/wind/types>

Operational Enhanced Fujita (EF) Scale

Enhanced Fujita Scale						
EF Number	0	1	2	3	4	5
3-Second Gust (mph)	65-85	86-110	111-135	136-165	166-200	Over 200
Damage Indicator		Small barns, Farm Outbuildings	One-or two-family residences	Single-Wide Mobile Home	Double-Wide Mobile Homes	Apt, Condo, Townhouse (3 Stories or less)

History:

The most recent damaging tornado to touch down in New Hampshire was on July 24, 2008 rendering around 100 homes “uninhabitable” and killing one person. This event traveled from Epsom to Effingham. Although damage resulted in some Lakes Region locations, areas affected were many miles south of Gilford. Since 2018 there have been zero reported high wind specific events in Belknap County. However, there were strong winds due to thunderstorms in Gilford on May 26, 2021 and July 20, 2021.



Downed tree due to high winds in Gilford

History of High Wind Events

Event Type	Date	Location	Extent	General Impacts	Source
High Wind Events (Tornado)	8/22/2020	Belknap County	Tornado	A strong discrete supercell formed over Lake Winnepesaukee	NOAA Events
High Wind Events (Thunderstorm)	5/26/2021	Gilford	52 kts.	Severe thunderstorm downed multiple trees that brought down wires in Glendale near Lake Shore Road	NOAA Events
High Wind Events (Thunderstorm)	7/20/2021	Gilford	55 kts.	Severe thunderstorm wind gusts downed numerous trees	NOAA Events
High Wind Events (Torn./Downb.)	12/23/2022	State-wide	Wind>50 mph Rain 2-5 in.	Downed Trees and wires (120K without power)	NOAA Events

Location: While thunderstorms can be localized, they often hit the whole town. 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. All areas of town are susceptible to damage from high winds.

Probability of Occurrence: Frequent

Impact: High

In Gilford, the major damage from downbursts or tornados would come from falling limbs and trees, which may take down power lines, block roads, or damage structures and vehicles. The growing number of dead ash trees poses specific concern as they would be more susceptible to causing damage during a high wind event. Damage can occur to most structures in town because of downed trees in any high wind event, including the common 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



Debris in roadway due to high winds in Gilford

case along private roadways that may only get limited cutback of vegetation. Trees and wires down across evacuation routes could slow evacuation efforts and draw limited emergency response personnel away from other safety efforts.

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.

All structures in Gilford, including most critical facilities, are susceptible to damage by high wind events, whether through downburst, tornado, or hurricane. Assuming 1% to 5% town-wide damage to buildings, high winds could result in \$23M to \$116M in damages in Gilford.

Impact on Vulnerable Communities: Potential impacts associated with high wind events on Gilford's vulnerable populations include:

- May have limited mobility for getting assistance, dependence upon others to travel
- Limited resources for seeking medical assistance

INFECTIOUS DISEASES

Infectious diseases are illnesses caused by organisms such as bacteria, viruses, fungi or parasites. 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. Signs and symptoms vary depending on the organism causing the infection but often include fever and fatigue. Mild infections get better on their own without treatment, while some life-threatening infections may require hospitalization.

While some diseases are so rare in each population that a single case warrants an epidemiologic investigation (e.g., rabies, plague, polio), there are other diseases that occur more common, so that only deviations from the norm (i.e. seeing more cases than expected) warrants investigation.

Extent: Moderate

Experience with the Covid-19 pandemic has dramatically changed views on the risk of infectious diseases as compared to risk mitigation planning for the 2018 Plan. The magnitude and severity of infectious diseases is described by its speed of onset (how quickly people become sick or cases are reported) and how widespread the infection is. Some infectious diseases are inherently more dangerous and deadly than others, but the best way to describe the extent of infectious diseases relates to the occurrence of the disease:

- 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

The NH Department of Health and Human Services (DHHS) developed an epidemic response plan so that communities can be prepared and respond to outbreaks.

History: Since March of 2020, the COVID-19 pandemic has had a significant impact on all facets of life, including on emergency medical responders and the operations of municipal services and local schools. While there certainly have been minor outbreaks of flu in town, other outbreaks of infectious disease haven’t compared to the Coronavirus pandemic.

Date	Description	Impacts	Location	Additional Info
Fall 2014	Enterovirus D-68	>40 ill children in New Hampshire	Statewide	A rare strain of enterovirus resulting in infections nationwide.
2016	Gonorrhea	465 people infected	Statewide	465 cases reported; 250% higher than previous years
2017-2018	Seasonal Influenza Outbreak	As of 2018, 63 influenza related deaths were identified in NH	Statewide	In 2018 the overall effectiveness of the flu vaccine at this time was 36%
2020-23	COVID-19 or Coronavirus pandemic	Hospitals, schools, municipalities, & businesses have taken extra precautions, cancelled many events, and adjusted policies	Worldwide	Respiratory disease >379K cases and 3,495 deaths in NH 1,837 total cases in Gilford
Annually	Foodborne outbreaks	Ill individuals associated with outbreaks	Statewide	5-10 outbreaks per year
Annually	Influenza and other respiratory virus outbreaks	Ill individuals associated with outbreaks	Statewide	25-50 outbreaks per year primarily to vulnerable populations
Annually	Norovirus and other gastrointestinal virus outbreaks	Ill individuals associated with outbreaks	Statewide	60-80 outbreaks a year primarily to vulnerable populations

Location: 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, with long-lasting side effects and deaths. An 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 places where transmission is likely to occur.

Probability of Occurrence: Occasional

Epidemics do occur in Gilford and other Lakes Region communities from time to time. After experiencing the COVID-19 pandemic, the Committee agreed that the probability of occurrence for infectious diseases is slightly higher than it was during the last Plan update (2018).

Impact: Moderate-High

The concerns associated with infectious disease include the local capacity to respond to not only the residents of Gilford but also any visitors. The cost of infectious diseases in Gilford is difficult to calculate as any cost would primarily result from health care response. Experience with COVID-19 pandemic has revealed the human and economic costs resulting from the shut down or slowdown of many businesses in town and the region.

Impact on Vulnerable Communities: Potential impacts associated with infectious disease on Gilford’s vulnerable populations include:

- May have limited mobility for accessing attention
- More likely to have compromised immune systems

INLAND FLOODING

Inland Flooding

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 rarely associated with lakeshore properties, especially if there are appropriate setbacks, and is more likely to be associated with rivers, such as the Blackwater.

Flooding is most associated with structures and properties located within the 1% annual (or 100-year) floodplain. Areas in this floodplain have been identified as having a 1% chance of flooding any given

Search Results—Products for **GILFORD, TOWN OF** Show ALL Products >

The flood map for the selected area is number **3300040015C**, effective on **5/4/1992**

MAP IMAGE

Changes to this FIRM

- Revisions (0)
- Amendments (19)
- Revalidations (0)

You can choose a new flood map or move the location pin by selecting a different location on the locator map below or by entering a new location in the search field above. It may take a minute or more during peak hours to generate a dynamic FIRMeette.

USDA, USGS The National Map; Orthoimagery, Data refreshed June, 2024. Powered by Esri

MAP PANELS

- PIN**
 - Approximate location based on user input and does not represent an authoritative property location
 - Selected Floodmap Boundary
 - Digital Data Available
 - No Digital Data Available
 - Unmapped
- AREA OF MINIMAL FLOOD HAZARD (Area 1)**
 - Effective Limits
 - Area of Undetermined Flood Hazard (Area 2)
 - Otherwise Protected Area
- OTHER AREAS**
 - Coastal Barrier Resources System Area

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) WHERE or Depth**
 - Regulatory Floodway (Zone AE, AO, VE, AH)
- 0.2% Annual Chance Flood Hazard** Areas of 3% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile (Zone X)
- Future Conditions 1% Annual Chance Flood Hazard (Zone 1)**
- Area with Reduced Flood Risk due to Levee** (See Notes, Zone 1)
- Area with Flood Risk due to Levee** (Zone 2)

OTHER AREAS OF FLOOD HAZARD

OTHER

- Cross Sections with 1% Annual Chance**
 - Water Surface Elevation
 - Coastal Traverset
 - Base Flood Elevation Line (BFE)
 - Level of Study
 - Jurisdiction Boundary
 - Coastal Traverset Baseline
 - Profile Baseline
 - Hydrographic Feature
- GENERAL STRUCTURES**
 - Channel, Culvert, or Storm Sewer
 - Levee, Dike, or Floodwall

year. This means that flooding in this area is projected to have an average recurrence interval of 100 years; however, that does not mean that a flood in this area will only occur once every 100 years.

Gilford participates in the **National Flood Insurance Program (NFIP)** through the administration of its floodplain ordinance by the Board of Selectmen and the Building Inspector. By actively participating in the NFIP property owners can purchase flood insurance through the FEMA program. Active participation includes administration of site plan review, subdivision regulations and zoning, to regulate development in the floodplain using federal standards. Gilford joined the National Flood Insurance Program on May 4, 1992. The most recent Flood Insurance Rate Maps (FIRM) were published by FEMA also on May 4, 1992. FEMA Digital Flood Maps (DFIRM) are not yet available on the FEMA map site <https://msc.fema.gov/portal/home>.

From the Floodplain Management Ordinance, Chapter 13 of the Gilford Zoning Ordinance, revised 2003.

Authority:

1. The following regulations shall apply to all lands designated as special flood hazard areas by the Federal Emergency Management Agency in its “Flood Insurance Study for the Town of Gilford, NH dated May 4, 1992”, together with the associated Flood Insurance Rate Maps (FIRM), dated May, 4 1992, which are declared to be a part of this ordinance, and are hereby incorporated by reference.

Chapter 13 Floodplain Management – Item II & III:

II. All proposed development in any special flood hazard areas shall require a permit.

III. The Building Inspector shall review all building permit applications for new construction or substantial improvements to determine whether proposed building sites will be reasonably safe from flooding. If a proposed building site is in a flood-prone area, all new construction or substantial improvements shall:

- a. be designed (or modified) and adequately anchored to prevent floatation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy,
- b. be constructed with materials resistant to flood damage,
- c. be constructed by methods and practices that minimize flood damages,
- d. be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment, and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

Definitions: (Chapter 13 Floodplain Management – Item I – Definition of Terms)

“Substantial Damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

“Substantial Improvement” means any combination of repairs, reconstruction, alteration, or improvements to a structure in which the cumulative cost equals or exceeds fifty percent of the market value of the structure. The market value of the structure should equal (1) the appraised value prior to the start of the initial repair or improvements, or (2) in the case of damage, the value of the structure prior to the damage occurring. For the purposes of this definition, “substantial improvement” is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include any project for improvement of a structure required to comply with existing health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions or any alteration of a historic structure, provided that the alteration will not preclude the structure’s continued designation as a historic structure.

As of July 2024, there were thirty-eight flood insurance policies in force in Gilford, twenty-four covering single-family residential (SFR) properties, eight “other residential”, and six nonresidential properties. Twenty of these properties are in the A-zone, and eighteen are in X-zone. There have been nine losses and five have been paid totaling \$64,477, all on SFR properties. Four of the losses were in the A-zone, three were in the X-Zone, and two were unknown. There have been no repetitive losses in Gilford.

Extent – Inland Flooding: Severe

FEMA defines flood hazards by the 100-year and 500-year flood events. A 100-year flood event is defined as a flood event having a 1% chance of being equaled or exceeded in any given year. The 500-year flood event is defined as a flood event having a 0.2% chance of being equaled or exceeded in any given year.

Land development can contribute to flood hazards. As areas are covered with additional impervious surfaces, less water is allowed to infiltrate, evaporate, or be transpired by vegetative growth, resulting in more water runoff directly into surface drainages and water bodies. This increases the likelihood of flash floods and substantial overland flow.

Dam Failure

Although Dam Failure is classified as a technological hazard, it seems appropriate to include a discussion of dams in Gilford when assessing risks associated with Inland Flooding.

According to the NH Department of Environmental Services (DES), a dam is any artificial barrier which impounds or diverts water which: has a height of 6 feet or more; or is located at the outlet of a great pond, regardless of height or storage; or is an artificial barrier which impounds liquid Industrial or liquid commercial wastes, or septage or sewage, regardless of height or storage.

Extent – Dam Failure: Moderate

Dams in New Hampshire are classified by the New Hampshire Department of Environmental Services Dams Bureau. The four dam hazard classifications (High, Significant, Low, and Non-Menace) 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 twenty-one active dams in Gilford; three are **Low Hazard** and eighteen are **Non-Menace Hazard** dams. Failure or mis-operation of a Non-Menace dam would not result in probable loss of life or loss of property. Failure or mis-operation of a Low Hazard dam would not result in the possible loss of life. It would result in any of the following:

- Low economic loss to structures or property.
- Structural damage to a 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 under certain conditions.
- Reversible environmental losses to environmentally sensitive sites.

HAZCL	STATUS	USE	NAME	RIVER	LENGTH	IMPND	HEIGHT
L	ACTIVE	R	COBBLE MOUNTAIN DAM	POOR FARM BROOK	90	30	19
L	ACTIVE	R	GUNSTOCK SNOWMAKING POND DAM	TR POOR FARM BROOK	100	5	15
L	ACTIVE	R	PHEASANT RIDGE CC POND DAM	UNNAMED STREAM	275	7	25
NM	ACTIVE	P	FIRE POND DAM	UNNAMED STREAM	190	0.2	9
NM	ACTIVE	P	FIRE POND DAM	UNNAMED STREAM	0	0.58	10
NM	ACTIVE	P	FIRE POND DAM	UNNAMED STREAM	0	1	8
NM	ACTIVE	P	FIRE POND DAM	UNNAMED STREAM	0	0.02	10
NM	ACTIVE	P	RT 11A FIRE POND DAM	GUNSTOCK BROOK	17	0.01	6
NM	ACTIVE	P	FIRE POND DAM	UNNAMED STREAM	325	0.28	9
NM	ACTIVE	C	FARM POND DAM	UNNAMED STREAM	0	0.55	9
NM	ACTIVE	P	FIRE POND DAM	TR GUNSTOCK RIVER	0	0.75	6
NM	ACTIVE	D	ROUTE 11 PLAZA DET POND 2 DAM	RUNOFF	150	0.43	22.8
NM	ACTIVE	P	WHITCHER FIRE POND DAM	RUNOFF	200	0.2	10.5
NM	ACTIVE	D	TILTON SEDIMENTATION BASIN 1 DAM	RUNOFF	40	0.26	8.3
NM	ACTIVE	D	TILTON SEDIMENTATION BASIN 2 DAM	RUNOFF	225	0.25	8
NM	ACTIVE	C	IRRIGATION POND DAM	UNNAMED STREAM	0	0.35	9
NM	ACTIVE	R	WEST ALTON BROOK I DAM	WEST ALTON BROOK	128	0.25	9
NM	ACTIVE	C	DUNN DET POND DAM	RUNOFF	60	0.2	8
NM	ACTIVE	R	CAYRE DAM	UNNAMED STREAM	40	0.2	6
NM	ACTIVE	R	CRAWSHAW POND DAM	NA	250	0.22	10.5
NM	ACTIVE	D	FIRST METHODIST CHURCH DET POND DAM	RUNOFF	470	0.07	12
	BREACHED	R	SALTMARSH POND FISH BARRIER DAM	TR JEWETT BROOK	28	0.01	4.75
	BREACHED	M	GUNSTOCK RIVER LEDGE DAM	GUNSTOCK RIVER	100	0	0
	BREACHED	R	POOR FARM BROOK DAM	POOR FARM BROOK	0	3.5	8
	EXEMPT	D	MISTY HARBOR DET POND B DAM	RUNOFF	80	0.01	3
	EXEMPT	D	MISTY HARBOR DET POND A DAM	RUNOFF	120	0.34	3
	EXEMPT	D	HILLSIDE DET POND DAM	RUNOFF	150	0.09	6
	EXEMPT	C	RAYMOND CAYRE DAM	TR GUNSTOCK BROOK	0	0.1	2
	EXEMPT	D	MISTY HARBOR DET POND D DAM	RUNOFF	0	0.23	2
	EXEMPT	D	GOODWIN DET POND DAM	RUNOFF	60	0.1	8
	EXEMPT	D	RICHS PLAZA DET POND 1 DAM	RUNOFF	120	0.1	4.5
	EXEMPT	D	KIMBALL CASTLE DET POND 1 DAM	RUNOFF	100	0.03	7
	EXEMPT	D	EPTAM DET POND DAM	RUNOFF	150	0.09	7
	EXEMPT	D	GUNSTOCK N SEDIMENTATION POND DAM	RUNOFF	210	0.26	5.5
	EXEMPT	D	MISTY HARBOR DET POND C DAM	RUNOFF	120	0.23	3
	EXEMPT	D	BLIZZARD BOAT STORAGE DET POND DAM	RUNOFF	105	0.14	4.4
	EXEMPT	D	OCONNELL DET POND DAM	RUNOFF	45	0.14	9.5
	EXEMPT	C	HOWE FARM POND DAM	NA	198	0.28	3
	NOT BUILT	P	YORK FIRE POND DAM	UNNAMED STREAM	0	0.25	10
	NOT BUILT	D	LAZY BROOK LANE DET POND DAM	RUNOFF	240	0.38	7
	NOT BUILT	R	SAME AS 090.10	GUNSTOCK BROOK	0	0.01	0
	NOT BUILT	D	KIMBALL CASTLE DET POND 2 DAM	RUNOFF	100	0.03	6
	RUINS	M	GUNSTOCK RIVER TIMBER DAM	GUNSTOCK RIVER	50	0	13

Source: NH GRANIT NH Dam Inventory

History – Dam Failure:

There is no history of significant dam failures in Gilford.

Location – Dam Failure:

Cobble Mountain Dam, Gunstock Snowmaking Pond Dam, and Pheasant Ridge CC Pond Dam are classified as Low Hazard dams.

Probability – Dam Failure: Improbable**Impact – Dam Failure:** Low

A dam failure or breach could occur due to extreme rainfall and/or a human caused incident. A failure or breach would result in rapid loss of water that is normally held by the dam resulting in an inundation downstream.

History – Inland Flooding:

Historically, the state's two largest floods occurred in 1936 and 1938. The 1936 flood was associated with snowmelt and heavy precipitation. The 1938 flood 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 1960s. They continue to be operated by the US Army Corps of Engineers.

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, one caused substantial flash flooding and washouts in Ashland, New Hampton, Center Harbor, and Meredith. In addition to property damages, one young girl died in Ashland because of the floodwaters from this storm.

Flooding in the region was associated with Tropical Storm Irene in September 2011 and Tropical Storm Sandy in October 2012.



Flooding in Gilford due to December 2022 rainstorm

The NOAA database reports five documented flooding event in or near Gilford since 2018; flash floods in July 2021 and twice in July 2023, and floods in December 2022 and December 2023. The Committee noted that flooding events during winter months are becoming more frequent due to an increase in

the occurrence of winter rainstorms that bring rainfall down on frozen ground that is unable to absorb the effects of the event. There are several areas in Gilford that experience flooding annually or several times per year. Specific areas are noted under **Impact**.

Probability of Occurrence – Inland Flooding: Frequent

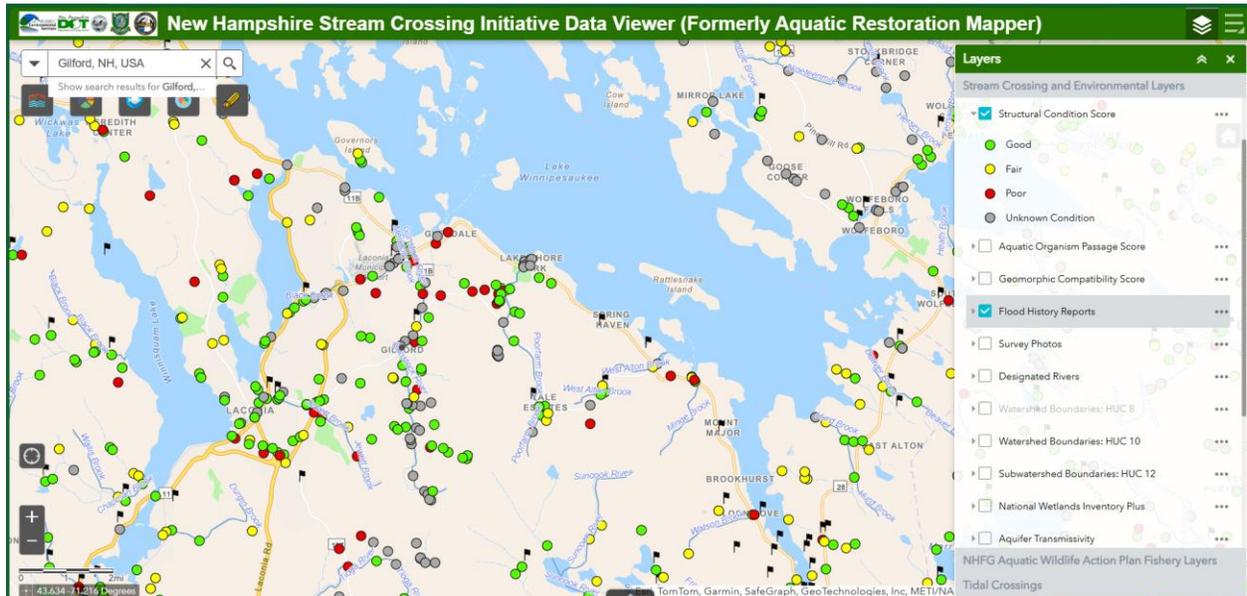
Location – Inland Flooding: The Committee reviewed a map of past flooding events (NH Geological Society Flood Hazard Database), survey comments, and Committee members' knowledge to identify several areas that pose flooding issues. There are several places within the Town that experience flooding during heavy rain events. The following were mentioned by the Committee and the public, via the online survey, and then confirmed with the Committee:

- Gunstock Acres
- Lowe's shopping plaza
- Gilford Glen Road
- Old Lake Shore Road
- Route 11 & 11B



Shoulder washout due to flooding event in Gilford

The [NH Stream Crossing Initiative and Mapping Tool](#) and the [NH Aquatic Restoration Mapper](#) are mapping and assessment tools coordinated by UNH T2 can be useful resources for tracking the location and status of bridges and culverts along with areas that have flooded in the past. Many state-owned features have been mapped by state agencies. Mapping local features is usually done through the regional planning commission.



Impact – Inland Flooding: Moderate-High

Flooding, whether from heavy rains or ice jams, carries great risk for the town of Gilford. Floods could impact dams and bridges and have the potential to cause damage to roads, properties, and structures, as well as loss of life. Most of the past flooding events resulted in erosion and damage to culverts and roads throughout town.

The Committee noted that the areas with problems with flooding roads include:

- Gunstock Acres is a densely populated area that experiences shoulder washouts and sinkholes
- Belknap Mountain Road experiences shoulder washouts and sinkholes
- Lowe’s shopping plaza
- Gilford Glen Road
- Old Lake Shore Road
- Route 11 & 11B floods by Patrick’s



Flooding in Gilford from December 2022 Declared Disaster

In addition to flooding roads, there are areas where culverts require upgrades to box culverts.

Some structures in Gilford are susceptible to damage due to flooding. Those in the floodplain are most likely to be impacted. Assuming 1% to 2% town-wide damage to buildings, flooding could result in \$23M to \$46M in damages.

Impact on Vulnerable Communities: Potential impacts associated with flooding on Gilford's vulnerable populations include:

- May live in areas prone to flooding
- May have limited mobility for getting assistance/evacuation, dependence upon others to travel

LANDSLIDE

A landslide is the downward or outward movement of earth materials on a slope that is reacting to a combination of the force of gravity and a predisposed weakness in the material that allows the sliding process to initiate. The broad classification of landslides includes mudflows, mudslides, debris flows, rockslides, debris avalanches, debris slides and earth flows. Landslides may be formed when a layer of soil on 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: ¹

- 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 because 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.

Extent: Moderate

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

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

There are also multiple types of landslides:

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

Like flooding, landslides are unique in how they affect different geographic, topographic, and geologic areas. Therefore, consideration of a multitude of measurements is required to determine the severity of the landslide event.

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 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 of increased pressure to development.

Consideration should 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.⁸ Also, during the 2007 Nor'easter a landslide occurred in Milton, NH resulting in the temporary closure of NH Route 101.

History: Records (NOAA Storm Events database) indicate no landslides have occurred in Belknap County. There was no local knowledge of a landslide occurring in Gilford.

Location: 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 along the Connecticut and Merrimack Rivers also create potential landslide conditions. Though Gilford is home to the Belknap Range, with no local knowledge of landslides occurring within Gilford, the Committee agreed the Town is at low risk.

Probability of Occurrence: Improbable

⁸ <http://www.nh.gov/safety/divisions/hsem/NaturalHazards/index.html> visited February 8, 2011.

Impact: Low

The primary impacts of a landslide are the damage and destruction to property and infrastructure located in the area where the landslide occurred. The land material moved during a landslide can cause damage to roads, buildings, and infrastructure at the base of the slope on which the landslide occurred. Buildings or infrastructures that are atop the slide, or on the side of the slope where the slide occurs, can be severely damaged or destroyed through its consumption by the slide. The hazard of death and injury to individuals atop, on, or at the base of a slide exists if such individuals are present in those locations when the landslide occurs.

Landslides that occur adjacent to a waterbody, such as a river or lake, can introduce excess sediment, increasing the turbidity of the receiving waterbody and impacting water quality if the quantity of sediment is of sufficient quantity. A very large landslide into a river could cause an obstruction that acts like a dam, creating an impoundment of water which leads to sediment and woody material deposition within it. This could also further create an additional risk of a “dam failure” at some future time when the natural dam breaks down, resulting a rapid release of the stored water from upstream.

As there are no significant steep slopes near structures nor adjacent to rivers or lakes, the potential impact to Gilford is minimal.

Impact on Vulnerable Communities: As there are no significant steep slopes near structures nor adjacent to rivers or lakes, the potential impact to Gilford is minimal.

LIGHTNING

Lightning is a giant spark of electricity that occurs within the atmosphere, or between the atmosphere and the ground. As lightning passes through the air, it heats the air to a temperature of about 50,000 degrees Fahrenheit, considerably hotter than the surface of the Sun. During a lightning discharge, the sudden heating of the air causes it to expand rapidly, resulting in thunder.

Extent: Moderate

All thunderstorms have the potential to create lightning, which can cause death, injury, and property damage and have great potential to cause damage to electronic equipment as well as structure and wildfires. 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.

The National Weather Service does utilize a six-point scale for characterizing lightning activity called the Lightning Activity Level (LAL) based on frequency of ground strikes along with rainfall and ground conditions.

Lightning Activity Level (LAL)	
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:

According to the NOAA database, there has been one lightning event in Belknap County since the last Plan (2018). This event occurred in 2020 in the Town of Meredith, striking a house and causing \$20K in property damage. There have been no lightning events in Gilford since the last Plan update.

Location: Lightning can strike anywhere in town. Exactly where and when lightning will strike is unknown.

Probability of Occurrence: Probable

In the Lakes Region, fewer than two lightning strikes occur per square kilometer annually. While this value is not particularly high compared with other parts of the country, the frequency of storms with lightning is a local concern, especially during the summer months.

Impact: Moderate

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.

Power outages, associated with natural hazards like lightning, high winds, inland flooding, severe winter weather have the potential to cause disruption to residents and the functioning of the town. The elderly and disabled who rely on powered medical devices are at risk.

All structures in Gilford are susceptible to damage by lightning and resulting fires. There is back-up power for most municipal facilities. Assuming 1% town-wide damage to buildings, each year lightning could result in \$23M in damages.

Impact on Vulnerable Communities: Potential impacts associated with lightning on Gilford’s vulnerable populations include:

- May live in a wooded and densely populated area

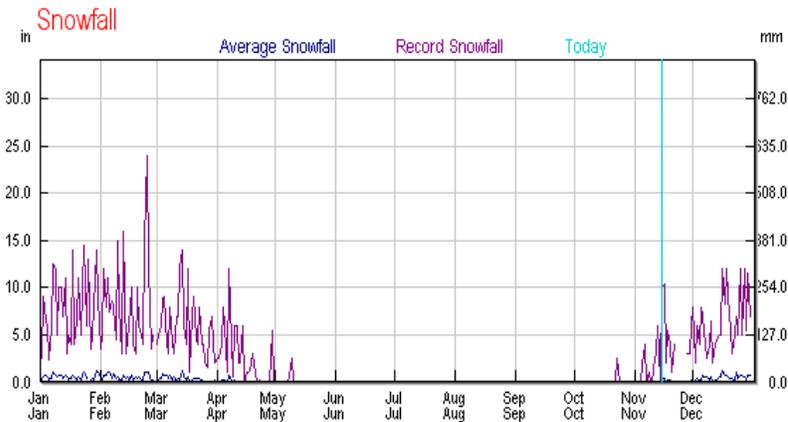
- May have limited mobility for getting assistance/evacuation, dependence upon others to travel
- Limited resources for seeking medical assistance

SEVERE WINTER WEATHER (SNOWSTORMS, ICE STORMS)

Gilford experiences four types of severe winter weather: heavy snow, blizzards, nor'easters, and ice storms.

Extent: Severe

A heavy snowstorm can be defined as one that deposits four or more inches of snow in a 12-hour period. Snowstorms are a common occurrence throughout the Lakes Region. Blizzards, which may dump 12 to 36 inches or more of snow in a one- to three-day period are less frequent, but can have a serious impact on structures, utilities, and services.



The region typically receives greater than 66 inches of snow annually. Records 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 10 inches have happened in each of these months and on several days in February the area has seen more than 15 and even 20 inches of snow in one day.

CATEGORY	NESIS VALUE	DESCRIPTION
1	1–2.99	Notable
2	2.5–3.99	Significant
3	4–5.99	Major
4	6–9.99	Crippling
5	10.0+	Extreme

A couple of scales have been adopted by NOAA for comparing snowstorms that incorporate the number of inches of snow that accumulate, the area of the storm, and the number of people that could be impacted by the storm. The Northeast Snowfall Impact Scale (NESIS) applies specifically to the northeastern United States. It groups high-impact snowstorms into five categories.

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- to 90-year return period for an event with a uniform ice thickness of between 0.75 and 1.25 inches. In 2008, just 10 years later, however, New Hampshire was struck again by another severe ice storm.

The Sperry-Piltz Ice Accumulation (SPIA) Index is 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.

Snow load in severe winter storms is of concern as well. This is particularly true for flat roofed structures. Several small storms can produce the same snow load as a single larger storm and the combined weight of the snow load can damage

rooftops. Ice adds additional weight as well. It is not uncommon in New Hampshire to experience mixes of winter precipitation as temperatures fluctuate above and below the freezing mark. While not widespread, instances of collapsed roofs are not uncommon.

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 (moving south to north) that resides near the New England region. These storms have the potential to inflict more damage than many hurricanes because high winds can last from 12 hours to three days, while the duration of hurricanes ranges from 6 to 12 hours. A nor'easter also has the potential to sustain hurricane force winds, produce torrential rain, and create blizzard conditions in winter months.

In the winter months, the state may experience the additional coincidence of blizzard conditions with many of these events. 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 reduces visibility to less than a quarter mile.

History: The 1998 ice storm was the costliest FEMA/Presidential Declared disaster in New Hampshire's history. The ice load bent trees and power lines and led to massive power outages throughout the state. The December 2008 ice storm surpassed the 1998 storm, in terms of state-wide damage. The President declared this storm as a major disaster and the state received \$15 million in federal aid for recovery.

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

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

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

The NOAA Storm database lists 28 severe winter storm events since 2018. The winter storm in April 2024 was a Declared Disaster categorized as Severe Winter Weather and Flooding. In addition, three of the seven Severe Storms and Flooding declarations since 2019 have been winter-time events:

- December 2022 (major disaster declaration)
- December 2023 (major disaster declaration)
- January 2024 (major disaster declaration)



Downed tree in Gilford during April 2024 winter storm

The Town received funds from FEMA for the December 2022 storm.

Location: Severe winter weather occurs frequently in the northeast, and the possibility exists for Gilford residents to have to withstand several days without power. There are segments of the population that are more at risk. These include the elderly, people that need 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. Large snow drifts that require the use of heavy equipment by the Department of Public Works occur at Upper Cotton Hill, Upper Liberty Hill, Curtis Road, and the Sleeper Hill and Stark intersection. Snow and ice storms can affect the entire town.

Probability of Occurrence: Frequent

Impact: High

Major roads, essential services, and flat-roofed buildings are all likely to be impacted by winter storms. While the town is accustomed to seasonal heavy snowfall, any particularly severe event with significant accumulations, especially combined with severe cold can be a burden. These events often lead to ice accumulation and power loss, significantly increasing the vulnerability of populations and facilities.

Heavy snow can cause damage to property, disrupt services, and make travel unsafe, even for emergency responders. Due to poor road conditions, residents may be stranded for several days. Extra pressure is placed on road crews and emergency services under these conditions.

The major threats to a community due to ice storms include structural damage due to heavy loads on roofs, interruptions of services such as electricity, fuel, water, and communications, as well as hazardous road conditions. Downed limbs and wires and unplowed or untreated roads can severely limit emergency access to many residences.



Downed tree in Gilford during April 2024 snowstorm

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.

Flat-roofed buildings are all susceptible to damage from snow and ice loads. The SAU frequently walks on the roofs to mitigate this issue. Other areas of concern would be

airport hangers, storage units, boat storage, Granite State Glass, and marinas. Additionally, the Department of Public Works loses power and their generator during large storm events. Construction of a new DPW building began in 2025 and is slated to be completed in 2026.

Maintenance on the major artery (NH 11) falls to NH DOT; however, there are over 180 lane miles of roadway maintained by the Town. Ice storms that bring down trees can impact DPW's ability to treat roads and open up access to residences.

All structures in Gilford are susceptible to damage by winter weather events, whether through ice storms, blizzards, or the heavy, wet snow often associated with a nor'easter. Town facilities are not particularly at risk to Severe Winter Weather. Assuming 1% to 5% town-wide damage to buildings, winter weather could result in \$23M to \$116M in damages annually. The potential for impact to the town from severe winter weather is seen as high.

Impact on Vulnerable Communities: Potential impacts associated with severe winter weather on Gilford's vulnerable populations include:

- May have limited mobility for getting assistance/evacuation, dependence upon others to travel
- Limited resources for seeking medical assistance

SOLAR STORMS & SPACE WEATHER

The term space weather is relatively new and describes conditions in the Earth's outer space environment. Space weather includes conditions and events on the sun, in the solar wind, in near-Earth space, and in Earth's upper atmosphere that can affect space-borne and ground-based technological systems.⁹ Although space weather has occurred since the beginning of time, little was understood about the causes and impacts of these instances on the planet. It has only been in the last 200 or so years that multiple science fields have come together to study space weather. Not all space weather is damaging or affects humans or technology.

⁹ https://www.nasa.gov/mission_pages/sunearth/spaceweather/index.html#q12

Perhaps one of the most well-known effects of space weather on the Earth’s atmosphere is the Aurora Borealis (aka Northern Lights – northern hemisphere) and the Aurora Australis (southern hemisphere). Aurora displays are a result of solar wind where some of the charged particles become trapped in the Earth’s atmosphere.

Extent: Weak

The State of New Hampshire Hazard Mitigation Plan (2023) describes three different types of events: Geomagnetic Storms, Solar Radiation Storms, and Radio Blackout. Each of these is then rated on a five-level scale (minor, moderate, strong, severe, extreme), with descriptions of increasing impacts on power, spacecraft, biological, satellite, high frequency radio, and navigation systems. A solar storm may exacerbate radio communications problems. The Radio Blackout Scale¹⁰ offers a measure of the extent of solar storms on radio communications.

Scale	Description	Effect	Physical measure	Average Frequency (1 cycle = 15 years)
R-5	Extreme	HF Radio: Complete HF (high frequency) radio blackout on the entire sunlit side of the Earth lasting for a number of hours. This results in no HF radio contact with mariners and air route operators in this sector. Navigation: Low-frequency navigation signals used by maritime and general aviation systems experience outages on the sunlit side of the Earth for many hours, causing loss in positioning. Increased satellite navigation errors in positioning for several hours on the sunlit side of Earth, which may spread into the night side.	X20 (2×10^{-5})	Less than 1 per cycle
R-4	Severe	HF Radio: HF radio communication blackout on most of the sunlit side of Earth for one to two hours. HF radio contact lost during this time. Navigation: Outages of low-frequency navigation signals cause increased error in positioning for one to two hours. Minor disruptions of satellite navigation possible on the sunlit side of Earth.	X10 (10^{-5})	8 per cycle (8 days per cycle)
R-3	Strong	HF Radio: Wide area blackout of HF radio communication, loss of radio contact for about an hour on sunlit side of Earth. Navigation: Low-frequency navigation signals degraded for about an hour.	X1 (10^{-6})	175 per cycle (140 days per cycle)
R-2	Moderate	HF Radio: Limited blackout of HF radio communication on sunlit side, loss of radio contact for tens of minutes. Navigation: Degradation of low-frequency navigation signals for tens of minutes.	M5 (5×10^{-6})	350 per cycle (300 days per cycle)
R-1	Minor	HF Radio: Weak or minor degradation of HF radio communication on sunlit side, occasional loss of radio contact. Navigation: Low-frequency navigation signals degraded for brief intervals.	M1 (10^{-7})	2000 per cycle (950 days per cycle)

History: There have not been any known occurrences in Gilford of solar storms or space weather, and no significant events have been reported statewide. Nearby events include Quebec, Canada, which experienced a 9-hour blackout in March 1989 when solar winds caused a fluctuation in the Earth’s magnetic field and caused Hydro-Quebec’s transmission to go down.

Location: All of Gilford and the entire State of New Hampshire are at risk of solar storms and space weather. While the Earth is somewhat protected from solar storms and space weather by its upper atmosphere, the potential for a loss of communications, power, and GPS exists.

Probability of Occurrence: Improbable

Impact: Low

Solar storms and space weather impact the Earth daily, although the effects are not often felt. It is difficult to estimate the impact of this hazard on Gilford as knowledge of this hazard is evolving, but committee members acknowledge that while human and property impacts are low, compromised communications could impact communications and response during other types of hazards, including reaching out for mutual aid.

Impact on Vulnerable Communities: Potential impacts associated with solar storms and space weather on Gilford’s vulnerable populations are all related to compromised electronic communication and response associated with some other emergency.

¹⁰ https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2015/11/State-of-New-Hampshire-Multi-Hazard-Mitigation-Plan-Update-2018_FINAL.pdf, p. 141

TROPICAL & POST-TROPICAL CYCLONES

Tropical and Post-Tropical cyclones are large storms with winds rotating in a counterclockwise manner. 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 to 36 hours are characteristic of tropical depressions and hurricanes. There are many stages throughout the life cycle of a tropical cyclone.

- Potential Tropical Cyclone: Describes a disturbance that is not yet a tropical cyclone, however, poses the threat of becoming one
- Tropical Disturbance: A cluster of showers and thunderstorms that flare up over the tropics. These are usually 100-300 miles in diameter and generally move westward.
- Tropical Storm: Sustained wind levels are between 34 knots and 64 knots (39 to 74 MPH)
- Hurricane: Once a tropical cyclone sustains wind levels between 64 and 96 knots (74 to 111 MPH)
- Major Hurricane: A tropical cyclone with maximum sustained winds of 96 knots (111 MPH) and higher. Major hurricanes are classified as category 3 or higher.
- Post-tropical Cyclone: A former tropical cyclone, this term is used to describe a cyclone that no longer possesses sufficient tropical characteristics to be considered a tropical cyclone. These post-tropical cyclones often undergo an extratropical transition and form frontal boundaries. Post-tropical cyclones can continue carrying heavy rains and high winds and cause a storm surge in coastal areas.

Extent: Moderate

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. 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 a couple of days.

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 (see table below). The scale is used to give an estimate of the potential property damage and flooding expected from a hurricane landfall.

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>

History: 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. New Hampshire has not experienced a severe hurricane directly since 1938.

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.

In the past seven years no hurricanes have hit the region. By the time that a hurricane reaches central New Hampshire, it is rare that it retains the characteristics of a hurricane. Wind speeds usually dissipate but they can still bring a great deal of rainfall to the region. That was the case with the remnants of Hurricanes Irene and Sandy, which hit the area in 2011 and 2012 as tropical depressions. The NOAA Database shows that a Tropical Storm did hit Belknap County in August 2020.

History of Tropical & Post-Tropical Cyclones Since 2018

Event	Date	Location	Extent	General Impacts	Source
Tropical Storm	8/4/2020	Belknap Co.	Tropical Storm Isaias. Wind >40 kts.	Hundreds of trees down. 30% of homes without power.	NOAA Events

Location: A cyclone could affect all areas of Gilford. Stream crossings, floodplains, and steep slopes are most likely to be impacted.

Probability of Occurrence: Occasional

Impact: Moderate-High

Hurricanes in the Lakes Region could produce heavy rain and strong winds that could lead to flooding and damage to property and infrastructure. Tropical and post-tropical cyclones can cause the same damage that high wind events cause, with the added hazard of possible flooding.

The committee noted that infrastructure such as roads, bridges, communications, and utilities are most vulnerable. All structures in Gilford are susceptible to damage by cyclonic events, whether through tropical depression or hurricane. Assuming 2% to 5% town-wide damage to buildings, high winds could result in \$46M to \$116M in damage in Gilford in any given year.

Impact on Vulnerable Communities: Potential impacts associated with cyclonic events on Gilford’s vulnerable populations include:

- May have limited mobility for getting assistance/evacuation, dependence upon others to travel
- Limited resources for seeking medical assistance

WILDFIRE

Wildfire is defined as a fire in wooded, potentially remote areas that may endanger lives. A wildfire is any non-structural fire, other than prescribed fire, that occurs in wildland areas consisting of vegetation or natural fuels. Wildfires can be referred to as brush fires, wildland fires, or grass fires depending on the location and what is burning.

Extent: Moderate

New Hampshire has about 500 wild land fires each year; most burn less than half an acre. Much of the Lakes Region (and Gilford) is forested and susceptible to fire.

The National Wildfire Coordinating Group (NWCG) 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:

The NOAA Database indicates that there have not been any wildfires since the last Plan update in 2018. There was no local knowledge of a wildfire in Gilford.

Location: Much of Gilford is heavily wooded; a fire could occur anywhere. The Committee mentioned the greatest areas of concern are, Belknap Mountain and Mount Rowe, Gunstock Acres as it is very wooded while also being densely populated, Lakeshore Park as it is thickly settled, some of the smaller islands like Timber Island and Welch Island as they are heavily wooded with residences and minimal access, and the wooded area by Terrace Hill Road.

Probability of Occurrence: Occasional

Impact: Moderate-High

Some sections of town may have limited access to potential wildfire areas, especially due to steep slopes, but fires in these locations would have a limited impact on structures. Due to the heavily wooded nature of the town, all properties in town have the potential to be impacted by a wild land fire. Assuming 1% town-wide damage to buildings, each year wildfire could result in \$23M in damages.

Impact on Vulnerable Communities: Potential impacts associated with wildfire on Gilford's vulnerable populations include:

- May have limited mobility for getting assistance/evacuation, dependence upon others to travel
- Likely to be more vulnerable to hazards like air quality

Summary of Risk

A matrix was created to determine an overall hazard risk assessment rating (next page). Each criterion (**Extent**, **Probability** of occurrence, and **Impact** – an average of three types) was given a rating to show which hazards are the greatest threat to the community, based on historic events and local knowledge, the town’s ability to respond, along with economic and environmental issues.

These ratings were transformed into numerical values. The **overall risk rating** associated with each hazard was determined by multiplying the three factors. For Natural Hazards, a total score of 27 or more was deemed to be High Risk, a total of between 9 and 27 was deemed to be Medium Risk, and a score of less than 9 was deemed Low Risk.

Definitions

Probability of Future Events
<ul style="list-style-type: none"> • Improbable: <10% probability of occurrence in the next year or a recurrence interval of more than every ten years • Occasional: 10 - 25% probability of occurrence in the next year or a recurrence interval of three to ten years • Probable: 25 - 80% probability of occurrence in the next year or a recurrence interval of two to three years • Frequent: 80-100% probability of occurrence in the next year or a recurrence interval of nearly every year

Extent - How bad could it get?
<ul style="list-style-type: none"> • Weak: limited magnitude, slow onset, short duration, little damage. • Moderate: moderate magnitude, moderate onset speed, moderate duration, some damage/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.

Impact - Human, Property, Business
<p>Low: There is little likelihood that injury or death will results 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.</p> <p>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 interuption of essential services and other services that residents and visitors depend upon for hours or days.</p> <p>High: It is quite likely that injury or death will results from this hazard. There will be damage to multiple properties. Essential services and other services that residents and visitors depend upon will likely be interrupted for days.</p> <p>Catastrophic: Multiple injuries or deaths will likely results from this hazard. Damage to properties will be widespread and extensive. Essential services and other services that residents and visitors depend upon will likely be interrupted for days or weeks.</p>

Gilford 2025 Hazards	Extent	Probability	Average Impact	Risk
Definition	Magnitude/ Strength	Likelihood this will occur w/in 10 yrs	Average of Human, Property, Business	Probability x Extent x Avg. Impact
Scale Natural Hazards	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	Low Medium High
Avalanche	1	1	1.00	1.00
Conflagration	2	2	2.00	8.00
Dam Failure	2	1	1.00	2.00
Drought	2	2	1.67	6.67
Earthquake (>4.0)	2	1	2.00	4.00
Extreme Temps	3	3	1.67	15.00
High Wind Events (Torn./Downb.)	3	4	3.00	36.00
Infectious Diseases	2	2	2.33	9.33
Inland Flooding (& Erosion)	3	4	2.33	28.00
Landslides	2	1	1.33	2.67
Severe Winter Weather	3	4	3.00	36.00
Solar Storms & Space Weather	1	1	1.00	1.00
Thunderstorm/ Lightning	2	3	2.00	12.00
Tropical & Post- Tropical Cyclones	2	2	2.67	10.67
Wildfire	2	2	2.67	10.67

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.

SECTION IV: VULNERABILITY ASSESSMENT

After reviewing the various natural hazards and the town’s critical facilities and other resources, the Gilford HMP Committee considered how susceptible they considered each critical facility/population to be to damage or economic loss (vulnerability). As a group, the Committee gave a rating for each critical facility and critical population’s vulnerability to each hazard. The **vulnerability ratings** below, indicate the Town’s greatest vulnerabilities are high wind events, lightning, inland flooding, and infectious diseases.

Key: Low – 1, Medium – 2, High – 3.

Critical Primary & Secondary Facilities

Vulnerability of Critical Facilities & Infrastructure Matrix: Primary & Secondary Facilities Gilford 2025	High Wind Events	Lightning	Inland Flooding	Wildfire	Earthquake	Severe Winter Weather	Tropical/Post-tropical Storms	Infectious Disease	Extreme Temps	Drought	Solar Storms & Space Weather	Landslide	Avalanche	Other:	Total
Town Hall	2	2	2	2	1	2	2	1	1	1	1	1	1		19
Police Station	2	2	2	2	1	2	2	1	1	1	1	1	1		19
Fire Station	3	2	1	3	1	1	2	3	2	2	1	1	1		23
Department of Public Works	3	2	1	1	1	1	2	2	1	1	2	1	1		19
Gilford High School (Shelter)	1	1	2	2	1	2	1	2	1	1	1	2	1		18
(shelter)	2	2	2	2	2	2	1	1	1	1	1	1	1		19
Laconia Middle School (Regional Shelter)	2	2	2	2	2	2	1	2	1	1	1	1	1		20
Library	2	2	2	2	2	2	1	2	1	1	1	1	1		20
Gilford Youth Center	2	2	2	2	2	2	1	2	1	1	1	1	1		20
Gilford Recycling Center	3	3	1	1	1	1	2	1	1	1	1	1	1		18
Marine Patrol Headquarters	3	2	1	2	1	1	2	1	1	1	1	1	1		18
Town Docks	3	2	1	2	1	1	2	1	1	1	1	1	1		18
Airport	3	2	1	1	1	1	2	2	1	1	2	1	1		19
locations	1	1	3	1	2	1	1	1	1	1	1	1	1		16
Belknap Mtn. Transmitter	2	2	2	1	2	1	1	1	1	1	2	1	1		18
Cell Towers	2	2	2	1	2	1	1	1	1	1	2	1	1		18
Electrical Substations	2	2	2	1	2	1	1	1	1	1	2	1	1		18
Telephone Facility @ Sawyer Meadows	2	2	2	1	2	1	1	1	1	1	2	1	1		18
Transmission Lines	2	2	2	1	2	1	1	1	1	1	2	1	1		18
Hillside Medical Park (Medical supplies)	1	1	1	1	1	2	1	2	1	1	1	1	1		15
CVS (medical supplies)	1	1	1	1	1	2	1	2	1	1	1	1	1		15
Hannaford (medical supplies)	1	1	1	1	1	2	1	2	1	1	1	1	1		15
Walmart (medical supplies)	1	1	1	1	1	2	1	2	1	1	1	1	1		15
Other:															
Total	46	41	37	34	33	34	31	35	24	24	30	24	23		

*Vulnerability is susceptibility to damage or economic loss. It includes how exposed or susceptible to damage an asset is and depends on:
a) location (floodplain, steep slope), b) construction (elevated, meets codes), and c) contents (haz. mat.)

Low - not particularly exposed to hazard, constructed to code or hardened against hazard, contents are not particularly hazardous or exposed.

Medium - some exposure to hazard, some deficiencies in construction or could be hardened against hazard, some contents are exposed or hazardous.

High - site or structure is exposed to the hazard, structure is not up to code or should be hardened against hazard, contents are exposed or hazardous.

Key: Low – 1, Medium – 2, High – 3.

Critical Populations & Places

Vulnerability of Critical Facilities & Infrastructure Matrix: Populations & Places Gilford 2025	High Wind Events	Lightning	Inland Flooding	Wildfire	Earthquake	Severe Winter Weather	Tropical/Post-tropical Storms	Infectious Disease	Extreme Temps	Drought	Solar Storms & Space Weather	Landslide	Avalanche	Other:	Total
Gilford High School (shelter)	1	2	2	2	1	2	1	2	1	1	1	2	1	1	20
Gilford Elementary School	1	1	2	2	1	2	1	2	1	1	1	2	1	1	19
Gilford Middle School	1	2	2	2	1	2	1	2	1	1	1	2	1	1	20
Bank NH Pavillion (Meadowbrook)	2	2	2	2	1	1	1	1	1	1	1	1	1	3	20
Gunstock Recreation Area	1	1	1	2	1	1	1	1	1	1	1	2	2	2	18
Gilford Library	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Ready, Set, Grow!	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Miss Joanna's	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Little Learners	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Learning By The Lakes	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Village Nursery	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
York Village	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Wesley Woods	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Lake Breeze	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Mt. View Housing Coop	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Wood Smoke Meadow	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Sargent's	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Lakes Region Mobile Home Coop.	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Edge of the Woods	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Old Lake Shore Co-op	1	1	1	1	1	1	1	2	1	1	1	1	1	1	15
Total	21	23	24	25	20	23	20	38	20	20	20	24	21	23	

*Vulnerability is susceptibility to damage or economic loss. It includes how exposed or susceptible to damage an asset is and depends on:
a) location (floodplain, steep slope), b) construction (elevated, meets codes), and c) contents (haz. mat.)

Low - not particularly exposed to hazard, constructed to code or hardened against hazard, contents are not particularly hazardous or exposed.

Medium - some exposure to hazard, some deficiencies in construction or could be hardened against hazard, some contents are exposed or hazardous.

High - site or structure is exposed to the hazard, structure is not up to code or should be hardened against hazard, contents are exposed or hazardous.

SECTION V: MITIGATION STRATEGIES

A. CURRENT PLANS, POLICIES, AND REGULATIONS

The planning decisions that affect community growth patterns have evolved over the years as Gilford 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 2018 Hazard Mitigation Plan. A review of existing mitigation strategies was conducted and included review of pertinent documents including the zoning ordinance, subdivision regulations, emergency management plan, site plan regulations, and discussion with Committee members. The following strategies detail existing plans and regulations related to hazard mitigation. Also included is a column with comments noted by the Committee. The review of existing effectiveness utilized these categories:

Poor *The policy, plan or mutual aid system is **outdated and/or ineffective and needs to be reviewed/updated.***

Average *The policy, plan or mutual aid system **meets minimum requirements and may require potential reviews/updates.***

Excellent *The policy, plan or mutual aid system **meets all requirements and requires no reviews/updates.***

The primary planning mechanism in Gilford addressing land use development is the master plan. Gilford’s Master Plan was last revised in 2016 and is reviewed annually. The town’s Zoning Ordinance (2024) along with Subdivision (2012) and Site Plan Review Regulations (2012) are the tools for implementing the vision and goals of the master plan. These various planning documents are responsible for promoting the health, safety, and welfare of the community.

The town’s Zoning Ordinance was updated since the last HMP. NH RSA 674:2(e) does allow for the inclusion of a natural hazards Section in a local master plan. The town should consider adopting this HMP as part of the master plan by reference.

How the town appropriates its funds is another form of planning, indicating local priorities. In Gilford, the Selectmen are responsible for the development of annual and long-term town budgets, which could include some hazard mitigation expenses. Recent town budgets have funded mitigation and response expenses identified in the hazard mitigation plan notably updating the culvert inventory and planning for culvert replacements as needed.

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 (NH RSA 674.5). The CIP can be developed by the Planning Board or a committee appointed by the Board of Selectmen. Gilford does have a CIP Committee.

Table V-1: Existing Protections and Policies

Existing Protection	Description	Responsible Agent	Effectiveness* <i>Poor/Average/Excellent</i>	Comments
Emergency Operations Plan	The Town maintains an EOP that meets the recommendations by the NH Homeland Security Emergency Management. This plan identifies the response procedures and capabilities of the Town of Gilford in the event of a natural or man-made disaster.	Emergency Management Director (EMD)	Average	Update in 2020
Zoning Ordinance	Gilford has enacted a zoning ordinance and map to protect the health, safety and welfare of the residents of the town from the effects of ill considered and indiscriminate use of land.	Planning & Land Use Department	Excellent	Updated annually
State Building Code	The town complies with the State of New Hampshire Building Code which incorporates the IBC, IPC and NFPA. Currently there is a full-time building inspector to enforce the standards.	Planning & Land Use Department	Excellent	
Floodplain Ordinance	The minimum National Flood Insurance Program (NFIP) requirements have been adopted as part of the Town’s Zoning Ordinance. This regulates all new and substantially improved structures located in the 100-year floodplain, as identified on the FEMA Flood Maps.	Planning & Land Use Department	Average	Needs updating

Existing Protection	Description	Responsible Agent	Effectiveness	Comments
Elevation Certificates Maintained	Elevation certificates are required for any new development or substantial improvement to substantially damaged properties located in the Special Flood Hazard Areas (designated 100-year floodplain), Gilford’s Building Inspector require Elevation Certificates for construction in the 100-year floodplain.	Building Inspector	Average	
Community Rating System	The town is currently not participating in the CRS. The CRS provides Flood Insurance Premium reductions based on the reduced flood risk resulting from community activities.	Building Inspector	N/A	
Fire Prevention Codes	The town complies with the State of New Hampshire Fire Code. Intended to ensure a minimum level of fire safety protection to life and property. Town wide, prior to issuance of Certificate of Occupancy.	Fire Department	Excellent	
Emergency Warning System	The Town utilizes the State Emergency Notification System through E-911 as well as digital sign boards, social media, local cable, and the Town website.	EMD	Excellent	
Non-Residential Site Plan Approval	Evaluation criteria include methods of surface water drainage, effects on or from the natural environment, and adequacy of water supply according to fire department requirements.	Planning & Land Use Department	Excellent	
Sedimentation & Erosion Control Plan	Addresses retention and protection of natural vegetation and accommodation of increased runoff from development.	Planning & Land Use Department	Average	
Excavation Regulations	Sand and gravel excavation requires provisions for re- sloping for stabilization and re- vegetation. On- and off- site erosion and siltation are addressed.	Planning & Land Use Department	Average	

Existing Protection	Description	Responsible Agent	Effectiveness	Comments
Road Design Standards	Gilford Subdivision and Site Plan Regulations include road design standards that control the amount and retention of storm water runoff as well as cul-de-sac requirements for emergency vehicle access.	Public Works Department	Poor	Update
Storm Drain / Culvert Maintenance	The Gilford Public Works Department and the State DOT clean the drainage basins once a year and after major flooding events. Culverts are repaired as needed.	Gilford Public Works / NH DOT	Excellent	Culvert update done in 2024
Wetlands District	The Zoning Ordinance contains wetland buffer regulations. Intended to prevent development of structures and land uses on naturally occurring wetlands. Addresses flood protection and maintenance of natural areas.	Planning & Land Use Department	Average	25ft buffer for ≥ 1 acre
Steep Slopes	Development of slopes greater than 15 percent may be prohibited or limited. Acknowledges slopes greater than 15 percent in elevations greater than 1,300' are especially subject to erosion and excess runoff.	Planning & Land Use Department	Average	
Hazardous Materials Plan / Team	There is one facility on Artisan Court with Hazardous Material (propane tanks) that warrant a Hazardous Material Plan. The regional HazMat response team serves the town.	Fire Department	Average	Aquifer protection district restricts hazmat.

Existing Protection	Description	Responsible Agent	Effectiveness	Comments
Public Education Programs	Gilford Fire and Rescue offer school and public education programs and conducts commercial and residential fire safety inspections. Gilford Police runs the DARE program and has two SROs in the schools.	Fire and Police	Excellent	
Master Plan	The Master Plan serves as the guiding document for future development and serves as the basis for other responsibilities of the Planning Board as it strives to preserve and enhance the quality of life of all residents in Gilford.	Planning Board	Average	2016, reviewed annually
CEMPS	Gilford School District has participated and received training in the Comprehensive Emergency Management Program for Schools through the NH HSEM.	Gilford School District	Excellent	
Winnepesaukee Regional Public Health Network	The Town of Gilford participates in the Winnepesaukee Regional Public Health Network which works to assure coordinated and comprehensive delivery of essential public health services and serves as a local liaison with state agencies involved in the public's health and safety.	Gilford EMD & Health Officer	Average	
VIPS	Volunteers In Police Service (VIPS) provides support and resources for agencies interested in developing or enhancing a volunteer program and for citizens who wish to volunteer their time and skills with a community law enforcement agency.	Gilford Police Department	Average	Assist in public events

B. STATUS OF 2018 ACTIONS

The 2018 HMP contained 20 recommended actions, 12 mitigation actions and 8 preparedness or response (non-mitigation) actions. The status of the mitigation actions recommended in the 2018 plan is indicated in Table V-2 as either Completed (C), Deleted (X), or Deferred (D) [Preparedness and response activities are addressed in Appendix G.] A review of the status of these actions reveals that three have been completed and three others are no longer considered pertinent. Deferred Actions (or portions of deferred Actions) were carried forward to be considered along with new Mitigation Actions (Table V-3).

Table V-2: Status of Mitigation Actions from the 2018 Plan Key: C-Completed, X – Delete, D – Deferred

Hazard	Projects	Project Status (2025)	Comments
Drought, Wildfire	Address fire mitigation through hydrants and water availability.	D	Ongoing; Have a plan, money is in the budget to address some hydrants as needed.
Drought, Wildfire	Conduct education and outreach to encourage the use of the FireWise program, beginning with island residents (27 islands with 211 residents).	D	21 islands inhabited, 291 homes.
All Hazards	Develop and implement a public education program regarding all- hazard mitigation.	X	Rely on state. Pass along as necessary, redundant as an action.
All Hazards	Promote existing public notification methods for the public.	D	In process with "operating budget funds".
Flood, Hurricane	Upgrade and maintain culverts as needed to reduce the likelihood of back up or washout.	D	Ongoing; have a 5-year maintenance plan.
Flood, Hurricane	Develop a stream maintenance program for Black, Gunstock, and Poor Farm Brooks, including state and municipal responsibilities and education/ outreach to riparian landowners.	D	Conservation Commission works with Laconia Conservation Commission on Black Brook. Add NHDES as a Responsible party.
Severe Wind Hurricane	Educate homeowners on how to protect buildings during severe wind events.	D	

Hazard	Projects	Project Status (2025)	Comments
Lightning	Educate the public on lightning protections systems such as lightning rods and grounding structures.	D	
Extreme Heat, Winter Weather	Organize outreach to vulnerable populations, including promoting accessible heating or cooling centers.	D	
Dam Failure	Continue to implement an inspection and maintenance program of locally owned dams.	D	Continue to consult with NHDES on this.
Drought	Investigate expanding the Laconia water system into Gilford, especially to the School and other public buildings.	D	Concern - only one wellhead for schools. Cost is an obstacle.
Earthquake	Educate the public on seismic retrofitting, window film and earthquake protection.	X	
Hazard	Non-Mitigation Projects	Project Status (2025)	Comments
Flood, Hurricane	Create an inventory and map all culverts and catch basins in town.	C	Completed in 2024.
Motor Vehicle Accidents	Work with NH DOT to address NH Route 11A and 11B intersection - safety issues	D	In process with "operating budget funds".
Human Caused	Ensure that the firefighting and fuel containment capabilities at the airport are adequate to address the needs of the current aircraft.	X	
Flooding	Repair the one municipal Red-Listed bridge in town along Old Lakeshore Road.	C	2019 - 2020
All Hazards	Develop an all-hazards debris management plan.	C	All debris is managed at the Transfer Station.

Hazard	Non-Mitigation Projects	Project Status (2025)	Comments
All Hazards	Work with E-911 to ensure that all residence have a unique E-911 address, include trailers in the town's mobile home parks.	D	In process with "operating budget funds".
All Hazards	Work with Meadowbrook Farms to improve pedestrian access and safety to their site.	D	Ongoing process. Name change - Bank NH Pavillion. Completed - additional gravel and paving also enhanced a pedestrian bridge. More steps can be done.
All Hazards	Purchase a generator for the library and elementary school.	D	Completed for the Library. Still a need for the Elementary School.

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C. MITIGATION GOALS AND TYPES OF ACTIONS

GOALS

In the 2018 Plan, the committee affirmed its support for the goals stated in the State HMP at the time. This included both general and hazard-specific local goals. In 2023 the New Hampshire State Hazard Mitigation Plan published six overarching goals to help align the plan with new focuses on equity, the impacts of climate change, and community lifelines. The Gilford HMP Committee reviewed both sets of goals and adopted the following wording that incorporates elements of both sets of goals as they apply to Gilford.

Goal I: Community and Resource Protection

Objective 1: Ensure mitigation strategies consider the protection and resiliency of human life, property, the environment, the economy, and the Town's critical facilities.

Goal II: Outreach and Education

Objective 1: Through an inclusive planning process, improve public awareness of potential hazards, hazard preparedness and resilience, and increasingly severe weather events.

Objective 2: Increase the public's involvement in emergency response and recovery through outreach and education.

Goal III: Coordination and Communication

Objective 1: Ensure plans are in place to address various emergency situations and that regular communication occurs through a coordinated and collaborative effort between federal, State, and local authorities to implement appropriate and cost-effective hazard mitigation measures.

Objective 2: Strengthen Continuity of Operations and Continuity of Government in Gilford to ensure continuation of essential services through training, outreach, and education.

Goal IV: Damage Prevention

Objective 1: Minimize the damage and public expense which might be caused to public and private buildings and infrastructure due to hazard events.

The Goals will be achieved through:

- a. identifying and assessing hazards posing a risk to Gilford and developing mitigation measures through a community outreach effort, including vulnerable populations.
- b. a coordinated and collaborative effort between federal, State, and local authorities along with other partners (private, NGOs, and VOADs*) to implement appropriate and cost-effective hazard mitigation measures.

- c. public education about disaster preparedness and resilience and expanded awareness of the threats and hazards which face the town.
- d. strengthen Continuity of Operations and Continuity of Government to ensure continuation of essential services through training, outreach, and education.
- e. Reduce the impact of increased severe weather incidents (flooding, snow and ice storms).

*NGO – Non-governmental Organization, VOAD - Voluntary Organizations Active in Disaster

TYPES OF ACTIONS

There are six **types of actions** that communities may take to reduce the likelihood that a hazard might impact the community. Below each **action type** are several examples of those actions.

A. Actions that will keep things from getting worse - Prevention

- a. Zoning – floodplain and steep slope overlays
- b. Open space preservation
- c. Subdivision and Site Plan Review
 - i. Impervious surface limits
 - ii. Stormwater management
- d. Capital Improvements Plan – limiting the extension of public infrastructure into hazard areas
- e. Building and Fire codes

B. Actions that address individual buildings - Property Protection

- a. Flood-proofing existing buildings
- b. Retrofitting existing buildings to reduce damage
- c. Relocating structures from hazard-prone areas
- d. Public procurement and management of land vulnerable to hazard damage

C. Actions that will inform the public - Public education and awareness

- a. Make hazard information and maps available to residents and visitors.
 - i. Paper or electronic
 - ii. Targeted at residents and businesses in hazard-prone areas
 - iii. Set up displays in public areas, or homeowners associations.
 - iv. Give educational programs in schools.
 - v. Make information available through newspapers, radio, TV.
- b. Ask businesses to provide hazard information to employees.
- c. Adopt a real estate disclosure requirement so that potential owners are informed of risks prior to purchase.

D. Actions that will protect natural resources

- a. Erosion and sediment control programs
- b. Wetlands protection programs
- c. Expand public open space
- d. Environmental restoration programs

E. Actions that will protect emergency services before, during, and immediately after an event (Long-term continuity)

- a. Protect warning system capability
 - b. Protection or hardening of critical facilities such as fire stations or hospitals
 - c. Protection of infrastructure, such as roads that are needed in emergency response
- F. Actions that will control the hazard – Structural projects**
- a. Diversion of stormwater away from developed areas
 - b. Reservoirs to store drinking water

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D. MITIGATION ACTIONS

Through a review of the risk assessment and local vulnerabilities, several Problem Statements were identified and refined by the Committee. Through discussion an updated list of mitigation strategies was developed to address these current problems. Hazards are listed alphabetically, and ID letters/numbers do not indicate any prioritization.

Table V-3: Problem Statements and Potential Mitigation Actions

Project ID	Hazard	Problem Statements	Projects
AH 1	All Hazards	If residents and visitors do not have clear and consistent information in advance, people and property could suffer greater impacts from natural hazards.	Promote existing public notification methods for the public.
CF 1	Conflagration (Fire)	There are a number of heavily wooded areas in town near residences, including the islands. Emergency response can be difficult and may be delayed.	Educate Property Owners about Wildfire Mitigation Techniques. Educate property owners on actions that they can take to reduce risk to property, such as the FireWise program, beginning with island residents (27 islands with 211 residents).
DF 1	Dam Failure	There are local dams that could pose a threat to the community if they were to fail.	Continue to work with DES and be aware of locally owned dams.
D 2	Drought	There is no alternate water source if the one wellhead for the school were to be compromised.	Expand the Laconia water system into Gilford, especially to the School and other public buildings.
D/W 1	Drought, Wildfire	There are areas in town that have limited water availability for fire response.	Develop and upgrade of hydrants and water availability.

Project ID	Hazard	Problem Statements	Projects
EQ	Earthquake	Several faults run near Gilford. A 4.0 or larger earthquake could results in damages, especially to taller, masonry structures.	Educating homeowners on safety techniques to follow during and after an earthquake.
ET 1	Extreme Temperatures	Extreme heat and extreme cold can pose a health safety risk to the public, especially if residents lack their own heating and/or cooling mechanisms.	Organize outreach to vulnerable populations, including promoting accessible heating or cooling centers.
F 1	Flooding	Areas of town experience flooding and/or washouts during high rain events.	Upgrade and maintain culverts as needed to reduce the likelihood of back up or washout.
F 2	Flooding	There are streams in town that could pose a risk during high rain events.	Develop a stream maintenance program for Black, Gunstock, and Poor Farm Brooks, including state and municipal responsibilities and education/ outreach to riparian landowners.
F 3	Flooding	Areas of town experience flooding and/or washouts during high rain events.	Update drainage regulations.
F 4	Flooding	Areas of town experience flooding and/or washouts during high rain events.	Financially plan for box culvert upgrades at stream crossings before they fail.

Project ID	Hazard	Problem Statements	Projects
HW 1	High Winds (Tornado/ Downbursts)	The town experiences high wind events which could cause property damage to residences.	Educate homeowners on how to protect buildings during severe wind events.
ID	Infectious Diseases	Infectious diseases could impact residents, visitors, and businesses.	Work in partnership with public health network to share information with the public.
L	Lightning	Lightning strikes have been recorded in Belknap County and can harm people and property.	Educate the public on lightning protections systems such as lightning rods and grounding structures.
SWW	Severe Winter Weather	The town experiences severe winter weather events that can impact emergency vehicle access.	Maintain adequate funding for snow removal on roads.

The Committee identified the various costs and benefits associated with each action. The estimated cost represents what the town estimates it will cost in terms of dollars or staff hours to implement each action. Table V-4 shows the costs as well as the various benefits associated with each action. This table also includes notes whether the action addresses existing structures/infrastructure or future (new) structures/infrastructure. The ID letters are used simply for tracking purposes; they do not indicate any sort of prioritization.

Table V-4: Actions indicating Hazard, Cost, Structure, Goal, and Type of Action

Cost Key: Low = Under \$5K or 100 hours

Medium = Between \$5K and \$100K

High = Over \$100K

Project ID	Hazard	Problem	Mitigation Action	Estimated Cost	Potential Funding Source	New/ Existing
AH 1	All Hazards	If residents and visitors do not have clear and consistent information in advance, people and property could suffer greater impacts from natural hazards.	Promote existing public notification methods for the public.	Low	Staff Time	Existing
CF 1	Conflagration (Fire)	There are a number of heavily wooded areas in town near residences, including the islands. Emergency response can be difficult and may be delayed.	Educate Property Owners about Wildfire Mitigation Techniques. Educate property owners on actions that they can take to reduce risk to property, such as the FireWise program, beginning with island residents (27 islands with 211 residents).	Low	Staff Time	New
DF 1	Dam Failure	There are local dams that could pose a threat to the community if they were to fail.	Continue to work with DES and be aware of locally owned dams.	Low	Staff Time	Existing
D/W 1	Drought, Wildfire	There are areas in town that have limited water availability for fire response.	Develop and upgrade of hydrants and water availability.	Medium	FD budget	Existing
EQ	Earthquake ≥4.0	Several faults run near Gilford. A 4.0 or larger earthquake could result in damages, especially to taller, masonry structures.	Educating homeowners on safety techniques to follow during and after an earthquake.	Low	Staff Time	New

Project ID	Hazard	Problem	Mitigation Action	Estimated Cost	Potential Funding Source	New/ Existing
ET 1	Extreme Temperatures	Extreme heat and extreme cold can pose a health safety risk to the public, especially if residents lack their own heating and/or cooling mechanisms.	Organize outreach to vulnerable populations, including promoting accessible heating or cooling centers.	Low	Staff Time	New
F 1	Flooding	Areas of town experience flooding and/or washouts during high rain events.	Upgrade and maintain culverts as needed to reduce the likelihood of back up or washout.	Med/High	Staff Time, DPW budget	Existing
F 2	Flooding	There are streams in town that could pose a risk during high rain events.	Develop a stream maintenance program for Black, Gunstock, and Poor Farm Brooks, including state and municipal responsibilities and education/ outreach to riparian landowners.	Medium	Con. Com. Budget, grant	Existing
F 3	Flooding	Areas of town experience flooding and/or washouts during high rain events.	Update drainage regulations.	Medium (\$20K)	Planning budget	New
F 4	Flooding	Areas of town experience flooding and/or washouts during high rain events.	Financially plan for box culvert upgrades at stream crossings before they fail.	Med/High	DPW budget, CIP	New
HW 1	High Winds (Tornado/ Downbursts)	The town experiences high wind events which could cause property damage to residences.	Educate homeowners on how to protect buildings during severe wind events.	Low	Staff Time	Existing
ID	Infectious Diseases	Infectious diseases could impact residents, visitors, and businesses.	Work in partnership with public health network to share information with the public.	Low	Staff Time	New

Project ID	Hazard	Problem	Mitigation Action	Estimated Cost	Potential Funding Source	New/ Existing
L	Lightning	Lightning strikes have been recorded in Belknap County and can harm people and property.	Educate the public on lightning protections systems such as lightning rods and grounding structures.	Low	Staff Time	Existing
SWW	Severe Winter Weather	The town experiences severe winter weather events that can impact emergency vehicle access.	Maintain adequate funding for snow removal on roads.	Med/High	Staff Time, DPW budget	New

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E. PRIORITIZATION OF ACTIONS

After considering the various merits and limitations of each project, the Committee prioritized the projects which had been identified. Committee members agreed to the standard STAPLEE prioritization tool to reflect the concerns of the community. The tool asks the committee to consider seven separate aspects for each Action. There was much discussion during this prioritization process and the final scores were reached through group consensus. Table V-5 shows the Actions and their scores. Total scores range from a high of 21 to a low of 7. See Appendix H for further details regarding the STAPLEE prioritization method and the detailed scores.

Scoring: 3 = Highly effective or feasible, 2 = Neutral, 1 = Ineffective or not feasible

Table V-5: Recommended Actions in Ranked Order

Project ID	Hazard	Mitigation Action	Total
AH 1	All Hazards	Promote existing public notification methods for the public.	17.0
F 1	Flooding	Upgrade and maintain culverts as needed to reduce the likelihood of back up or washout.	16.3
SWW	Severe Winter Weather	Maintain adequate funding for snow removal on roads.	16.3
F 2	Flooding	Develop a stream maintenance program for Black, Gunstock, and Poor Farm Brooks, including state and municipal responsibilities and education/ outreach to riparian landowners.	16.0
HW 1	High Winds (Tornado/ Downbursts)	Educate homeowners on how to protect buildings during severe wind events.	16.0
CF 1	Conflagration (Fire)	Educate Property Owners about Wildfire Mitigation Techniques. Educate property owners on actions that they can take to reduce risk to property, such as the FireWise program, beginning with island residents (27 islands with 211 residents).	15.7
F 4	Flooding	Financially plan for box culvert upgrades at stream crossings before they fail.	15.3
ET 1	Extreme Temperatures	Organize outreach to vulnerable populations, including promoting accessible heating or cooling centers.	15.3
F 3	Flooding	Update drainage regulations.	15.3

Project ID	Hazard	Mitigation Action	Total
ID	Infectious Diseases	Work in partnership with public health network to share information with the public.	15.3
L	Lightning	Educate the public on lightning protections systems such as lightning rods and grounding structures.	15.3
D/W 1	Drought, Wildfire	Develop and upgrade of hydrants and water availability.	15.0
EQ	Earthquake ≥4.0	Educating homeowners on safety techniques to follow during and after an earthquake.	14.0
DF 1	Dam Failure	Continue to work with DES and be aware of locally owned dams.	14.0

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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 town departments. This implementation schedule is a matrix (Table V-6) indicating the estimated cost of implementation, potential funding sources, the parties responsible for bringing about these actions, and implementation time frame. The time frame used fits within the 5-year term of this plan (Short 1-2 yr, Medium 3-4 yr, Long 5+ yr). These are listed in order of their Time Frame. 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 process and progress documented in Appendix K.

Table V-6: Implementation Schedule for Mitigation Actions by Time Frame

Project ID	Hazard	Mitigation Action	Estimated Cost	Potential Funding Source	Responsible Party	Time Frame S: 1-2 yr, M: 3-4 yr, L: 5+ yr O: Ongoing
AH 1	All Hazards	Promote existing public notification methods for the public.	Low	Staff Time	EMD	S-O
DF 1	Dam Failure	Continue to work with DES and be aware of locally owned dams.	Low	Staff Time	EMD	S-O
D/W 1	Drought, Wildfire	Develop and upgrade of hydrants and water availability.	Medium	FD budget	Fire Department	S-O
ID	Infectious Diseases	Work in partnership with public health network to share information with the public.	Low	Staff Time	Health Officer	S-O
L	Lightning	Educate the public on lightning protections systems such as lightning rods and grounding structures.	Low	Staff Time	EMD	S-O
EQ	Earthquake ≥4.0	Educating homeowners on safety techniques to follow during and after an earthquake.	Low	Staff Time	EMD	S
ET 1	Extreme Temperatures	Organize outreach to vulnerable populations, including promoting accessible heating or cooling centers.	Low	Staff Time	EMD, Health Officer	S

Project ID	Hazard	Mitigation Action	Estimated Cost	Potential Funding Source	Responsible Party	Time Frame S: 1-2 yr, M: 3-4 yr, L: 5+ yr O: Ongoing
CF 1	Conflagration (Fire)	Educate Property Owners about Wildfire Mitigation Techniques. Educate property owners on actions that they can take to reduce risk to property, such as the FireWise program, beginning with island residents (27 islands with 211 residents).	Low	Staff Time	Fire Department	S
F 3	Flooding	Update drainage regulations.	Medium (\$20K)	Planning budget	Planning, DPW	S
HW 1	High Winds (Tornado/Downbursts)	Educate homeowners on how to protect buildings during severe wind events.	Low	Staff Time	EMD	S
SWW	Severe Winter Weather	Maintain adequate funding for snow removal on roads.	Med/High	Staff Time, DPW budget	DPW	S
F 1	Flooding	Upgrade and maintain culverts as needed to reduce the likelihood of back up or washout.	Med/High	Staff Time, DPW budget	DPW	S-O + L
F 4	Flooding	Financially plan for box culvert upgrades at stream crossings before they fail.	Med/High	DPW budget, CIP	DPW	L (Short planning)
D 2	Drought	Expand the Laconia water system into Gilford, especially to the School and other public buildings.	High	Grants/School, Town budgets	SAU	L
F 2	Flooding	Develop a stream maintenance program for Black, Gunstock, and Poor Farm Brooks, including state and municipal responsibilities and education/ outreach to riparian landowners.	Medium	Cons. Com. Budget, grant	Conservation Commission	L

SECTION VI: PLAN ADOPTION AND MONITORING

A. IMPLEMENTATION

The Gilford Hazard Mitigation Plan Update Committee, established by the Emergency Management Directors/Selectboard, 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 parties responsible 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, NH HSEM, state agencies, and other sources such as those listed in Appendix B. The EMDs will coordinate with the department heads to ensure that funds and staff time for these projects are available. The EMD and Hazard Mitigation Committee will work with the Selectmen to incorporate the various projects into subsequent budgets where appropriate. The EMDs 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 updates to the Master Plan, Zoning, or the Subdivision or Site Plan Regulations or development of regulations or standards, members of the Hazard Mitigation Committee will work with the Planning Board to develop appropriate language.

When appropriate, an effort will be made to incorporate this plan into the Emergency Operations Plan. Within a year after the town officially adopts the 2025 update to the Hazard Mitigation Plan, an attempt will be made to have hazard mitigation strategies integrated into existing mechanisms and into all other ongoing town planning activities. Adoption of the Plan by the Board of Selectmen will take place in 2026.

B. PLAN MAINTENANCE & PUBLIC INVOLVEMENT

Plan Evaluation

To track progress and evaluate the mitigation strategies identified in Section V.F., the Gilford Hazard Mitigation Planning Committee and the Selectboard will review the Hazard Mitigation Plan **every year (by the end of December) or after a major hazard event**. The **Emergency Management Director** is responsible for initiating this review and shall consult with members of the HMP Committee identified in this Plan. Responsible parties identified for specific mitigation actions will be asked to submit a status report of those actions in advance of the meeting. Tables A and B in Appendix K may be used for recording this plan evaluation.

Meetings will entail the following actions:

Documentation of natural hazard events during the past year, local damages (and costs) associated with these events, costs associated with mitigation actions (and any match or reimbursement). Documentation could include a brief description, any associated costs and funding sources, as well as images.

Track progress toward implementation of the current mitigation plan based on status reports from responsible parties. Refer to Section V.B. for an applicable evaluation scale.

Assess the effectiveness of the plan at achieving the plan's stated purpose (Section I.D.) and goals (Section V.C.). Refer to Section V.A. for an applicable evaluation scale.

Other activities and discussions may include:

Review previous hazard events to discuss and evaluate major issues and possible mitigation for future events.

Assess how the mitigation strategies of the plan can be integrated with other Town plans and operational procedures, including the zoning ordinance and local Emergency Operations Plan.

Plan Update

The Emergency Management Director is also responsible for updating and resubmitting the plan to FEMA to be re-approved every five years. The EMDs will convene a plan update committee in mid-2030 to begin updating this plan before it expires. The plan update process will follow the same planning process used in this plan update. If modifications have been made either to the FEMA Local Mitigation Planning Policy Guide or the NH State Hazard Mitigation Plan, these will be incorporated into the planning process. Administrative staff may be utilized to assist, especially with the public involvement process.

Public Participation

For annual monitoring/evaluation process and for the five-year update, techniques that will be utilized for public involvement include:

- ❖ Provide invitations to municipal department heads as well as the Planning Board;
- ❖ Post notices of meetings at the Town Office and on the town website;
- ❖ Submit press releases for publication in the *Laconia Daily Sun* and other appropriate newspapers or media outlets.
- ❖ Additional steps to consider include conducting a public survey, holding an evening meeting, or providing for remote participation in meetings.

Entities to invite to future Hazard Mitigation monitoring/evaluation meetings and plan updates include the Emergency Management Directors of the neighboring communities of Laconia, Meredith, Moultonborough, Alton, Gilmanton, and Belmont. Additionally, the Emergency Preparedness Planner from Winnepesaukee Public Health Network, social service providers such as Belknap-Merrimack CAP, and others working with socially vulnerable communities in Gilford.

C. SIGNED CERTIFICATE OF ADOPTION

BOARD OF SELECTMEN
A RESOLUTION ADOPTING THE
GILFORD, NH
HAZARD MITIGATION PLAN UPDATE 2025

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

WHEREAS, the Town of Gilford, NH has developed and received approval pending adoption from the Federal Emergency Management Agency (FEMA) for its Hazard Mitigation Plan Update 2025 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held between March and June 2025 regarding the development and review of the Gilford, NH Hazard Mitigation Plan Update 2025; and

WHEREAS, the Plan specifically addresses hazard mitigation actions and Plan maintenance procedures for the Town of Gilford, NH, and

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

WHEREAS, adoption of this Plan will make the Town of Gilford, NH eligible for funding to mitigate the impacts of future hazards; now therefore be it RESOLVED by the Board of Selectmen:

1. The Plan is hereby adopted as an official plan of the Town of Gilford, NH;
2. The respective officials identified in the mitigation actions of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;
3. Future revisions and Plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as a part of this resolution for a period of five (5) years from the date of this resolution.
4. An annual report on the progress of the plan's mitigation action items shall be presented to the Selectboard by the Emergency Management Director.

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the town seal of the Town of Gilford this

Date:

GILFORD, NH SELECTBOARD

_____ (Signature) _____ (Printed)

_____ (Signature) _____ (Printed)

_____ (Signature) _____ (Printed)

ATTEST:

_____ (Signature) _____ (Printed)

APPENDIX A: TECHNICAL RESOURCES

NH Homeland Security and Emergency Management..... 271-2231
<https://www.hsem.dos.nh.gov/>

Hazard Mitigation Section..... 271-2231
<https://www.hsem.dos.nh.gov/hazard-mitigation>

Federal Emergency Management Agency (617) 223-4175
<http://www.fema.gov/>

FEMA, National Flood Insurance Program, Community Status Book
<http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book>

Lakes Region Regional Planning Commission 279-8171
<https://www.lakesrpc.nh.gov/>

NH Governor’s Office of Planning and Development 271-2155
<https://www.nheconomy.com/office-of-planning-and-development>

New Hampshire Floodplain Management Program
<https://www.nheconomy.com/office-of-planning-and-development/what-we-do/floodplain-management-program>

NH Department of Transportation 271-3734
<https://www.dot.nh.gov/>

NH Department of Cultural Affairs 271-2540
<https://www.dncr.nh.gov/>

Division of Historical Resources 271-3483
<https://www.nhdhr.dncr.nh.gov/>

NH Department of Environmental Services 271-3503
<https://www.des.nh.gov/>

Dam Bureau 271-63406
<https://www.des.nh.gov/water/dam-maintenance-and-management>

NH Municipal Association 224-7447
<https://www.nhmunicipal.org/>

NH Fish and Game Department 271-3421
<https://www.wildlife.nh.gov/>

NH Department of Natural and Cultural Resources..... 271-2411
<https://www.dncr.nh.gov/>

Division of Forests and Lands..... 271-2214
<https://www.nhdfl.dncr.nh.gov/>

Natural Heritage Inventory 271-2215
<https://www.nhdfl.dncr.nh.gov/natural-heritage>

Division of Parks and Recreation	271-3255
http://www.nhstateparks.org/	
NH Department of Health and Human Services	271-9389
https://www.dhhs.nh.gov/	
Northeast States Emergency Consortium, Inc. (NESEC)	(781) 224-9876
http://www.nesec.org/	
US Department of Commerce	(202) 482-2000
http://www.commerce.gov/	
National Oceanic and Atmospheric Administration	(202) 482-6090
http://www.noaa.gov/	
National Weather Service, Eastern Region Headquarters	
https://www.weather.gov/erh	
National Weather Service, Boston/Norton, Massachusetts.....	(508) 824-5116
https://www.weather.gov/box	
National Weather Service, Gray, Maine	(207) 688-3216
https://www.weather.gov/gyx/	
US Department of the Interior	
http://www.doi.gov/	
US Fish and Wildlife Service	225-1411
http://www.fws.gov/	
US Geological Survey	225-4681
http://www.usgs.gov/	
US Geological Survey Real Time Hydrologic Data	
http://waterdata.usgs.gov/nwis/rt	
US Army Corps of Engineers	(978) 318-8087
http://www.usace.army.mil/	
US Department of Agriculture	
http://www.usda.gov/wps/portal/usdahome	
US Forest Service	(202) 205-8333
https://www.fs.usda.gov/	
Eversource	(800) 662-7764
http://www.eversource.com/	
New Hampshire Electrical Cooperative	(800) 698-2007
http://www.nhec.com/	
Cold Region Research Laboratory	646-4187
https://www.erdc.usace.army.mil/Locations/CRREL/	
National Emergency Management Association	(859) 244-8000
http://nemaweb.org	
National Aeronautics and Space Administration	
http://www.nasa.gov/	

NASA Optical Transient Detector – Lightning and Atmospheric Research

<https://www.earthdata.nasa.gov/data/instruments/otd>

The Tornado Project Online

<http://www.tornadoproject.com/>

National Severe Storms Laboratory

<http://www.nssl.noaa.gov/>

Plymouth State University Weather Center

<http://vortex.plymouth.edu/>

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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 Gilford. The NH Homeland Security and Emergency Management Community Liaison Belknap County can provide some assistance.

404 Hazard Mitigation Grant Program (HMGP).....	NH Homeland Security and Emergency Management
406 Public Assistance and Hazard Mitigation	NH Homeland Security and Emergency Management
Community Development Block Grant (CDBG)	NH HSEM, NH OPD, also refer to LRPC
Dam Safety Program	NH Department of Environmental Services
Emergency Watershed Protection (EWP) Program	USDA, Natural Resources Conservation Service
Flood Mitigation Assistance Program (FMAP)	NH Homeland Security and Emergency Management
Highway Safety Improvement Program.....	NH Department of Transportation
Mitigation Assistance Planning (MAP).....	NH Homeland Security and Emergency Management
NH Public Works Mutual Aid.....	UNH Technology Transfer (T2)
National Flood Insurance Program (NFIP)	NH Office of Planning & Development
Project Impact.....	NH Homeland Security and Emergency Management
Roadway Repair & Maintenance Program(s).....	NH Department of Transportation
Shoreland Protection Program	NH Department of Environmental Services
Various Forest and Lands Program(s)	NH Department of Division of Forests and Land
Wetlands Programs.....	NH Department of Environmental Services
State Aid Bridge Program for Municipalities	NH Department of Transportation (and LRPC)
Contribution to Damage Losses (RSA 235:34)	NH Department of Transportation

FEMA’s Public Assistance (PA) grant program is authorized through the Stafford Act to provide federal assistance to government organizations and certain Private Nonprofit (PNP) organizations following a Presidential Disaster Declaration. This funding is provided at a 75%/25% cost share to allow government and certain PNP entities to respond and recover from major disasters or emergencies. The Public Assistance program returns damages to their pre-disaster condition. Through the PA program, FEMA provides supplemental assistance in the following categories:

- Emergency Work
 - o Debris Removal
 - o Emergency Protective Measures
- Permanent Work
- Roads and Bridges

- Water Control Facilities
- Public Buildings and Contents
- Public Utilities
- Parks, Recreational, and other facilities

Section 406 of the Stafford Act provides FEMA with the authority to fund cost-effective mitigation measures to repair, restore, or replace eligible damaged facilities, and allows for those structures to be rebuilt or repaired to better than pre-disaster conditions to make them less vulnerable to future hazards. Unlike other hazard mitigation grant programs, Section 406 mitigation is only available in the counties declared in the presidential declaration and only for eligible damaged facilities.¹¹

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¹¹ [nh-state-hazard-mitigation-plan.pdf](#), pg. 27

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.shtml	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/learn/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.shtml	States, localities, and tribal governments

Environmental Protection Agency (EPA)

The EPA makes funds available for water management and wetlands protection programs that help mitigate 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	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	<p>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.</p> <p>https://www.epa.gov/wetlands/wetland-program-development-grants-and-epa-wetlands-grant-coordinators</p>	See website
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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
USACE Planning Assistance to States (PAS)	<p>Fund plans for the development and conservation of water resources, dam safety, flood damage reduction and floodplain management.</p> <p>https://www.usace.army.mil/Missions/Civil-Works/Technical-Assistance/Planning-Assistance/</p>	50 percent non-federal match
USACE Flood Plain Management Services (FPMS)	<p>Technical support for effective floodplain management.</p> <p>https://www.usace.army.mil/Missions/Civil-Works/Technical-Assistance/FPMS/</p>	See website
USACE Environmental Laboratory	<p>Guidance for implementing environmental programs such as ecosystem restoration and reuse of dredged materials.</p> <p>https://www.erdc.usace.army.mil/</p>	See website
U.S. Fish & Wildlife Service Coastal Wetlands Conservation Grant Program	<p>Matching grants to states for acquisition, restoration, management or enhancement of coastal wetlands.</p> <p>https://www.fws.gov/service/national-coastal-wetlands-conservation-grants</p>	States only. 50 percent federal share
U.S. Fish & Wildlife Service Partners for Fish and Wildlife Program	<p>Program that provides financial and technical assistance to private landowners interested in restoring degraded wildlife habitat.</p> <p>https://www.fws.gov/program/partners-fish-and-wildlife</p>	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 Assistance and Protection Program	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/programs/public-safety-and-fire/fire-and-aviation/regional-info/montana-dakotas/assistance	See website
Firewise Communities Program	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

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.hudexchange.info/programs/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.hudexchange.info/programs/cdbg-dr/	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.hudexchange.info/	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
USDA Smith-Lever Special Needs Funding	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/funding-opportunities/smith-lever-special-needs-competitive-grants-program	Population under 20,000
USDA Community Facilities Guaranteed Loan Program	This program provides an incentive for commercial lending that will develop essential community facilities, such as fire stations, police stations, and other public buildings. https://www.rd.usda.gov/programs-services/community-facilities/community-facilities-guaranteed-loan-program	Population under 20,000
USDA Community Facilities Direct Loans	Loans for essential community facilities. https://www.rd.usda.gov/programs-services/community-facilities/community-facilities-direct-loan-grant-program	Population of less than 20,000
USDA Community Facilities Direct Grants	Grants to develop essential community facilities. https://www.rd.usda.gov/programs-services/community-facilities/community-facilities-direct-loan-grant-program	Population of less than 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. http://www.fsa.usda.gov/	Farmers and ranchers
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 Natural Resources Conservation Service	Emergency Watershed Protection Support Services: 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/programs-initiatives/emergency-watershed-protection	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/programs-initiatives/watershed-protection-and-flood-prevention-operations-program	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)	Provide disaster relief funds to those SUAs and tribal organizations who are currently receiving a grant under Title VI of the Older Americans Act. https://acl.gov/grants/disaster-assistance-state-units-aging-suas-and-tribal-organizations-major-disasters-6	Areas designated in a Disaster Declaration issued by the President
Economic Development Administration (EDA) Investment 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/funding/programs	The maximum investment rate shall not exceed 50 percent of the project cost
U.S. Small Business Administration Loan Program	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

Committee meetings were announced on the webpages of and Lakes Region Planning Commission and the town of Gilford. Press releases like the one below were sent to the *Laconia Daily Sun* prior to the Committee meetings. Several informational handouts and the 2018 Hazard Mitigation Plan were distributed to the committee and available at all meetings.

Press Release

LAKES REGION PLANNING COMMISSION

103 Main Street, Suite #3
 Meredith, NH 03253
 Tel 603.279.8171
www.lakesrpc.nh.gov



May 23, 2025

For Immediate Release

Contact: David Jeffers, 279-5341, djeffers@lakesrpc.nh.gov

Town of Gilford Hazard Mitigation Plan Meeting

The Gilford Hazard Mitigation Plan Committee is in the process of updating its 2018 Hazard Mitigation Plan. The committee is represented by a variety of local interests including the Fire, Police, and Highway departments, along with the Planning Board, Town Administrator, and a school representative. The group is reviewing the various hazards that put Gilford at risk as well as the development of recommendations to protect the safety and well-being of town residents.

The committee will meet on May 30 at 9:00 AM at the Gilford Police Station, 47 Cherry Valley Road (Enter through the Town Hall Main Entrance and turn to the left). Residents of Gilford and representatives from neighboring communities are encouraged to attend. Input to the plan can also be provided through an on-line survey at <https://arce.is/1LaD943or> using this QR Code.



Hazard Mitigation Planning is as important to reducing disaster losses as are appropriate regulations and land use ordinances. The most significant natural hazards of concern for Gilford are being reviewed and evaluated through this process; in the 2019 Plan these included flooding, winter weather, severe winds, and hurricane.

With the update to the Hazard Mitigation Plan, town leaders will be able to evaluate the status of current plans, policies, and actions then develop and 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 Gilford one step closer to that goal.

For more information, please contact Gilford Emergency Management Director Chief Stephen Carrier scarrier@gilfordnh.gov or David Jeffers, Planning Manager Lakes Region Planning Commission at 279-5341. The *2018 Gilford Hazard Mitigation Plan* can be found at <https://www.lakesrpc.nh.gov/Pages/Index/228297/hazard-mitigation>.

Information

Local Hazard Mitigation Planning

Hazard Mitigation:

"Hazard Mitigation means any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards"

Questions to address:

- Where are potential hazards?
- What are the risks?
- What are we already doing?
- Where are the gaps?
- What actions can be taken?
- What actions are feasible?
- What are our priorities?
- How will these actions be implemented?
- How will the plan be monitored?

What is a Hazard Mitigation Plan?

In cooperation with the NH Bureau of Emergency Management (BEM), the Lakes Region Planning Commission (LRPC) is working with several of its member communities each year to develop local Hazard Mitigation Plans.



The Hazard Mitigation Plans are designed to address each particular community's vulnerability to natural and man-made hazards. The local plan serves as a means to reduce future losses from hazard events before they occur. This local initiative is guided by a community-based Hazard Mitigation Planning Committee, with the LRPC providing technical support. The structure for plan development is provided through the *Guide to Hazard Mitigation Planning for New Hampshire Communities* which ensures that the community has considered the content of the State of New Hampshire Hazard Mitigation (409) Plan.

MITIGATION PROCESS

- IDENTIFY HAZARDS
- PROFILE HAZARD EVENTS
- INVENTORY ASSETS
- ESTIMATE LOSSES
- PRIORITIZE ACTION STEPS
- ADOPT THE PLAN
- IMPLEMENTATION

Why create a plan?

Development of a local Hazard Mitigation Plan is a chance for the community to assess the hazards that have the potential to threaten residents and their property. It also gives the community an opportunity to identify at-risk populations as well as resources within the community that might be at risk. The committee can then explore a variety of steps that might be put into place to help the community reduce damage and loss.

Having a Hazard Mitigation Plan in place, enables many communities to allocate their resources more effectively. It can also be a useful tool for leveraging additional sources of funding in the event of a disaster.

Federal Emergency Management Agency (FEMA) Requirement:

In order for communities to be eligible for the full spectrum of mitigation program funding, local hazard mitigation plans must be approved by FEMA. The staff of LRPC attend semi-annual hazard mitigation meetings and training programs that are designed to expedite the approval process.

Lakes Region Planning Commission
 103 N. Main St., Suite #3
 Meredith, NH 03253
 (603) 279-8171 - phone
 (603) 279-0200 - fax



Frequently asked questions

- **What will a Hazard Mitigation Plan cost?**

Since this project is funded by the NH Bureau of Emergency Management, the only cost to the community is the dedication of committee members' time and energy.

- **How is a Hazard Mitigation Plan different from an Emergency Action Plan?**

Although there is some overlap, these are different plans, each serving a different function in helping a community to minimize the potential for damage and loss in a community.

Emergency Action Plans (EAP) identifies potential hazard events and the resources available to address them; it also addresses how a community responds to an emergency.

A Hazard Mitigation Plan (HMP) also identifies potential hazard events and community resources. However, an HMP looks at the situation in terms of prevention instead of response. Gaps in coverage, programs, and structural needs are analyzed and specific mitigation steps are recommended and potential funding sources are identified.

- **Is this a community plan, a state plan, or a federal plan?**

The state of New Hampshire does require that each community develop an HMP. Once a plan is approved by FEMA and adopted by the community, should there be a need for Federal Mitigation money, more funding would be available. However, local public involvement is required. The local Emergency Management Director or a committee of citizens should help in plan development; there should also be several public presentations where citizens can make recommendations, provide input, and participate in development of the plan. In the end, the Board of Selectmen need to approve the plan.



Alton dam breach, 1996



The Essentials

At a minimum, each local Hazard Mitigation Plan should contain the following sections:

- An evaluation of the potential hazards within the community
- A description and analysis of local, state, and federal hazard mitigation policies, programs, and capabilities to mitigate the identified hazards in the area
- Goals, objectives, strategies and actions to reduce long-term vulnerability to hazards
- An evaluation of the costs and benefits of the recommended mitigation projects.



Building stronger and safer

Hazard mitigation planning is the process state, local and tribal governments use to identify risks and vulnerabilities associated with natural disasters and to develop long-term strategies for protecting people and property in future hazard events. The process results in a mitigation plan that offers a strategy for breaking the cycle of disaster damage, reconstruction and repeated damage and a framework for developing feasible and cost-effective mitigation projects. Under the Disaster Mitigation Act of 2000 (Public Law 106-390), State, local and Tribal governments are required to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance.

Reducing risks through mitigation planning

A hazard mitigation plan is a long-term strategy for reducing disaster losses. The planning process promoted by the Disaster Mitigation Act of 2000 is as important as the resulting plan because it encourages jurisdictions to integrate mitigation with day-to-day decision-making regarding land-use planning, floodplain management, site design and other functions.

Mitigation planning elements

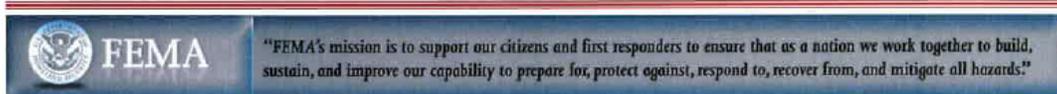
- Public involvement – In addition to government agencies involved in incident management, floodplain management and economic development, the planning process usually involves a range of stakeholders, including representatives of neighborhood groups, civic organizations, academia, environmental groups, the business community and individual citizens. Involving stakeholders is essential to determining the

most vulnerable populations and facilities in the community and to assuring community wide support for the plan.

- Risk assessment – A risk assessment is the process of identifying natural hazards and risks associated with them, including threats to public health and safety, property damage and economic loss. The assessment answers the fundamental question, “What would happen if a natural disaster occurred?” and provides a factual basis for the mitigation activities proposed in the strategy. The assessment includes a description of the type, location and extent of natural hazards; the jurisdiction’s vulnerability to the hazards; and the type and numbers of buildings, infrastructure and critical facilities located in identified hazard areas.
- Mitigation strategy – Based on the risk assessment, State, local and Tribal governments develop mitigation goals and objectives and a strategy for mitigating disaster losses. The strategy sets forth an approach for implementing activities that are cost-effective, technically feasible and environmentally sound.

Hazard mitigation plan required to receive HMGP Project Grants

Local jurisdictions are required by federal law to have a FEMA-approved hazard mitigation plan in order to receive Pre-Disaster Mitigation (PDM) or Hazard Mitigation Grant Program (HMGP) project grant funding. However, in extraordinary circumstances, HMGP funds can be awarded to communities that agree to develop a hazard mitigation plan within 12 months of receiving the project grant. Every State has a FEMA-approved hazard mitigation plan, though many local jurisdictions still do not.



Fact Sheet

State and Local Mitigation Planning



Mitigation Examples

History shows that the physical, financial and emotional losses caused by disasters can be reduced significantly through mitigation planning. Mitigation focuses attention and resources on solving a particular problem (such as reducing repetitive flood losses) and thereby produces successive benefits over time. Through implementation of local floodplain ordinances, for example, it is estimated that \$1.1 billion in flood damages are prevented annually.

Mitigation includes a broad range of activities designed to protect homes, schools, public buildings and critical facilities. Examples include the following types of projects:

- Adopting and enforcing more stringent building codes, flood-proofing requirements, seismic design standards, or wind-bracing requirements for new construction or the retrofit of existing buildings.
- Exceeding the National Flood Insurance Program (NFIP) floodplain management regulations by elevating structures above the base flood elevation (BFE) in high-risk areas.
- Adopting stricter development regulations and zoning ordinances that steer development away from areas subject to flooding, storm surge, or coastal erosion.
- Retrofitting public buildings, schools and critical facilities, such as police and fire stations, to withstand hurricane-strength winds or ground shaking from earthquakes.
- Using public funds to acquire damaged homes or businesses in flood-prone areas, demolish or relocate the structures and use the property for open space, wetlands, or recreational uses.
- Building community shelters and “safe rooms” to help protect people in public buildings and schools in hurricane- and tornado-prone areas.

Planning tool available for government agencies

FEMA has developed a number of planning tools to help government agencies develop mitigation plans. These include how-to guides, CD ROMs and online information about organizing a planning team, involving stakeholders, conducting risk assessments, evaluating potential mitigation measures, conducting benefit-cost analyses and other planning issues.

For more information

Please visit: <http://www.fema.gov/plan/mitplanning/index>.

For state name disaster recovery, visit www.fema.gov or your state Web-site.



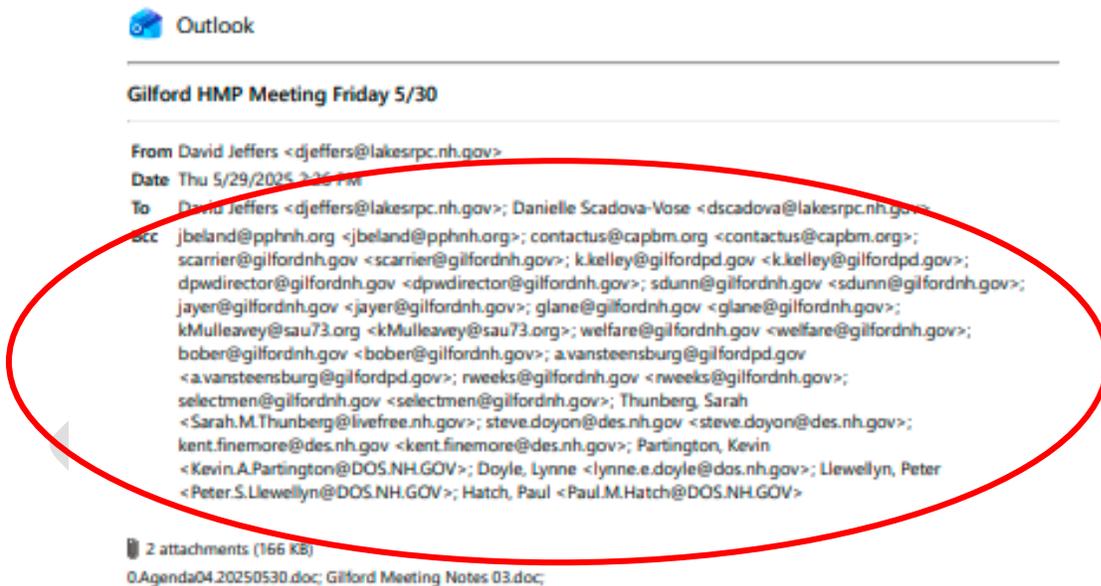
“FEMA’s mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.”

APPENDIX D: MEETINGS, AGENDAS, PARTICIPATION, and SURVEY

Invitations to participate in meetings were sent to committee members, neighboring EMDs, various state agencies, and stakeholders including those who work with socially vulnerable communities.

This section also contains copies of the Committee meeting agendas and a summary of participation. Two Committee meetings were held in the Gilford Fire Station and the other two were held in the Gilford Police Station; all were open to the public. Agendas were developed by the LRPC planner who also facilitated the meetings. At each meeting there was an opportunity for public input.

Invitation & Communication



Gilford Hazard Mitigation Plan Committee members and stakeholders,

This is a reminder that the Gilford HMP Committee is scheduled to meet **tomorrow Friday May 30 at 9:00 AM in the Gilford Police Station.**

The **notes** from the last meeting and **agenda** for tomorrow's meeting are attached.

We look forward to your input at the meeting.

Dave & Danielle

David Jeffers
 Planning Manager
 Lakes Region Planning Commission
 603.279.5341
 103 Main Street Suite #3
 Meredith, NH 03253

Survey Advertisement

The screenshot shows the Town of Gilford website with a navigation menu including 'Departments', 'Boards & Commissions', 'Town Information', 'Online Payments', and 'Contact'. A search bar is located in the top right. The main content area features a banner for the 'Town of Gilford, NH' with a photo of the town hall entrance. Below the banner is a red-bordered box containing the 'Gilford Hazard Mitigation Plan Survey' advertisement. The advertisement includes the Fire-Rescue logo, the title 'Gilford Hazard Mitigation Plan Survey', the date 'Posted Mon, Feb 24 at 07:01pm', a paragraph of text explaining the survey, a link to the survey, a QR code, and a 'Recent Fire-Rescue Postings' sidebar with a list of recent events.

Town of Gilford, NH

Departments | Boards & Commissions | Town Information | Online Payments | Contact

Search for...

Town of Gilford, NH

Gilford Hazard Mitigation Plan Survey
Fire-Rescue
Posted Mon, Feb 24 at 07:01pm

The Gilford Hazard Mitigation Plan Committee is updating its 2017 Hazard Mitigation Plan. The committee represents a variety of local interests and is focusing on the natural hazards that put Gilford at risk as well as the development and prioritization of recommendations to protect the safety and well-being of city residents and visitors. The committee is seeking your input; please take a few moments to complete the questions in this survey regarding hazard mitigation in Gilford.

Link: <https://arcg.is/1LaD943>

QR Code:



Recent Fire-Rescue Postings

- Senior Safety Day - Saturday, October 25, 2025
- State Prohibition on Kindling Open Fires and Smoking in and near woodlands
- Car Seat Recalls - Rev. March 25, 2025
- Water Rescue - Saltmarsh Pond

[View All Postings](#) [Subscribe](#)

Gilford Hazard Mitigation Plan Update

March 14, 2025 2:00 PM

Gilford Fire Station
39 Cherry Valley Road
Gilford, NH

Meeting 1 - AGENDA

1. Introductions
2. Mitigation planning vs. emergency response planning
3. Changes to Plan Development
 - a. FEMA Guidance/Checklist (2022)
 - b. State HMP (2023)
4. Process
 - a. Plan Update Process
 - b. Methods for Gathering Information
 - c. Community Outreach & Opportunities for Public Input*
5. Information – Changes since last plan
 - a. Natural hazards
 - i. History of events
 - ii. Locations
 - iii. Impacts
 - b. Critical Facilities
 - c. Development Trends
 - d. Community Capabilities
6. Schedule for Meetings
7. Public Input

A copy of the 2018 Gilford HMP can be found at <https://www.lakesrpc.nh.gov/Pages/Index/228297/hazard-mitigation>.

*A brief on-line survey has been created to get feedback from the public. It can be accessed with this link <https://arcg.is/1LaD943> or by scanning this QR Code with a phone or tablet. **Please share this link & QR Code with residents and encourage them to complete this survey.**



FEMA



Mitigation vs. preparedness/response

The focus of this process is **mitigation**, which is an action taken to reduce or eliminate long-term risk to hazards.

Mitigation is different from **preparedness**, which is an action taken to improve emergency response or operational preparedness.

Major changes to FEMA Guidelines & Checklist

The 2022 FEMA Guidelines & Checklist place emphasis on several specific areas.

- Natural Hazards as opposed to Human-caused or Technological
- Efforts to include the concerns of under-represented populations
- Consideration of the impacts of a changing climate

Plan Update Process

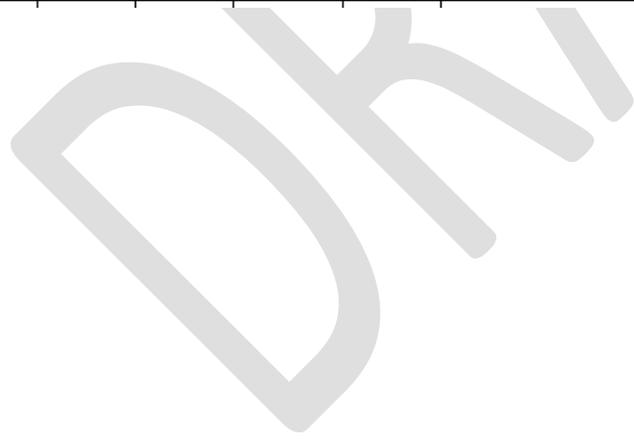
- a. Hazard Identification
- b. Risk Analysis
- c. Identify Problems
- d. Identify Mitigation Actions
- e. Prioritize Mitigation Actions
- f. Address Implementation
- g. Draft Plan
- h. Review & Adoption

Community Capabilities

- Planning & Regulatory
- Administrative and Technical
- Financial
- Education & Outreach
- National Flood Insurance Program (NFIP)

Participants

3/14/25	4/11/25	5/2/25	5/30/25		Municipality: Gilford	
Meeting #1	Meeting #2	Meeting #3	Meeting #4	Homework/Correspondence	Title	Name
1.5	1.5	1.5	1.5	2.0	EMD (Emergency Management Director),	Stephen Carrier, Fire Chief
1.5					Police	Kris Kelley, Police Chief
1.5	1.5	1.5	1.5	1.0	Public Works/Highway/Road Agent	Meghan Theriault, Director
1.5	1.5	1.5	1.5	1.0	Town Administrator	Scott Dunn, Town
1.5	1.5			1.0	Planner/Planning Board member	John Ayer, Planner
					Code Enforcement & Health Officer	George Lane, Code
1.5					School representative	Ken Mulleavey, B/G Supervisor
					Local Welfare officer	Tom Carr
1.5		1.5	1.5	1.0	Fire Dept.	Brad Ober, Deputy Fire Chief
1.5	1.5	1.5			Police	Adam VanSteensburg,
1.5					Public Works	Roger Weeks
					NH HSEM, Belnap Co. Community Liason	Kevin Partington
					Lakes Region Planning Commission	David Jeffers
					Lakes Region Planning Commission	Danielle Scadova-Vose

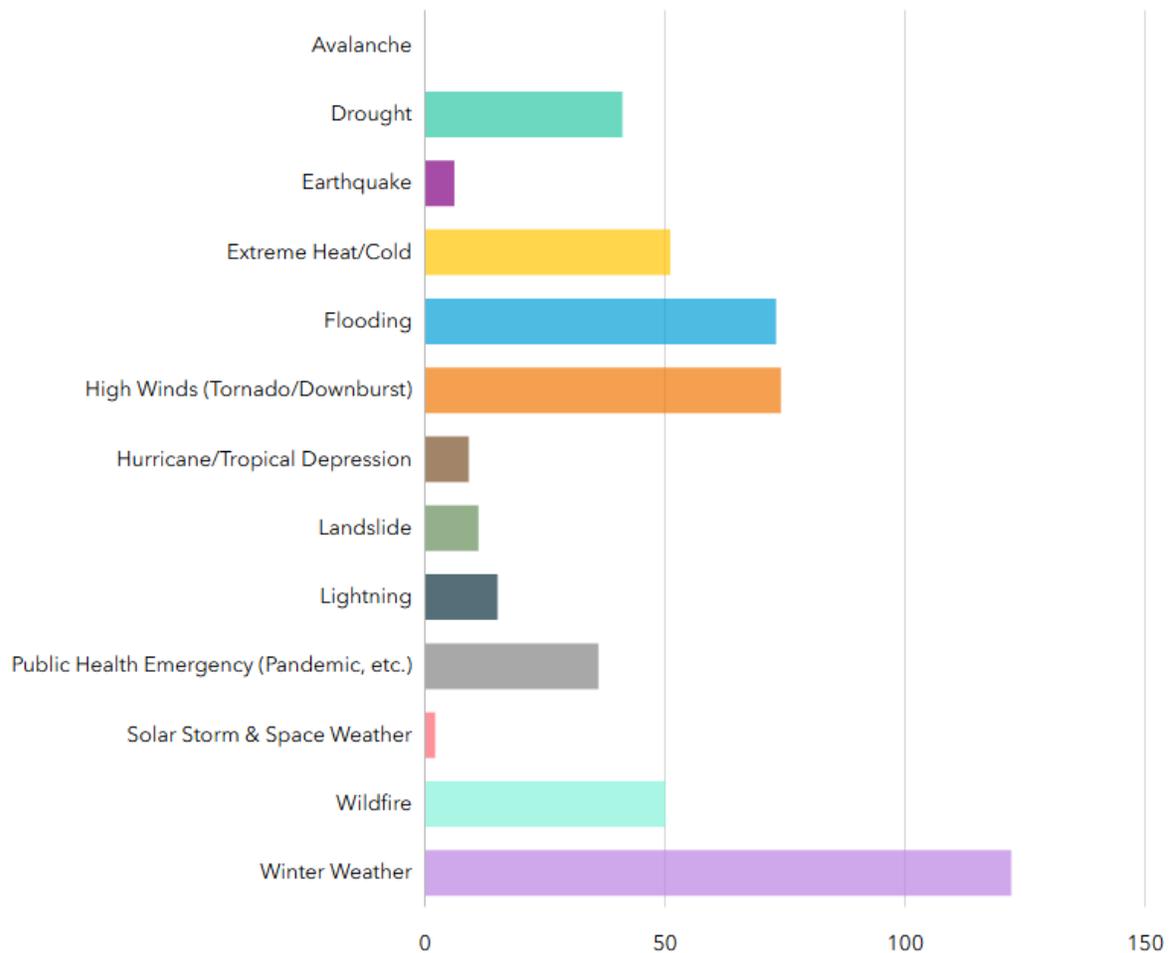


Public Input - Survey

In addition to postings and press releases requesting public input at meetings, members of the public were also encouraged to complete an on-line survey to provide input to the hazard mitigation planning process. One hundred sixty-two responses were received and shared with the committee at meetings as local risk was considered and problems/mitigation actions discussed.

The questions and responses are below.

1. Which of these hazards are of greatest concern to you? (Select up to four from the list.)



2. Which road(s) or areas are you most concerned about in Gilford when severe weather occurs? (List the road segment or area of town. Why are you concerned?)

- 0, people need to pay attention. But if I had one concern it would be the end of cherry valley
- 11 to Alton line
- 11A
- 11A & 11B have power lines that cause outages in and around the Village. In particular, Hatch and Hawthorne Roads have SIDE TAP power lines that affect the Lakes Region Water Company pump house. This building has no emergency electrical backup. SIDE TAP power lines are of secondary importance to Eversource and may not be addressed for as long as two weeks in a major outage such as ice storms as in

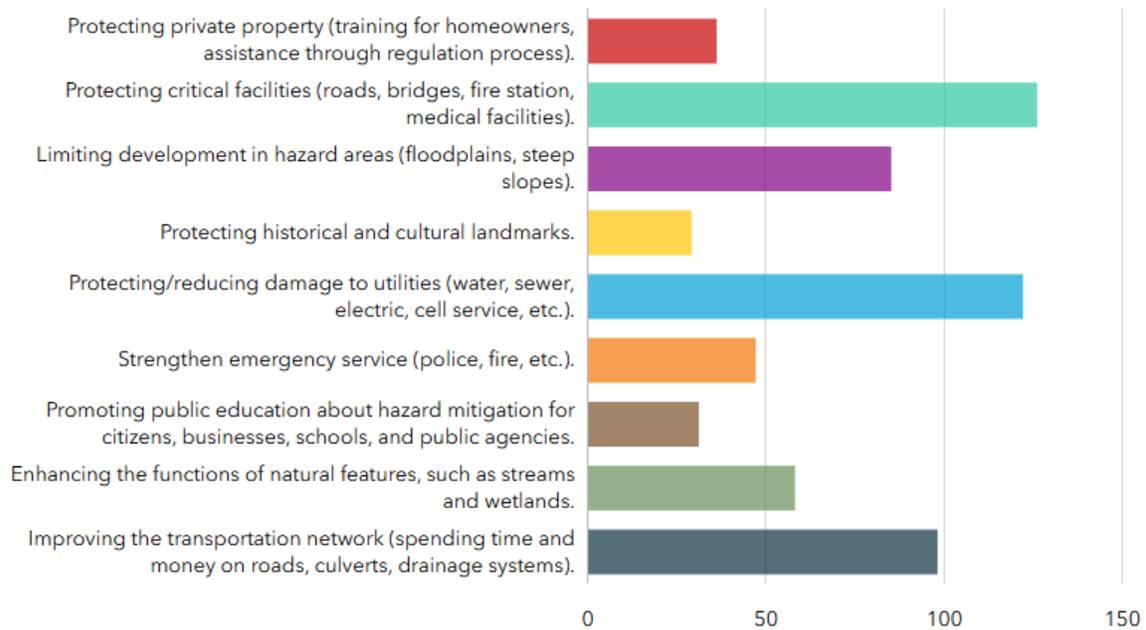
the late 1990s. The town needs to take notice of UTILITIES that supply town residents are HARDENED and make sure that residents are protected against incompetents.

- 11A near the brook.
- 11A/11B - daily use.
- Acres due to steepness and age of roads
- Acres, Belknap Mt Rd to Gilford Glen
- Acres, wash outs on saltmarsh
- All highly traveled roads or roads where potholes seem to grow regardless of patches... ex: the corner of Gilford Ave and country club rd at the stoplight turning right onto Gilford Ave.
- All main access roads, i.e., 11, 11a, 11b, bypass, Allah Wilson, etc
- All of it!
- All of Route 11A, with much of the power into and through town coming through that sector.
- All of the acres, school hill road
- All of them
- All roads in the Acres!!! Heavy rains wash out these roads quickly! Very dangerous!
- All the ones with a steep grade
- Any part of route 11 through Gilford
- Any water crossing of 11A or Intervale, for example, where culverts could become damaged, clogged, and therefore ineffective, exacerbating flooding potential.
- Avocado lane
- Belknap Mountain Rd the steep hill that goes down then back up again. This section gets very slippery with freezing rain and with snow cover
- Belknap Mountain Road
- Belknap Mountain Road. That's where I live and there's no other drivable route in/out of my neighborhood.
- Belknap Mtn Rd. Pass Carriage Rd to the Glen. At bridge and above
- Belknap Mtn Road Hoyt Route 11
- bridge and/or road washouts sheet flooding from heavy rain coming down mountainsides could occur steep roads where ditches are full of leaves so that heavy rain can't enter drains due to leaves or just too much water aside from inconvenience and expense it seems likely homeowner's insurance rates will increase as is happening across the country (can't recall specific dates or locations)
- Bypass. Morrill Street. 11A.
- Cat Path on Cherry Valley during a snow storm on a weekend. Very dangerous with the Gunstock traffic
- Cherry hill All the 11s
- cherry valley
- Cherry Valley Acres
- Cherry Valley Rd
- Cherry Valley Rd
- Cherry Valley Road from the intersection of Potter Road to Cat path and up to Liberty Hill. The curves and hills are difficult in snow and ice. The utility lines there seem susceptible to downed limbs and wind damage.
- Cherry Valley Road.
- Cherry valley- unpredictable ice/ fallen limbs
- Cherry valley, 3,3a and roads to elementary
- Cherry Valley, Belknap Mountain, Liberty Hill, multiple roads in the acres
- Cherry valley, poor farm rd for flooding and toward Alton
- Commercial district, Walmart/Lowes.

- Cotton Hill Rd Concerned as I live near the top
- Cotton hill rd. It's where I live. Only concerned in an event of an emergency to make sure we can get to hospital if needed
- Culverts
- Cumberland
- Cumberland lots of twists and big trees nearby
- Dockham shore road drainage
- Gilford Ave - Morrill Street up to Stone Road, and side roads off Morrill Street - Concerns of trees falling and taking out power lines. I live on a dead end road in this area and this would limit my exit in an emergency. Also concerns about poor drainage in the area that could cause extreme rise in water table, which then impacts my property and causes flooding in my basement.
- GILFORD Avenue and the Bypass. Dangerous driving in these roads even on a good weather day. Very busy with visitors and locals and even school traffic.
- Gilford Forest
- Gilford village and surrounding area
- Glendale
- Gunstock Acres
- Gunstock Acres & Cherry Valley Road
- Gunstock Acres area
- Gunstock Acres area/Cherry Valley Road Steep roads, icing
- Gunstock Acres Gilford Glen Mobile Home Parks
- Gunstock Acres if there is ever a wildfire
- Gunstock acres Liberty hill
- Gunstock Acres Lily Pond Road at the pond/airport (snow drifts/visibility) Gilford Ave at Hoyt/Gunstock Hill and Olde English Lane. Traffic drives way too fast. Alvah Wilson or Belknap Mountain Road onto Gilford Ave/Cherry Valley during school drop-off/pick-up. I've seen so many close calls for accidents there.
- Gunstock Acres, Belknap Mtn Rd
- Gunstock acres. Small windy roads with lots of trees. Lake winnipesaukee- town beach. Large body of water with many boaters and swimmers.
- Gunstock hill road
- Gunstock hill road
- Gunstock hill, extremely bumpy
- Higher elevation roads - steep roads that are not maintained well enough making travel dangerous
- Hiking trails, Belknap mountains, all the 'hills' where people live
- Hoyte
- If there was a wildfire or flooding (like Hawaii and LA and NC) that swept down from the Belknap Range, the Village has a select amount of evacuation exits: Potter Hill, Belknap Mountain and Alvah Wilson. This would be a very rare occurrence, I realize.
- I'm not concerned. The town does a good job. I imagine the worst areas would be those away from the flatlands.
- Keeping roads open for travel. Especially the main routes. Areas - near the schools, bypass and grocery store area.
- Lake Shore Park

- Lake Shore Road
- Liberty Hill , Belknap Mtn Rd, Rt 11A, By Pass.
- Liscomb circle
- Lockes hill rd/rt 11/lily pond Rd
- Low elevation roads that flood easily... Roads that have culverts that produce alot of rain run off when we get alot of rain.
- Low lying areas with little drainage, places where there is runoff that isn't fixed (the bottom of my driveway) and places with low shoulders
- Main roads. For example, bypass, route11... These are the connectors to services such as hospitals...
- More concerned about road washouts than actual flooding. Main arteries such as Routes 11, 11A, B, C. Gunstock Hill Rd.
- Morrill st
- Morrill Street
- NA
- Near the lake due to impacts on the water quality and the lake generally.
- No concerns
- None
- None of these need any extra consideration beyond what is normally done on a daily basis. AKA don't waste money
- Ones that have not been repaired lately, none come to mind since DPW does such a good job maintaining our roads!
- Our road, gunstock hill. In bad shape
- Riley rd Checkerberry In Culverts and ditch line cleaning so freeze thaw cycles do not obstruct culverts
- Route 11 / Cherry Valley
- Route 11 an and Lake Shore Rd.
- Rowe Farm Road, Cotton Hill Road, country club road
- Rowe farm road. The cul de sac is does not have proper water mitigation or drainage. The water ends up flooding our front yard and once flooded our septic tank
- Rt 11 is a main road.
- Rt 11 Lake Shore Rd from Ellacoya State Park to the Alton line Concerning because no readily accessible detour
- Rt 11B between rts. 11 and 11A. Trees leaning look like will blow over next storm.
- Rt 3 near Lowes is always a trouble spot when Black rook overflows.
- Rt. 11A/B/C; Bypass; Intervail Rd.
- Rt11 and the bypass
- Rte 11 by Locke's Hill, and pretty much any stretch of road up against a steep hill. Wildfire could occur pretty much anywhere in Gilford.
- Schoolhouse Hill Rd., Gilford Avenue
- Side roads
- Sleeper Hill
- Swain Rd (school buses on the steep road),Cherry Valley Rd (higher speeds)
- The acres
- The Acres - Worried about possible landslide there.
- The acres and 11B intervals rd
- The Acres road drainage and flooding and no guard rails where there step ravines. If a car slides on ice in the winter it is dangerous.
- The Acres! Rt 11/Gunstock stretch.

- The acres.
 - The acres. No guard rails on windy roads with steep drops also no lights on road
 - The Gunstock Acres because of the steep hills
 - The roads coming down from the Acres, due to steepness.
 - The valley in the road on Belknap Mountain road by the old oxen farm.
 - The village fields, schools, public works building, town hall, police station all seem like they could easily be impacted by flood events that are occurring more and more often
 - Varney Point
 - Watson Road Hoyt Road- Major travel roads and lots of trees to impact power lines
 - Weirs road, Dockham Shore, Lake Shore road
 - Where Lowe’s/tjmaxx is because of the sink holes and flooding. Intervale because of all the downed trees last April
3. Natural Hazards can have a significant impact on a community but planning for (or mitigating) these events can help lessen the impacts. (Please select the four mitigation strategies from the list below that you think would be most appropriate to use in Gilford.)



4. Can you describe any hazard events that impacted Gilford, especially ones that occurred in the last five years? (Up to three events).
- 1. Flooding 2. July 2023 3. route 3a? 4. roads were closed for extended time
 - 1. Contaminated lake caused beach closures. Humans/pets could not swim due to high levels of cyanobacteria. This happened summer 2024, not sure about prior years but the threat increases with warmer winters and more chemicals on the lawns surrounding homes. 2. Gunstock acres loss of water.

- 1-bomb cyclone 2-Dec 2022? 3-Everywhere. Gunstock Hill Rd 4-Roof damaged. had to be replaced
- Covid
- Covid/ pandemic Isolation and inability to connect with people in person. Hesitancy in reaching out for help due to fear of illness. Snow/ ice storms during winter months Inability to leave home due to weather and road conditions. Power outages affected safety and home comfort.
- Downed trees from ice and snow storms cutting off power 2022 everywhere in Gilford Flooding on Lakeshore 2021? Danger of wildfires constant ~ little or no hydrants in Acres
- Drought impacted Lake Winnepesaukee Flooding impacted Lake Winnepesaukee
- Drought, but I don't recall when. The opposite - we had one year two or three years ago with almost sixty inches of precipitation. High winds also seem to take down trees every year.
- Drought/dry - affected lake levels, vegetation and wildlife Extreme heat/cold: warm temps have increased water quality problems and stressed trees and vegetation.
- Every spring dockham shore rd foods and water flows into our house and lake
- Excess water due to poor drainage. I believe that this has improved with the focus on better drainage along the roads.
- Extreme rain events flooding roads and especially Lowes area.
- Extreme wind, loss of electricity
- Flooded septic and basement. Happened at 31 Rowe farm rd. Happened December 23 2022
- Flooding along Lake Shore Road near grocery store plazas. I believe it was about 5 years ago, and seems to have been remedied recently, but caused issues trying to get to anything in that area without going long way around either way.
- Flooding Christmas 2022, culverts were blocked so water was flowing over the road and freezing. In some places it was swirling. We were very concerned we were going to lose culverts on Belknap Mtn and not be able to get home.
- Flooding near shopping centers, road closed (can't remember exact time) culvert and parking lot compromised Flooding along brooks/streams washing away terrain for trees to fall (intervale road, backroads not heavily traveled) Snow storms - winter - power/trees outage and varying intensity at different t terrain
- Flooding on lakeshore rd. Could t drive through the area or shop
- Freezing conditions on Cherry valley, during multiple storms. Lots of people off road multiple times. This is more a DOT issue but...
- Heavy snow and ice caused limbs/trees to down wires creating driving hazards and electrical outages
- .
- Heavy snow and ice storms with power outages ..
- Heavy snow events with downed trees that limited access and had extended power outages.
- Heavy snow storm that occurred in Gilford a few years ago On Old Lakeshore rd we were without power for a few days.
- Heavy snow storms, Christmas 2022 floods, trees down in Gilford Forest neighborhood.
- High wind storm in October 2017; 43" snow fall in less than 24 hours in December, 2020; High wind/rain storm in December 2022;
- High winds and blizzard conditions that knocked out power! We have a generator but am concerned with people who don't have power and water!
- High winds create power outages.. many over the past 3 years in our area Seems to be caused by the same area in the Acres every time Eversource can't seem to proactively get rid of problem trees Without power for days
- High winds over the past few years. Lots of pines have uprooted and fallen over. 8 large pines came down in my back yard. Insurance only covered the tree on the car. I had to pay removal of the remainder. One narrowly missed my house, one landed on my car and totaled it, another broke my

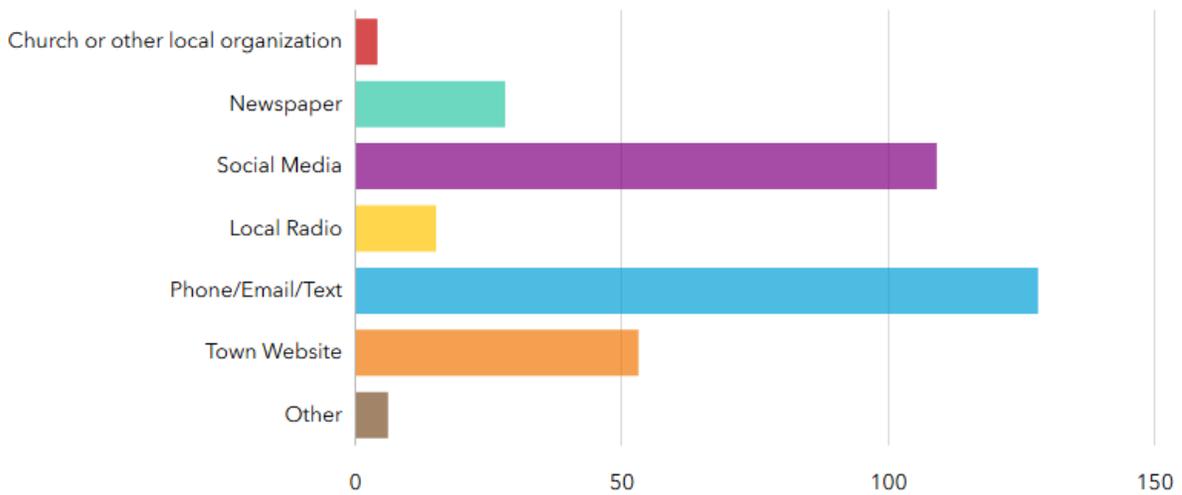
neighbors 34' camper in half. Many trees are suspect and will probably come down sooner or later. Gilford Forest Estates.

- I don't remember dates but ice storms and floods seem to be a regular occurrence in the past 5 years. Gilford has a lot of dead wood in the area which is such a road hazard, and flooding has washed out many culverts and roads.
- I have heard that flooding can be a problem in certain areas but it has not affected me directly. We have had long term power outages a few times in the last few years which were the result of high wind storms.
- I recall a couple of times when power has been out for a few days. One being Christmas week (2 or was it 3 years ago?). Another being Halloween week (that was probably closer to 7 years ago)
- I recall a significant extended power outage several years back (Farmer Drive, etc)
- I think the biggest hazard we have are the crossroads on route 11.
- I'm not really concerned at all with anything described in this survey
- Ice storm 1998 caused devastation and loss of all services for two weeks in winter. Snow storms a couple weeks ago closed 11B for WEEKS. Thousands of dead ash trees are a hazard to town roads and powerlines. Eversource has poor rules for trees NOT violating the zone immediately surrounding their wires. Tall trees on the OTHER SIDE of the road are ignored.
- Ice storm 2023/24 took down trees and power. A lot of large unhealthy tree limbs overhang roads and power lines.
- Ice storm April 24 all over the town impacted by no power unable to travel
- Ice storms and wind storms causing downed trees and lengthy power outages have become pretty significant.
- Ice storms December and April All over town Loss of power, downed trees and power lines, unsafe roads
- Ice/winter Weather Events that knock Down trees and knock out power.
- Last April there was a winter storm that knocked down many trees and blocked roads for days, interval was shut down for days.
- Last April. The two storms that took out numerous trees- blocked roads-and destroyed wires and poles.
- Lockes hill rd is continuously washing sand and rocks down the road to rt 11 as well as parts of the road itself. This didn't happen before they clear cut the top of the hill. A new drainage plan is needed for the new development.
- Maybe the storm and power outage last April. If I recall there were lots of trees down in various parts of Gilford. There was also that one on December 23rd but I forget how many years ago that was. But power was affected.
- Multiple accidents at Gilford Ave/Hoyt Rd/Gunstock Hill Road.
- N/A
- NA
- No
- No
- No
- None
- None
- None.
- Occasional power outages due to weather. Flooding down by Lakeshore Restaurant/Walmart.
- Plowing and Ice on Belknap Mtn Rd from Bridge up. Trees down from ice cover, lost of power.
- Power outage due to winter storm, Christmas 2023, Multiple locations in and around Gilford, lost power for multiple days.

- Power outages
- Power Outages (Winter 2024) and Trees Down (Winter 2025).
- Power outages due to severe storms, and covid
- Power outages Every year Off Cotton hill road You have to have a generator if you live here. Extremely poor maintenance of tree limbs and trees too close to power lines
- Power outages with trees down on lines. Roads washing away from flooding.
- Power outage secondary to thunderstorms or winter storms, typically wind or power line related. Typically during winter months
- -Power outage, April 3-5 2024, Much of Gilford was without power, 30 hours without power.
- Rain on Christmas Day a few years ago where the roads became covered in ice
- Schoolhouse Hill Road intersection- absolutely needs officer there at start & finish of school to help direct traffic! Other local town providers this same service; Meredith & Moultonborough
- several instances of power outages due to high winds and/or heavy snow knocking trees down on power lines (can't recall specific dates or locations)
- Severe Flooding July 2023. Specifically concerned about long term impacts to water quality.
- Sink holes in several roads due to culvert failure
- Snow and ice maybe 2-3 yrs ago we lost our power several times for extended time on Irish setter lane. Better since removing trees along the roads but it's creeping back in around town.
- Snow removal and safety Safety for special needs students
- Snow storms and the town plow trucks getting stuck n the Acres. Fires of structures especially in the winter with nonworking fire hydrants in the Acres and lack of water. House on Mountain Dr burned to the ground a few years ago.
- Spring/winter 2024 back to back winter storms with power without multiple days I unfortunately had a family with a stomach flu and couldn't go to extended family for power/warmth.
- Storms with downed lines , a few times each winter . Roads from said storms and washouts during mud season. Travel
- The ice storm of late March 2024. Power was out from downed trees and power lines on Cherry Valley Road and Intervale Road.
- The snowstorm last April (2024) when trees fell and roads were closed and some people were without power for days.
- There was a water issue on bedford ave maybe two years ago. Actually there were two issues. One, the water line had to be replaced and I worry that if it had been leaking that it impacted my front lawn because its got huge divots that get bigger every year. The other water issue was after they paved the road and it redirected some of the rainwater and caused flooding fpr some people.
- There was severe flooding in December 2022. The water had nowhere to go on Rowe Farm Road and my home suffered the consequences.the septic tank and Leitchfield filled up like a bathtub and emptied out into my home at 31 Rowe Farm Road and my two-year-old and I were forced to evacuate. Many of our belongings were ruined. Unfortunately, there is a lot of water and runoff that comes down from Garden Hill Road onto Rowe Farm Road. We appreciate you continuing to add rocks on Rowe Farm Road to slow down the velocity of the water in our neighborhood. Thank you!!
- Tree down Morrill St and Stone Rd. Lost power 3 days including Christmas Eve and Christmas Day 2023.
- Trees down, Glendale. Roads impassable power outage.
- Unusual winter weather. Ice storms etc.
- Various severe winter weather or high wind storm events that have caused trees to take out power for up to several days. Flooding event before Christmas 2023 because a culvert was broken and clogged in the H's.
- Washouts, snow/rainstorm December 2023

- We have only lived in Gilford full time for a year so we aren't sure.
- Wind storm of March 2023, winter storms, every year, heavy rain and lightning periodically in summer
- Winter storm 3 ft... 2020? Whole town Too much snow to keep up with. People stuck in homes, thankfully our power stayed on.
- Winter storm power outages
- Winter storm, April 2024, whole town, numerous down power lines and broken trees
- Winter weather with heavy snow/ice and wind that caused power outages for several days or more. 2 years ago? We are lucky to have a generator but we know lots of families who don't.

5. What are the best methods for you to receive information about how to make your business, home, and members of your household safer from hazards?



APPENDIX E: HAZARD EVENTS PRIOR TO 2018

Inland Flooding

Oct 15, 2005: Heavy rain fell over NH due to the rapid development of surface low pressure well to the southeast of New England. Rainfall amounts ranged from 3 inches in southern NH up to 9.26 inches at Pinkham Notch. This resulting flooding of small rivers and streams caused additional damage to roads that had been damaged earlier in the month.

May 13, 2006: Over 12 inches of rain fell in Belknap County, in some locations in a 72 hour period. Homes and businesses were damaged extensively. Many roads were washed out and impassable. Some bridges were damaged or destroyed.

August 10, 2008: 3 inches of rain caused small stream flooding in Gilford.

August 28, 2011 (FEMA Declared Disaster #4026): Hurricane Irene made landfall across western Long Island, NY and was downgraded to a Tropical Storm as it moved into and through New England. The storm brought a prolonged period of strong and gusty winds and heavy rain to the state. The high winds snapped or uprooted numerous trees throughout the state causing more than 160,000 customers to lose electrical and/or communication services. The heavy rains caused rivers and streams throughout the state to flood causing damage to bridges, roads, and property. Rainfall amounts across the state ranged from 1.5 to 3 inches across southeastern New Hampshire with 3 to 6 inches across most of the remainder of the State.

October 29, 2012 (FEMA Declared Disaster #4095 on 11/28/12): Hurricane Sandy remnant winds across much of the State generally gusted from 40 to 70 mph Monday and Monday night. These strong and persistent winds combined with the powerful gusts to down numerous trees throughout the State and caused widespread power outages, especially across southern New Hampshire. The most significant hydrological impact from the storm was due to the band of heavy rain that fell between Monday afternoon and Tuesday morning. Across the State, this band produced 1 to 3 inches of rain in about a 6- to 12-hour period. This amount of heavy rain in the short duration caused some road washouts in the State. High winds associated with the remnants of Sandy knocked down trees and branches and caused widespread power outages causing an estimated \$200,000 in damages. There was minimal impact in the Town of Gilford.

June 19, 2017: A very moist air mass was in place across the region on the afternoon of July 19th as a cold front approached from the west. A strong, low-level jet of 50 knots and flow that was nearly parallel to the front caused storms to train across the area, adding to the flash flood risk. Numerous reports of wind damage and flash flooding were received during this event. Two to three inches of rain in 3 hours caused numerous flooded roads and road washouts in Gilford.

October 29, 2017: An area of low pressure over the southeastern United States on the morning of Sunday, October 29th, intensified rapidly Sunday night and Monday, October 30, as it moved northward and moisture and energy from the remnants of Tropical Storm Philippe merged with the storm. Heavy rain accompanied high winds over New Hampshire leading to both flash flooding and main-stem river flooding. The highest rainfall amounts were observed in the White Mountains. While the high winds and heavy rain ended during the morning of the 30th, flooding persisted into the late afternoon of November 1st. Rainfall amounts generally ranged from 2 to 5 inches across New Hampshire. Most of this rain fell within a 10-hour period from late Sunday

evening through early Monday morning. By Wednesday evening, November 1st, all flooding had subsided. Power restoration efforts in the hardest hit areas across New Hampshire persisted for much of the week.

Severe Winter Weather

December 17-20, 1929: Unprecedented disruption and damage to telephone, telegraph and power system. Comparable to 1998 Ice Storm.

December 26-28, 1969: Third and most severe storm of 3 that occurred over a 10-day period. Up to 10 inches of snow across central NH.

February 5-7, 1978: Events accumulations to 28" in northeast New Hampshire, 25" in west central New Hampshire and 33" along coastal New Hampshire. Hurricane-force winds and record-breaking snowfall made this storm one of the more intense to occur this century across parts of the northeastern US.

January 15, 1998: Federal disaster declaration DR- 1199- NH, 20 major road closures, 67,586 without electricity, 2,310 without phone service, \$17+ million in damages to Public Service of NH alone

December 11, 2008: A major winter storm brought a mixture of snow, sleet, and freezing rain to New Hampshire from the morning of December 11th to the morning of December 12th. The greatest impact in the state was in southern and central New Hampshire where a significant ice storm occurred. Following the ice storm, recovery and restoration efforts were negatively impacted by additional winter weather events that passed through the state. The weight of the ice caused branches to snap, and trees to either snap or uproot, and brought down power lines and poles across the region. About 400 thousand utility customers lost power during the event, with some customers without power for two weeks. Property damage across northern, central and southeastern New Hampshire was estimated at over \$5 million.

October 29-30, 2011 (FEMA Declared Disaster #4049 on 12/5/11): The storm brought a heavy, wet snow to southern and central New Hampshire. The combination of the heavy wet snow and leaves still on the trees caused numerous trees and branches to snap and fall, causing widespread power outages. About 315,000 customers lost power during the storm, mostly across the southeastern part of the state. Some customers were without electrical service for almost a week. In Rockingham County, trained weather spotters reported 14.3 inches in Northwood and 13.5 inches in Deerfield.

February 8-9, 2013 (FEMA Disaster Declaration DR-4105): An historic winter storm deposited tremendous amounts of snow over all of southern New England from February 8 to Saturday, February 9. What made this an amazing storm was the widespread coverage of heavy snowfall. Most locations received 2 to 2.5 feet of snow! A stationary band of even heavier snowfall persisted from southwest NH through central MA and on to the southwest across central and western CT. In those areas, reports averaged closer to 2.5 to 3 feet. Isolated thunderstorms were common across the entire region during the height of the storm. The band of heaviest snowfall, with 3 to 5 inches per hour for several hours, extended from southwest NH to central and western CT.

February 18, 2014: An area of low pressure moving east from the Great Lakes combined with a developing low in the Gulf of Maine to produce heavy snow across the southeastern part of the State. Snowfall amounts generally ranged from 6 to 14 inches with locally higher amounts across

parts of Merrimack and Belknap Counties.

November 26, 2014: An area of low pressure developed off the Carolina coast on the morning of the 26th and raced rapidly up the eastern seaboard during the day to Nova Scotia by the morning of the 27th. The low brought heavy snow to all of New Hampshire with a mixture of precipitation along the coast. Snowfall amounts generally ranged from 4 to 8 inches in the northern mountains to 10 to 15 inches across portions of Sullivan, Grafton, Belknap, and Carroll Counties, to 4 to 8 inches across the southeastern part of the state. A regional shelter was opened in neighboring City of Laconia and the Gilford EOC was partially activated.

January 26, 2015: An area of low pressure developed off the Delmarva peninsula on Monday, January 26th, and intensified rapidly as it moved slowly northward through the 27th. Snow spread northward across the region Monday night and became heavy on Tuesday, the 27th. Winds became strong during the day Tuesday leading to blizzard conditions at times along and inland from the coast. The snow persisted into Tuesday night in many areas with blowing and drifting snow. Snowfall amounts ranged from 10 to more than 30 inches across much of the southeastern part of the state.

March 14, 2017 (FEMA Disaster Declaration Disaster #4316): The storm brought heavy snow to all of New Hampshire with high winds leading to blizzard or near blizzard conditions across much of central and southern portions of the State. High winds and/or heavy wet snow downed trees and created numerous power outages across southeastern portions of the State. Snow began around 4 am in the southwestern corner of the State on the 14th and spread rapidly northeast. By 11 am, snow was falling throughout the entire state. The snow became very heavy throughout the State during the late morning and afternoon. Winds also increased during the afternoon leading to blizzard conditions in parts of the State. Snowfall amounts across New Hampshire ranged from about 12 to 20 inches. The heavy snow combined with the strong winds lead to whiteout conditions in many areas. Farther inland, across Belknap and Carrol Counties, the strong winds downed trees onto roads and wires leading to blocked roads and power outages.

Hurricane

August 19, 1991 (FEMA Declared Disaster #917): Hurricane Bob affected southern and central New Hampshire. The center passed over NH, resulting in heavy rain and damaging winds.

September 16-18, 1999: Tropical Storm Floyd brought heavy rain to southern New England.

August 28, 2011 (FEMA Declared Disaster #4026): Hurricane Irene made landfall across western Long Island, NY and was downgraded to a Tropical Storm as it moved into and through New England. The storm brought a prolonged period of strong and gusty winds and heavy rain to the state. The high winds snapped or uprooted numerous trees throughout the state causing more than 160,000 customers to lose electrical and/or communication services. The heavy rains caused rivers and streams throughout the state to flood causing damage to bridges, roads, and property. Rainfall amounts across the state ranged from 1.5 to 3 inches across southeastern New Hampshire with 3 to 6 inches across most of the remainder of the State. The impact to Gilford was minimal, with scattered power outages.

October 29, 2012 (FEMA Declared Disaster #4095 on 11/28/12): Winds across much of the State generally gusted from 40 to 70 mph Monday and Monday night as a result of the remnants of Hurricane Sandy. These strong and persistent winds combined with the powerful

gusts to down numerous trees throughout the State and caused widespread power outages, especially across southern New Hampshire. The most significant hydrological impact from the storm was due to the band of heavy rain that fell between Monday afternoon and Tuesday morning. Across the State, this band produced 1 to 3 inches of rain in about a 6- to 12-hour period. This amount of heavy rain in the short duration caused some road washouts in the State. High winds associated with the remnants of Sandy knocked down trees and branches and caused widespread power outages causing an estimated \$200,000 in damages. The Town incurred little damage.

Lightning

July 9, 1996: Lightning started a fire that caused \$20,000 damage to a home in Gilford.

July 29, 2000: Three people were struck by lightning inside nearby homes on the shores of Lake Winnepesaukee. Two of the victims were transported to a local hospital. One of the victims was standing by the sink while another was changing the channel on his television. The third victim was struck in the forehead.

Tornado/Downburst

November 24, 2013: Strong winds developed behind an arctic cold front during the afternoon of the 24th. Winds gusted to between 40 and 50 mph across much of New Hampshire. Snapped trees and branches caused power outages throughout the region. Power companies reported that about 30,000 customers lost electrical service. In Laconia, one tree company worker was struck and killed by a tree as he was working to remove another tree from a roadway. In Concord where winds gusted to 58 mph, a large fiber communications cable fell across I-93 blocking the interstate highway for three hours.

July 3, 2014: A warm and very humid air mass remained in place across the region on the afternoon of July 3rd. A slow moving cold front to the west of the area triggered afternoon convection which quickly became severe. Large hail and damaging winds affected a large portion of the forecast area. A severe thunderstorm downed trees and wires in Gilford.

July 4, 2014: A waterspout touched down briefly on Lake Winnepesaukee during the evening of July 4. The public provided local media with pictures of the waterspout as it formed and dissipated over the lake. No damage was reported.

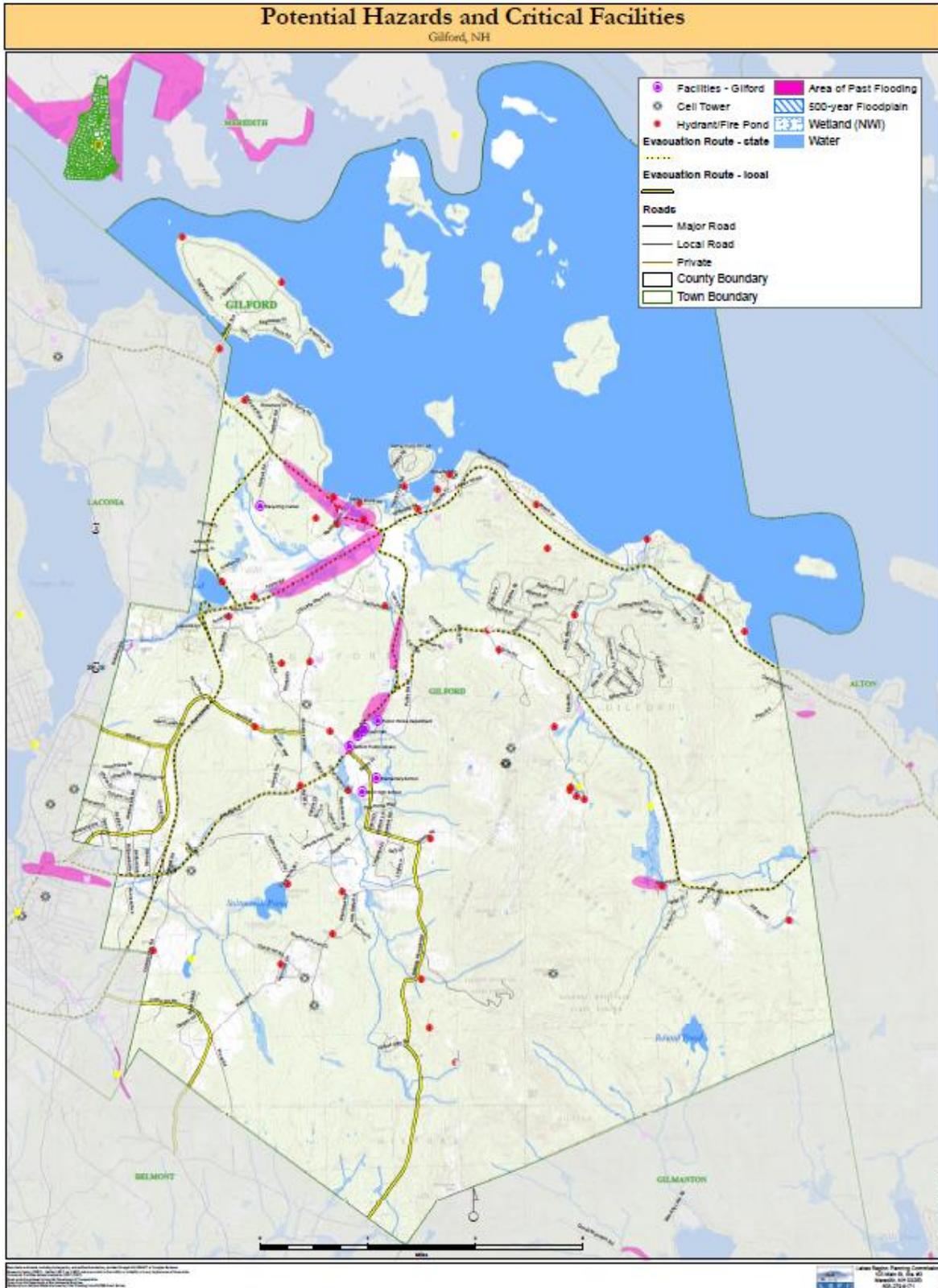
July 28, 2014: Low pressure moving northeast through the region brought tropical moisture and high shear values with it. Strong convection produced wind damage along with some flash flooding. A severe thunderstorm produced 1 inch hail in Gilford.

Extreme Temperatures

August 2001: Mid 90s and high humidity.

August 2006: Regional heat wave and severe storms.

APPENDIX F: POTENTIAL HAZARDS MAP



APPENDIX G: SUPPLEMENTAL INFORMATION (Hazards & Prep/Response Actions)

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

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 summarized in greater detail 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.

Table G-1: New Hampshire Dam Classifications¹²

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: <ul style="list-style-type: none"> • Less than six feet in height if it has a storage capacity greater than 50 acre-feet; or • 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: <ul style="list-style-type: none"> • 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 two-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: <ul style="list-style-type: none"> • 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.

¹² NH DES Fact Sheet WD-DB-15 “Classification of Dams in New Hampshire”, <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/db-15.pdf> Accessed December 3, 2025.

	<ul style="list-style-type: none"> • 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	<p>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:</p> <ul style="list-style-type: none"> • 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

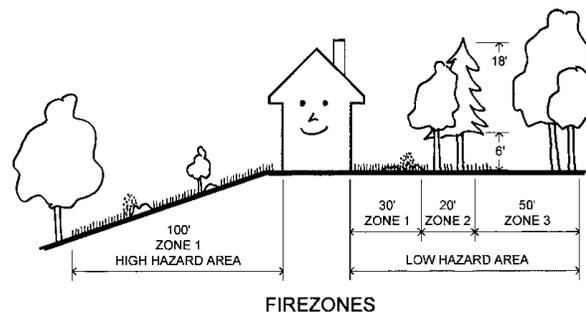
Several areas in the region are relatively remote in terms of access and firefighting abilities. Of greatest concern are those areas characterized by steep slopes and vast woodlands, with limited vehicular access. These areas include the Ossipee, Squam, Belknap, and Sandwich Mountain Ranges.

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 Gilford’s homeowners.¹³

ZONE 4 is a natural zone of native or naturalized vegetation. In this area, use



¹³ <http://www.firewise.org> accessed December 3, 2025.

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.

Conflagration

Conflagration is an extensive, destructive fire in a populated area that endangers lives and affects multiple buildings. Historically, many New Hampshire towns were settled in areas along waterways in order to power the mills. Often the town centers were at a low point in the topography, resulting in dense residential development on the steeper surrounding hillsides. Hillsides provide a natural updraft that makes firefighting more difficult. In particular, structural fires spread more readily in hillside developments because burning buildings pre-heat the structures that are situated above them.



Alton Bay Christian Conference Center,
2009

Within the Lakes Region 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. This event is recognized as the last block fire in town 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.

Preparation or Response Actions & Human-Caused Hazard Actions

Project ID	Hazard	Mitigation Actions	Estimated Cost	Potential Funding Source	Responsible Party
AH 2	All Hazards	Work with E-911 to ensure that all residences have a unique E-911 address, include trailers in the town's mobile home parks.	\$0	Dept. of Safety/E-911	Planning/Fire
AH 4	All Hazards	Purchase a generator for the elementary school.	\$100K - \$200K	School Budget	SAU
AH 3	All Hazards	Work with Bank NH Pavillion to improve pedestrian access and safety to their site.	\$0	Private	Police Department
D1	Drought	Investigate expanding the Laconia water system into Gilford, especially to the School and other public buildings.	\$0	Laconia Waterworks	Planning/Board of Selectmen
MV	Motor Vehicle Accidents	Work with NH DOT to address NH Route 11A and 11B intersection safety issues	Dependent on fix needed	NH DOT	Board of Selectmen/NH DOT

APPENDIX H: PRIORITIZATION DETAILS

As the Committee began the process of prioritizing these actions, the group utilized the standard STAPLEE project prioritization. The committee reviewed each mitigation action in the standard STAPLEE categories (**Social, Technical, Administrative, Political, Environmental, and Economic**). Below is the STAPLEE Criteria Sheet used by the Committee. It was noted that the 'Economic' category could include the cost of the project, potential outside funding sources, and the potential impacts on the local economy. Detailed project scores follow.

STAPLEE Criteria

Committee members are asked to consider both the costs and benefits of implementing identified mitigation actions. The starting point is to consider all actions as positive steps towards making the community a safer place. Any of the STAPLEE criteria that would hinder the action from moving to implementation should be noted. When evaluating the mitigation actions, the following questions are designed to help identify potential obstacles to implementation for each criterion.

Social

- Will the action unfairly affect any one segment of the population?
- Will it disrupt established neighborhoods or adversely affect cultural resources?
- Is it compatible with present and future community values?

Technical

- Is the proposed action technically feasible?
- Will it reduce losses in the long term with minimal secondary impacts?

Administrative

- Does the community have the capability to implement the action? (staff, technical expertise, funding)
- Can the community provide the necessary maintenance?
- Can it be accomplished in a timely manner?

Political

- Is there local/regional support for this sort of mitigation activities or program?

Legal

- Does the community have the authority to implement the action?
- Is enabling legislation necessary? (ordinance, resolution, etc.)

Environmental

- Are there likely to be positive or negative impacts to the environment if this action is implemented?
- Does the action comply with local, state, and federal environmental regulations?
- Is it consistent with community environmental goals?

Economic

- Can the cost of this action be managed by the community? (operating budget or capital improvements)
- Are state/federal grant programs applicable?
- Will this reduce costs, for example improving insurance ratings?
- How does this action fit in with existing economic development plans?
- Is it likely that this action will result in economic benefits for the community?

Note: Some HMP Committees choose not to use the "Political" category for rating. Some committees choose to combine the "Economic" and "Costs" categories.

This table shows the detailed scoring of the Mitigation Actions by the Gilford Hazard Mitigation Committee. For each action, the benefits and costs of implementing the action (under each of the seven categories) were considered and scored 3, 2, 1 with a ‘three’ meaning that the benefits were greater than the costs in a particular category, a ‘one’ indicating that the costs outweighed the benefits, and a ‘two’ meaning that the while there are costs associated with the project, they are balanced out by the benefits. The seven category scores were summed for an overall project total. The maximum total score was 21, the minimum was 7. Actual results ranged from 17.0 to 13.7. These ratings were arrived at through committee discussion and group consensus after averaging individual member scores.

Scoring: 3 = Highly effective or feasible, 2 = Neutral, 1 = Ineffective or not feasible

Orange background = preparation/response actions

Project ID	Hazard	Problem	Mitigation Action	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
AH 1	All Hazards	If residents and visitors do not have clear and consistent information in advance, people and property could suffer greater impacts from natural hazards.	Promote existing public notification methods for the public.	3.00	2.67	2.33	2.33	2.33	2.33	2.00	17.0
D 1	Drought	There is no alternate water source if the one wellhead for the school were to be compromised.	Investigate expanding the Laconia water system into Gilford, especially to the School and other public buildings. Investigate other water source alternatives.	2.33	2.33	2.00	2.67	2.33	2.67	2.00	16.3
F 1	Flooding	Areas of town experience flooding and/or washouts during high rain events.	Upgrade and maintain culverts as needed to reduce the likelihood of back up or washout.	2.33	2.33	2.00	2.33	2.33	3.00	2.00	16.3

Project ID	Hazard	Problem	Mitigation Actions	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
SWW	Severe Winter Weather	The town experiences severe winter weather events that can impact emergency vehicle access.	Maintain adequate funding for snow removal on roads.	2.67	2.33	2.33	2.33	2.33	2.00	2.33	16.3
F 2	Flooding	There are streams in town that could pose a risk during high rain events.	Develop a stream maintenance program for Black, Gunstock, and Poor Farm Brooks, including state and municipal responsibilities and education/ outreach to riparian landowners.	2.33	2.00	2.00	2.67	2.00	3.00	2.00	16.0
HW 1	High Winds (Tornado/ Downbursts)	The town experiences high wind events which could cause property damage to residences.	Educate homeowners on how to protect buildings during severe wind events.	2.33	2.33	2.33	2.33	2.33	2.33	2.00	16.0
CF 1	Conflagration (Fire)	There are a number of heavily wooded areas in town near residences, including the islands. Emergency response can be difficult and may be delayed.	Educate Property Owners about Wildfire Mitigation Techniques. Educate property owners on actions that they can take to reduce risk to property, such as the FireWise program, beginning with island residents (27 islands with 211 residents).	2.67	2.33	2.00	2.00	2.33	2.67	1.67	15.7
AH 2	All Hazards	Residences, especially those within mobile home parks and condo associations, can be difficult to precisely locate when responding to an emergency.	Work with E-911 to ensure that all residence have a unique E-911 address.	2.00	2.33	2.00	2.00	2.67	2.33	2.00	15.3
F 4	Flooding	Areas of town experience flooding and/or washouts during high rain events.	Financially plan for box culvert upgrades at stream crossings before they fail.	2.33	2.33	2.00	2.00	2.33	2.67	1.67	15.3

Project ID	Hazard	Problem	Mitigation Actions	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
ET 1	Extreme Temperatures	Extreme heat and extreme cold can pose a health safety risk to the public, especially if residents lack their own heating and/or cooling mechanisms.	Organize outreach to vulnerable populations, including promoting accessible heating or cooling centers.	2.67	2.33	2.33	2.33	2.00	2.33	1.33	15.3
F 3	Flooding	Areas of town experience flooding and/or washouts during high rain events.	Update drainage regulations.	2.33	2.33	2.33	2.00	2.00	2.33	2.00	15.3
ID	Infectious Diseases	Infectious diseases could impact residents, visitors, and businesses.	Work in partnership with public health network to share information with the public.	2.33	2.33	2.00	2.00	2.33	2.33	2.00	15.3
L	Lightning	Lightning strikes have been recorded in Belknap County and can harm people and property.	Educate the public on lightning protections systems such as lightning rods and grounding structures.	2.33	2.33	2.33	2.00	2.33	2.00	2.00	15.3
AH 4	All Hazards	There is no backup power source for the elementary school.	Seek funding for a generator for the elementary school.	2.67	2.33	2.00	2.00	2.00	2.00	2.00	15.0
D/W 1	Drought, Wildfire	There are areas in town that have limited water availability for fire response.	Develop and upgrade of hydrants and water availability	2.67	2.33	2.00	2.33	2.00	2.00	1.67	15.0
AH 3	All Hazards	Bank NH Pavillion sees a lot of traffic and currently lacks adequate infrastructure to ensure safety for pedestrians.	Work with Bank NH Pavillion to improve pedestrian access and safety to their site.	2.67	2.33	2.00	2.33	1.33	2.00	2.33	15.0

Project ID	Hazard	Problem	Mitigation Actions	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
EQ	Earthquake ≥4.0	Several faults run near Gilford. A 4.0 or larger earthquake could result in damages, especially to taller, masonry structures.	Educating homeowners on safety techniques to follow during and after an earthquake.	2.00	2.00	2.00	2.00	2.00	2.00	2.00	14.0
DF 1	Dam Failure	There are local dams that could pose a threat to the community if they were to fail.	Continue to work with DES and be aware of locally owned dams.	2.33	2.00	2.00	1.33	2.00	2.33	2.00	14.0
D 2	Drought	There is no alternate water source if the one wellhead for the school were to be compromised.	Expand the Laconia water system into Gilford, especially to the School and other public buildings.	2.33	2.33	1.67	2.00	1.67	2.33	1.33	13.7

APPENDIX I: EXISTING PLANS, STUDIES, REPORTS, AND TECHNICAL INFORMATION

Gilford Hazard Mitigation Plan, 2018
Gilford Master Plan, 2016
Gilford Zoning Ordinance, 2024
Gilford Subdivision Regulations, 2012
Gilford Site Plan Regulations, 2012
Gilford MS-1, 2024 – local structural valuation

Homeland Security & Emergency Management, New Hampshire Department of Safety
- *New Hampshire State Hazard Mitigation Plan, 2023 Update*
NH Department of Transportation Traffic Volume (TDMS),
<https://nhdot.public.ms2soft.com/tcds/tsearch.asp?loc=Nhdot&mod=TCDS>
NH Division of Forests and Lands, <https://www.nhdf.dncr.nh.gov/>

National Flood Insurance Program through NH Office of Planning and Development
<https://www.nheconomy.com/office-of-planning-and-development/what-we-do/floodplain-management-program>

[FEMA's Map Changes Viewer](#)

National Oceanic and Atmospheric Administration website, <http://www.ncdc.noaa.gov/>

Census 2020 and American Community Survey

FEMA Community Information System

FEMA Flood Map Service Center - <https://msc.fema.gov/portal/home>

APPENDIX J: FEMA WEBLIOGRAPHY

DISASTERS AND NATURAL HAZARDS INFORMATION

FEMA-How to deal with specific hazards	http://www.ready.gov/natural-disasters
Natural Hazards Center at the University of Colorado	https://hazards.colorado.edu/
National Oceanic and Atmospheric Administration (NOAA): Information on various projects and research on climate and weather.	https://www.noaa.gov/
National Climatic Data Center active archive of weather data.	https://www.ncdc.noaa.gov/cdo-web/
Northeast Snowfall Impact Scale	https://www.ncdc.noaa.gov/access/monitoring/rsi/nesis

FLOOD RELATED HAZARDS

FEMA Coastal Flood Hazard Analysis & Mapping	https://www.fema.gov/sites/default/files/documents/fema_coastal-mapping_infographic_3-22-2021.pdf
Floodsmart	http://www.floodsmart.gov/floodsmart/
National Flood Insurance Program (NFIP)	http://www.fema.gov/nfip
Digital quality Level 3 Flood Maps	http://msc.fema.gov/MSD/statemap.htm
Flood Map Modernization	https://hazards.fema.gov/femaportal/mapmod/mapmod.htm
Reducing Damage from Localized Flooding: A Guide for Communities, 2005 FEMA 511	http://www.fema.gov/library/viewRecord.do?id=1448

FIRE RELATED HAZARDS

Firewise	http://www.firewise.org
NOAA Fire Event Satellite Photos	https://www.ospo.noaa.gov/products/land/hms.html
U.S. Forest Service, USDA	https://www.fs.usda.gov/
Wildfire Hazards - A National Threat	http://pubs.usgs.gov/fs/2006/3015/2006-3015.pdf

GEOLOGIC RELATED HAZARDS

USGS Topographic Maps	https://www.usgs.gov/programs/national-geospatial-program/topographic-maps
Building Seismic Safety Council	http://www.nibs.org/?page=bssc
Earthquake hazard history by state	https://nibs.org/bssc/
USGS data on earthquakes	https://www.usgs.gov/programs/earthquake-hazards/data
USGS Earthquake homepage	https://www.usgs.gov/programs/earthquake-hazards/earthquakes
National Cooperative Geologic Mapping Program (NCGMP)	https://www.usgs.gov/programs/national-cooperative-geologic-mapping-program

Landslide Overview Map of the Conterminous United States	http://landslides.usgs.gov/learning/nationalmap/
Kafka, Alan L. 2008. Why Does the Earth Quake in New England? Boston College, Weston Observatory, Department of Geology and Geophysics	http://aki.bc.edu/why_quakes.html
Map and Geographic Information Center, 2010, "Connecticut GIS Data", University of Connecticut	http://magic.lib.uconn.edu/connecticut_data.html

WIND-RELATED HAZARDS

U.S. Wind Zone Maps	https://hazards.fema.gov/nri/strong-wind
Tornado Project Online	http://www.tornadoproject.com/
National Hurricane Center	http://www.nhc.noaa.gov
Community Hurricane Preparedness Tutorial	http://meted.ucar.edu/hurricane/chp/hp.htm
National Severe Storms Laboratory, 2009, "Tornado Basics"	http://www.nssl.noaa.gov/primer/tornado/tor_basics.html

GEOGRAPHIC INFORMATION SYSTEMS (GIS) AND MAPPING

The National Spatial Data Infrastructure & Clearinghouse (NSDI) and Federal Geographic Data Committee (FGDC) Source for information on producing and sharing geographic data	http://www.fgdc.gov
The OpenGIS Consortium Industry source for developing standards and specifications for GIS data	http://www.opengis.org
Northeast States Emergency Consortium (NESEC): Provides information on various hazards, funding resources, and other information	http://www.nesec.org
US Dept of the Interior Geospatial Emergency Management System (IGEMS) provides the public with both an overview and more specific information on current natural hazard events. It is supported by the Department of the Interior Office of Emergency Management.	https://www.usgs.gov/mission-areas/natural-hazards/science/interior-geospatial-emergency-management-system-igems
FEMA GeoPlatform: Geospatial data and analytics in support of emergency management	http://fema.maps.arcgis.com/home/index.html

DETERMINING RISK AND VULNERABILITY

HAZUS	https://www.fema.gov/flood-maps/products-tools/hazus
FEMA Hazus Average Annualized Loss Viewer	http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cb8228309e9d405ca6b4db6027df36d9&extent=-139.0898,7.6266,-48.2109,62.6754
Vulnerability Assessment Tutorial: On-line tutorial for local risk and vulnerability assessment	http://www.csc.noaa.gov/products/nchaz/html/mitigate.htm
Case Study: an example of a completed risk and vulnerability assessment	http://www.csc.noaa.gov/products/nchaz/html/case.htm

DATA GATHERING

National Information Sharing Consortium (NISC): brings together data owners, custodians, and users in the fields of homeland security, public safety, and emergency management and response. Members leverage efforts related to the governance, development, and sharing of situational awareness and incident management resources, tools, and best practices	https://www.ghinternational.com/case-studies/national-information-sharing-consortium-nisc
The Hydrologic Engineering Center (HEC), an organization within the Institute for Water Resources, is the designated Center of Expertise for the US Army Corps of Engineers	http://www.hec.usace.army.mil/
National Water & Climate Center	http://www.wcc.nrcs.usda.gov/
WinTR-55 Watershed Hydrology	https://www.ars.usda.gov/research/software/?modeCode=80-42-05-10
USACE Hydrologic Engineering Center (HEC)	http://www.hec.usace.army.mil/software/
Stormwater Manager's Resource Center SMRC	https://www.stormwatercenter.net/FAQs.htm
USGS Current Water Data for the Nation	http://waterdata.usgs.gov/nwis/rt
USGS Water Data for the Nation	https://waterdata.usgs.gov/
Topography Maps and Aerial photos	https://www.usgs.gov/programs/national-geospatial-program/us-topo-maps-america
National Register of Historic Places	https://www.nps.gov/subjects/nationalregister/index.htm
National Wetlands Inventory	http://www.fws.gov/wetlands/
ICLUS Data for Northeast Region	https://www.epa.gov/gcx/iclus-data-northeast-region

PLANNING

American Planning Association	http://www.planning.org
PlannersWeb - Provides city and regional planning resources	http://www.plannersweb.com

OTHER FEDERAL RESOURCES

U.S. Army Corps of Engineers: Provides funding for floodplain management planning and technical assistance and other water resources issues.	www.nae.usace.army.mil
Natural Resources Conservation Service: Technical assistance to individual land owners, groups of landowners, communities, and soil and water conservation districts.	www.nrcs.usda.gov
NOAA Coastal Services Center	http://www.csc.noaa.gov/
Rural Economic and Community Development: Technical assistance to rural areas and smaller communities in rural areas on financing public works projects.	www.rurdev.usda.gov
Farm Service Agency: Manages the Wetlands	www.fsa.usda.gov

Reserve Program (useful in open space or acquisition projects by purchasing easements on wetlands properties) and farmland set aside programs	
National Weather Service: Prepares and issues flood, severe weather and coastal storm warnings. Staff hydrologists can work with communities on flood warning issues; can give technical assistance in preparing flood-warning plans.	www.weather.gov
Economic Development Administration (EDA): Assists communities with technical assistance for economic development planning	https://www.eda.gov/funding/programs
National Park Service: Technical assistance with open space preservation planning; can help facilitate meetings and identify non-structural options for floodplain redevelopment.	www.nps.gov
Fish and Wildlife Services: Can provide technical and financial assistance to restore wetlands and riparian habitats.	www.fws.gov
Department of Housing & Urban Development	www.hud.gov
Small Business Administration: SBA can provide additional low-interest funds (up to 20% above what an eligible applicant would qualify for) to install mitigation measures. They can also loan the cost of bringing a damaged property up to state or local code requirements.	www.sba.gov/disaster
Environmental Protection Agency	www.epa.gov

OTHER RESOURCES

New England States Emergency Consortium (NESEC): NESEC conducts public awareness and education programs on natural disaster and emergency management activities throughout New England. Resources are available on earthquake preparedness, mitigation, and hurricane safety.	www.nesec.org
Association of State Floodplain Managers (ASFPM): ASFPM has developed a series of technical and topical research papers, and a series of Proceedings from their annual conferences.	www.floods.org
National Voluntary Organizations Active in Disaster (VOAD) is a non-profit, nonpartisan membership organization that serves as the forum where organizations share knowledge and resources throughout the disaster cycle—preparation, response, recovery and mitigation.	http://www.nvoad.org

FEMA RESOURCES

Federal Emergency Management Agency (FEMA)	www.fema.gov
National Mitigation Framework	http://www.fema.gov/national-mitigation-framework
Federal Insurance and Mitigation Administration (FIMA)	https://www.fema.gov/about/offices/insurance-mitigation
Community Rating System (CRS)	https://www.fema.gov/floodplain-management/community-rating-system
FEMA Building Science	http://www.fema.gov/building-science
National Flood Insurance Program (NFIP)	http://www.fema.gov/national-flood-insurance-program
Floodplain Management & Community Assistance Program	http://www.fema.gov/floodplain-management
Increased Cost of Compliance (ICC): ICC coverage provides up to \$30,000 for elevation and design requirements to repeatedly or substantially damaged property.	https://www.fema.gov/floodplain-management/financial-help/increased-cost-compliance
National Disaster Recovery Framework	http://www.fema.gov/national-disaster-recovery-framework
Computer Sciences Corporation: contracted by FIMA as the NFIP Statistical Agent, CSC provides information and assistance on flood insurance to lenders, insurance agents and communities	www.csc.com
Integrating the Local Natural Hazard Mitigation Plan into a Community's Comprehensive Plan: A Guidebook for Local Governments	https://www.fema.gov/ar/media-library/assets/documents/89725
Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning	https://www.fema.gov/sites/default/files/2020-07/integrating-hazard-mitigation-local-plan.pdf

Mitigation Best Practices Portfolio <http://www.fema.gov/mitigation-best-practices-portfolio>

FEMA Multi-Hazard Mitigation Planning Website	https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning
FEMA Resources Page	http://www.fema.gov/plan/mitplanning/resources.shtm
Local Mitigation Plan Review Guide	http://www.fema.gov/library/viewRecord.do?id=4859
Local Mitigation Planning Handbook complements and liberally references the Local Mitigation Plan Review Guide above	http://www.fema.gov/library/viewRecord.do?id=7209
HAZUS	http://www.fema.gov/protecting-our-communities/hazus
Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards	http://www.fema.gov/library/viewRecord.do?id=6938
Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials	http://www.fema.gov/library/viewRecord.do?id=7130

APPENDIX K: MONITOR, EVALUATE, & UPDATE

Table A: Periodic Hazard Mitigation Plan Review Record (Assessing overall plan effectiveness: Poor, Fair, Good, Excellent)

Meeting Schedule (dates)	Tasks Accomplished	How well is plan achieving stated purpose and goals?	Lead Parties	Public Involvement (citizens, neighboring communities)
December, 2026	<input type="checkbox"/> Documentation <input type="checkbox"/> Track implementation <input type="checkbox"/> Assess effectiveness <input type="checkbox"/> Other			
December, 2027	<input type="checkbox"/> Documentation <input type="checkbox"/> Track implementation <input type="checkbox"/> Assess effectiveness <input type="checkbox"/> Other			
December, 2028	<input type="checkbox"/> Documentation <input type="checkbox"/> Track implementation <input type="checkbox"/> Assess effectiveness <input type="checkbox"/> Other			
December, 2029	<input type="checkbox"/> Documentation <input type="checkbox"/> Track implementation <input type="checkbox"/> Assess effectiveness <input type="checkbox"/> Other			

Table B: Project Implementation Checklist (Action Status: C-Completed, X – Delete, D – Deferred); Actions highlighted in orange are preparation/response actions.

Project ID	Hazard	Mitigation Action	Potential Funding Source	Responsible Party	Time Frame S: 1-2 yr, M: 3-4 yr, L: 5+ yr O: Ongoing	Status December 2026	Status December 2027	Status December 2028	Status December 2029
AH 1	All Hazards	Promote existing public notification methods for the public.	Staff Time	EMD	S-O				
AH 2	All Hazards	Work with E-911 to ensure that all residence have a unique E-911 address.	Staff Time	Planning, Fire Department	S-O				
AH 3	All Hazards	Work with Bank NH Pavillion to improve pedestrian access and safety to their site.	Private Investment	DPW, Planning	S				
AH 4	All Hazards	Seek funding for a generator for the elementary school.	Grants/ School budget	SAU	M				

Project ID	Hazard	Mitigation Action	Potential Funding Source	Responsible Party	Time Frame S: 1-2 yr, M: 3-4 yr, L: 5+ yr O: Ongoing	Status December 2026	Status December 2027	Status December 2028	Status December 2029
CF 1	Conflagration (Fire)	Educate Property Owners about Wildfire Mitigation Techniques. Educate property owners on actions that they can take to reduce risk to property, such as the FireWise program, beginning with island residents (27 islands with 211 residents).	Staff Time	Fire Department	S				
DF 1	Dam Failure	Continue to work with DES and be aware of locally owned dams.	Staff Time	EMD	S-O				
D 1	Drought	Investigate expanding the Laconia water system into Gilford, especially to the School and other public buildings. Investigate other water source alternatives.	Staff Time	School Board	L				

Project ID	Hazard	Mitigation Action	Potential Funding Source	Responsible Party	Time Frame S: 1-2 yr, M: 3-4 yr, L: 5+ yr O: Ongoing	Status December 2026	Status December 2027	Status December 2028	Status December 2029
D 2	Drought	Expand the Laconia water system into Gilford, especially to the School and other public buildings.	Grants/ School, Town budgets	SAU	L				
D/W 1	Drought, Wildfire	Develop and upgrade of hydrants and water availability.	FD budget	Fire Department	S-O				
EQ	Earthquake ≥4.0	Educating homeowners on safety techniques to follow during and after an earthquake.	Staff Time	EMD	S				
ET 1	Extreme Temperatures	Organize outreach to vulnerable populations, including promoting accessible heating or cooling centers.	Staff Time	EMD, Health Officer	S				
F 1	Flooding	Upgrade and maintain culverts as needed to reduce the likelihood of back up or washout.	Staff Time, DPW budget	DPW	S-O + L				

Project ID	Hazard	Mitigation Action	Potential Funding Source	Responsible Party	Time Frame S: 1-2 yr, M: 3-4 yr, L: 5+ yr O: Ongoing	Status December 2026	Status December 2027	Status December 2028	Status December 2029
F 2	Flooding	Develop a stream maintenance program for Black, Gunstock, and Poor Farm Brooks, including state and municipal responsibilities and education/ outreach to riparian landowners.	Cons. Com. Budget, grant	Conservation Commission	L				
F 3	Flooding	Update drainage regulations.	Planning budget	Planning, DPW	S				
F 4	Flooding	Financially plan for box culvert upgrades at stream crossings before they fail.	DPW budget, CIP	DPW	L (Short planning)				
HW 1	High Winds (Tornado/ Downbursts)	Educate homeowners on how to protect buildings during severe wind events.	Staff Time	EMD	S				
ID	Infectious Diseases	Work in partnership with public health network to share information with the public.	Staff Time	Health Officer	S-O				

Project ID	Hazard	Mitigation Action	Potential Funding Source	Responsible Party	Time Frame S: 1-2 yr, M: 3-4 yr, L: 5+ yr O: Ongoing	Status December 2026	Status December 2027	Status December 2028	Status December 2029
L	Lightning	Educate the public on lightning protections systems such as lightning rods and grounding structures.	Staff Time	EMD	S-O				
SWW	Severe Winter Weather	Maintain adequate funding for snow removal on roads.	Staff Time, DPW budget	DPW	S				

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