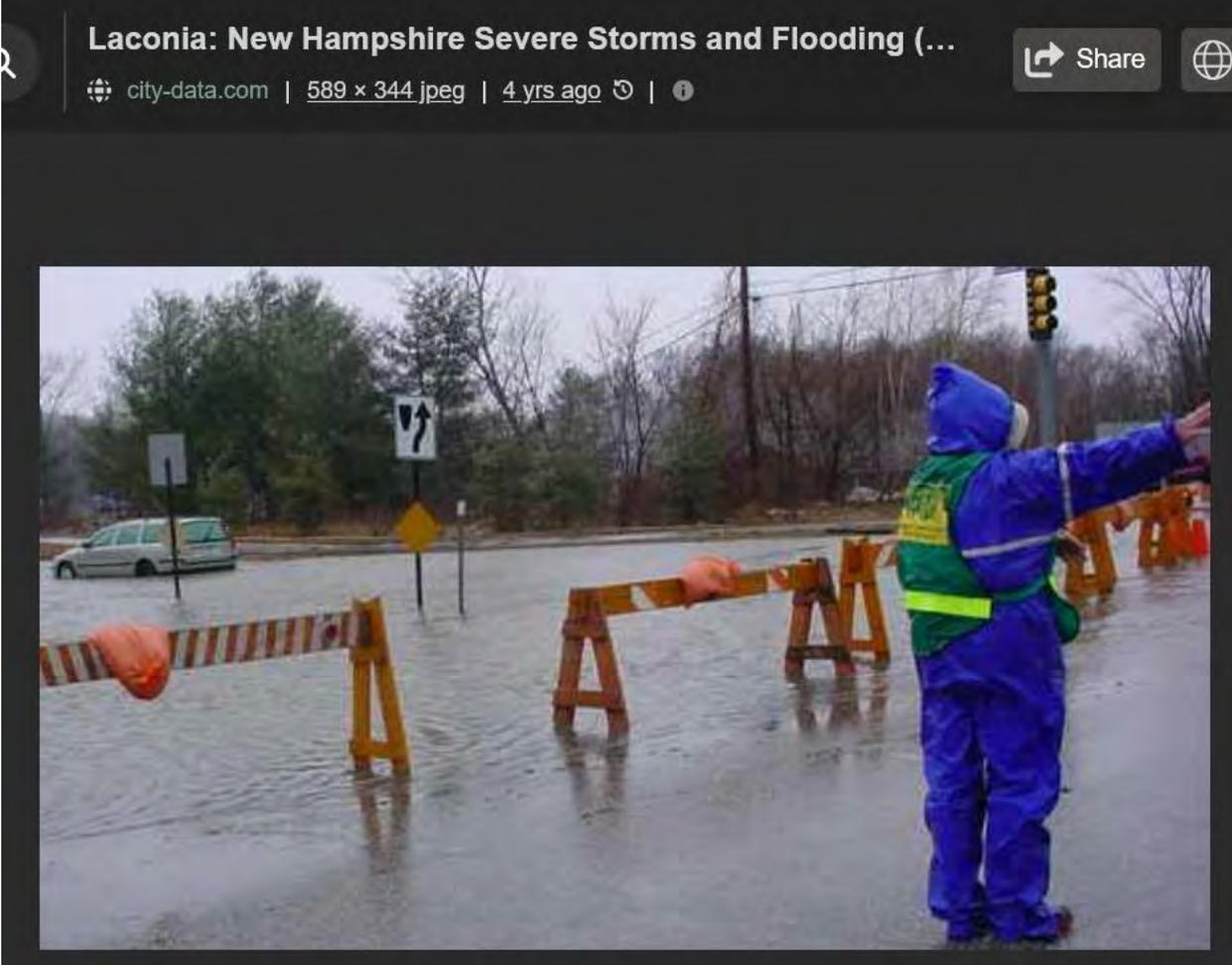


City of Laconia, New Hampshire Hazard Mitigation Plan Update, 2025

Prepared by the: Laconia Hazard Mitigation Update Committee



Summer 2025

Intentionally left blank.

City of Laconia, New Hampshire Hazard Mitigation Plan Update

Summer 2025

With Assistance from:

Lakes Region Planning Commission

103 Main Street, Suite #3

Meredith, NH 03253

Phone: (603) 279-8171

Fax: (603) 279-0200

www.lakesrpc.org



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

FY25 COMMISSIONERS (07/01/24 to 06/03/25)



Alton TBD	Bridgewater Ken Weidman Judith Faran	Franklin Chip Ach Jo Brown	Hill TBD	New Hampton David E. Katz Andrew Anderson	Sandwich Maureen Westrick
Alexandria George Tuthill, <i>Alt.</i>	Bristol Daniel "Buz" Kenney	Freedom Mark McConkey	Holderness TBD	Northfield Beth Keck Ken Tripple	Tamworth Lianne Prentice Richard Doucette
Andover Roland Carter Donna Duclos	Center Harbor Mark Hildebrand	Gilford John Ayer	Laconia Tyler Carmichael Richard MacNeill	Ossipee Phil Vallari	Tilton Jane Alden Eric Adams Nathan Langione, <i>Alt.</i>
Ashland Mardean Badger	Danbury John Taylor Mark Zaccaria	Gilmanston TBD	Meredith Stephanie Maltais Daniel Whitney	Plymouth William Bolton John Christ Neil McIver, <i>Alt.</i>	Tuftonboro TBD
Barnstead David Kerr	Effingham TBD	Hebron Ivan Quinchia	Moultonborough Cristina Ashjian Celeste Burns	Sanbornton TBD	Wolfeboro Roger F. Murray, III
Belmont Roderick Cameron					

FY25 STAFF

Shanna B. Saunders <i>Executive Director</i>	Carl Carder <i>Finance Administrator</i>	David Jeffers <i>Planning Manager</i>	Matthew Rose <i>Environmental Planner</i>
Glenn Trefethen <i>Transportation Planner</i>	Danielle Scadova-Vose <i>Regional Planner</i>	Tracey Secula <i>Grants Administrator</i>	Linda Waldron <i>Exec. Administrative Assistant</i>
Allen Constant <i>Transportation Technician</i>			

TABLE OF CONTENTS

SECTION I: PLANNING PROCESS	2
A. BACKGROUND	2
B. AUTHORITY	2
C. FUNDING SOURCE	2
D. PURPOSE	2
E. SCOPE OF PLAN	3
F. METHODOLOGY	4
G. PUBLIC INVOLVEMENT	4
SECTION II: COMMUNITY PROFILE	7
A. GEOGRAPHY	7
B. WEATHER CONDITIONS	7
C. PUBLIC SERVICES AND INFRASTRUCTURE	7
D. DEMOGRAPHICS AND POPULATION CHARACTERISTICS	8
E. LAND USE AND DEVELOPMENT TRENDS	10
SECTION III: RISK ASSESSMENT	14
A. INVENTORY OF ASSETS	14
B. IDENTIFYING NATURAL HAZARDS	18
C. PROFILING NATURAL HAZARD EVENTS	19
SECTION IV: VULNERABILITY ASSESSMENT	66
SECTION V: MITIGATION STRATEGIES	67
A. CURRENT PLANS, POLICIES, AND REGULATIONS	67
B. STATUS OF 2017 ACTIONS	73
C. MITIGATION GOALS AND TYPES OF ACTIONS	75
D. MITIGATION ACTIONS	77
E. PRIORITIZATION OF ACTIONS	85
F. IMPLEMENTATION OF MITIGATION ACTIONS	87
SECTION VI: PLAN ADOPTION AND MONITORING	93
A. IMPLEMENTATION	93
B. PLAN MAINTENANCE & PUBLIC INVOLVEMENT	93
C. SIGNED CERTIFICATE OF ADOPTION	95
APPENDIX A: TECHNICAL RESOURCES	97
APPENDIX B: MITIGATION FUNDING RESOURCES	100
APPENDIX C: PUBLICITY AND INFORMATION	107
APPENDIX D: INTERVIEWS, MEETINGS, AGENDAS, PARTICIPATION, and SURVEY	114
APPENDIX E: HAZARD EVENTS PRIOR TO 2017	140
APPENDIX F: SUPPLEMENTAL INFORMATION	144
APPENDIX G: PREPARATION OR RESPONSE ACTIONS	147
APPENDIX H: PRIORITIZATION DETAILS	150
APPENDIX I: EXISTING PLANS, STUDIES, REPORTS, AND TECHNICAL INFORMATION	157
APPENDIX J: FEMA WEBLIOGRAPHY	158
APPENDIX K: MONITOR, EVALUATE, & UPDATE	164

EXECUTIVE SUMMARY

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

The Committee agreed that some of the natural hazards identified in the 2017 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
Inland Flooding	High
Severe Winter Weather	High
Conflagration	High
High Wind Events	High

There have been no substantial changes to the list of the town’s Critical Facilities. Existing programs related to hazard mitigation include the following:

Existing Plans, Regulations and Practices Supporting Hazard Mitigation	
Hazard Mitigation Plan 2017	Subdivision Regulations (2015)
Code Enforcement	Site Plan Review Regulations (2009)
Zoning Ordinance (2023)	Master Plan (2018)
Floodplain Ordinance (2014)	School Emergency Operation Plan (2022)
Emergency Power Generation	Emergency Response Training and Drills

Some of the 12 Mitigation Actions from the 2017 Plan have either been completed (3) or are considered no longer pertinent (3). The six remaining Mitigation Actions are being carried over and considered in this plan along with several new actions. In its effort 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, noting 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 Laconia Hazard Mitigation Plan is a planning tool to be used by the city of Laconia, 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 city of Laconia, assessment of the threats these pose to the town, and the development & prioritization of mitigation actions to be implemented. Supplemental information regarding some human-caused and technological hazards that could impact Laconia 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 Laconia 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 City of Laconia (Avalanche, Landslide, and Wildfire.)

F. METHODOLOGY

The Lakes Region Planning Commission (LRPC) corresponded with the Laconia Emergency Management Director (EMD) to initiate the hazard mitigation update process. The EMD established the Laconia Hazard Mitigation Planning Update Committee for the purpose of updating a plan for hazard mitigation. The Committee consisted of representatives from the Police, Fire, Public Works, Planning, City IT, and Recreation/Facilities departments, as well as the Emergency Management Director (EMD), the City Manager, and the Regional Health Network. Schools, non-profits, those working with vulnerable populations, and the public were encouraged to attend meetings.

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. Several key personnel were interviewed prior to committee meetings to gather detailed information. 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 Laconia'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 Laconia'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. Laconia, a small urban 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.

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.

¹ FEMA, *Local Hazard Mitigation Guide (2025)*, Section 3.1 Right-Sizing Plan Development and Update.

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 by posting a link <https://arcg.is/0yr5Ge1> and QR Code on the town website and in the Laconia Links newsletter. More than eighty 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 third and fourth committee meetings were open to the public, though no residents attended. A representative from Partnership for Public Health attended and gave input, especially regarding infectious diseases and public health preparedness and a representative from the Laconia Housing Authority attended all meetings and provided information about their program, the needs of their clients, and the impacts of hazards on them.

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

Representation	Person	Role
Fire Department	Timothy Joubert	Chief, EMD (Emergency Management Director)
Police	Allan Graton	Captain
Public Works/Highway	Wes Anderson	Director, Road Agent
City Administration	Kirk Beattie	City Manager
Planning Department	Rob Mora	Planning Director
Planning Department	Tyler Carmichael	Assistant Planner
Recreation/Facilities	Amy Lovisek	Director
Code Enforcement	Joe Gray	Code Enforcement Officer
City IT	Nick Shastany	Staff
City IT	Artie O'Connell	Staff
Additional participants: Laconia Housing Authority	Dean Donati	Staff

Partnership for Public Health	John Beland	Emergency Preparedness Planner
Lakes Region Planning Commission	David Jeffers	Planning Manager
Lakes Region Planning Commission	Danielle Scadova-Vose	Regional Planner
NH HSEM Field Representative	Peter Llewellyn	Local Liason

The committee members listed above participated in several committee meetings, provided departmental information, contributed 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 from August 19 - 22, 2025. A few comments were received from a committee member and incorporated into the final draft.

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

SECTION II: COMMUNITY PROFILE

A. GEOGRAPHY

The City of Laconia is located near the geographic center of Belknap County, along the southwest embayment of Lake Winnepesaukee, the northeast shore of Lake Winnisquam and surrounding Opechee and Paugus Bays in the heart of New Hampshire's Lakes Region. Laconia consists of roughly 21 square miles of land area and 6 square miles of surface water; the lakes are obstacles for emergency response. The city is bordered by Meredith (north), Belmont (south), Gilford (east) and Sanbornton (west).

Laconia is comprised of moderately sloping terrain. With only ten percent of the land consisting of slopes 15 percent or greater, Laconia is less steep than most other Lakes Region communities. Slopes of 15 percent or greater comprise 33 percent of the land area in nearly every other Lakes Region community.

B. WEATHER CONDITIONS

Characteristic of New England, Laconia's temperatures and precipitation vary greatly. January temperatures range from an average high of 28.9 to an average low of 6.6 degrees Fahrenheit. In July, temperatures range from an average high of 80.4 degrees to an average low of 54.8 degrees Fahrenheit. Annual average precipitation is 45.2 inches. The wettest month of the year is October with an average rainfall of 4.5 inches. Laconia averages about 78.3 inches of snow per year.

The Public Works Department commented on the increased intensity of rainfall events, leading to more frequent flooding events.

C. PUBLIC SERVICES AND INFRASTRUCTURE

The governing body of the city is an elected mayor and an elected Council. One Councilor is elected from each of the City's six wards. All members of the Council are elected to serve a two-year term. The Council is responsible for formulating policy, adopting an annual budget, enacting the laws of the City, and approving the use and care of City property, including buildings, streets, and other infrastructure projects.

The largest hospital in the Lakes Region, Concord Hospital – Laconia, is located the city. The City and Hospital jointly operate the municipal emergency medical service for the community. The city also employs full- time fire and police departments. The police department has over 50 employees; the fire department has 47 employees. There are two fire stations, one downtown and the other at the Weirs. The Community Center at the Weirs and the public Library both

function as cooling centers where at-risk populations can find relief from extreme summer heat. There are five public schools, including the Laconia Middle School which serves as a primary shelter for the region, Laconia High School, the Elm Street School, Pleasant Street School, and Woodland Heights School. In addition, there are several private schools and the Lakes Region Community College.

The City of Laconia Department of Public Works, Operations Division is responsible for road construction, upkeep of 100 miles of city roads and adjacent sidewalks, storm drainage systems, and winter maintenance. Ancillary responsibilities include maintenance of parking meters, maintenance of the Weirs Public Docks, and plumbing inspections. The Parks Department is responsible for urban forestry. Laconia has received the Tree City USA award from the Arbor Day Association for 27 years in a row based on meeting core standards of sound urban forestry management including maintaining a tree board or department, having a community tree ordinance, and spending at least \$2 per capita on urban forestry.

Laconia residents have access to drinking water through both private wells and municipal water supply. The municipal water supply source is an intake pipe located in the southern end of Paugus Bay. Water is pumped from the Union Street pumping station to treatment at Stark Street and gravity storage at the Lakeport, Longbay, Endicott, Weirs, Lighthouse, and Briarcrest storage tanks. Currently the municipal water system has a capacity of over 5 million gallons of water. Due to the exposed nature of the surface water supply, open contamination pathways from regional bulk shipping transportation corridors and marina-based in-lake fueling stations, the municipal water supply is at risk of potential contamination, though not at risk to shortages.

Laconia is part of the Winnepesaukee River Basin Program (WRBP), a state owned and operated regional wastewater system serving ten communities in the Lakes Region. The treatment facility is in Franklin, NH. Funding for the WRBP is provided through the sewer rates assessed by the member communities. Feeding into the WRBP infrastructure, Laconia manages 18 sewer pump stations and approximately 91 miles of gravity main and 13 miles of force main. Connection to the sanitary sewer system is required when an improved property is within 250' of the public sewer system.

Power is provided to Laconia residents and businesses by two utilities: the vast majority are served by Eversource while NH Electric Cooperative serves a small group of properties in the western section of the city.

D. DEMOGRAPHICS AND POPULATION CHARACTERISTICS

The population in Laconia has remained constant over the past several decades, hovering around 16,000 residents, and only recently breaking the 17,000 threshold. The New Hampshire Office of Planning and Development (NHOPD) population estimates indicate a growth rate of 2.5% from 2020 to 2023; an increase of 422 persons to 17,293. While the NHOPD projects Laconia's population to increase by 7.0% by 2035 to 18,504 residents, the population could

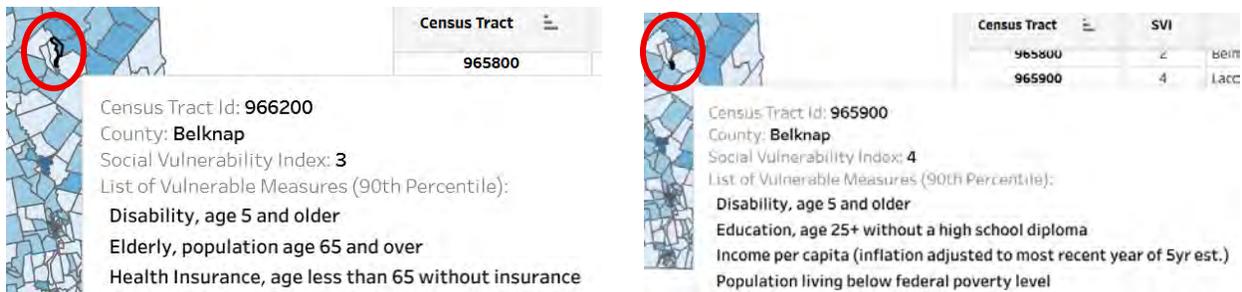
increase by as much as 20% in the next 10 years to 20,752 residents based on the amount of residential development currently underway and projected for the near future.

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

Year	1980	1990	2000	2010	2020	2030*	2040*
Laconia Population	15,575	15,743	16,411	15,951	16,871	18,177	18,635
Laconia % Change	---	1.1%	4.2%	-2.8%	5.8%	7.7%	2.5%
NH % Change	---	20.0%	11.0%	7.0%	4.6%	7.0%	2.6%

Sources: US Census and NHOPD 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 (2015-2019) indicates some Social Vulnerability for the downtown and eastern Census tracts of Laconia (the city has four tracts) . The areas of vulnerability noted included disabilities, elderly, and those without health insurance (Census Tract 966200) and disabilities, education, income per capita, and population in poverty (Census Tract 965900).



Laconia’s poverty level (12.1%) exceeds the state average of 7.2%, 2018-2023). The aging population continues to increase as a percentage of the overall population. Residents 65 years of age and older represent 24% of the total population according to the American Community Survey (ACS) 2018-2023. The NHOPD forecasts this trend to continue, where by 2030 the 65 years of age and older population will be 32% of Belknap County and 33% by 2040. The demand for healthcare services is expected to continue to increase.

Over 65 years of Age Population Growth

Year	2013	2018	2023
Laconia Population	2,809	3,566	4,096
Laconia % of Total Population	17.5%	21.8%	24.1%
NH % of Total Population	14.2%	17.0%	19.5%

Source: American Community Survey

E. LAND USE AND DEVELOPMENT TRENDS

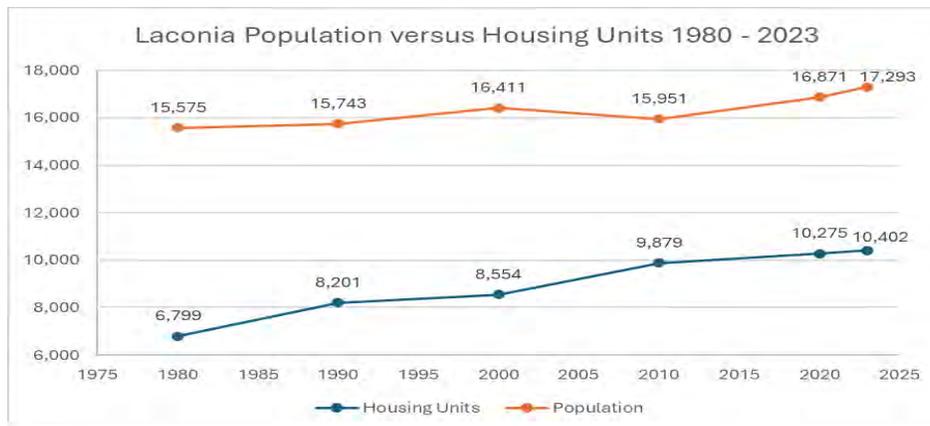
There are 10,727 housing units in Laconia, according to *Current Estimates and Trends in New Hampshire’s Housing Supply 2024*, published by the NH Department of Business and Economic Affairs. Fifty-four percent of them are single family homes.

Laconia saw one of the highest changes in seasonal housing in the Lakes Region between 2010 and 2020. The total number of housing units in Laconia increased by 4.5% from 2010 to 2020. The number of vacant housing units in Laconia decreased by 316 units from 2010 to 2020, though the number of vacant housing units identified as seasonal remained roughly the same resulting in an increase in the percentage of seasonal vacant housing units from 75% in 2010 to 82% in 2020.

Housing Units - Laconia, NH 2010-2020

	2010	2020	Change
Total Housing Units	9,796	10,239	443
Occupied Housing Units	7,103	7,086	-17
Vacant Housing Units	2,693	3,153	460
% Seasonal (Vacant)	20.9%	25.5%	4.6%

The vast majority, about 95%, of current development in Laconia is classified as residential. When compared with the rate of population growth, the change in the number of housing units has generally been faster. Over the last forty years, the increase in seasonal housing units has resulted in an overall decrease in the ratio of year-round residents per housing unit.



Recent Laconia Zoning Amendments

2019

- Combined Professional, Business Central, Downtown Riverfront, and Business Central/Industrial Zoning Districts into single Urban Commercial (UC) District. Allow up to 20 units if new construction; if existing building as of January 1, 2019, 1 per 1,000 square feet of floor space to be used as residential.
- Created mixed-use Performance Zoning Overlay District
- Amended wetlands conservation and water quality overlay district standards
- Created short-term rental ordinance

2020

- Amended short-term lodging ordinance to allow short-term rentals in specific zones by special exception

2021

- Amend the Table of Permitted Uses chart and Chapter 235-42 Zoning, adding a new section L, to include Indoor storage, self-service as a Conditional Use Permit (CUP) in the Commercial Resort (CR) zone
- Added all lots in the Weirs TIF District to the Performance Zone District
- Addition to section 235-21.1, Performance Zoning Overlay District, in a portion of the Weirs
- Revisions to Accessory Dwelling Units section 235-41:A of the ordinance

2022

- Added home gardens as a permitted accessory use in RS and RG zones only as well as a definition of a home garden.

2023

- No changes.

2024

- Ordinance 2024-235-41-A - Residential Accessory Uses - Accessory dwelling units This proposed amendment to the Zoning Ordinance will permit Accessory Dwelling Units by right. All ADUs must follow the prescribed permitting process included in this revision.
- Ordinance 2024-235-39-A - Amending Chapter 235, Zoning, relative to Article VII, Supplementary Provisions, Section 235-39 A, General Provisions - Unsafe Structures This proposed amendment to the Zoning Ordinance will allow the City to take a more proactive and expedient approach to requiring remediation or removal of structures that otherwise may be left as ruins for an indefinite duration.
- Ordinance 2024-235-15 - Amending Chapter 235, Zoning, relative to Article III, Chapter 235-15, Official Zoning Map The area being considered for amendment currently encompasses several different residential apartment developments. This proposed change to the Official Zoning Map will be consistent with the current use of the affected parcels and will spur greater development of residential housing

Traffic Volume

A standard measure of traffic volume is Average Annual Daily Traffic (AADT) counts, measured in vehicles per day. As this is a projected average over the entire year, there are certainly many summer days when the volume of traffic on any one of these roads exceeds these figures.

There are more than 60 locations throughout Laconia where traffic volume is measured on a regular basis. The complete set of current and historic Laconia Traffic Count volumes can be found using the [NH DOT TDMS data mapping tool](#). Shown below and at right are the eight locations identified in the 2017 HMP Update. There may be several explanations for the general drop in traffic at these sites between 2017 and 2023. Some of the decreases in the traffic volumes shown might be attributed to COVID-related changes in traffic patterns.



Committee members, including the DPW Director, did not see this general decline as a city-wide pattern continuing into 2025.

Laconia Traffic Counts: Select Locations 2017 vs. 2023

Map ID	Location ID	Located On	2017 Count	2023 Count	Count Difference	Percent Difference
A	82245054	Parade Rd	7,969	7,859	-110	-1.4%
B	62245049	Weirs Blvd	9,647	10,500	853	8.8%
C	82245079	Union Ave	16,777	14,252	-2,525	-15.0%
D	82245058	Union Ave	17,825	14,215	-3,610	-20.3%
E	82245053	N Main St	13,631	12,730	-901	-6.6%
F	82245064	N Main St	12,583	11,955	-628	-5.0%
G	82245081	Belmont Rd	11,534	9,718	-1,816	-15.7%
H	82245077	Laconia Byp	9,647	8,834	-813	-8.4%

Source: NH DOT

Future Development

There is a good deal of development occurring and even more planned. Notably plans are proceeding for the redevelopment of “the State School property along NH 106 near Meredith Center Road. This multi-phase project will include upwards of 2,000 housing units, grocery, services, and possibly some municipal facilities. When completed, this could increase the city’s housing stock by nearly 20%. It will likely have an impact on transportation patterns, infrastructure, and municipal services. The city has been involved in the planning process.

When asked “Do you think the city is better prepared for natural hazards than it was 6-7 years ago?” After some discussion among the group, the committee agreed that yes, the city is better protected and less vulnerable; mitigation steps have been taken, and they are better prepared.

It was mentioned that the Covid-19 Pandemic taught the city a lot. The Chief said the Fire Department has been working hard to increase staffing and upgrade vehicles. The DPW Director mentioned DPW has a vehicle replacement schedule. Overall, the city is becoming more prepared and working towards preparedness.

SECTION III: RISK ASSESSMENT

A. INVENTORY OF ASSETS

The Critical Facilities for the City of Laconia were identified in the previous Laconia Hazard Mitigation Plans. 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 has been identified using the following categories:

CATEGORY 1 (Facilities needed for Emergency Response)

- Fire
- Emergency Medical Services (EMS)
- Police
- Hospital
- Shelter
- Town Hall
- Emergency Operations Center (EOC)
- Public Works
- Water Supply/Treatment
- Sewer Treatment
- Emergency Fuel

CATEGORY 2 (Facilities NOT necessary during an emergency event)

- Public Utilities
- Transportation
- Evacuation Routes

CATEGORY 3 (Populations & Places to Protect)

- Schools
- Daycares
- High Concentration Populations
- Elderly Facilities
- Healthcare Facilities
- Recreation areas
- Historic Resources

A list of the facilities in Laconia follows along with the value of the structure.

Laconia Critical Facilities Facility Name	Building Value	
	2017	2025
Laconia Police Station, 1st EOC	\$2,592,600	\$ 5,441,000
Central Fire Station	\$2,157,400	\$ 4,031,000
Weirs Fire Station/Community Center	\$644,200	\$ 1,321,800
Laconia DPW Headquarters	\$697,000	\$ 1,093,100
Laconia DPW Vehicle Maintenance Facility	\$533,300	\$ 336,000
Laconia DPW Storage (NE Yard)	\$129,300	\$129,300
Lakes Region General Hospital	\$57,870,200	\$57,870,200
City Hall	\$1,157,300	\$ 1,641,400
Laconia High School	\$16,044,000	\$ 28,657,000
Woodland Heights Elementary School	\$4,043,900	\$ 7,995,400
Lakes Region Community College	\$9,964,300	\$ 19,564,900
Pleasant Street School	\$3,003,600	\$ 6,227,100
Laconia Christian School	\$1,438,500	\$ 2,837,795
Holy Trinity School/ROMAN CATH CHURCH	\$2,517,800	\$ 7,469,700
Elm Street School	\$2,911,800	\$ 5,699,700
Laconia Middle School/OPECHEE PARK	\$15,526,100	\$ 27,900,600
Laconia Public Housing, Sunrise Towers	\$7,019,800	\$ 10,589,900
Belknap County Nursing Home &	\$9,010,900	\$ 18,176,300
Belknap County Jail Combined with Nursing Home	\$9,010,900	
St. Francis Nursing Center	\$2,770,100	\$ 6,143,900
Genesis Elder Care Center	\$4,074,400	\$ 6,639,300
Belknap County Superior Court	\$3,801,200	\$ 5,279,800
Laconia District Court	\$1,660,200	\$ 2,369,100
Laconia Community Center	\$1,043,400	\$ 2,426,400
Gale Memorial Library	\$2,065,300	\$ 4,037,900
Community Action Program	\$1,741,700	\$ 2,368,200
Laconia Clinic	\$2,286,000	\$ 3,201,600
US Post Office	\$898,800	\$ 1,823,200
NH Employment Security Dept.	\$759,100	\$ 1,190,900
NH Wastewater Treatment Plant	\$2,210,900	\$ 7,453,200
State District Office Bldg. – NH Health & Human Services	\$1,467,300	\$ 2,600,400
Sewer Pumping Stations:		
· Black Brook	\$154,300	\$ 277,700
· Mass Ave	\$41,500	\$ 171,700
· Chapin Terrace	\$34,100	\$ 57,600
· Christmas Island		\$ 63,600
· Paugus	\$124,700	\$124,700

Laconia Critical Facilities Facility Name	Building Value	
	2017	2025
· Langley Cove	\$75,200	\$ 807,000
· Lakeside	\$13,200	\$ 24,300
· Hillcrest Dr.	\$17,100	\$ 42,300
· Briarcrest		\$ 4,617,400
· Keasor Court	\$22,500	\$ 101,100
· Lawrence Court	\$54,100	\$ 74,000
· Shore Drive	\$74,500	\$74,500
· Old North Main\Clearwater	\$44,800	\$ 169,200
· Roller Coaster Road	\$64,100	\$ 116,300
· Meredith	\$30,000	\$ 96,912
· Paugus Park (WRBSS)	\$95,100	\$ 95,100
· Maiden Lady Cove (WRBSS)	\$152,600	\$ 152,600
· Pendleton Beach (WRBSS)	\$113,700	\$ 113,700
· Jewett Brook (WRBSS)	\$131,200	\$ 131,200
· N. Main (WRBSS)	\$114,500	\$ 114,500
· Wiers (#1) (LANGLEY COVE PUMP STATION)	\$97,300	\$ 97,300
· Maintenance Shop (WRBSS)	\$2,210,900	\$ 2,210,900
Downtown Parking Garage	\$1,304,100	\$ 2,626,800
Water Treatment and Storage	\$6,131,100	\$ 7,417,700
Water Pumping Station	\$544,400	\$ 1,552,700
Briarcrest Water Storage Tanks	\$470,500	\$ 470,500
Weirs Water Storage Tanks	\$517,800	\$ 517,800
Aqua Water Storage Tanks	\$725,000	\$ 725,000
Southdown Water Storage Tanks	\$294,200	\$ 294,200
Paugus Bay Campground	\$1,262,700	\$ 2,104,500
Hack-Ma-Tack Camping Area	\$453,069	\$ 994,400
White Oaks RV Park (NORMAND)	\$705,900	\$705,900
Carey House (Salvation Army)	\$370,100	\$ 865,500
Laconia Ice Co.	\$603,900	\$ 800,700
Vista Foods	\$883,400	\$ 1,394,800
Northern NE Telephone- Fairpoint	\$1,376,100	\$ 1,656,100
Amerigas	\$80,700	\$ 568,500
Dutile & Sons, Inc.	\$80,600	\$ 594,200
Rymes Heating Oil	\$1,089,500	\$ 1,477,900
Irving Oil Corporation Update: currently vacant	\$159,800	\$ 1,200,300
Stafford Oil Company	\$957,400	\$ 2,048,100
Genesis Behavioral Health	\$839,200	\$ 1,997,500
Avery Dam	\$817,600	\$ 314,200
Lakeport Dam	\$265,800	\$ 265,000

Laconia Critical Facilities Facility Name	Building Value	
	2017	2025
Assembly of God Church	\$292,400	\$ 626,100
Christian Science Church	\$324,600	\$ 719,100
Church of Jesus Christ of Latter-Day Saints	\$1,143,200	\$ 2,414,700
Congregational Church of Laconia	\$1,306,400	\$ 2,620,000
Cornerstone Christian Fellowship	\$184,700	\$ 456,200
Good Shepherd Lutheran Church	\$815,700	\$ 1,821,900
Grace Presbyterian Church	\$396,500	\$ 1,069,300
Greek Orthodox Church	\$305,000	\$ 670,700
Heritage Free Will Baptist Church	\$282,500	\$ 808,900
Laconia Alliance Church of the C&MA	\$482,000	\$ 1,076,000
Evangelical Baptist Church	\$955,300	\$ 1,820,900
Sacred Heart Church	\$1,776,300	\$ 7,469,700
Seventh Day Adventist Church	\$209,600	\$ 655,900
South Baptist Church	\$825,200	\$ 1,302,100
St. James Episcopal Church- Update: now Boys & Girls Club	\$715,200	\$ 1,821,900
St. Joseph's Church	\$2,509,400	\$ 1,502,000
Temple B'Nai Israel	\$483,000	\$ 1,102,300
The Bible Speaks	\$232,000	\$ 528,300
Unitarian Universalist Society of Laconia	\$304,700	\$ 670,200
United Baptist Church	\$117,600	\$ 1,145,600
TOTAL	\$485,426,680	\$534,487,793

B. IDENTIFYING NATURAL HAZARDS

The city of Laconia is prone to a variety of natural, human-caused, and technological hazards. In the Laconia HMP Update (2017) a dozen natural hazards were discussed. Ice Storm and Public Health/Pandemic were seen as high risk or significance with Dam Failure and Conflagration as medium risk. Numerous Human-caused and Technological hazards were also identified and discussed.

Risk Rating (2017) - Natural Hazards

High	Medium	Low
Ice Storm	Dam Failure	Blizzard
Public Health Crisis/Pandemic	Major Fire (Conflagration)	Drought
		Flooding
		Earthquake
		Severe Thunderstorm/Lightning
		Major Snowstorm
		Hurricane
		Tornado/Downburst

Risk Rating (2017) – Human-Caused or Technological Hazards

High	Medium	Low
Water Contamination	Chemical Accident	Railroad Accident
Aircraft Accident	Mass Casualty Accident	Cyber Terrorism
Terrorism		Power Outage
		Civil Disorder
		Water Shortage

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 Storm & Space Weather is a newly specified natural hazard.

Following a review of the natural hazards identified in the 2023 State Plan and in Laconia’s 2017 Update Plan, as well as historical information from internet sources about past hazard events in and near Laconia since 2017, the natural hazards were identified as posing the greatest risk to

the city. Higher risk score indicates higher risk (See end of Section III for more information on risk ratings).

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. 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. Due to the built environment and rather open landscape in Laconia, wildfire is not considered much of a risk. However, conflagration (urban fire) is seen as a high risk in the city.

There has been some change in what the committee considers the natural hazards with the highest relative risk ratings, with Flooding and High Winds now being high risk hazards. While Infectious Disease is still near the top of the list, committee members were also far more confident in their preparation for the next outbreak.

Scale	Low Medium High
Natural Hazards	
Inland Flooding	36.00
Severe Winter Weather	36.00
Conflagration	18.00
High Wind Events (Torn./Downb.)	18.00
Infectious Diseases	12.00
Earthquake	9.00
Dam Failure	6.00
Tropical & Post-Tropical Cyclones	4.00
Thunderstorm/Lightning	3.00
Extreme Temps	2.67
Drought	2.00
Solar Storms & Space Weather	1.00
Wildfire	1.00
Landslides	1.00
Hail	1.00
Avalanche	1.00

Natural Hazards 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, and terrorism/violence events are all concerns in Laconia. Those 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 Laconia. 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 Laconia. 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 five-point descriptive scale including improbable, remote, 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 \$17M. 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.

The total valuation of the critical structures in Laconia is over \$500 million 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. This does not account for many of the city’s commercial buildings nor any of the residential structures.

Laconia Critical Buildings Value Assessment

	Structures 2025	1%	2%	5%
Total	\$534,487,793	\$5,344,877	\$10,689,754	\$26,724,385

Source: Laconia Assessing Office, 2025

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, Laconia 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.

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. As noted earlier in this plan (Section I.D.) in Laconia this includes those with Disabilities, the Elderly, those without Health Insurance, and people with a low Income per capita or living below the federal Poverty line.

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.

DR #	Declaration Date	Incident Description	Event date, name	Declaration Type	Total Funds	Impact to Laconia
4316	6/1/2017	Severe Winter Storm	March 14 Severe Wx	Major Disaster Declaration	\$2,502,300	
4329	8/9/2017	Severe Storms and Flooding	July 1 Severe Wx	Major Disaster Declaration	\$9,953,803	
4355	1/2/2018	Severe Storms and Flooding	Oct 30 Storms & Flooding	Major Disaster Declaration	\$12,434,377	
4370	6/8/2018	Severe Weather and Flooding	March Coastal Storm	Major Disaster Declaration	\$895,861	
4371	6/8/2018	Severe Winter Weather and Snowstorm	March 13 Blizzard	Major Disaster Declaration	\$3,477,506	
4457	8/15/2019	Severe Storm and Flooding	July 11 Storms	Major Disaster Declaration	\$3,202,283	
EM 3445	3/13/2020	Public Health Outbreak	COVID-19	Emergency Declaration	N/A	5,136 total cases in Laconia (WMUR)
DR 4516	4/3/2020	Public Health Outbreak	COVID-19	Major Disaster Declaration	\$203,266,929	
4622	9/30/2021	Severe Storms and Flooding	July 17-19 Flooding	Major Disaster Declaration	\$836,136.31	
4624	10/4/2021	Severe Storms and Flooding	July 29-30 Flooding	Major Disaster Declaration	\$1,293,973.48	
4693	3/12/2023	Severe Winter Weather and Inland Flooding	Dec. 22-25, 2022	Major Disaster Declaration	\$3,102,420.00	8 in. of snow
4740	9/14/2023	Severe Storms and Flooding	July 9-17, 2023 Flooding	Major Disaster Declaration	TBD	

DR #	Declaration Date	Incident Description	Event date, name	Declaration Type	Total Funds	Impact to Laconia
4761	2/27/2024	<i>Severe Storms and Flooding</i>	<i>Dec. 17-21, 2023</i>	<i>Major Disaster Declaration</i>	<i>TBD</i>	
4771	4/19/2024	<i>Severe Storms and Flooding</i>	<i>Jan. 9-14, 2024</i>	<i>Major Disaster Declaration</i>	<i>TBD</i>	
4799	7/10/2024	<i>Severe Winter Storm and Flooding</i>	<i>April 3-5, 2024</i>	<i>Major Disaster Declaration</i>	<i>TBD</i>	14 in. of snow
4812	8/20/2024	<i>Severe Storms and Flooding</i>	<i>July 10-13, 2024</i>	<i>Major Disaster Declaration</i>	<i>TBD</i>	1.27 in. of rain Gilford

Natural Hazard Events since 2017 - Laconia, NH

Hazard	Events	Dates	Location	Extent	General Impacts	Source	Impacts to Laconia
Avalanche	0		Belknap County			NOAA Events	
Drought	1	May-Oct. 2020	Statewide	Extreme Drought D2/D3	Agriculture, dry wells, water restrictions (400,000 state-wide), about 10 inches below normal. Damages Prop. \$100K, Crop \$500K	NOAA Events	
Earthquake (4.0 or higher Richter)	0		Within 100mi radius			USGS Earthquake Map	
Extreme Temps	1	2/3-2/4, 2023	Belknap County	Wind chill of -30F or colder	Top 3 coldest wind chills throughout the state.	NOAA Events	-40 degrees F at Laconia Municipal Airport
High Wind Event	1	10/30/2017	Belknap County	61 kts	Snapped and uprooted trees caused power outages; Damages Prop: \$0K, Crop \$0K	NOAA Events	
Infectious Diseases	1		Belknap County		COVID-19 – Belknap Co. 17,713 cases, 222 deaths	NH DHHS Data Portal	5,136 cases in Laconia
Flooding	6	6/19/2017 7/29-7/30, 2021 12/23/2022 7/16/2023 7/29/2023 12/18/2023	Belknap County	Flash Flood Flash Flood Flood Flash Flood Flash Flood Flood	2-3 in. of rain, Damages Prop. \$45K 3-4 in/hr of rain, Damages Prop. \$75K Rainfall & snow melt flooded roads 3-7 in. of rain caused washouts Heavy rainfall caused washouts Rainfall & snow melt raised the Suncook River to moderate flood stage	NOAA Events	Numerous flooded roads in Laconia Road flooding near Gilmanton Fire Dept.
Dam Failure	0						
Landslides	0						

Hazard	Events	Dates	Location	Extent	General Impacts	Source	Impacts to Laconia
Lightning	1	5/15/2020	Belknap County		House struck by lightning in Meredith and caught fire; Damages Prop. \$20K	NOAA Events	
Severe Winter Weather	6	2/9/2017 2/12/2017 2/15/2017 3/14/2017 3/31-4/1, 2017 12/22/2017	Belknap County	Heavy Snow	Up to 15 in. snow 6-16 in. snow, wind gusts Up to 12 in. snow 12-20 in. snow, wind gusts 12+ in. snow 3-10 in. snow	NOAA Events	3/14/2017, Laconia experienced more than 3 hours of blizzard conditions, 45mph winds, numerous blocked roads and power outages
Severe Winter Weather	6	1/4/2018 2/7/2018 2/17/2018 3/7/2018 3/13/2018 11/20/2018	Belknap County	Heavy Snow	10-15 in. snow 6-10 in. snow 6 in. snow 10-18 in. snow More than 24 in. snow 6-8 in. snow	NOAA Events	
Severe Winter Weather	4	1/19/2019 1/29/2019 12/01/2019 12/29/2019	Belknap County	Heavy Snow, Winter Storm	6-10 in. snow & sleet, 5-7 in. snow, sleet, freezing rain 5-12 in. snow, 6-10 in. snow & sleet	NOAA Events	
Severe Winter Weather	5	1/16/2020 3/23/2020 5/09/2020 12/5/2020 12/17/2020	Belknap County	Heavy Snow, Winter Storm	5-7 in. snow 5-7 in. snow 1-3 in. snow 1-10 in. snow 18-24 in. snow	NOAA Events	12/17/2020 broke the county record
Severe Winter Weather	2	2/1/2021 12/18/2021	Belknap County	Winter Storm	5-8 in. snow 4-7 in. snow, sleet, freezing rain	NOAA Events	

Hazard	Events	Dates	Location	Extent	General Impacts	Source	Impacts to Laconia
Severe Winter Weather	7	1/17/2022 1/29/2022 2/4/2022 2/19/2022 2/25/2022 2/27/2022 12/16/2022	Belknap County	Winter Weather, Winter Storm	6-9 in. snow, sleet, freezing rain 2-9 in. snow 2-7 in. snow snow squalls, wind gusts 6-9 in. snow snow squalls, wind gusts 6-10 in. snow	NOAA Events	12/16/2022, Winter Storm caused power outages and downed trees across City, received \$9,364.90 Public Assistance Grant from FEMA for the purpose of reimbursing the general fund
Severe Winter Weather	6	1/19/2023 1/22/2023 2/28/2023 3/4/2023 3/14/2023 5/18/2023	Belknap County	Winter Storm, Heavy frost/freeze	6-8 in. snow 12-16 in. snow 4-7 in. snow 9-13 in. snow up to 15 in. snow * Nor'easter Late spring heavy frost/freeze	NOAA Events	
Severe Winter Weather	4	1/06/2024 1/14/2024 3/23/2024 4/03/2024	Belknap County	Winter Storm Winter Weather	12-16 in. snow Up to 2 in. snow, snow squalls 8-22 in. snow, freezing rain, rain 12-18 in. snow	NOAA Events	1/14/2024, Laconia Municipal Airport reported 1/4 mi. visibility 4/3/2024, resulted in heavy snow that caused power outages and transportation delays

Hazard	Events	Dates	Location	Extent	General Impacts	Source	Impacts to Laconia
Tornado	1	8/22/2020	Belknap County	Tornado	A strong discrete supercell formed over Lake Winnepesaukee	NOAA Events	
Tropical & Post-Tropical Cyclones	1	8/4/2020	Belknap County	TS Isaias. Wind >40 kts.	Hundreds of trees down. 30% of homes without power. 70 kts winds in Freedom.	NOAA Events	
Wildfire	0	n/a	Belknap County	n/a	n/a	NOAA Events	

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 Laconia. The following section describes the hazard, its **extent, probability** of occurrence, and **history**, likely **location**, its likely **impact** in Laconia. 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 a landslide occurring in Laconia.

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 Laconia where avalanches would occur.

Probability of Occurrence: Unlikely

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.

Probability and Impact of Climate Change on Avalanche events: Increasing precipitation associated with climate change are likely to lead to heavier, wetter snowfalls and more layers of snow and ice (less stability). Increased temperatures will raise the snow line to higher elevations, reducing the risk of lower altitude avalanches. As there are no avalanche locations in Laconia, climate change will have no effect on the probability and impact of avalanche.

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

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.

Location: Downtown Laconia is a small urban center with dozens of wood and masonry buildings from the 19th and early 20th century buildings. There are also numerous lakefront cottages and cottage complexes built very close together.

Extent: Severe

Downtown Laconia and the surrounding residential neighborhoods have numerous tightly packed structures, with many built of wood.

History: No local occurrences have been reported since the last plan update

Probability of Occurrence: Occasional

Impact: High

Conflagration is a greater threat to Laconia than wildfire as there are so many structures in close proximity along with many older, wooden structures. The entire downtown area is susceptible to fire due to the age and proximity of the structures. Assuming 5% town-wide damage to critical buildings, each year wildfire could result in \$26.7 million in damages.

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

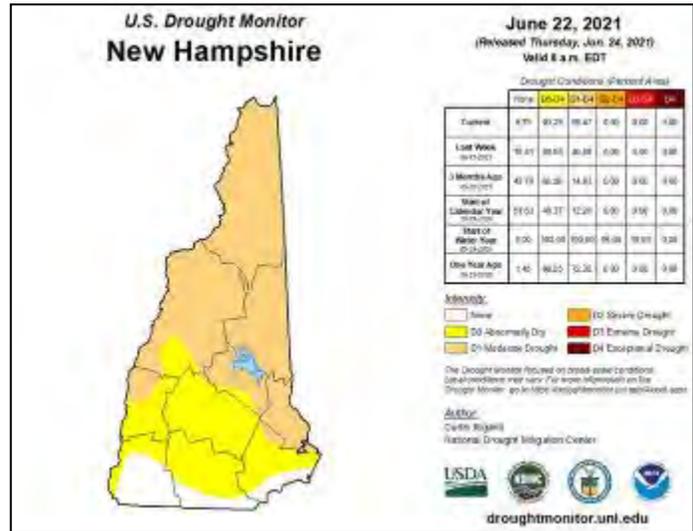
- **Agricultural Drought:** Occurs when crops become affected by drought conditions
- **Socioeconomic Drought:** Effects of supply and demand of commodities affected by drought conditions

Extent: Weak

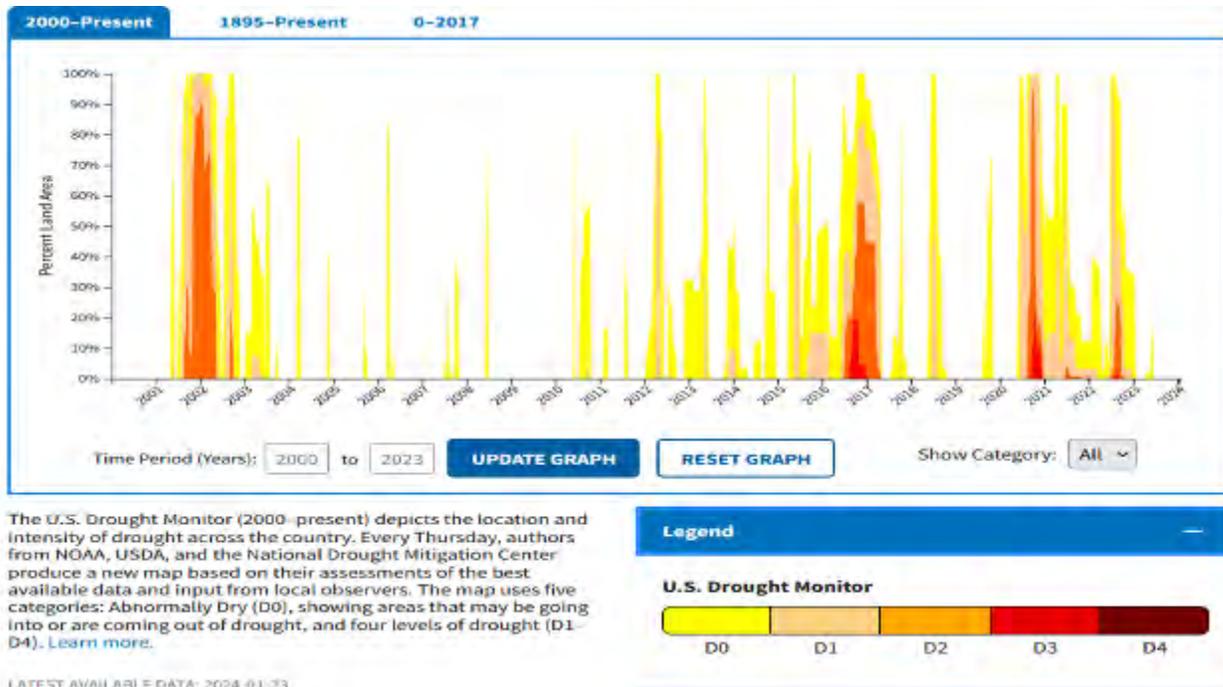
A drought can last for months, or even years. Since 1990 New Hampshire has had a state Drought Emergency Plan, which identifies four levels of action indicating the severity of the drought:

- 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 Laconia. 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. Most properties within the city are on public water, which is drawn from Paugus Bay. Many properties to the north are on private wells.

Probability of Occurrence: Occasional

Impact: Low

A severe drought can affect public water supply, increase the probability of fires, and perhaps 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.

Impact of Climate Change on Drought events: Heat waves can exacerbate droughts, leading to negative impacts on the agriculture sector. More intense rain events certainly may reduce drought, conversely because of their intensity, it can be a situation of so much rain coming down in a short period of time that much of the water runs off as stormwater and does not have an opportunity to seep in and replenish the aquifer. More frequent or more intense drought could have negative impacts on the agriculture sector.

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

- Living in poorly maintained housing with aging infrastructure, such as shallow wells
- May be dependent upon others to travel
- Limited resources for seeking medical assistance

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: Severe
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

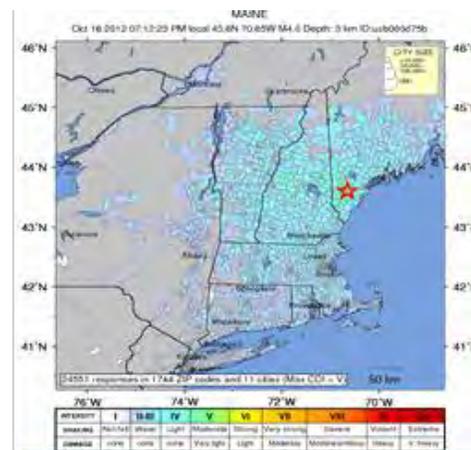
Richter Magnitude	Earthquake Effects
2.5 or less	Usually not felt, but can be recorded by seismograph.
2.5 to 5.4	Often felt, but only causes minor damage.
5.5 to 6.0	Slight damage to buildings and other structures.
6.1 to 6.9	May cause a lot of damage in very populated areas.
7.0 to 7.9	Major earthquake. 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.² 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. The image at left shows the expected number of damaging earthquakes shaking in 10,000 years.

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

History: On average, every other year the Lakes Region experiences an earthquake, though these earthquakes are mild and go mostly undetected by people. Sanbornton and Tamworth are identified as two epicenters in the region.³ 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 Laconia; the largest was magnitude 4.5. Two such earthquakes have occurred since 2006; a 3.4 event in 2010 centered in Penacook, NH and a 4.0 quake in southern Maine shook the region on October 16, 2012. The image at right



² <http://www.nh.gov/safety/divisions/hsem/NaturalHazards/index.html>, visited February 8, 2011

³ <http://des.nh.gov/organization/commissioner/pip/factsheets/geo/documents/geo-3.pdf>, pg. 3, visited January 25, 2011.

indicates the communities where people reported feeling this event.⁴

Location	Date	Magnitude
Ossipee	December 24, 1940	5.5
Ossipee	December 20, 1940	5.5
Ossipee	October 9, 1925	4
Portsmouth	November 10, 1810	4
Off Hampton	July 23, 1823	4.1
15km SE of Berlin	April 6, 1989	4.1
5km NE of Berlin	October 20, 1988	4
W. of Laconia	January 19, 1982	4.7
Central NH	June 11, 1638	6.5

Since the last plan (2017) there have been three earthquake events within 100 km of Laconia, none reached a magnitude of 4.0. Laconia has not experienced any significant earthquakes.

Location: An earthquake of 4.0 or greater could affect all areas of Laconia, mainly multi-level structures such as those in the downtown area. Some bridges and dams might be impacted.

Probability of Occurrence: Unlikely

Impact: High

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. Additionally, earthquake shaking could damage the dams controlling water that passes through Laconia.

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.

⁴ USGS, Earthquake Archive Search. <https://earthquake.usgs.gov/earthquakes/map/>

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 Laconia are susceptible to damage by an earthquake. Assuming 1% - 2% town-wide damage to critical buildings, an earthquake could result in nearly \$5.3 - \$10.7 million in damages any given year.

Impact of Climate Change on Earthquake events: The impacts to Laconia associated with an earthquake would not be affected by climate change.

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

- living in poorly maintained housing with aging infrastructure
- May have limited mobility for getting assistance, dependence upon others to travel
- Limited resources for seeking medical assistance

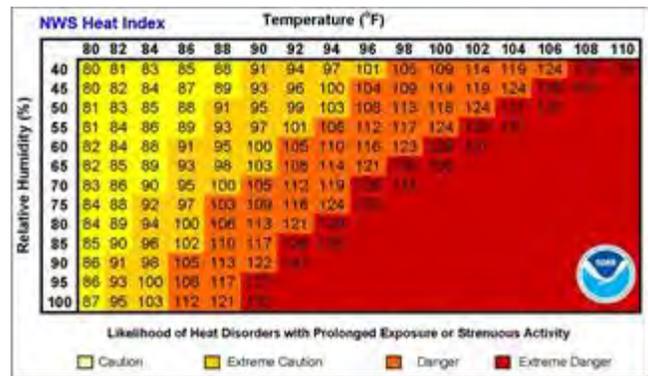
EXTREME TEMPERATURES

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.

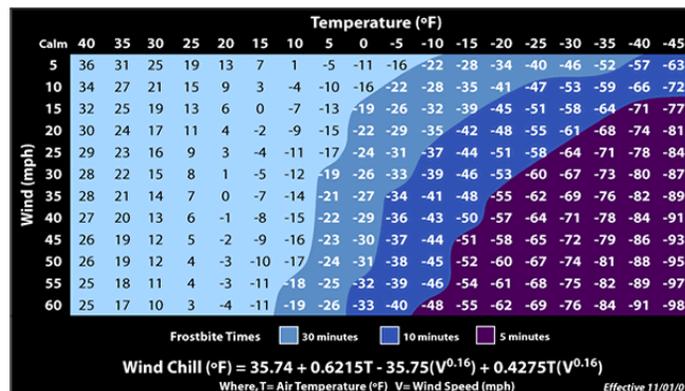
Frostbite occurs when uncovered skin/extremities are exposed to extreme cold and the body tissue is either injured or killed. Hypothermia is when the body is unable to heat itself at the rate it is being cooled and the body's core temperature begins to drop below normal values. A normal core body temperature 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: Weak

- 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 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 Chart** 



- 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:

Laconia has experienced regular extreme hot and cold temperatures annually since the last plan update. The City of Laconia 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. ¹¹⁶ 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 84°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
2/3/2023	Wind Chill	Most areas recorded top 3 coldest wind chill readings on record.	Merrimack Co.	Plym. airport Windchill -43 F. NOAA Events

Location:

Extreme temperatures can occur anywhere throughout the town of Laconia. Those at greater exposure to wind are most likely to be impacted by cold.

Probability of Occurrence: Occasional

Impact: Low

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, there can also be structural impacts, especially from freezing and expansion of water in pipes and the resulting damages.

Impact of Climate Change on Extreme Temperature events: An increase in extreme temperatures will create ecosystem stress based on more intense heat waves and more extreme cold weather waves. The extreme temperatures will create additional health impacts due to high heat/extreme cold exposure, and poor outdoor air quality during extreme heat events.

Impact on Vulnerable Communities: Committee members expressed particular concern regarding the city’s growing unhoused population, especially during extreme cold. Potential impacts associated with extreme temperature events on Laconia’s vulnerable populations include:

- May have limited access to early warning alerts
- Living in poorly maintained housing with aging infrastructure
- May have limited mobility for getting assistance/evacuation, dependence upon others to travel
- Limited resources for seeking medical assistance

HIGH WIND EVENT (THUNDERSTORM/TORNADO/DOWNBURST)

Laconia 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.



Image source: NH HSEM

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.⁵

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.

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)

⁵ <http://ww.nssl.noaa.gov/education/svrwx101/wind/types>

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 Laconia. Since 2017 there have been two reported high wind events in Belknap County.

History of High Wind Events

Event Type	Date	Location	Extent	General Impacts	Source
High Wind Events (Torn./Downb.)	5/25/2021	Laconia	52 kts.	Severe winds during a thunderstorm downed multiple trees that brought down utility wires in Laconia.	NOAA Events
High Wind Events (Torn./Downb.)	7/12/2022	Laconia	52 kts.	Severe winds during a thunderstorm downed trees that brought down utility wires.	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 the city are susceptible to downed trees and limbs from high winds. Although the power company trims vegetation surrounding the power lines, that only affects one side of the street, and because trees are private property within the City, the other side of the street is not accessible to the city to maintain. In addition, there are multiple areas within the city that are vulnerable to straight-line winds. Straight-line winds come off the open spaces within Laconia including the waterbodies, Paugus Bay, Opechee Bay, and Lake Winnisquam, as well as open fields such as those along Parade Road.

Probability of Occurrence: Unlikely

Impact: Moderate

In Laconia, 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. 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 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 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 Laconia, including most critical facilities, are susceptible to damage by high wind events, whether through downburst, tornado, or hurricane. Assuming 2% to 5% town-wide damage to critical structures, high winds could result in \$10.7M to \$26.7M in damages in Laconia.

Impact of Climate Change on High Wind Events: Changes in New Hampshire's climate could potentially lead to an increase in any of the high wind events. This will lead to additional damage being created from these storms, including more extreme and widespread power outages statewide due to increased sustained wind speeds and gusts, downing trees and wires. This will result in greater damage to natural resources, property, and infrastructure. The increased damage and loss will also lead to larger, more complex, and longer lasting restoration efforts for each storm that occurs.

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

- Living in poorly maintained housing with aging infrastructure
- May have limited mobility for getting assistance, dependence upon others to travel
- May have limited access to early warning alerts
- 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 commonly, 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 2017 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 >5,136 cases in Laconia Belknap Co. had one of the higher death rates in NH
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

Date	Description	Impacts	Location	Additional Info
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 Laconia from time to time. The Partnership for Public Health representative noted that over the last seven years they have done a great deal of preparation, training, and stockpiling supplies in response to the COVID-19 pandemic and in preparation for the next outbreak.

Impact: High

The concerns associated with infectious disease include the local capacity to respond to not only the residents of Laconia but also any visitors. The cost of infectious diseases in Laconia 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 of Climate Change on Infectious Disease events: Changes in New Hampshire's climate could potentially lead to an increase in precipitation. Increased precipitation may lead to more flooding. This could lead to increased impacts from mold in affected areas including homes and businesses. This could also result in greater instances of stagnant water, leading to more vector-borne diseases.

Impact on Vulnerable Communities: Potential impacts associated with infectious disease on Laconia's vulnerable populations include:

- Limited resources for seeking medical assistance
- Living in poorly maintained housing with aging infrastructure
- May have limited mobility for accessing medical attention
- More likely to have compromised immune systems

INLAND FLOODING & DAM FAILURE

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 brooks, such as Jewett Brook.

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 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.

Laconia participates in the **National Flood Insurance Program (NFIP)** through the administration of its floodplain ordinance by the City Planning Office. 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. Laconia joined the National Flood Insurance Program on January 16, 1974 (emergency entry) followed by regular entry on August 15, 1980. The most recent flood maps also became effective 8/15/1980. FEMA digital flood maps (DFIRM) are not yet available at the FEMA map site

<https://msc.fema.gov/portal/home>. New maps covering the city have been in development for several years.

City staff participate in trainings offered by the State and FEMA and communicate NFIP information to the community annually.

Wording from the Laconia Floodplain Development Ordinance addressing some definitions and implementation of the ordinance:

Floodplain District
[SUBSTANTIAL DAMAGE](#)

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% of the market value of the structure before the damage occurred.

[SUBSTANTIAL IMPROVEMENT](#)

A. Any combination of repairs, reconstruction, alteration, or improvements to a structure in which the cumulative cost equals or exceeds 50% of the market value of the structure. The market value should equal:

- (1) The appraised value prior to the start of the initial repair or improvement; or
- (2) In the case of damage, the value of the structure prior to the damage

occurring.

B. 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. This term includes structures that have incurred substantial damage, regardless of actual repair work performed. The term does not, however, include any project for improvement to 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.

VIOLATION

The failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required under § 235-18B(4), B(7)(b)2[c], or B(6)(c) and (d) of this section is presumed to be in violation until such time as that documentation is provided.

A. The Floodplain District shall consist of all lands designated as special flood hazard areas by the Federal Emergency Management Agency in its Flood Insurance Study for the City of Laconia, New Hampshire, together with the associated Flood Insurance Rate Maps and Flood Boundary and Floodway Maps of the City of Laconia, dated August 1980, which are declared to be a part of this chapter.

B. 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 City of Laconia, New Hampshire, together with the associated Flood Insurance Rate Maps and Flood Boundary and Floodway Maps of the City of Laconia, dated August 1980, which are declared to be a part of this chapter.

(1) All proposed development in any special flood hazard areas shall require a permit.

(2) The Director of Planning and Community Development or his or her designee shall review all building permit applications for new construction or substantial improvements to determine whether proposed building sites will be reasonably safe from flooding. The market value of the structure shall be the appraised value of the structure prior to the start of the initial repair or improvement or, in the case of damage, the value of the structure prior to the damage occurring. If a proposed building site is in a special flood hazard area, all new construction and substantial improvements shall be:

(a) Designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

(b) Constructed with materials resistant to flood damage.

(c) Constructed by methods and practices that minimize flood damages.

(d) 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.

(3) Where new and replacement water and sewer systems (including on-site systems) are proposed in a special flood hazard area, the applicant shall provide the Director of Planning and Community Development or his or her designee with assurance that these systems will be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters, and on-site waste disposal systems will be located to avoid impairment to them or contamination from them during periods of flooding.

(4) The Director of Planning and Community Development or his or her designee shall maintain for public inspection and furnish upon request any certification of floodproofing and the as-built elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures and include whether or not such structures contain a basement. If the structure has been floodproofed, the as-built elevation (in relation to mean sea level) to which the structure was floodproofed is required. This information must be furnished by the applicant.

(5) The Director of Planning and Community Development or his or her designee shall review proposed developments to assure that all necessary permits have been received from those governmental agencies from which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. § 1334. It shall be the responsibility of the applicant to certify these assurances to the Director of Planning and Community Development or his or her designee.

(6) Development involving watercourses.

(a) In riverine situations, prior to the alteration or relocation of a watercourse, the applicant for such authorization shall notify the Wetlands Bureau of the New Hampshire Environmental Services Department and submit copies of such notification to the Director of Planning and Community Development or his or her designee in addition to the copies required by RSA 482-A:3. Further, the applicant shall be required to submit copies of said notification to those adjacent communities as determined by the Director of Planning and Community Development or his or her designee, including notice of all scheduled hearings before the Wetlands Bureau.

(b) Within the altered or relocated portion of any watercourse, the applicant shall submit to the Director of Planning and Community Development or his or her designee certification provided by a registered professional engineer assuring that the flood-carrying capacity of the watercourse has been maintained.

(c) Along watercourses that have a designated regulatory floodway, no encroachments, including fill, new construction, substantial improvements and other development are allowed within the designated regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practices that the proposed encroachment would not result in any increase in flood levels within the community during the base flood discharge.

(d) Until a regulatory floodway is designated along watercourses, no new construction, substantial improvements or other development (including fill) shall be permitted within Zone A1-30 on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

(e) The Director of Planning and Community Development or his or her designee shall obtain, review, and reasonably utilize any floodway data available from federal, state, or other sources as criteria for requiring that all development located in Zone A meet the following floodway requirement: No encroachments, including fill, new construction, substantial improvements, and other development are allowed within the floodway that would result in any increase in flood levels within the community during the flood discharge.

As of July 2024, there were seventy-three flood insurance policies in force in Laconia, eighteen covering single-family residential (SFR) properties with forty-six "other residential and nine non-

residential properties. Sixty of these properties are in the A-zone, and three are in X-zone, with the remaining ten in the B, C, or D-zones. There have been thirty-four losses and twenty-six have been paid totaling \$287,615, all but three of the losses were on residential properties. Twelve of the losses were on SFR properties. Nineteen of the losses were in the A-zone, one was in the X-zone and fourteen in the B-, C-, or D-zones. There have been thirteen repetitive losses in Laconia on four separate residential properties.

Extent - 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 Laconia 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: Severe

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 nineteen active dams in Laconia; seven are **Low** Hazard, and a dozen are **Non-Menace** Hazard dams. There are no High or Significant Hazard dams in Laconia. 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	NAME	RIVER	TYPE	USE	CLASS	HEIGHT	OWNER
L	OPECHEE BAY AVERY DAM	WINNIPESAUKEE RIVER	CONCRETE	H	S	20.5	NH WATER RESOURCES COUNCIL
L	FOOTE POND DAM	TR PAUGUS BAY	EARTH	R	P	15.5	FOOTE FAMILY TRUST
L	DURKEE BROOK DAM	DURKEE BROOK	CONCRETE	R	P	12.5	MR VINCENT GREENE
L	NATURES VIEW DET POND DAM	RUNOFF	EARTH	D	P	10	DHB INC
L	WINNI LAKEPORT DAM	WINNIPESAUKEE RIVER	CONCRETE	H	S	10	NH WATER RESOURCES COUNCIL
L	WILDWOOD VILLAGE RETENTION POND	RUNOFF	EARTH	R	P	8	WILDWOOD VIL CONDO ASSOC
L	AKWA VISTA DET POND PC3Q	RUNOFF	EARTH	D	P	7.5	AKWA VISTA LLC
NM	AKWA VISTA DET POND PC30	RUNOFF	EARTH	D	P	15	AKWA VISTA LLC
NM	RECREATION POND DAM	UNNAMED STREAM	EARTH	R	P	12	OWNER UNKNOWN
NM	RECREATION POND DAM	UNNAMED STREAM	EARTH	R	P	10	FUNSPOT
NM	RICHARD TANZ/MINI GOLF POND DAM	UNNAMED STREAM	EARTH	R	P	10	MR ROBERT LAWTON
NM	AKWA VISTA DET POND PA3Q4	RUNOFF	EARTH	D	P	7.5	AKWA VISTA LLC
NM	FARM POND DAM	UNNAMED STREAM	EARTH	C	P	6	UNKNOWN
NM	SURF COASTER DAM	UNNAMED STREAM	EARTH	R	P	6	MR JOSEPH PETER SAALFRANK
NM	DETENTION POND DAM	RUNOFF	EARTH	D	P	5	ALFRED S LILLY & WILLIAM SEED
NM	SOUTH DOWN SHORES DAM 2	UNNAMED STREAM	EARTH	R	P	5	LONG BAY CORP
NM	SOUTH DOWN SHORES DAM 1	UNNAMED STREAM	EARTH	C	P	5	LONG BAY CORP
NM	SOUTH DOWN FARM POND	RUNOFF	EARTH	D	P	4	SOUTH DOWN FARM
NM	FIRE POND DAM	UNNAMED STREAM	EARTH	P	P	4	HILLCREST FARMS

Source: NH Department of Environmental Services

History - Dam:

There is no history of significant dam failures in Laconia.

Location - Dam:

The state owns, manages, and maintains the two dams on the Winnepesaukee River (Avery and Lakeport dams), which drain Lake Winnepesaukee. The Committee mentioned concerns surrounding the Foote Pond Dam, which is privately owned, just south of Rollercoaster Road.

Probability - Dam: Unlikely

Impact - Dam: Moderate

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 - 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.

The NOAA database reports five documented flooding events in or near Laconia since 2017; three of these events were due to heavy summer rainfall and two events took place during the winter due in combination to rain and snowmelt. There are several areas in Laconia that experience flooding annually or several times per year. Specific areas are noted under **Impact**.



Flooded backyards (April 2007)

Probability of Occurrence - Flooding: Highly Likely

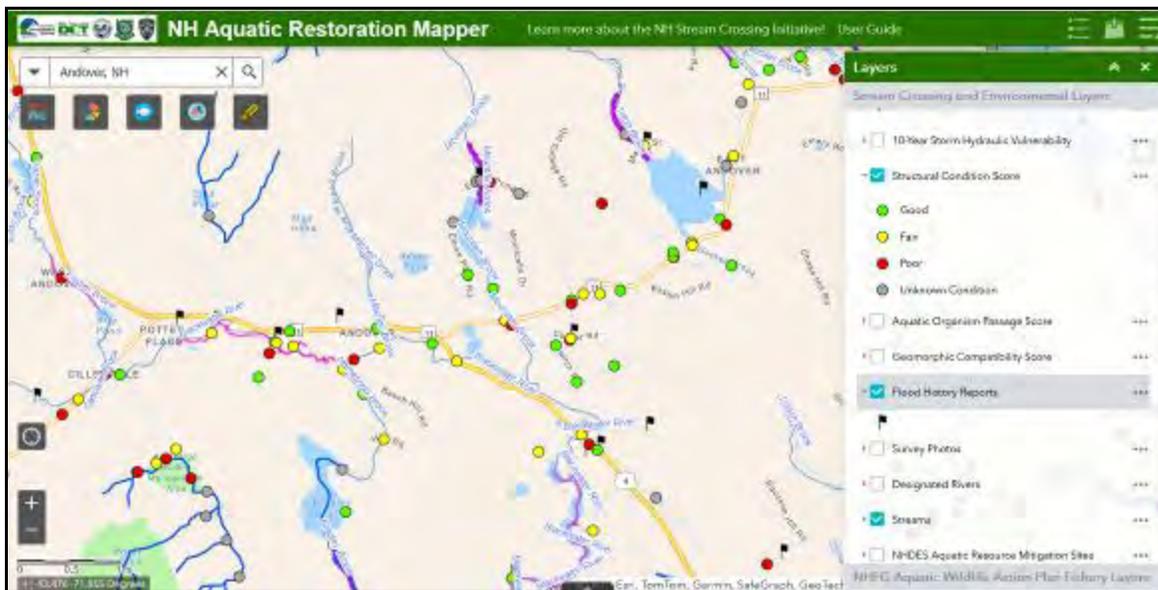
Location - Flooding:

Committee members reviewed a map of past flooding events (NH Geological Society Flood Hazard Database), survey comments, and members' knowledge to identify several areas that pose flooding issues.

There are several places within the City 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:

- The Department of Public Works parking lot
- Regular flooding at the intersection of Union Ave, Church Street, Winter Street, and Davis Place known as Busy Corner
- Jewett Brook causes flooding along Union Ave and Strafford Street

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 – Flooding – High,

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

The Committee noted that there is a lack of storage areas (i.e. wetlands) within the City that can hold water during heavy rain events due to the urban setting. This results in a heavy flow of water from uphill down to the waterbodies, affecting everything in its path.

It was also noted that throughout the City, older, private developments that do not have sufficient drainage cause flooding to residences that are downhill on public roads. The best example of this is the rainfall that comes off Colonial Road and Plantation Road, which are private, negatively impact residences downhill on the public Pendleton Road. In addition, the Committee mentioned that some of the pipes within the City of Laconia are original and thus smaller than newer pipes. This size discrepancy caused water to shoot out of the ground during heavy rain events. Though this happens throughout the City, a notable location is on Elm Street as larger, newer pipes flow into smaller, older pipes. The Committee also made mention of the need to replace culverts by Pickerel Cove on Hilliard Road. The Director of the Public Works

Department noted that the department sends staff out to this location every storm to fix issues, even during lighter rain events.



Davis Place Bridge outlet (April 2007)

Some structures in Laconia are susceptible to damage due to flooding. Those in the floodplain are most likely to be impacted. Assuming 2% to 5% town-wide damage to buildings, flooding could result in \$5.3M to \$26.7M in damages.

Impact of Climate Change on Flooding: Flooding is influenced by how much water enters the watershed upstream. With warmer temperatures, more water evaporates and then falls as precipitation. Increased precipitation is likely to increase stream flow. Increased stream flow can increase soil erosion, impair water quality, and disrupt ecosystems. Increased temperatures could also impact the amount of snowpack and timing of snow melting & ice out.

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

- May have limited access to early warning alerts
- May live in areas prone to flooding
- Living in poorly maintained housing with aging infrastructure

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

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:

- 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: Weak

While 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.⁶ 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 northern Belknap County. There was no local knowledge of a landslide occurring in Laconia.

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. There are no known landslide areas in Laconia.

Probability of Occurrence: Unlikely

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

⁶ <http://www.nh.gov/safety/divisions/hsem/NaturalHazards/index.html> visited February 8, 2011.

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 Laconia is minimal.

Probability and Impact of Climate Change on Landslide events: As there are no significant steep slopes near structures nor adjacent to rivers or lakes, the potential impact to Laconia 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 Laconia 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: Weak

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 have not been any recorded lightning events in Laconia. There is a record of one house in neighboring Meredith being struck in 2020, which caused a fire, damage is recorded as \$20K.

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

Probability of Occurrence: Likely

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 - Low

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 Laconia are susceptible to damage by lightning and resulting fires. There is back-up power for most municipal facilities. Assuming 1% - 2% town-wide damage to critical facilities, each year lightning could result in \$5.3M - \$10.6M in damages.

Impact of Climate Change on Lightning events: Climate change is beginning to shift seasons resulting in longer, warmer summer months, and an earlier spring onset, which may create more intense heat waves. Lightning is mostly observed during the warmer summer months, and the longer the season becomes, the opportunity for damaging lightning increases. The impact of any individual lightning strike would remain the same, but they may become more frequent with a warmer, wetter climate.

Impact on Vulnerable Communities: Potential impacts associated with lightning on Laconia's vulnerable populations include:

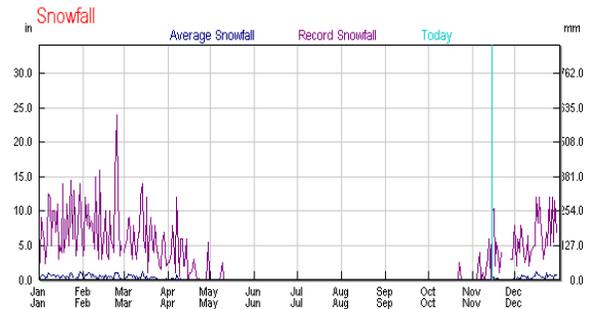
- May have limited access to early warning alerts
- Living in poorly maintained housing with aging infrastructure
- May have limited mobility for getting assistance/evacuation, dependence upon others to travel
- Limited resources for seeking medical assistance

SEVERE WINTER WEATHER (SNOWSTORMS, ICE STORMS)

Laconia 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.

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.)

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 NOAA Storm database lists thirty-four severe winter storm events in Belknap County since 2017. Three of the Declared Disasters since 2017 were for Severe Winter Weather and another three were Severe Storms and Flooding declarations for winter-time events.

- Severe Winter Weather Major Disaster Declarations
 - March 2018
 - December 2022
 - April 2024
- Severe Storms and Flooding Major Disaster Declarations in Winter-Time
 - March 2018
 - December 2023
 - January 2024

Location: Severe winter weather occurs frequently in the northeast and the possibility exists for Laconia 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, the unhoused population, 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. Snow and ice storms can affect the entire town.

Probability of Occurrence: Highly Likely

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.

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.

No specific critical facilities in Laconia were identified as being vulnerable to snow or ice event. Flat-roofed buildings are all susceptible to damage from snow and ice loads.

While maintenance on the major arteries (US 3, NH 11, 106, 107) falls to NH DOT, most of the other roads in Laconia are the city's responsibility. The precipitation from some storms, especially multi-day nor'easters, can outpace the capacity of equipment and staff. The DPW has had difficulties with snow removals, especially in the tighter streets in parts of downtown. There is some concern on the ability to move snow as planned development proceeds.

Virtually every storm requires some sort of clean-up of the roads. After the December 2022 storm the city received more than \$9,000 in Public Assistance Grant funds to help reimburse some of these costs.

All structures in Laconia are susceptible to damage by winter weather events, whether through ice storms, blizzards, or the heavy, wet snow often associated with a nor'easter. While some City facilities are not particularly at risk to Severe Winter Weather, some are, as well as the city infrastructure. Assuming 2% to 5% city-wide damage to buildings, winter weather could result

in \$10.7M to \$26.7M in damages annually. The potential for impact to the city from severe winter weather is seen as high.

Impact of Climate Change on Winter Weather Events: Changes in New Hampshire’s climate could potentially lead to an increase in any of the four types of winter precipitation. This possible increase could result in an increase of unsafe structures due to increased weight of snow, ice, and rain accumulating on rooftops. It could also lead to roof collapses, compromising personal safety. An increase of winter precipitation also creates unsafe travel conditions throughout the state. These events also use a considerable amount of resources to deal with the clean-up.

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

- May have limited access to early warning alerts
- Living in poorly maintained housing with aging infrastructure
- May have limited mobility for getting assistance/evacuation, dependence upon others to travel
- Limited resources for seeking medical assistance
- The committee noted that the rising costs of heating fuel and insulation can be challenging for those with a fixed income.

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.⁷ 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 effects humans or technology. 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

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 aviators in this sector. Navigation: Low-frequency navigation signals used by mariners and general aviation systems experience outages on the sunlit side of the Earth for many hours, causing loss in positioning. Infrared satellite navigation errors in positioning for several hours on the sunlit side of Earth, which may spread into the night side.	K20 (2×10^{-20})	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.	K10 (10^{-19})	8 per cycle (8 days per cycle)
R-3	Strong	HF Radio: Wide area blackout of HF radio communications; loss of radio contact for about an hour on sunlit side of Earth. Navigation: Low-frequency navigation signals degraded for about an hour.	K1 (10^{-18})	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^{-17})	350 per cycle (300 days per cycle)
R-1	Minor	HF Radio: Weak or minor degradation of HF radio communication on sunlit side, loss of radio contact for a few minutes. Navigation: Degradation of low-frequency navigation signals for brief intervals.	M1 (10^{-15})	2800 per cycle (950 days per cycle)

⁷ https://www.nasa.gov/mission_pages/sunearth/spaceweather/index.html#q12

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 Scale⁸ offers a measure of the extent of solar storms on radio communications.

History: There have not been any known occurrences in Laconia 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 Laconia 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: Remote

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 Laconia 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.

Probability and Impact of Climate Change on Solar Storm events: The probability and impacts associated with a solar storm would not likely be affected by climate change.

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

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.

⁸ 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 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.

Category	Characteristics
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 five 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.

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

Probability of Occurrence: Unlikely

Impact: Moderate

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 to Tropical and Post-Tropical Cyclones. All structures in Laconia are susceptible to damage by cyclonic events, whether through tropical depression or hurricane.

Assuming 1% city-wide damage to critical buildings, high winds could result in \$5.3M in damage in Laconia in any given year.

Impact of Climate Change on Tropical & Post-Tropical Cyclone events: An increase in temperature could potentially lead to stronger, and more frequent storms. Storms that produce a higher level of precipitation will lead to an increase in flooding and potential flooding damage.

Impact on Vulnerable Communities: Potential impacts associated with cyclonic events on Laconia's vulnerable populations include:

- May have limited access to early warning alerts
- Living in poorly maintained housing with aging infrastructure
- May live in areas prone to flooding
- 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: Weak

New Hampshire has about 500 wild land fires each year; most burn less than half an acre. Much of the Lakes Region 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 shows no history of wildfire occurring in Belknap County since the last update was done in 2017. Wildfire was not mentioned in the last plan, nor was there any local knowledge discussed by the Committee.

Location: Laconia is an urban development, lacking in heavily wooded areas.

Probability of Occurrence: Unlikely

Impact: Low

Assuming 1% town-wide damage to critical buildings, each year wildfire could result in \$5.3M in damages.

Impact of Climate Change on Wildfire events: Increased precipitation from severe thunderstorms, hurricanes, wind events, ice storms may damage trees and forests. This can lead to insect or disease outbreaks that may result in a significant amount of woody debris in the forests which may increase the risk of wildfires. Increased temperatures associated with climate change increase the likelihood of drought, enhancing the chance of wildfire.

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

- May have limited access to early warning alerts
- Living in poorly maintained housing with aging infrastructure
- May have limited mobility for getting assistance/evacuation, dependence upon others to travel
- Likely to be more prone to the effects of air pollutants (smoke) associated with wildfire – noted by committee members
- Limited resources for seeking medical assistance

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. A total score of 18 or more was deemed to be High Risk, a total of between 18 and 6 was deemed to be Medium Risk, and a score of less than 6 was deemed Low Risk.

Definitions**Probability of Future Events**

Unlikely: Less than 25% probability in the next 25-year period.

Occasional: Between 25% and 50% probability in the next 25-year period.

Likely: Between 50% and 75% probability in the next 25-year period.

Highly Likely: Between 75% and 100% probability in the next 25-year period.

Extent - How bad could it get?

- **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

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

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

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

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

Laconia 2025 Hazards	Extent	Probability	Human Impact	Property Impact	Business Impact	Average Impact	Risk
Definition	Magnitude/ Strength	Likelihood this will occur w/in 10 yrs	Probability of Death or Injury	Physical loss or damage	Interruption of service	Average of Human, Property, Business	Probability x Extent x Avg. Impact
Scale	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			
Natural Hazards							
Inland Flooding	3	4	3	3	3	3.00	36.00
Severe Winter Weather	3	4	3	3	3	3.00	36.00
Conflagration	3	2	3	3	3	3.00	18.00
High Wind Events (Torn./Downb.)	3	3	2	2	2	2.00	18.00
Infectious Diseases	2	2	3	3	3	3.00	12.00
Earthquake	3	1	3	3	3	3.00	9.00
Dam Failure	3	1	2	2	2	2.00	6.00
Tropical & Post-Tropical Cyclones	2	1	2	2	2	2.00	4.00
Thunderstorm/ Lightning	1	3	1	1	1	1.00	3.00
Extreme Temps	1	2	2	1	1	1.33	2.67
Drought	1	2	1	1	1	1.00	2.00
Solar Storms & Space Weather	1	1	1	1	1	1.00	1.00
Wildfire	1	1	1	1	1	1.00	1.00
Landslides	1	1	1	1	1	1.00	1.00
Hail	1	1	1	1	1	1.00	1.00
Avalanche	1	1	1	1	1	1.00	1.00
High Risk - Top 1/4 score			Medium Risk - Top 1/2 score				

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 city’s critical facilities and other resources, the Laconia HMP Committee considered how susceptible they considered the city to be to damage or economic loss (vulnerability). Due to the large number of services, facilities, and populations identified (see Section III.A.), the entire Type was considered as a group. Eventually the committee came to a consensus on the **vulnerability ratings** below, indicating that the city’s greatest vulnerabilities were flooding, winter weather, infectious diseases, and conflagration.

Key: Low – 1, Medium – 2, High – 3.

Vulnerability	Type 1	Type 2	Type 3	Other	Average
*Vulnerability is susceptibility to damage or economic loss.	Essential Services	Structures and Services	Special Populations	Historical, Cultural	
1 - Low 2 - Medium 3 - High	FD, PD, EOC, DPW, Medical, Shelter	Water, Sewer, Transportation, Food, Power	Eldery, Disabled, Schools, High Concentration Pop.	Library, etc.	1: Low 2: Medium 3: High
Avalanche	1	1	1	1	1.00
Conflagration	2	2	3	2	2.25
Drought	1	1	1	1	1.00
Earthquake	1	2	1	1	1.25
Extreme Temperatures	1	2	2	1	1.50
High Wind Events (Tornado/Downburst)	2	2	2	2	2.00
Infectious Diseases	3	2	3	1	2.25
Inland Flooding	2	3	3	1	2.25
Dam Failure	2	2	2	1	1.75
Landslides	1	1	1	1	1.00
Lightning	1	1	1	1	1.00
Severe Winter Weather	3	3	3	1	2.50
Solar Storms & Space Weather	2	1	1	1	1.25
Tropical & Post-Tropical Cyclones	2	2	2	1	1.75
Wildfires	1	1	1	1	1.00
<p>*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.)</p> <p><input type="checkbox"/> Low - not particularly exposed to hazard, constructed to code or hardened against hazard, contents are not particularly hazardous or exposed.</p> <p><input type="checkbox"/> Medium - some exposure to hazard, some deficiencies in construction or could be hardened against hazard, some contents are exposed or hazardous.</p> <p><input type="checkbox"/> 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.</p>					

SECTION V: MITIGATION STRATEGIES

A. CURRENT PLANS, POLICIES, AND REGULATIONS

The planning decisions that affect community growth patterns have evolved over the years as Laconia 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 2017 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. This also includes notes on the effectiveness of the Plan/Policy/Program/Regulation.

The primary planning mechanism in Laconia addressing land use development is the master plan. Laconia's Master Plan was last revised in 2016. Funding has been secured to update the master plan in the coming year. The city's Zoning Ordinance (2013) along with Subdivision (2015) and Site Plan Review Regulations (2009) 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 Planning Department is working on updating these documents.

The city'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 city should consider adopting this HMP as part of the master plan by reference as they update the Master Plan this year.

How the city appropriates its funds is another form of planning, indicating local priorities. Laconia does have a Community Risk Reduction Fund that can be utilized by the EMD, especially for education and outreach projects. In Laconia Department Heads submit and discuss annual and long-term town budgets to the City Manager. These budgets are approved by the City Council and could include some hazard mitigation expenses.

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 City Council. Laconia does have an active CIP Committee.

Table V-1: Existing Protections and Policies

Plan/Policy/Program/Regulation	Year/Update/Notes	Description
Emergency Operations Plan	2019	Details the communication structure, responsible parties, and plan of action in the event of various emergencies
Hazard Mitigation Plan	2017	The local plan serves to reduce future losses from hazards before they occur. A FEMA approved hazard mitigation plan makes Laconia eligible for the full spectrum of available mitigation program funding.
Zoning Ordinance	Floodplain District Ordinance: 2014	In addition to providing for orderly settlement of the city, the zoning ordinance contains articles specific to hazard mitigation, including a Floodplain District, Shoreland Protection District, Steep Slopes Ordinance, Water Supply Protection Overlay District, and Sewer Ordinance.
Mass Casualty Plan		A collaborative effort between public safety, the healthcare community, and emergency management officials that addresses large-scale incidents.
All-Health Hazards Plan		A plan addressing public health emergencies.
Site Plan Review Regulations	2009	The Site Plan Review Regulations address topics such as erosion and sediment control in the development of projects requiring a Conditional Use Permit, projects converting the use of an existing building to multifamily, or any project requiring a lot line adjustment, lot merger, boundary line agreement, or other subdivision.

Plan/Policy/Program/Regulation	Year/Update/Notes	Description
Subdivision Regulations	2015	The Subdivision Regulations prevent premature subdivision of land that could involve danger or injury to health, safety, or prosperity.
Master Plan	2018: The city is preparing for a Master Plan revision.	Many of the recommended actions in the Laconia Master Plan relate directly to Hazard Mitigation.
Capital Improvement Plan	A communications upgrade recommended in the 2012 Plan is currently being proposed for funding in the CIP.	This multi-year budgeting tool is actively used for addressing many of the city’s infrastructure and equipment needs. Updated annually.
Dam Emergency Action Plans	According to NH Department of Environmental Services (NHDES), the Avery and Lakeport Dams are currently rated as “Low” hazard dams. These dams are regulated by the Federal Energy Regulation Commission (FERC), owned by the NHDES, and leased to hydro-power companies use in power generation. Inundation pathways, the areas and structures that would be impacted in the event of a dam breach, are not required for low hazard dams. NHDES is currently re-evaluating the Lakeport Dam due to the potential for economic loss of structures or property in the event of a dam failure. Low hazard dams are inspected at six-year intervals.	The Lakeport and Avery Dams have Emergency Action Plans on file with the NH Dam Bureau, and these dams are regularly inspected. The Dam Action Plans detail the likely resultant damage from a dam breach, evacuation areas, and a communications structure for responding to dam related issues and potential dam failure.

Plan/Policy/Program/Regulation	Year/Update/Notes	Description
Building Code & Code Enforcement	City currently follows: International Code Council IBC2021 Commercial Building Code IRC2021 Residential Building Code National Fire Prevention Association NEC2020 National Electric Code for Residential and Commercial Use International Property and Maintenance Code IPMC2018 Residential and Commercial structures code which also serves as the city's housing code.	The City follows the BOCA and NFPA standards and has a Code Enforcement Officer.
Hazardous Materials Containment		The city has the capacity to respond to and provide initial containment for some hazardous materials spills. Spill booms can be used to contain hazardous materials spills when introduced to surface waters.
Training	Emergency preparedness posters are displayed at City Hall. The Fire Chief participates in weekly WEMJ radio broadcasts to discuss all aspects of preparedness, response, and what the City is doing to increase safety in advance of hazard events. A Lakes Region Community Emergency Response Team (LR-CERT) booth disseminates emergency information at area events and conducts an annual nine-week course for residents on emergency preparedness.	Various city departments participate in regular tabletop drills, as well as field training for fire and rescue operations, and scenario training for police response.
School Emergency Evacuation Preparedness Planning		Fire drill plan, lockdown plan, evacuation/transfer plan. The School Safety Committee meets monthly.

Plan/Policy/Program/Regulation	Year/Update/Notes	Description
Outreach & Education		The Fire Department puts out regular messages about fire safety and seasonal weather-related safety practices. Distribution of community-wide hazard/emergency informational materials on the City website and at community events.
Emergency Power Generation		The city has emergency power generation at many* of the critical facilities, including the emergency shelter, Fire Stations and Police Station. *DPW has limited emergency power.
Mutual Aid Agreement		The goal of New Hampshire Mutual Aid agreements is to facilitate quick response to a variety of emergencies by creating an inter-community cooperative. The program creates a network of communities that will assist one another during emergency situations. This is done through the creation of partner agreements and fashioning a protocol for requesting and receiving mutual aid. The Fire Department actively participates in the Lakes Region Mutual Aid; the Police Department actively participates in the Belknap County Sheriff's Department Mutual Aid and has formal mutual aid agreements with surrounding towns.
Annual Household Hazardous Waste Collection (HHWC)		Laconia's HHWC is held at the Laconia Department of Public Works, 27 Bisson Avenue. This is one of several collection events in the region available to residents.
Multi-Family Housing Inspection Guidebook		The Fire Department provides this guidebook to all owners of multi-family properties. The city goal is to inspect all multi-family units every three years. Multi-family fires as a percentage of all fires were down from 36 percent in 2006 to 29 percent in 2016.

Plan/Policy/Program/Regulation	Year/Update/Notes	Description
Road & Drainage Maintenance	<p>The Laconia Department of Public Works is in the process of conducting storm drain inventory in Geographical Information Systems (GIS). A past intern for the city compiled a paper inventory which is being updated and referenced electronically in map form. The city worked with Lakes Region Planning Commission in 2016 to conduct a GPS inventory of culverts on town roads (Class V) that are not served by storm drains. The inventory includes condition, age, composition, and deformation for more than 100 culverts in addition to their location.</p>	<p>The City conducts road and drainage maintenance operations that keep culverts and drainage infrastructure functioning properly and that maintain roads surfaces and shoulders for safe vehicular travel.</p>
Temporary Traffic Orders & Emergency Traffic Control Plans		<p>A city wide network of traffic control points exists as well as emergency traffic control plans and portable barriers and signs that can be used in the event of an evacuation or re-routing of traffic away from a hazardous roadway or emergency. A goal is for more rapid deployment. Currently, the equipment is stored and needs to be loaded in a vehicle and driven to the incident to be deployed.</p>
Driveway Permitting		<p>Driveway permits are issued for new construction as well as to existing homeowners who are either paving any existing gravel/earth driveway or resurfacing an existing paved driveway or access. The intention of the driveway permit is to assure proper drainage from the private driveway access to the public right-of-way on City accepted streets.</p>
Motorcycle Week Propane Regulations		<p>A permit program for temporary propane tanks of 50-100 gallons during motorcycle week.</p>

B. STATUS OF 2017 ACTIONS

The 2017 HMP contained 34 recommended actions, 12 mitigation actions and 22 preparedness or response (non-mitigation) actions. The status of the mitigation actions recommended in the 2017 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.] Some of the deleted Actions are now listed above as “Current Plans, Policies, and Regulations” (Table V-1). 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 2017 Plan Key: **C**-Completed, **X** – Delete, **D** – Deferred

Goal, Type, or Hazard	Action	Status 2025	Reason for Status Rating What is the Problem? Does it still exist?	Committee Notes
2012 Actions				
All	a. Continue with current winter safety and fire safety messaging and outreach. b. Encourage schools, churches and municipal depart. sites to post seasonal safety messages.	C	Information on website & visit schools - working well.	fire prevention, don't go on ice = current examples
Flooding	Develop stormwater regulations	D		
Water contam.	Develop Watershed Management Plan for Paugus Bay	D	Still issues to be considered and investigated	Paugus Bay emergency spill plan
Power Loss	Develop plan for interim power outage at DPW facility	D		
TBD	Implement mitigation related recommendations of smart growth audit	X	Out of date	Audit needs to be evaluated for mitigation linkages

Goal, Type, or Hazard	Action	Status 2025	Reason for Status Rating What is the Problem? Does it still exist?	Committee Notes
Structural	Repair/replace Academy Street bridge	C		Academy St. bridge in state Ten Year Plan for replacement in 2020; other Redlist projects include Court St. over Durkee Brook (2022); US 3 over NH railroad Rehabilitation/Superstructure Replacement (2019)
Flooding	Conduct community wide hydrological analysis for drainage systems sizing	D		
Public Safety	Continue to justify need for staff to adequately enforce city codes (health, fire, building, zoning)	X		continue to justify need for staff...'
2017 New Actions				
Fire	Improve DPW fire protection.	X	Need a new facility	identify/specify needs
Cyber Attack	Cyber Attack Prevention and Response Plan – currently under development by IT Department	D	Needs to be readdressed	
All	Update code enforcement related to housing inspections and property maintenance; increase staffing	C		Staffing issue / combine with #13
All	Identify brooks, streams, feeder creeks and remove impediments to water flow regularly.	D	Similar to the hydrologic study	

C. MITIGATION GOALS AND TYPES OF ACTIONS**Laconia HMP (2025): Goals****Goal I: Community and Resources Protection**

Objective 1: To minimize the resultant public expenditures and damages caused by natural and manmade hazards to public and private buildings and infrastructure.

Objective 2: Ensure mitigation strategies consider the protection and resiliency of natural, historical, and cultural resources, especially in light of changing weather patterns.

Goal II: Increased Education and Awareness Programs

Objective 1: Through an inclusive planning process, identify and build awareness of the hazard challenges in the community and the potential needs of all affected parties, including vulnerable populations.

Objective 2: To build a higher level of public awareness with regards to hazard risks and proper actions and responses.

Goal III: Inter/Intra Departmental Coordination

Objective 1: Minimize loss and disruption of human life, property, the environment, and the economy due to natural hazards and high hazard potential dam failure through a coordinated and collaborative effort within Laconia and between other communities, the region, state, and federal government agencies and related organizations to implement appropriate and cost-effective hazard mitigation measures

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

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

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

KEY: Blue - New Actions Yellow background - Multiple Actions addressing same problem.			STAPLEE Prioritization
ID	Hazards Addressed	Problem	Mitigation Action
CF 1	Conflagration	Buildings in the center and other sections of the city are close together and some are older, predating building codes.	Educate homeowners and businesses on performing safe disposal of yard and household waste rather than open burning.
CF 2	Conflagration	Buildings in the center and other sections of the city are close together and some are older, predating building codes.	Update property maintenance code
DF 1	Dam Failure	if the Lakeport, Avery, Wild Wood, or Foote dams were to fail, parts of the city could be inundated, causing damage.	Continue to communicate with State and private dam owners regarding maintenance, inspections, and concerns.
D 1	Drought	The city can experience periods of drought throughout the year.	Educate residents on outdoor fire safety and provide outreach to private well owners.
EQ 1	Earthquake	Several faults run near Laconia. A 4.0 or larger earthquake could result in damages, especially to taller, masonry structures.	Educate homeowners and businesses on safety techniques to follow during and after an earthquake.
ET 1	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	Organize outreach to vulnerable populations (notably some seniors do not have AC), including establishing and promoting accessible heating or cooling centers in the community.
ET 2	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	The Heating and Cooling Centers need to be staffed, often after normal working hours. Recruitment and retention of appropriate staff is needed.

ID	Hazards Addressed	Problem	Mitigation Action
ET 3	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	Plan for and promote transportation services to and from Heating and Cooling Centers for the elderly and disabled.
ET 4	Extreme Temps	The base for the city's roads and the associated infrastructure is experiencing more damage during hot/cold events. The base is not deep enough to withstand these extreme cold events, which are becoming more frequent.	Plan for additional road maintenance costs and correction of issues.
F 1	Flooding	Flooding events are experienced throughout the city	#Conduct community wide hydrologic analysis for drainage systems
F 2	Flooding	The city surrounds a lot of water which can pose a threat during rain events	Explore a watershed analysis of the area
F 3	Flooding	The culvert on Hilliard Rd by Pickerel Cove is inadequate during rain events	Convert the culvert on Hilliard Rd by Pickerel Cove to a bridge
FS 1	Structural/ Flooding	Jewett Brook causes flooding during rain events	#Phase 1: Develop an up to date watershed management plan with Gilford
FS 2	Structural/ Flooding	Jewett Brook causes flooding during rain events	Phase 2: Work with Gilford to build infrastructure &/or wetlands upstream to slow the runoff into the brook (likely involve land acquisition)
FS 3	Structural/ Flooding	Flooding events frequently occur at Weirs Blvd in Langley Cove area	*Update Subdivision and Site Plan Regulations to include Stormwater Regulations
FS 4	Structural/ Flooding	Flooding events frequently occur at Weirs Blvd in Langley Cove area	Upgrade drainage to accommodate current development which dates back to pre-1920
HW 1	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Advise homeowners on how trees within their property could impact health and safety and provide technical assistance for managing trees.

ID	Hazards Addressed	Problem	Mitigation Action
HW 2	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Provide internal safety education to staff about wires on trees.
HW 3	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Create a Wind Plan to lay out the order in which roads should be addressed.
ID 1	Infectious Disease	Large scale outbreaks of infectious diseases can impact community health, services, and the city's economy.	Work with LRPPH to maintain preparedness levels, materials, training, and outreach to reduce the likelihood of the next outbreak spreading.
SW 1	Severe Winter Weather	Snow removal and storage is difficult within the downtown and other older areas of town.	*Update Site Plan Regulations to require snow storage plans and fewer dead-end roads.
SW 2	Severe Winter Weather	Snow removal and storage is difficult within the downtown and other older areas of town.	Develop plans for additional snow storage, including maintaining arrangements with private haulers.
TL 1	Thunderstorm/ Lightning	There have been lightning strikes within the county.	Educate homeowners on lightning protection devices and methods such as lightning rods.
PTC 1	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Plan and budget for additional costs and maintenance.
PTC 2	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Educate homeowners about stocking up on supplies.
PTC 2	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Designate evacuation routes.

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. IDs with similar highlighting address similar problem statements.

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

Notes: ^The DPW Maintenance Budget can address multiple Actions
 *Updating of Subdivision & Site Plan Regs will address several Mit. Actions.
 #A watershed hydrologic study can address multiple Mitigation Actions.

Mitigation Actions - Laconia, NH

KEY: Blue - New Actions Yellow background - Multiple Actions addressing same problem.							
ID	Hazards Addressed	Problem	Mitigation Action	Cost	New/Existing	Goal	Type of Action
HW 3	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Create a Wind Plan to lay out the order in which roads should be addressed.	5 hrs staff time	Existing	Coordination	Long-term Continuity
CF 1	Conflagration	Buildings in the center and other sections of the city are close together and some are older, predating building codes.	Educate homeowners and businesses on performing safe disposal of yard and household waste rather than open burning.	\$2K	Existing	Education & Awareness	Public Education & Awareness
HW 2	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Provide internal safety education to staff about wires on trees.	40 hrs/yr	Existing	Coordination	Prevention

ID	Hazards Addressed	Problem	Mitigation Action	Cost	New/ Existing	Goal	Type of Action
ID 1	Infectious Disease	Large scale outbreaks of infectious diseases can impact community health, services, and the city's economy.	Work with LRPPH to maintain preparedness levels, materials, training, and outreach to reduce the likelihood of the next outbreak spreading.	50-100hrs per year during an outbreak	n/a	Education & Awareness	Public Education & Awareness
FS 3	Structural/ Flooding	Flooding events frequently occur at Weirs Blvd in Langley Cove area	*Update Subdivision and Site Plan Regulations to include Stormwater Regulations	\$25K*	New	Community & Resources Protection	Prevention
CF 2	Conflagration	Buildings in the center and other sections of the city are close together and some are older, predating building codes.	Update property maintenance code	≤10 hrs staff time	Existing	Community & Resources Protection	Prevention
DF 1	Dam Failure	if the Lakeport, Avery, Wild Wood, or Foote dams were to fail, parts of the city could be inundated, causing damage.	Continue to communicate with State and private dam owners regarding maintenance, inspections, and concerns.	2hrs per year	Existing	Coordination	Long-term Continuity
FS 4	Structural/ Flooding	Flooding events frequently occur at Weirs Blvd in Langley Cove area	Upgrade drainage to accommodate current development which dates back to pre-1920	TBD	Existing	Community & Resources Protection	Property Protection
PTC 2	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Educate homeowners about stocking up on supplies.	20hrs per year	Existing	Education & Awareness	Public Education & Awareness

ID	Hazards Addressed	Problem	Mitigation Action	Cost	New/ Existing	Goal	Type of Action
F 3	Flooding	The culvert on Hilliard Rd by Pickerel Cove is inadequate during rain events	Convert the culvert on Hilliard Rd by Pickerel Cove to a bridge	\$1.26M	Existing	Community & Resources Protection	Structural Projects
SW 1	Severe Winter Weather	Snow removal and storage is difficult within the downtown and other older areas of town.	*Update Site Plan Regulations to require snow storage plans and fewer dead-end roads.	\$25K*	Existing	Community & Resources Protection	Prevention
EQ 1	Earthquake	Several faults run near Laconia. A 4.0 or larger earthquake could result in damages, especially to taller, masonry structures.	Educate homeowners and businesses on safety techniques to follow during and after an earthquake.	5hrs per year	Existing	Education & Awareness	Public Education & Awareness
ET 1	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	Organize outreach to vulnerable populations (notably some seniors do not have AC), including establishing and promoting accessible heating or cooling centers in the community.	25 hrs/yr	n/a	Education & Awareness	Public Education & Awareness
F 1	Flooding	Flooding events are experienced throughout the city	#Conduct community wide hydrologic analysis for drainage systems	#\$500K	Existing	Community & Resources Protection	Long-term Continuity
PTC 2	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Designate evacuation routes.	5 hrs staff time	Existing	Coordination	Public Education & Awareness

ID	Hazards Addressed	Problem	Mitigation Action	Cost	New/ Existing	Goal	Type of Action
TL 1	Thunderstorm/ Lightning	There have been lightning strikes within the county.	Educate homeowners on lightning protection devices and methods such as lightning rods.	10hrs per year	Existing	Education & Awareness	Public Education & Awareness
SW 2	Severe Winter Weather	Snow removal and storage is difficult within the downtown and other older areas of town.	Develop plans for additional snow storage, including maintaining arrangements with private haulers.	20 hrs/yr	Existing	Coordination	Prevention
F 2	Flooding	The city surrounds a lot of water which can be impacted by flow from the land during rain events.	Explore a watershed analysis of the area	\$250K for Gilford sector	Existing	Community & Resources Protection	Long-term Continuity
HW 1	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Advise homeowners on how trees within their property could impact health and safety and provide technical assistance for managing trees.	20 hrs/yr	Existing	Education & Awareness	Public Education & Awareness
PTC 1	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Plan and budget for additional costs and maintenance.	^\$300K per year	Existing	Community & Resources Protection	Property Protection
D 1	Drought	The city can experience periods of drought throughout the year.	Educate residents on outdoor fire safety and provide outreach to private well owners.	5hrs per week 250 hrs/yr	Existing	Education & Awareness	Public Education & Awareness

ID	Hazards Addressed	Problem	Mitigation Action	Cost	New/ Existing	Goal	Type of Action
ET 4	Extreme Temps	The base for the city's roads and the associated infrastructure is experiencing more damage during hot/cold events. The base is not deep enough to withstand these extreme cold events, which are becoming more frequent.	Plan for additional road maintenance costs and correction of issues.	^\$2.2M per year	Existing	Community & Resources Protection	Long-term Continuity
FS 2	Structural/ Flooding	Jewett Brook causes flooding during rain events	Phase 2: Work with Gilford to build infrastructure and/or wetlands upstream to slow the runoff into the brook (likely involve land acquisition)	>\$500K	Existing	Goals I & III Protection & Coordination	Structural Projects
ET 2	Extreme Temps	Periods of extreme cold are stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	The Heating and Cooling Centers need to be staffed, often after normal working hours. Recruitment and retention of appropriate staff is needed.	100 hrs/yr	n/a	Coordination	Prevention
FS 1	Structural/ Flooding	Jewett Brook causes flooding during rain events	#Phase 1: Develop an up-to-date watershed management plan with Gilford	#\$500K	Existing	Goals I & III Protection & Coordination	Long-term Continuity
ET 3	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	Plan for and promote transportation services to and from Heating and Cooling Centers for the elderly and disabled.	100 hrs/yr	n/a	Education & Awareness	Prevention

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. Each member scored the actions based on the criteria; this is an average of their scores. The group discussed and confirmed these scores at their final meeting. Table V-5 shows the Actions and their scores. Total scores range from a high of 18.33 to a low of 15.17. See Appendix H for further details regarding the STAPLEE prioritization method and the detailed scores.

Table V-5: Recommended Actions in Ranked Order

ID	Hazards Addressed	Mitigation Action	Total
HW 3	High Winds	Create a Wind Plan to lay out the order in which roads should be addressed.	18.33
CF 1	Conflagration	Educate homeowners and businesses on performing safe disposal of yard and household waste rather than open burning.	18.00
HW 2	High Winds	Provide internal safety training to staff about wires on trees.	18.00
ID 1	Infectious Disease	Work with LRPPH to maintain preparedness levels, materials, training, and outreach to reduce the likelihood of the next outbreak from spreading.	18.00
FS 3	Structural/ Flooding	*Update Subdivision and Site Plan Regulations to include Stormwater Regulations	17.83
CF 2	Conflagration	Update property maintenance code	17.83
DF 1	Dam Failure	Continue to communicate with State and private dam owners regarding maintenance, inspections, and concerns.	17.83
FS 4	Structural/ Flooding	Upgrade drainage to accommodate current development which dates to pre-1920	17.83
PTC 2	Tropical & Post-Tropical Cyclones	Educate homeowners about stocking up on supplies.	17.83
F 3	Flooding	Convert the culvert on Hilliard Rd by Pickerel Cove to a bridge	17.67
SW 1	Severe Winter Weather	*Update Site Plan Regulations to require snow storage plans and fewer dead-end roads.	17.67
EQ 1	Earthquake	Educate homeowners and businesses on safety techniques to follow during and after an earthquake.	17.50

ID	Hazards Addressed	Mitigation Action	Total
ET 1	Extreme Temps	Organize outreach to vulnerable populations (notably some seniors do not have AC), including establishing and promoting accessible heating or cooling centers in the community.	17.50
F 1	Flooding	#Conduct community wide hydrologic analysis for drainage systems	17.50
PTC 2	Tropical & Post-Tropical Cyclones	Designate evacuation routes.	17.50
TL 1	Thunderstorm/ Lightning	Educate homeowners on lightning protection devices and methods such as lightning rods.	17.50
SW 2	Severe Winter Weather	Develop plans for additional snow storage, including maintaining arrangements with private haulers.	17.33
F 2	Flooding	Explore a watershed analysis of the area	17.00
HW 1	High Winds	Advise homeowners on how trees within their property could impact health and safety and provide technical assistance for managing trees.	17.00
PTC 1	Tropical & Post-Tropical Cyclones	Plan and budget for additional costs and maintenance.	17.00
D 1	Drought	Educate residents on outdoor fire safety and provide outreach to private well owners .	16.83
ET 4	Extreme Temps	Plan for additional road maintenance costs and correction of issues.	16.33
FS 2	Structural/ Flooding	Phase 2: Work with Gilford to build infrastructure &/or wetlands upstream to slow the runoff into the brook (likely involve land acquisition)	16.17
ET 2	Extreme Temps	The Heating and Cooling Centers need to be staffed, often after normal working hours. Recruitment and retention of appropriate staff is needed.	15.67
FS 1	Structural/ Flooding	#Phase 1: Develop an up-to-date watershed management plan with Gilford	15.50
ET 3	Extreme Temps	Plan for and promote transportation services to and from Heating and Cooling Centers for the elderly and disabled.	15.17

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 city 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 yr, Medium 2-3 yr, Long 4-5 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 (Action/Cost/Source/Party/Note/TimeFrame)

Notes: ^The DPW Maintenance Budget can address multiple Actions
 *Updating of Subdivision & Site Plan Regs will address several Mit. Actions.
 #A watershed hydrologic study can address multiple Mitigation Actions.

Mitigation Actions - Laconia, NH

KEY: Blue - New Actions Yellow background - Multiple Actions addressing same problem.							
ID	Hazards Addressed	Problem	Mitigation Action	Funding/Support	Estimated Cost	Party	Time frame*
HW 3	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Create a Wind Plan to lay out the order in which roads should be addressed.	Staff Time	5 hrs staff time	EMD DPW	Short
CF 1	Conflagration	Buildings in the center and other sections of the city are close together and some are older, predating building codes.	Educate homeowners and businesses on performing safe disposal of yard and household waste rather than open burning.	Community Risk Reduction Fund	\$2K	EMD Con Com	Short
HW 2	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Provide internal safety education to staff about wires on trees.	Staff Time	40 hrs/yr	FD PWD PD	Short
ID 1	Infectious Disease	Large scale outbreaks of infectious diseases can impact community health, services, and the city's economy.	Work with LRPPH to maintain preparedness levels, materials, training, and outreach to reduce the likelihood of the next outbreak spreading.	Fire Dept. Staff Time	50-100hrs per year during an outbreak	EMD City Health	Short
CF 2	Conflagration	Buildings in the center and other sections of the city are close together and some are older, predating building codes.	Update property maintenance code	Staff Time	≤10 hrs staff time	Code Dir & FD	Short

ID	Hazards Addressed	Problem	Mitigation Action	Funding/Support	Estimated Cost	Party	Time frame*
PTC 2	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Educate homeowners about stocking up on supplies.	Community Risk Reduction Fund	20hrs per year	FD	Short
EQ 1	Earthquake	Several faults run near Laconia. A 4.0 or larger earthquake could result in damages, especially to taller, masonry structures.	Educate homeowners and businesses on safety techniques to follow during and after an earthquake.	Community Risk Reduction Fund	5hrs per year	FD	Short
ET 1	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	Organize outreach to vulnerable populations (notably some seniors do not have AC), including establishing and promoting accessible heating or cooling centers in the community.	Staff Time	25 hrs/yr	EMD	Short
PTC 2	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Designate evacuation routes.	Staff Time	5 hrs staff time	EMD FD DPW	Short
TL 1	Thunderstorm/ Lightning	There have been lightning strikes within the county.	Educate homeowners on lightning protection devices and methods such as lightning rods.	Community Risk Reduction Fund	10hrs per year	FD	Short
SW 2	Severe Winter Weather	Snow removal and storage are difficult within the downtown and other older areas of town.	Develop plans for additional snow storage, including maintaining arrangements with private haulers.	DPW	20 hrs/yr	DPW	Short

ID	Hazards Addressed	Problem	Mitigation Action	Funding/Support	Estimated Cost	Party	Time frame*
D 1	Drought	The city can experience periods of drought throughout the year.	Educate residents on outdoor fire safety and provide outreach to private well owners.	Staff Time	5hrs per week 250 hrs/yr	FD Planning	Short
ET 4	Extreme Temps	The base for the city's roads and the associated infrastructure are experiencing more damage during hot/cold events. The base is not deep enough to withstand these extreme cold events, which are becoming more frequent.	Plan for additional road maintenance costs and correction of issues.	\$1M - \$1.5M per year is budgeted through DPW	^\$2.2M per year	DPW	Short
ET 2	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	The Heating and Cooling Centers need to be staffed, often after normal working hours. Recruitment and retention of appropriate staff is needed.	Budget, grants	100 hrs/yr	EMD	Short
FS 4	Structural/ Flooding	Flooding events frequently occur at Weirs Blvd in Langley Cove area	Upgrade drainage to accommodate current development which dates back to pre-1920	DPW Budget - road drainage program	TBD	DPW	Short in CIP
DF 1	Dam Failure	if the Lakeport, Avery, Wild Wood, or Foote dams were to fail, parts of the city could be inundated, causing damage.	Continue to communicate with State and private dam owners regarding maintenance, inspections, and concerns.	Staff Time	2hrs per year	DPW FD	Short Ongoing
F 1	Flooding	Flooding events are experienced throughout the city	#Conduct community wide hydrologic analysis for drainage systems	Grants	#\$500K	DPW	Short/ Medium/ Long Phased

ID	Hazards Addressed	Problem	Mitigation Action	Funding/Support	Estimated Cost	Party	Time frame*
F 2	Flooding	The city surrounds a lot of water which can be impacted by flow from the land during rain events.	Explore a watershed analysis of the area	Grants	\$250K for Gilford sector	DPW	Short/ Medium/ Long Phased
F 3	Flooding	The culvert on Hilliard Rd by Pickerel Cove is inadequate during rain events	Convert the culvert on Hilliard Rd by Pickerel Cove to a bridge	FEMA Grant - awarded	\$1.26M	DPW	Short/ Medium
PTC 1	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Plan and budget for additional costs and maintenance.	\$150K per year is budgeted through DPW	^\$300K per year	Dept Heads	Short- Long Ongoing
FS 3	Structural/ Flooding	Flooding events frequently occur at Weirs Blvd in Langley Cove area	*Update Subdivision and Site Plan Regulations to include Stormwater Regulations	Planning Dept.	\$25K*	Plan	Medium
SW 1	Severe Winter Weather	Snow removal and storage is difficult within the downtown and other older areas of town.	*Update Site Plan Regulations to require snow storage plans and fewer dead-end roads.	Planning Dept.	\$25K*	Planning	Medium
HW 1	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Advise homeowners on how trees within their property could impact health and safety and provide technical assistance for managing trees.	Staff Time	20 hrs/yr	City Manager + DPW	Medium
FS 1	Structural/ Flooding	Jewett Brook causes flooding during rain events	#Phase 1: Develop an up-to-date watershed management plan with Gilford	DPW	#\$500K	DPW	Medium

ID	Hazards Addressed	Problem	Mitigation Action	Funding/Support	Estimated Cost	Party	Time frame*
ET 3	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	Plan for and promote transportation services to and from Heating and Cooling Centers for the elderly and disabled.	Budget, grants	100 hrs/yr	EMD	Medium
FS 2	Structural/ Flooding	Jewett Brook causes flooding during rain events	Phase 2: Work with Gilford to build infrastructure and/or wetlands upstream to slow the runoff into the brook (likely involve land acquisition)	DPW, City, grant	>\$500K	DPW	Long

SECTION VI: PLAN ADOPTION AND MONITORING

A. IMPLEMENTATION

The Laconia Hazard Mitigation Plan Update Committee, established by the Emergency Management Director, will meet annually to review the Plan and provide a mechanism for ensuring that an attempt is made to incorporate the actions identified in the plan into ongoing town planning activities. Essential elements of implementation require that all responsible parties for the various recommendations understand what is expected of them, and that they are willing to fulfill their role in implementation. It is therefore important to have the responsible parties clearly identified. 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 city'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 EMD 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 City Council to incorporate the various projects into subsequent budgets where appropriate. The EMD will also coordinate with the NH HSEM Local Liaison to ensure that the city 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.

If appropriate, an effort will be made to incorporate this plan into the Emergency Operations Plan. Within a year after the city 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 city planning activities.

B. PLAN MAINTENANCE & PUBLIC INVOLVEMENT

Plan Evaluation

To track progress and evaluate the mitigation strategies identified in Section V.F., the Laconia Hazard Mitigation Planning Committee will review the Hazard Mitigation Plan **every year (by the end of April) 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-2029 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 City Hall and on the city 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 Meredith, Gilford, Belmont, and Sanbornton. Additionally, the Emergency Preparedness Planner from Partnership for Public Health Regional Health Network, social service providers such as Belknap-Merrimack CAP, and others working with socially vulnerable communities in Laconia.

C. SIGNED CERTIFICATE OF ADOPTION

CITY COUNCIL
A RESOLUTION ADOPTING THE
LACONIA, NH
HAZARD MITIGATION PLAN UPDATE 2025

WHEREAS, the City of Laconia, 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 City of Laconia, 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 2025 and June 2025 regarding the development and review of the Laconia, NH Hazard Mitigation Plan Update 2025; and

WHEREAS, the Plan specifically addresses hazard mitigation actions and Plan maintenance procedures for the City of Laconia, NH, and

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

WHEREAS, adoption of this Plan will make the City of Laconia, NH eligible for funding to mitigate the impacts of future hazards; now therefore be it RESOLVED by the City Council

1. The Plan is hereby adopted as an official plan of the City of Laconia, 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 City Council by the Emergency Management Director.

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the town seal of the City of Laconia, NH this

Date:

LACONIA CITY COUNCIL

 (Signature) Eric Hoffman (Printed)

 (Signature) ROBERT SOUCY (Printed)

_____ (Signature) Bruce J. Cherry (Printed)

 (Signature) MARK S. HAYNES (Printed)

 (Signature) STEVEN T. BOGERT (Printed)

 (Signature) Anthony Felch (Printed)

_____ (Signature) _____ (Printed)

ATTEST:

 (Signature) Katie A. Gargano (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/>

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 Laconia. The NH Homeland Security and Emergency Management Community Liaison for 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 ProgramNH Department of Environmental Services
- Emergency Watershed Protection (EWP) ProgramUSDA, 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 ProgramNH 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.⁹

⁹ [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 http://www.fema.gov/government/grant/hmpg/index.shtm	Open
National Flood Insurance Program (NFIP)	Enables property owners to purchase insurance as a protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages http://www.fema.gov/business/nfip/	States, localities, and individuals
Pre-Disaster Mitigation Program (PDM)	Provides funds for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event http://www.fema.gov/government/grant/pdm/index.shtm	States, localities, and tribal governments

Environmental Protection Agency (EPA)

The EPA makes funds available for water management and wetlands protection programs that help mitigate 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. http://www.epa.gov/OWOW/NPS/cwact.html	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. http://www.epa.gov/owow/wetlands/initiative/srf.html	States and Puerto Rico

Wetland Program Development Grants	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. http://www.epa.gov/owow/wetlands/initiative/#financial	See website
------------------------------------	--	-------------

Floodplain, Wetland and Watershed Protection Programs

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

Mitigation Funding Sources Program	Details	Notes
USACE Planning Assistance to States (PAS)	Fund plans for the development and conservation of water resources, dam safety, flood damage reduction and floodplain management. http://www.lre.usace.army.mil/planning/assist.html	50 percent non-federal match
USACE Flood Plain Management Services (FPMS)	Technical support for effective floodplain management. http://www.lrl.usace.army.mil/p3md-o/article.asp?id=9&MyCategory=126	See website
USACE Environmental Laboratory	Guidance for implementing environmental programs such as ecosystem restoration and reuse of dredged materials. http://el.erdc.usace.army.mil/index.cfm	See website
U.S. Fish & Wildlife Service Coastal Wetlands Conservation Grant Program	Matching grants to states for acquisition, restoration, management or enhancement of coastal wetlands. http://ecos.fws.gov/coastal_grants/viewContent.do?viewPage=home	States only. 50 percent federal share
U.S. Fish & Wildlife Service Partners for Fish and Wildlife Program	Program that provides financial and technical assistance to private landowners interested in restoring degraded wildlife habitat. http://ecos.fws.gov/partners/viewContent.do?viewPage=home	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. http://www.blm.gov/nifc/st/en/prog/fire/community_assistance.html	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. http://www.hud.gov/offices/cpd/communitydevelopment/programs/	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. http://www.hud.gov/offices/cpd/communitydevelopment/programs/dri/assistance.cfm	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. http://www.hud.gov/offices/cpd/communitydevelopment/programs/neighborhoodspg/	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. http://www.csrees.usda.gov/funding/rfas/smith_lev.html	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. http://www.rurdev.usda.gov/rhs/cf/cp.htm	Population under 20,000
USDA Community Facilities Direct Loans	Loans for essential community facilities. http://www.rurdev.usda.gov/rhs/cf/cp.htm	Population of less than 20,000
USDA Community Facilities Direct Grants	Grants to develop essential community facilities. http://www.rurdev.usda.gov/rhs/cf/cp.htm	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 Forest Service Economic Action Program	Funds for preparation of Fire Safe plans to reduce fire hazards and utilize byproducts of fuels management activities in a value-added fashion. http://www.fs.fed.us/spf/coop/programs/eap/	80% of total cost of project may be covered
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. http://www.nrcs.usda.gov/programs/ewp/	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. http://www.nrcs.usda.gov/programs/watershed/index.html	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. http://www.aoa.gov/doingbus/fundopp/fundopp.asp	Areas designated in a Disaster Declaration issued by the President
Economic Development Administration (EDA) Economic Development Administration Investment Programs	Grants that support public works, economic adjustment assistance, and planning. Certain funds allocated for locations recently hit by major disasters. http://www.eda.gov/AboutEDA/Programs.xml	The maximum investment rate shall not exceed 50 percent of the project cost
U.S. Small Business Administration 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. http://www.sba.gov/services/financialassistance/index.html	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 City of Laconia. Press releases like the one below were sent to the *Laconia Daily Sun* and statewide *Concord Monitor* prior to the Committee meetings. Several informational handouts and the 2017 Hazard Mitigation Plan were distributed to the committee and available at all meetings.



LOCAL HAZARD

MITIGATION PLAN

The Laconia Hazard Mitigation Plan Committee is updating its 2017 Hazard Mitigation Plan.

The committee will represent a variety of local interests and voices. The committee's focus is on the natural hazards that put Laconia at risk, as well as the development and prioritization of recommendations that protect the safety and well-being of City residents and visitors. The committee is seeking your input; please take a few minutes to complete the questions in this survey regarding hazard mitigation in Laconia.

The survey is currently open through the end of May. So please take a moment to respond to the survey and spread the word and the links below.

Thank you in advance for your participation in the planning process!

Link: [Laconia Hazard Mitigation Plan Survey](#)





- Home
- Communities
- Program Areas**
- GIS & Maps
- Resources
- PRLAC
- News & Events
- Commissioners & Executive Board
- About LRPC
- More...

Services
Brownfields Environmental Site Assessment Program
Economic Development
Hazard Mitigation
Historic Preservation
Household Hazardous Waste
Housing
Land Use
Natural Resources
Regional Plans

HAZARD MITIGATION

Announcements

May 22, 2025

City of Laconia Hazard Mitigation Plan Meeting

The Laconia Hazard Mitigation Plan Committee is in the process of updating its 2017 Hazard Mitigation Plan. The committee will meet on Friday, May 23 at 1:00 PM at the Laconia Fire Station. Residents of Laconia and representatives from neighboring communities are encouraged to attend.

Hazard Mitigation Planning is as important to reducing disaster losses as are appropriate regulations and land use ordinances. The most significant areas of concern for Laconia are being reviewed and evaluated through this process; in the 2017 Plan, these included winter weather, pandemic, and dam failure.

For more information, please review this [Public Notice](#). See also Laconia Survey link below to provide your input if you cannot attend the meeting.

LAKES REGION PLANNING COMMISSION

103 Main Street, Suite #3
Meredith, NH 03253
tel (603) 279-8171
fax (603) 279-0200
www.lakesrpc.org



May 6, 2025

For Immediate Release

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

City of Laconia Hazard Mitigation Plan Meeting

The Laconia Hazard Mitigation Plan Committee is beginning the process of updating its 2017 Hazard Mitigation Plan. The committee is represented by a variety of local interests including the Fire, Police, Planning, IT, and Highway departments, along with the Recreation/Facilities Director and City Manager. The group is reviewing the various hazards that put Laconia at risk as well as the development of recommendations to protect the safety and well-being of the city and its residents.

The committee will meet on May 9 at 1:00 PM at the Laconia Fire Station, 848 North Main Street. Residents of Laconia and representatives from neighboring communities are encouraged to attend.

Hazard Mitigation Planning is as important to reducing disaster losses as are appropriate regulations and land use ordinances. The most significant areas of concern for Laconia are being reviewed and evaluated through this process; in the 2017 Plan Update these included winter weather, pandemic, and dam failure.

The Laconia Hazard Mitigation Plan Committee is updating its 2017 Hazard Mitigation Plan and is seeking your input. Please take a few moments to complete the questions in this survey regarding hazard mitigation in Laconia.

Mini-URL link: <https://arcg.is/0yr5Ge1>

QR Code:



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 Laconia one step closer to that goal.

For more information, please contact Timothy Joubert, Laconia Emergency Management Director TJoubert@laconianh.gov (603)524-6881 or David Jeffers, Planning Manager, Lakes Region Planning Commission djeffers@lakesrpc.nh.gov. The 2017 Laconia Hazard Mitigation Plan Update can be found at <https://www.lakesrpc.nh.gov/Pages/Index/228297/hazard-mitigation>.

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 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

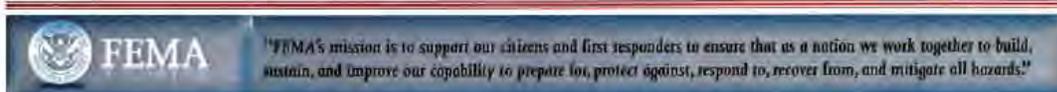
- Public involvement – In addition to government agencies involved in incident management, floodplain management and economic development, the planning process usually involves a range of stakeholders, including representatives of neighborhood groups, civic organizations, academia, environmental groups, 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: INTERVIEWS, 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. All Committee meetings were held in the Laconia Fire Station and were open to the public. A representative from the Laconia Housing Authority attended most of the committee meetings. Agendas were developed by the LRPC planner who also facilitated the meetings. At each meeting there was an opportunity for public input.

Interviews with key Personnel

Prior to any meetings of the HMP Committee, LRPC planners interviewed three key personnel regarding natural hazards that have or might impact Laconia, vulnerable populations and facilities or infrastructure, vulnerabilities, and potential mitigation actions. While there were many common threads, the EMD/Fire Chief, DPW Director, and City Planner (and Assistant Planner) each brought somewhat differing perspectives of how natural hazards have and might impact the city as well as how they might be addressed.

Notes from Chief Joubert Interview (1/23/25)

I. Hazard Events

- a. **Most Common** – *winter weather storms and flooding*
- b. **Most Impact Locally** – *spread out throughout town*
- c. **Specific Events (dates) with Local Impact (\$\$\$)** – *winter storm in December 2022 caused power outages and downed trees across town, did receive federal assistance **Chief Joubert will send along specific numbers 1/23/25*

II. Facilities/Infrastructure/Populations

- a. **Who is the most vulnerable to being impacted by a hazard event?** – *Unhoused population, especially the 55+ age range as this is the largest age group within this population; unhoused population is growing which Chief Joubert believes is a result of the lack of affordable housing, steps taken to address this are the Housing Task Force put together by the City, involvement of an Economic Development & Housing Coordinator to increase affordable housing, received a grant for a mobile integrated health program to address health issues that do not require the hospital*
- b. **What is most vulnerable to being impacted by a hazard event?** – *There are a number of hydroelectric dams that are mostly owned by Eagle Creek; there is not a current risk of dam failure, rather a concern with the proximity of the*

dams and the resulting impact of a major rain event, Downtown would be the most heavily impacted

III. Capacities

- a. **Confirm pertinent information** – *Emergency Operations Plan was updated in 2018, Chief Joubert will double check 1/23/25; Fire Prevention Ordinance is being updated and will go into effect this year, it will more closely match the Fire Code*
- b. **Changes?** – *The Fire Department has experienced a reduction in calls over the last few years, Chief Joubert attributes this to updates in development (specifically older homes being updated and remodeled resulting in fewer issues) and a change between the Belmont and Laconia Fire Departments where prior to 2021 both departments would respond to all calls in each municipality*

IV. Vulnerabilities/Problems

- a. **Any identified above** – *Staffing for the Fire Department is a problem (as it is across the state), in the last two years Chief Joubert has hired 22 staff meaning there is less institutional experience – this is due to fewer applicants possibly resulting from less competitive salaries*

V. General Notes

- a. All EMS is now through the Fire Department rather than shared between the City and the Hospital and Chief Joubert says this is working well
- b. Fire Department has 44 full-time employees and this is an appropriate number
- c. There are two fire stations
- d. The community center at the Weirs and the public library both function as cooling centers where at-risk populations can find relief from extreme summer heat
- e. There are five public schools, including the Laconia Middle School which serves as a primary shelter for the region – it has capacity to be pet-friendly with “some limitations”, Laconia High School, the Elm Street School, Pleasant Street School, and Woodland Heights School

Notes from Wes Anderson (DPW) Interview (2/11/25)

I. Hazard Events

- a. **Most Common** – *Flooding*
- b. **Most Impact Locally** – *Jewett Brook at Union Ave; Mill building – medical and daycare on ground floor, under bridge and under building sees most water;*

*Opechee, Paugus, Winnisquam, and Winnipisaukee drainage; **as rain events become more intense these problems will only grow, **Wes is seeing this occur****; all of the City can see flooding occur for at least a short period of time*

c. **Specific Events (dates) with Local Impact (\$\$\$) –**

II. Facilities/Infrastructure/Populations

- a. **Who is the most vulnerable to being impacted by a hazard event? – DPW** *can't access Jewett Brook due to it being lined with private homes; Jewett Brook is shared with Gilford, Gilford does not experience issues with the Brook, but possibly has more opportunities to mitigate issues due to less urbanization*
- b. **What is most vulnerable to being impacted by a hazard event? – Public Works building is built on an old swamp, cracks in foundation, parking lot is under water during big events; lake houses or houses on streams; need to improve DPW fire protection (building is from the 1950s); no backup power at DPW or City Hall, Fire and Police yes**

III. Capacities

- a. **Confirm pertinent information – Newer roads with newer pipes flowing into older roads with older (and smaller) pipes poses problems during intense rain; Plowing is difficult, i.e. where to put the snow from Main Street and meet environmental regulations; lots of private roads in city**
- b. **Changes? – Culvert on Hilliard Rd and Pickeral Cove is being upgraded to a super culvert**

IV. Vulnerabilities/Problems

- a. **Any identified above – Drainage, especially as rain events continue to become more intense**

V. General Notes

- a. *Concerned about what will happen with the State School property creating additional traffic*

Interview with Rob Mora (Planner) and

Tyler Carmichael (Assistant Planner) (2/14/25)

I. Hazard Events

- a. **Most Common – Winter weather and flooding event; stormwater was the most extensively discussed**

- b. **Most Impact Locally** – *Main Street by the Laconia Clinic and railroad tracks floods; infrastructure inconsistencies on Elm Street in Lakeport (larger pipes feeding into smaller pipes); folks throughout the city are complaining more frequently about their basements flooding; subsurface stormwater is traveling across properties; South Down is built-out and experiencing erosion and basements flooding*
 - c. **Specific Events (dates) with Local Impact (\$\$\$)** –
- II. Facilities/Infrastructure/Populations
 - a. **Who is the most vulnerable to being impacted by a hazard event?** – *White Oaks Rd is being developed without attention to stormwater management; residential units going in on Rollercoaster Rd and there are stormwater concerns there; Weirs Blvd is very developed and the developed infrastructure is older*
 - b. **What is most vulnerable to being impacted by a hazard event?** – *County Nursing Home doesn't seem to be an issue; Taylor Home is on a hill, but maybe the folks below the Taylor Home; suggested we talk to John Belind about the senior population in the city*
- III. Capacities
 - a. **Confirm pertinent information** – *No new updates for ordinances or regulations since previous HMP in 2017 (due to no “champion” and limited budget for researching and rewriting); Wetlands Conservation Overlay (2019) protects from future development; hoping to conduct an impact fee study for stormwater management this year as part of CIP; need to update the site plan & subdivision regulations to look at stormwater and traffic; want funding to update their Master Plan (2018), possible for July 2026; concerned with not having a transportation chapter in the Master Plan*
 - b. **Changes?** – *Lots of development happening and projected to occur, mainly all housing, population is expected to grow by 20% within the next 10 years*
- IV. Vulnerabilities/Problems
 - a. **Any identified above** – *Lots of development occurring and with the frequency of more intense rain events, stormwater is a real concern; cyanobacteria in the water also a concern, want ordinances regarding fertilizers*
- V. General Notes
 - a. Assistant Planner Tyler also in attendance

Invitation

In addition to committee members, invitations like this one were sent to to pertinent state agencies, EMDs in adjacent communities, schools, and agencies and non-prfits that work on public health issues as well as those that work with vulnerable populations.

RE: Laconia Hazard Mitigation Plan Update

David Jeffers
 To: David Jeffers
 From: Danielle Scadova-Vose
 Bcc: paul.m.hatch@dos.nh.gov; jbeland@ppnh.org; contactus@capbm.org; sarah.m.thunberg@livefree.nh.gov; steve.doyon@des.nh.gov; firechief@gilmantonnh.org; Steve Carrier; dblack@belmontnh.org; mharper@meredithnh.org

You replied to this message on 5/15/2025 12:13 PM.

0.Agenda03.Lac.doc (120 KB)
 Laconia Meeting Notes 02.doc (51 KB)
 Laconia Problems & Mitigation Actions.pdf (124 KB)
 05.Goals.HMP.proposed.Laconia.docx (33 KB)

Laconia HMP Committee and Stakeholders,

A reminder that we have our third meeting this **Friday May 9 at 1:00 PM (note new time)**. This meeting will be held at the **Laconia Fire Department** and is open to the public.

Notes from the second meeting, an **agenda** for Meeting 3, Proposed HMP Goals, and a **draft matrix of Problem Statements and Mitigation Actions** are attached for your review prior to the meeting.

- We will be looking for Committee approval on the updated Goals.
- We will need your input on the Problem Statements and Mitigation Actions, including filling in some gaps.
- You may find it helpful to review some of the suggested actions suggested in this FEMA Region 1 publication [Mitigation Ideas for Natural Hazards](#).

SURVEY UPDATE – **Please share this description of the survey along with the mini-URL, and the QR Code below on webpages, social media, and newsletters. This provides an important means for the public to provide input during the plan development process.**

The Laconia Hazard Mitigation Plan Committee is updating its 2017 Hazard Mitigation Plan and is seeking your input. Please take a few moments to complete the questions in this survey regarding hazard mitigation in Laconia.

Mini-URL link: <https://arcg.is/0yr5Ge1>



Laconia Hazard Mitigation Plan Update

April 4, 2025 2:00 PM

Laconia Fire Station
848 North Main Street
Laconia, NH

Meeting 2 - AGENDA

1. Introductions
2. Information confirmation
3. Goals – confirmation
4. Risk Analysis confirmation
5. Vulnerability - confirmation
6. Status of 2017 Mitigation Actions
7. Schedule for Meetings
8. Public Input

A copy of the 2017 Laconia 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/0yr5Ge1> or by scanning this QR Code with a phone or tablet. Please share with residents and encourage them to complete this survey.



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

Laconia Hazard Mitigation Plan Update		Date			
Committee Representation	Person	3/7/2025	4/4/2025	5/9/2025	5/23/2025
EMD, Fire Chief, EMS, Health Services (Emergency Management Director)	Tim Joubert/Fire Chief EMD	√	√	√	√
Police	Allan Graton, Captain	√		√	
Public Works/Highway/Road Agent	Wes Anderson, Director	√	√	√	√
Laconia City Manager	Kirk Beattie, Manager	√			
Planning Director	Rob Mora, Director	√	√		√
Code Enforcement	Joe Grey, Enforcement Officer	√			
Planning Dept.	Tyler Carmichael, Asst. Planner	√	√	√	
Local Welfare officer	Glenn Smith				
Recreation/Facilities	Amy Lovisek, Director	√			√
Laconia City IT	Nick Shastany, Staff	√	√		
Laconia City IT	Artie O'Connell, Staff	√	√		
Laconia Housing Authority	Dean Donati, Staff		√	√	√
Lakes Region Planning Commission	David Jeffers, Planning Manager	√	√	√	√
Lakes Region Planning Commission	Danielle Scadova-Vose, Regional Planner	√	√	√	√
NH HSEM field representative	Peter Llewellyn, Local Liason			√	
Regional Public Health Network	John Beland, Director	√			

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. A very health eighty-three responses were received and shared with the committee at meetings as local risk was considered and problems/mitigation actions discussed.

The screenshot shows a web browser window with the address bar displaying www.lakesrpc.nh.gov/Pages/index/226297/hazard-mitigation. The browser's address bar also shows search engines like PRLAC, CEDS, Google, Google Drive, and Doodle. On the left side, there is a vertical navigation menu with items: Hazardous Waste, using, id Use, Resources, nal Plans, Purchasing, i Waste, ortation, and Management. The main content area contains the following text:

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.

For more information, please review this [Public Notice](#). See also Gilford Survey link below to provide your input if you cannot attend the meeting.

SURVEY . . . SURVEY . . . SURVEY

The Laconia Hazard Mitigation Plan Committee is currently revising its 2017 Hazard Mitigation Plan, while the Gilford Hazard Mitigation Plan Committee is updating its 2018 plan. Both committees, consisting of representatives from various local interests, are concentrating on identifying natural hazards that pose risks to their communities and prioritizing recommendations to safeguard the well-being and safety of residents and visitors.

To gather valuable input, Laconia and Gilford have each created a survey focused on hazard mitigation within their respective municipalities. We kindly ask you to spare a few moments to complete the questions in the survey applicable to your community, as your feedback is crucial for enhancing the resilience of your community.

LACONIA SURVEY:

Link: <https://arcg.is/Dyr5Ge1>

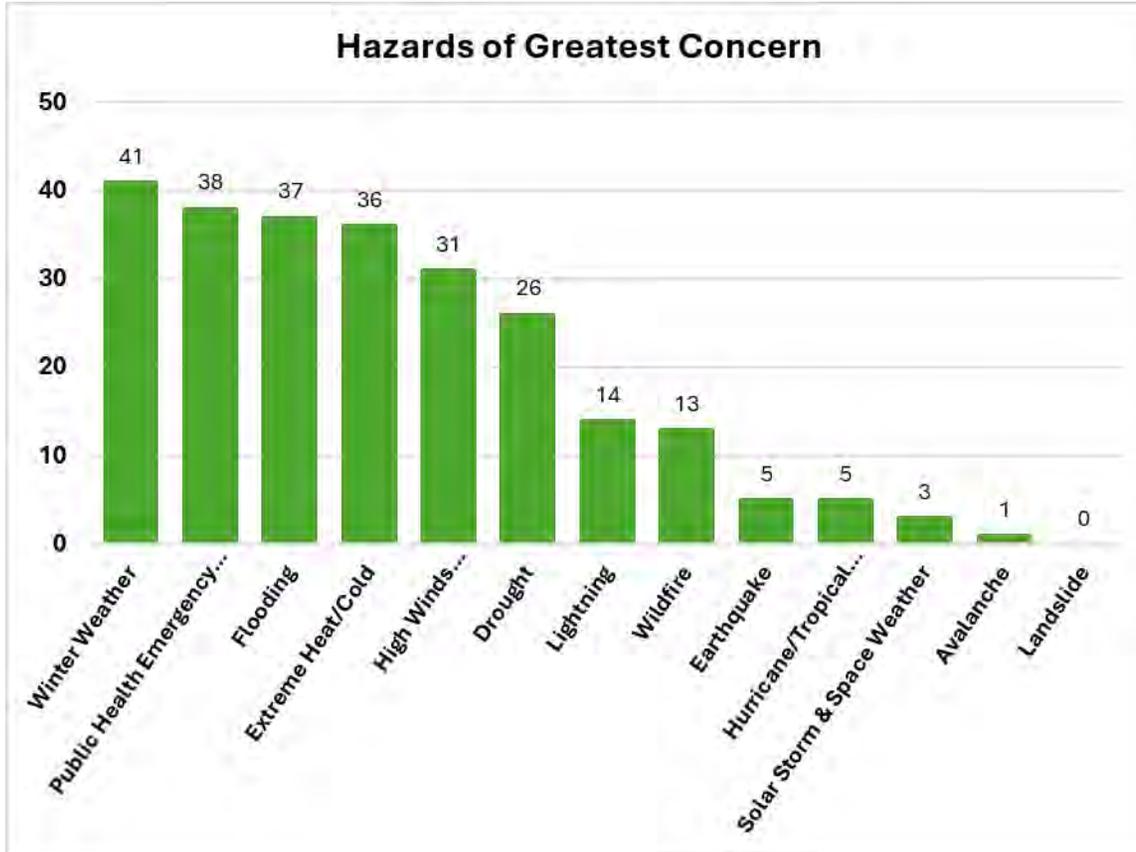


QR Code:

For more information, please contact Chief Timothy Joubert, Laconia Emergency Management Director at 603.524.6881 or TJoubert@laconianh.gov.

The questions and responses are below.

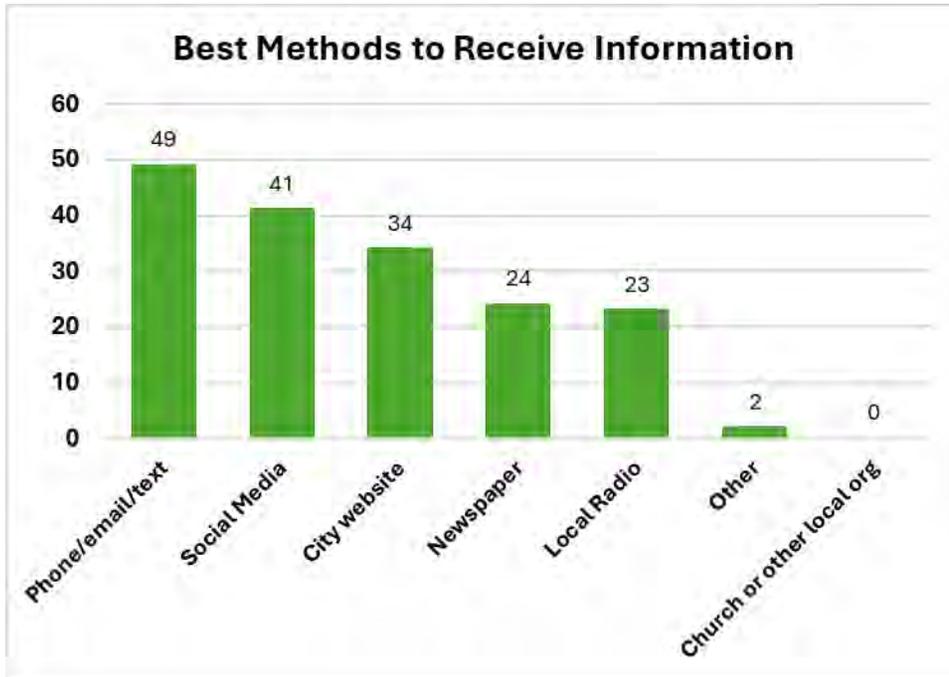
1. Which of these hazards are of greatest concern to you? (Select up to four from the list.)



2. Which roads or areas are you most concerned about when severe weather occurs?

Which road(s) or areas are you most concerned about in Laconia when severe weather occurs?			
Union Ave (4)	South Main Street /106 just after South End flooded last year during a heavy rainstorm. There was no visible road during the event and cars were losing traction.	Union Ave from Main to Elm; Court St from Main to City line; Main from Union Ave to Blueberry; Rt 106 from Rt 107 to City line; Downtown and Lakeport streets	Downtown Laconia because so many community based organizations reside there ie Laconia Housing Authority; Laconia Senior Center; Belknap County CAP, etc. and my own office ADRC Belknap County 11 Academy Square.
Route 106 (2)	High st, Elliot st, summer st, winter st, busy corner, lake port sq, busy intersections and poor road conditions during winter, increasing mvcs	Main Street and Union Avenue as Laconia Housing has residential buildings on those streets in addition to them being main roadways in the downtown area of the city.	Gilford Ave (near Annie's) has a few large trees that overhang the road. In high winds, these huge limbs could easily come down and crush a car.
Court St (2)	Union ave gets flooded with heavy rain and it floods by caring for women on north main st	Meredith Center Road. Always seems to be messy and maintained later in the storm/timeframe of cleanup.	Elm St (between Paugus & Opechee Bays) Dam breach may cause downtown flooding.
River St	Hillcroft Rd, all 0.5mi because we are off the beaten path and between that lake and a forest.	The steep streets in residential areas. Can be hard to maneuver in the winter.	Major roads and being able to get places safely in town (Main Street, Union Avenue, etc.)
Primary roads	Sections of Union, Dirt (Private Roads), Sections of Court Street, & Davis Place	White Oaks Rd-we live here and not as well plowed as main roads in winter.	Cherry Valley Rd., going up the mountain. It is winding and slippery in the Winter.
Parade road	Clinton / Cole streets, Meredith CTR, Roller Coaster.	Keasor Ct no proper drainage, floods in even the smallest amount of rain	Lakeport, as it is the furthest away from emergency services
Main St	Meredith Center Road, White Oaks Road, Parade Road	North Laconia's roads due to tree issues with weather events	Many of the hilly streets in east lakeport are in need of repair.
None	Bridges (in general) are a concern since since a failure could slow emergency response.	Union Avenue. It is the main route through the City and vital to its operation.	Jewett brook under Union Ave and under 22 Strafford St
Meredith Center Road	Roads surrounding the hospital. Access is vital.	Union Avenue at Busy Corner, brook floods road	Union Avenue to Court St to Business route 3.
Downtown area	Weirs Blvd for drainage.	High St, Elliot St, Union Ave, and Main St	Union Ave at the bottom of Winter Street
academy sq	Elm St, Rte 106, Rte 3, Bypass, Union Ave	Eastman Road	Anything near the water
Affects all areas of the city	Weirs. Home are extremely close together in some areas.	Cherry Valley Road and Route 11	Hilliard rd, plantation rd, centenary
Any road that has pot holes	Roads without alternative access	Elm Street, busy corner	end of my driveway after snowplows
the by-pass	Union Ave/Court St/Parade Rd.	Main roads through the city	Downtown, lakeside neighborhoods

3. What are the best methods to receive information?



4. Describe any hazard events in Laconia, especially in the last 5 years.

Can you describe any hazard events that occurred in Laconia - especially last 5 years?		
Winter Weather	High Winds	Covid
From early 2020 through most of 2021. Winter storm with 36" of snow within 24 hours. Winter of 2020-2021. Took two or three days for people to get out of driveways and for all level of roads to be cleared. Affected businesses opening and residents travelling for needs such as food, access to medical care and medicine.	The high winds that occurred in June 2024 and then throughout that summer all over town. We had trees fall down in our and our neighbor's properties that caused damage	COVID 19 pandemic closed businesses, isolated individuals, reduced access to services, had extreme economic impact, devastated workforce that has not recovered to date. Caused extremism to rise in political climates. Highlighted lack of communication and inter county network supports.
Nor Easter - December 2020 - Entire Lakes Region- We received 3 feet of snow in 1 day, City Hall never closed. Very hazardous road conditions.	Several large wind storms. Tree and power issues. Would like to see a better program for protection of power line infrastructures.	COVID: 2020 everywhere, public health pandemic
Ice storm (2017?) took out power for multiple days to almost everyone in Laconia. Some lost their power for over a week.	Power outage of three days depending on service area 2017 or 18. shore drive area.	Covid - 2020 - Entire community affected
Severe Snow Storm; December 2020; Impacted entire City including my house on Lynnewood Rd with 3+ feet of snow in one day.	Microbursts in various areas around town that seem to happen yearly	Covid pandemic 2020
Several winter storms a year since 2020; Impacted entire City including my house with wind, ice, and snow	Caused downed trees and powerlines due to ice and wind.	Pandemic
Large amounts of snow, road washouts, impacting how emergency vehicles can respond	Downed power supply on dead end road	Covid - 19
snowstorms, in Laconia, the roads were so bad my car spun off the road.	Power Outages due to high winds	Covid
Unplowed sidewalks forcing people and children to walk in the road.	Loss of power	
Wind storms, heavy rain events, late season snowstorms		
Snowstorm December 2022		
Snowstorms: seasonal		
Snowstorms		

Can you describe any hazard events that occurred in Laconia - especially last 5 years?

Flooding/Rain

Swollen Jewett Brook as it flowed under 22 Strafford St a couple of years ago--hard to remember but there have been more than one time. The water got up to within 3 inches of the bridge walkway over the moat that runs under the old Scott & Williams building aka the shoe factory. It would affect me and others only if the water gets into the building's basement. Related to this flooding hazard is degradation to the building's foundation due to sediment deposits along the moat. Granted this building has stood the test of time as a working factory building but when the hi-rise condo collapsed in Florida a few years ago, it gave me pause. The brook was part of a working factory building so I guessed the sediment was not allowed to collect. I wonder if it should be dredged and engineers should check the foundation periodically for safety. I mentioned this to LHA management a year or so ago but they probably ignored my concern because what could a woman know especially one over age 60

Severe thunderstorm; December of 2022; Impacted entire City with wind and rain; my basement flooded due to increase snowmelt and water runoff. Several storms a year since 2020; Impacted entire City including my house with wind and rain; Caused trees to fall and severe water runoff.

Power outages-we have a sump pump in basement if it rains we are in trouble-White Oaks Rd Power outage Easter 2023? Had to go to my Moms to cook. Power outage Christmas Eve

South Main Street /106 just after South End flooded last year during a heavy rainstorm. There was no visible road during the event and cars were losing traction.

Cellar flooded by seepage from rain and melting snow in 2024, risking development of mold Ice storm, approximately 1998, resulting in multi-day power outages throughout city and loss of home heat

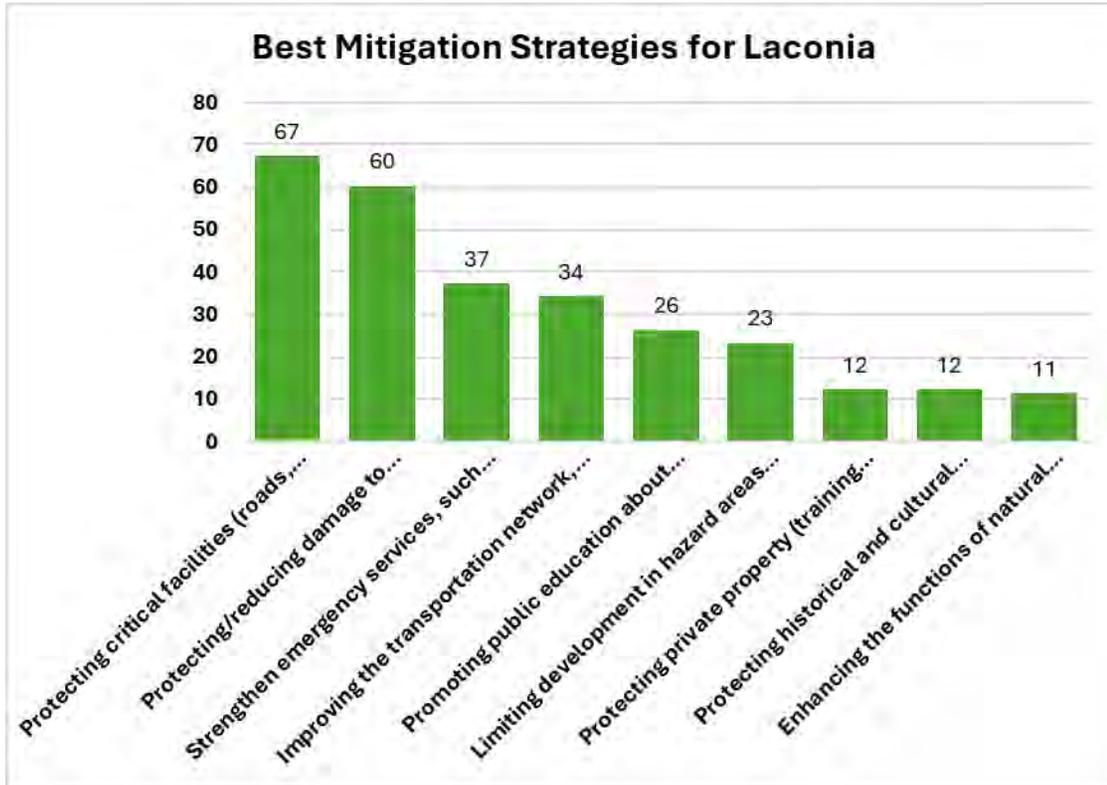
Tsunami that occurred at Weirs Beach several years ago and wiped out the boardwalk

Multiple heavy rains during winter months

Flooded roads

Can you describe any hazard events that occurred in Laconia - especially last 5 years?		
Misc.	Extreme Temps	None
The ladder truck was out of service. The ladder truck goes out of service whenever there is a second medical so the crew can staff the second ambulance This impacts all of Laconia as well as surrounding communities that call for the ladder truck as a mutual aid resource	I cannot think of individual events beyond that, but I feel like increasingly there are torrential rains, periods of drought, and stories of structure fires (like the one at the Wellness complex) that seem related to heat/dryness. I worry for our whole community.	I have worked here two years. I can't recall. We have our own Emergency Preparedness Director internally who emails us forecasts and offers trainings.
Vehicle into the building at Looney Bin. Two injured. Mass casualty situation. Enforcement and improvement of traffic laws and patterns/sight-lines would help.	My biggest concern is warming temperatures and the effects on our ecology, environment and increase in invasive insects and plants.	None we haven't had anything major occur
Natural Gas Incident, August of 2021 I believe, Throughout the City, Major Strain on resources exemplified by lack of FD staffing.		None
Construction season, every year everywhere.		N/A
All over transportation and power loss issues		
Bike week		
Bike Week		

5. The best mitigation strategies for Laconia



**Laconia Hazard Mitigation Plan (HMP) Update Committee Meeting
March 7, 2025
NOTES**

In Attendance:

Wes Anderson	Laconia Department of Public Works
Kirk Beattie	Laconia City Manager
John Beland	Regional Public Health Network
Tyler Carmichael	Laconia Assistant Planner
Allan Graton	Laconia Police Captain
Joe Gray	Laconia Code Enforcement
Tim Joubert	Laconia Fire Chief & EMD
Amy Lovisek	Laconia Recreation/Facilities Director
Rob Mora	Laconia Planning Director
Artie O'Connell	Laconia City IT
Nick Shastany	Laconia City IT
David Jeffers	Lakes Region Planning Commission (LRPC), Planning Manager
Danielle Scadova-Vose	Lakes Region Planning Commission (LRPC), Regional Planner

After introductions, the distinctions between Mitigation and Response planning were discussed, and D. Jeffers reviewed the plan development process.

- Hazard mitigation is sustained action to reduce or eliminate long-term risk to people and property from hazards, NOT preparing for an impending event, immediate response, or short-term recovery; for example,
 - installing a larger culvert in advance as opposed to fixing a blown-out culvert and associated road damage,
 - developing and enforcing floodplain regulations as opposed to incurring losses due to flooding,
 - purchasing floodplain lands and preserving as open space instead of allowing development and potential flood loss.
- Laconia has selected to work with LRPC through a contract with NH HSEM (Homeland Security and Emergency Management) to update their HMP, which requires revision every five years. Due to contract delays it has now been more eight years since Laconia's last update. The funding for this program comes from FEMA (Federal Emergency Management Agency). While there is a match requirement of \$1,333, most communities can meet this through soft match (Committee time).
- An adopted HMP is a prerequisite for receiving FEMA funding for many types of mitigation projects.
- The focus will be on any local changes that may have occurred in terms of hazards, facilities, and priorities since the last plan.
- As with past versions of the HMP, this is the city's Plan, but it does need to satisfy the 20 items on the FEMA checklist.

- The focus of FEMA/NH HSEM in reviewing the plan is on Natural Hazard. Technological or Human-Caused Hazards may be included as time and funding permits.
- In 2023 the FEMA Checklist and Guidelines were updated, with some adjustments in emphasis. These are currently under review.
- The State HMP was updated in 2023 and included some changes to the list of hazards, mainly name changes, a couple were dropped, and a couple were added. It was explained that the local plan should at least consider the inclusion of these new hazards in the plan (and document the committee's thinking on whether to include the new hazards).
- LRPC will research and map information, facilitate meetings, write drafts of the plan, submit and edit plan as needed. With this type of grant, the HSEM contract is with the municipality, LRPC will supply a template to the EMD for tracking local match. Progress reports for quarterly reports will be provided to the EMD.
- The committee is responsible for providing local information, brainstorming mitigation actions, prioritizing those actions, and reviewing drafts. Obtaining public input and ushering it through the adoption process are local responsibilities.
- The draft plan will be reviewed by the committee and the public, sent to NH HSEM for review and conditional approval, and ultimately needs to be adopted by the City Council.
- Timeline – Due to delays in the funding process, this plan is already beyond its 5-year renewal timeline. HSEM is aware of this. We are aiming to hold four committee meetings.

An outline of the Update Methodology was presented and discussed:

- Hazard Identification (& Assets)
- Risk Analysis (Probability, Extent, Impact → Risk)
- Identify Problems
 - Assess 2017 Actions (Completed/Delete/Defer – Why?)
 - Effectiveness
- Identify Mitigation Actions (and costs)
- Prioritize Mitigation Actions (STAPLEE)
- Address Implementation (Responsible Party, Funding, Timeline)
- Draft Plan - LRPC
- Review, (FEMA/NH HSEM Approval) & (Local) Adoption

It was noted that several committee members (EMD, Planner, DPW) have already been interviewed to help give us a jump on this update. A survey has been made available to the public, committee members were encouraged to share the QR code and weblink to the five-question survey. Materials were distributed to committee members and reviewed including a history of hazards in the region since the last plan, a list of critical facilities, local demographics and trends, and a list of community capabilities.

The group reviewed a list of potential hazards, including those identified in the current plan as well as those noted in the State Plan. Members were asked about hazard events since the last plan and their

**Laconia Hazard Mitigation Plan (HMP) Update Committee Meeting
March 7, 2025
NOTES**

impacts on the city. This included the various Disaster Declarations that have been made in NH in recent years. Comments were made for most hazards, notably,

- Extreme temps – especially how it relates to the unhoused and low-income populations; extreme cold can cause a deep depth of frost that is damaging to pipes
- High winds – downed trees a concern, power company cuts back trees along one side of the road, but the other side is technically private property, so it is up to property owners
- Infectious Diseases
- Flooding
 - Jewett Brook has two major choke points – Union Ave and the Williams building
 - Durkee Brook bridge on Court Street
 - Concern with older infrastructure in older private developments that could affect folks downstream on public roads, i.e. Pendleton Rd
 - Concerns with Hilliard Rd by Pickerel Cove – DPW has to attend to that area nearly every storm
 - Concerns in the downtown area as it is more densely populated and the infrastructure isn't sized for the weather events that are now occurring
 - Concerns with older and newer infrastructure mismatching – i.e. Elm Street has newer (bigger) pipes flowing into older (smaller) pipes causing water to come up out of the ground
 - Concerns with Weirs Blvd – Sweetwood Condos are uphill from lakefront homes and during high rain events, the homes are affected by the water running off the condos
 - Concerns with the Foot Dam – a private Dam off Rollercoaster Rd – the state is also watching this dam; owners have been told to fix structural concerns
- Severe Winter Weather
 - Snow removal and storage Downtown is difficult

Demographics and Development Trends were reviewed and discussed by the Committee:

- About 95% of the development that is occurring is housing-related
- About 700 units being built or approved to be built in the Weirs alone
- Traffic counts are being done for the State School property
- Industrial Park gridlock during rush hour
- Future development will occur on “harder” land because the easy land has already been developed

Community Capabilities were reviewed by the Committee:

- Capital Improvement Plan is updated yearly
- Laconia follows the State's building codes
- Outreach & Education – School Safety Committee meets monthly
- Emergency Power Generation – City Hall (home of IT) no; both Fire Stations yes; Police Department yes; Middle school (shelter) yes; DPW no
- Temporary Traffic Orders & Emergency Traffic Control Plans – have multiple electronic message boards

**Laconia Hazard Mitigation Plan (HMP) Update Committee Meeting
March 7, 2025
NOTES**

The existing list of Critical Facilities and structural valuations was presented to the group and will be updated by the city.

For the next meeting

- Survey results
- We will provide a Risk table
- The Critical Facilities Valuation Table will be updated by the town.
- A Vulnerability matrix with facilities and hazards will be reviewed
- The Mitigation actions from the current plan will be reviewed.

Next meeting: 4/4/25 at 2:00 PM in the Laconia Fire Station

=====

Laconia Hazard Mitigation Plan (HMP) Update Committee Meeting
April 4, 2025
NOTES

In Attendance:

Wes Anderson	Laconia Department of Public Works Director
Tyler Carmichael	Laconia Assistant Planner
Dean Donati	Deputy Director of Laconia Housing Authority
Tim Joubert	Laconia Fire Chief & EMD
Rob Mora	Laconia Planning Director
Artie O'Connell	Laconia IT Specialist
Nick Shastany	Laconia IT Assistant
David Jeffers	Lakes Region Planning Commission (LRPC), Planning Manager
Danielle Scadova-Vose	Lakes Region Planning Commission (LRPC), Regional Planner

After Introductions, D. Scadova-Vose reviewed the survey results thus far with the group. Folks were encouraged to share the survey link in hopes of more responses. The survey results discussed were as follows:

- Common responses for hazardous events of most concern
 - Extreme Heat/Cold
 - Drought
 - High Winds
 - Public Health Emergency
 - Flooding
 - Winter Weather

- Roads or areas in the city of greatest concern during hazardous events
 - Union Ave
 - Main Street
 - Keasor Court (no drainage)
 - Gilford Ave (large trees)
 - Parade Road
 - Bypass
 - General main roadways
 - General roads providing access to the hospital
- Best methods to receive information
 - Phone/email/text
 - City website
 - Newspaper
 - Social media
- Any hazard events that have occurred in the city
 - High winds in June 2024
 - Increasing events of torrential rains
 - Periods of drought
 - Covid-19
 - Flooding – specifically caused by Jewett Brook
 - Warming temperatures
 - Invasive species
 - Microbursts
- Mitigation Actions folks believe would work best in Laconia
 - Protecting critical facilities
 - Protecting/reducing damage to utilities
 - Improving the transportation network
 - Limiting development in hazard areas
 - Strengthen emergency services

Meeting notes from the last committee meeting were briefly reviewed and agreed upon to be accurate.

The Risk Analysis Table was explained (Probability, Extent, Impact → Risk), and each natural hazard was discussed and the Committee provided input as follows:

- High Wind Events
 - Wes asked if this includes straight-line winds as the city has been experiencing an increase in straight-line winds
 - Probability=3
- Extreme Temps
 - Human Impact=2

A list of Mitigation Actions from the previous plan were reviewed for current status. The notes are as follows:

- Completed Mitigation Actions
 - Conduct coordinated training on drinking water boom deployment (have had spills and worked well)
 - Repair/replace Academy Street bridge
 - Develop an all-hazards debris management plan (brought to Transfer Station)
 - Plan for rapid deployment of traffic control equipment at any time
 - Install security fencing for Police Department campus
 - Establish building entry protocols for schools
 - Evaluate call response for police department to schools
 - Install security cameras at Water Works
 - Police Department – mobile/portable/temporary cameras
 - Conduct propane response tabletop drill
 - Improve radio system for police
 - Update code enforcement related to housing inspections and property maintenance; increase staffing
 - Strengthen entrance doors and entryways at schools
 - Continue with current winter safety and fire safety messaging and outreach – current system of sharing information via the city website and going into the schools to talk is successful
 - Encourage schools, churches, and municipal departments site to post seasonal safety messages - successful
- Deleted Mitigation Actions
 - Implement mitigation related recommendations of smart growth audit – out of date
 - Continue to justify need for staff to adequately enforce city codes (health, fire, building, zoning) – not necessary because the city has an obligation to provide services within the approved budget
 - Improve DPW fire protection – need a completely new facility
 - Explore establishing a city-wide command channel for department heads to coordinate with one another – using cellphones
- Deferred Mitigation Actions
 - Develop stormwater regulations – need to find funding for the study, infrastructure, and enforcement
 - Develop Watershed Management Plan for Paugus Bay – still issues to be considered and investigated
 - Develop plan for interim power outage at DPW facility – need a new building
 - Conduct community wide hydrologic analysis for drainage systems
 - Update Emergency Action Plans for elderly housing complexes – ongoing
 - Conduct NIMS ICS and tabletop drills for multi-hazards – ongoing
 - Upgrade interim backup power system at Maintenance Facility
 - Explore establishing a communications plan/protocol via assessment and inventory of equipment, practices, and needs – had dead zones within the city regarding cellphones
 - Buy emergency power equipment for City Hall – still an issue

- Develop Emergency Response ICS Plans for schools – ongoing
- Develop consistent safety operations plans for schools – ongoing
- Identify school and city government employees for and conduct CPR training – ongoing
- Broaden depth of Emergency Operations Center and train additional participants – still a need
- Implement employee identification badges for all city departments – cost issues
- Cyber Attack Prevention and Response Plan – currently under development by IT Department – needs to be readdressed
- Identify and document Incident Command System Best Practices for schools – ongoing
- Establish after hours security protocol for City Hall – still a problem
- Install security cameras at SAU, DPW, and Community Center
- Improve radio system for fire (repeater stations) – currently using cellphones, but there are dead zones within the city

For the next meeting

- Survey results
- Vulnerability Analysis
- Problem Statements
- Goals Confirmation
- Prioritization of Mitigation Actions

Next meeting: 5/9/25 at 1:00 PM in the Laconia Fire Station

=====

Laconia Hazard Mitigation Plan (HMP) Update Committee Meeting
 May 9, 2025
 NOTES

In Attendance:

- | | |
|--|--|
| Wes Anderson
Tyler Carmichael
Dean Donati
Alan Graton
Tim Joubert
Peter Llewellyn | Laconia Department of Public Works Director
Laconia Assistant Planner
Deputy Director of Laconia Housing Authority
Laconia Police Captain
Laconia Fire Chief & EMD
NH HSEM Field Representative |
| David Jeffers | Lakes Region Planning Commission (LRPC),
Planning Manager |
| Danielle Scadova-Vose | Lakes Region Planning Commission (LRPC), |

Regional Planner

After Introductions, D. Scadova-Vose reviewed the survey results thus far with the group. Folks were encouraged to share the survey link in hopes of more responses. D. Scadova-Vose will share the survey link and QR code with Tyler, Chief Joubert, and the Chief of Police.

The Vulnerability Matrix was reviewed and agreed to be accurate by the committee members.

The committee was shown the goals from their previous Hazard Mitigation Plan (2017), the New Hampshire State HMP goals (2023), and a proposed list of updated goals for the city’s new Hazard Mitigation Plan.

- It was suggested and agreed upon by the committee to combine Objective 1 from both Goal I and Goal IV, which read respectively: “Ensure mitigation strategies consider the protection and resiliency of natural, historical, and cultural resources” and “To minimize the resultant public expenditures and damages caused by natural and manmade hazards to public and private buildings and infrastructure.
- It was suggested and agreed upon by the committee to keep Objective 2 of Goal I: “Identify how climate change impacts natural hazards, as well as mitigation strategies,” as this is a relevant issue and challenge that the city is facing

Problem Statements for each current Mitigation Action were reviewed and discussed, as well as estimated cost, potential funding sources, and responsible parties for each Mitigation Action.

- LRPC will update the Mitigation Action list to reflect all details discussed and agreed upon and will send out copies to each committee member before the next meeting on 5/23

D. Jeffers went over the STAPLEE Criteria with the committee, explaining its use in prioritizing mitigation actions.

- LRPC will provide committee members with a matrix combining the STAPLEE criteria and mitigation action notes
- Committee members will score each mitigation action using the STAPLEE criteria **and** send their matrix to LRPC **before** the next committee meeting on 5/23
- LRPC will average the STAPLEE scores for each mitigation action to be reviewed with the committee at the next meeting on 5/23

For the next meeting

- Survey results
- Prioritization of Mitigation Actions

Next meeting: 5/23/25 at 1:00 PM at the Laconia Fire Station

=====

**Laconia Hazard Mitigation Plan (HMP) Update Committee Meeting
May 23, 2025
NOTES**

In Attendance:

Wes Anderson	Public Works Director
Dean Donati	Deputy Director of Laconia Housing Authority
Tim Joubert	Fire Chief & EMD
Amy Lovisek	Recreation/Facilities Director
Rob Mora	Planning Director
David Jeffers	Lakes Region Planning Commission (LRPC), Planning Manager
Danielle Scadova-Vose	Lakes Region Planning Commission (LRPC), Regional Planner

After introductions, D. Scadova-Vose shared the survey results as of 5/22/25.

- There have been 78 total responses, 60 more than last meeting.
- Committee was not surprised by any responses, everything seems in line with what we have discussed during meetings.
- No questions or comments.
- The survey will close out at the end of the month.

Prioritization of Mitigation Actions

- Noted that the funding source for F1 and F2 are grants/unknown, as the future of grant availability is precarious as of now
- The rewording of the problem statement for F2 was agreed upon by the committee
- HW2 amended to read as “downed trees”
- A question was raised about the mitigation action for CF2 – it was clarified that it pertains more to rental properties
- No additional edits were voiced for problem statements or mitigation actions
- The committee agreed upon the averaged STAPLEE scores for each action

Implementation

- The committee reviewed all actions and assigned a Responsible Party & a Time Frame
- Time frame to be measured as,
 - Short = 1-2 years
 - Medium = 3-4 years
 - Long = 5+ years
- LRPC clarified that the time frame refers to taking action, not necessarily completing an action

D. Jeffers posed the question, do you think the City is better prepared for natural hazards than it was 6-7 years ago?

- After some discussion among the group, the committee agreed that yes, the City is better prepared
 - It was mentioned that the Covid-19 Pandemic taught the City a lot
 - Chief said the Fire Department has been working hard to increase staffing and upgrade vehicles
 - Wes mentioned DPW has a vehicle replacement schedule
 - Overall, the City is becoming more prepared and working towards preparedness

D. Jeffers discussed next steps

- LRPC to draft the plan and give to the City via email to review in the next several weeks
 - LRPC will ask for comments on the draft from committee
 - The committee requested a short, firm deadline for their review
 - It was discussed and determined that the draft will go out for public review after the committee has a chance for comment
 - Amy made the point that the public will only read it once, so best to give them the most final version
 - After committee review, HSEM will review and expedite the process
 - HSEM is pleased with the progress we're making, but is urging us to keep moving swiftly as the city's plan is outdated
 - LRPC clarified public input will be online – no public meeting
 - After HSEM approves the draft, it goes to FEMA, then the City Council needs to officially adopt the plan

APPENDIX E: HAZARD EVENTS PRIOR TO 2017

Hazard	Date	Location	Description	Source
Drought	1929-1936	Statewide	Regional	FEMA
Drought	1939-1944	Statewide	Sever in Southeast	FEMA
Drought	1947-1950	Statewide	Moderate	FEMA
Drought	1960-1969	Statewide	Longest record continuous period of below normal precipitation.	FEMA
Drought	6/1/1999	Statewide	Governor's Office declaration moderate drought for most of the state.	FEMA
Earthquake	12/20/1940	Carroll County	5.5 on Richter scale - affected region	NHHSEM
Earthquake	12/24/1940	Carroll County	5.5 on Richter scale - affected region	NHHSEM
Earthquake	1/18/1982	Sanbornton/Gaza	4.5 Richter Scale - felt in Nashua	NOAA
Flood	3/14/1977	Central and Southern	Peak flow for Suncook River	NHHSEM
Flood	8/19/1991	Statewide	FEMA DR-917-NH: Hurricane Bob struck New Hampshire causing extensive damage in Rockingham and Stafford counties, but the effects were felt statewide.	NHHSEM
Flood	10/15/2005	Statewide	Rainfall amounts ranged from around 3 - 9 inches. This resulting flooding of small rivers and streams caused additional damage to roads that had been damaged earlier in the month. \$625 K in damages statewide.	NOAA
Flood	6/1/1998 – 7/31/1998	Central and Southern NH	FEMA DR-1231-NH: A series of rainfall events. Counties Declared: Grafton, Carroll, Belknap, Rockingham, Sullivan, and Merrimack (1 fatality)	NHHSEM
Flood	7/1/1986 – 8/10/1986	Statewide	FEMA DR-771-NH: Severe summer storms with heavy rains, tornadoes; flash flood and severe winds.	NHHSEM
Flood	8/ 7/1990 - 8/11/1990	Statewide	FEMA DR-876-NH: A series of storm events from August 7-11, 1990 with moderate to heavy rains produced widespread flooding in New Hampshire.	NHHSEM
Flood	8/19/1991	Statewide	FEMA DR-917-NH: Hurricane Bob struck New Hampshire causing extensive damage in Rockingham and Stafford counties, but the effects were felt statewide.	NHHSEM
Flood	3/13/1996	Alton	Dam break. \$500,000. 1 fatality. Not weather related.	NOAA
Flood	7/4/1996	Laconia	5 inches of rain in Laconia. Roads were washed out and a section of railroad bed was destroyed.	NOAA
Flood	6/1/1998 – 7/31/1998	Central and Southern NH	FEMA DR-1231-NH: A series of rainfall events. Counties Declared: Grafton, Carroll, Belknap, Rockingham, Sullivan, and Merrimack (1 fatality)	NHHSEM

Flood	6/15/1998	Belknap County	3-8 inches of rain. \$100,000 in damages. Some homes and campgrounds were evacuated.	NOAA
Flood	6/17/1998	Belknap County	\$200,000 in damages.	NOAA
Flood	7/26/1999	Belmont/ Laconia	Thunderstorms produced more than 2 inches of rain in 75 minutes causing flooding of poor drainage areas in Laconia and Belmont.	NOAA
Flood	3/28/2000	Tilton/ Gilford	The rain combined with melting snow to cause small rivers and streams to rise resulting in road washouts in Gilford, Laconia, and Tilton. \$15,000.	NOAA
Flood	8/5/2003	Gilford	3 to 4 inches of rain and caused roads and streets to flood in the town of Gilford.	NOAA
Flood	4/3/2005	Statewide	\$945,000 Statewide. The Pemigewasset and Smith Rivers were above flood stage.	NOAA
Hazard	Date	Location	Description	Source
Flood	10/8/2005	Statewide	\$5.8 M plus \$200,000 in crop damage; 2 deaths. Nine inches of rain in Gilford. Tremendous amount of damage to roads and bridges, and to the infrastructure in general due to flooding of small rivers and streams. Homes and businesses were damaged.	NOAA
Flood	10/15/2005	Statewide	Rainfall amounts ranged from around 3 - 9 inches. This resulting flooding of small rivers and streams caused additional damage to roads that had been damaged earlier in the month. \$625 K in damages statewide.	NOAA
Flood	5/13/2006	Belknap County	Over 12 inches of rain 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.	NOAA
Flood	7/12/2006	Sanbornton	3-5 inches of rain caused flooding \$10,000 in damages	NOAA
Flood	7/22/2006	Sanbornton	3-5 inches of rain caused flooding and washouts: \$10,000 in damages	NOAA
Flood	4/16/2007	Laconia/ New	\$700,000 in damages in Laconia, \$45,000 to New Hampton roads	NOAA
Flood	8/4/2008	New Hampton, Meredith, Center Harbor,	Moderate to severe damage to numerous roads and infrastructure estimated at over \$1.24 million. One death in Ashland.	NOAA
Hail	7/12/1970	Belknap County	2.00-inch diameter	NOAA
Hail	7/11/1976	Belknap County	1.75-inch diameter	NOAA
Hail	8/1/1991	Belknap County	1.0-inch diameter	NOAA
Hail	7/14/1996	Sanbornton/ Gaza	1.0 - 1.5-inch diameter	NOAA
Hail	6/20/2006	Alton	1.75-inch diameter	NOAA

Hail	6/29/2006	New Hampton,	0.75 -1.0-inch diameter	NOAA
Hail	7/9/2007	Center Harbor, Gilford, Laconia,	0.88 -1.0-inch diameter	NOAA
High winds	late 1990's	Tilton	Tree fell on main power line during storm; loss of power extensive	NHHSEM
Hurricane	9/21/1938	Statewide	13 Deaths, 2 Billion feet of marketable lumber blown down, flooding throughout the State, total Direct Losses - \$12,337,643 (1938 Dollars)	NHHSEM
Hurricane	9/9/1991	Statewide	Hurricane Bob, severe storms	FEMA
Hurricane	September 18- 19, 1999	Statewide	Heavy Rains associated with tropical storms, Hurricane Floyd affected the area.	FEMA
Ice	1/5/1979	Statewide	Power and Transportation disruptions	NHHSEM
Ice	1/7/1998	Statewide	More than \$17 million in damage in NH alone	NHHSEM
Ice	12/11/2008	Statewide	State emergency declaration after major power and transportation disruption. Exceeding \$15 million in damages. Over 400,000 without power, 2 fatalities due to carbon monoxide poisoning.	NHHSEM
Hazard	Date	Location	Description	Source
Ice/Freezing Rain	1/27/1996	Belknap County	Cold road surfaces quickly iced up at the beginning of a heavy rain event, leading to numerous automobile accidents over a short period of time. Multiple vehicle accidents and one fatality	NOAA
Lightning	7/26/1994	Alton	A home was gutted by fire in Alton due to a lightning strike. \$500,000.	NOAA
Lightning	7/9/1996	Gilford	Lightning started a fire that caused \$20,000 damage to a home in Gilford.	NOAA
Lightning	6/25/2000	Gilmanton	2 injuries.	NOAA
Lightning	7/18/2000	Laconia	Lightning caused a power surge resulting in about \$5,000. in damages.	NOAA
Lightning	7/29/2000	Gilford	2 injuries.	NOAA
Lightning	5/31/2002	Franklin/ Laconia	A total of \$70,000 in damages.	NOAA
Lightning	8/13/2003	Belmont/ Laconia	Four injuries.	NOAA
Lightning	8/11/2004	Center Harbor	\$100,000 in structural damages.	NOAA
Lightning	6/9/2005	New Hampton	\$100,000 in structural damages to a lakeside	NOAA
Lightning	6/10/2005	Laconia	1 injury.	NOAA
Lightning	7/22/2005	New Hampton	Barn fire. \$50,000.	NOAA
Lightning	7/27/2005	Sanbornton	\$10,000 in property damages.	NOAA
Lightning	10/20/2006	Meredith	Three injuries and \$20,000 in damages.	NOAA
Lightning	9/27/2007	Alton	\$200,000 in damage to home.	NOAA
Nor'easter	4/27/2007	Statewide	Nor'easter caused flooding, damage more than \$25 million as of August 2007.	FEMA
Snow/Blizzard	3/16/1993	Statewide	High winds and record snowfall	FEMA
Snow	1/15/2004	Statewide		FEMA
Snow	3/28/2001	Statewide		FEMA

Snow	4/27/2007	Statewide	Nor'easter caused flooding, damage in excess of \$25 million as of August 2007.	FEMA
Thunderstorm	7/6/1999	Meredith	Severe winds, downed trees blocked roads, and caused power outages. The winds damaged several buildings, damaged hundreds of trees, closing roads, and damaging homes. Small rivers and streams rose rapidly. Lightning also caused fires. 1 fatality, 1 injury	NOAA
Tornado	6/24/1960	Belknap County	F1	NOAA
Tornado	5/31/1972	Belknap County	F1 \$250K in damages	NOAA
Tornado	7/3/1972	Belknap County	F2 \$25K in damages	NHHSEM
Tornado	7/23/1978	Belknap County	F1, \$25,000 in damages	Tornado
Tornado	7/23/1995	Meredith	F1	NHHSEM
Tornado	7/6/1999	Belknap County	F1	NHHSEM
Tornado	7/24/2008	Five counties, including Belknap, Merrimack, and Carroll	50-mile swath cut through south-central part of NH. Nineteen homes destroyed. One death. State and federal disaster declared in five counties.	NHHSEM

APPENDIX F: SUPPLEMENTAL INFORMATION

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 Classifications¹⁰

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. • Major environmental or public health losses, including one or more of the following:

¹⁰ NH DES Fact Sheet WD-DB-15 "Classification of Dams in New Hampshire", <http://des.nh.gov/organization/commissioner/pip/factsheets/db/documents/db-15.pdf>. Accessed October 1, 2012.

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

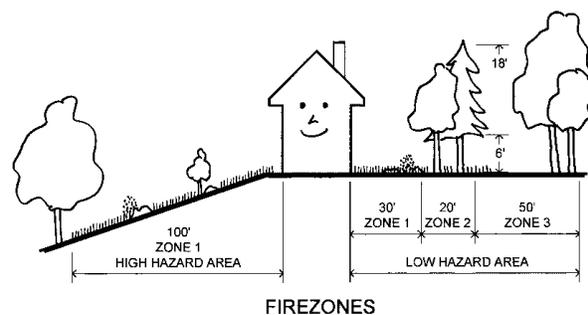
Several areas in the region are relatively remote in terms of access and firefighting abilities. Of greatest concern are those areas characterized by steep slopes and vast woodlands, with limited vehicular access. These areas include the Ossipee, Squam, Belknap, and Sandwich Mountain Ranges.

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 Laconia’s homeowners.¹¹

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



¹¹ <http://www.firewise.org> accessed September 21, 2012.

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.

APPENDIX G: PREPARATION OR RESPONSE ACTIONS

Mitigation **Preparation/Response** STATUS KEY: C - Complete X - Delete D - Defer **2012 Carry-Over Actions**

Goal, Type, or Hazard	Action	Status 2025	Reason for Status Rating & What is the Problem? Does it still exist?	Committee Notes
Hazardous Materials Spill	Conduct coordinated training on drinking water boom deployment	C	Have had spills and everything worked well	booms previously purchased; summer 2017 training?
All	Plan for rapid deployment of traffic control equipment at any time.	C		
All	Update Emergency Action Plans for elderly housing complexes.	D	Ongoing; always being updated	
All	Conduct NIMS ICS and tabletop drills for multi-hazards	D		ongoing; not an annual exercise; costs are high
Power Loss	Upgrade backup power system at Maintenance Facility	D	Interim needed	
All	a. Explore establishing a city-wide command channel for department heads to coordinate with one another. b. Establish communications plan/protocol via assessment and inventory of equipment, practices, and needs.	D	Currently using cell phones to communicate, but there are some dead zones around the City	change to 'explore establishing'; limitations to existing radios, programable training and best practice/protocol needed; limited dept. heads schools, police, fire, dpw, recreation, city hall
Power Loss	Buy emergency power equipment for City Hall.	D	Still an issue	significant limitation to existing system

2017 New Actions

Goal or Hazard	Action	Status 2025	Reason/comment on Status	Committee Notes
All	Develop Emergency Response ICS Plans for schools	D	Ongoing	
	Develop consistent safety operations plans for schools	D	Ongoing	
All	Identify school and city government employees for and conduct CPR Training	D	Ongoing	
All	Broaden depth of Emergency Operations Center and train additional participants	D	Still a need	in process
Public Safety	Implement employee identification badges for all city departments.	D	Cost concerns	grant funding for ID maker
Public Safety	Strengthen entrance doors and entryways at all municipale buildings			
Public Safety	Install security fencing for Police Department campus.	C		
Public Safety	Identify and document Incident Command System Best Practices for schools.	D	Ongoing	SAU has standing Safety Committee
Public Safety	Establish after hours security protocol for City Hall.	D	Still an issue	
Public Safety	Establish building entry protocols for schools.	C		SAU standing Safety Committee
Public Safety	Evaluate call response for police department to schools.	C		

Public Safety	Install security cameras at SAU, DPW, Water Works, and Community Center	D	Security cameras installed at Water Works	Add Water Works; grants for schools, others need to be designated shelter
All	Police Department – Mobile/Portable/Temporary Cameras	C	Mobile Command Center	possible grants
Fire	Conduct propane response tabletop drill.	C		grants
All	Improve radio system for fire (repeater stations)	D	Radio system improved for Police	Currently in CIP, requires significant funds to install repeater stations for improved interoperability.

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 Laconia 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 18.33 to 15.7. Each committee member submitted their scores separately. These ratings represent the average and were confirmed by the group at the final meeting.

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

Notes: ^The DPW Maintenance Budget can address multiple Actions
 *Updating of Subdivision & Site Plan Regs will address several Mit. Actions.
 #A watershed hydrologic study can address multiple Mitigation Actions.

Mitigation Actions - Laconia, NH

KEY: Blue - New Actions Yellow background - Multiple Actions addressing same problem.			STAPLEE Prioritization	Key: 3 - Overall Benefit, 2 - Overall Neutral, 1 - Overall Costs							
ID	Hazards Addressed	Problem	Mitigation Action	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
HW 3	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Create a Wind Plan to lay out the order in which roads should be addressed.	2.67	2.67	2.67	2.50	2.50	2.67	2.67	18.33
CF 1	Conflagration	Buildings in the center and other sections of the city are close together and some are older, predating building codes.	Educate homeowners and businesses on performing safe disposal of yard and household waste rather than open burning.	2.67	2.50	2.50	2.50	2.50	2.67	2.67	18.00

ID	Hazards Addressed	Problem	Mitigation Action	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
HW 2	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Provide internal safety education to staff about wires on trees.	2.67	2.67	2.50	2.50	2.50	2.67	2.50	18.00
ID 1	Infectious Disease	Large scale outbreaks of infectious diseases can impact community health, services, and the city's economy.	Work with LRPPH to maintain preparedness levels, materials, training, and outreach to reduce the likelihood of the next outbreak spreading.	2.50	2.67	2.50	2.50	2.67	2.50	2.67	18.00
FS 3	Structural/ Flooding	Flooding events frequently occur at Weirs Blvd in Langley Cove area	*Update Subdivision and Site Plan Regulations to include Stormwater Regulations	2.50	2.67	2.33	2.33	2.50	2.83	2.67	17.83
CF 2	Conflagration	Buildings in the center and other sections of the city are close together and some are older, predating building codes.	Update property maintenance code	2.50	2.67	2.67	2.50	2.50	2.50	2.50	17.83
DF 1	Dam Failure	if the Lakeport, Avery, Wild Wood, or Foote dams were to fail, parts of the city could be inundated, causing damage.	Continue to communicate with State and private dam owners regarding maintenance, inspections, and concerns.	2.50	2.50	2.50	2.33	2.50	2.67	2.83	17.83
FS 4	Structural/ Flooding	Flooding events frequently occur at Weirs Blvd in Langley Cove area	Upgrade drainage to accommodate current development which dates back to pre-1920	2.67	2.67	2.33	2.33	2.67	2.67	2.50	17.83

ID	Hazards Addressed	Problem	Mitigation Action	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
PTC 2	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Educate homeowners about stocking up on supplies.	2.67	2.50	2.50	2.50	2.50	2.50	2.67	17.83
F 3	Flooding	The culvert on Hilliard Rd by Pickerel Cove is inadequate during rain events	Convert the culvert on Hilliard Rd by Pickerel Cove to a bridge	2.33	2.67	2.50	2.50	2.50	2.50	2.67	17.67
SW 1	Severe Winter Weather	Snow removal and storage is difficult within the downtown and other older areas of town.	*Update Site Plan Regulations to require snow storage plans and fewer deadend roads.	2.67	2.50	2.50	2.33	2.50	2.50	2.67	17.67
EQ 1	Earthquake	Several faults run near Laconia. A 4.0 or larger earthquake could result in damages, especially to taller, masonry structures.	Educate homeowners and businesses on safety techniques to follow during and after an earthquake.	2.67	2.50	2.50	2.33	2.50	2.50	2.50	17.50
ET 1	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	Organize outreach to vulnerable populations (notably some seniors do not have AC), including establishing and promoting accessible heating or cooling centers in the community.	2.67	2.50	2.50	2.67	2.33	2.33	2.50	17.50
F 1	Flooding	Flooding events are experienced throughout the city	#Conduct community wide hydrologic analysis for drainage systems	2.33	2.67	2.33	2.33	2.50	2.67	2.67	17.50

ID	Hazards Addressed	Problem	Mitigation Action	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
PTC 2	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Designate evacuation routes.	2.67	2.50	2.50	2.33	2.50	2.33	2.67	17.50
TL 1	Thunderstorm/ Lightning	There have been lightning strikes within the county.	Educate homeowners on lightning protection devices and methods such as lightning rods.	2.50	2.50	2.50	2.33	2.67	2.33	2.67	17.50
SW 2	Severe Winter Weather	Snow removal and storage is difficult within the downtown and other older areas of town.	Develop plans for additional snow storage, including maintaining arrangements with private haulers.	2.67	2.50	2.33	2.33	2.50	2.50	2.50	17.33
F 2	Flooding	The city surrounds a lot of water which can be impacted by flow from the land during rain events.	Explore a watershed analysis of the area	2.33	2.50	2.33	2.33	2.33	2.67	2.50	17.00
HW 1	High Winds	High winds can bring down trees blocking roadways, impacting emergency access. The committee noted that straight-lined winds are occurring more frequently.	Advise homeowners on how trees within their property could impact health and safety and provide technical assistance for managing trees.	2.67	2.50	2.17	2.33	2.50	2.50	2.33	17.00

ID	Hazards Addressed	Problem	Mitigation Action	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
PTC 1	Tropical & Post-Tropical Cyclones	As weather events grow in intensity and duration (especially after 24 hours), added pressure is placed on infrastructure, facilities, and maintenance. These seem to be occurring more frequently.	Plan and budget for additional costs and maintenance.	2.67	2.50	2.17	2.33	2.50	2.50	2.33	17.00
D 1	Drought	The city can experience periods of drought throughout the year.	Educate residents on outdoor fire safety, and provide outreach to private well owners .	2.33	2.33	2.50	2.33	2.33	2.67	2.33	16.83
ET 4	Extreme Temps	The base for the city's roads and the associated infrastructure are experiencing more damage during hot/cold events. The base is not deep enough to withstand these extreme cold events, which are becoming more frequent.	Plan for additional road maintenance costs and correction of issues.	2.33	2.50	2.33	2.17	2.33	2.33	2.33	16.33
FS 2	Structural/ Flooding	Jewett Brook causes flooding during rain events	Phase 2: Work with Gilford to build infrastructure &and/or wetlands upstream to slow the runoff into the brook (likely involve land acquisition)	2.50	2.50	2.17	2.17	2.17	2.50	2.17	16.17
ET 2	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	The Heating and Cooling Centers need to be staffed, often after normal working hours. Recruitment and retention of appropriate staff is needed.	2.33	2.33	2.17	2.33	2.33	2.17	2.00	15.67
FS 1	Structural/ Flooding	Jewett Brook causes flooding during rain events	#Phase 1: Develop an up to date watershed management plan with Gilford	2.50	2.33	2.17	2.17	2.00	2.33	2.00	15.50

ID	Hazards Addressed	Problem	Mitigation Action	Social	Technical	Administrative	Political	Legal	Environmental	Economic	Total
ET 3	Extreme Temps	Periods of extreme cold is stressful and can be fatal to the unhoused population in the city. The number of unhoused and number of events is growing.	Plan for and promote transportation services to and from Heating and Cooling Centers for the elderly and disabled.	2.33	2.17	2.00	2.17	2.33	2.17	2.00	15.17

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

Laconia Hazard Mitigation Plan, 2017

Laconia Master Plan, 2018

Laconia Zoning Ordinance, 2024

Laconia Subdivision Regulations, 2015

Laconia Site Plan Regulations, 2009

Laconia Police and EMS Facebook pages

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, [Division of Forests and Lands | NH Division of Forests and Lands](#)

National Flood Insurance Program through NH Office of Planning and Development [Floodplain Management Program - NH Economy](#)
[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	Natural Hazards Center
National Oceanic and Atmospheric Administration (NOAA): Information on various projects and research on climate and weather.	National Oceanic and Atmospheric Administration
National Climatic Data Center active archive of weather data.	Climate Data Online (CDO) - The National Climatic Data Center's (NCDC) Climate Data Online (CDO) provides free access to NCDC's archive of historical weather and climate data in addition to station history information. National Climatic Data Center (NCDC)
Northeast Snowfall Impact Scale	Regional Snowfall Index (RSI) The Northeast Snowfall Impact Scale (NESIS) National Centers for Environmental Information (NCEI)
Weekend Snowstorm Strikes The Northeast Corridor Classified As A Category 3 "Major" Storm	http://www.publicaffairs.noaa.gov/releases2006/feb06/noaa06-023.html

FLOOD RELATED HAZARDS

FEMA Coastal Flood Hazard Analysis & Mapping	The Coastal Flood Hazard Analysis and Mapping Process
Floodsmart	https://www.floodsmart.gov/
National Flood Insurance Program (NFIP)	http://www.fema.gov/nfip
Digital quality Level 3 Flood Maps	http://msc.fema.gov/MS/statemap.htm
Flood Map Modernization	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	Hazard Mapping System OSPO
U.S. Forest Service, USDA	Home US Forest Service
Wildfire Hazards - A National Threat	http://pubs.usgs.gov/fs/2006/3015/2006-3015.pdf

GEOLOGIC RELATED HAZARDS

USGS Topographic Maps	Topographic Maps U.S. Geological Survey
Building Seismic Safety Council	http://www.nibs.org/?page=bssc
Earthquake hazard history by state	Building Seismic Safety Council – National Institute of Building Sciences

USGS data on earthquakes	Earthquake Hazards - Data & Tools U.S. Geological Survey
USGS Earthquake homepage	Earthquakes U.S. Geological Survey
National Cooperative Geologic Mapping Program (NCGMP)	National Cooperative Geologic Mapping Program U.S. Geological Survey
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	Why Does the Earth Quake in New England?
Map and Geographic Information Center, 2010, "Connecticut GIS Data", University of Connecticut	http://magic.lib.uconn.edu/connecticut_data.html
2012 Maine earthquake	http://www.huffingtonpost.com/2012/10/17/maine-earthquake-2012-new-england_n_1972555.html

WIND-RELATED HAZARDS

ATC Wind Speed Web Site	ATC Hazards by Location - Website and API
U.S. Wind Zone Maps	Strong Wind National Risk Index
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.	Interior Geospatial Emergency Management System (IGEMS) U.S. Geological Survey
FEMA GeoPlatform: Geospatial data and analytics in support of emergency management	http://fema.maps.arcgis.com/home/index.html

DETERMINING RISK AND VULNERABILITY

HAZUS	Hazus FEMA.gov
FEMA Hazus Average Annualized Loss Viewer	http://fema.maps.arcgis.com/home/webmap/viewer.html

	wer.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	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	Software : USDA ARS
USACE Hydrologic Engineering Center (HEC)	http://www.hec.usace.army.mil/software/
Stormwater Manager's Resource Center SMRC	FedCenter - Stormwater Manager's Resource Center
USGS Current Water Data for the Nation	http://waterdata.usgs.gov/nwis/rt
USGS Water Data for the Nation	USGS Water Data for the Nation
Topography Maps and Aerial photos	US Topo: Maps for America U.S. Geological Survey
National Register of Historic Places	National Register of Historic Places (U.S. National Park Service)
National Wetlands Inventory	http://www.fws.gov/wetlands/
ICLUS Data for Northeast Region	ICLUS Data for the Northeast Region US EPA

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	www.nrcs.usda.gov

conservation districts.	
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 Reserve Program (useful in open space or acquisition projects by purchasing easements on wetlands properties) and farmland set aside programs	www.fsa.usda.gov
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	EDA Program List U.S. Economic Development Administration
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	http://www.nvoad.org

(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.	
--	--

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)	Federal Insurance and Mitigation Administration FEMA.gov
Community Rating System (CRS)	Community Rating System FEMA.gov
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.	Increased Cost of Compliance Coverage FEMA.gov
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	Integrating Hazard Mitigation Into the Local Comprehensive Plan

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

FEMA Multi-Hazard Mitigation Planning Website	Hazard Mitigation Planning FEMA.gov
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	http://www.fema.gov/library/viewRecord.do?id=

Natural Hazards	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)
April, 2026	<input type="checkbox"/> Documentation <input type="checkbox"/> Track implementation <input type="checkbox"/> Assess effectiveness <input type="checkbox"/> Other			
April, 2027	<input type="checkbox"/> Documentation <input type="checkbox"/> Track implementation <input type="checkbox"/> Assess effectiveness <input type="checkbox"/> Other			
April, 2028	<input type="checkbox"/> Documentation <input type="checkbox"/> Track implementation <input type="checkbox"/> Assess effectiveness <input type="checkbox"/> Other			
April, 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) [Action/Funding/Party/Time/Statusx4]

ID	Hazards Addressed	Mitigation Action	Funding/Support	Respons./Oversight	Timeframe*	Status April 2026	Status April 2027	Status April 2028	Status April 2029
HW 3	High Winds	Create a Wind Plan to lay out the order in which roads should be addressed.	Staff Time	EMD DPW	Short				
CF 1	Conflagration	Educate homeowners and businesses on performing safe disposal of yard and household waste rather than open burning.	Community Risk Reduction Fund	EMD Con Com	Short				
HW 2	High Winds	Provide internal safety education to staff about wires on trees.	Staff Time	FD PWD PD	Short				
ID 1	Infectious Disease	Work with LRPPH to maintain preparedness levels, materials, training, and outreach to reduce the likelihood of the next outbreak spreading.	Fire Dept. Staff Time	EMD City Health	Short				
CF 2	Conflagration	Update property maintenance code	Staff Time	Code Dir & FD	Short				
PTC 2	Tropical & Post-Tropical Cyclones	Educate homeowners about stocking up on supplies.	Community Risk Reduction Fund	FD	Short				

ID	Hazards Addressed	Mitigation Action	Funding/Support	Respons./Oversight	Timeframe*	Status April 2026	Status April 2027	Status April 2028	Status April 2029
EQ 1	Earthquake	Educate homeowners and businesses on safety techniques to follow during and after an earthquake.	Community Risk Reduction Fund	FD	Short				
ET 1	Extreme Temps	Organize outreach to vulnerable populations (notably some seniors do not have AC), including establishing and promoting accessible heating or cooling centers in the community.	Staff Time	EMD	Short				
PTC 2	Tropical & Post-Tropical Cyclones	Designate evacuation routes.	Staff Time	EMD FD DPW	Short				
TL 1	Thunderstorm/ Lightning	Educate homeowners on lightning protection devices and methods such as lightning rods.	Community Risk Reduction Fund	FD	Short				
SW 2	Severe Winter Weather	Develop plans for additional snow storage, including maintaining arrangements with private haulers.	DPW	DPW	Short				
D 1	Drought	Educate residents on outdoor fire safety and provide outreach to private well owners.	Staff Time	FD Planning	Short				
ET 4	Extreme Temps	Plan for additional road maintenance costs and correction of issues.	\$150K per year is budgeted through DPW	DPW	Short				

ID	Hazards Addressed	Mitigation Action	Funding/Support	Respons./Oversight	Timeframe*	Status April 2026	Status April 2027	Status April 2028	Status April 2029
ET 2	Extreme Temps	The Heating and Cooling Centers need to be staffed, often after normal working hours. Recruitment and retention of appropriate staff is needed.	Budget, grants	EMD	Short				
FS 4	Structural/ Flooding	Upgrade drainage to accommodate current development which dates back to pre-1920	DPW Budget - road drainage program	DPW	Short in CIP				
DF 1	Dam Failure	Continue to communicate with State and private dam owners regarding maintenance, inspections, and concerns.	Staff Time	DPW FD	Short Ongoing				
F 1	Flooding	#Conduct community wide hydrologic analysis for drainage systems	Grants	DPW	Short/ Medium/Long Phased				
F 2	Flooding	Explore a watershed analysis of the area	Grants	DPW	Short/ Medium/Long Phased				
F 3	Flooding	Convert the culvert on Hilliard Rd by Pickerel Cove to a bridge	FEMA Grant - awarded	DPW	Short/ Medium				
PTC 1	Tropical & Post-Tropical Cyclones	Plan and budget for additional costs and maintenance.	\$150K per year is budgeted through DPW	Dept Heads	Short-Long Ongoing				
FS 3	Structural/ Flooding	*Update Subdivision and Site Plan Regulations to include Stormwater Regulations	Planning Dept.	Plan	Medium				

ID	Hazards Addressed	Mitigation Action	Funding/Support	Respons./Oversight	Timeframe*	Status April 2026	Status April 2027	Status April 2028	Status April 2029
SW 1	Severe Winter Weather	*Update Site Plan Regulations to require snow storage plans and fewer dead-end roads.	Planning Dept.	Planning	Medium				
HW 1	High Winds	Advise homeowners on how trees within their property could impact health and safety and provide technical assistance for managing trees.	Staff Time	City Manager + DPW	Medium				
FS 1	Structural/ Flooding	#Phase 1: Develop an up-to-date watershed management plan with Gilford	DPW	DPW	Medium				
ET 3	Extreme Temps	Plan for and promote transportation services to and from Heating and Cooling Centers for the elderly and disabled.	Budget, grants	EMD	Medium				
FS 2	Structural/ Flooding	Phase 2: Work with Gilford to build infrastructure and/or wetlands upstream to slow the runoff into the brook (likely involve land acquisition)	DPW, City, grant	DPW	Long				