Town of Litchfield, New Hampshire

Hazard Mitigation Plan Update 2025

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Contents

ACKNOWLEDGMENTS

The 2025 Town of Litchfield, NH Hazard Mitigation Planning Committee

The Nashua Regional Planning Commission and the Town of Litchfield wish to thank the following individuals for serving on the Town's Hazard Mitigation Committee and for their assistance in the development of this Plan:

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Executive Summary

Jurisdiction and Scope of the Plan

This plan addresses the Town of Litchfield, NH. The Plan addresses the following types of Hazards:

- Drought
- Earthquake
- Extreme Temperatures
- Flooding
- Severe Wind
- Lightning & Hail
- Severe Winter Weather
- Tornado
- Wildfire
- Solar Storms and Space Weather
- Infectious Disease

Other hazards that are mentioned but not addressed due to minimal risk:

- Avalanches
- Landslides
- Coastal Flooding
- Solar Storms & Space Weather
- Ice Jams
- Erosion

Hazard Mitigation Goals

The first step in developing a mitigation strategy is to establish goals that reflect what the municipality wishes to achieve through the implementation of its Hazard Mitigation Plan. The Litchfield Hazard Mitigation Team established the following goals and objectives, based on its desire to protect the Town's population, critical facilities, infrastructure, emergency services, natural resources, and private property. These goals provided the basis for identifying and prioritizing mitigation actions.

Goal 1—Prevent the impacts of natural hazards on the Town's population, critical facilities, infrastructure, emergency services, natural resources, and private property whenever possible.

- Objective 1.1—Manage development of known hazard areas to avoid the risks associated with natural hazards.
- Objective 1.2—Plan to incorporate hazard mitigation into capital improvements and other future initiatives.
- Objective 1.3—Ensure building codes and other standards include requirements that make new construction more disaster resistant.
- Objective 1.4—Support the maintenance of this hazard mitigation plan.

Goal 2—Protect the Town's existing critical facilities, infrastructure, and private property from the impacts of natural hazards through cost effective mitigation activities.

- Objective2.1—Modify existing structures to reduce damage from future natural hazard events.
- Objective 2.2—Perform cost effective flood hazard mitigation measures to protect private property.

Goal 3—Educate and inform the Town's residents to help them become more resilient to natural hazards impacting the community. 7

- Objective 3.1—Utilize educational methods to change the perception from "disaster losses are acceptable" to "many disaster losses are preventable if mitigation practices are followed."
- Objective 3.2—provide educational opportunities across all age ranges.
- Objective 3.3—Develop and distribute public awareness materials regarding the relative risk of natural hazards and practical mitigation measures to reduce damage and injuries.

Goal 4—become more resilient to the impacts that climate change has on the Town's population, critical facilities, infrastructure, emergency services, natural resources, and private property.

- Objective 4.1—Ensure development in hazard areas does not destroy natural barriers to damage, such as floodplains and vegetation.
- Objective 4.2—Protect or recreate environmental assets to help safeguard the built environment.
- Objective 4.3—Prioritize which climate change impacts to address and when. Prioritization could be based on vulnerability assessment results, current needs, upcoming plans, feasibility, or budget considerations.
- Objective 4.4—Develop an adaptation strategy, including potential mitigation measures, timelines, responsible parties, and available funding sources.
- Objective 4.5—Implement the adaptation strategy and incorporate finding into hazard mitigation plan updates.
- Objective 4.6—Track progress and monitor results to determine where improvements can be made. Adjust the implementation strategy as necessary.

Goal 5—Address the challenges of natural resource degradation and the associated increased risk from hazards.

- Objective 5.1—Ensure development in hazard areas does not destroy natural barriers to damage, such as floodplains and vegetation.
- Objective 5.2—Protect or recreate environmental assets to help safeguard the built environment.

Goal 6—Protect emergency services, critical facilities, and other critical capabilities from hazard damage for them to remain operational.

- Objective 6.1—Identify critical facilities, infrastructure, and emergency services and their vulnerabilities to natural hazards.
- Objective 6.2— Develop and implement programs to promote hazard mitigation actions that protect the provision of emergency services in Town.
- Objective 6.3—Identify, maintain, and protect evacuation routes from hazard damage so they are usable when needed.

CHAPTER 1. PLANNING PROCESS

Section 1.1 ~ Overview of Planning Process

The Litchfield Hazard Mitigation Plan Update 2025 was prepared by the Nashua Regional Planning Commission (NRPC) for the Town of Litchfield, NH. NRPC staff worked closely with the Litchfield Hazard Mitigation Committee to write this Plan.

NRPC staff met with the Litchfield Hazard Mitigation Committee for a series of four meetings to prepare the Litchfield Hazard Mitigation Plan Update 2025. Agendas from these meetings appear in the Appendix to this Plan. In between meetings, NRPC worked directly with the Litchfield Hazard Mitigation Team members to obtain additional information needed to write the Plan.

The primary differences between the 2025 Plan and the 2018 Plan are 1) Infectious Disease is now recognized by the State as a hazard, and 2) Solar and Space Weather is now recognized by the State as a hazard.

Section 1.2 ~ Involvement of Neighboring Communities and Local/Regional Agencies

At the first Hazard Mitigation Team meeting, held on August 8, 2023, the group discussed who should be invited to participate on the planning team that was not currently represented. It was determined that the current Team provided adequate representation and no additional members were necessary. The Team also discussed who should be informed about the Plan, such as neighboring communities, local and regional agencies involved in hazard mitigation, agencies with authority to regulate development, and others. It was concluded that the following entities should be informed of the Plan update:

- Homeland Security and Emergency Management, Concord, NH
- American Red Cross, Concord, NH
- Eversource, Nashua, NH
- Pennichuck Water Works, Nashua, NH
- Manchester-Boston Regional Airport, Manchester, NH
- Eastern Propane and Oil, Hudson, NH
- Town Manager, Town of Londonderry, NH
- Mayor's Office, City of Nashua, NH
- Rymes Propane & Oil, Hudson, NH
- Energy North Propane, Derry, NH
- Hidden Creek Golf Course, Litchfield, NH
- Passaconaway Golf Course, Litchfield, NH
- Continental Paving, Inc., Londonderry, NH
- McQuesten Farm, Litchfield, NH
- Litchfield School District, Litchfield, NH
- Town Manager, Town of Merrimack, NH
- Board of Selectmen, Town of Hudson, NH
- Mayor's Office, City of Manchester, NH
- Liberty Utilities, Salem, NH
- Tim's Turf & Landscaping Materials, Litchfield, NH

- New England Small Tube Corporation, Litchfield, NH
- Mel's Funway Park, Litchfield, NH
- Monadnock Mountain Spring Water, Wilton, NH
- Consolidated Communications, Merrimack, NH
- Comcast Northeast Division, Manchester, NH

A number of these entities, especially the American Red Cross and local governments, work with/provide support to underserved communities and the socially vulnerable making notification of this plan update imperative.

A copy of the letter that was sent to these entities appears in the Appendix to this Plan. There was no response from any of the entities listed above.

Section 1.3 ~ Public Participation

During the first Hazard Mitigation Team meeting, held on August 8, 2023, the Team brainstormed all the methods currently employed to notify the public of Town meetings and news. These methods include the Town's website (http://litchfieldnh.gov/), the Town's official Facebook page (https://www.facebook.com/litchfieldnh) and Litchfield's Public Access TV Channel (http://litchfieldnh.gov/community-tv/). The Team determined that these methods should also be used to encourage participation from the general public, underserved communities, and vulnerable populations in the Hazard Mitigation Plan update process. In addition, announcements were made at various televised Board of Selectmen meetings regarding the update process. There was no public response to provide input to the Litchfield Hazard Mitigation Plan Update 2025 process.

NRPC staff also developed a webpage for the Litchfield Hazard Mitigation Plan Update 2025 (https://nashuarpc.org/energy___environment/hazard_mitigation_planning.php) which allows members of the public to participate in the update process even if they cannot attend meetings. The webpage was updated throughout the planning process and includes the 2018 Litchfield Hazard Mitigation Plan, 2025 Hazard Mitigation Plan Outline, and Hazard Mitigation Plan Review Checklist. It also provides meeting times, locations, agendas, and homework assignments. The Town of Litchfield's website links to this webpage. The Nashua Regional Planning Commission will keep the website active and will add information about ongoing updates over the next 5 years. A screenshot of the website appears in the Appendix to this Plan.

Section 1.4 ~ Existing and Potential Authorities, Policies, Programs, and Resources

At the first Hazard Mitigation Team meeting, held on August 8, 2023, the Team discussed Litchfield's existing authorities, policies, programs, and resources related to hazard mitigation and its ability to expand and improve on these. The purpose of this discussion was to determine the ability of the Town to implement its hazard mitigation strategies and to identify potential opportunities to enhance specific policies, programs, or projects. The evaluation of Litchfield's existing authorities, policies, programs, and resources includes planning and regulatory capabilities, emergency management capabilities, floodplain management capabilities, administrative and technical capabilities, and fiscal capabilities.

Each of these areas provides an opportunity to integrate hazard mitigation principles and practices into the local decision-making process.

Specifically, the 2025 Hazard Mitigation Team is comprised of select individuals that represent various Town functions and capabilities that will be needed to expand on and improve existing policies and programs, as well as be the responsible parties to implement mitigation strategies.

- Fire Chief/Emergency Management Director – The EMD will facilitate any update to emergency operations and plans/programs. Many hazard mitigation actions involve providing education and services to residents, which falls under the jurisdiction of emergency management. Where the Emergency Management Director in Litchfield is also the Fire Chief, this team member can also directly implement improvements and mitigation actions to the Fire Department.
- Deputy Fire Chief – The Deputy Fire Chief assists the Fire Chief in the development of new programs and policies to support mitigation strategies and priorities.
- Police Chief – The Police Chief interacts with the public on a regular basis and will directly support expansion and improvement programs involving public education, protection, and communication as well as the Police Department in general.
- Town Administrator – The Town Administrator is a central contact for all departments and will assist in implementing department-wide changes and mitigation actions.
- Planning Director/Zoning Administrator – The Planning Director/Zoning Administrator will work with the Planning and Zoning Boards to implement new regulatory changes that support hazard mitigation and goals.
- Building Inspector
- Road Agent – The Road Agent provides insight on existing conditions and deficiencies in municipal infrastructure as well as facilitates Highway Department functions such as maintenance of flood control infrastructure. Many mitigation actions include infrastructure maintenance and improvement as well as implementation of new programs.
- Assessing Assistant – Assessing is important to hazard mitigation by providing flooding data and Town valuation information to support development of mitigation practices.

Planning and Regulatory Capabilities

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate Litchfield's commitment to guiding and managing growth in a responsible manner. The following is a summary of the relevant local plans, ordinances, and programs already in place in the Town of Litchfield. Each one should be considered as an available mechanism for incorporating the recommendations of the Litchfield Hazard Mitigation Plan Update 2025.

- Conservation Open Space Development—the purpose of this ordinance is to enhance and protect the health, safety, convenience, and general welfare of the residents of Litchfield while encouraging flexibility in the design and development of land, promote environmentally sound planning, conserve open space, retain and protect important natural and cultural features, provide for efficient use of land and community services, and preserve the traditional rural character of Litchfield to advance the goals stated in the master plan.

- Floodplain Conservation District—the Floodplain Conservation District is enacted to ensure that development on land within the District will not endanger the health, safety, and welfare of the occupants of the land within the floodplain or the public during time of flood, that development will not result in increased flood levels during the base flood discharge, and to encourage the most appropriate use of land within the community. Regulations in the Litchfield Floodplain Ordinance apply to all lands designated as special flood hazard areas by the Federal Emergency Management Agency (FEMA) in its "Flood Insurance Study for the County of Hillsborough, NH" dated September 25, 2009 or as amended, together with the associated Flood Insurance Rate Maps dated September 25, 2009 or as amended.
- Wetlands Conservation District—the purpose of the Wetlands Conservation District is to protect the public health, safety, and general welfare by controlling and guiding the use of land areas which have been found to be subject to high water tables for extended periods of time.
- Aquifer Protection Ordinance—the Town of Litchfield adopted this ordinance for the promotion of the health, safety, and general welfare of its residents by preserving, maintaining, and protecting from contamination the existing and potential groundwater resources of the Town and protecting the surface waters that are fed by groundwater.
- Litchfield Master Plan (2022 update in progress)
- Town of Litchfield, Land Use Laws, 2024 Zoning Ordinance
- Town of Litchfield, Land Use Laws, 2022 Site Plan Regulations
- Town of Litchfield, Land Use Laws, 2015 Subdivision Regulations
- International Building Code and International Residential Code
- National Flood Insurance Program – The most recent Flood Insurance Study (FIS) Report for Litchfield, dated September 25, 2009 Volumes 1-5, can be found at the FEMA Flood Map Service Center.
- Nashua Regional Water Resiliency Action Plan— Climate change in southern New Hampshire will impact the environment, ecosystem services, economy, public health, and quality of life. According to a 2014 study by the Sustainability Institute at the University of NH, southern NH is expected to become warmer and wetter over the next century with more extreme precipitation events. This weather pattern puts significant stress on the region's already aging water infrastructure. Furthermore, climate change is likely to cause a number of public health impacts on NH's most vulnerable residents. Despite efforts taking place to slow the rate of climate change, some level of change is inevitable. Therefore, municipalities must make sound decisions to help their communities adapt to a new climate normal. The goal of the Nashua Region Water Resiliency Action Plan is to help municipalities become more resilient to the impacts that climate change has on their water infrastructure and vulnerable populations.

Emergency Management Capabilities

Hazard mitigation is a key component of emergency management, along with preparedness, response, and recovery. Opportunities to reduce potential losses through mitigation practices are typically implemented before a hazard event occurs, such as enforcement of policies to regulate development that is vulnerable to hazards due to its location or design. Existing emergency management capabilities for the Town of Litchfield include:

Emergency Management Plans

- Litchfield Hazard Mitigation Plan—this document provides a guide for the community to reduce the impact of natural hazards on its residents and the built environment. It addresses natural hazards in the Town, previous occurrences of these hazards, the probability of future hazard events, and the vulnerability of Litchfield's critical facilities to these hazards. The Hazard Mitigation Plan also identifies and prioritizes mitigation actions to reduce Litchfield's vulnerability to natural hazards.
- Litchfield Emergency Operations Plan—this document outlines responsibilities and the means by which resources are deployed during and following an emergency or disaster.
- Each Litchfield school has an emergency operations plan and a District-wide plan is currently in-progress

Emergency Management Departments, Facilities, Personnel, and Volunteers

- Litchfield Fire Department, Litchfield Police Department—these departments provide policies, programs, and resources related to hazard mitigation and emergency preparedness.
- Police Mutual Aid—the Litchfield Police Department participates in a county-wide mutual aid agreement.
- Fire Mutual Aid—the Litchfield Fire Department participates in Souhegan Mutual Fire Aid Association and Border Area Mutual Aid. Souhegan Mutual Fire Aid includes communities west of Litchfield. Border Area Mutual Aid includes communities east and south of Litchfield into MA. By participating in both of these, Litchfield can receive and provide mutual aid to approximately 40 communities from Peterborough to the west, Hooksett to the north, Chester to the east, and across the MA border to the south.
- Emergency Operations Center—located at the Fire Department (backup EOC at Town Hall); provides radio, computer, and phone support in conjunction with the State EOC for allocation of resources, equipment, and personnel during an emergency situation.

Emergency Management Communications

- Dispatch—primary dispatch is through Town of Hudson, NH. If needed, Litchfield can provide its own dispatch through its radios.
- Code Red—emergency alert system
- Blackboard system for school district notifications
- Litchfield Public Access Television—emergency management announcements
- Litchfield Municipal Website—emergency management announcements and education

Floodplain Management Capabilities

The Town of Litchfield participates in the National Flood Insurance Program (NFIP). This provides full insurance coverage based on risk as shown on detailed Flood Insurance Rate Maps (FIRMs). Litchfield joined the NFIP on July 16, 1979. As a participant in the NFIP, communities must agree to adopt a floodplain management ordinance and enforce the regulations found in the ordinance. Litchfield has adopted the "Floodplain Conservation District," found in Section 1100.00 of the Town of Litchfield, NH Zoning Ordinance. The Floodplain Conservation District was originally adopted in 1975 and was most recently amended in May 2009. The Floodplain Conservation District is enacted to ensure that

development on land within the District will not endanger the health, safety and welfare of the occupants of the land within the floodplain or the public during time of flood; to ensure that development will not result in increased flood levels during the base flood discharge; and to encourage the most appropriate use of land within the community. Additional information on the Floodplain Conservation District and Litchfield's participation in the NFIP can be found in Section 3.7 of this Plan.

Administrative and Technical Capabilities

Litchfield's ability to develop and implement mitigation projects, policies, and programs is closely related to the staff time and resources it allocates to that purpose. Administrative capability can be improved by coordinating across departments and integrating mitigation planning into existing Town procedures. The following departments, boards, and personnel are critical to Litchfield's hazard mitigation administrative and technical capabilities:

- Town Planner Circuit Rider, Planning Administrative Assistant, and Planning Board
- Building Inspector
- Fire Department
- Health Officer
- Road Agent
- Solid Waste
- Police Department
- Town Administrator
- Town Clerk
- Board of Selectmen
- Zoning Board of Adjustments
- Budget Committee
- School Department
- IT Department

Fiscal Capabilities

In addition to administrative and technical capabilities, the ability of the Town of Litchfield to implement mitigation actions is closely associated with the amount of money available for these projects. Mitigation actions identified in this Plan, including those that will appear in Table 12—Implementation and Administration, may utilize the following funding sources.

- Congestion Mitigation and Air Quality (CMAQ) Program—this program is administered by the Federal Highway Administration and was implemented to support surface transportation projects and related efforts that contribute to air quality improvements and provide congestion relief.
- FEMA Hazard Mitigation Grant Program—the Hazard Mitigation Grant Program provides grants to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the Program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.
- FEMA Pre-Disaster Mitigation Program—the Pre-Disaster Mitigation Program provides funds for hazard mitigation planning and the implementation of mitigation projects prior to a disaster.

- Community Development Block Grant Program—the Community Development Block Grant (CDBG) program, administered through the US Department of Housing and Urban Development, provides communities with resources to address a wide range of unique community development needs, including Disaster Recovery Assistance. HUD provides flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations.
- Unexpended Fund Balance—these funds could be used in the wake of a natural disaster.
- Unanticipated Road Repairs—Litchfield has a budget line item for unanticipated road repairs that could be used to repair damage resulting from a natural hazard.
- Culvert/bridge repair fund – Litchfield has a $10,000 budget line item for unanticipated bridge and/or culvert repairs. This has been funded with ARPA money.
- Planned Maintenance and Paving—Litchfield has a $200,000 budget line item for planned road maintenance and planning. These funds could be used for road repairs depending on when in the budget cycle a natural disaster struck.
- Litchfield Capital Improvements Plan— the Litchfield Capital Improvements Plan (CIP) links local infrastructure investments with long-term planning. As authorized by RSA 674:5-8 the CIP is the responsibility of the Planning Board or a formally appointed capital improvements program committee, to prepare and amend a recommended program of municipal capital improvements projected over a period of at least six years. The following funding methods may be used:
  - 1-Year Appropriation—most commonly used financing option and refers to those projects that are to be funded by property tax revenues within a single fiscal year. Funds for projects that are financed using this method are most often included in the Town's operating budget but can appear as warrant articles to be voted on individually.
  - Capital Reserve—a capital reserve account is a non-lapsing savings account, separate from the General Fund. Voters can deposit funds into with approval of a warrant article, with the intent of withdrawing the funds to use for the specific purpose or purchase for which the account was established. This method requires appropriations over more than one year, with the actual project being accomplished only when the total appropriations meet the project cost.
  - Lease Purchase—lease purchasing an item allows a municipality to spread the cost over a period of years, generally no more than 7. A municipal lease typically allows for Town ownership at the end of the lease term and usually enjoys lower tax-exempt interest rates. Unlike a bond or loan, a municipal lease has a "non-appropriation clause" that allows the town to cancel the lease if the annual payment is not appropriated. The town then loses the equipment that was financed.
  - Bonding—bonding allows the municipality to negotiate the purchase of goods or services at a set price and then pay for that item or service over a period of time. Bonds, unlike capital reserve accounts, allow the town to utilize the item being purchased or constructed while payments are being made. The most important part of a bond transaction is the promise of the town to repay the debt with interest. There are two major types of bonds: general obligation and special revenue. General Obligation Bonds typically have lower interest rates

than other types of long-term debt. Revenue Bonds rely on a set revenue source or sources as security for the bond.

- Impact fees—these fees are collected from new development to pay for new facility capacity. Money collected is placed in a fund until it is either expended within six years or returned to the party from whom it was collected.

Summary and Analysis of Litchfield's Existing Authorities, Policies, Programs, and Resources

Measures of Effectiveness are defined as follows:

- Excellent—the existing program works as intended and is exceeding its goals.
- Good—the existing program works as intended and meets its goals.
- Average—the existing program works as intended but could be improved to meet higher standards.
- Poor—the existing program does not work as intended, often falls short of its goals, and/or may present unintended consequences.

Capability	Description	Area of Town Covered	Responsible Entities	Effectiveness	Changes or Improvements Needed
Planning and Regulatory	Conservation Open Space Development, Floodplain Conservation District, Wetlands Conservation District, Aquifer Protection Ordinance, Master Plan, Zoning Ordinance, Site Plan Regulations, Subdivision Regulations, IBC, IRC, NFIP, Nashua Regional Water Resiliency Action Plan	Entire jurisdiction	Planning Board, Zoning Board, Circuit Rider Town Planner	Good	Ordinances should be reviewed on a regular basis to ensure they are consistent with goals outlined in the Master Plan and Hazard Mitigation Plan. Consider conducting a Town specific vulnerability assessment to improve local resiliency to climate change impacts.
Emergency Management	Plans; Departments, Facilities, Personnel, and Volunteers; Communications	Entire jurisdiction	Litchfield Fire Dept.; Litchfield Police Dept.; Litchfield Police Mutual Aid; Litchfield Fire Mutual Aid	Excellent	Utilize a variety of communications methods to ensure all residents are educated about emergency preparedness and hazard mitigation measures they can take.

Floodplain Management	Floodplain Ordinance, NFIP	Designated Flood Hazard Areas in Litchfield	Litchfield Planning Board	Good	Incorporate updated floodplains for Merrimack Watershed into municipal planning activities when they become available.
Administrative and Technical	Planning Dept., Building Inspector, Fire Department, Health Officer, Road Agent, Solid Waste, Police Department, Town Administrator, Board of Selectmen, ZBA, Budget Committee, School Dept., IT Dept.	Entire jurisdiction	Entities listed in Description	Good	Promote communication across all departments and committees to ensure Hazard Mitigation Plan goals and actions are implemented.
Fiscal	Grant funding, Litchfield annual budget, Capital Improvements Program (CIP)	Entire jurisdiction	Board of Selectmen, Budget Committee, Planning Board	Good	Hazard mitigation actions should be considered for inclusion in the CIP and departmental budgets. Litchfield's Hazard Mitigation Plan should be updated at least every 5 years to maintain eligibility for FEMA grants.

Section 1.5 ~ Review and Incorporation of Existing Documents

A number of existing documents were reviewed and incorporated into the Litchfield Hazard Mitigation Plan Update 2025. The Litchfield Zoning Ordinance was used to provide information on where and how the Town builds. This was particularly helpful when mapping critical facilities corridors (Section 3.3). The Litchfield Capital Improvements Plan was used to help document the Town's fiscal capabilities (Section 1.4). The Litchfield Master Plan provided insight on future development patterns (Section 2.1) and helped to inform the analysis and prioritization of mitigation actions (Section 4.3). The Litchfield Emergency Operations Plan was also used to inform the analysis and prioritization of mitigation actions. The State of New Hampshire Multi-Hazard Mitigation Plan Update 2013 provided insight when developing the description of natural hazards (Section 3.1), description of previous hazards (Section 3.2), probability of future hazards (Section 3.3), vulnerability by hazard (Section 3.5), and goals to reduce vulnerabilities (Section 4.1). The City of Nashua's Comprehensive Emergency Management Plan was referenced to write the hazard descriptions used to determine Litchfield's vulnerability by hazard (Section 3.5). Finally, the Nashua Regional Planning Commission's "Nashua Regional Water Resiliency

Action Plan" provided insight when developing the description of natural hazards (Section 3.1), probability of future hazards (Section 3.3), vulnerability by hazard (Section 3.5), and goals to reduce vulnerabilities (Section 4.1). It was used to inform the analysis and prioritization of mitigation actions (Section 4.3).

Section 1.6 ~ Updating the Plan

Plan Evaluation

In coordination with the Nashua Regional Planning Commission, the Litchfield Emergency Management Director will call meetings of all responsible town parties to review plan progress annually on the anniversary of plan adoption and as needed, based on occurrence of hazard events, and report outcomes to the Select Board. The public will be notified of these meetings in advance through a posting of the agenda at Town Hall. Responsible parties identified for specific mitigation actions will be asked to submit their reports in advance of the meeting. Meetings will entail the following actions:

- Review previous hazard events to discuss and evaluate major issues, effectiveness of current mitigation, and possible mitigation for future events.
- Assess how the mitigation strategies of the plan can be integrated with other Town plans and operational procedures, including the Zoning Bylaw and Emergency Management Plan.
- Review and evaluate progress toward implementation of the current mitigation plan based on reports from responsible parties.
- Amend current plan to improve mitigation practices.
- Meetings will involve evaluation and assessment of the plan, regarding its effectiveness at achieving the plan's goals, stated purpose, and priorities. The following questions will serve as the criteria that is used to evaluate and update the plan:

Plan Mission and Goal

- Is the Plan's stated goal and mission still accurate and up to date, reflecting any changes to local hazard mitigation activities?
- Are there any changes or improvements that can be made to the goal and mission?

Hazard Identification and Risk Assessment

- Have there been any new occurrences of hazard events since the plan was last reviewed? If so, these hazards should be incorporated into the Hazard Identification and Risk Assessment.
- Have any new occurrences of hazards varied from previous occurrences in terms of their extent or impact? If so, the stated impact, extent, probability of future occurrence, or overall assessment of risk and vulnerability should be edited to reflect these changes.
- Is there any new data available from local, state, or Federal sources about the impact of previous hazard events, or any new data for the probability of future occurrences? If so, this information should be incorporated into the plan?

Existing Mitigation Strategies

- Are the current strategies effectively mitigating the effect of any recent hazard events?
- Has there been any damage to property since the plan was last reviewed?

- How could the existing mitigation strategies be improved to reduce the impact from recent occurrences of hazards?

Proposed Mitigation Strategies

- What progress has been accomplished for each of the previously identified proposed mitigation strategies?
- How have any completed mitigation strategies reduced the Town's vulnerability and impact from hazards that have occurred since the strategy was completed? If not and if they have been tested, what changes need to make them more effective?
- Should the criteria for prioritizing the proposed strategies be altered in any way?
- Should the priority given to individual mitigation strategies be changed, based on any recent changes to financial and staffing resources, or recent hazard events?

Review of the Plan and Integration with Other Planning Documents

- Is the current process for reviewing the Hazard Mitigation Plan effective? How could it be improved?
- Are there any Town plans in the process of being updated that should have the content of this Hazard Mitigation Plan incorporated into them or integrated with other Town planning tools and operational procedures, including the zoning bylaw, the Comprehensive Emergency Management Plan, and the Capital Improvement Plan?

Following these discussions, it is anticipated that the planning team may decide to reassign the roles and responsibilities for implementing mitigation strategies to different town departments and/or revise the goals and objectives contained in the plan.

Plan Update

The Emergency Management Director will be responsible for a complete update of the Plan every five years and incorporating the results of Litchfield's plan monitoring and evaluation procedures. The next anticipated update of the plan is scheduled to begin in calendar-year 2028, with the goal of adoption in 2029. A first meeting, initiated by the EMD, is anticipated in June 2028. The plan update may begin earlier following a significant natural hazard event within the town and region, such as a federally declared disaster.

The public meetings of the hazard mitigation team shall be publicized through legal notices in local newspapers, posted fliers, and on the town and regional planning commission websites. Written and email comments shall be directed to the EMD. The updated plan will incorporate input from the public, other municipalities, and government agencies. The Board of Selectmen is responsible for approving the plan submission to FEMA and for adoption of the plan.

CHAPTER 2. CHANGES FROM PREVIOUS PLAN

Section 2.1 ~ Changes in Development

Since the 2018 Hazard Mitigation Plan, Litchfield has seen some changes in residential development patterns. Since the adoption of the Multifamily Residential Overlay District in 2015, Litchfield has seen numerous new multifamily developments. Litchfield is also seeing a major increase in the popularity of Accessory Dwelling Units and residential solar panels, and many single-family homes are changing to incorporate them. Conservation open space development has also started to become present in larger developments.

There have been no significant changes in commercial or industrial developmental patterns in Litchfield since the 2018 Hazard Mitigation Plan. There have also been no significant changes in residential development that have occurred in hazard prone areas that have increased Litchfield's vulnerability to hazards.

However, since the 2018 plan some infrastructure improvements have been made including culvert replacement on Brick Yard Drive and Albuquerque Avenue. These areas previously experienced minor flooding, and the new culverts have decreased Litchfield's overall vulnerability to flooding.

Section 2.2 ~ Progress on Local Mitigation Efforts

To assess progress on local mitigation efforts, the Hazard Mitigation Team reviewed the actions originally presented in the Litchfield Hazard Mitigation Plan 2018 and determined if they had been completed, deleted, or deferred. Progress on each action and its current priority level were also evaluated to determine if it should continue to be included in the mitigation actions identified in this Plan update.

Table 1—Status of Previous Actions

Mitigation Action	Status	Explanation
Review and update Building Codes, Floodplain Ordinance, and Zoning Regulations. Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquakes, flooding, severe wind, severe winter weather, and tornado. Consider adopting a local shoreline protection ordinance.	Deferred	This action was not completed over the span of the 2018 Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2025.
Work with Pennichuck to increase public awareness of methods to reduce water consumption during drought conditions. Utilize innovative outreach methods include Litchfield town website,	Deferred	This action was not completed over the span of the 2018 Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 202.

Mitigation Action	Status	Explanation
social media accounts, local cable, and the Nashua Telegraph and Union Leader.		
Create an inventory of all Town drainage systems to ensure that drainage systems installed by the Town are properly engineered.	Completed/Deleted	This action was completed over the course of the 2018 plan and will not be tracked in future hazard mitigation plans.
Conduct a feasibility study requiring overhead power lines be buried in all new developments. Continue to work with Eversource to harden electrical infrastructure, including trimming trees near power lines.	Completed/Deleted	This action was completed over the course of the 2018 plan and will not be tracked in future hazard mitigation plans.
Prepare, distribute, and make available NFIP, insurance, and building codes explanatory pamphlets or booklets by updating with current best practices and floodplain information.	Deferred	This action was not completed over the span of the 2018 Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2025.
Require surveyors to inspect foundations when creating As-built maps to determine if lowest floor is at or above Base Flood Elevation (BFE).	Completed/ Deleted	This action was completed over the course of the 2018 plan and will not be tracked in future hazard mitigation plans.
Require use of elevation certificates for new structures in the floodplain	Deferred	This action was not completed over the span of the 2018 Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2025.
Enhance local officials, builders, developers, local citizens, and other stakeholders' knowledge of how to read and interpret the FIRM by holding a series of workshops and information sessions.	Deleted	This is a mitigation action (Flooding, Property Protection). This action was not completed over the span of the 2018 Hazard Mitigation Plan and was deemed to no longer be a priority, so it will not be tracked in future hazard mitigation plans.
Tightly control burn permits and revoke when not properly and safely being utilized. Provide education on wildfire danger to residents when they apply for burn permits. Conduct education on campfire safety at schools. Post fire danger categories. Continue roadside mowing to reduce the likelihood of wildfires spreading and clear brush from around fire ponds.	Short Term	This action will be completed on an ongoing basis throughout the life of this Plan. As such, this action will continue to be tracked in the Hazard Mitigation Plan Update 2025.

Mitigation Action	Status	Explanation
Implement structural inspections of roofs and deploy trained maintenance personnel for roof snow-removal operations at critical facilities. Actively communicate with residents regarding snow loads through mechanisms such as Old Home Day, Code Red, community access TV, and posters in Town Hall to disseminate information.	Deleted	This mitigation action is no longer relevant. Municipal buildings all have pitched roofs now and Primex Insurance advises against municipal employees going on rooves.
Protect critical facilities and equipment from Lightning & Hail damage. Install lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities.	Short Term	This action will be completed on an ongoing basis throughout the life of this Plan. As such, this action will continue to be tracked in the Hazard Mitigation Plan Update 2025.
Protect vulnerable populations from the impacts of extreme temperatures by establishing cooling and warming stations at community centers. Develop targeted outreach methods, including notifying occupants of senior housing facilities.	Short Term	This action will be completed on an ongoing basis throughout the life of this Plan. As such, this action will continue to be tracked in the Hazard Mitigation Plan Update 2025.

Section 2.3 ~ Changes in Priorities

The following mitigation actions rose in priority level from the 2018 Plan to the 2025 Plan:

- No mitigation actions from the 2018 plan rose in priority.

The following mitigation actions dropped in priority level from the 2018 Plan to the 2025 Plan:

- Work with Pennichuck to increase awareness of methods to reduce water consumption.
- Require use of elevation certificates.
- Prepare, distribute, and make available NFIP, insurance, and building codes explanatory pamphlets or booklets.

The following mitigation actions were completed and/or deleted and will no longer be included in the 2025 Plan:

- Ensure drainage systems installed by the Town are properly engineered
- Conduct a feasibility study requiring overhead powerlines be buried in all new developments.

- Inspect foundations at time of completion before framing to determine if lowest floor is at or above Base Flood Elevation (BFE).
- Enhance local officials, builders, developers, local citizens, and other stakeholders' knowledge of how to read and interpret the FIRM.
- Implement structural inspections of roofs and deploy trained maintenance personnel for roof snow-removal operations at critical facilities. Actively communicate with residents regarding snow loads.

Table 2—Changes in Mitigation Priorities

2018 Mitigation Action	Current Status	Priority Level in 2018 Plan	Priority Level in 2025 Plan
Review and update Building Codes, Floodplain Ordinance, and Zoning Regulations. Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquake, flooding, severe wind, severe winter weather, and tornadoes. Consider adopting a local shoreline protection ordinance.	Deferred	STAPLEE Score = 14 Rank = 3 out of 12	STAPLEE Score = 14 Rank = 5 out of 13
Work with Pennichuck to increase public awareness of methods to reduce water consumption during drought conditions. Utilize innovative outreach methods include Litchfield town website, social media accounts, local cable, and the Nashua Telegraph and Union Leader.	Deferred	STAPLEE Score = 13 Rank = 4 out of 12	STAPLEE Score = 10 Rank = 9 out of 13
Prepare, distribute, and make available NFIP, insurance, and building codes explanatory pamphlets or booklets by updating with current best practices and floodplain information.	Deferred	STAPLEE Score = 2 Rank = 12 out of 12	STAPLEE Score = 4 Rank = 12 out of 13
Require use of elevation certificates	Deferred	STAPLEE Score = 13	STAPLEE Score = 2

2018 Mitigation Action	Current Status	Priority Level in 2018 Plan	Priority Level in 2025 Plan
for new structures in the floodplain.		Rank = 4 out of 12	Rank = 13 out of 13
Tightly control burn permits and revoke when not properly and safely being utilized. Provide education on wildfire danger to residents when they apply for burn permits. Conduct education on campfire safety at schools. Post fire danger categories. Continue roadside mowing to reduce the likelihood of wildfires spreading and clear brush from around fire ponds.	Short Term	STAPLEE Score = 7 Rank = 7 out of 12	STAPLEE Score = 7 Rank = 10 out of 13
Protect critical facilities and equipment from Lightning & Hail damage. Install lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities.	Short Term	STAPLEE Score = 15 Rank = 2 out of 12	STAPLEE Score = 16 Rank = 3 out of 13
Protect vulnerable populations from the impacts of extreme temperatures by establishing cooling and warming stations at community centers. Develop targeted outreach methods, including notifying	Short Term	STAPLEE Score = 19 Rank = 1 out of 12	STAPLEE Score = 17 Rank = 2 of 13

2018 Mitigation Action	Current Status	Priority Level in 2018 Plan	Priority Level in 2025 Plan
occupants of senior housing facilities.			

CHAPTER 3. HAZARD IDENTIFICATION AND RISK ASSESSMENT

Section 3.1 ~ Description of Natural Hazards

The Town of Litchfield is susceptible to a variety of natural hazards, which are outlined in Table 3. For each hazard type, the hazard location within the Town, extent, and impact are also noted. Extent refers to how bad the hazard can be; it is not the same as location. Examples of extent include potential wind speed, depth of flooding, and existing scientific scales (ex. Enhanced Fujita Tornado Damage Scale). Impact refers to damages or consequences resulting from the hazard.

Hazards Not Included in this Plan

The State of New Hampshire identifies Avalanches, Landslides, Solar Storms & Space Weather, Ice Jams, and Erosion as hazards in the State Multi-Hazard Mitigation Plan Update of 2023.

Landslides and avalanches have not been included in the Litchfield Hazard Mitigation Plan Update 2025. 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.[1] 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 can be comparable to a landslide; only with snow instead of earth.[2] Litchfield has relatively stable terrain and there have been no historic landslide or snow avalanche events in town. As such, the Hazard Mitigation Team did not feel it was necessary to include these hazards in this Plan.

The State of New Hampshire also identifies Solar Storms & Space Weather as hazards. As described by the State of NH Multi-Hazard Mitigation, the term space weather is relatively new and describes the dynamic conditions in the Earth's outer space environment, similar to how the terms "climate" and "weather" refer to the conditions in the Earth's lower atmosphere. Space weather includes any and all conditions and events on the sun, in the solar wind, in near-Earth space, and in our upper atmosphere that can affect space-borne and ground-based technological systems. Solar activity (solar storms) refers to solar flares, coronal mass ejections, high-speed solar wind, and energetic solar particles. Any of these events may occur for a few minutes to several hours, can affect Earth for days to weeks. All solar activity is driven by the solar magnetic field. A solar flare is an intense burst of radiation resulting from the release of sunspot magnetic energy, which can occur for minutes to hours. Solar prominence is a large, bright feature that extends outward from the sun's surfaces. A coronal mass ejection (CME) occurs when the outer solar atmosphere's magnetic field is closed, resulting in a confined atmosphere that suddenly explodes, releasing bubbles of gas and magnetic fields. The surface of the sun is hot electrified gas boiling up from the interior of the sun out into space- this is referred to as high-speed solar wind. Solar wind travels at 800,000 to 5 million miles per hour and carries mass the size of Utah's Great Salt Lake into space every second; however, solar wind is 1000 million times weaker than the winds that we experience on Earth.[3] There have been no documented occurrences of Solar Storms & Space weather

[1] State of New Hampshire Multi-Hazard Mitigation Plan Update 2023, page 236
[2] State of New Hampshire Multi-Hazard Mitigation Plan Update 2023, page 114
[3] State of New Hampshire Multi-Hazard Mitigation Plan Update 2023, page 255

impacting the Town, and the Litchfield Hazard Mitigation team did not have enough knowledge to determine if solar storms and space weather deserved to be recognized in this plan update as a hazard. The Town will re-evaluate the need to include additional hazards in this Plan during subsequent updates of the Plan.

Ice jams are described as "a backup of water into areas adjacent floodplain can occur when a river or stream is blocked by the build-up of ice. Ice in waterways forms naturally from the freezing of water during the winter months. Melt and/or storm water may then encounter these ice formations causing them to break up and move down the river. Ice may apply lateral and/or vertical force on structures and infrastructure. Moving ice and erosion may scour abutments and riverbanks, and ice may also create temporary dams. These dams may create flood hazard conditions where no flood hazard previously existed.[4] Ice jams were not considered independently of flooding in this plan.

Erosion, as defined by FEMA's National Flood Insurance Program, is the process of the gradual wearing away of land masses. In Brookline, erosion is largely due to riverine flooding. In this plan, erosion was not considered independently of flooding.

The Town will re-evaluate the need to include additional hazards to this plan during subsequent updates of the Plan.

Table 3—Natural Hazards in Jurisdiction

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
Climate Change	Entire jurisdiction.	See Hazard Extent descriptions for each hazard.	See Impact descriptions for each hazard.
Drought	Entire jurisdiction.	<u>NH DES Drought Management Plan</u> • Level 1—Alert • Level 2—Warning • Level 3—Emergency • Level 4—Disaster <u>US Drought Monitor</u> • D0—Abnormally Dry • D1—Moderate Drought • D2—Severe Drought • D3-Extreme Drought • D4—Exceptional Drought • S—Short term, typically less than 6 months • L—Long term, typically more than 6 months	<u>D0</u> • short term dryness slows planting and growth of crops. • some lingering water deficits • crops not fully recovered. <u>D1</u> • some damage to crops • streams, reservoirs, or wells low, some water shortages developing or imminent. • voluntary water-use restrictions requested. <u>D2</u> • crop losses likely.

[4] State of NH Multi-Hazard Mitigation Plan Update 2018, page 69

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
			• water shortages common • water restrictions imposed. <u>D3</u> • major crop losses • widespread water shortages or restrictions <u>D4</u> • Exceptional & widespread crop loss • Shortages of water in reservoirs, streams, & wells creating water emergencies <u>S</u> • impacts on agriculture <u>L</u> • impacts on hydrology & ecology
Earthquake	Entire jurisdiction.	<u>Richter Scale</u> • <3.4—detected only by seismometers. • >8—total damage, surface waves seen, objects thrown in air. For full definitions of Richter Scale, see Section 3.5 Vulnerability by Hazard	Structural damage or collapse of buildings. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, 911 communications, radio system. Loss of water for fire protection. Increased risk of fire (gas break). Risk to life, medical surge.
Extreme Temperatures	Entire jurisdiction.	Extreme heat—period of 3 consecutive days when air temperature reaches 90°F or higher on each day. Extreme cold— period of 3	Overburdened power systems may experience failures due to extreme heat. Shortages of heating fuel in

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
		consecutive days of minimum temperatures at or below 0°F.	extreme cold due to high demand. Medical surge. Loss of municipal water supply for drinking water and fire protection due to freezing temperatures.
Flooding	Floodplains cover approximately 10.2% of Litchfield—5.8% of Litchfield is located in 1% annual floodplain and 4.4% of Litchfield is located in the 0.2% annual floodplain. Areas prone to flooding include: • Olsen's Trailor Park See Section 3.5 for additional information on flood-prone areas.	FEMA flood probabilities: • 1% possibility per year • 0.2% possibility per year State of NH Dam Hazard Potential Classification system (for flooding resulting from dam/levee failure): • Class S—significant hazard • Class H—high hazard • Class L—low hazard • Class NM—non-menace For full definitions of Dam Hazard Classes, see Section 3.5 Vulnerability by Hazard	Water damage to structures and their contents. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, 911 communications, radio system. Environmental hazards resulting from damage. Isolation of neighborhoods resulting from flooding.
Lightning & Hail	Entire jurisdiction. Areas with large populations present outdoors and large open spaces are particularly vulnerable.	Lightning Activity Level: • Level 1 • Level 2 • Level 3 • Level 4 • Level 5 • Level 6 For full definitions of Lightning Activity Level, see Section 3.5 Vulnerability by Hazard	Smoke and fire damage to structures and property. Disruption to power lines, municipal communications, and 911 communications. Damage to critical electronic equipment. Injury or death to people involved in outdoor activity.

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
Severe Wind	Entire jurisdiction.	Saffir-Simpson Hurricane Wind Scale: • Category 1—sustained winds 74-95 mph • Category 2—sustained winds 96-110 mph • Category 3—sustained winds 111-129 mph • Category 4—sustained winds 130-156 mph • Category 5—sustained winds 157 mph or higher	Wind damage to structures and trees. Water damage to structures and their contents. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, 911 communications, radio system. Environmental hazards resulting from damage. Isolation of neighborhoods resulting from flooding. Water pressure, quality, and capacity issues impacting fire protection. Loss of natural resources.
Severe Winter Weather	Entire jurisdiction.	Depth of snow in a given time frame (ex. 2 or more inches per hour over a 12-hour period). Blizzard—violent snowstorm with minimum winds of 35 mph and visibility less than ¼ mile for 3 hours. Ground snow load factor. Ice Storm—Sperry-Piltz Ice Accumulation Index: • 0—little impact • 5—catastrophic damage to exposed utility systems For full definitions of Sperry-Plitz Ice Accumulation Index, see Section 3.5 Vulnerability by	Disruption to road network. Damage to trees municipal communications, and 911 communications. Structural damage to roofs/collapse. Increase in CO, other hazards.

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
		Hazard	
Tornado/Down burst	Entire jurisdiction.	Enhanced Fujita Tornado Damage Scale: • EF0—winds 65-85 mph • EF1—winds 86-110 mph • EF2—winds 111-135 mph • EF3—winds 136-165 mph • EF4—winds 166-200 mph • EF5—winds >200 mph	Wind damage to structures and trees. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, 911 communications, radio system. Environmental hazards resulting from damage. Medical surge. Loss of natural resources.
Wildfire	Areas particularly prone to wildfire include forested areas near residential development.	NWCG Fire Size Classification: • A—greater than 0 but less than or equal to 0.25 acres • B—0.26 to 9.9 acres • C—10.0 to 99.9 acres • D—100-299 acres • E—300 to 999 acres • F—1,000 to 4,999 acres • G—5,000 to 9,999 acres • H—10,000 to 49,999 acres • I—50,000 to 99,999 acres • J—100,000 to 499,999 acres • K—500,000 to 999,999 acres • L—1,000,000+ acres	Smoke and fire damage to structures in wild land/urban interface. Damage to habitat. Impacts to air quality. Impact to roadways. Loss of natural resources.
Infectious Diseases	Entire Jurisdiction. Vulnerable populations are especially at risk.	Center for Disease Control Disease Occurrence: • 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	Burden on healthcare facilities, medical surge. Risk to life.

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
		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.	

Section 3.2 ~ Probability of Future Hazard Events

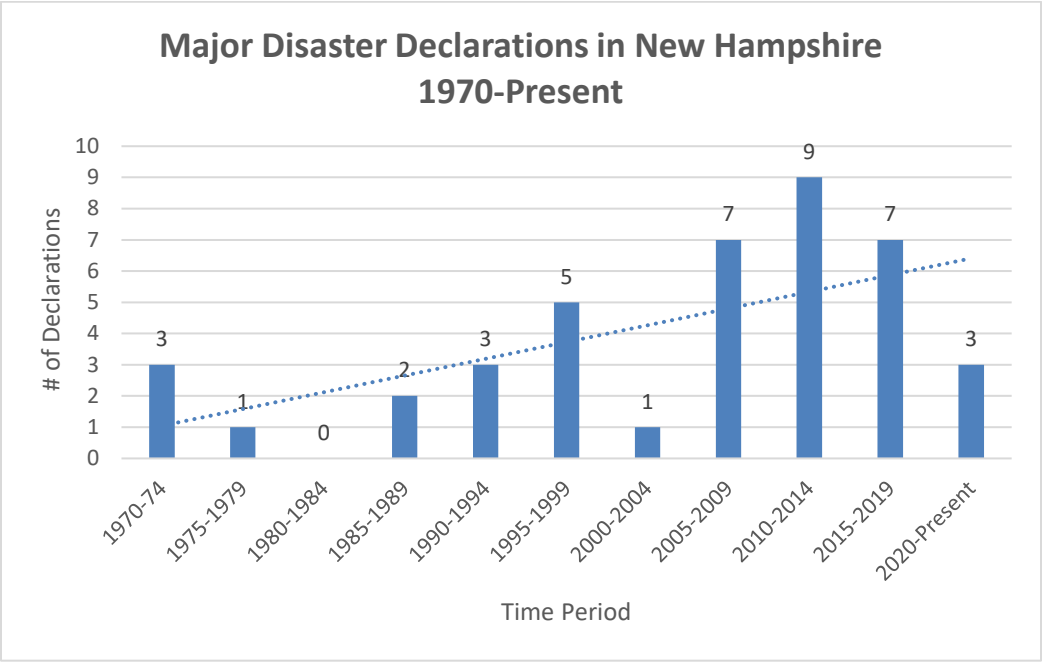
After documenting the occurrence of previous hazard events in the Town of Litchfield and the surrounding region, the Hazard Mitigation Team used this information to calculate the annual probability of these events occurring in the future. The first step was to determine how many times a particular hazard had occurred in a given number of years. The number of occurrences was then divided by the number of years to determine annual probability. For example, if history shows that a particular hazard typically occurs 1 time every 4 years, the annual probability is 25%. Because climate change is impacting how often future hazard events may occur, annual probability was calculated twice for each hazard. First, annual probability was calculated twice for each hazard. First, annual probability was calculated since the first recorded historic occurrence of the event. Second, annual probability was calculated based on occurrences since 2010 to reflect potential recent changes in hazard event occurrence rates. The probability of future hazard events for each hazard type in the Town of Litchfield is outlined in Table 4.

Hazard Probability and Climate Change

Climate change is not identified as a natural hazard in this plan; however, it does have an impact on weather patterns that influence hazards identified in this plan. FEMA acknowledges in the State Mitigation Plan Review Guide, that "the challenges posed by climate change, such as more intense storms, frequent heavy precipitation, heat waves, drought, extreme flooding, and higher sea levels, could significantly alter the types and magnitudes of hazards impacting states in the future[5]."

[5] State Mitigation Plan Review Guide, FEMA, Released March 2015, Effective March 2018, Section 3.2, page 13.

The Table below shows an overall increase in the frequency of Major Disaster Declarations in the state of New Hampshire, potentially an impact of climate change. Communities in New Hampshire are becoming more aware of the impacts of climate change on the local hazards already experienced, especially increased flooding events. Litchfield is anticipating an increase in natural hazard (Drought, Extreme Temperatures, Flooding, Lightning & Hail, Severe Wind, Severe Winter Weather, Tornado/Downburst, and Wildfire) probability and severity in the future.



Source: New Hampshire Department of Safety, Declared Disaster Information as of 3/13/2024. (https://www.nh.gov/safety/divisions/hsem/disaster/documents/NHDisasterInfo.pdf)

Municipal Impacts of Climate Change

Increased probability and severity of natural hazards can create a much larger impact on the critical facilities within a municipality, especially utility and transportation systems. Severe winter weather and severe wind events can result in long-term utility outages and create transportation impediments. The general population would also experience additional impacts with the increase of natural hazard probability and severity. More damage to critical facilities and municipal systems can result in extended periods of time without water, heating/cooling, and lack of access to basic services, which can be devastating to vulnerable populations.

Table 4—Probability of Future Hazard Events

Hazard Type	Probability of Future Event	Source
Climate Change—Drought	The frequency of short-term drought (1-3 months) in New Hampshire is predicted to increase 2-3 times in the long term (2070-2099) under the higher emissions	"Climate Change in Southern New Hampshire," Sustainability Institute, University of New Hampshire, 2014

Hazard Type	Probability of Future Event	Source
	scenario. The state will experience a more significant increase in medium-term drought (3-6 months) during this period. Short- and medium-term droughts are primarily caused by evapotranspiration as a result of hotter summers. The frequency of long-term drought (6 plus months) does not change significantly in the future under the low or high emissions scenario compared to past long-term drought events in New Hampshire (Wake et al., "Climate Change in Southern New Hampshire," pg. 30-31).	
Climate Change—Increased Precipitation	Annual average precipitation is predicted to increase 17-20% in southern New Hampshire by the end of the century under both the low and high emissions scenarios. Larger increases in precipitation are expected in the winter and spring, while summer and fall will only experience slight increases (Wake et al., "Climate Change in Southern New Hampshire," pg. 29). Southern New Hampshire can also expect more extreme precipitation events, defined as those where more than 1 inch of rain falls within 24 hours, or more than 2-4 inches falls in 48 hours. Under both low and high emissions scenarios, the frequency of extreme precipitation events in predicted to more than double by the end of the century (Wake et al., "Climate Change in Southern New Hampshire," pg. 29).	"Climate Change in Southern New Hampshire," Sustainability Institute, University of New Hampshire, 2014
Climate Change—Warmer Temperatures	Temperatures in southern New Hampshire will continue to rise under a lower or higher future emissions scenario. In the short-term (2010-2039), average annual temperatures are predicted to increase by approximately 2°F. Under a higher emissions scenario, long-term (2070-2099) average annual temperatures are predicted	"Climate Change in Southern New Hampshire," Sustainability Institute, University of New Hampshire, 2014

Hazard Type	Probability of Future Event	Source
	to increase by 8 to 9°F. If a lower emissions scenario is achieved, long-term average annual temperatures are predicted to increase by 4°F (Wake et al., "Climate Change in Southern New Hampshire," pg. 23). The region is also predicted to experience more extreme heat events. From 1970-1999, southern New Hampshire had an average of seven days above 90°F each year. In the long-term under a higher emissions scenario, southern New Hampshire is predicted to have over 54 days per year above 90°F. Under a lower emissions scenario, the region is predicted to have 23 days per year above 90°F in the long-term (Wake et al., "Climate Change in Southern New Hampshire," pg. 25).	
Drought	18 years of drought from 1960 through 2023. 18 events in 63 years = .29 events per year **Annual Probability = 29%** 7 years of drought from 2010 through 2023. 2 events in 13 years = .15 **Annual Probability = 15%**	NH DES Current Drought Conditions http://des.nh.gov/organization/divisions/water/dam/drought/drought-conditions.htm US Drought Monitor http://droughtmonitor.unl.edu/Home.aspx
Earthquake	History shows no known earthquakes centered in Litchfield. However, this hazard is still possible. 6 magnitude 5.0 or greater earthquakes felt in NH from 1929 through 2023. 6 events in 94 years = .06 events per year **Annual Probability = 6%**	US Geological Survey http://earthquake.usgs.gov/earthquakes/search/

Hazard Type	Probability of Future Event	Source
	2 magnitude 5.0 or greater earthquakes felt in NH from 2010 through 2023. 2 events in 13 years = .15 events per year **Annual Probability = 15%**	
Extreme Temperatures	28 extreme heat events from 2010 through 2023. 28 events in 13 years = 2.15 event per year **Annual Probability = 100%** 17 extreme cold events from 2010 through 2016. 17 events in 13 years = 1.31 event per year **Annual Probability = 100%**	NOAA National Climatic Data Center https://www.ncdc.noaa.gov/cdo-web/search
Flooding	14 flooding events in Hillsborough County from 1927 through 2023. 14 events in 96 years = .15 events per year **Annual Probability = 15%** 1 flooding events in Hillsborough County from 2010 through 2023. 1 event in 13 years = .08 events per year **Annual Probability = 8%**	Local knowledge FEMA Presidential Disaster Declaration https://www.fema.gov/disasters/grid/year
Severe Wind	11 hurricanes/tropical storms from 1938 through 2023. 8 events in 85 years = .13 events per year **Annual Probability = 13%** 5 hurricanes/tropical storms from 2010 through 2023.	Local knowledge FEMA Presidential Disaster Declaration https://www.fema.gov/disasters/grid/year National Hurricane Center http://www.nhc.noaa.gov/data/tcr/index.php?season=2014&basin=atl

Hazard Type	Probability of Future Event	Source
	5 events in 13 years = .38 events per year **Annual Probability = 38%**	
Lightning & Hail	2 lightning strike events from 2003 through 2023. 2 events in 20 years = 0.1 events per year **Annual Probability = 10%** 1 lightning strike event from 2010 through 2023. 1 event in 13 years = .08 events per year **Annual Probability = 8%**	Local knowledge and public input
Severe Winter Weather	21 severe winter weather events from 1888 through 2023. 21 events in 135 years = .16 events per year **Annual Probability = 16%** 4 severe winter weather events from 2010 through 2023. 4 events in 13 years = .31 events per year **Annual Probability = 31%**	Local knowledge FEMA Presidential Disaster Declaration https://www.fema.gov/disasters/grid/year
Tornado/Downburst	16 tornados and 1 downburst in Hillsborough Co. from 1961 through 2023. 17 events in 62 years = .27 events per year **Annual Probability = 27%** 0 tornados and 0 downbursts in Hillsborough Co. from 2010 through 2023.	Tornado History Project (Joshua Lietz, Storm Prediction Center, National Climatic Data Center) and public input http://www.tornadohistoryproject.com

Hazard Type	Probability of Future Event	Source
	0 events in 13 years = 0 events per year **Annual Probability = 0-25%**	
Wildfire	5 wildfire events from 2005 through 2023. 5 events in 18 years = .28 **Annual Probability = 28%** 3 wildfire events from 2010 through 2023. 3 events in 13 years = .23 events per year **Annual Probability = 23%**	Local knowledge and public input
Infectious Disease	Like the rest of the state, the Town of Litchfield experiences seasonal outbreaks that occur annually such as Influenza. There is a **100% annual probability** that Litchfield will continue to experience some extent of infectious disease.	Local knowledge NH DHHS Infectious Disease Control https://www.dhhs.nh.gov/programs-services/disease-prevention/infectious-disease-control

Section 3.3 ~ Critical Facilities and their Vulnerability

The next step in determining Litchfield's overall vulnerability was to inventory the Town's community assets and determine what assets would be affected by each type of hazard event. The Hazard Mitigation Team began by reviewing the Litchfield Zoning Ordinance to provide information on where and how the Town builds and to identify the corridors where critical facilities would likely be located. The Team then identified the broad categories of important assets within Litchfield, including critical facilities essential to health and welfare; vulnerable populations, such as children and the elderly; economic assets and major employers; areas of high-density residential and commercial development; and historic, cultural, and natural resources. The Team then further divided the Town's critical facilities into the following categories:

1. **General Occupancy**
    a. Commercial
    b. Education
    c. Government
    d. Recreation
    e. Religious
    f. Residential

2. **Essential Facilities**
    a. Fire Station
    b. Police Station
    c. Department of Public Works
    d. Schools
    e. Emergency Operations Centers
    f. Medical Care Facilities
3. **Transportation Systems**
    a. Highway Systems—Roads
    b. Highway Systems—Bridges
    c. Airport Systems
4. **Utility Systems**
    a. Communications
    b. Natural Gas
    c. Electric
    d. Water
5. **High Potential Hazard Facilities**
    a. Dams/Levees
6. **Hazardous Materials Facilities**
    a. EPA Toxics Release Inventory facilities (http://www2.epa.gov/toxics-release-inventory-tri-program)

The critical facilities within each category appear in Tables 5.1-5.6 below. Each table includes the critical facility's name, content vulnerability, and locational vulnerability to hazards. Note that Climate Change is not included as a hazard in this analysis because its effects on critical facilities are included under the hazards of Drought, Extreme Temperatures, and Flooding.

Table 5.1—General Occupancy Critical Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Commercial – Irwin Marine, 261 Derry Street	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Litchfield Technology Park, 480 Charles Bancroft Highway	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Wilson Farms of NH, 144 Charles Bancroft Highway	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – McQuesten Farm, 334 Charles Bancroft Highway	Contents valuable to local economy, in 100-year floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Commercial – Lobster Boat Plaza, 273 Derry Street	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Optimum Drywall, 12 Colby Road	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Mel's Funway Park and Restaurant, 454 Charles Bancroft Highway	Contents valuable to local economy, potentially large populations present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – DECO Incorporated, 278 Derry Street	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – 7-Eleven, 274 Derry Street	Contents valuable to local economy, in 100-year flood plain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Commercial – Nottingham Square Plaza, 225 Derry Road	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Romano's Pizza, 27 Colby Road	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Continental Paving, 493/499 Charles Bancroft Highway	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – DLB Paving Company, 55 Charles Bancroft Highway	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Commercial – New England Small Tube, 480 Charles Bancroft Highway	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Tim's Turf Farm, 15 Colby Road	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Bemister's Pool & Patio, 270 Derry Street	Contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Paul W. Golas D.M.D. Dentist, 262 Derry Road	Contents valuable to public health	✓	✓	✓		✓	✓	✓	✓	✓	✓
Education – The Gingerbread House, 273 Derry Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Government – Litchfield Town Hall, 2 Liberty Way	Large staff present, official records and documents, auxiliary power	✓	✓	✓		✓	✓	✓	✓	✓	✓
Government – Litchfield Meeting House, 255 Charles Bancroft Highway	Potentially large population present, historic records, and documents	✓	✓	✓		✓	✓	✓	✓	✓	✓
Government – Aaron Cutler Memorial Library, 269 Charles Bancroft Highway	Potentially large population present, official records, and documents, in 100-year floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Recreation – Passaconway Golf Course, 370 Charles Bancroft Highway	Potentially large population present, in 100-year floodplain	✓	✓	✓	✓	✓		✓	✓	✓	✓
Recreation – Hidden Creek Country Club, 17 Morgan Road	Potentially large population present	✓	✓	✓		✓		✓	✓	✓	✓
Recreation – Edward Roy Memorial Park, 4 Wood Hawk Way	Potentially large population present	✓	✓	✓		✓		✓	✓	✓	✓
Recreation – Brickyard Soccer Field, 13.5 Brick Yard Drive	Potentially large population present, in 100-year and 500-year floodplain	✓	✓	✓	✓	✓		✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Recreation – Parker Park, 210 Charles Bancroft Highway	Potentially large population present, in 100-year and 500-year floodplain	✓	✓	✓	✓	✓		✓	✓	✓	✓
Recreation – Town Ball Fields, 12 Brook Road	Potentially large population present	✓	✓	✓		✓		✓	✓	✓	✓
Recreation – Town Ball Fields, 13 Jeff Lane	Potentially large population present	✓	✓	✓		✓		✓	✓	✓	✓
Recreation – Sawmill Field, 2 Pearson Street	Potentially large population present	✓	✓	✓		✓		✓	✓	✓	✓
Recreation – Talent Hall, 2 Wood Hawk Way	Potentially large population present	✓	✓	✓		✓		✓	✓	✓	✓
Religious – Grace Free Presbyterian Church, 11 Colby Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious – Open Doors Christian Fellowship, 359 Charles Bancroft Highway	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious – Litchfield Community Church, 259 Charles Bancroft Highway	Potentially large population present, in 100-year floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Religious – Tabernacle Baptist Church and School, 242 Derry Street	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious – St. Francis of Assissi Parish and School, 9 St. Francis Way	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential – Carney Court multi-unit housing, 240 Charles Bancroft Highway	Large population present, contents have personal value to owners	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Residential – Calawa Court Apartments, 1 Calawa Circle	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential – Page Road Multi-family housing units	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Residential – Pagewood Oval Apartments, 6 Page Road	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential – Stonehenge Apartments, 15 Woodland Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential – Anandale Field's Senior Housing Units, 18 Jamesway Drive	Elderly population present, contents have personal value to owners	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Residential – Pinecreek Village Senior Housing Units, 6 Watts Landing	Elderly population present, contents have personal value to owners	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Residential – Heritage Park Senior Housing Units, 1 Candle Ridge Circle	Elderly population present, contents have personal value to owners	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Residential – Old Stage Road Senior Housing Units, 2 Old Stage Road	Elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential – Blossom Court Senior Housing Units, 46 Arbor Circle	Elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential – Canberra Village Senior Housing Units, 27 Dixon Drive	Elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential – Woodland Place Senior Housing Units, 2 Fernwood Drive	Elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential – Gilcrest Farms Senior Housing Units, 2 Sugar Hill Lane	Elderly population present, contents have personal value to owners	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Residential – Hillsborough I Mobile Home Park, 275 Derry Road	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential - Hillsborough II Mobile Home Park, 275 Derry Road	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential - Olsen's Mobile Home Park, 13 Charles Bancroft Highway	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓

Table 5.2—Essential Facilities

Facility Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Police Station – 2 Liberty Way	Contents and staff valuable to emergency management, generator	✓	✓	✓		✓	✓	✓	✓	✓	✓
Fire Station – 10 Liberty Way	Contents and staff valuable to emergency management, generator, in 500-year floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Public Works Department – 151 Hillcrest Road	Contents valuable to transportation network and public infrastructure	✓	✓	✓		✓	✓	✓	✓	✓	✓
Litchfield Recycling Facility - 2 Hillcrest Road	Contents have limited value	✓	✓	✓		✓	✓	✓	✓	✓	✓
Griffin Memorial Elementary School – 229 Charles Bancroft Highway	Potentially large population present (school day and after school program), shelter, in 500-year floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Litchfield Middle School – 19 McElwain Drive	Potentially large population present, shelter, in 500-year floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Campbell High School – 1 Highlander Court	Potentially large population present, shelter	✓	✓	✓		✓	✓	✓	✓	✓	✓

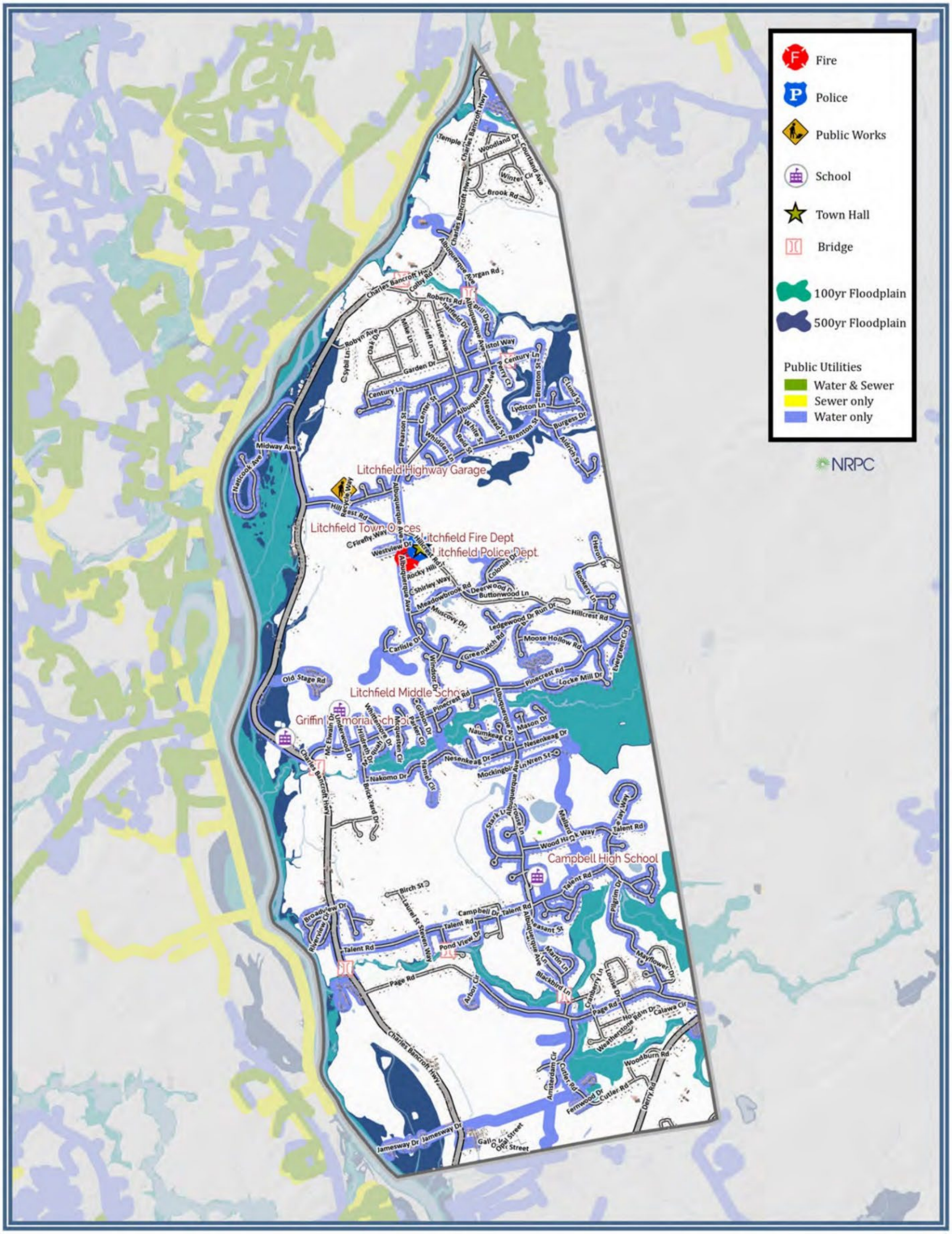

Fire
Police
Public Works
School
Town Hall
Bridge
100yr Floodplain
500yr Floodplain
Public Utilities
Water & Sewer
Sewer only
Water only
NRPC
Litchfield Highway Garage
Litchfield Town Offices
Litchfield Fire Dept
Litchfield Police Dept
Litchfield Middle School
Griffin Memorial School
Campbell High School

Table 5.3—Transportation Critical Facilities

Transportation infrastructure is particularly vulnerable to flooding hazards. Flooding events frequently cause culvert failures and undermine bridges and roads. Litchfield has a total of 82.7 road miles, of which 4.9 miles or 5.9% are located in the floodplain. The following table lists all the roadways and transportation infrastructure in Litchfield that are located in the floodplain.

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Sever Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Highway System – Charles Bancroft Highway	Structure valuable to motor vehicle travel and safety, portions located in 100 and 500-year floodplain		✓		✓	✓		✓	✓		
Highway System – Albuquerque Avenue	Structure valuable to motor vehicle travel and safety, portions located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Nesenkeag Drive	Structure valuable to motor vehicle travel and safety, portions located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System – Colby Road	Structure valuable to motor vehicle travel and safety, portions located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System – Marc Lane	Structure valuable to motor vehicle travel and safety, portions located in 100 and 500-year floodplain		✓		✓	✓		✓	✓		
Highway Systems – Cranberry Lane	Structure valuable to motor vehicle travel and safety, portions located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway Systems - Page Road	Structure valuable to motor vehicle travel and safety, portions located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway Systems – Cutler Road	Structure valuable to motor vehicle travel and safety, portions located in 100-year floodplain		✓		✓	✓		✓	✓		

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Sever Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Highway System – Derry Road (Route 102)	Structure valuable to motor vehicle travel and safety, portions located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System – Kiln Drive	Structure valuable to motor vehicle travel and safety, portions located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System – Parker Circle	Structure valuable to motor vehicle travel and safety, portions located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System – Jamesway Drive	Structure valuable to motor vehicle travel and safety, portions located in 500-year floodplain		✓		✓	✓		✓	✓		
Highway System – Naticook Avenue	Structure valuable to motor vehicle travel and safety, portions located in 100 and 500-year floodplain		✓		✓	✓		✓	✓		
Highway System – Midway Avenue	Structure valuable to motor vehicle travel and safety, portions located in 500-year floodplain		✓		✓	✓		✓	✓		
Highway System – Bristol Way	Structure valuable to motor vehicle travel and safety, portions located in 500-year floodplain		✓		✓	✓		✓	✓		
Highway System – Century Lane	Structure valuable to motor vehicle travel and safety, portions located in 500-year floodplain		✓		✓	✓		✓	✓		
Highway System – Brenton Street	Structure valuable to motor vehicle travel and safety, portions located in 500-year floodplain		✓		✓	✓		✓	✓		
Highway System – Aldrich Street	Structure valuable to motor vehicle travel and safety, portions located in 500-year floodplain		✓		✓	✓		✓	✓		

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Sever Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Highway System – Burgess Drive	Structure valuable to motor vehicle travel and safety, portions located in 500-year floodplain		✓		✓	✓		✓	✓		
Highway System – Waterview Circle	Structure valuable to motor vehicle travel and safety, portions located in 500-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Watts Brook and NH 3A	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Colby Brook and Albuquerque Ave.	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Colby Brook and Colby Rd.	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Colby Brook and NH 3A.	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Nesenkeag Brook and Albuquerque Ave.	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Nesenkeag Brook and Brickyard Drive	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Nesenkeag Brook and NH 3A	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Chase Brook and Pilgrim Drive	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Sever Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Highway System - Bridge/culvert at Chase Brook and Albuquerque Ave.	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Chase Brook and Marc Lane	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Chase Brook and NH 3A	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Tributary B and NH 102	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Tributary B and Page Rd.	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at Tributary B and Cranberry Lane	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		
Highway System - Bridge/culvert at NH 102	Structure valuable to motor vehicle travel and safety, located in 100-year floodplain		✓		✓	✓		✓	✓		

Table 5.4—Utility Systems

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Police Communications Antenna located at Police Station	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Police Communications Antenna located at Campbell High School	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Police Communications Antenna – located at police station, 2 Liberty Way	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Police Communications Antenna – located at Campbell Highschool, 1 Highlander Court	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Police Communications Antenna – located at Crown Atlantic Cell Tower, BL20 Morgan Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Police/Fire Communications Antenna – located at fire station, 255 Charles Bancroft Highway	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Police/Fire Communications Antenna – located at Continental Paving, 493/499 Charles Bancroft Highway	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Police/Fire Communications Antenna – located at 2 Woodhawk Way	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Police/Fire Communications Antenna – Located at water tower on Colonial Drive.	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Litchfield Cable TV Building – 255 Charles Bancroft Highway	Structure valuable to communications, located in 100-year floodplain		✓		✓	✓	✓	✓	✓	✓	

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Verizon New England Telephone Structure – 16 Talent Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Verizon New England Telephone Structure – 430 Charles Bancroft Highway	Structure valuable to communications, located in 100-year floodplain		✓		✓	✓	✓	✓	✓	✓	
Verizon New England Telephone Structure – 2 Pearson Street	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Crown Atlantic, LLC, Cellular Tower – BL20 Morgan Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
American Towers Inc. Cellular Tower – 242B Derry Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Liberty Utilities Pipeline – Runs from Manchester down Charles Bancroft Highway to Albuquerque Avenue	Structure valuable to natural gas supply, shallow lines, portions in 100-year and 500-year floodplain		✓		✓	✓	✓	✓	✓	✓	
500-gallon diesel fuel tank – located at Fire Station, 255 Charles Bancroft Highway	Structure valuable to energy supply, in 500-year floodplain		✓		✓	✓	✓	✓	✓	✓	
Three 10,000-gallon underground gasoline fuel tanks – located at 7-Eleven, 274 Derry Road	Structure valuable to energy supply, in 100-year floodplain		✓		✓	✓	✓	✓	✓	✓	
20,000-gallon underground diesel fuel storage tank – located at Litchfield Sand & Gravel, Continental Paving, 501 Charles Bancroft Highway	Structure valuable to energy supply		✓			✓	✓	✓	✓	✓	
10,000-gallon underground fuel oil tank – located at Griffin Memorial Elementary School, 229 Charles Bancroft Highway	Structure valuable to energy supply, in 500-year floodplain		✓			✓	✓	✓	✓	✓	

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Two 1,000-gallon diesel fuel tanks – located at the Public Works Department, 151 Hillcrest Road	Structure valuable to energy supply		✓			✓	✓	✓	✓	✓	
New England Power Company Transmission Lines – located off Lund Street (lots 19-100, 19-80)	Structure valuable to electric grid		✓			✓	✓	✓	✓	✓	
New England Power Company Transmission Lines – located off Century Lane (lot 19-189)	Structure valuable to electric grid		✓			✓	✓	✓	✓	✓	
New England Power Company Transmission Lines – 17 Morgan Road	Structure valuable to electric grid		✓		✓	✓	✓	✓	✓	✓	
New England Power Company Transmission Lines – 519 Charles Bancroft Highway	Structure valuable to electric grid		✓			✓	✓	✓	✓	✓	
New England Power Company Transmission Lines – 528 Charles Bancroft Highway	Structure valuable to electric grid		✓			✓	✓	✓	✓	✓	
New England Power Company Transmission Lines – 540 Charles Bancroft Highway	Structure valuable to electric grid		✓			✓	✓	✓	✓	✓	
Eversource Transmission Lines – Hudson town line east of Route 3A, north to 15-25, west and north branch to Merrimack River	Structure valuable to electric grid, located in 100-year floodplain		✓		✓	✓	✓	✓	✓	✓	
Water—65% of the population in Litchfield has public drinking water and 35% of the population has private well water.	Structures valuable to water supply	✓	✓		✓						
Pennichuck Water Works Water Tank – 8 Colonial Drive	Structure valuable to water supply	✓	✓								

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Pennichuck Water Works Public Water System – throughout jurisdiction	Structure valuable to water supply	✓	✓		✓						
Town of Hudson/Pennichuck Darrah Pond Wells Water Pumping Station – BL105 Wood Hawk Way	Structure valuable to water supply	✓	✓								
Town of Hudson/Pennichuck Weinstein Well Water Pumping Station – 74 Cutler Road	Structure valuable to water supply	✓	✓								

Table 6.5—High Potential Hazard Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Name—Little Nesenkeag Brook Dam Dam # D139001 Hazard Class—NM Water body—Little Nesenheag Brook Owner—Privately Owned	Structure valuable to flood control		✓		✓	✓		✓	✓		
Name—Fish Pond Dam Dam # D139002 Hazard Class—NM Water body— Unnamed Stream Owner—Privately Owned	Structure valuable to flood control		✓		✓	✓		✓	✓		

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Name—Sawmill Brook Dam Dam # D139004 Hazard Class—NM Water body—Nesenheag Brook Owner—Privately Owned	Structure valuable to flood control		✓		✓	✓		✓	✓		
Name—Recreation Pond Dam Dam # D139005 Hazard Class—NM Water body—Chase Brook Owner—Privately Owned	Structure valuable to flood control		✓		✓	✓		✓	✓		

Table 5.6—Hazardous Materials Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning & Hail	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
There are no Hazardous Materials Facilities in Litchfield as reported by the EPA Toxics Release Inventory Program.											

Climate Change

Climate change in southern New Hampshire will impact the environment, ecosystem services, economy, public health, and quality of life. According to a 2014 study by the Sustainability Institute at the University of NH, southern NH is expected to become warmer and wetter over the next century with more extreme precipitation events. This weather pattern puts significant stress on the region's already aging water infrastructure. Furthermore, climate change is likely to cause a number of public health impacts on NH's most vulnerable residents, including heat stress; flood related deaths and injuries; respiratory and cardiovascular illness, including asthma; allergies; vector, food, and water-borne disease; chronic disease; and mental health and stress-related disorders. Despite efforts taking place to slow the rate of climate change, some level of change is inevitable. Therefore, municipalities must make sound decisions to help their communities adapt to a new climate normal.

Temperatures in southern New Hampshire will continue to rise under a lower or higher future emissions scenario. In the short-term (2010-2039), average annual temperatures are predicted to increase by approximately 2◦F. Under a higher emissions scenario, long-term (2070-2099) average annual temperatures are predicted to increase by 8 to 9◦F. If a lower emissions scenario is achieved, long-term average annual temperatures are predicted to increase by 4◦F (Wake et al., "Climate Change in Southern New Hampshire," pg. 23). The region is also predicted to experience more extreme heat events. From 1970-1999, southern New Hampshire had an average of seven days above 90◦F each year. In the long-term under a higher emissions scenario, southern New Hampshire is predicted to have over 54 days per year above 90◦F. Under a lower emissions scenario, the region is predicted to have 23 days per year above 90◦F in the long-term (Wake et al., "Climate Change in Southern New Hampshire," pg. 25).

Annual average precipitation is predicted to increase 17-20% in southern New Hampshire by the end of the century under both the low and high emissions scenarios. Larger increases in precipitation are expected in the winter and spring, while summer and fall will only experience slight increases (Wake et al., "Climate Change in Southern New Hampshire," pg. 29). Southern New Hampshire can also expect more extreme precipitation events, defined as those where more than 1 inch of rain falls within 24 hours, or more than 2-4 inches falls in 48 hours. Under both low and high emissions scenarios, the frequency of extreme precipitation events in predicted to more than double by the end of the century (Wake et al., "Climate Change in Southern New Hampshire," pg. 29).

The frequency of short-term drought (1-3 months) in New Hampshire is predicted to increase 2-3 times in the long term (2070-2099) under the higher emissions scenario. The state will experience a more significant increase in medium-term drought (3-6 months) during this period. Short- and medium-term droughts are primarily caused by evapotranspiration as a result of hotter summers. The frequency of long-term drought (6 plus months) does not change significantly in the future under the low or high emissions scenario compared to past long-term drought events in New Hampshire (Wake et al., "Climate Change in Southern New Hampshire," pg. 30-31).

Climate Change Hazard Loss Estimate

Because the impacts of climate are wide ranging and have little historic data to draw from, it is beyond the scope of this Plan to estimate the dollar value of losses to the municipality resulting from climate change.

Some insights on the municipality's vulnerability to climate change may be gained by examining the results of the Nashua Region Water Vulnerability Assessment, conducted by the Nashua Regional Planning Commission in 2016. Based on the results of the vulnerability assessment, the Nashua Region is most vulnerable to threats related to warmer temperatures and threats that affect water supply.

Threats related to warmer temperatures are highly likely to occur, are broad ranging, have critical severity, and moderately effective mitigation options. In addition, while the region has experience with flooding (and drought to a smaller extent), the region has no experience with warming temperatures to provide historical guidance.

Threats that affect water supply are likely to occur, have moderate to critical severity, will likely affect between 10 and 50% of the region's population, and have moderately effective mitigation options. There are numerous threats in this category, and they have broad implications from public health and safety to agriculture and the economy.

It may also be helpful to review the Drought, Extreme Temperatures, and Flooding sections in this Plan for more insight on the municipality's vulnerability to climate change.

There have been no State disaster declarations since the last plan update.

Drought

Hydrological drought is evidenced by extended periods of negative departures from normal rainfall. New Hampshire has been under several drought warnings, including a drought emergency, since 1999. The most severe drought conditions occurred between 1960 and 1969; the event had a greater than 25-year recurrence interval. The southern New Hampshire region experienced a 100-year drought event from 1964 to 1965.

Southern New Hampshire also experienced a 50-year drought event beginning in the summer of 2016. In February of 2017, Litchfield was in a Long-term (L), Severe Drought (D2) conditions. As of May 30, 2023, Litchfield is no longer experiencing drought conditions.

Although drought is not likely to damage structures, low water levels can have a negative impact on existing and future home sites, especially those that depend on groundwater for water needs. Additionally, the dry conditions of a drought may lead to an increase wildfire risk. Drought can cause the most significant impact to agricultural land and assets.

The Litchfield Selectmen adopted an ordinance prohibiting any residential lawn watering, per RSA 41:11-d. It became effective on October 7, 2016, and remains in effect as of the writing of this Plan. The ordinance was adopted in response to the historic drought, which left some Litchfield residents experiencing water supply shortages.

Previous Occurrences of Drought

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
1960-1969	Entire jurisdiction	Long term drought—9 years of less than normal precipitation	Farms had minimal grass for grazing animals and poor crops. Wells went dry for 2 consecutive years in mid-1960s.
1999	Entire jurisdiction	Level 2—Warning. Drought warning issued on June 29, 1999.	Damage to crops. Low water levels in dug wells.
March 2002	Entire jurisdiction	Level 3—Emergency. First time Level 3 Drought Impact Level had been declared.	Damage to crops. Low water levels in dug wells.
2016	Entire jurisdiction	USDA D2 (Severe Drought)	Low water levels in wells. Pennichuck East Utility issued mandatory outdoor water use bans.
January-March 2017	Entire jurisdiction	USDA D2 (Severe Drought)	Damage to crops. Low water levels in dug wells.
April 2017	Entire jurisdiction	USDA D1 (Moderate Drought)	Low water levels in wells.
June-July 2018	Entire jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
September-October 2019	Entire jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
May 26-June 22 2020	Entire jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
June 23 - August, 2020	Entire jurisdiction	USDA D1 (Moderate Drought)	Low water levels in wells.
September - October 2020	Entire Jurisdiction	USDA D2 (Severe Drought)	Damage to crops. Low water levels in dug wells.
March 30 – April 12 2021	Entire Jurisdiction	USDA D0 (Abnormally Dry)	Low water levels in wells.
July 2022 – September 26, 2022	Entire Jurisdiction	USDA D1 (Moderate Drought). 90% of the county experienced D2 conditions throughout September. Some southern areas of the state experienced D3	Specialty crops ae impacted in both yield and fruit size. Warnings are issued on water use and outdoor burns, and possible poor air quality

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
		(extreme drought) conditions from mid to late August.	
October 2022	Entire Jurisdiction	USDA D0 (Abnormally Dry)	Low water levels in wells.

Drought Hazard Loss Estimate

Because the impacts of drought are long lasting and wide ranging, it is beyond the scope of this Plan to estimate the dollar value of losses to Litchfield resulting from drought. Instead, the Hazard Mitigation Team estimated the percentage of land in Litchfield vulnerable to drought and the percentage of the population vulnerable to drought as a quantitative measure of this hazard's impact.

Total Acres of Land in Litchfield	Total Acres of Agricultural Land in Litchfield	% of Land in Litchfield Vulnerable to Drought
9,795	963	9.83

% of population with Public Drinking Water in Litchfield	% of population with Private Well Water in Litchfield	Water Utility	Primary Water Source	Secondary Water Source
65%	35%	Pennichuck Water	Public Water	Private Wells

Critical Facility Type	Total Number of this type of Critical Facilities in Litchfield	Number of this type of Critical Facilities in Drought Hazard Area	Percentage of this type of Critical Facilities in Drought Hazard Area
General Occupancy	51	51	100%
Essential Facilities	7	7	100%
Transportation	35	0	0%
Utility System	33	5	15%
High Potential Hazard	4	0	0%
Hazardous Materials	0	0	0%

Earthquake

The Richter magnitude scale was developed by Charles F. Richter in 1935 to compare the size of earthquakes. The magnitude of an earthquake is calculated from the logarithm of the amplitude of waves recorded by seismographs.

- Magnitude <2.0—micro-earthquakes. Recorded by seismographs, but not felt or rarely felt by people. Several million occur annually worldwide on average.
- Magnitude 2.0-2.9—felt slightly by some people. No damage to buildings. Over 1 million occur annually worldwide on average.

- Magnitude 3.0-3.9—often felt by people but very rarely cause damage. Shaking of indoor objects can be noticeable. Over 100,000 occur annually worldwide on average.
- Magnitude 4.0-4.9—noticeable shaking of indoor objects and rattling noises. Felt by most people in affected area. Generally causes minimal to no damage. Moderate to significant damage is very unlikely. 10,000-15,000 occur annually worldwide on average.
- Magnitude 5.0-5.9—felt by everyone. Can cause damage of varying severity to poorly constructed buildings, and slight to no damage to all other buildings. Few, if any, casualties. 1,000-1,500 occur annually worldwide on average.
- Magnitude 6.0-6.9—felt up to hundreds of miles from epicenter. Strong to violent shaking in epicenter. Damage to many buildings in populated areas. Poorly designed structures have moderate to severe damage. Earthquake-resistant structures have slight to moderate damage. Damage can be caused far from epicenter. Death toll up to 25,000. 100-150 occur annually worldwide on average.
- Magnitude 7.0-7.9—felt in very large area. Damage to most buildings, including partial or complete collapse. Death tolls up to 250,000. 10-20 occur annually worldwide on average.
- Magnitude 8.0-8.9—felt in extremely large region. Major damage to buildings over large areas. Structures likely destroyed. Moderate to heavy damage to sturdy or earthquake-resistant buildings. Death tolls up to 1 million. 1 occurs annually worldwide on average.
- Magnitude 9.0< —damage and shaking extends to distant locations. Near or total destruction. Severe damage and collapse to all buildings. Permanent changes in ground topography. 1 occurs every 10-50 years worldwide on average.

Since 1940, there have been 14 earthquakes centered in NH with a magnitude of 3.0 or greater and only two earthquakes with a magnitude of 5.0 or greater. There have been no recorded earthquakes to-date centered in Litchfield; however, one could occur.

Previous Occurrences of Earthquakes

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
	There have been no earthquakes centered in Litchfield to date. Earthquakes noted below were centered in NH.	Earthquakes noted below had a magnitude of 2.5 or greater.	
December 20, 1940	Lake Ossipee, NH	Magnitude 5.5 on Richter Scale	No damage in Litchfield
December 24, 1940	Lake Ossipee, NH	Magnitude 5.5 on Richter Scale	No damage in Litchfield
December 4, 1963	Laconia, NH (43.6 latitude, -71.5 longitude)	Magnitude 3.7 on Richter Scale	No damage in Litchfield
June 28, 1981	Sanbornton, NH (43.56 latitude, -71.56 longitude)	Magnitude 3.0 on Richter Scale	No damage in Litchfield

January 19, 1982	Sanbornton, NH (43.5 latitude, -71.6 longitude)	Magnitude 4.7 on Richter Scale	No damage in Litchfield
October 25, 1986	Northfield, NH (43.399 latitude, -71.59 longitude)	Magnitude 3.9 on Richter Scale	No damage in Litchfield
October 20, 1988	Milan, NH (44.539 latitude, -71.158 longitude)	Magnitude 3.9 on Richter Scale	No damage in Litchfield
November 22, 1988	Milan, NH (44.557 latitude, -71.183 longitude)	Magnitude 3.2 on Richter Scale	No damage in Litchfield
April 6, 1989	Berlin, NH (44.511 latitude, -71.144 longitude)	Magnitude 3.5 on Richter Scale	No damage in Litchfield
October 6, 1992	Canterbury, NH (43.324 latitude, -71.578 longitude)	Magnitude 3.4 on Richter Scale	No damage in Litchfield
June 16, 1995	Lyman, NH (44.286 latitude, -71.915 longitude)	Magnitude 3.8 on Richter Scale	No damage in Litchfield
August 21, 1996	Bartlett, NH (44.184 latitude, -71.352 longitude)	Magnitude 3.8 on Richter Scale	No damage in Litchfield
January 27, 2000	Raymond, NH (43.00 latitude, -71.18 longitude)	Magnitude 3.0 on Richter Scale	No damage in Litchfield
September 26, 2010	Boscawen, NH (43.2915 latitude, -71.6568 longitude)	Magnitude 3.4 on Richter Scale	No damage in Litchfield
October 11, 2013	Contoocook, NH (43.255 latitude, -71.747 longitude)	Magnitude 2.6 on Richter Scale	No damage in Litchfield
March 21, 2016	Contoocook, NH (43.264 latitude, -71.767 longitude)	Magnitude 2.8 on Richter Scale	No damage in Litchfield
February 11, 2017	Bedford, NH (42.946°N latitude, 71.541°W longitude)	Magnitude 2.2 on Richter Scale	No damage in Litchfield
February 15, 2018	East Kingston, NH (42.921°N latitude, 71.011°W longitude)	Magnitude 2.7 on Richter Scale	No damage in Litchfield
February 4, 2022	Gorham, NH (44.386°N latitude, 71.175°W longitude)	Magnitude 2.9 on Richter Scale	No damage in Litchfield
April 25, 2023	Center Sandwich, NH (43.780°N 71.480°W)	Magnitude 2.9 on Richter Scale	No damage in Litchfield
	Earthquakes noted below were centered outside of		

	NH but were felt by NH municipalities.		
November 18, 1929	Grand Banks, Newfoundland	Magnitude 7.2 on Richter Scale	No damage in Litchfield
November 1, 1935	Timiskaming, Canada	Magnitude 6.25 on Richter Scale	No damage in Litchfield
June 15, 1973	Near Canadian/NH border	Magnitude 4.8 on Richter Scale	No damage in Litchfield
June 23, 2010	Buckingham, Quebec, Canada	Magnitude 5.0 on Richter Scale	No damage in Litchfield
August 23, 2011	Washington, DC	Magnitude 5.8 on Richter Scale	No damage in Litchfield
October 16, 2012	Hollis Center, ME	Magnitude 4.0 on Richter Scale	No damage in Litchfield
May 17, 2013	Shawville, Canada	Magnitude 5.1 on Richter Scale	No damage in Litchfield
November 11, 2017	Little Creek, DE	Magnitude 4.1 on Richter Scale	No damage in Litchfield
January 15, 2019	Ocean City, MD	Magnitude 4.6 on Richter Scale	No damage in Litchfield
November 8, 2020	Bliss Corner, MA	Magnitude 3.6 on Richter Scale	No damage in Litchfield

Earthquake Hazard Loss Estimate

Step 1. Determine potential earthquake strength in Litchfield.

- US Seismic Hazard, 2% in 50 years PGA is 0.2 to 0.3(g) in Litchfield
- *Source: USGS NH Seismic Map 2014*

Step 2. Determine percent building damage ratio to single family residence from PGA (g) 0.25 earthquake.

- Wood Frame Construction with Low general seismic design level = 4.6% building damage
- *Source: FEMA Identifying Hazards and Estimating Losses, pg. 4-17*

Step 3. Determine percent of structures in Litchfield that would be damaged by PGA (g) 0.25 earthquake.

- 1-5% of structures estimated to be damaged by earthquake.
- *Source: Litchfield Hazard Mitigation Team (no historical data on earthquake damage in Litchfield)*

Step 4. Determine total assessed value of structures in Litchfield.

- Total Assessed Value of all Structures in Litchfield = $689,611,000
- *Source: Litchfield Assessing Department (October 2023)*

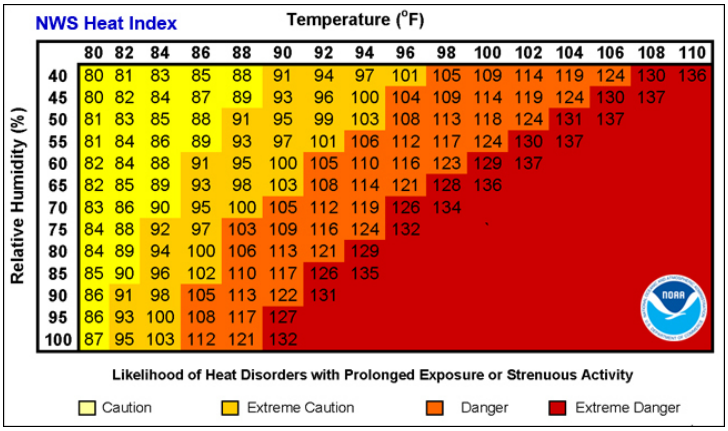
Step 5. Determine total loss from PGA (g) 0.25 Earthquake.

- Total Loss from Earthquake = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Earthquake = $689,611,000* .01* .046 = $317,221.06
- Total Loss from Earthquake = $689,611,000 * .05* .046 = $1,586,105.30
- **$317,221.06 to $1,586,105.30**

Critical Facility Type	Total Number of this type of Critical Facilities in Litchfield	Number of this type of Critical Facilities in Earthquake Hazard Area	Percentage of this type of Critical Facilities in Earthquake Hazard Area
General Occupancy	51	51	100%
Essential Facilities	7	7	100%
Transportation	35	35	100%
Utility System	33	33	100%
High Potential Hazard	4	4	100%
Hazardous Materials	0	0	0%

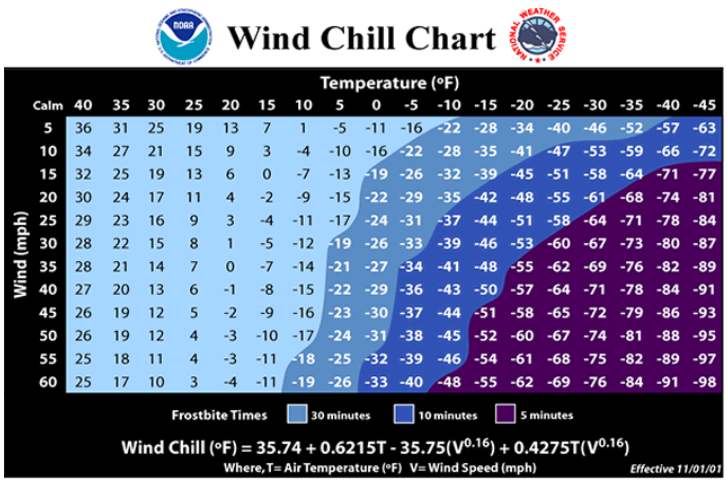
Extreme Temperatures

Extreme temperatures can be broken into both extreme heat and extreme cold. Though the hazards are different, the effects would be similar to vulnerable populations in Litchfield.



A heat wave can be defined as a prolonged period of excessive heat, often combined with excessive humidity. Heat kills by pushing the human body beyond its limits. The risk of heat-related illness increases as temperature and humidity levels rise. Extreme heat events can be defined as periods with temperatures of 90 degrees Fahrenheit or higher. Extreme heat should not be confused with a drought (extended periods of negative departures from normal rainfall). Overburdened power networks may experience failures due to the impacts of extreme heat. The National Weather Service (above) illustrates the probability of ehat disorders with prolonged exposure or strenuous activity.

Extreme cold is defined as an extended period where temperatures are at or below 0 degrees Fahrenheit. With the rising costs of heating fuel and electric heat, many low-income or homeless citizens are not able to adequately heat their homes, exposing themselves to cold related emergencies or death. Extremely cold winters can lead to shortages in heating fuels due to high demand. The National Weather Service Windchill Chart (right) depicts the dangers of freezing temperatures and winds.



Previous Occurrences of Extreme Temperatures

Hazard	Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
Extreme Temperature (Cold)	January 16-20, 2000	Entire jurisdiction	5 consecutive days of minimum temperatures at or below 0°F: • 1/16/00: -3°F • 1/17/00: -2°F • 1/18/00: -5°F • 1/19/00: -6°F • 1/20/00: -4°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 28-30, 2000	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 1/28/00: -6°F • 1/29/00: -2°F • 1/30/00: -4°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 18-20, 2003	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 1/18/00: -9°F • 1/19/00: -11°F • 1/20/00: -11°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 28-31, 2003	Entire jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 1/28/03: -9°F • 1/29/03: -5°F • 1/30/03: -0°F • 1/31/03: -0°F	No known impact in Litchfield

Extreme Temperature (Cold)	February 13-17, 2003	Entire jurisdiction	5 consecutive days of minimum temperatures at or below 0°F: • 2/13/03: -3°F • 2/14/03: -11°F • 2/15/03: -10°F • 2/16/03: -7°F • 2/17/03: -2°F	No known impact in Litchfield
Extreme Temperature (Cold)	February 26-28, 2003	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 2/26/03: -4°F • 2/27/03: -6°F • 2/28/03: -1°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 9-12, 2004	Entire jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 1/9/04: -7°F • 1/10/04: -8°F • 1/11/04: -8°F • 1/12/04: -7°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 14-17, 2004	Entire jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 1/14/04: -10°F • 1/15/04: -10°F • 1/16/04: -12°F • 1/17/04: -9°F	Wind chills of -30°F, 6 fatalities in NH
Extreme Temperature (Cold)	January 24-27, 2004	Entire jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 1/24/04: -4°F • 1/25/04: -6°F • 1/26/04: -6°F • 1/27/04: -0°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 18-25, 2005	Entire jurisdiction	8 consecutive days of minimum temperatures at or below 0°F: • 1/18/05: 0°F • 1/19/05: -8°F • 1/20/05: -3°F • 1/21/05: -5°F • 1/22/05: -12°F • 1/23/05: -9°F • 1/24/05: 0°F	No known impact in Litchfield

			• 1/25/05: -1°F	
Extreme Temperature (Cold)	January 28-30, 2005	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 2/28/05: -1°F • 2/29/05: -7°F • 2/30/05: -5°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 16-18, 2009	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 1/16/09: -16°F • 1/17/09: -16°F • 1/18/09: -9°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 25-27, 2009	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 1/25/09: -7°F • 1/26/09: -7°F • 1/27/09: -5°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 15-18, 2011	Entire jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 1/15/11: -6°F • 1/16/11: -5°F • 1/17/11: 0°F • 1/18/11: -2°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 23-27, 2011	Entire jurisdiction	5 consecutive days of minimum temperatures at or below 0°F: • 1/23/05: -5°F • 1/24/05: -10°F • 1/25/05: -9°F • 1/26/05: -3°F • 1/27/05: -2°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 15-17, 2012	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 1/15/12: -2°F • 1/16/12: -2°F • 1/17/12: 0°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 3-5, 2014	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 1/3/14: 0°F	No known impact in Litchfield

			• 1/4/14: -16°F • 1/5/14: -14°F	
Extreme Temperature (Cold)	January 23-25, 2014	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 1/23/14: -1°F • 1/24/14: -6°F • 1/25/14: 0°F	No known impact in Litchfield
Extreme Temperature (Cold)	February 7-9, 2014	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 2/7/14: -7°F • 2/8/14: -7°F • 2/9/14: -2°F	No known impact in Litchfield
Extreme Temperature (Cold)	February 11-13, 2014	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 2/11/14: -10°F • 2/12/14: -10°F • 2/13/14: -9°F	No known impact in Litchfield
Extreme Temperature (Cold)	March 4-8, 2014	Entire jurisdiction	5 consecutive days of minimum temperatures at or below 0°F: • 3/4/14: -5°F • 3/5/14: -4°F • 3/6/14: -4°F • 3/7/14: -6°F • 3/8/14: -4°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 8-12, 2015	Entire jurisdiction	5 consecutive days of minimum temperatures at or below 0°F: • 1/8/15: -7°F • 1/9/15: -7°F • 1/10/15: -2°F • 1/11/15: -3°F • 1/12/15: 0°F	No known impact in Litchfield
Extreme Temperature (Cold)	February 1-4, 2015	Entire jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 2/1/15: -8°F • 2/2/15: -8°F • 2/3/15: -5°F • 2/4/15: -8°F	No known impact in Litchfield
Extreme Temperature (Cold)	February 14-19, 2015	Entire jurisdiction	6 consecutive days of minimum	No known impact in Litchfield

			temperatures at or below 0°F: • 2/14/15: -13°F • 2/15/15: -7°F • 2/16/15: -6°F • 2/17/15: -4°F • 2/18/15: -5°F • 1/19/15: -5°F	
Extreme Temperature (Cold)	February 28-March 4, 2015	Entire jurisdiction	5 consecutive days of minimum temperatures at or below 0°F: • 2/28/15: -11°F • 3/1/15: -11°F • 3/2/15: 0°F • 3/3/15: -1°F • 3/4/15: 0°F	No known impact in Litchfield
Extreme Temperature (Cold)	February 12-16, 2016	Entire jurisdiction	5 consecutive days of minimum temperatures at or below 0°F: • 2/12/16: -7°F • 2/13/16: -7°F • 2/14/16: -13°F • 2/15/16: -13°F • 2/16/16: -12°F	No known impact in Litchfield
Extreme Temperature (Cold)	December 28-31, 2017	Entire Jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 12/28/17: -7°F • 12/29/17: -9°F • 12/30/17: -6°F • 12/31/17: -11°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 1-3, 2018	Entire Jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 1/1/18: -5°F • 1/2/18: -14°F • 1/3/18: -13°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 31-February 3, 2019	Entire Jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 1/31/19: -2°F • 2/1/19: -5°F • 2/2/19: -5°F • 2/3/19: -1°F	No known impact in Litchfield
Extreme Temperature (Cold)	January 15-17, 2022	Entire Jurisdiction	3 consecutive days of minimum temperatures at or	No known impact in Litchfield

			below 0°F: • 1/15/22: -2°F • 1/16/22: -6°F • 1/17/22: 0°F	
Extreme Temperature (Heat)	May 3-5, 2001	Entire jurisdiction*	3 consecutive days of temperatures above 90°F: • 5/3/01—93°F • 5/4/01—92°F • 5/5/01—92°F	No known impact in Litchfield
Extreme Temperature (Heat)	June 15-17, 2001	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 6/15/01—92°F • 6/16/01—95°F • 6/17/01—91°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 22-26, 2001	Entire jurisdiction	5 consecutive days of temperatures above 90°F: • 7/22/01—90°F • 7/23/01—90°F • 7/24/01—92°F • 7/25/01—95°F • 7/26/01—93°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 7-10, 2001	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 8/7/01—94°F • 8/8/01—97°F • 8/9/01—96°F • 8/10/01—100°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 2-5, 2002	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 7/2/02—90°F • 7/3/02—95°F • 7/4/02—98°F • 7/5/02—97°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 30-August 2, 2002	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 7/30/02—90°F • 7/31/02—91°F • 8/1/02—91°F • 8/2/02—93°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 13-20, 2002	Entire jurisdiction	8 consecutive days of temperatures above 90°F: • 8/13/02—94°F • 8/14/02—96°F	No known impact in Litchfield

			• 8/15/02—98°F • 8/16/02—95°F • 8/17/02—94°F • 8/18/02—92°F • 8/19/02—94°F • 8/20/02—92°F	
Extreme Temperature (Heat)	June 25-28, 2003	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 6/25/03—90°F • 6/26/03—93°F • 6/27/03—92°F • 6/28/03—92°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 5-7, 2003	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 7/5/03—91°F • 7/6/03—90°F • 7/7/03—91°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 17-19, 2006	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 7/17/06—90°F • 7/18/06—93°F • 7/19/06—94°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 2-4, 2006	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 8/2/06—96°F • 8/3/06—97°F • 8/4/06—92°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 16-20, 2006	Entire jurisdiction	5 consecutive days of temperatures above 90°F: • 8/16/09—90°F • 8/17/09—90°F • 8/19/09—91°F • 8/19/09—93°F • 8/20/09—90°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 4-10, 2010	Entire jurisdiction	7 consecutive days of temperatures above 90°F: • 7/4/10—90°F • 7/5/10—90°F • 7/6/10—97°F • 7/7/10—98°F • 7/8/10—97°F • 7/9/10—92°F • 7/10/10—92°F	No known impact in Litchfield

Extreme Temperature (Heat)	July 17-20, 2010	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 7/17/10—93°F • 7/18/10—93°F • 7/19/10—93°F • 7/20/10—90°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 30-Sept. 3, 2010	Entire jurisdiction	5 consecutive days of temperatures above 90°F: • 8/30/10—92°F • 8/31/10—91°F • 9/1/10—94°F • 9/2/10—95°F • 9/3/10—96°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 21-24, 2011	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 7/21/11—92°F • 7/22/11—96°F • 7/23/11—101°F • 7/24/11—96°F	No known impact in Litchfield
Extreme Temperature (Heat)	June 21-23, 2012	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 6/21/12—96°F • 6/22/12—94°F • 6/23/12—93°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 13-16, 2012	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 7/13/12—92°F • 7/14/12—92°F • 7/15/12—93°F • 7/16/12—91°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 3-6, 2012	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 8/3/12—91°F • 8/4/12—94°F • 8/5/12—95°F • 8/6/12—93°F	No known impact in Litchfield
Extreme Temperature (Heat)	June 1-3, 2013	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 6/1/13—93°F • 6/2/13—92°F • 6/3/13—91°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 16-21, 2013	Entire jurisdiction	6 consecutive days of temperatures above 90°F:	No known impact in Litchfield

			• 7/16/13—90°F • 7/17/13—91°F • 7/18/13—93°F • 7/19/13—93°F • 7/20/13—96°F • 7/21/13—91°F	
Extreme Temperature (Heat)	July 29-31, 2015	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 7/29/15—90°F • 7/30/15—93°F • 7/31/15—90°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 29-31, 2015	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 7/29/15—90°F • 7/30/15—93°F • 7/31/15—90°F	No known impact in Litchfield
Extreme Temperature (Heat)	September 8-10, 2015	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 9/8/15—93°F • 9/9/15—93°F • 9/10/15—94°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 23-29, 2016	Entire jurisdiction	7 consecutive days of temperatures above 90°F: • 7/23/16—96°F • 7/24/16—95°F • 7/25/16—90°F • 7/26/16 – 95°F • 7/27/16 – 93°F • 7/28/16 – 94°F • 7/29/16 – 93°F	No known impact in Litchfield
Extreme Temperature (Heat)	June 12-14, 2017	Entire Jurisdiction	3 consecutive days of temperatures above 90°F: • 6/12/17—94°F • 6/13/17—98°F • 6/14/17—96°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 20-22, 2017	Entire Jurisdiction	3 consecutive days of temperatures above 90°F : • 7/20/17—93°F • 7/21/17—94°F • 7/22/17—92°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 1-4, 2017	Entire Jurisdiction	4 consecutive days of temperatures above 90°F: • 8/1/17—90°F	No known impact in Litchfield

			• 8/2/17—92°F • 8/3/17—91°F • 8/4/17—90°F	
Extreme Temperature (Heat)	September 25-28, 2017	Entire Jurisdiction	4 consecutive days of temperatures above 90°F: • 9/25/17—93°F • 9/26/17—91°F • 9/27/17—90°F • 9/28/17—91°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 1-7, 2018	Entire Jurisdiction	7 consecutive days of temperatures above 90°F: • 7/1/18—91°F • 7/2/18—95°F • 7/3/18—92°F • 7/4/18—95°F • 7/5/18—92°F • 7/6/18—92°F • 7/7/18—92°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 29-31, 2018	Entire Jurisdiction	3 consecutive days of temperatures above 90°F: • 8/29/18—92°F • 8/30/18—93°F • 8/31/18—93°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 20-22, 2019	Entire Jurisdiction	3 consecutive days of temperatures above 90°F: • 7/20/19—91°F • 7/21/19—95°F • 7/22/19—93°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 10-13, 2020	Entire Jurisdiction	4 consecutive days of temperatures above 90°F: • 8/10/20—91°F • 8/11/20—95°F • 8/12/20—93°F • 8/13/20—93°F	No known impact in Litchfield
Extreme Temperature (Heat)	June 5-9, 2021	Entire Jurisdiction	4 consecutive days of temperatures above 90°F: • 6/5/21—92°F • 6/6/21—93°F • 6/7/21—94°F • 6/9/21—95°F	No known impact in Litchfield
Extreme Temperature (Heat)	June 27-30, 2021	Entire Jurisdiction	4 consecutive days of temperatures above 90°F: • 6/27/21—91°F • 6/28/21—96°F • 6/29/21—97°F	No known impact in Litchfield

			• 6/30/21—96°F	
Extreme Temperature (Heat)	August 11-14, 2021	Entire Jurisdiction	3 consecutive days of temperatures above 90°F: • 7/11/21—92°F • 7/12/21—94°F • 7/13/21—93°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 24-27, 2021	Entire Jurisdiction	4 consecutive days of temperatures above 90°F: • 7/24/21—92°F • 7/25/21—92°F • 7/26/21—95°F • 7/27/21—91°F	No known impact in Litchfield
Extreme Temperature (Heat)	July 19-24, 2022	Entire Jurisdiction	6 consecutive days of temperatures above 90°F: • 7/19/22—92°F • 7/20/22—96°F • 7/21/22—95°F • 7/22/22—92°F • 7/23/22—95°F • 7/24/22—97°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 3-10, 2022	Entire Jurisdiction	8 consecutive days of temperatures above 90°F: • 8/3/22—90°F • 8/4/22—92°F • 8/5/22—99°F • 8/6/22—92°F • 8/7/22—96°F • 8/8/22—97°F • 8/9/22—98°F • 8/10/22—93°F	No known impact in Litchfield
Extreme Temperature (Heat)	August 20-22, 2022	Entire Jurisdiction	3 consecutive days of temperatures above 90°F: • 8/20/22—91°F • 8/21/22—96°F • 8/22/22—91°F	No known impact in Litchfield

**NOAA does not have a full history of temperature data for the Town of Litchfield, NH. Extreme Temperature data is based on readings from NOAA weather station in Nashua, NH.*

Extreme Temperatures Hazard Loss Estimate

Because the impacts of extreme temperatures can result in the loss of life, it is beyond the scope of this Plan to estimate the dollar value of losses to Litchfield resulting from extreme temperatures. Though the entire Litchfield population may experience a thermal emergency, populations without adequate climate control are most at risk. Extreme temperatures are not likely to cause damage to structures, although pipes can burst in extreme cold conditions.

Flooding

Localized Flooding

Localized flooding can result from even minor storms. Runoff overloads the drainage ways and flows into the streets and low-lying areas. Homes and businesses can be inundated, especially basements and the lower part of first floors. Localized flooding poses most of the same problems caused by larger floods, but because it typically has an impact on fewer people and affects small areas, it tends to bring less State or Federal involvement such as funding, technical help, or disaster assistance. As a result, the community and the affected residents or business owners are left to cope with the problems on their own. Finally, flooding of this type tends to recur; small impacts accumulated over time can become major problems.

Riverine Flooding

Riverine flooding involves the overflowing of normal flood channels, rivers or streams, generally as a result of prolonged rainfall or rapid thawing of snow cover. The lateral spread of floodwater is largely a function of the terrain, becoming greater in wide, flat areas, and affecting narrower areas in steep terrain. In the latter cases, riparian hillsides in combination with steep declines in riverbed elevation often force waters downstream rapidly, sometimes resulting in flash floods.

Floodplains cover approximately 18.7% of Litchfield; 16.7% of Litchfield is located in 1% annual floodplain and 2.0% of Litchfield is located in the 0.2% annual floodplain. There are over 35 miles of perennial streams in Litchfield and four major brooks that flow through Town, including Beaver Brook, Golden Brook, Little Island Pond Brook, and Gumpas Pond Brook.

Dam Failure

The NH Department of Environmental Services indicates several failure modes for dams. Most typical include hydraulic failure or the uncontrolled overflowing of water, seepage, or leaking at the dam's foundation or gate; structural failure or rupture; general deterioration; and gate inoperability. These modes vary between dams depending on their construction type.

The State of New Hampshire uses a hazard potential classification to define the extent of a dam breach or failure. All class S (Significant) and H (High hazard) dams have the potential to cause damage if they breach or fail.

Class H—high hazard: dam that has a high hazard potential because it is in a location and of a size that failure or mis operation of the dam would result in probably loss of human life as a result of: water levels and velocities causing the structural failure of a foundation of a habitable residential structure or commercial or industrial structure that is occupied under normal conditions; water levels rising above 1st floor elevation of a habitable residential structure or a commercial or industrial structure that is occupied under normal conditions when the rise due to dam failure is greater than 1 foot; structural damage to an interstate highway, which could render the roadway impassible or otherwise interrupt public safety services; release of a quantity and concentration of material that qualify as “hazardous waste” under RSA 147-A:2 VII; any other circumstance that would more likely than not cause one or more deaths.

Class S—significant hazard: dam has a significant hazard potential because it is in a location and of a size that failure or mis operation of the dam would result in any of the following: no probably loss of lives; major economic loss to structures or property; structural damage to a Class I or Class II road that would render the road impassable or otherwise interrupt public safety services; major environmental or public health losses.

Class L—low hazard: dam has a low hazard potential because it is in a location and of a size that failure or mis operation of the dam would result in any of the following: no possible loss of life; low economic loss to structures or property; structural damage to a town or city road or private road accessing property other than the dam owner's that could render the road impassible or otherwise interrupt public safety service; the release of liquid industrial, agricultural, or commercial wastes, septage, or contaminated sediment if the storage capacity is less than 2 acre-feet and is located more than 250 feet from a water body or water course; reversible environmental losses to environmentally-sensitive sites.

Class NM—non-menace: dam that is not a menace because it is in a location and of a size that failure or mis operation of the dam would not result in probable loss of life or loss to property, provided the dam is less than 6 feet in height it if has a storage capacity greater than 50 acre-feet; or less than 25 feet in height if it has a storage capacity of 15-50 acre-feet.

Litchfield has 4 active damns, all Class NM (Non-Menace). There have been no known dam breaches to-date in Litchfield.

Previous Occurrences of Flooding

Hazard	Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
Flooding – Dam Failure	There have been no flooding events caused by dam failure in Litchfield to date.			
Flooding	1927	Hillsborough County	No data on extent available	No data available on impact in Litchfield.
Flooding	March 11-21, 1936	Hillsborough County	25-50 year recurrence interval	$133,000,000 in property damage and 77,000 homeless throughout New England. Primary impact to structures, infrastructure, and road network. Flooding caused by heavy snowfall totals, heavy rains, and warm weather. Impact listed here are general to Hillsborough

				County. Specific impacts to Litchfield are unknown.
Flooding	July 11, 1973	Hillsborough County	No data on extent available	FEMA Disaster Declaration #399. Specific impacts to Litchfield are unknown.
Flooding	July 29-August 10, 1986	Hillsborough County	No data on extent available	FEMA Disaster Declaration #771. Many roads impassable in Hillsborough Co. Specific impacts to Litchfield are unknown.
Flooding	March 30-April 11, 1987	Hillsborough County	25-50+ year recurrence interval	$4,888,889 in damage in NH. FEMA Disaster Declaration #789. Primary impact to agricultural fields in Hillsborough County. Specific impacts to Litchfield are unknown.
Flooding	February 24, 1990	Beaver Brook in north Litchfield (42° 48' 23" latitude, 71° 21' 11" longitude)	No data on extent available	Flooding caused by ice jam in Beaver Brook. No damage reported in Litchfield.
Flooding	August 7-11, 1990	Hillsborough County	No data on extent available	$2,297,777 in damage in NH. FEMA Disaster Declaration #876. Primary impact to infrastructure. Series of storms with moderate to heavy rain causing widespread flooding. Impact listed here are general to Hillsborough County. Specific impacts to Litchfield are unknown.
Flooding	October 20-23, 1996	Hillsborough County	No data on extent available	$2,341,273 in damage in NH. FEMA Disaster Declaration #1144.

				Primary impact to structures and infrastructure in Hillsborough County. Specific impacts to Litchfield are unknown.
Flooding	July 2, 1998	Hillsborough County	No data on extent available	$3,400,000 in damage in NH, 6 counties impacted including Hillsborough. FEMA Disaster Declaration #1231. Primary impact to structures and infrastructure in Hillsborough County. Specific impacts to Litchfield are unknown.
Flooding	October 26, 2005	Hillsborough County	50-100 year recurrence interval	5 counties impacted in NH, including Hillsborough. FEMA Disaster Declaration #1610. Primary impact to structures and infrastructure in Hillsborough County. Specific impacts to Litchfield are unknown.
Flooding	May 12-23, 2006	Hillsborough County	As much as 14 inches of rainfall in region. 100-500 year recurrence interval.	7 counties impacted in NH, including Hillsborough. FEMA Disaster Declaration #1643. Numerous road closures in Hillsborough Co. Specific impacts to Litchfield are unknown.
Flooding	April 15, 2007	Hillsborough County	100–500-year recurrence interval	$27,000,000 in damages in NH; 2,005 homeowners and renters applied for assistance in NH. FEMA Disaster Declaration #1695. Primary impact to structures and

				infrastructure in Hillsborough County. Specific impacts to Litchfield are unknown.
Flooding	September 6-7, 2008	Hillsborough County	50-100 year recurrence interval	$6.90 per capita in damages in Hillsborough County. FEMA Disaster Declaration #1799 Primary impact to structures and infrastructure in Hillsborough County. Specific impacts to Litchfield are unknown.
Flooding	March 14, 2010	Hillsborough County	50-100 year recurrence interval	$1,880,685 in FEMA public assistance in NH; $1.80 per capita in Hillsborough County. FEMA Disaster Declaration #1913 Primary impact to roads and bridges in Hillsborough County.
There have been no major flooding events in Hillsborough County since 2010.				

Flood Hazard Loss Estimate

Step 1. Determine percent building damage to a 1 or 2 story building with basement.

- 1-foot flood depth = 15% building damage
- 2-foot flood depth = 20% building damage
- 3-foot flood depth = 23% building damage
- 4-foot flood depth = 28% building damage
- *Source: FEMA Identifying Hazards and Estimating Losses, pg. 4-13*

Step 2. Determine the number of structures in Litchfield located in the floodplain.

- 66 structures located in 1% floodplain.
- 251 structures located in 0.2% floodplain.
- *Source: Nashua Regional Planning Commission http://data-nashuarpc.opendata.arcgis.com/datasets/98afc8bbe9a14c5494c87cc92480b4b1_0*

Step 3. Determine total value of structures in Litchfield located in 1% floodplain.

- Average assessed value of all structures in Litchfield = $224,629
- Total number of structures in Litchfield located in 1% floodplain = 87
- Total assessed value of all structures in Litchfield in 1% floodplain = $224,629* 87
- Total assessed value of all structures in Litchfield in 1% floodplain = $19,542,723
- *Source: Litchfield Hazard Mitigation Team calculations based on Litchfield Assessing data & NRPC GIS data*

Step 4. Determine total loss from flooding in 1% floodplain.

- Total Loss from Flooding = Total Assessed Value of all structures in 1% Floodplain * Percent Building Damage Ratio
- Total Loss from 1-foot flood depth = $19,542,723* .15 = **$2,931,408.45**
- Total Loss from 2-foot flood depth = $19,542,723* .20 = **$3,908,544.60**
- Total Loss from 3-foot flood depth = $19,542,723* .23 = **$4,494,826.29**
- Total Loss from 4-foot flood depth = $19,542,723* .28 = **$5,471,962.44**

Step 5. Determine total value of structures in Litchfield located in 0.2% floodplain.

- Average assessed value of all structures in Litchfield = $224,629
- Total number of structures in Litchfield located in 0.2% floodplain = 331
- Total assessed value of all structures in Litchfield in 0.2% floodplain = $224,629* 331
- Total assessed value of all structures in Litchfield in 0.2% floodplain = $74,352,199
- *Source: Litchfield Hazard Mitigation Team calculations based on Litchfield Assessing data & NRPC GIS data*

Step 6. Determine total loss from flooding in 0.2% floodplain.

- Total Loss from Flooding = Total Assessed Value of all structures in 0.2% Floodplain * Percent Building Damage Ratio
- Total Loss from 1-foot flood depth = $74,352,199* .15 = **$11,152,829.85**
- Total Loss from 2-foot flood depth = $74,352,199* .20 = **$14,870,439.80**
- Total Loss from 3-foot flood depth = $74,352,199* .23 = **$17,101,005.77**
- Total Loss from 4-foot flood depth = $74,352,199* .28 = **$28,818,615.72**

Critical Facility Type	Total Number of this type of Critical Facility in Litchfield	Number of this type of Critical Facility vulnerable to flooding	Percentage of this type of Critical Facility vulnerable to flooding
General Occupancy	51	11	22%
Essential Facilities	7	3	43%
Transportation	35	35	100%
Utility System	33	9	27%
High Potential Hazard	4	4	100%

Hazardous Materials	0	0	0%

Severe Wind/Tropical Storm

A hurricane is the term used for tropical cyclones that occur in the Northern Hemisphere east of the International Dateline to the Greenwich Meridian. Tropical cyclones originate over tropical or subtropical waters and are characterized by organized deep convection and a closed surface wind circulation about a well-defined center. The Atlantic hurricane season lasts from June 1 through November 30 and peaks in late August and September. The Saffir-Simpson Hurricane Wind Scale categorizes hurricanes from 1 to 5 based on sustained wind speed. The National Weather Service National Hurricane Center provides the following estimates of potential property damage based on hurricane wind speed (http://www.nhc.noaa.gov/aboutsshws.php).

Category 1—sustained winds 74-95 mph. Very dangerous winds will produce some damage. Well-constructed frame homes could have damage to roof, shingles, vinyl siding, and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.

Category 2—sustained winds 96-110 mph. Extremely dangerous winds will cause extensive damage. Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.

Category 3—sustained winds 111-129 mph. Devastating damage will occur. Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.

Category 4—sustained winds 130-156 mph. Catastrophic damage will occur. Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Category 5—sustained winds 157 mph or higher. Catastrophic damage will occur. A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possible months. Most of the area will be uninhabitable for weeks or months.

FEMA declared disasters in Hillsborough County during Hurricane Bob (1991) and Hurricane Floyd (1999). Though these were the only formally declared incidents, Litchfield has experienced strong remnants of numerous tropical cyclones including Hurricane Carol (1954), Donna (1960), Gloria (1985), Irene (2011), and Sandy (2012).

Previous Occurrences of Severe Wind/Tropical Storm

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
Great Hurricane of 1938	Hillsborough County	No data on extent available	$12,337,643 total damages (not adjusted for inflation), 13 deaths and 494 injuries in NH. Damage to road network and structures caused by flooding.
August 31, 1954 (Carol)	Hillsborough County	Saffir-Simpson Scale Category 3.	Extensive tree and crop damage.
September 12, 1960 (Donna)	Hillsborough County	Saffir-Simpson Scale Category 3	Water damage to structures due to flooding.
September 27, 1985 (Gloria)	Hillsborough County	Saffir-Simpson Scale Category 2	Damage to trees and power lines from high winds.
August 19, 1991 (Bob)	Hillsborough County	Saffir-Simpson Scale Category 1	FEMA Disaster Declaration #917. Damage to structures, trees, and power lines from high winds.
September 16-18, 1999 (Floyd)	Hillsborough County	Tropical Storm (winds 39-73 mph)	FEMA Disaster Declaration #1305. Primary impact to trees, infrastructure, and road network.
August 28, 2011 (Irene)	Hillsborough County	Tropical Storm (winds 39-73 mph).	FEMA Disaster Declaration #4026. Damage to trees and power lines from high winds. Flash floods.
October 26, 2012 (Sandy)	Hillsborough County	Tropical Storm (winds 39-73 mph).	FEMA Disaster Declaration #4095. Minimal damage.
October 29-November 1, 2017	Hillsborough County	Tropical Storm (winds 39-73 mph).	FEMA Disaster Declaration #4355. A powerful storm fed by tropical moisture knocked out power to more than 270,000 homes and business across the state. Parts of the region experienced 2.8 inches of rainfall

			and widespread power outages. Falling trees severely damaged many homes and electrical infrastructure. Local roads were closed due to downed trees and flash flooding.
August 3-6, 2020 (Isaias)	Hillsborough County	Tropical Storm (winds 39-73 mph).	Tropical storm with extreme wind gusts, flash flooding, high rainfall, tree damage, and power outages.
August 19-27, 2021 (Henri)	Hillsborough County	Tropical Storm (winds 39-73 mph).	Strong tropical storm with flash flooding, high winds, power outages, tree damage, heavy rain between 2 and 4 inches.
There has been no significant damage from tropical cyclones (severe wind) in Litchfield since 2021.			

Severe Wind/Tropical Storm Hazard Loss Estimate

There are no standard loss estimation models or tables for wind damage (*Understanding Your Risks,* FEMA, pg. 4-30). As such, the Hazard Mitigation Team used data from previous hurricane events to determine damage estimates. Historically, the strongest hurricane seen in NH was a Category 3, so loss estimates were calculated based on a hurricane of that strength. Hurricanes have primarily damaged road networks and infrastructure in NH. It is beyond the scope of this project to estimate the costs of repairing or replacing transportation and utility infrastructure damaged by a hurricane. The Hazard Mitigation Team used the following calculations to estimate loss to single family residential structures from a hurricane.

Step 1. Determine the percentage of building damage ratio to single family residence from Category 3 hurricane.

- Wood Frame Construction, Low general hurricane design level = 20% building damage
- *Source: Litchfield Hazard Mitigation Team*

Step 2. Determine the percentage of structures in Litchfield that would be damaged by Category 3 hurricane.

- 5% of structures were estimated to be damaged by Category 3 hurricane.
- *Source: Litchfield Hazard Mitigation Team (no historical data on hurricane damage in Litchfield)*

Step 3. Determine total assessed value of structures in Litchfield.

- Total Assessed Value of all Structures in Litchfield = $689,611,000
- *Source: Litchfield Assessing Data (October 2023)*

Step 4. Determine total loss from Category 3 hurricane.

- Total Loss from Hurricane = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Hurricane = $689,611,000* .05 * .2 = **$6,896,110**

Critical Facility Type	Total Number of this type of Critical Facilities in Litchfield	Number of this type of Critical Facilities in Severe Wind Hazard Area	Percentage of this type of Critical Facilities in Severe Wind Hazard Area
General Occupancy	51	51	100%
Essential Facilities	7	7	100%
Transportation	35	35	100%
Utility System	33	28	85%
High Potential Hazard	4	4	100%
Hazardous Materials	0	0	0%

Lightning & Hail

Lightning

By definition, all thunderstorms contain 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. After the discharge, the air contracts quickly as it cools back to ambient temperatures. This rapid expansion and contraction causes a shock wave that we hear as thunder.

Lightning is a major hazard to citizens involved in outdoor activities. A lightning strike at a densely attended special event has the potential to create a major mass casualty incident. Lightning also can create wildfires and structure fires and may cause power and/or communications outages.

The Lightning Activity Level (LAL) grid can be used to measure the extent of a lightning event.

LAL	Cloud & Storm Development	Lightning Strikes/15 min

1	No thunderstorms	-
2	Cumulus clouds are common but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	1-8
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two or three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common, and lightning is frequent.	16-25
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rian is moderate to heavy, and lightning is frequent and intense.	>25
6	Similar to LAL 3 except thunderstorms are dry.	9-15

Hail

Hailstones are balls of ice that grow as they are held up by winds, known as updrafts, that blow towards thunderstorms. The updrafts carry droplets of supercooled water, water at a below-freezing temperature that is not yet ice. The water droplets freeze into ice balls and grow to become hailstones. Most hailstones are smaller than a dime, but stones may grow to be as large as softballs.

Although not common in Brookline, hailstorm events resulting from significant thunderstorms can occur anytime. Summer storms especially may produce hail large enough to damage roofs, siding, and automobiles, or injure people who are outdoors. It was felt that a hailstorm event would be unlikely and would cause minimal damage. Since the previous hazard mitigation plan, no significant occurrences of lightning or hail events have occurred in Brookline.

Previous Occurrences of Lightning & Hail

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
2006	A Lightning strike occurred near Town Hall/Police Station	Severe thunderstorm with heavy rainfall. High winds, and lightning.	A lightning strike knocked out municipal radio system.
There has been no significant damage from lightning & Hail in Litchfield since 2006.			

Lightning & Hail Hazard Loss Estimate

Losses from Lightning & Hail would be on a small, localized scale. The Hazard Mitigation Team used the following calculations to estimate loss to single family residential structures from Lightning & Hail.

Step 1. Determine the percentage of building damage ratio to single family residence from Lightning & Hail.

- Wood Frame Construction = 5% building damage
- *Source: Litchfield Hazard Mitigation Team*

Step 2. Determine the percentage of structures in Litchfield that would be damaged by Lightning & Hail.

- 0.25% of structures are estimated to be damaged by Lightning & Hail.
- *Source: Litchfield Hazard Mitigation Team (minimal historical data on Lightning & Hail damage in Litchfield)*

Step 3. Determine total assessed value of structures in Litchfield.

- Total Assessed Value of all Structures in Litchfield = $689,611,000
- *Source: Litchfield Assessing Data (October 2023)*

Step 4. Determine total loss from Lightning & Hail.

- Total Loss from Lightning & Hail = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Severe Thunderstorm = $689,611,000* .0025* .05 = **$86,201.38**

Critical Facility Type	Total Number of this type of Critical Facilities in Litchfield	Number of this type of Critical Facilities in Lightning & Hail Hazard Area	Percentage of this type of Critical Facilities in Lightning & Hail Hazard Area
General Occupancy	51	42	82%
Essential Facilities	7	7	100%
Transportation	35	0	0%
Utility System	33	28	85%
High Potential Hazard	4	0	0%
Hazardous Materials	0	0	0%

Severe Winter Weather

A heavy snowstorm is generally considered to be one that deposits two or more inches of snow per hour in a twelve-hour period. Heavy snow can immobilize a region, stranding commuters, closing businesses, and disrupting emergency services. Accumulating snow can collapse buildings and knock down trees and power lines. Snow removal from roadways, utility damage, and disruption to businesses can have a significant economic impact on municipalities and residents.

A blizzard is a violent snowstorm with winds blowing at a minimum speed of 35 miles per hour and visibility of less than one-quarter mile for three hours. A Nor'easter is a large weather system traveling from south to north, passing along the coast. As the storm's intensity increases, the resulting

counterclockwise winds impact the coast and inland areas in a Northeasterly direction. Winds from a Nor'easter can meet or exceed hurricane force, knocking down trees, utility poles, and power lines.

Ice storms occur when a mass of warm, moist air collides with a mass of cold, arctic air. The less dense warm air rises, and the moisture precipitates out in the form of rain. When this rain falls through the colder, more-dense air and comes in contact with cold surfaces, ice forms and can become several inches thick. Heavy accumulations of ice can knock down trees, power lines, and communications for extended periods of time. Ice Storm extent can be defined by the Sperry-Piltz Ice Accumulation Index:

- 0—minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages
- 1—some isolated or localized utility interruptions are possible, typically lasting for a few hours. Roads and bridges may become slick and hazardous.
- 2—scattered utility interruptions expected, typically lasting 12-24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
- 3—numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1-5 days.
- 4—prolonged and widespread utility interruptions with extensive damage to main distribution feeder lines and some high voltage transmission lines/structures. Outages lasting 5-10 days.
- 5—catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

In recent years, FEMA issued disaster declarations in Hillsborough County for severe winter weather in 1998, 2008, 2010, 2011, 2013, and 2015. Among these storms was a rare Nor'easter in late October of 2011 that caused major destruction in Hillsborough and Rockingham Counties. Heavy wet snow fell on trees that had much of their foliage remaining. Many trees could not withstand the extra weight of the snow and collapsed under the stress. Damage was very focused in the southern part of New Hampshire and caused nearly three times the amount of debris that the 2008 ice storm produced.

Previous Occurrences of Severe Winter Weather

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
March 11-14, 1888	Entire jurisdiction	30-50 inches of snow	No historic data on impact
1922	Entire jurisdiction	No historic data on extent	Extreme snow drifts paralyzed road network.
February 14-15, 1940	Entire jurisdiction	Over 30 inches of snow	Snow and high winds paralyzed road network.
February 14-17, 1958	Entire jurisdiction	20-33 inches of snow	Primary impact to road network.
March 18-21, 1958	Entire jurisdiction	22-24 inches of snow	Primary impact to road network.

March 2-5, 1960	Entire jurisdiction	Up to 25 inches of snow	Primary impact to road network.
January 18-20, 1961	Entire jurisdiction	Up to 25 inches of snow	Blizzard conditions paralyze road network.
February 22-28, 1969	Entire jurisdiction	24-98 inches of snow in Central NH	Primary impact to road network. Slow moving storm.
December 25-28, 1969	Entire jurisdiction	12-18 inches of snow	Primary impact to road network.
January 19-21, 1978	Entire jurisdiction	Up to 16 inches of snow	Primary impact to road network.
February 5-7, 1978 (Blizzard of '78)	Entire jurisdiction	25-33 inches of snow	Snow paralyzed road network, trapped commuters in cars, and forced closure of businesses.
April 5-7, 1982	Entire jurisdiction	18-22 inches of snow	Primary impact to road network.
March, 1983	Entire jurisdiction	Over 18 inches of snow, 30-40 mph winds	Snow paralyzed road network and forced closure of businesses.
December 1996	Entire jurisdiction	14 inches of snow	Damage to power lines forces closure of businesses. Heavy wet snow caused many trees to come down. Widespread power outages.
January 7, 1998	Entire jurisdiction	Ice storm, no data on extent available	$12,446,202 in total damages, 1 death and 6 injuries in NH. $17,000,000 in damages to PSNH equipment. FEMA Disaster Declaration #1199. 20 major road closures; 67,586 without power; 2,310 without phone service; 1 communication tower failure.
January 24, 1998	Entire jurisdiction	No data on extent available	Extensive damage to power lines.
December 11, 2008	Entire jurisdiction	Ice storm, no data on extent available	$10,383,602 in FEMA public assistance in NH; $6.35 per capita in Hillsborough

			County. FEMA Disaster Declaration #1812 Damage to power and phone lines and trees.
February 23, 2010	Entire jurisdiction	Snow followed by rainfall between 2-6 inches. Winds over 70 mph.	$6,268,179 in FEMA public assistance in NH; $3.68 per capita in Hillsborough County. FEMA Disaster Declaration #1892 Damage to power and phone lines, trees, and road network. Over 330,000 customers are without power state-wide.
October 29-30, 2011	Entire jurisdiction	15-20 inches of snow.	$3,052,769 in FEMA public assistance in NH; $5.11 per capita in Hillsborough County. FEMA Disaster Declaration #4049 Damage to power and phone lines, trees, and road network.
February 8-10, 2013	Entire jurisdiction	Snowfall totals of 12-18 inches across region, up to 30 inches in parts of NH. Winds 10-20 mph with gusts up to 40 mph. Visibility less than ¼ mile.	FEMA Disaster Declaration #4105
January 26-28, 2015	Entire jurisdiction.	Snowfall totals 18-24 inches across the region. Winds 35 mph. Visibility 0.	$3,293,059 in FEMA public assistance in NH; $3.88 per capita in Hillsborough County. FEMA Disaster Declaration DR-4209.

Severe Winter Weather Hazard Loss Estimate

Severe Winter Weather events have primarily damaged road networks and infrastructure in NH. It is beyond the scope of this project to estimate the costs of repairing or replacing transportation and utility

infrastructure damaged by severe winter weather. The Hazard Mitigation Team used the following calculations to estimate loss to single family residential structures from severe winter weather.

Step 1. Determine the percentage building damage ratio to single family residence from severe winter weather.

- Wood Frame Construction, no additional provisions for roof snow loads = 5% building damage
- *Source: Litchfield Hazard Mitigation Team*

Step 2. Determine the percentage of structures in Litchfield that would be damaged by severe winter weather.

- 1% of structures are estimated to be damaged by severe winter weather.
- *Source: Litchfield Hazard Mitigation Team*

Step 3. Determine total assessed value of structures in Litchfield.

- Total Assessed Value of all Structures in Litchfield = $689,611,000
- *Source: Litchfield Assessing Department (October 2023)*

Step 4. Determine total loss from Severe Winter Weather

- Total Loss from Severe Winter Weather = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Severe Winter Weather = $689,611,000* .01* .05 = **$344,805.50**

Critical Facility Type	Total Number of this type of Critical Facilities in Litchfield	Number of this type of Critical Facilities in Severe Winter Weather Hazard Area	Percentage of this type of Critical Facilities in Severe Winter Weather Hazard Area
General Occupancy	51	51	100%
Essential Facilities	7	7	100%
Transportation	35	35	100%
Utility System	33	28	85%
High Potential Hazard	4	4	100%
Hazardous Materials	0	0	0%

Tornado/Downburst

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of 1 mile wide and 50 miles long. Tornadoes are created when cold air overrides warm air, causing the warm air to rise rapidly.

A downburst is a severe localized wind blasting down from a thunderstorm. These 'straight line' winds are distinguishable from tornadic activity by their pattern of destruction and debris. Depending on the size and location of these events, the destruction to property may be devastating. Downbursts fall into

two categories. Microbursts cover an area less than 2.5 miles in diameter and macrobursts cover an area at least 2.5 miles in diameter.

Hillsborough County has a higher risk of tornado activity compared to the rest of the State. Between 1961 and 1998 there were 15 known tornadoes in Hillsborough County. The most recent downburst activity occurred on July 6, 1999 in the form of a macroburst in Merrimack, Grafton and Hillsborough Counties. There were two fatalities as well as roof damage, widespread power outages, and downed trees, utility poles and wires.

Previous Occurrences of Tornado/Downburst

Hazard Type	Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
Tornado	July 2, 1961	Northern Hillsborough Co, originated near Weare, NH	Fujita Scale F2	0 fatalities, 0 injuries
Tornado	July 21, 1961	Central Hillsborough Co, originated near New Boston, NH	Fujita Scale F1	0 fatalities, 0 injuries
Tornado	May 9, 1963	Northeastern, Hillsborough Co, originated near Goffstown, NH	Fujita Scale F1	0 fatalities, 0 injuries
Tornado	May 20, 1963	Western Hillsborough Co, originated near Peterborough, NH	Fujita Scale F1	0 fatalities, 0 injuries
Tornado	June 9, 1963	Northeastern Hillsborough Co, originated near Manchester, NH	Fujita Scale F2	0 fatalities, 0 injuries
Tornado	August 28, 1965	Eastern Hillsborough Co, originated near Litchfield, NH	Fujita Scale F1	0 fatalities, 0 injuries
Tornado	July 19, 1966	Southern Hillsborough Co, originated near Amherst, NH	Fujita Scale F1	0 fatalities, 0 injuries
Tornado	July 17, 1968	Central Hillsborough Co, originated near Wilton, NH	Fujita Scale F2	0 fatalities, 0 injuries
Tornado	August 20, 1968	Northeastern Hillsborough Co, originated near Manchester, NH	Fujita Scale F1	0 fatalities, 0 injuries
Tornado	July 19, 1972	Southeastern Hillsborough Co, originated near Hudson, NH	Fujita Scale F1	0 fatalities, 0 injuries

Tornado	July 5, 1984	Western Hillsborough Co, originated near Harrisville, NH	Fujita Scale F1	0 fatalities, 0 injuries
Tornado	July 5, 1984	Southeastern Hillsborough Co, originated near Pelham, NH	Fujita Scale F1	0 fatalities, 0 injuries
Tornado	June 16, 1986	Western Hillsborough Co, originated near Swanzey, NH	Fujita Scale F1	0 fatalities, 0 injuries
Tornado	July 3, 1997	Central Hillsborough Co, originated near Greenfield, NH	Fujita Scale F2	0 fatalities, 0 injuries
Tornado	May 31, 1998	Western Hillsborough Co, originated near Antrim, NH	Fujita Scale F2	0 fatalities, 0 injuries
Downburst	July 6, 1999	Merrimack, Grafton, and Hillsborough Co.	Macroburst	2 fatalities, 2 lost roofs, damage to trees and utility infrastructure
Tornado	July 24th, 2008	Southern Hillsborough County (Candia & Deerfield, NH more effected than others)	Fujita Scale F2	1 fatality, damage to over 100 structures, some destroyed, causing over $2 million in damage and injuring 2 people directly.

Tornado Hazard Loss Estimate

There are no standard loss estimation models or tables for tornados (*Understanding Your Risks,* FEMA, pg. 4-27). As such, the Hazard Mitigation Team used data from previous tornado events to determine damage estimates. Historically, the strongest tornado seen in Hillsborough County was an F2, so loss estimates were calculated based on a tornado of that strength.

Step 1. Determine the percentage building damage ratio to single family residence from F2 tornado.

- Wood Frame Construction, Low general tornado design level = 50% building damage
- *Source: Litchfield Hazard Mitigation Team*

Step 2. Determine the percentage of structures in Litchfield that would be damaged by the F2 tornado.

- 1% of structures are estimated to be damaged by F2 tornado.
- *Source: Litchfield Hazard Mitigation Team (no historical data on tornado damage in Litchfield)*

Step 3. Determine total assessed value of structures in Litchfield.

- Total Assessed Value of all Structures in Litchfield = $689,611,000

- *Source: Litchfield Assessing Department (October 2023)*

Step 4. Determine total loss from F2 Tornado

- Total Loss from Tornado = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Tornado = $689,611,000* .01* .5 = **$3,448,055**

Critical Facility Type	Total Number of this type of Critical Facilities in Litchfield	Number of this type of Critical Facilities in Tornado Hazard Area	Percentage of this type of Critical Facilities in Tornado Hazard Area
General Occupancy	51	51	100%
Essential Facilities	7	7	100%
Transportation	35	35	100%
Utility System	33	28	85%
High Potential Hazard	4	4	100%
Hazardous Materials	0	0	0%

Wildfire

Wildfires are fires ignited in grassy or wooded areas. They may be ignited intentionally by humans, naturally through lightning, or accidentally due to spark ignition from sources such as power lines or fireworks. The interface between forested lands and developed lands poses an ongoing threat to property from wildfires. Potential wildfire areas outside of the recommended response time radius from the fire station may pose a higher risk to structures and residents than those located closer to the fire station.

Previous Occurrences of Wildfire

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
April 20, 1915	Forested acres of Litchfield, particularly along Hillcrest and Pinecrest Roads.	5-mile-long by 1-mile-wide tract of timber destroyed	Numerous homes destroyed along Hillcrest and Pinecrest Roads, economic loss of timber.
1979	Brush throughout jurisdiction	140 acres burned	Fire burned brush in Londonderry and Litchfield.
There have been no significant wildfire events in Litchfield since 1979.			

Wildfire Hazard Loss Estimate

Step 1. Determine the percentage of building damage ratio to single family residence from wildfire.

- Wood Frame Construction, combustible siding, and decking = 20% building damage
- *Source: Litchfield Hazard Mitigation Team*

Step 2. Determine the percentage of structures in Litchfield that would be damaged by wildfire.

- 0.5% of structures are estimated to be damaged by wildfire.
- *Source: Litchfield Hazard Mitigation Team*

Step 3. Determine total assessed value of structures in Litchfield.

- Total Assessed Value of all Structures in Litchfield = $689,611,000
- *Source: Litchfield Assessing Department (October 2023)*

Step 4. Determine total loss from Wildfire.

- Total Loss from Wildfire = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Wildfire = $689,611,000* .005 * .2 = **$689,611**

Critical Facility Type	Total Number of this type of Critical Facilities in Litchfield	Number of this type of Critical Facilities in Wildfire Hazard Area	Percentage of this type of Critical Facilities in Wildfire Hazard Area
General Occupancy	51	51	100%
Essential Facilities	7	7	100%
Transportation	35	0	0%
Utility System	33	28	85%
High Potential Hazard	4	0	0%
Hazardous Materials	0	0	0%

Infectious Diseases

Infectious diseases are illnesses caused by organisms—such as bacteria, viruses, fungi, or parasites. Many organisms live in and on our bodies. They're normally harmless or even helpful, but under certain conditions, some organisms may cause disease. Some infectious diseases can be passed from person to person, some are transmitted by bites from insects or animals, and others are acquired by ingesting contaminated food or water or being exposed to organisms in the environment. 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.

The magnitude and severity of infectious diseases is described by their 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 disease occurrence (https://www.cdc.gov/ophss/csels/dsepd/ss1978/lesson1/section11.html)

- 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

Public health incidents and infectious diseases may occur suddenly or with a slow onset. Incidents that occur suddenly may have extraordinary and/or overwhelming medical resource needs. Incidents may occur with a slow onset and/or with advance warning will allow for a more coordinated response. During sudden onset incidents, many victims may reach healthcare facilities on their own without the use of Emergency Medical Services (EMS), which means that victims may arrive to find unprepared or inadequate facilities.

Incidents may be insidious or obvious, and both have unique impacts. Insidious incidents (such as diseases that have a longer incubation/onset period where infection can be spread without knowing) can result in a much higher infection rate, eventually overwhelming existing medical resources and resulting in higher morbidity and mortality. Incidents that are more obvious are more recognizable and can result in a more accurate healthcare response, but this may also result in much higher social complications such as fear, anxiety, unnecessary social distancing. For example, the average person may be more afraid of Ebola than influenza; however, the latter is much more likely to occur in the US. Having proper surveillance systems to recognize public health and infectious disease incidents is critical to be able to limit impacts.

The duration of the incident can also cause unique impacts. In a short duration incident, there may be a medical surge at the beginning which tapers off as the incident goes on and may not result in significant disruption to everyday life. However, longer duration incidents may have significant impacts not only for the public health response, but also for business/industry and the economy (State of NH Multi-Hazard Mitigation Plan Update 2018 pg. 110-113).

Previous Occurrences of Infectious Disease

As does the rest of the state, Litchfield experiences outbreaks annually. These include foodborne outbreaks, Influenza and other respiratory outbreaks, and Norovirus and other gastrointestinal virus outbreaks.

In 2020, the world experienced a major pandemic from the Coronavirus (Covid-19). New Hampshire Covid-19 Emergency Declaration EM-3445-NH spanned from January 20, 2020, through May 11, 2020. As of May 2023, Litchfield had 2,322 Covid-19 cases total (NH DHHS).

The New Hampshire Department of Health and Human Services conducts infectious disease surveillance, and provides statistics and reports on their website.

Infectious Disease Hazard Loss Estimate

Because the impacts of infectious disease are wide ranging, it is beyond the scope of this Plan to estimate the dollar value of losses to the municipality resulting from infectious diseases. Vulnerable populations are most at risk for this type of hazard.

Section 3.4 ~ Overall Summary of Vulnerability

This section summarizes the Town of Litchfield's vulnerability by hazard and by facility type. The Town of Litchfield acknowledges that they are equally at risk to and should address all hazards discussed throughout this chapter and listed below.

Table 7.1—Overall Summary of Vulnerability by Hazard

Hazard	Types of Critical Facilities Impacted by Hazard	Impact of Hazard	% of Critical Facilities in Hazard Area	% of Structures Estimated to be Damaged	$ Value of Loss
Climate Change	• General Occupancy • Essential Facilities • Transportation • Utility Systems • High Potential Hazard • Hazardous Materials • Agricultural Land	See Impacts related to Drought, Extreme Temperatures, and Flooding below.	See Critical Facilities calculations for Drought, Extreme Temperatures, and Flooding below.	See damage estimates for Drought, Extreme Temperature, and Flooding below.	Calculating $ value of losses is beyond the scope of this Plan (see Section 3.3 Climate Change for explanation)
Drought	Agricultural land. Not likely to have a significant impact on structures themselves but can have significant impact on people's ability to utilize them.	Loss of crops. Inadequate quantity of drinking water—65% of Litchfield population on public drinking water, 35% of Litchfield population on private well water. Loss of water for fire protection. Increased risk of fire.	General Occupancy = 100% Essential Facilities = 100% Transportation = 0% Utility Systems = 15% High Potential Hazard = 0%	963 acres of agricultural land (10.08% of total land area)	Calculating $ value of losses is beyond the scope of this Plan (see Section 3.3 Drought for explanation)

Hazard	Types of Critical Facilities Impacted by Hazard	Impact of Hazard	% of Critical Facilities in Hazard Area	% of Structures Estimated to be Damaged	$ Value of Loss
			Hazardous Materials = 0%		
Earthquake	• General Occupancy • Essential Facilities • Transportation • Utility Systems • High Potential Hazard • Hazardous Materials	Structural damage or collapse of buildings. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, radio system. Loss of water for fire protection. Risk to life, medical surge.	General Occupancy = 100% Essential Facilities = 100% Transportation = 100% Utility Systems = 100% High Potential Hazard = 100% Hazardous Materials = 0%	1-5%	**$317,221 to $1,586,105**
Extreme Temperatures	Not likely to have a significant impact on structures.	Overburdened power networks. Heating fuel shortages. Risk to life from prolonged exposure.	General Occupancy = 100% Essential Facilities = 100% Transportation = 0% Utility Systems = 0% High Potential Hazard = 0% Hazardous Materials = 0%	0%	Calculating $ value of losses is beyond the scope of this Plan (see Section 3.3 Drought for explanation)
Flooding	• General Occupancy • Transportation • High Potential Hazard • Hazardous Materials	Water damage to structures and their contents. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal	General Occupancy = 22% in floodplain Essential Facilities = 43% in floodplain	66 structures in 1% annual floodplain 251 structures in 0.2% annual floodplain	Loss in 1% floodplain: 1-foot flood = **$2,931,408** 2-foot flood = **$3,908,545**

Hazard	Types of Critical Facilities Impacted by Hazard	Impact of Hazard	% of Critical Facilities in Hazard Area	% of Structures Estimated to be Damaged	$ Value of Loss
		communications, radio system. Environmental hazards resulting from damage. Isolation of neighborhoods resulting from flooding.	Transportation = 100% in floodplain Utility Systems = 27% in floodplain High Potential Hazard = 100% susceptible to flooding Hazardous Materials = 0% in floodplain		3-foot flood = **$4,494,826** 4-foot flood = **$5,471,962** Loss in 0.2% floodplain: 1-foot flood = **$11,152,830** 2-foot flood = **$14,870,440** 3-foot flood = **$17,701,006** 4-foot flood = **$28,818,616**
Severe Wind	• General Occupancy • Essential Facilities • Transportation • Utility Systems • High Potential • Hazard • Hazardous Materials	Wind damage to structures and trees. Water damage to structures and their contents. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, radio system. Environmental hazards resulting from damage. Isolation of neighborhoods	General Occupancy = 100% Essential Facilities = 100% Transportation = 100% Utility Systems = 85% High Potential Hazard = 100% Hazardous Materials = 0%	5%	**$6,896,110**

Hazard	Types of Critical Facilities Impacted by Hazard	Impact of Hazard	% of Critical Facilities in Hazard Area	% of Structures Estimated to be Damaged	$ Value of Loss
		resulting from flooding.			
Lightning & Hail	• General Occupancy • Essential Facilities • Utility System • High Potential Hazard • Hazardous Materials	Smoke and fire damage to structures. Disruption to power lines and municipal communications. Damage to critical electronic equipment. Injury or death to people involved in outdoor activity.	General Occupancy = 82% Essential Facilities = 100% Transportation = 0% Utility Systems = 85% High Potential Hazard = 0% Hazardous Materials = 0%	0.5%	**$86,201**
Severe Winter Weather	• General Occupancy • Essential Facilities • Transportation • Utility • High Potential Hazard • Hazardous Materials	Disruption to road network. Damage to trees and power lines, communications. Structural damage to roofs/collapse. Increase in CO, other hazards.	General Occupancy = 100% Essential Facilities = 100% Transportation = 100% Utility Systems = 85% High Potential Hazard = 100% Hazardous Materials = 0%	1%	**$344,806**
Tornado/Downburst	• General Occupancy • Essential Facilities • Transportation • Utility System • High Potential Hazard • Hazardous Materials	Wind damage to structures and trees. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, radio system.	General Occupancy = 100% Essential Facilities = 100% Transportation = 100%	1%	**$3,448,055**

Hazard	Types of Critical Facilities Impacted by Hazard	Impact of Hazard	% of Critical Facilities in Hazard Area	% of Structures Estimated to be Damaged	$ Value of Loss
		Environmental hazards resulting from damage. Medical surge.	Utility Systems = 85% High Potential Hazard = 100% Hazardous Materials = 0%		
Wildfire	• General Occupancy • Essential Facilities • Utility System • High Potential Hazard • Hazardous Materials	Smoke and fire damage to structures in wild land/urban interface. Damage to habitat. Impacts to air quality. Loss of natural resources.	General Occupancy = 100% Essential Facilities = 100% Transportation = 0% Utility Systems = 85% High Potential Hazard = 0% Hazardous Materials = 0%	0.5%	**$689,611**
Infectious Disease	• General Occupancy • Essential Facilities	Risk to life, medical surge/overburdened healthcare systems.	General Occupancy = 87% Essential Facilities = 100% Transportation = 0% Utility Systems = 0% High Potential Hazard = 0% Hazardous Materials = 0%	0%	Calculating $ value of losses is beyond the scope of this Plan (see Section 3.3 Infectious Diseases for explanation)

Table 7.2—Overall Summary of Vulnerability by Facility Type

Note that Climate Change is not included as a hazard in this analysis because its effects on critical facilities are included under the hazards of Drought, Extreme Temperatures, and Flooding.

Facility Type	Total # of Facilities	# Susceptible to Drought	# Susceptible to Earthquake	# Susceptible to Extreme Temperatures	# Susceptible to Flooding	# Susceptible to Severe Wind	# Susceptible to Lightning & Hail	# Susceptible to Severe Winter Weather	# Susceptible to Tornado/Downburst	# Susceptible to Wildfire	# Susceptible to Infectious Disease
General Occupancy	51	51	51	51	11	51	42	51	51	51	51
Essential Facilities	7	7	7	7	3	7	7	7	7	7	7
Transportation	35	0	35	0	35	35	0	35	35	0	0
Utility	33	5	33	0	9	28	28	28	28	28	0
High Hazard	4	0	4	0	4	4	0	4	4	0	0
Hazardous Materials	0	0	0	0	0	0	0	0	0	0	0

Section 3.5 ~ National Flood Insurance Program

The Town of Litchfield participates in the National Flood Insurance Program (NFIP). This provides full insurance coverage based on risk as shown on detailed Flood Insurance Rate Maps (FIRMs). Litchfield joined the NFIP on July 16, 1979. The Town's initial Flood Hazard Boundary Map was also identified on July 16, 1979, as well as its initial Flood Insurance Rate Map. The current effective map date is September 25, 2009.

Litchfield has 22 NFIP policies in force and $6,373,500 of insurance in force. There are 21 policies classified as "single family," 0 classified as "2-4 family," 0 classified as "other residential," and 1 classified as "non-residential." There have been 2 paid losses totaling $13,230. Litchfield has 0 repetitive loss properties and $0 in total repetitive loss payments.

The Building Inspector of the Town of Litchfield is responsible for making determinations of substantial improvement and substantial damage (defined in 44 CFR 59.1). These determinations are made for all

development in a special flood hazard area that proposes to improve an existing structure including alterations, movement, enlargement, replacement, repair, additions, rehabilitations, renovations, repairs of damage from any origin (such as, but not limited to flood, fire, wind, or snow) and any other improvement of or work on such structure including within its existing footprint.

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

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

As a participant in the NFIP, communities must agree to adopt a floodplain management ordinance and enforce the regulations found in the ordinance. Litchfield has adopted the "Floodplain Conservation District," found in Section 1100.00 of the Town of Litchfield, NH Zoning and Land Use Laws. The Floodplain Conservation District is enacted to ensure that development on land within the District will not endanger the health, safety, and welfare of the occupants of the land within the floodplain or the public during time of flood, that development will not result in increased flood levels during the base flood discharge, and to encourage the most appropriate use of land within the community, and comply with the requirements of the National Flood Insurance Act of 1968 (P.L. 90-488, as amended). The ordinance includes the following sections: Purpose, Definitions, Administration, and Variances and Appeals,

To demonstrate Litchfield's continued compliance with NFIP requirements, the Hazard Mitigation Team identified the follow mitigation actions as part of its comprehensive mitigation strategy. These actions also appear in Section 4.2, Table 9—Mitigation Actions.

Table 8—National Flood Insurance Program Mitigation Actions

National Flood Insurance Program Mitigation Actions			
Mitigation Action	**Mitigation Type**	**Hazard Addressed**	**Critical Facilities Addressed**
The Building Inspector will distribute and make NFIP insurance and building codes explanatory pamphlets or booklets more accessible on the Town website to better assist residents assess the vulnerability of their homes/structures/businesses.	• Public Information	• Flooding	• General Occupancy • Essential Facilities

Create the regulatory requirement and enforcement measures for the use of elevation certificates for new structures in the floodplain.	• Prevention • Property Protection • Structural	• Flooding	• General Occupancy • Essential Facilities
Identify and become knowledgeable of non-compliant structures in the community. Notify landowners of non-compliant structures.	• Prevention • Property Protection	• Flooding	• General Occupancy • Essential Facilities

CHAPTER 4 MITIGATION STRATEGY

Section 4.1 ~ Goals and Objectives to Reduce Vulnerabilities to Hazards

The first step in developing a mitigation strategy is to establish goals that reflect what the municipality wishes to achieve through the implementation of its Hazard Mitigation Plan. The Litchfield Hazard Mitigation Team established the following goals and objectives, based on its desire to protect the Town's population, critical facilities, infrastructure, emergency services, natural resources, and private property. These goals provided the basis for identifying and prioritizing mitigation actions.

Goal 1—Prevent the impacts of natural hazards on the Town's population, critical facilities, infrastructure, emergency services, natural resources, and private property whenever possible.

- Objective 1.1—Manage development in known hazard areas to avoid the risks associated with natural hazards.
- Objective 1.2—Plan to incorporate hazard mitigation into capital improvements and other future initiatives.
- Objective 1.3—Ensure building codes and other standards include requirements that make new construction more disaster resistant.
- Objective 1.4—Support the maintenance of this hazard mitigation plan.

Goal 2—Protect the Town's existing critical facilities, infrastructure, and private property from the impacts of natural hazards through cost effective mitigation activities.

- Objective2.1—Modify existing structures to reduce damage from future natural hazard events.
- Objective 2.2—Perform cost effective flood hazard mitigation measures to protect private property.

Goal 3—Educate and inform the Town's residents to help them become more resilient to natural hazards impacting the community.

- Objective 3.1—Utilize educational methods to change the perception from "disaster losses are acceptable" to "many disaster losses are preventable if mitigation practices are followed."

- Objective 3.2—provide educational opportunities across all age ranges.
- Objective 3.3—Develop and distribute public awareness materials regarding the relative risk of natural hazards and practical mitigation measures to reduce damages and injuries.

Goal 4—become more resilient to the impacts that climate change has on the Town's population, critical facilities, infrastructure, emergency services, natural resources, and private property.

- Objective 4.1—Utilize existing documents, including the Nashua Regional Water Resiliency Action Plan (NRPC, 2016) and "Climate Change in Southern New Hampshire" (Sustainability Institute, University of New Hampshire, 2014) to better understand predicted changes in the region's climate.
- Objective 4.2—Conduct a town-specific vulnerability assessment to better understand the municipality's strengths and weaknesses with respect to climate change readiness.
- Objective 4.3—Prioritize which climate change impacts to address and when. Prioritization could be based on vulnerability assessment results, current needs, upcoming plans, feasibility, or budget considerations.
- Objective 4.4—Develop an adaptation strategy, including potential mitigation measures, timelines, responsible parties, and available funding sources.
- Objective 4.5—Implement the adaptation strategy and incorporate finding into hazard mitigation plan updates.
- Objective 4.6—Track progress and monitor results to determine where improvements can be made. Adjust the implementation strategy as necessary.

Goal 5—Address the challenges of natural resource degradation and the associated increased risk from hazards.

- Objective 5.1—Ensure development in hazard areas does not destroy natural barriers to damage, such as floodplains and vegetation.
- Objective 5.2—Protect or recreate environmental assets to help safeguard the built environment.

Goal 6—Protect emergency services, critical facilities, and other critical capabilities from hazard damage in order for them to remain operational.

- Objective 6.1—Identify critical facilities, infrastructure, and emergency services and their vulnerabilities to natural hazards.
- Objective 6.2— Develop and implement programs to promote hazard mitigation actions that protect the provision of emergency services in Town.
- Objective 6.3—Identify, maintain, and protect evacuation routes from hazard damage so they are usable when needed.

Section 4.2 ~ Mitigation Actions

After establishing goals and objectives to reduce vulnerabilities to each hazard type, the Hazard Mitigation Team identified mitigation actions to achieve these goals. The resulting mitigation actions appear in Table 9 below.

Table 9—Mitigation Actions

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
MITIGATION ACTIONS FROM 2018 PLAN			
The Planning Board will review and update the Floodplain Ordinance, Zoning Regulations, and the Master Plan to support hardened infrastructure and development as time and budget allows for the duration of this plan. The Building Inspector will proactively enforce the International Building Code (IBC) to protect buildings and infrastructure from the impacts of earthquake, flooding, severe wind, severe winter weather, and tornado.	• Prevention • Property Protection	• Earthquake • Flooding • Severe Wind • Severe Winter Weather • Tornado	• General Occupancy • Essential Facilities • Hazardous Materials
Work with Pennichuck to increase public awareness of methods to reduce water consumption during drought conditions. Utilize innovative outreach methods include the Litchfield town website, social media accounts, local cable, and the Nashua Telegraph and Union Leader.	• Prevention • Natural Resources Protection Public Information	• Drought	• General Occupancy • Essential Facilities
The Fire Department will increase enforcement and oversight of burn permits, revoking them when not properly and safely being utilized. The Fire Department will also begin working with Liberty Utilities to remove underbrush and standing deadwood in residential areas and under power lines to reduce the vulnerability to wildfires.	• Natural Resource Protection • Property Protection	• Wildfire	• General Occupancy
Establish a regular inspection and maintenance schedule for all departments to protect critical emergency management facilities and equipment from Lightning & Hail damage. This will include maintenance and replacement of all surge protection and battery backup on critical electronic equipment.	• Property Protection •	• Severe Thunderstorm	• General Occupancy • Essential Facilities • Utility Systems • Hazardous Materials
The Emergency Management Director will protect vulnerable populations from the impacts of extreme temperatures by establishing guidelines and best management practices for the creation of cooling and heating stations at the Senior Center and Library.	• Prevention • Public Information	• Extreme Temperatures	• Human lives

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
NATIONAL FLOOD INSURANCE PROGRAM MITIGATION ACTIONS			
The Building Inspector will distribute and make NFIP insurance and building codes explanatory pamphlets or booklets more accessible on the Town website to better assist residents assess the vulnerability of their homes/structures/businesses.	• Public Information	• Flooding	• General Occupancy • Essential Facilities
Create the regulatory requirement and enforcement measures for the use of elevation certificates for new structures in the floodplain.	• Prevention • Property Protection • Structural	• Flooding	• General Occupancy • Essential Facilities
Identify and become knowledgeable of non-compliant structures in the community. Notify landowners of non-compliant structures.	• Prevention • Property Protection	• Flooding	• General Occupancy • Essential Facilities
ADDITIONAL MITIGATION ACTIONS			
Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the NH Drought Management Team (DMT) and the State Drought Management Plan to monitor and educate the public about drought indicators.	• Prevention • Public Information	• Drought	• General Occupancy • Essential Facilities
The Emergency Management Director will create a database to track individuals at high risk of death during hazard events, such as the elderly, sick, and homeless. Conduct in-person outreach to these individuals to ensure they are adequately protected from the impacts of hazard events, including severe winter weather and extreme temperatures.	• Prevention	• Extreme Temperatures • Severe Winter Weather	• General Occupancy • Human Lives
The Emergency Management Director will update and distribute Community Hazards Guides, as well as set up a schedule for regularly conducting various forms of outreach and education programs to increase awareness and assess vulnerability to drought, earthquake, extreme temperatures, flooding, Lightning & Hail, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks.	• Public Information • Prevention • Natural Resource Protection	• Drought • Earthquake • Extreme Temperatures • Flooding • Lightning & Hail • Severe Wind • Severe Winter Weather • Tornado • Wildfire	• General Occupancy • Human lives
The Highway Department will establish a regular system to monitor and maintain brush cutting, and proactively work with Eversource to harden electrical infrastructure and decrease overall vulnerability to damage during severe wind	• Prevention	• Severe Winter Weather • Severe Wind	• Transportation Systems • Utility Systems

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
and winter weather events. This will include additional attention to tree trimming and removal in the vicinity of power lines and structures.			
The Emergency Management Director will work to establish and implement municipal infectious disease standard operating guidelines, as well as update the PPE point of distribution plan to reduce the hazard of spreading infectious diseases.	• Prevention • Public Information	• Infectious Diseases	• General Occupancy • Human Lives

Section 4.3 ~ Prioritizing Mitigation Actions

After identifying mitigation actions to address each hazard, the Team then began a two-step process to prioritize them. The first step was to conduct a benefit cost review. Benefit cost reviews provide a comprehensive overview of the monetary and non-monetary costs and benefits associated with each action. During this process, the Hazard Mitigation Team asked a variety of questions such as, "How beneficial is this action to the entire Town?" "How many people will benefit from this action?" "How large of an area is impacted by this project?" "How costly is this project?"

Table 10—Benefit Cost Review

Mitigation Action	Likely Benefits	Likely Costs
The Planning Board will review and update the Floodplain Ordinance, Zoning Regulations, and the Master Plan to support hardened infrastructure and development as time and budget allows for the duration of this plan. The Building Inspector will proactively enforce the International Building Code (IBC) to protect buildings and infrastructure from the impacts of earthquake, flooding, severe wind, severe winter weather, and tornado.	• This action would be most beneficial to residents of flood-prone areas of Town. • This action has the potential to reduce flood related economic losses.	• There are potential economic costs associated with limiting where development can go. • Percentage of existing Planning & Zoning budget appropriation (source: Litchfield Operating Budget)
Work with Pennichuck to increase public awareness of methods to reduce water consumption during drought conditions. Utilize innovative outreach methods include the Litchfield town website, social media accounts, local cable, and the Nashua Telegraph and Union Leader.	• This action has environmental benefits if residents comply with reduced water consumption measures. • Pennichuck has educational materials that the Town can utilize.	• This action may have limited impact if there is not an accompanying enforcement mechanism. • Litchfield has a mix of public and private wells, which makes enforcement difficult. • $2,000 (source: Litchfield Operating Budget)
The Fire Department will increase enforcement and oversight of burn	• This action would result in reduced fire-fighting costs.	• Large scale wildfires are relatively rare in Litchfield

Mitigation Action	Likely Benefits	Likely Costs
permits, revoking them when not properly and safely being utilized. The Fire Department will also begin working with Liberty Utilities to remove underbrush and standing deadwood in residential areas and under power lines to reduce the vulnerability to wildfires.	• This action would be most beneficial to portions of town near wooded areas. • Sound forestry practices can help reduce the risk of wildfire. • This action would also be beneficial to mitigate man-made fire related hazards.	and therefore the costs of implementing this action may outweigh the benefits of reduced property damage. • Opinions vary about wildfire management, so this action could cause social and political tension. • Enforcement of burn permits can be costly. • $0 additional costs, percentage of existing Fire Dept. and Public Works budgets (source: Litchfield Operating Budget)
Establish a regular inspection and maintenance schedule for all departments to protect critical emergency management facilities and equipment from Lightning & Hail damage. This will include maintenance and replacement of all surge protection and battery backup on critical electronic equipment.	• Reduced inconvenience and loss associated with a shutdown of critical facilities due to lightning damage	• $1,000-$5,000 per critical facility for lightning protection devices (source: Litchfield Operating Budget)
The Emergency Management Director will protect vulnerable populations from the impacts of extreme temperatures by establishing guidelines and best management practices for the creation of cooling and heating stations at the Senior Center and Library.	• This action would benefit the entire Town and particularly the most at risk and needy populations. • This action has broad social benefits for the community.	• $0 additional costs, percentage of existing Emergency Management budget (source: Litchfield Operating Budget)
The Building Inspector will distribute and make NFIP insurance and building codes explanatory pamphlets or booklets more accessible on the Town website to better assist residents assess the vulnerability of their homes/structures/businesses.	• Educate residents, builders, and other professionals about NFIP. • Reduce property loss costs associated with flooding.	• Minimal, part of normal town operations. • $500 annually; part of existing Code Enforcement budget (source: Litchfield Operating Budget)
Create the regulatory requirement and enforcement measures for the use of elevation certificates for new structures in the floodplain.	• This action would be most beneficial to residents in flood-prone areas of Town. • This action has the potential to reduce flood related structural damage and economic losses. • No additional costs to the town.	• Some individuals may view these building standards as an economic hardship. • Additional responsibility for building inspector. • Additional costs funded by private surveyors. (source: private surveyors)

Mitigation Action	Likely Benefits	Likely Costs
Identify and become knowledgeable of non-compliant structures in the community. Notify landowners of non-compliant structures.	• This action would be most beneficial to residents in the flood-prone areas of town. • This action has the potential to reduce flood-related structural damage and economic losses.	• Additional responsibility for the Building Inspector. • $0 additional costs, percentage of existing Code Enforcement budget (source: Litchfield Operating Budget)
Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the NH Drought Management Team (DMT) and the State Drought Management Plan to monitor and educate the public about drought indicators.	• This action has environmental benefits if residents comply with reduced water consumption measures. • Potential for reduction in fire suppression efforts.	• Part of normal town operations. • $0 in additional costs. Part of existing Fire Department budget (source: Litchfield Operating Budget)
The Emergency Management Director will create a database to track individuals at high risk of death during hazard events, such as the elderly, sick, and homeless. Conduct in-person outreach to these individuals to ensure they are adequately protected from the impacts of hazard events, including severe winter weather and extreme temperatures.	• The town currently has the capacity to implement this action. • Prevent loss of human life.	• This action may have limited impact as it would be conducted on voluntary basis. • $0 in additional costs. Part of existing Fire Department budget (source: Litchfield Operating Budget)
The Emergency Management Director will update and distribute Community Hazards Guides, as well as set up a schedule for regularly conducting various forms of outreach and education programs to increase awareness and assess vulnerability to drought, earthquake, extreme temperatures, flooding, Lightning & Hail, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks.	• The town currently has the capacity to implement this action. • This action is beneficial to all residents in Town	• This action may have limited impact because it can be difficult to get people to pay attention to outreach campaigns. • $0 additional costs, percentage of Emergency Management budget (source: Litchfield Operating Budget)
The Highway Department will establish a regular system to monitor and maintain brush cutting, and proactively work with Eversource to harden electrical infrastructure and decrease overall vulnerability to damage during severe wind and winter weather events. This will include additional attention to tree trimming and removal in the vicinity of power lines and structures.	• Trimming trees near power lines would reduce the risk of outages. • Fewer trees directly along road would also reduce root systems in roadways, allow more sunlight for better snowmelt, and improve overall improve road conditions.	• Removal of trees along designated scenic roads requires Planning Board approval. • Tree removal may be incompatible with local aesthetics. $2,000-$3,000 per large tree for removal (source: Litchfield Operating Budget)

Mitigation Action	Likely Benefits	Likely Costs
The Emergency Management Director will work to establish and implement municipal infectious disease standard operating guidelines, as well as update the PPE point of distribution plan to reduce the hazard of spreading infectious diseases.	• This action would benefit the entire Town and particularly the most at risk and needy populations. • This action has broad social benefits for the community.	• $0 additional costs, percentage of Emergency Management budget appropriation (source: Litchfield Operating Budget)

After completing a Benefit Cost review for each action, the Hazard Mitigation Team then prioritized the actions by conducting a STAPLEE Analysis, which stands for Social, Technical, Administrative, Political, Legal, Economic, and Environmental factors. For each mitigation action, the Team asked the following questions:

- Social— Will the action unfairly affect any one segment of the population? Will it disrupt established neighborhoods? Is it compatible with present and future community values? Will it adversely affect cultural resources?
- Technical—How effective is the action in avoiding or reducing future losses? Will it create more problems than it solves? What are some secondary impacts? Does it solve a problem or only a symptom?
- Administrative— Does the community have the capability to implement the action? Can the community provide the necessary maintenance? Can it be accomplished in a timely manner?
- Political— Is there public support both to implement and maintain the action? Is the political leadership willing to support it? Does it present a financial burden to stakeholders?
- Legal— Does the community have the authority to implement the action? Is enabling legislation necessary? What are the legal side effects? Will the community be liable for the actions, support of actions, or lack of actions?
- Economic— What are the costs of this action? How will the costs be borne? Are state/federal grant programs applicable? Does the action fit into existing capital improvements or economic development budgets?
- Environmental— How will this action affect the environment? Does it comply with local, state, and federal environmental regulations? Is it consistent with community environmental goals? Are endangered or threatened species likely to be affected?

The cost and benefit of each mitigation action were then evaluated and assigned a quantitative score based on the STAPLEE criteria.

Benefit Score Range: 0 = Not Beneficial, 1 = Somewhat Beneficial, 2 = Beneficial, 3 = Very Beneficial

Cost Score Range: 0 = Not Costly, -1 = Somewhat Costly, -2 = Costly, -3 = Very Costly

Next, the scores for each action were added to determine priority. Finally, the Hazard Mitigation Team reviewed the scores and resulting prioritization to make sure it was consistent with historical risks, anticipated future risks, current emergency management priorities, and the Town's goals and Master Plan. The STAPLEE analysis and prioritized mitigation actions appear in Table 11 below.

Table 11—STAPLEE Analysis

Mitigation Action: The Highway Department will establish a regular system to monitor and maintain brush cutting, and proactively work with Eversource to harden electrical infrastructure and decrease overall vulnerability to damage during severe wind and winter weather events. This will include additional attention to tree trimming and removal in the vicinity of power lines and structures.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would not unfairly affect any segment of the population or disrupt established neighborhoods. It is compatible with community values that understand trees need to be trimmed for road maintenance and public safety.	0	3
Technical	This action would be effective in avoiding or reducing future losses. It is highly likely that a severe winter weather or severe wind event will occur that will impact power lines. It would not create more problems than it solves, and it solves the problem rather than only a symptom. Loss of power has significant consequences for residents, businesses, and emergency operations. Fewer trees directly along the road would also improve drainage, reduce rood systems in the roadway, and allow more sunlight to melt the snow, all resulting in better road conditions.	0	3
Administrative (including responsible party)	Litchfield has the capacity to implement this action. The Litchfield Highway Dept. and Liberty Utilities would be the responsible parties.	0	3
Political	In general there is political support for this action.	0	3
Legal	The Town does not have the authority to trim trees along scenic roads without first receiving approval from the Planning Board. The Planning Board has the legal authority to declare dead trees along a scenic road a public hazard and therefore allow them to be removed. Some costs associated with this action would be borne by Liberty Utilities. The remaining costs would be borne by the Town. The removal of large trees would cost an estimated $1,200 per tree and would be performed by a hired contractor. The removal of small trees would be performed by the Litchfield Highway Dept. The benefits of a more resilient electrical infrastructure far outweigh the costs of this action.	-1	3
Economic (including direct cost)	This action would positively impact the environment by improving road drainage and decreasing the need to use ice melting agents.	-1	3
Environmental		-0	2
Subtotal		**-2**	**20**
Total		**18**	
Priority		**1**	

Mitigation Action: The Emergency Management Director will protect vulnerable populations from the impacts of extreme temperatures by establishing guidelines and best management practices for the creation of cooling and heating stations at the Senior Center and Library.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action primarily benefits Litchfield's most vulnerable residents. It is compatible with present and future community values.	0	2
Technical	This action does not solve the problem of extreme temperatures, but it does solve the symptom of exposure. Extreme temperatures are very likely to occur in Litchfield, so mitigation measures are important.	0	3
Administrative (including responsible party)	Litchfield has the capability to implement this action. The Litchfield Emergency Management Director is responsible for it and it falls under ongoing emergency management operations. This action can be implemented in a very timely manner.	0	3
Political	There is public support to implement and maintain this action.	0	3
Legal	Litchfield has the legal authority to implement this action.	0	3
Economic (including direct cost)	This action falls under Litchfield's existing Emergency Management budget and does not impose additional costs on the Town.	0	3
Environmental	There are no environmental impacts associated with this action.	0	0
Subtotal		**0**	**17**
Total		**17**	
Priority		**2**	

Mitigation Action: Establish a regular inspection and maintenance schedule for all departments to protect critical emergency management facilities and equipment from lightning damage. This will include maintenance and replacement of all surge protection and battery backup on critical electronic equipment.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	2
Technical	This action is effective in avoiding or reducing future losses. It would not create more problems than it solves. It would improve safety for municipal staff and reduce the inconvenience from a shutdown of critical facilities resulting from power outages. However, incidents related to lightning are very rare in Litchfield.	0	3
Administrative (including responsible party)	Litchfield has the capacity to implement this action. Each critical facility department head is responsible for implementing the installation of lightning protection devices. A private developer will be responsible for creating the additional emergency access as a condition of approval for a development project.	0	3
Political	There is political support to implement and maintain this action.	0	3
Legal	Litchfield has the authority to implement this action.	0	3
Economic (including direct cost)	The cost of $1,000-$5,000 per critical facility for lightning protection devices would come out of the Litchfield Operating Budget. The private developer will be responsible for funding the additional emergency access.	-2	2
Environmental	This action would not impact the environment.	0	2
Subtotal		**-2**	**18**
Total		**16**	
Priority		**3**	

The Emergency Management Director will update and distribute Community Hazards Guides, as well as set up a schedule for regularly conducting various forms of outreach and education programs to increase awareness and assess vulnerability to drought, earthquake, extreme temperatures, flooding, Lightning & Hail, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action does not unfairly affect any one segment of the population. It is available to all Litchfield residents, provided that a variety of distribution methods are utilized.	0	2
Technical	There is a high likelihood that at least one of the hazards addressed through this action will occur. This action would help to decrease risk and avoid future loss, but only if residents take personal action because of this educational campaign.	-2	3
Administrative (including responsible party)	Litchfield has the capability to implement this action and it could be accomplished in a very timely manner. This action would be the responsibility of the Litchfield Emergency Management Director.	0	3
Political	There is public support to implement and maintain this action.	0	2
Legal	Litchfield has the legal authority to implement this action.	0	3
Economic (including direct cost)	There is $0 in additional costs to implement this action. It is part of the existing Emergency Management budget.	0	3
Environmental	This action has the potential to reduce property damage and subsequent environmental impacts.	0	1
Subtotal		**-2**	**17**
Total		**15**	
Priority		**4**	

Mitigation Action: The Planning Board will review and update the Floodplain Ordinance, Zoning Regulations, and the Master Plan to support hardened infrastructure and development as time and budget allows for the duration of this plan. The Building Inspector will proactively enforce the International Building Code (IBC) to protect buildings and infrastructure from the impacts of earthquake, flooding, severe wind, severe winter weather, and tornado.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	There are not social impacts associated with this action. Enforcement would apply evenly across all applicable buildings, including new construction, major renovations, and changes of use.	0	2
Technical	This action is effective at avoiding and reducing future losses and it mitigates the impacts of these hazards.	0	3
Administrative (including responsible party)	Litchfield has the capability to implement this action. Responsibility would fall under the Litchfield Planning Dept. and the Litchfield Building Inspector.	0	2
Political	There is public support for this action. Concerns may exist among some property owners who would be directly impacted.	0	1
Legal	There are no legal issues related to this action.	0	2
Economic (including direct cost)	It would cost roughly $10,000 to update ordinances, regulations, and the Master Plan. However, this expenditure would simultaneously accomplish a number of similar mitigation actions.	-1	3
Environmental	This action has the potential to reduce property damage and subsequent environmental impacts.	0	2
Subtotal		**-1**	**15**
Total		**14**	
Priority		**5**	

Mitigation Action: The Emergency Management Director will work to establish and implement municipal infectious disease standard operating guidelines, as well as update the PPE point of distribution plan to reduce the hazard of spreading infectious diseases.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	2
Technical	This action would help to avoid or reduce future losses. It has more potential to solve symptoms related to infectious disease than the underlying problem itself. It would not create additional problems or cause secondary impacts.	0	2
Administrative (including responsible party)	Litchfield has the capability to implement this action. The Litchfield Emergency Management Director would be responsible for it.	0	2
Political	There is public support to implement and maintain this action, especially since the recent Covid-19 pandemic. The political leadership is also willing to support it.	0	3
Legal	Litchfield has the legal authority to implement this action.	0	2
Economic (including direct cost)	This action is consistent with normal town operations and does not impose additional economic costs.	0	2
Environmental	This action will not impact the environment.	0	0
Subtotal		**0**	**13**
Total		**13**	
Priority		**6**	

Mitigation Action: The Emergency Management Director will create a database to track individuals at high risk of death during hazard events, such as the elderly, sick, and homeless. Conduct in-person outreach to these individuals to ensure they are adequately protected from the impacts of hazard events, including severe winter weather and extreme temperatures.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This is a voluntary program, so it would not affect any one segment of the population. Helping vulnerable populations is compatible with community values.	0	2
Technical	This action is only effective at avoiding or reducing future losses if residents voluntarily participate in it.	0	2
Administrative (including responsible party)	The Town has the capability to implement this action if information is voluntarily provided by residents. The Litchfield Emergency Management Director is responsible for implementing this action.	0	2
Political	There is political support for this action.	0	2
Legal	The Town has the authority to implement this action and no enabling legislation is necessary. Participation in this program in entirely voluntary.	0	2
Economic (including direct cost)	This action would cost roughly $750 annually. It is consistent with normal town operations and does not impose additional economic costs.	0	2
Environmental	This action would not impact the environment.	0	0
Subtotal		**0**	**12**
Total		**12**	
Priority		**7**	

Mitigation Action: Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the NH Drought Management Team (DMT) and the State Drought Management Plan to monitor and educate the public about drought indicators.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action does not unfairly impact any segment of the population and it is compatible with present and future community values.	0	2
Technical	This action helps to solve symptoms of drought my making emergency response personnel and residents aware of current conditions. Monitoring alone has limited ability to reduce future loss—additional action is needed.	-2	2
Administrative (including responsible party)	The Litchfield Fire Dept. is responsible for monitoring water supply and drought conditions.	0	3
Political	There is public and political support for this action.	0	2
Legal	Litchfield has the legal authority to implement this action.	0	2
Economic (including direct cost)	Monitoring costs are covered under the existing Fire Dept. budget.	-1	2
Environmental	This action has a positive impact on the environment by providing the data needed to promote water conservation.	0	1
Subtotal		**-3**	**14**
Total		**11**	
Priority		**8**	

Mitigation Action: Work with Pennichuck to increase public awareness of methods to reduce water consumption during drought conditions. Utilize innovative outreach methods include the Litchfield town website, social media accounts, local cable, and the Nashua Telegraph and Union Leader.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	There are no known social issues associated with this action.	0	2
Technical	This action would help to avoid or reduce future losses. It has more potential to solve symptoms related to drought rather than the underlying problem itself. It will not create additional problems or cause secondary impacts.	0	2
Administrative (including responsible party)	Pennichuck provides information that the Town could utilize for public outreach. The administrative difficulty is finding the right forum to distribute the info. The Dept. of Public Works and the Health Dept. are the responsible parties.	0	2
Political	Litchfield has a blend of public and private wells, which makes enforcement difficult. There would likely be political resistance if the Town started enforcement.	-2	2
Legal	There are no legal issues associated with this action.	0	1
Economic (including direct cost)	This action is consistent with normal Town Health Department operations and does not impose additional economic costs.	0	1
Environmental	This action is environmentally beneficial if residents pay attention to and comply with reduced water consumption measures.	0	2
Subtotal		**-2**	**12**
Total		**10**	
Priority		**9**	

Mitigation Action: The Fire Department will increase enforcement and oversight of burn permits, revoking them when not properly and safely being utilized. The Fire Department will also begin working with Liberty Utilities to remove underbrush and standing deadwood in residential areas and under power lines to reduce the vulnerability to wildfires.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action does not unfairly impact any segment of the population and it is compatible with present and future community values. It is most valuable to portions of town near wooded areas.	0	2
Technical	This action helps to avoid or reduce future losses. It has the potential to solve the underlying problem of wildfires by removing the fuel source. It will not create additional problems or cause secondary impacts.	0	2
Administrative (including responsible party)	Litchfield has the capability to implement this action, although it poses an additional burden on the Fire Dept. Eversource is responsible for removing underbrush and standing deadwood under power lines.	-1	1
Political	There is public and political support for this action.	0	1
Legal	Litchfield has the legal authority to implement this action.	0	1
Economic (including direct cost)	The benefits of reduced fire-fighting costs and potential decrease in property damage could exceed the costs of implementing this action. At the same time, large scale wildfires are relatively rare in Litchfield and therefore the costs of implementing this action may outweigh the benefits. It is part of the existing $626,230 Fire Department budget. Eversource would be responsible for the direct costs of brush removal under power lines.	-1	2
Environmental	Fire is a natural part of the ecosystem and suppressing it may have negative consequences. On the other hand, large-scale, man-made fires can have a detrimental impact on the environment.	0	0
Subtotal		**-2**	**9**
Total		**7**	
Priority		**10**	

Mitigation Action: Identify and become knowledgeable of non-compliant structures in the community. Notify landowners of non-compliant structures.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action impacts people with structures in the floodplain.	0	1
Technical	This action would assist in avoiding future losses due to flooding.	0	2
Administrative (including responsible party)	Litchfield does have the capability to implement this action. The Emergency Management Director and Building Inspector would be responsible for this action.	0	1
Political	It is unclear whether there is public and political support for this action.	-1	1
Legal	There are no legal issues associated with this action.	0	0
Economic (including direct cost)	There are minimal costs to accomplish this action.	0	1
Environmental	This action would help reduce property damage and subsequent environmental impacts.	0	1
Subtotal		**-1**	**7**
Total		**6**	
Priority		**11**	

Mitigation Action: The Building Inspector will distribute and make NFIP insurance and building codes explanatory pamphlets or booklets more accessible on the Town website to better assist residents assess the vulnerability of their homes/structures/businesses.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	0
Technical	This action would help to avoid or reduce future losses. It has more potential to solve symptoms related to flooding than the underlying problem itself. It would not create additional problems or cause secondary impacts. Given that flooding is relatively rare in Litchfield, this action would likely have minimal impact.	0	1
Administrative (including responsible party)	Litchfield has the capability to implement this action. The Litchfield Building Inspector would be responsible for it. It can be accomplished in a timely manner.	0	1
Political	There is public support to implement and maintain this action.	0	1
Legal	Litchfield has the legal authority to implement this action. The Town's role is only to provide and distribute the materials, not to make actual insurance determinations.	0	0
Economic (including direct cost)	This action is consistent with normal town operations and does not impose additional economic costs. It would cost $500 per year to implement and would come out of the Building Inspection budget.	0	0
Environmental	This action has the potential to reduce property damage and subsequent environmental impacts only if the recommendations in the literature are implemented.	0	1
Subtotal		**0**	**4**
Total		**4**	
Priority		**12**	

Mitigation Action: Create the regulatory requirement and enforcement measures for the use of elevation certificates for new structures in the floodplain.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would directly impact individuals seeking to build in the floodplain.	-1	0
Technical	This action is effective in avoiding or reducing future losses. It has more potential to solve symptoms related to flooding rather than the underlying problem itself. It will not create additional problems or cause secondary impacts. Development in the floodplain is already limited, so this action may not have a significant impact.	0	2
Administrative (including responsible party)	Litchfield has the capacity to administer this action. The Litchfield Building Inspector would be the responsible party. It can be accomplished in a timely manner.	0	1
Political	There is political support for this action.	0	0
Legal	Litchfield has the authority to implement this action.	0	0
Economic (including direct cost)	Some landowners may believe they will face an economic hardship if they are required to take extra measures in order to build in flood-prone areas. This action is consistent with normal town operations and would come out of the $83,179 Litchfield Inspectional Services budget.	-1	0
Environmental	This action has the potential to reduce property damage and subsequent environmental impacts.	0	1
Subtotal		**-2**	**4**
Total		**2**	
Priority		**13**	

Section 4.4 ~ Implementing and Administering Mitigation Actions

The Town of Litchfield has integrated its 2018 Hazard Mitigation Plan into a variety of other planning mechanisms, including the Litchfield Emergency Response Plan and Capital Improvements Plan. Updates to Litchfield's Capital Improvement Plan will include any applicable mitigation projects identified in the 2025 Hazard Mitigation Plan. In addition, the Town of Litchfield has incorporated and will continue to integrate requirements of the Litchfield Hazard Mitigation Plan Update 2018 into other planning mechanisms. For example, the next update to the Town's Master Plan (currently underway) will incorporate elements of the Hazard Mitigation Plan where applicable.

The Litchfield Hazard Mitigation Team will be responsible for helping Town boards and departments to integrate the Hazard Mitigation Plan into their own planning mechanisms. The Hazard Mitigation Team developed Table 12, which is an action plan that outlines who is responsible for implementing the prioritized mitigation actions, how they will be funded, and when they will be completed.

Timeframe	
Short Term	1 year or less
Medium Term	2 -3 years
Long Term	4-5 years

Table 12—Implementation and Administration

Priority	Mitigation Action	Responsible Party	Cost & Funding	Timeframe
1	The Highway Department will establish a regular system to monitor and maintain brush cutting, and proactively work with Eversource to harden electrical infrastructure and decrease overall vulnerability to damage during severe wind and winter weather events. This will include additional attention to tree trimming and removal in the vicinity of power lines and structures.	Highway Department	Cost = $0 for tree work conducted by Eversource; $2,000-$3,000 per large tree removal by town. Funding Source: Litchfield Highway Department budget	Short Term
2	The Emergency Management Director will protect vulnerable populations from the impacts of extreme temperatures by establishing guidelines and best management practices for the creation of cooling and heating stations at the Senior Center and Library.	Emergency Management Director	Cost = $0 additional costs Funding Source: Emergency Management Budget	Short Term

Priority	Mitigation Action	Responsible Party	Cost & Funding	Timeframe
3	Establish a regular inspection and maintenance schedule for all departments to protect critical emergency management facilities and equipment from lightning damage. This will include maintenance and replacement of all surge protection and battery backup on critical electronic equipment.	All Departments	Cost = $1,000-$5,000 per building/facility Funding Source: Town Buildings budget	Short Term
4	The Emergency Management Director will update and distribute Community Hazards Guides, as well as set up a schedule for regularly conducting various forms of outreach and education programs to increase awareness and assess vulnerability to drought, earthquake, extreme temperatures, flooding, Lightning & Hail, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks.	Emergency Management Director	Cost = $0 additional costs Funding Source: Emergency Management Budget	Medium Term
5	The Planning Board will review and update the Floodplain Ordinance, Zoning Regulations, and the Master Plan to support hardened infrastructure and development as time and budget allows for the duration of this plan. The Building Inspector will proactively enforce the International Building Code (IBC) to protect buildings and infrastructure from the impacts of earthquake, flooding, severe wind, severe winter weather, and tornado.	Planning Board, Building Inspector	Cost = $10,000 to update ordinances, regulations, and Master Plan; complete in conjunction with similar mitigation actions. Funding Source: Grant funding and/or Planning Board budget	Short Term
6	The Emergency Management Director will work to establish and implement municipal infectious disease standard operating guidelines, as well as update the PPE point of distribution plan to reduce the hazard of spreading infectious diseases.	Emergency Management Director	Cost = $0 additional costs Funding Source: Emergency Management Budget	Short Term
7	The Emergency Management Director will create a database to track individuals at high risk of death during	Emergency Management Director	Cost = $0 additional costs	Long Term

Priority	Mitigation Action	Responsible Party	Cost & Funding	Timeframe
	hazard events, such as the elderly, sick, and homeless. Conduct in-person outreach to these individuals to ensure they are adequately protected from the impacts of hazard events, including severe winter weather and extreme temperatures.		Funding Source: Emergency Management Budget	
8	Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the NH Drought Management Team (DMT) and the State Drought Management Plan to monitor and educate the public about drought indicators.	Fire Department	Cost = $0 additional costs Funding Source: Fire Department Budget	Short Term
9	Work with Pennichuck to increase public awareness of methods to reduce water consumption during drought conditions. Utilize innovative outreach methods include the Litchfield town website, social media accounts, local cable, and the Nashua Telegraph and Union Leader.	Emergency Management Director, Fire Department, Pennichuck Water Works	Cost = $0 additional costs Funding Source: Emergency Management and Fire Department Budget	Long Term
10	The Fire Department will increase enforcement and oversight of burn permits, revoking them when not properly and safely being utilized. The Fire Department will also begin working with Liberty Utilities to remove underbrush and standing deadwood in residential areas and under power lines to reduce the vulnerability to wildfires.	Fire Department	Cost = $0 additional costs Funding Source: Fire Department Budget	Short Term
11	Identify and become knowledgeable of non-compliant structures in the community. Notify landowners of non-compliant structures.	Building Inspector	Cost = $0 additional costs Funding Source: Code Enforcement Budget	Medium Term
12	The Building Inspector will distribute and make NFIP insurance and building codes explanatory pamphlets or booklets more accessible on the Town website to better assist residents assess the vulnerability of their homes/structures/businesses.	Building Inspector	Cost = $0 additional costs Funding Source: Code Enforcement Budget	Short Term

Priority	Mitigation Action	Responsible Party	Cost & Funding	Timeframe
13	Create the regulatory requirement and enforcement measures for the use of elevation certificates for new structures in the floodplain.	Building Inspector	Cost = $0 additional costs from municipal budget Funding Source: Private Surveyors	Short Term

CHAPTER 5. PLAN ADOPTION

Section 5.1 ~ Formal Adoption by Governing Body

CERTIFICATE OF ADOPTION

TOWN OF LITCHFIELD, NH BOARD OF SELECTMEN

A RESOLUTION ADOPTING THE TOWN OF LITCHFIELD, NH HAZARD MITIGATION PLAN UPDATE 2025

WHEREAS, the Town of Litchfield has historically experienced damage from natural hazards and it continues to be vulnerable to the effects of climate change, drought, earthquake, extreme temperatures, flooding, severe wind, Lightning & Hail, severe winter weather, tornado, and wildfire, resulting in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Litchfield has developed and received Approval Pending Adoption from NH Homeland Security & Emergency Management (HSEM) for its Hazard Mitigation Plan Update 2025 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held between August 8, 2023 and October 17, 2023 regarding the development and review of the Hazard Mitigation Plan Update 2025; and

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

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

WHEREAS, adoption of this Plan will make the Town of Litchfield eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by the Litchfield Board of Selectmen:

1. The Plan is hereby adopted as an official plan of the Town of Litchfield
2. The respective officials identified in the mitigation strategy of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;
3. An annual report on the progress of the implementation elements of the Plan shall be presented to the Board of Selectmen by the Litchfield Hazard Mitigation Team.

Adopted on this day, the 28th **of** April, **2025.**

John Brunelle, Chairman, Litchfield Board of Selectmen

G. Stephen Gannon, Vice-Chairman, Litchfield Board of Selectmen

Dr. Kimberly M. Queenan, Litchfield Board of Selectmen

F. Robert Leary Sr., Litchfield Board of Selectmen

Dianne Plansky, Litchfield Board of Selectmen

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of Litchfield the 28th of April, 2025.

Kim Kleiner, Town Administrator

Witness

KIMBERLY KLEINER NOTARY PUBLIC STATE OF NEW HAMPSHIRE MY COMM. EXP. 8/18/2026

Town of Litchfield, New Hampshire

Hazard Mitigation Plan Update 2025

Appendix

Hazard Mitigation Team Meeting Agendas & Sign-in Sheets

Notification Letter

Hazard Mitigation Plan Update Website Screen Shot

Hazard Mitigation Team Meeting Agendas & Sign-in Sheets

Litchfield Hazard Mitigation Meeting ~ August 8, 2023

Name	Title	Agency	Email
Roy Arria	Operator	Transfer Station	arriar@yahoo.com
Paul Kelly	Health / Fire	Fire	pkelly@litchfieldfd.com
Jeff Blackwell	Building Inspector	Bldg Dept.	jblackwell@litchfieldnh.gov
Mike French	Police Administrator	Police	MFrench@litchfieldpd.com
Kim Kleiner	Town Administrator	Town	KKleiner@litchfieldnh.gov
Doug Nicoll	Fire Chief / EMD	Fire	DNicoll@litchfieldfd.com
Ed Glancy	Deputy Fire Chief	Fire	EGlancy@litchfieldfd.com
Kevin Brown	Road Agent	Highway	KBrown@litchfieldnh.gov

Litchfield Hazard Mitigation Meeting ~ September 7, 2023

Name	Title	Agency	Email
Mike Brenck	Interim Police Administrator	Litchfield PD	MBrenck@litchfieldpd.com
Paul Kelly	Captain / Dep. Health off.	Litchfield FD	PKelly@litchfieldfd.com
DOUG NICOLL	EMD / FIRE CHIEF	LITCHFIELD FD	DNICOLL@LITCHFIELDFD.COM
Jeff Blackwell	Building Inspector	Litchfield Bldg Dept.	JBlackwell@litchfieldnh.gov
DAVE MELLEN	SOLID WASTE	LITCHFIELD SOLID W.	DMELLEN@LITCHFIELDNH.GOV

Litchfield Hazard Mitigation Meeting ~ September 26, 2023

Name	Title	Agency	Email
Jeff Blackwell	Building Inspector		jblackwell@litchfieldnh.gov
Kevin Brown	Road Agent		KBrown@litchfieldnh.gov
Dave Meigen	Solid Waste		DMeigen@litchfieldnh.gov
Kim Kleiner	Town Litchfield		KKleiner@litchfieldnh.gov
Doug Nicoll	Fire Chief/EMD		DNicoll@litchfieldfd.com
Paul Kelly	Captain / Health		Pkelly@litchfieldfd.com

Litchfield Hazard Mitigation Meeting ~ October 17, 2023

Name	Title	Agency	Email
Douglas Nicoll	Fire Chief/EMD	LFD	DNicoll@litchfieldfd.com
Paul Kelly	Capt.	LFD	pkelly@ " "
Dave Meiten	Solid Waste Mang	Solid Waste	dmeiten@litchfieldnh.com
Jeff Blackwell	Building Inspector	Building	Jblackwell@litchfieldnh.gov
Kevin Brown	Highway	Highway	KBrown@litchfieldnh.gov
Kim Kleiner	T.A.	Admin.	KKleiner@litchfieldnh.gov
Thomas Scotti	Police Captain/LPD	LPD	tscotti@litchfieldpd.com

Notification Letter

August 22, 2023

Litchfield, NH Hazard Mitigation Plan Update

The Town of Litchfield, in conjunction with the Nashua Regional Planning Commission, is in the process of updating its Hazard Mitigation Plan. We strongly encourage all residents, members of the business community, and other interested individuals to participate in the update process.

The Litchfield Hazard Mitigation Plan Update will examine changes in development and mitigation priorities that have occurred since the 2018 Plan. It will also address natural hazards in the Town, previous occurrences of these hazards, the probability of future hazard events, and the vulnerability of Litchfield's critical facilities to these hazards. The Plan will conclude by identifying and prioritizing mitigation actions to reduce Litchfield's vulnerability to natural hazards.

You can stay informed by visiting the Litchfield Hazard Mitigation Plan Update website at https://nashuarpc.org/about_nrpc/our_region___communities/litchfield_hazard_mitigation_plan_update.php. The webpage will be updated throughout the planning process and includes meeting times, locations, agendas, and updated documents. For additional information or to participate in the Plan update, please contact me at cassiec@nashuarpc.org or (603) 417-6570 x6567.

All the best,
NASHUA REGIONAL PLANNING COMMISSION

Cassie Cashin

Cassie Cashin
Regional Planner III
(603) 417-6570 x6567
cassiec@nashuarpc.org

Hazard Mitigation Plan Update Website Screen Shot

Litchfield Hazard Mitigation Plan Update

PAGE MENU

Amherst
Brookline
Hollis
Hudson
Litchfield
Lyndeborough
Mason
Merrimack
Milford
Mont Vernon
Nashua
Pelham
Wilton

RESOURCES

The Town of Litchfield, in conjunction with the Nashua Regional Planning Commission, is in the process of updating its Hazard Mitigation Plan. We strongly encourage all residents, members of the business community, and other interested individuals to participate in the update process.

The Litchfield Hazard Mitigation Plan Update will examine changes in development and mitigation priorities that have occurred since the 2018 Plan. It will also address natural hazards in the Town, previous occurrences of these hazards, the probability of future hazard events, and the vulnerability of Litchfield's critical facilities to these hazards. The Plan will conclude by identifying and prioritizing mitigation actions to reduce Litchfield's vulnerability to natural hazards. The webpage will be updated throughout the planning process and includes meeting times, locations, agendas, and updated documents.

For additional information or to participate in the Plan update, please contact Cassie Cashin at cassiec@nashuarpc.org or (603) 417-6570 x6567.

Steering Committee Members

Name	Title/Department
Doug Nicoll	Fire Department Chief and Emergency Management Director
Kimberly Kleiner	Town Administrator
Ray Arris	Operator, Transfer Station
Paul Kelly	Health Officer, Fire Department
Mike French	Police Administrator
Ed Glancy	Deputy Chief, Fire Department
Kevin Brown	Road Agent, Highway Department
Kevin Lynch	Board of Selectmen
Dave Mellen	Facility Manager, Recycling/Solid Waste Department

Hazard Mitigation Plan Update Meetings

All meetings will take place at 10:00 am in the Litchfield Fire Department Community Room, located at 10 Liberty Way in Litchfield, NH.

Meeting 1, August 8, 2023
Agenda
Task 1: planning process, identifying resources

Meeting 2, September 7, 2023 (NOTE: This meeting was rescheduled from September 5)
Agenda
Task 2: natural hazards, previous occurrences of hazards, probability of future hazards, critical facilities, vulnerabilities by hazard

Meeting 3, September 26, 2023
Agenda
Task 3: status of previous mitigation actions, new mitigation actions

Meeting 4, October 17, 2023
Agenda
Task 4: prioritize mitigation actions, implementation schedule

Section 5.2 ~ FEMA Approval Letter

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

FEMA

May 1, 2025

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

Director Buxton:

The U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region 1 Mitigation Division has approved the *Town of Litchfield, New Hampshire Hazard Mitigation Plan Update 2025* effective **May 1, 2025** through **April 30, 2030** in accordance with the planning requirements of the Robert T. Stafford Relief and Emergency Assistance Act (Stafford Act), as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; and Title 44 Code of Federal Regulations (CFR) Part 201.

Mitigation plans may include additional content to meet Element H: Additional State Requirements or content the local government included beyond applicable FEMA mitigation planning requirements. FEMA approval does not include the review or approval of content that exceeds these applicable FEMA mitigation planning requirements.

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

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

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

Sincerely,

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

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