Town of Merrimack, New Hampshire

Hazard Mitigation Plan Update 2026

Prepared with Assistance from the Nashua Regional Planning Commission

Funded in part by the NH Department of Safety, Homeland Security and Emergency Management

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ACKNOWLEDGEMENTS

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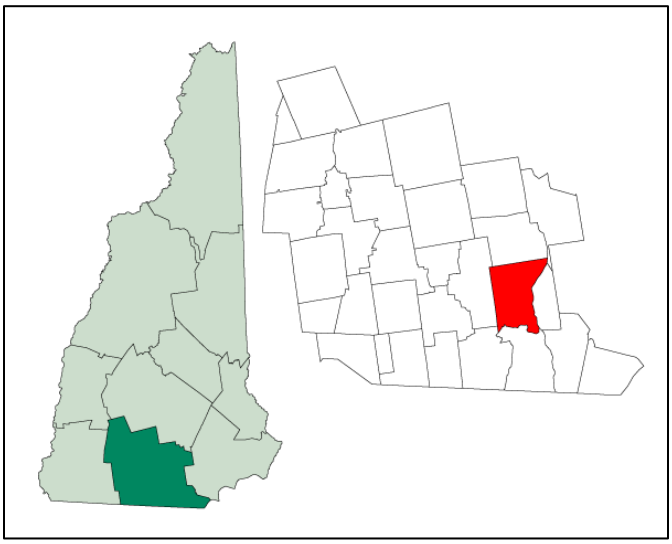
[1]EXECUTIVE SUMMARY



Jurisdiction and Community Profile

This plan addresses the Town of Merrimack, NH. Merrimack is located in the southern part of the state in Hillsborough County, bordering Bedford to the north, Amherst to the west, Hollis and Nashua to the south, and Litchfield to the east. The town is comprised of 33.4 square miles (approximately 21,376 acres), with the Merrimack River running along the entire municipal boundary between Merrimack and Litchfield. In addition to the Merrimack River, the Souhegan River, Naticook Brook, and Pennichuck Brook all flow through Merrimack. Additional noteworthy bodies of water include Naticook Lake, Greens Pond, and Horseshoe Pond. Major transportation routes include the Everett Turnpike, Daniel Webster Highway, and NH Route 101A.

According to the 2023 American Community Survey, there are approximately 26,632 residents and the median age is 42.9 years. At this time there were approximately 10,214 households with approximately 84% of housing consisting of single-family homes and the rest largely consisting of multifamily housing. Ther Merrimack School District (SAU 26) operates grades K-12 throughout six public schools: Merrimack High School, Merrimack Middle School, James Mastricola Upper Elementary School, James Matricola Elementary School, Reeds Ferry Elementary School, and Thorntons Ferry Elementary School.

The Town of Merrimack operates under a town charter form of government and Merrimack is governed by a Town Council with a Town Manager running the daily administrative functions and follows NH RSA 40:13 (SB2) for budgetary/monetary items. Town departments include but are not limited to Assessing, Building Code Enforcement & Inspectional Services, Buildings & Grounds, Community Development, Emergency Management, Finance, Fire & Rescue, Health Division, Parks and Recreation, Community Development, Police, Public Works, Solid Waste, Wastewater, and Welfare.

Scope of the Plan

This Plan addresses the following types of Hazards:

- Drought
- Earthquake
- Extreme Temperatures
- Flooding
- Severe Wind
- Lightning & Hail

[1] Photo Source: Andrew Sawyer - Created from Boundary/Border Outline Files of the Libre Map Project which held a BY-SA creative commons license. Data originally from 2000 US Census boundary data.

- Severe Winter Weather
- Tornado
- Wildfire
- 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 Merrimack 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.

- Objective 2.1—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 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 The Planning Process

The Merrimack Hazard Mitigation Plan Update 2026 was prepared by the Nashua Regional Planning Commission (NRPC) for the Town of Merrimack, NH. NRPC staff worked closely with the Merrimack Hazard Mitigation Team to write this plan.

NRPC staff met with the Merrimack Hazard Mitigation Team for a series of 4 meetings to prepare the Merrimack Hazard Mitigation Plan Update 2026. Agendas from these meetings appear in the Appendix to this Plan. In between meetings, NRPC worked directly with Merrimack Hazard Mitigation Team members to obtain additional information needed to write the Plan.

The primary differences between the 2026 Plan and the 2021 Plan are 1) Fluvial Erosion is no longer recognized as a hazard, 2) Infectious Disease is now recognized by the State as a hazard, and 3) 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 May 8, 2025, the group discussed who should be invited to participate in the planning team that was not currently represented. 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:

- American Red Cross, Northern New England Regional Headquarters, Concord, NH
- Anheuser-Busch Inc, Safety Manager, Merrimack, NH
- BAE Systems, Merrimack, NH
- City of Nashua, NH, Lori Wilshire, President, Board of Aldermen
- Dartmouth-Hitchcock, Office Manager, Merrimack, NH
- Fidelity Investments, Merrimack, NH
- Homeland Security and Emergency Management, Concord, NH
- Jones Chemical, Kevin Ballantine, Branch Manager, Merrimack, NH
- Manchester-Boston Regional Airport, Manchester, NH
- Nashua Airport Authority, Chris Lynch, Nashua, NH
- Thomas More College, Clark Inghram, Facilities Manager, Merrimack, NH
- Town of Amherst, NH, Danielle Pray, Chairman, Board of Selectmen
- Town of Bedford, NH, Lori Radke , Chairman, Town Council
- Town of Litchfield, NH, F. Robert Leary, Chairman, Board of Selectmen
- Pennichuck Water Works, Nashua, NH
- Merrimack Premium Outlets, Vincent Cosco, General Manager
- Elbit Systems of America, Merrimack, NH
- YMCA of Greater Nashua, Merrimack Branch
- Federal Aviation Administration, Colleen D'Alessandro, New England Regional Administrator

A copy of the letter that was sent to these entities appears in the Appendix to this Plan.

Section 1.3. Public Participation

During the first Hazard Mitigation Team meeting, held on May 8, 2025, 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://www.merrimacknh.gov/), Merrimack Police Department Facebook account (https://www.facebook.com/pages/Merrimack-Police-Department/104950052912992), Merrimack Fire Rescue Facebook account (https://www.facebook.com/merrimackfirerescue), and local cable access television (http://merrimacktv.com/, along with their Facebook account (https://www.facebook.com/merrimacktv). The Team determined that these methods should also be used to encourage public participation in the Hazard Mitigation Plan update process. There was no public response to provide input to the Merrimack Hazard Mitigation Plan Update 2026 process.

NRPC staff also developed a webpage for the Merrimack Hazard Mitigation Plan Update 2026 (https://www.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 2021 Merrimack Hazard Mitigation Plan, 2026 Hazard Mitigation Plan Outline, and Hazard Mitigation Plan Guide. It also provides meeting times, locations, agendas, and homework assignments. The Town of Merrimack'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 five (5) years. A screen shot 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 May 8, 2025, the team discussed Merrimack'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 Merrimack'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.

Planning and Regulatory Capabilities

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate Merrimack'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 Merrimack. Each one should be considered as an available mechanism for incorporating the recommendations of the Merrimack Hazard Mitigation Plan Update 2026.

- Flood Hazard Conservation District—includes all Special Flood Hazard Areas designated by FEMA in its "Flood Insurance Study for the County of Hillsborough, NH" with an effective date of September 25, 2009, together with the associated Flood Insurance Rate Maps dated September 25, 2009.

- Wetlands Conservation District—this district limits construction in wetlands soils, wetlands, and buffer areas.
- Stormwater Management Standards—designed to protect water quality in the Town. Prior to any disturbance, the party responsible is required to submit a SWMP to the Community Development Department for any tracts of land that results in a total disturbance of 20,000 or more square feet of land.
- 2023-2029 Capital Improvement Program—6-year plan that outlines proposed capital expenditures from municipal departments, school board, library, and water district. Planning Board defines capital expenditures as the purchase, construction, or improvement of land, buildings, infrastructure, or equipment having an associated cost of $100,000 or more and an estimated useful life of at least 7 years.
- Zoning Ordinance and Building Code—revised September 12, 2024
- Subdivision Regulations – Adopted September 3, 2019
- Site Plan Regulations – Adopted September 3, 2019
- 2013 Master Plan Update—adopted January 7, 2014
- National Flood Insurance Program
- Merrimack Development Guide – updated April 2023

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 Merrimack include:

Emergency Management Plans

- Merrimack Hazard Mitigation Plan 2021—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 Merrimack's critical facilities to these hazards. The Hazard Mitigation Plan also identifies and prioritizes mitigation actions to reduce Merrimack's vulnerability to natural hazards.
- Merrimack Emergency Response Plan—this document outlines responsibilities and the means by which resources are deployed during and following an emergency or disaster.

Emergency Management Departments, Facilities, and Personnel

- Merrimack Fire and Rescue Department—responds to all types of incidents including fires, automobile accidents, medical emergencies, hazardous materials response, and technical rescues. In addition, the Department promotes emergency preparedness, fire prevention, building code enforcement, emergency management, health division and other life safety programs.
- Merrimack Police Department
- Community Emergency Response Team

- Cooperation with City of Nashua Emergency Management—Merrimack and Nashua emergency management teams meet quarterly regarding emergency management and public health issues, all Nashua alerts (ex. storms, Red Cross, public health) are also sent to Merrimack.
- Souhegan Valley Mutual Aid, Border Area
- Police Mutual Aid—Hillsborough County, Londonderry, State Police, National Guard
- NH Public Works Mutual Aid

Emergency Management Communications

- Nixle—connects public safety agencies to Merrimack residents via text, web, and email.
- SchoolMessenger for the school district. Makes automated phone calls to parents in case of emergencies.
- Merrimack Police Department Facebook accounts—emergency management announcements
- Merrimack Fire Rescue Facebook
- Local access TV—emergency management announcements
- Merrimack Town website—emergency management announcements and education
- Regional communications system, total interoperability of radio, officers have portable radios, interoperability with Mutual Aid, BAE interoperable system in command vehicle.
- Merrimack Village District Water Works Facebook
- Merrimack Department of Public Works Facebook
- Town of Merrimack Facebook

Floodplain Management Capabilities

The Town of Merrimack 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). Merrimack 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. Merrimack has adopted the "Flood Hazard Conservation District," found in Section 2.02.8 of the Merrimack Zoning Ordinance and Building Code. The Flood Hazard Conservation District includes all Special Flood Hazard Areas designated by FEMA in its "flood Insurance Study for the County of Hillsborough, NH," with an effective date of September 25, 2009, together with the associated Flood Insurance Rate Maps dated September 25, 2009.

Additional information on the Flood Hazard Conservation District and Merrimack's participation in the NFIP can be found in Section 3.7 of this Plan.

Administrative and Technical Capabilities

Merrimack'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 Merrimack's hazard mitigation administrative and technical capabilities:

- Building Code & Enforcement Division
- Community Development

- Finance Department
- Emergency Management
- Health Division
- Fire & Rescue Department—FEMA ICS 300-700 trained
- Police Department—FEMA ICS 300-700 trained
- Public Works Department
  - Solid Waste Division
  - Wastewater Division
- Town Manager
- Town Council
- Zoning Board
- Planning Board
- Conservation Commission
- Merrimack Village District Water Works
- School Board
- Board of Commissioners
- Pennichuck Water
- Welfare Department

Fiscal Capabilities

In addition to administrative and technical capabilities, the ability of the Town of Merrimack to implement mitigation actions is closely associated with the amount of money available for these projects. Mitigation actions identified in this Plan, including those in **Table 18 - Implementation and Administration**, may utilize the following funding sources:

State and Federal Grants, including, but not limited to:

- 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.

- NH Department of Transportation Bridge Aid Program
- Capital Improvements Plan
- The Merrimack Planning Board was directed as a result of the 1984 Town Meeting to prepare and maintain a six-year capital improvements program (CIP) to aid Town Council in its consideration of annual budgets. It is updated yearly.
- RSA 674:7 requires municipal departments, the school board, the library, and the water district to submit statements of proposed capital expenditures to the Planning Board. For CIP purposes, the Planning Board defines capital expenditure as the purchase, construction, or improvement of land, buildings, infrastructure, or equipment having an associated cost of $100,000 or more and an estimated useful life of at least seven years.

Summary and Analysis of Merrimack'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	Flood Hazard Conservation District, Wetlands Conservation District, Stormwater Management Standards, 2019-2026 Capital Improvement Program, Zoning Ordinance and Building Code, Subdivision and Site Plan Regulations, 2013 Master Plan, NFIP	Entire jurisdiction	Planning Board, Zoning Board, Community Development Department	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.
Emergency Management	Plans; Departments, Facilities, Personnel, and Volunteers; Communications	Entire jurisdiction	Merrimack Fire and Rescue, Merrimack Police, CERT Team, City of Nashua Emergency Management,	Good	Utilize a variety of communications methods to ensure all residents are educated about emergency preparedness and hazard mitigation

			Souhegan Valley Mutual Aid Border Area, Police Mutual Aid, NH Public Works Mutual Aid		measures they can take.
Floodplain Management	Flood Hazard Conservation District, NFIP	Designated Flood Hazard Areas in Merrimack	Merrimack Planning Board	Excellent	No changes or improvements needed.
Administrative and Technical	Planning Dept., Planning Staff, Building Inspector, Building Official, Health Officials, Fire Dept., Police Dept., Public Works, Town Administrator, Town Council, Zoning Board, Conservation Commission, Merrimack Village District Water Works, School Budget Committee	Entire jurisdiction	Entities listed in Description	Good	Promote communication across all departments to ensure Hazard Mitigation Plan goals and actions are implemented.
Fiscal	Grant funding, Capital Improvements Program (CIP)	Entire jurisdiction	Town Council, Planning Board, Budget Committee	Good	Hazard mitigation actions should be considered for inclusion in the CIP and departmental budgets. Merrimack's Hazard Mitigation Plan should be updated at least every 5 years in order to maintain eligibility for FEMA grants.

Section 1.5. Review and Incorporation of Existing Documents

Many existing documents were reviewed and incorporated into the Merrimack Hazard Mitigation Plan Update 2026. The Merrimack Zoning Ordinance & Building Code 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 Merrimack Capital Improvements Plan was used to help document the Town's fiscal capabilities (Section 1.4). The Merrimack 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 Merrimack Emergency Response Plan was also used to inform the analysis and prioritization of mitigation actions. The State of New Hampshire Multi-Hazard Mitigation Plan Update 2023 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 Merrimack'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 3.2), 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 Merrimack Emergency Management Director / Fire Chief 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 Town Council. The public will be notified of these meetings in advance through the 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 & Land Use Ordinance.
- 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 are used to evaluate and update the plan:

Plan Mission and Goal

- Are 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, should this information be incorporated into the plan?

<u>Existing Mitigation Strategies</u>

- Are the current strategies effectively mitigating the effect of any recent hazard events?
- Has there been any damage to property since the plan was last reviewed?
- How could the existing mitigation strategies be improved to reduce the impact of recent hazards occurring?

<u>Proposed Mitigation Strategies</u>

- 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?

<u>Review of the Plan and Integration with Other Planning Documents</u>

- 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 Ordinance & Building Code 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/Fire Chief will be responsible for a complete update of the Plan every five years and incorporating the results of Merrimack's plan monitoring and evaluation procedures. The next update of the plan is anticipated to begin in calendar-year 2030, with the goal of adoption in 2031. At The first meeting, initiated by the EMD, is anticipated in March of 2030. 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 Town Council is responsible for approving the plan for submission to FEMA and for adoption of the plan.

The update will likely follow a similar planning process and the outline to the current planning process, making deviations when needed.

CHAPTER 2. CHANGES FROM PREVIOUS PLAN

Section 2.1. Changes in Development

Since the 2021 Plan, there has been significant residential development in Merrimack. Merrimack has seen the addition of 916 rental units, 43 condo units, 90 elderly housing units, and 71 single-family homes. A large shopping plaza and an extended stay hotel were also constructed. There has also been additional commercial development, with two new warehouses and four large commercial centers. The additional population in town significantly raises overall vulnerability to hazards regarding human life.

In contrast, Merrimack has been working to harden critical transportation facilities, and since 2021 the town has updated bridges on Wire Road, McGaw Bridge Road, Bedford Road, and Bean Road to allow increased water flow. This lowers overall risk of flooding to critical facilities.

In addition, Merrimack has also worked with FEMA to remove structures from the floodplain, to further reduce the overall risk of flooding in town.

Section 2.2. Progress in Local Mitigation Efforts

The mitigation actions and implementation framework identified in the Merrimack Hazard Mitigation Plan Update 2026 have been revised to reflect progress in local mitigation efforts, shown in **Table 1** below. To assess progress on local mitigation efforts, the Hazard Mitigation Team reviewed the actions originally presented in the Merrimack Hazard Mitigation Plan 2021 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 Mitigation Actions

2021 Mitigation Action	Status	Explanation
Establish mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event. Form partnerships between local, state, and regional entities to expand resources and improve coordination to support floodplain management.	Completed/ Deleted	This action has been completed and will not be tracked in future hazard mitigation plans.
Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations and erosion control regulations to improve floodplain management in Merrimack.	Deferred	This action was not completed over the span of the 2021 plan Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2026.
Inspect foundations at time of completion before framing to determine if lowest floor is at or above Base Flood Elevation (BFE).	Completed/ Deleted	This action has been completed and will not be tracked in future hazard mitigation plans.

2021 Mitigation Action	Status	Explanation
Enhance local officials, builders, developers, local citizens and other stakeholders' knowledge of how to read and interpret the FIRM.	Completed/ Deleted	This action has been completed and will not be tracked in future hazard mitigation plans.
Prepare, distribute, or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.	Completed/ Deleted	This action has been completed and will not be tracked in future hazard mitigation plans.
Require water conservation by enforcing the year round even/odd water ordinance, which limits the days outside watering is allowed based on street address and date.	Completed/ Ongoing	This action is ongoing and will be included in the Hazard Mitigation Plan Update 2026.
Work with FEMA to voluntarily remove structures from flood-prone areas to minimize risk of flooding.	Completed/ Deleted	This action has been completed and will not be tracked in future hazard mitigation plans.
Elevate new roads and bridges above the base flood elevation and raise existing low-lying bridges and roads.	Deferred	This action was not completed over the span of the 2021 plan Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2026.
Protect critical emergency management facilities and equipment from lightning damage. Install and maintain surge protection and battery backup on critical electronic equipment.	Deferred	This action was not completed over the span of the 2021 plan Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2026.
Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquakes, flooding, hurricanes, and winter storms.	Completed/ Ongoing	This action is ongoing and will be included in the Hazard Mitigation Plan Update 2026.
Conduct outreach and education programs to increase awareness of earthquakes, extreme temperatures (including carbon monoxide risks), hurricanes, severe thunderstorms, and severe winter weather.	Deleted	This action was repetitive and deleted to eliminate redundancy.
Implement structural inspections of roofs and deploy trained maintenance personnel for roof snow-removal operations at critical facilities.	Completed/ Deleted	This action has been completed and will not be tracked in future hazard mitigation plans.
Protect power lines by working with utility companies to harden electrical	Deferred	This action was not completed over the span of the 2021 plan Hazard Mitigation Plan and

2021 Mitigation Action	Status	Explanation
infrastructure, including trimming trees near power lines. Consider the costs and benefits of requiring overhead power lines be buried in all new developments.		will be moved to the Hazard Mitigation Plan Update 2026.
Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the New Hampshire Drought Management Team (DMT) and the State Drought Management.	Completed/ Ongoing	This action is ongoing and will be included in the Hazard Mitigation Plan Update 2026.
Create a database to track those individuals at high risk of death during hazard events, such as the elderly, sick, and homeless. Coordinate with the Emergency Management Director / Fire Chief to 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.	Completed/ Deleted	This action has been completed and will not be tracked in future hazard mitigation plans.
Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquake, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks. Utilize Nixle, community access TV, Merrimack website, and social media.	Deferred	This action was not completed over the span of the 2021 plan Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2026.
Tightly control burn permits and revoke when not properly and safely being utilized. Post fire danger categories. Work with Eversource to remove underbrush and standing deadwood in residential areas and under power lines to reduce the likelihood of wildfires spreading.	Completed/ Ongoing	This action is ongoing and will be included in the Hazard Mitigation Plan Update 2026.

Section 2.3. Changes in Priorities

Table 2. Changes in Mitigation Priorities depicts the change in STAPLEE scores of the 2021 mitigation actions and what their status is in the 2026 Plan update.

The following mitigation action rose in priority level from the 2021 Plan to the 2026 Plan:

- Elevate new roads and bridges above the base flood elevation and raise existing low-lying bridges and roads.

The following mitigation actions dropped in priority level from the 2021 Plan to the 2026 Plan:

- Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations and erosion control regulations to improve floodplain management in Merrimack.
- Protect critical emergency management facilities and equipment from lightning damage. Install and maintain surge protection and battery backup on critical electronic equipment.
- Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquakes, flooding, hurricanes, and winter storms.
- Protect power lines by working with utility companies to harden electrical infrastructure, including trimming trees near power lines. Consider the costs and benefits of requiring overhead power lines be buried in all new developments.
- Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the New Hampshire Drought Management Team (DMT) and the State Drought Management.
- Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquake, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks. Utilize Nixle, community access TV, Merrimack website, and social media.
- Tightly control burn permits and revoke when not properly and safely being utilized. Post fire danger categories. Work with Eversource to remove underbrush and standing deadwood in residential areas and under power lines to reduce the likelihood of wildfires spreading.

The following mitigation actions stayed the same in priority level from the 2021 Plan to the 2026 Plan:

- Require water conservation by enforcing the year round even/odd water ordinance, which limits the days outside watering is allowed based on street address and date.

The following 2021 mitigation actions were completed and/or deleted and will not be included in the 2026 Plan:

- Establish mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event. Form partnerships between local, state, and regional entities to expand resources and improve coordination to support floodplain management.
- 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.

- Prepare, distribute, or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.
- Work with FEMA to voluntarily remove structures from flood-prone areas to minimize risk of flooding.
- Conduct outreach and education programs to increase awareness of earthquakes, extreme temperatures (including carbon monoxide risks), hurricanes, severe thunderstorms, and severe winter weather.
- Implement structural inspections of roofs and deploy trained maintenance personnel for roof snow-removal operations at critical facilities.
- Create a database to track those individuals at high risk of death during hazard events, such as the elderly, sick, and homeless. Coordinate with the Emergency Management Director / Fire Chief to 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.

Table 2. Changes in Mitigation Priorities

2026 Mitigation Action	Current Status	Priority Level in 2021 Plan	Priority Level in 2026 Plan
Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations and erosion control regulations to improve floodplain management in Merrimack.	Deferred	STAPLEE Score = 9 Rank = 6 out of 15	STAPLEE Score = 9 Rank = 10 out of 13
Require water conservation by enforcing the year round even/odd water ordinance, which limits the days outside watering is allowed based on street address and date.	Completed/Ongoing	STAPLEE Score = 7 Rank = 8 out of 15	STAPLEE Score = 11 Rank = 8 out of 13
Elevate new roads and bridges above the base flood elevation and raise existing low-lying bridges and roads.	Deferred	STAPLEE Score = 9 Rank = 6 out of 15	STAPLEE Score = 18 Rank = 1 out of 13
Protect critical emergency management facilities and equipment	Deferred	STAPLEE Score = 10 Rank = 5 out of 15	STAPLEE Score = 10 Rank = 9 out of 13

2026 Mitigation Action	Current Status	Priority Level in 2021 Plan	Priority Level in 2026 Plan
from lightning damage. Install and maintain surge protection and battery backup on critical electronic equipment.			
Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquakes, flooding, hurricanes, and winter storms.	Completed/Ongoing	STAPLEE Score = 16 Rank = 1 out of 15	STAPLEE Score = 16 Rank = 3 out of 13
Protect power lines by working with utility companies to harden electrical infrastructure, including trimming trees near power lines. Consider the costs and benefits of requiring overhead power lines be buried in all new developments.	Deferred	STAPLEE Score = 16 Rank = 1 out of 15	STAPLEE Score = 15 Rank = 4 out of 13
Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the New Hampshire Drought Management Team (DMT) and the State Drought Management.	Completed/Ongoing	STAPLEE Score = 12 Rank = 4 out of 15	STAPLEE Score = 14 Rank = 5 out of 13
Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquake, extreme temperatures, flooding, lightning, severe wind, severe winter weather,	Deferred	STAPLEE Score = 13 Rank = 3 out of 15	STAPLEE Score = 12 Rank = 7 out of 13

2026 Mitigation Action	Current Status	Priority Level in 2021 Plan	Priority Level in 2026 Plan
tornado, wildfire, and carbon monoxide risks. Utilize Nixle, community access TV, Merrimack website, and social media.			
Tightly control burn permits and revoke when not properly and safely being utilized. Post fire danger categories. Work with Eversource to remove underbrush and standing deadwood in residential areas and under power lines to reduce the likelihood of wildfires spreading.	Completed/Ongoing	STAPLEE Score = 16 Rank = 1 out of 15	STAPLEE Score = 13 Rank = 6 out of 13

CHAPTER 3. HAZARD IDENTIFICATION AND RISK ASSESSMENT

Section 3.1. Description of Natural Hazards

The Town of Merrimack is susceptible to a variety of natural hazards, which are outlined in **Table 3. Natural Hazards in Jurisdiction**. 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 Merrimack Hazard Mitigation Plan Update 2026. 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.[2] 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.[3] Merrimack 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

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

experience on Earth.[4] There have been no documented occurrences of Solar Storms & Space weather impacting the Town, and the Merrimack 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.[5] 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 Merrimack, 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
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 slowing planting, 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. • water shortages common

[4] State of New Hampshire Multi-Hazard Mitigation Plan Update 2023, page 255

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

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
			• 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 each day. Extreme cold— period of 3 consecutive days of minimum temperatures at or below 0˚F.	Overburdened power systems may experience failures due to extreme heat. Shortages of heating fuel in extreme cold due to high demand. Medical surge. Loss of water sources for

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
			drinking water and fire protection due to freezing temperatures.
Flooding	Floodplains cover approximately 11.4% of Merrimack—7.7% of Merrimack is located in 1% annual floodplain and 3.7% of Merrimack is located in the 0.2% annual floodplain. Floodplains are primarily located around the Merrimack River, Souhegan River, and Baboosic Brook. Areas prone to flooding include Island Dr, Wire Rd, Brenda Ln, along river, McGraw Bridge, Areas of Baboosic Rd, Pineburgh Rd bridge, Dossier Rd. 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	Entire jurisdiction. Areas with large populations present outdoors and large open spaces are particularly	Lightning Activity Level: • Level 1 • Level 2 • Level 3 • Level 4 • Level 5 • Level 6	Smoke and fire damage to structures and property. Disruption to power lines, municipal communications, and 911 communications. Damage to critical electronic

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
	vulnerable. Areas of frequent lightning strike occurrences include the Wastewater treatment plant on Mast Road, the Merrimack Premium Outlets, and MVD Wells.	For full definitions of Lightning Activity Level, see Section 3.5 Vulnerability by Hazard	equipment. Injury or death to people involved in outdoor activity.
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.	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
		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 Hazard	
Tornado/ Downburst	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. The power lines that run Back River Road to the Turnpike (3mi stretch, The rail line (Nashua TL to Bedford) from trains, FEET	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	Infectious Diseases Entire Jurisdiction. Vulnerable populations are	Center for Disease Control Disease Occurrence: • Endemic – Constant presence and/or usual prevalence of a disease or infection agent in a	Burden on healthcare facilities, medical surge. Risk to life.

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
	especially at risk.	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.	

Section 3.2. Future Hazard Events and Climate Change

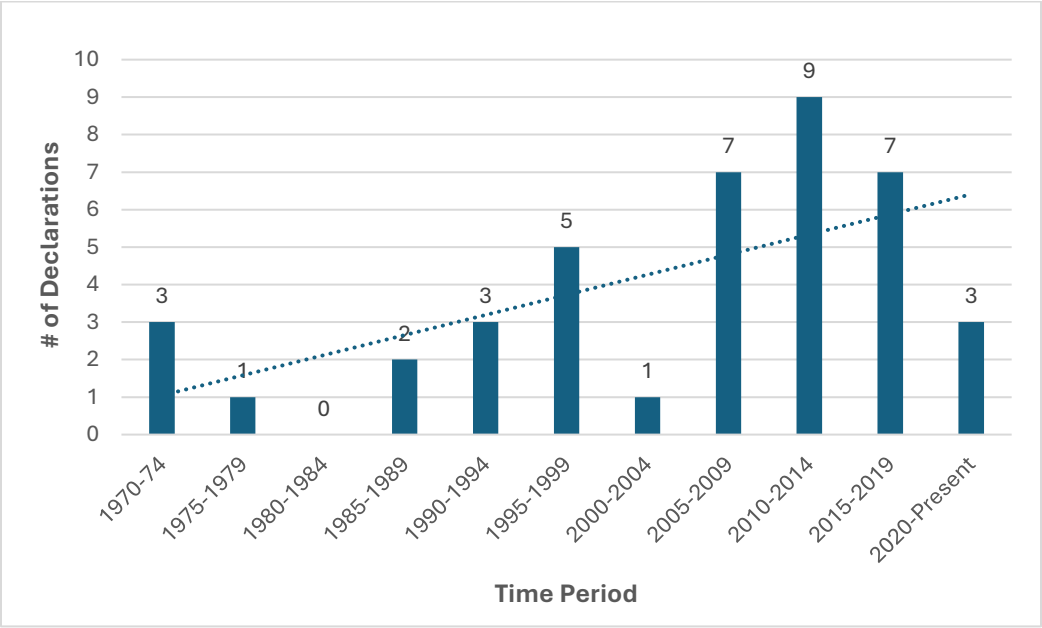
Hazard Probability and Climate Change

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[6]."

The chart 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. Merrimack is anticipating an increase in natural hazard (Drought, Extreme Temperatures, Flooding, Lightning, Severe Wind, Severe Winter Weather, Tornado/Downburst, and Wildfire) probability and severity in the future.

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

Figure 1 - Major Disaster Declarations in New Hampshire, 1970-Present



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 impediments for transportation. 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.

Section 3.3. Probability of Future Hazard Events

After documenting the occurrence of previous hazard events in the Town of Merrimack 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 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 one time every four years, the annual probability is 25%. 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 2000 to reflect potential recent changes in hazard event occurrence rates. The probability of future hazard events for each hazard type in the Town of Merrimack is outlined in **Table 4 - Probability of Future Hazard Events** below. Low probability is defined as less than 30%, medium probability is defined as 30-70%, and high probability is defined as above 70%.

Table 4 - Probability of Future Hazard Events

Hazard Type	Probability of Future Event	Source
Drought	25 years of drought from 1960 through 2026. 25 events in 66 years = 0.38 events per year **Annual Probability = 38% (Medium)** 12 years of drought from 2000 through 2026. 12 events in 26 years = 0.46 **Annual Probability = 46% (Medium)**	NH DES Current Drought Conditions https://www.des.nh.gov/climate-and-sustainability/storms-and-emergencies/drought US Drought Monitor https://droughtmonitor.unl.edu/ConditionsOutlooks/CurrentConditions.aspx
Earthquake	History shows no known earthquakes centered in Merrimack. However, this hazard is still possible. 2 magnitude 5.0 or greater earthquakes felt in NH from 1926 through 2026. 2 events in 100 years = 0.02 events per year **Annual Probability = 2% (Low)** 0 magnitude 5.0 or greater earthquakes felt in NH from 2000 through 2026.	USGS http://earthquake.usgs.gov/earthquakes/search/ Northern California Earthquake Data Center http://www.ncedc.org/anss/catalog-search.html

Hazard Type	Probability of Future Event	Source
	0 events in 26 years = 0 events per year **Annual Probability = 0% (Low)**	
Extreme Temperatures	46 extreme heat events from 2000 through 2026. 46 events in 26 years = 1.8 events per year **Annual Probability = 100% (High)** 25 extreme cold events from 2000 through 2026. 25 events in 26 years = 0.96 events per year **Annual Probability = 96% (High)**	NOAA National Climatic Data Center https://www.ncdc.noaa.gov/cdo-web/search (available stations in NRPC region are Milford, Nashua, Hudson)
Flooding/Dam Failure	29 flooding events in Merrimack/Hillsborough County from 1927 through 2026. 29 events in 99 years = 0.32 events per year **Annual Probability = 29% (Low)** 13 flooding events in Merrimack/Hillsborough County from 2000 through 2026. 13 events in 26 years = 0.50 events per year	Local Knowledge FEMA Presidential Disaster Declaration https://www.fema.gov/disasters/grid/year

Hazard Type	Probability of Future Event	Source
	Annual Probability = 50% (Medium) <u>Dam Failure</u> Because of limited data on previous dam failure events, probability cannot be calculated statistically. History shows no occurrences of dam failure causing damage in Merrimack. However, this hazard is still possible and therefore the probability is low. Low probability is defined as a 0-30% chance of occurrence annually. **Annual Probability – 0-30% (Low)**	
Severe Wind	11 hurricanes / tropical storms from 1938 through 2026. 9 events in 82 years = 0.13 events per year **Annual Probability = 13% (Low)** 5 hurricanes/tropical storms from 2000 through 2026. 5 events in 26 years = 0.19 events per year	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
	Annual Probability = 19% (Low)	
Lightning	Because of limited data on previous lightning events, probability cannot be calculated statistically. History shows no minimal occurrences of lightning strikes causing damage in Merrimack. However, this hazard is still possible and therefore the probability is low. • Low probability is defined as a 0-30% chance of occurrence annually.	Local Knowledge
Severe Winter Weather	19 severe winter weather events in Hillsborough County from 1888 through 2026. 19 events in 138 years = 0.17 events per year **Annual Probability = 17%** 7 severe winter weather events in Hillsborough County from 2000 through 2026.	Local Knowledge FEMA Presidential Disaster Declaration https://www.fema.gov/disasters/grid/year

Hazard Type	Probability of Future Event	Source
	5 events in 26 years = 0.19 events per year **Annual Probability = 19% (Low)**	
Tornado/ Downburst	15 tornados and 2 downbursts in Hillsborough Co. from 1961 through 2026. 17 events in 65 years = 0.26 events per year **Annual Probability = 26% (Low)** 0 tornados and 0 downbursts in Hillsborough Co. from 2000 through 2026. 1 tornado and 1 downburst event in 26 years = 0.08 events per year **Annual Probability = 8% (Low)**	Tornado History Project (Joshua Lietz, Storm Prediction Center, National Climatic Data Center) and public input http://www.tornadohistoryproject.com
Wildfire	8 Wildfires in Merrimack from 1942 through 2026 8 events in 84 years = 0.10 events per year **Annual Probability = 10% (ow)** 6 wildfires in Merrimack from 2000 through 2026	Local Knowledge

Hazard Type	Probability of Future Event	Source
	4 events in 26 years = 0.23 events per year **Annual Probability = 23% (low)**	
Infectious Diseases	Like the rest of the state, the Town of Merrimack experiences seasonal outbreaks that occur annually such as Influenza. There is **a 100% (high) annual probability that** Merrimack will continue to experience some extent of infectious disease.	NH DHHS Infectious Disease Surveillance https://www.dhhs.nh.gov/programs-services/disease-prevention/infectious-disease-control/infectious-disease-surveillance

Section 3.4. Critical Facilities and their Vulnerability

The next step in determining Merrimack'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 Merrimack 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 Merrimack, 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. Residential
    b. Commercial
    c. Industrial
    d. Agriculture
    e. Religion
    f. Government
    g. Education
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. Railway Systems
    d. Bus Facilities
    e. Airport Systems
4. **Utility Systems**
    a. Potable Water
    b. Drinking Water
    c. Oil/Propane Facilities
    d. Natural Gas Facilities
    e. Electric Power
    f. Communications
5. **High Potential Hazard Facilities**
    a. Dams/Levees
    b. Nuclear Power Plants
6. **Hazardous Materials Facilities**
    a. EPA Toxics Release Inventory facilities (https://www.epa.gov/toxics-release-inventory-tri-program)

The critical facilities within each category appear in **Table 5**, **Table 6**, **Table 7**, **Table 8**, **Table 9**, and **Table 10** below. Each table includes the critical facility's name, content vulnerability, and locational vulnerability to hazards.

Table 5 - General Occupancy Critical Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Diseases
Commercial—Home Depot, 721 Milford Rd.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial—Connection, 730 Milford Rd.	Potentially large population present, located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Commercial—Merrimack Outlets – 80 Premium Outlets Blvd.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial—Holiday Inn Express, 4 Amherst Rd.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial—Quality Inn, 242 D.W. Hwy.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial—Residence Inn, 246 D.W. Hwy.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial – WoodSpring Suites, 2 Executive Park Dr.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial—Gentinge Medical, 40 Continental Blvd.	Potentially large population present. Located in 1% annual floodplain.		✓	✓	✓	✓	✓	✓	✓	✓	✓
Commercial—Apple Cinemas, 11 Executive Park Dr.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Gilbert Crossing, 3 Gilbert Dr.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Fidelity Investments, 1 Spartan Way	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Commercial Complex, 50 Robert Milligan Parkway	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Gleason Stone, Inc., 55 Turbine Way	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Diseases
Education—Thomas Moore College – 6 Manchester St.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Education – Gate City Charter School, 7 Henry Clay Dr.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Government—NH DOT Turnpike Maintenance Facility, 226 D.W. Hwy.	Backup fuel for Merrimack vehicles		✓	✓		✓	✓	✓	✓	✓	✓
Government—Adult Community Center, 4 Church St.	Potentially large population present, shelter for up to 50		✓	✓		✓	✓	✓	✓	✓	✓
Government—Merrimack Public Library, 470 D.W. Hwy.	Potentially large population present, official records and documents		✓	✓		✓	✓	✓	✓	✓	✓
Government—Merrimack Town Hall complex, 6 Baboosic Lake Rd.	Potentially large population present, official records and documents		✓	✓		✓	✓	✓	✓	✓	✓
Government—Merrimack District Court, 4 Baboosic Lake Rd.	Potentially large population present, official records and documents		✓	✓		✓	✓	✓	✓	✓	✓
Recreation—Abbie Griffin Park, 6 Baboosic Lake Rd.	Potentially large population present	✓		✓			✓				✓
Recreation—Watson Park, 447 D.W. Hwy.	Potentially large population present	✓		✓			✓				✓
Recreation—Twin Bridges/Kids Cove, 487 D.W. Hwy.	Potentially large population present	✓		✓			✓				✓
Recreation—Wasserman Park, 116 Naticook Rd.	Potentially large population present	✓		✓			✓				✓
Recreation—Kollsman Field, 220 D.W. Hwy.	Potentially large population present	✓		✓			✓				✓
Recreation—Merrimack Veteran's Memorial Park, 5 Veterans Park Dr.	Potentially large population present	✓		✓			✓				✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Diseases
Recreation—Turkey Hill ball fields	Potentially large population present, located in 0.2% annual floodplain	✓		✓	✓		✓				✓
Recreation—Camp Sargent, 141 Camp Sargent Rd.	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Recreation—YMCA, 6 Henry Clay Dr.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Religious—Grace Baptist Church, 67 Bedford Rd.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Religious—First Church of Merrimack, 7 Baboosic Lake Rd.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Religious—Our Lady of Mercy Church, 16 Baboosic Lake Rd.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Religious—Merrimack Valley Baptist Church, 517 Boston Post Rd.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Religious—St. James United Methodist Church, 646 D.W. Hwy.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Religious—Faith Episcopal Church, 590 D.W. Hwy.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Religious—St. John Newman Church, 708 Milford Rd.	Potentially large population present, located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Religious—Riverside Christian Church, 27 Depot St.	Potentially large population present, located in 0.2% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Religious—Merrimack Baptist Temple, 517 Boston Post Rd.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Religious—Kingdom Hall Jehovah's Witnesses, 59 Wire Rd.	Potentially large population present, located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Diseases
South Merrimack Christian Academy, 517 Boston Post Rd.	Potentially large population present, located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Residential—Rose Haven, 8 Jennifer Dr.	Elderly housing, large population present, contents have personal value to owners		✓	✓		✓	✓	✓	✓	✓	✓
Residential—Wentworth Place, 1 Coventry Ct.	Elderly housing, large population present, contents have personal value to owners		✓	✓		✓	✓	✓	✓	✓	✓
Residential—Parker Village, 6 Stearns Ln.	Elderly housing, large population present, contents have personal value to owners		✓	✓		✓	✓	✓	✓	✓	✓
Residential – Overlook Estates, 9 Abenaki Cir.	Elderly housing, large population present, contents have personal value to owners.		✓	✓		✓	✓	✓	✓	✓	✓
Residential – Slate at Merrimack Apartments, 3 Lexington Ct.	Potentially large population present		✓	✓		✓	✓	✓	✓	✓	✓
Residential – The Residences at Executive Park, 2 Executive Park Dr.	Potentially large population present, portions of site located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Residential – Merrimack Townhomes, 4 Angelo Dr.	Potentially large population present. Located in 0.2% annual floodplain.		✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 6 - Essential Critical Facilities

Facility Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Diseases
Police Station – Headquarters, 31 Baboosic Lake Rd.	Contents and staff valuable to emergency management. Serves as communications/dispatch center, backup Emergency Operations Center.		✓	✓		✓	✓	✓	✓	✓	✓
Fire Station – Central Station No. 1 (Headquarters), 432 D.W. Hwy.	Contents and staff valuable to emergency management. Serves as Emergency Operations Center, backup communication/dispatch center. Portions of site located in 1% annual floodplain.		✓	✓	✓	✓	✓	✓	✓	✓	✓
Fire Station – South Merrimack Station No. 2, 196 Naticook Rd.	Contents and staff valuable to emergency management.		✓	✓		✓	✓	✓	✓	✓	✓
Fire Station – Reed's Ferry Station No. 3, 643 Daniel Webster Hwy.	Contents and staff valuable to emergency management.		✓	✓		✓	✓	✓	✓	✓	✓
Public Works Highway Facility – 76/80 Turkey Hill Rd.	Contents valuable to transportation network and public infrastructure.		✓	✓		✓	✓	✓	✓	✓	✓
Government—Solid Waste Transfer Facility, 1 Fearon Rd.	Potentially large population present, used during cleanup efforts after hazard event		✓	✓		✓	✓	✓	✓	✓	✓
Jones Chemical - 40 Railroad Ave.	Critical to water purification throughout east coast and Canada, located in 0.2% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Merrimack High School – 38 McElwain St.	Potentially large population present.		✓	✓		✓	✓	✓	✓	✓	✓
Merrimack Middle School – 31 Madeline Bennett Ln.	Potentially large population present. Shelter for up to 1,000.		✓	✓		✓	✓	✓	✓	✓	✓
Mastricola Upper Elementary School – 26 Baboosic Lake Rd.	Potentially large population present.		✓	✓		✓	✓	✓	✓	✓	✓

Facility Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Diseases
Mastricola Elementary School – 7 School St.	Potentially large population present.		✓	✓		✓	✓	✓	✓	✓	✓
Reeds Ferry Elementary School – 15 Lyons Rd.	Potentially large population present.		✓	✓		✓	✓	✓	✓	✓	✓
Thornton's Ferry Elementary School – 134 Camp Sargent Rd.	Potentially large population present.		✓	✓		✓	✓	✓	✓	✓	✓
Medical Care Facility – Dartmouth Hitchcock Medical Center, 294 D.W. Hwy.	Contents valuable to public health, large staff and population present		✓	✓		✓	✓	✓	✓	✓	✓
Medical Care Facility – Home and Health Hospice Care, 7 Executive Park Dr.	Contents valuable to public health, large staff and population present		✓	✓		✓	✓	✓	✓	✓	✓
Medical Care Facility – Southern NH Health System, Merrimack Medical Center, 696 D.W. Hwy.	Contents valuable to public health, large staff and population present		✓	✓		✓	✓	✓	✓	✓	✓
Medical Care Facility – St. Joseph Medical Center, 4 Dobson Way	Contents valuable to public health, large staff and population present		✓	✓		✓	✓	✓	✓	✓	✓
Medical Care Facility – Convenient MD, 2 Dobson Way	Contents valuable to public health, large staff and population present		✓	✓		✓	✓	✓	✓	✓	✓

Table 7 - Transportation Critical Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Highway System—Daniel Webster (D.W.) Highway	Structure valuable to motor vehicle travel and safety, evacuation route; portion of DW Highway over Baboosic Brook immediately north of Wire Road is located in Very High Fluvial Erosion Hazard Zone.		✓					✓	✓		
Highway System—Wire Road (from D.W. Hwy. to Bedford Rd.)	Structure valuable to motor vehicle travel and safety, evacuation route; portions of Wire Road between DW Highway and Everett Turnpike border Very High Fluvial Erosion Hazard Zone along Baboosic Brook.		✓					✓	✓		
Highway System—Baboosic Lake Road (East and West from D.W. Hwy. to Amherst town line)	Structure valuable to motor vehicle travel and safety, evacuation route		✓					✓	✓		
Highway System—F.E. Everett Turnpike (North and South from Bedford town line to Nashua city line)	Structure valuable to motor vehicle travel and safety, evacuation route; portion of FE Everett Turnpike over Baboosic Brook is located in Very High Fluvial Erosion Hazard Zone.		✓					✓	✓		
Highway System—Amherst Road (East and West Merrimack from Continental Blvd. to Amherst town line)	Structure valuable to motor vehicle travel and safety, evacuation route		✓					✓	✓		
Highway System—Continental Boulevard (East and West from D.W. Hwy. to NH Route 101A)	Structure valuable to motor vehicle travel and safety, evacuation route		✓					✓	✓		

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Highway System—Bridge over Baboosic Brook at Stowell Rd.	Structure valuable to motor vehicle travel and safety, located in 1% annual floodplain and 0.2% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Highway System—Bridge over Baboosic Brook at Wire Rd.	Structure valuable to motor vehicle travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Highway System—Bridge over Souhegan tributary at Amherst Rd.	Structure valuable to motor vehicle travel and safety		✓			✓	✓	✓	✓	✓	
Highway System—Bridge over Baboosic Brook at Bedford Rd.	Structure valuable to motor vehicle travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Highway System—Bridge over Baboosic Brook at NH Route 3	Structure valuable to motor vehicle travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Highway System—Bridge over Baboosic Brook at Bean Rd.	Structure valuable to motor vehicle travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Highway System—Bean Rd. culvert over Baboosic Brook	Structure valuable to motor vehicle travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Highway System—Bedford Rd. Bridge over Baboosic Brook	Structure valuable to motor vehicle travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Highway System – Amherst Rd. Bridge over Souhegan River	Structure valuable to motor vehicle travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Highway System – Turkey Hill Rd. Bridge over Souhegan River	Structure valuable to motor vehicle travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Railroad System—railroad bridge at Depot St.	Structure valuable to rail travel and safety, located in 0.2% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Railroad System—railroad bridge at Griffin St.	Structure valuable to rail travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Railroad System—railroad bridge over Souhegan River at Railroad Ave.	Structure valuable to rail travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Railroad System—railroad bridge over Pennichuck Brook at Amherst Rd .	Structure valuable to rail travel and safety		✓			✓	✓	✓	✓	✓	
Railroad System—railroad bridge over Horseshoe Pond outlet	Structure valuable to rail travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Railroad System—railroad bridge over Pennichuck Brook	Structure valuable to rail travel and safety, located in 1% annual floodplain		✓		✓	✓	✓	✓	✓	✓	
Railroad System—railroad crossing at Mast Rd.	Critical to access wastewater treatment		✓					✓	✓		
Airport Systems – Boston TRACON, 25 Robert Milligan Way	Structure valuable to air traffic control		✓			✓	✓	✓	✓	✓	✓

Table 8 - Utility Systems Critical Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Communication—Consolidated Communications, 643 D.W. Hwy.	Structure valuable to communications		✓	✓		✓	✓	✓	✓	✓	
Communications—repeater at Hutchinson Rd.	Structure valuable to communications		✓	✓		✓	✓	✓	✓	✓	
Communications—voter at MPO	Structure valuable to communications		✓	✓		✓	✓	✓	✓	✓	
Communications – receiver at South Fire Station – 432 D. W. Hwy.	Structure valuable to communications		✓	✓		✓	✓	✓	✓	✓	
Communications – receiver at Reeds Ferry Fire Station – 643 D.W. Hwy.	Structure valuable to communications		✓	✓		✓	✓	✓	✓	✓	
Communications – receiver at Parker Rd Water Tower – 17 Parker Rd.	Structure valuable to communications		✓	✓		✓	✓	✓	✓	✓	
Communications – receiver at Merrimack Premium Outlets – 80 Premium Outlets Blvd.	Structure valuable to communications		✓	✓		✓	✓	✓	✓	✓	
Communication – tower at 10 Whitetail Ridge	Structure valuable to communications		✓	✓		✓	✓	✓	✓	✓	
Electric—Eversource sub-station at Bedford town line	Structure valuable to utility network		✓	✓		✓	✓	✓	✓	✓	
Electric—Eversource sub-station at Star Dr.	Structure valuable to utility network		✓	✓		✓	✓	✓	✓	✓	
Electric—Eversource sub-station at Front St.	Structure valuable to utility network		✓	✓		✓	✓	✓	✓	✓	
Electric—Eversource sub-station at Railroad Ave.	Structure valuable to utility network		✓	✓		✓	✓	✓	✓	✓	

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Electric—Eversource lines at McGraw and D.W. Hwy.	Structure valuable to utility network		✓	✓		✓	✓	✓	✓	✓	
Electric—Eversource lines at 411 D.W. Hwy. (Consolidated Switching Network)	Structure valuable to utility network		✓	✓		✓	✓	✓	✓	✓	
Electric—Eversource lines at 239 D.W. Hwy.	Structure valuable to utility network		✓	✓		✓	✓	✓	✓	✓	
Water – Merrimack Village District Office, 2 Greens Pond Rd.	Structure valuable to utility network	✓	✓	✓		✓	✓	✓	✓	✓	✓
Water—Merrimack Village District Distribution warehouse, 30 Continental Blvd.	Structure valuable to utility network	✓	✓	✓		✓	✓	✓	✓	✓	✓
Water—Merrimack Village District Treatment warehouse, 30 Continental Blvd.	Structure valuable to utility network	✓	✓	✓		✓	✓	✓	✓	✓	✓
Water—Hutchinson Rd. water tower	1,000,000 gallons; structure valuable to water supply	✓	✓	✓		✓	✓	✓	✓	✓	✓
Water—Turkey Hill Rd. water tower	4,000,000 gallons; structure valuable to water supply	✓	✓	✓		✓	✓	✓	✓	✓	✓
Water—Parker Dr. water tower	750,000 gallons; structure valuable to water supply	✓	✓	✓		✓	✓	✓	✓	✓	✓
Water—Turkey Hill Rd. booster station (high psi zone)	Structure valuable to water supply capable of pumping 2,000 gpm	✓	✓	✓		✓	✓	✓	✓	✓	
Water—Belmont Dr. booster station	Structure valuable to water supply serves 42 homes in psi zone.	✓	✓	✓		✓	✓	✓	✓	✓	
Water – MVD Wells 2&9 PFAS Treatment Facility	Structure valuable to water supply capable of treating 2,000 gpm	✓	✓	✓		✓	✓	✓	✓	✓	✓
Water—Merrimack Village District Well #2	Structure valuable to water supply, located in 0.2% annual floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Water—Merrimack Village District Well #9	Structure valuable to water supply, located in 0.2% annual floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Water—Merrimack Village District Well #3	Structure valuable to water supply	✓	✓	✓			✓	✓	✓	✓	✓
Water – Merrimack Village District Wells 2&9 Well Head Protection Area *see **Figure 2** for location	Area valuable to water supply, supplies recharge to wells, located in 0.2% annual floodplain	✓	✓	✓				✓	✓	✓	✓
Water – Merrimack Village District Well 4&5 PFAS Treatment Facility	Structure valuable to water supply capable of treating 870 gpm, located in 1% and 0.2% annual floodplain	✓	✓	✓	✓		✓	✓	✓	✓	✓
Water—Merrimack Village District Well #4	Structure valuable to water supply, located in 0.2% annual floodplain	✓	✓	✓	✓		✓	✓	✓	✓	✓
Water—Merrimack Village District Well #5	Structure valuable to water supply, located in 0.2% annual floodplain	✓	✓	✓	✓		✓	✓	✓	✓	✓
Water – Merrimack Village District Wells 4&5 Well Head Protection Area *see **Figure 2** for location	Area valuable to water supply, supplies recharge to wells, located in 1% & 0.2% annual floodplain	✓	✓	✓	✓			✓	✓	✓	✓
Water- MVD Wells 7&8 PFAS Treatment Facility,	Structure valuable to water supply capable of treating 1250 gpm, located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Water—Merrimack Village District Well #7	Structure valuable to water supply, located in 1% annual floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Water—Merrimack Village District Well #8	Structure valuable to water supply, located in 1% annual floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Water – Merrimack Village District Wells 7&8 Well Head Protection Area *see **Figure 2** for location	Area valuable to water supply, supplies recharge to wells, located in 1% annual floodplain	✓	✓	✓	✓			✓	✓	✓	✓
Water—Merrimack Village District PWW Interconnect	Structure valuable to water supply capable of pumping 1000 gpm, located in 1% annual floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Water—Merrimack Village District MWW Interconnect	Structure valuable to water supply	✓	✓	✓		✓	✓	✓	✓	✓	✓
Wastewater—Pennichuck Wastewater pumping station at Mast Rd.	Structure valuable to sewage pumping, located in 0.2% annual floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wastewater—Thornton's Ferry sewage pumping station at Greely Rd.	Structure valuable to sewage pumping, located in 0.2% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Wastewater—Souhegan sewage pumping station at Railroad Ave.	Structure valuable to sewage pumping, located in 0.2% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Wastewater—sewage pump station at Pearson Rd.	Structure valuable to sewage pumping		✓	✓		✓	✓	✓	✓	✓	✓
Wastewater—sewage pump station at Burt St.	Structure valuable to sewage pumping		✓	✓		✓	✓	✓	✓	✓	✓
Wastewater—Pennichuck Square sewage pump station	Structure valuable to sewage pumping, located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓	✓	✓
Wastewater—exposed sewer pipe over Baboosic Brook	Structure valuable to sewage treatment, located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓		✓
Wastewater—exposed sewer pipe over Horseshoe Pond outlet	Structure valuable to sewage treatment		✓	✓		✓	✓	✓	✓		✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Wastewater—Railroad Ave. siphon station, inlet	Structure valuable to sewage treatment, structure located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓		✓
Wastewater—Railroad Ave. siphon station, outlet	Structure valuable to sewage treatment, structure located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓		✓
Wastewater—Wildcat Falls Conservation Area siphon station, inlet	Structure valuable to sewage treatment, structure located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓		✓
Wastewater—Wildcat Falls Conservation Area siphon station, outlet	Structure valuable to sewage treatment, structure located in 0.2% annual floodplain		✓	✓	✓	✓	✓	✓	✓		✓
Wastewater—Mallard Point Rd. siphon station, inlet	Structure valuable to sewage treatment, structure located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓		✓
Wastewater—Mallard Point Rd. siphon station, outlet	Structure valuable to sewage treatment		✓	✓		✓	✓	✓	✓		✓
Wastewater—Conifer St. siphon station, inlet	Structure valuable to sewage treatment, structure located in 1% annual floodplain		✓	✓	✓	✓	✓	✓	✓		✓
Wastewater—Conifer St. siphon station, outlet	Structure valuable to sewage treatment		✓	✓		✓	✓	✓	✓		✓
Wastewater – Brenda Ln. siphon station	Structure valuable to sewage treatment		✓	✓		✓	✓	✓	✓		✓

Table 9 - High Potential Hazard Critical Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Stump Pond Dam (16') Dam #D156003 Hazard Class—L Water body—Farley Brook Owner—Town of Merrimack	Structure valuable to flood control, located in 0.2% annual floodplain		✓		✓	✓		✓	✓		
Meadow Wood Pond Dam (15') Dam #D156045 Hazard Class—L Water body—Souhegan River tributary Owner—Town of Merrimack	Structure valuable to flood control, located in 0.2% annual floodplain		✓		✓	✓		✓	✓		
DW Highway Fish Pond Dam (9') Dam #D156002 Hazard Class—NM Water body—Dumpling Brook Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Watson Dam (10') Dam #D156010 Hazard Class—NM Water body—Watson Brook Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Naticook Lake Dam Dam #D156011 (5') Hazard Class—NM Water body—Naticook Brook Owner—Town of Merrimack	Structure valuable to flood control, located in 1% annual floodplain		✓		✓	✓		✓	✓		
Farm Pond Dam (6') Dam #D156013 Hazard Class—NM Water body—unnamed stream Owner—privately held	Structure valuable to flood control, located in 1% annual floodplain		✓		✓	✓		✓	✓		

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Watson Brook Pond Dam (6') Dam #D156014 Hazard Class—NM Water body—Watson Brook Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Recreation Pond Dam Dam #D156015 (6') Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Carriage Place Pond Dam (10.8') Dam #D156020 Hazard Class—NM Water body—unnamed stream Owner—unknown	Structure valuable to flood control		✓			✓		✓	✓		
Fire Pond Dam (6') Dam #D156021 Hazard Class—NM Water body—unnamed stream Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Standard Hardware Dam (6') Dam #D156026 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
C & I Investment Pond Dam (10') Dam #D156028 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Peaslee Place I Dam (6.5') Dam #D156030 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Abington Heights Dam (11') Dam #D156036 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Fidelity Det Basin 3 Dam (6.75') Dam #D156040 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Fidelity Det Basin 6 Dam (6.7') Dam #D156041 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Doyle Woods Det Pond Dam (13') Dam #D156042 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Home Depot Det Pond Dam (23.4') Dam #D156044 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Wasserman Det Pond Dam (7') Dam #D156046 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Merrimack Outlet Det 3 Dam (20') Dam #D156047 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Merrimack Outlet Det 4 Dam (22') Dam #D156048 Hazard Class—NM Water body—runoff Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Land of Goshen LLC Dam (9') Dam #D156049 Hazard Class—NM Water body—unnamed Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		

Table 10 - Hazardous Materials Critical Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Saint Gobain Performance Plastics – 701 D.W. Hwy. Foundation still there	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals onsite include #2 Fuel oil, Sulfuric Acid (batteries), Dupont Kevlar and Nylon Weave Fabric, PTFE dispersion in water, and Transformer oil.		✓					✓	✓		
Kollsman/Elbit Systems – 220 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include liquid Nitrogen.		✓	✓		✓	✓	✓	✓	✓	✓
BAE Systems – 130 & 144 D.W. Hwy.	Chemicals on site include #2 Fuel oil, liquid Nitrogen, propane, Sulfuric Acid, Transformer oil, Sodium Chloride, Silica sand, Diesel Fuel, and Lead. EXPLOSIVES		✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
LAW Logistics – 59 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Polythersulone, Lead, Sulfuric Acid (batteries), Polysulfone, PVC Solvin, Sabric Resin, Zircon sand, Vanadium pentoxide, Paraffin Wax, Tabular Alumina, Sicotrans Red, Phthalocyanine Green Asaflow, Mulcoa 60 & 47, Lecene LC, Cellulose Diacetate, Carbon Black, Alumina Trihydrate, and Alathon M6030.		✓	✓		✓	✓	✓	✓	✓	✓
Eversource Reeds Ferry Substation (Merrimack 3) – 14 Twin Bridge Rd.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Transformer oil.		✓	✓		✓	✓	✓	✓	✓	
Eversource Merrimack Distribution Substation (Merrimack 2) – 153 Depot St.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Transformer oil.		✓	✓		✓	✓	✓	✓	✓	
Eversource Busch Substation (Merrimack 1) – 221 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Transformer oil.		✓	✓		✓	✓	✓	✓	✓	

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Eversource Thornton Distribution Substation – 239 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Transformer Oil.		✓	✓		✓	✓	✓	✓	✓	
Eversource North Merrimack Transmission Substation – 750 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Lead and Sulfuric Acid (batteries).		✓	✓		✓	✓	✓	✓	✓	
Eversource Eagle Transmission Substation – 23 Star Dr.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Lead and Sulfuric Acid (batteries).		✓	✓		✓	✓	✓	✓	✓	
Eversource GT Solar – 243 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Petroleum Electrical Insulating oil.		✓	✓		✓	✓	✓	✓	✓	
JCI Jones Chemicals Inc— 40 Railroad Ave.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Anhydrous Ammonia, Sodium Bisulfate solution, Sulfur Dioxide, and Sodium Hypochlorite. Located in 0.2% annual floodplain.		✓	✓	✓	✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
US Cellular Congress Park MTSO – 19 Columbia Circle	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Diesel Fuel, Lead, and Sulfuric Acid (batteries).		✓	✓		✓	✓	✓	✓	✓	✓
Colt Refining Inc—12A Star Dr.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Calcium Hydroxide, Copper, Lead, Potassium Cyanide, Tin, Silver, and Sulfuric Acid (batteries).		✓	✓		✓	✓	✓	✓	✓	✓
Eastern Propane Depot St. Bulk – Depot St.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Propane.		✓	✓		✓	✓	✓	✓	✓	✓
Eastern Propane Merrimack Commons Bulk 1 – 515 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Propane.		✓	✓		✓	✓	✓	✓	✓	✓
Consolidated Merrimack – 417 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Sulfuric Acid (batteries).		✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire	Infectious Disease
Student Transportation of America (STA) Terminal – 574 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Sulfuric Acid (batteries).		✓	✓		✓	✓	✓	✓	✓	✓
Huntsmen Chemical – 57 D.W. Hwy.	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include liquid nitrogen.		✓	✓		✓	✓	✓	✓	✓	✓
Verizon Wireless – 26 Columbia Circle	Chemical and hazardous materials release could have impacts on public health and environmental quality. Chemicals on site include Sulfuric Acid (batteries)		✓	✓		✓	✓	✓	✓	✓	✓

Figure 2 - Map of Merrimack Critical Facilities

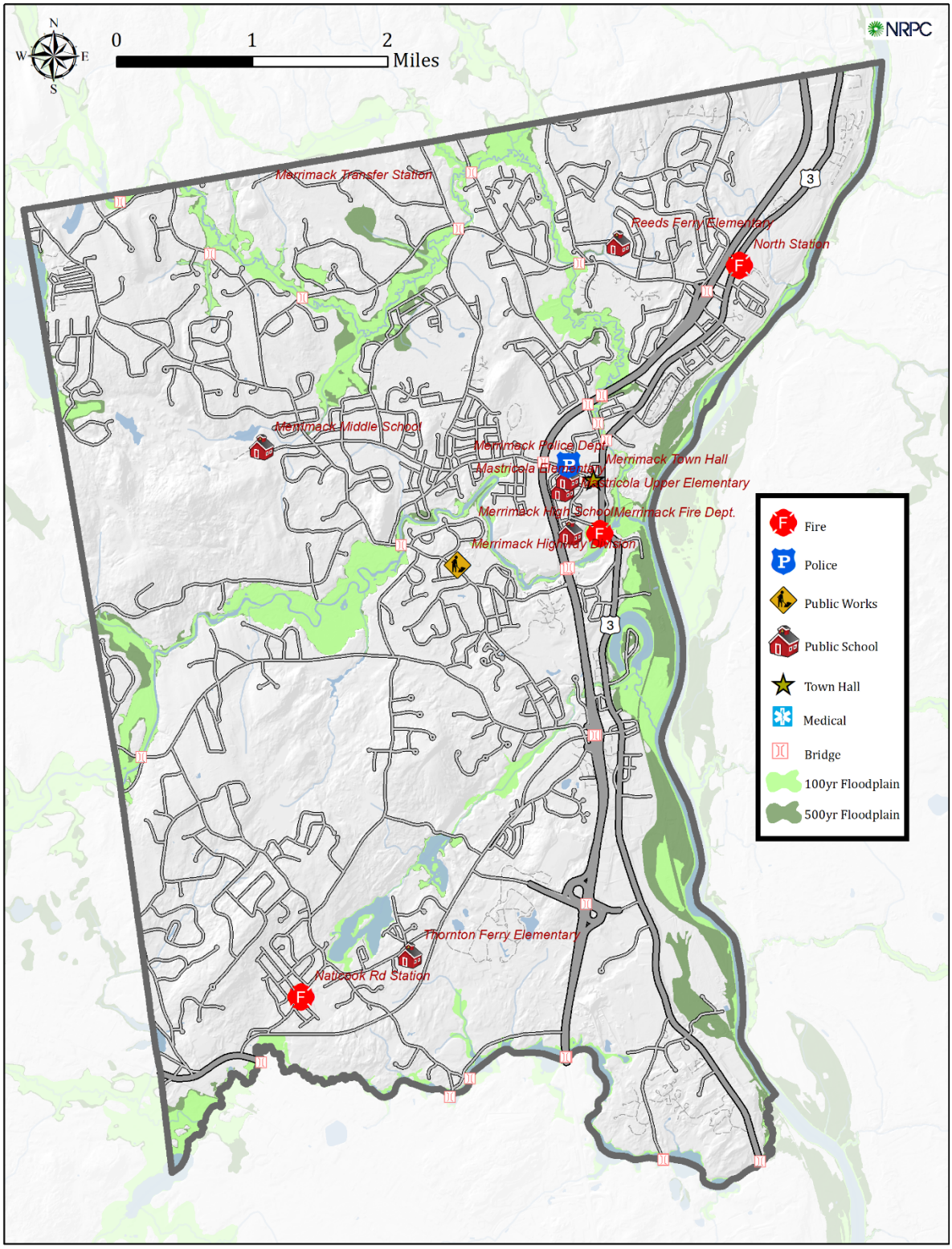
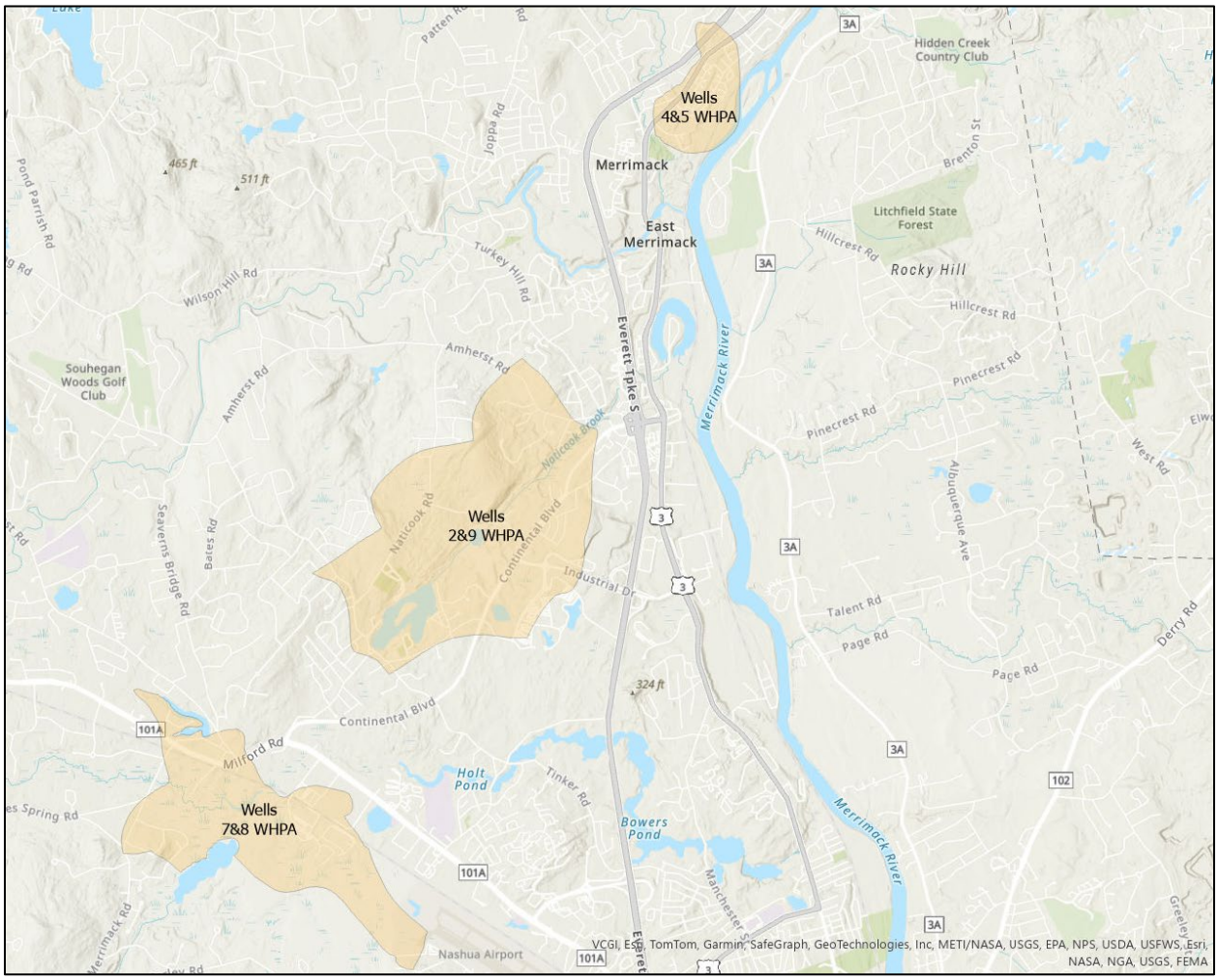


Figure 3 - Map of Merrimack Village District Wellhead Protection Areas



Section 3.5. Vulnerability by Hazard

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 May 2015 and lasting through April 2017. During that time, Merrimack experienced drought levels from USDA D0 (Abnormally Dry) to USDA D3 (Extreme Drought).

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 drought may lead to an increase in wildfire risk. Drought can have the most significant impact to agricultural land and assets.

Previous Occurrences of Drought

Date	Location within Jurisdiction	Extent	Impact
1960-1969	Entire jurisdiction	Long term drought—9 years of less than normal precipitation	Longest recorded continuous period of below 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 was declared.	Damage to crops. Low water levels in dug wells.
May 2015	Entire jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
June 2015	Entire jurisdiction	USDA D1 (Moderate Drought)	Damage to crops.
August-September 2015	Entire jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
October 2015-February 2016	Entire jurisdiction	USDA D1 (Moderate Drought)	Damage to crops.
March 2016-June 2016	Entire jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops. Low water levels in wells.
July 2016-September 2016	Entire jurisdiction	USDA D2 (Severe Drought)	Low water levels in wells.
October 2016-December 2016	Entire jurisdiction	USDA D3 (Extreme Drought)	Low water levels in wells.
January 2017-March 2017	Entire jurisdiction	USDA D2 (Severe Drought)	Low water levels in 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 (extreme drought) conditions from mid to late August.	Specialty crops are impacted both in yield and fruit size. Warnings are issued on water use and outdoor burns, and possible poor air quality
October 2022 – January 2023	Entire Jurisdiction	USDA D0 (Abnormally Dry)	Low water levels in wells.
April 18, 2023 – June 13, 2023	Entire Jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops. Low water levels in dug wells.
June 18, 2024 – May 20, 2025	Entire Jurisdiction	Hillsborough County experienced D2 conditions (severe drought), with about 30% of the state experiencing D3 conditions (extreme drought) from November of 2024 through early January of 2025.	Damage to crops, dramatic increase in brush fires in November 2024.
July 8, 2025 – January 2026		100% of the state is experiencing at least D0 drought conditions, with portions of the state experiencing D3 drought conditions in the months of September through November.	

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 Merrimack resulting from drought. Instead, the Hazard Mitigation

Team estimated the percentage of land in Merrimack 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 Merrimack	Total Acres of Agricultural Land in Merrimack	% of Land in Merrimack Vulnerable to Drought
21,376	0	0%

% of population with Public Drinking Water	% of population with Private Well Water	Water Utility	Primary Water Source	Secondary Water Source
51%	49%	Merrimack Village District Water Works & Pennichuck Water	Public Drinking Water	Private Wells

Critical Facility Type	Total Number of this type of Critical Facilities in Merrimack	Number of this type of Critical Facilities in Drought Hazard Area	Percentage of this type of Critical Facilities in Drought Hazard Area
General Occupancy	47	8	17%
Essential Facilities	18	0	0%
Transportation	24	0	0%
Utility System	55	23	42%
High Potential Hazard	22	0	0%
Hazardous Materials	20	0	0%

EARTHQUAKE

An earthquake is a sudden and violent shaking of the ground, sometimes causing great destruction, as a result of movements within the earth's crust or volcanic action. The Richter magnitude scale was developed by Charles F. Richter in 1935 as a way 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, 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 tolls 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 12 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 Merrimack; however, one could occur.

Previous Occurrences of Earthquakes

Date	Location within Jurisdiction	Extent	Impact
	There have been no earthquakes centered in Merrimack to date. Earthquakes noted below were centered in NH.	Earthquakes noted below had a magnitude of 2.5 or greater.	
March 18, 1926	Manchester, NH	No historic data on extent	Intensity V effects observed in Amherst, Lyndeborough, Manchester, Mason, and Merrimack.
December 20, 1940	Lake Ossipee, NH	Magnitude 5.5 on Richter Scale	No damage in Merrimack
December 24, 1940	Lake Ossipee, NH	Magnitude 5.5 on Richter Scale	No damage in Merrimack
December 4, 1963	Laconia, NH (43.6 latitude, -71.5 longitude)	Magnitude 3.7 on Richter Scale	No damage in Merrimack
June 28, 1981	Sanbornton, NH (43.56 latitude, -71.56 longitude)	Magnitude 3.0 on Richter Scale	No damage in Merrimack
January 19, 1982	Sanbornton, NH (43.5 latitude, -71.6 longitude)	Magnitude 4.7 on Richter Scale	No damage in Merrimack
October 25, 1986	Northfield, NH (43.399 latitude, -71.59 longitude)	Magnitude 3.9 on Richter Scale	No damage in Merrimack
October 20, 1988	Milan, NH (44.539 latitude, -71.158 longitude)	Magnitude 3.9 on Richter Scale	No damage in Merrimack
November 22, 1988	Milan, NH (44.557 latitude, -71.183 longitude)	Magnitude 3.2 on Richter Scale	No damage in Merrimack
April 6, 1989	Berlin, NH (44.511 latitude, -71.144 longitude)	Magnitude 3.5 on Richter Scale	No damage in Merrimack
October 6, 1992	Canterbury, NH (43.324 latitude, -71.578 longitude)	Magnitude 3.4 on Richter Scale	No damage in Merrimack
June 16, 1995	Lyman, NH (44.286 latitude, -71.915 longitude)	Magnitude 3.8 on Richter Scale	No damage in Merrimack
August 21, 1996	Bartlett, NH (44.184 latitude, -71.352 longitude)	Magnitude 3.8 on Richter Scale	No damage in Merrimack

January 27, 2000	Raymond, NH (43.00 latitude, -71.18 longitude)	Magnitude 3.0 on Richter Scale	No damage in Merrimack
September 26, 2010	Boscawen, NH (43.2915 latitude, -71.6568 longitude)	Magnitude 3.4 on Richter Scale	No damage in Merrimack
October 11, 2013	Contoocook, NH (43.255 latitude, -71.747 longitude)	Magnitude 2.6 on Richter Scale	No damage in Merrimack
March 21, 2016	Contoocook, NH (43.264 latitude, -71.767 longitude)	Magnitude 2.8 on Richter Scale	No damage in Merrimack
February 15, 2018	East Kingston, NH (42.921°N latitude, 71.011°W longitude)	Magnitude 2.7 on Richter Scale	No damage in Merrimack
February 4, 2022	Gorham, NH (44.386°N latitude, 71.175°W longitude)	Magnitude 2.9 on Richter Scale	No damage in Merrimack
April 25, 2023	Center Sandwich, NH (43.780°N 71.480°W)	Magnitude 2.9 on Richter Scale	No damage in Merrimack
December 23, 2023	Chichester, NH (43.217°N latitude 71.445°W longitude)	Magnitude 2.7 on Richter Scale	No damage in Merrimack
June 18, 2024	Haverhill, NH (44.016°N latitude 72.035°W longitude)	Magnitude 2.6 on Richter Scale	No damage in Merrimack
	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 Merrimack
November 1, 1935	Timiskaming, Canada	Magnitude 6.25 on Richter Scale	No damage in Merrimack
June 15, 1973	Near Canadian/NH border	Magnitude 4.8 on Richter Scale	No damage in Merrimack
June 23, 2010	Buckingham, Quebec, Canada	Magnitude 5.0 on Richter Scale	No damage in Merrimack
August 23, 2011	Washington, DC	Magnitude 5.8 on Richter Scale	No damage in Merrimack
October 16, 2012	Hollis Center, ME	Magnitude 4.0 on Richter Scale	No damage in Merrimack
January 27, 2025	10 km SE of York Harbor, ME (43.062°N latitude 70.566°W longitude)	Magnitude 3.8 on Richter Scale	No damage in Merrimack

Earthquake Hazard Loss Estimate

Step 1. Determine potential earthquake strength in Merrimack.

- US Seismic Hazard, 2% in 50 years PGA is 0.2 to 0.3(g) in Merrimack
- *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 Merrimack that would be damaged by PGA (g) 0.25 earthquake.

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

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

- Total Assessed Value of all Structures in Merrimack = $5,623,360,200
- *Source: Merrimack Assessing Department (2025)*

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

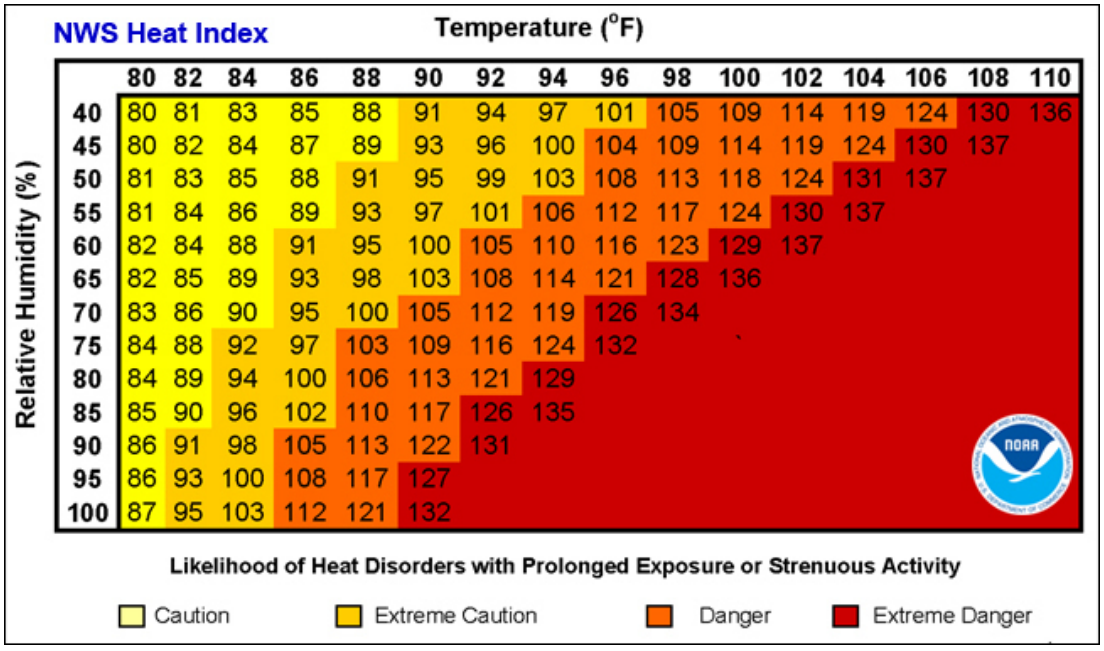
- Total Loss from Earthquake = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Earthquake = $5,623,360,200 * 0.01 * 0.046 = $2,586,746
- Total Loss from Earthquake = $5,623,360,200 * 0.05 * 0.046 = $12,933,728
- **$2,586,746 to $12,933,728**

Critical Facility Type	Total Number of this type of Critical Facilities in Merrimack	Number of this type of Critical Facilities in Earthquake Hazard Area	Percentage of this type of Critical Facilities in Earthquake Hazard Area
General Occupancy	47	40	85%
Essential Facilities	18	18	100%
Transportation	24	24	100%
Utility System	55	55	100%
High Potential Hazard	22	22	100%
Hazardous Materials	20	20	100%

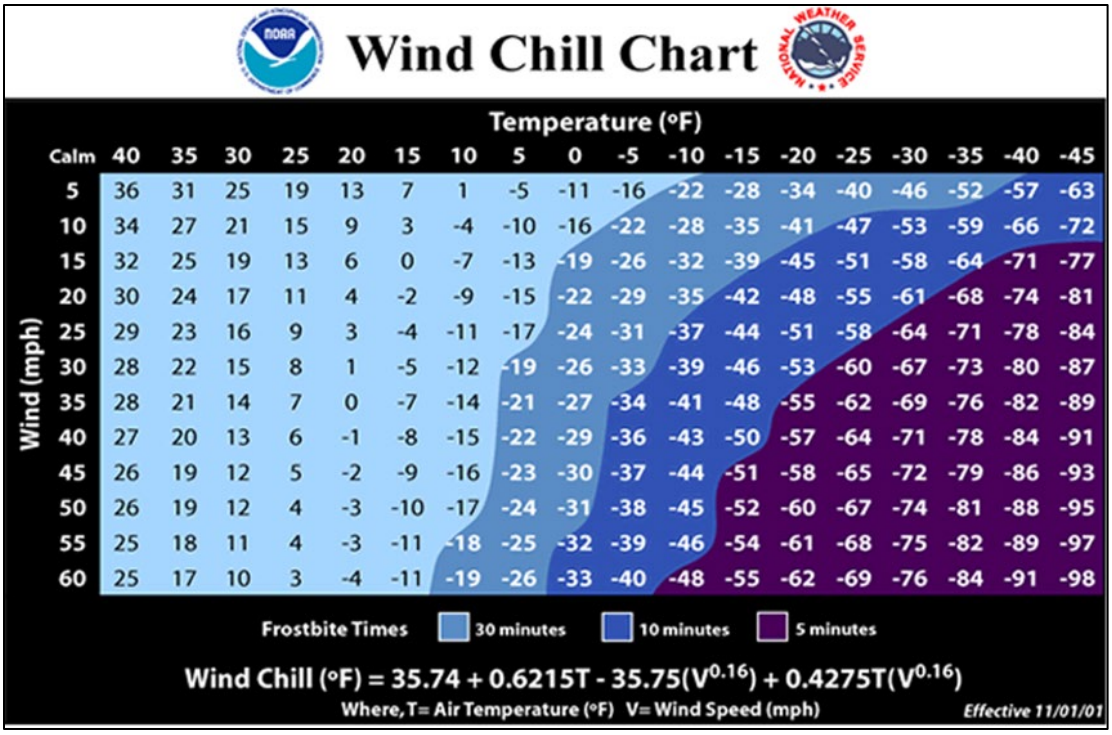
EXTREME TEMPERATURES

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 Merrimack.

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	Location within Jurisdiction	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 Merrimack
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 Merrimack
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 Merrimack

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 Merrimack
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 Merrimack
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 Merrimack
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 Merrimack
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 Merrimack
Extreme Temperature (Cold)	January 18-25, 2005	Entire jurisdiction	8 consecutive days of minimum	No known impact in Merrimack

			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 • 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 Merrimack
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 Merrimack
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 Merrimack
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 Merrimack
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 Merrimack
Extreme Temperature (Cold)	January 15-17, 2012	Entire jurisdiction	3 consecutive days of minimum	No known impact in Merrimack

			temperatures at or below 0˚F: • 1/15/12: -2˚F • 1/16/12: -2˚F • 1/17/12: 0˚F	
Extreme Temperature (Cold)	February 11-13, 2014	Entire Jurisdiction	3 consecutive days of minimum temperatures at or below 0˚F: • 2/11/14: -7˚F • 2/12/14: -7˚F • 2/13/14: -7˚F	No known impact in Merrimack
Extreme Temperature (Cold)	February 1-4, 2015	Entire Jurisdiction	4 consecutive days of minimum temperatures at or below 0˚F: • 2/1/15: 0˚F • 2/2/15: 0˚F • 2/3/15: -3˚F • 2/4/15: -2	No known impact in Merrimack
Extreme Temperature (Cold)	February 14-19, 2015	Entire Jurisdiction	6 consecutive days of minimum temperatures at or below 0˚F: • 2/14/15: -7˚F • 2/15/15: -4˚F • 2/16/15: -5˚F • 2/17/15: -2˚F • 2/18/15: -3˚F • 2/19/15: -4˚F	No known impact in Merrimack
Extreme Temperature (Cold)	February 14-16, 2016	Entire Jurisdiction	3 consecutive days of minimum temperatures at or below 0˚F: • 2/14/16: -11˚F • 2/15/16: -9˚F • 2/16/16: -9˚F	No known impact in Merrimack
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 Merrimack
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	No known impact in Merrimack

			• 1/3/18: -13˚F	
Extreme Temperature (Cold)	January 31-February 3, 2019	Entire Jurisdiction	4 consecutive days of minimum temperatures at or below 0˚F: • 1/31/19: -3˚F • 2/1/19: -3˚F • 2/2/19: -5˚F • 2/3/19: -4˚F	No known impact in Merrimack
Extreme Temperature (Cold)	January 15-17, 2022	Entire Jurisdiction	3 consecutive days of minimum temperatures at or below 0˚F: • 1/15/22: -2˚F • 1/16/22: -6˚F • 1/17/22: 0˚F	Opened warming center, residential freeze-ups
Extreme Temperature (Cold)	January 21-23, 2025	Entire Jurisdiction	• 1/21/25: -9˚F • 1/22/25: -11˚F • 1/23/25: -5˚F	opened warming center, residential freeze-ups
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 Merrimack
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 Merrimack
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 Merrimack
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 Merrimack

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 Merrimack
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 Merrimack
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 • 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	No known impact in Merrimack
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 Merrimack
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 Merrimack
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 Merrimack
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 Merrimack

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 Merrimack
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 Merrimack
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 Merrimack
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 Merrimack
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 Merrimack
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 Merrimack
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	No known impact in Merrimack

			• 7/15/12—93˚F • 7/16/12—91˚F	
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 Merrimack
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 Merrimack
Extreme Temperature (Heat)	July 16-21, 2013	Entire jurisdiction	6 consecutive days of temperatures above 90˚F: • 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	No known impact in Merrimack
Extreme Temperature (Heat)	July 29-31, 2015	Entire Jurisdiction	3 consecutive days of temperatures above 90˚F: • 7/29/15—93˚F • 7/30/15—94˚F • 7/31/15—90˚F	No known impact in Merrimack
Extreme Temperature (Heat)	August 16-20, 2015	Entire Jurisdiction	5 consecutive days of temperatures above 90˚F: • 8/16/15—90˚F • 8/17/15—90˚F • 8/18/15—91˚F • 8/19/15 – 93˚F • 8/20/15 – 90˚F	No known impact in Merrimack
Extreme Temperature (Heat)	September 2-4, 2015	Entire Jurisdiction	3 consecutive days of temperatures above 90˚F: • 9/2/15—91˚F • 9/3/15—92˚F • 9/4/15—92˚F	No known impact in Merrimack
Extreme Temperature (Heat)	September 7-11, 2015	Entire Jurisdiction	5 consecutive days of temperatures above 90˚F: • 9/7/15—90˚F • 9/8/15—94˚F • 9/9/15—94˚F • 9/10/15 – 94˚F	No known impact in Merrimack

			• 9/11/15 – 93˚F	
Extreme Temperature (Heat)	July 22-29, 2016	Entire Jurisdiction	8 consecutive days of temperatures above 90˚F: • 7/22/16—95˚F • 7/23/16—93˚F • 7/24/16—93˚F • 7/25/16—92˚F • 7/26/16—96˚F • 7/27/16—96˚F • 7/28/16—93˚F • 7/29/16—93˚F	No known impact in Merrimack
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 Merrimack
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 Merrimack
Extreme Temperature (Heat)	August 1-4, 2017	Entire Jurisdiction	4 consecutive days of temperatures above 90˚F: • 8/1/17—90˚F • 8/2/17—92˚F • 8/3/17—91˚F • 8/4/17—90˚F	No known impact in Merrimack
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 Merrimack
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 Merrimack
Extreme Temperature (Heat)	August 29-31, 2018	Entire Jurisdiction	3 consecutive days of temperatures above 90˚F:	No known impact in Merrimack

			• 8/29/18—92˚F • 8/30/18—93˚F • 8/31/18—93˚F	
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 Merrimack
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 Merrimack
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 Merrimack
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 • 6/30/21—96˚F	No known impact in Merrimack
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 Merrimack
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 Merrimack
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	No known impact in Merrimack

			• 7/21/22—95˚F • 7/22/22—92˚F • 7/23/22—95˚F • 7/24/22—97˚F	
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 Merrimack
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 Merrimack
Extreme Temperature (Heat)	June 19-21, 2024	Entire Jurisdiction	3 consecutive days of temperatures above 90˚F: • 6/19/24—98˚F • 6/20/24—99˚F • 6/21/24—99˚F	No known impact in Merrimack
Extreme Temperature (Heat)	July 6-18, 2024	Entire Jurisdiction	11 consecutive days of temperatures above 90˚F: • 7/8/24—94˚F • 7/9/24—94˚F • 7/10/24—92˚F • 7/11/24—93˚F • 7/12/24—93˚F • 7/13/24—91˚F • 7/14/24—91˚F • 7/15/24—93˚F • 7/16/24—94˚F • 7/17/24—95˚F • 7/18/24—93˚F	No known impact in Merrimack
Extreme Temperature (Heat)	June 23-25, 2025	Entire Jurisdiction	3 consecutive days of temperatures about 90˚F: • 6/23/25—92˚F • 6/24/25—102˚F • 6/25/25—102˚F	Record temperatures were recorded, and Extreme temperature warnings were

				issued due to high temperatures paired with high humidity levels.
Extreme Temperature (Heat)	July 29-31, 2025	Entire Jurisdiction	3 consecutive days of temperatures above 90˚F: 7/29/25 – 93˚F 7/30/25 – 98˚F 7/31/25 - 96˚F	No known impact in Merrimack
Extreme Temperature (Heat)	August 11-15, 2025		5 consecutive days of temperatures above 90˚F: 8/11/25 – 93˚F 8/12/25 – 96˚F 8/13/25 - 96˚F 8/14/25 - 95˚F 8/15/25 - 92˚F	No known impact in Merrimack

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 Merrimack resulting from extreme temperatures. Though the entire Merrimack 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

Special flood areas are defined as the 100-year or 1% annual floodplain. These are areas with a 1% annual chance of flood or the probability of one flood every 100 years. Special flood areas also include the 500-year or 0.2% annual floodplain. In these areas there is a 0.2% annual chance of flooding, or the probability of one flood every 500 years. Special flood areas are the most likely places to experience flooding in a municipality.

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 5.47% of Merrimack, primarily located around the Merrimack River, Souhegan River, Baboosic Brook, Naticook Brook, Baboosic Lake, Greens Pond, and Pennichuck Brook and associated ponds/wetlands along the southern municipal border.

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 misoperation 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 misoperation of the dam would result in any of the following: no probable loss of lives; major economic loss to structures or property; structural damage to a Class I or Class II road that 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 misoperation of the dam would result in any of the following: no possible loss of life; low economic loss to structures or property; structural damage to a town or city road or private road accessing property other than the dam owner’s that could render the road 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 misoperation 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.

Merrimack has 20 Class NM dams (Non-Menace), 2 Class L dams (Low hazard potential), 0 Class S dams (Significant hazard potential), and 0 Class H dams (High hazard potential). See **Table 10 - High Potential Hazard Critical Facilities** for all Dams and Dam locations in Merrimack.

All of Merrimack's Dams have either a non-menacing or low hazard classification, which means that they have a relatively low hazard potential because of their size and location. Failure or mis-operation of any number of these dams would not result in an economic loss to structures and property and no probable loss of lives. No structures or areas specifically would be impacted in Merrimack from failure of any of the dam locations.

The Merrimack Emergency Management Director / Fire Chief oversees and monitors damns within town. Merrimack actively owns and manages three dams, listed in **Table 12** below. Currently, there are no dam deficiencies in Merrimack and there are no ongoing or proposed projects involving dams.

Table 11 - Active Dams Owned by the Town of Merrimack

Dam Name	Hazard Classification	Water Body	Height	Impoundment
Stump Pond Dam	L	Farley Brook	16 ft	72 acres
Meadow Wood Pond Dam	L	Souhegan River tributary	15 ft	9.4 acres
Naticook Lake Dam	NM	Naticook Brook	5 ft	21.3 acres

Previous Occurrences of Flooding

Hazard	Date	Location within Jurisdiction	Extent	Impact
Flooding – Dam Failure	There have been no flooding events caused by dam failure in Merrimack to date.			
Flooding	1927	Hillsborough County	No data on extent available	Damage to road network.
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. Impacts listed here are general to Hillsborough County. Specific impacts to Merrimack are unknown.
Flooding	1940	Souhegan River, near Central Fire Station	No historic data on extent	Damage to road network.
Flooding	June 1942	Merrimack River	No historic data on extent	Damage to road network.
Flooding	June 1944	Merrimack River	No historic data on extent	Damage to road network.
Flooding	April 1960	Merrimack River	No historic data on extent	Flooding resulting from rapid snow melt and heavy rain. Damage to road network.
Flooding	March 10, 1964	Souhegan River	Maximum gage height of 6.06 feet	No data on impact.
Flooding	March 19, 1968	Souhegan River	Discharge of 3,800 cfs	No data on impact.
Flooding	July 11, 1973	Hillsborough County	No data on extent available	FEMA Disaster Declaration #399. Specific impacts to Merrimack are unknown.

Flooding, ice jam	March 1977	Souhegan River	No historic data on extent	5 homes flooded in Merrimack.
Flooding, ice jam	March 1977	Baboosic Brook	No historic data on extent	Impact to transportation infrastructure. $80,000 to replace bridge. Town tried unsuccessfully to remove ice with backhoe.
Flooding	July 29-August 10, 1986	Hillsborough County	No data on extent available	FEMA Disaster Declaration #771. Many roads impassable in Hillsborough County. Specific impacts to Merrimack 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 Merrimack are unknown.
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 in Hillsborough County. Specific impacts to Merrimack 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 Merrimack 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 Merrimack are unknown.
Flooding	May 2001	Pennichuck Brook	No data on extent available	NH 101A collapsed on the eastbound side. Traffic impacted for months
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 Merrimack 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. Specific impacts to Merrimack 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.

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 Merrimack 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. Flooding near Johnson Corner due to undersized culvert. FEMA Disaster Declaration #1913 Primary impact to roads and bridges in Hillsborough County. Specific impacts to Merrimack are unknown.
Flooding	May 26, 2011	Hazard was not experienced in jurisdiction.	N/A	Disaster Declaration #4006. No impact to Merrimack.
Flooding	May 29, 2012	Hazard was not experienced in jurisdiction.	N/A	Disaster Declaration #4065. No impact to Merrimack.
Flooding	June 26, 2013	Hazard was not experienced in jurisdiction.	N/A	Disaster Declaration #4139. No impact to Merrimack.
Flooding	July 1, 2017	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4329. No impacts to Merrimack.
Flooding	October 29 – November 1, 2017	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4355. No impacts to Merrimack.
Flooding	March 2-8, 2018	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4370. No impacts to Merrimack.
Flooding	July 11-12, 2019	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4357. No impacts to Merrimack.

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 number of structures in Merrimack located in the floodplain.

- 289 structures located in 1% floodplain
- 540 structures located in 0.2% floodplain
- *Source: Nashua Regional Planning Commission GIS database*

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

- Average assessed value of all structures in Merrimack = $536,395
- Total number of structures in Merrimack located in 1% floodplain = 14
- Total assessed value of all structures in Merrimack in 1% floodplain = $536,395 * 14
- Total assessed value of all structures in Merrimack in 1% floodplain = $7,509,530
- *Source: Merrimack Hazard Mitigation Team calculations based on Merrimack 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 = $7,509,530 * 0.15 = **$1,126,430**
- Total Loss from 2-foot flood depth = $7,509,530 * 0.20 = **$1,501,906**
- Total Loss from 3-foot flood depth = $7,509,530 * 0.23 = **$1,727,192**
- Total Loss from 4-foot flood depth = $7,509,530 * 0.28 = **$2,102,668**

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

- Average assessed value of all structures in Merrimack = $536,395
- Total number of structures in Merrimack located in 0.2% floodplain = 402
- Total assessed value of all structures in Merrimack in 0.2% floodplain = $536,395 * 402
- Total assessed value of all structures in Merrimack in 0.2% floodplain = $215,630,790
- *Source: Merrimack Hazard Mitigation Team calculations based on Merrimack 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 = $215,630,790 * 0.15 = **$32,344,619**

- Total Loss from 2-foot flood depth = $215,630,790 * 0.20 = **$43,126,158**
- Total Loss from 3-foot flood depth = $215,630,790 * 0.23 = **$49,595,082**
- Total Loss from 4-foot flood depth = $215,630,790 * 0.28 = **$60,376,621**

Critical Facility Type	Total Number of this type of Critical Facilities in Merrimack	Number of this type of Critical Facilities in 1% Annual Floodplain	Percentage of this type of Critical Facilities in 1% Annual Floodplain	Number of this type of Critical Facilities in 0.2% Annual Floodplain	Percentage of this type of Critical Facilities in 0.2% Annual Floodplain
General Occupancy	47	6	13%	3	6%
Essential Facilities	18	1	6%	1	6%
Transportation	24	13	54%	2	8%
Utility System	55	13	24%	9	16%
High Potential Hazard	22	2	9%	2	9%
Hazardous Materials	20	0	0%	1	5%

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. Specific impact to Merrimack is unknown.
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 29-30, 2017	Hillsborough County	Tropical Storm (winds 39-73 mph).	A powerful storm fed by tropical moisture knocked out power to more than 270,000 homes and business across the state. Falling trees severely damaged many homes and electrical infrastructure in Merrimack. Merrimack experienced widespread and prolonged power outages, as well as 2.8 inches of rain.
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-post tropical cyclones (severe wind) in Merrimack since 2021.			

Severe Wind Hazard Loss Estimate

For the purpose of this plan, the severe wind hazard is referring to winds generated from hurricanes and tropical storms. 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. Hurricane season in the Atlantic runs from June 1st to November 30th.

According to the New Hampshire State Hazard Mitigation Plan (2018) tropical cyclones with maximum sustained winds of less than 39 mph are called tropical disturbances. Once the tropical cyclone reaches winds of at least 39 mph, they are typically called a tropical storm and assigned a formal name. If the winds reach 74 mph or greater, they are upgraded and called a hurricane. A major hurricane is considered a tropical cyclone with maximum sustained winds of greater than 111 mph.

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 percent building damage ratio to single family residence from Category 3 hurricane.

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

Step 2. Determine percent of structures in Merrimack that would be damaged by Category 3 hurricane.

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

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

- Total Assessed Value of all Structures in Merrimack = $5,623,360,200
- Source: Merrimack Assessing Department (2025)

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 = $5,623,360,200 * 0.05 * 0.2 = **$56,233,602**

Critical Facility Type	Total Number of this type of Critical Facilities in Merrimack	Number of this type of Critical Facilities in Severe Wind Area	Percentage of this type of Critical Facilities in Hurricane Hazard Area
General Occupancy	47	40	85%
Essential Facilities	18	18	100%
Transportation	24	17	71%
Utility System	55	48	87%
High Potential Hazard	22	22	100%
Hazardous Materials	20	20	100%

LIGHTNING & HAIL

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 cause 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, which 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 it is not common in Merrimack, hailstorm events resulting from significant thunderstorms can occur at any time. 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 Merrimack.

Previous Occurrences of Lightning & Hail

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
August 14, 2025	Merrimack Fire Station No.1 (Headquarters)	Severe Thunderstorms	Residential home lightning strikes and power outages. Merrimack Fire Station No.1 (headquarters) was struck – knocking out power, internet and significantly emergency communications systems

Lightning & Hail Hazard Loss Estimate

Losses from lightning 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.

Step 1. Determine percent building damage ratio to single family residence from lightning.

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

Step 2. Determine percent of structures in Merrimack that would be damaged by lightning.

- 0.25% of structures estimated to be damaged by lightning.
- *Source: Merrimack Hazard Mitigation Team*

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

- Total Assessed Value of all Structures in Merrimack = $5,623,360,200
- *Source: Merrimack Assessing Department (2025)*

Step 4. Determine total loss from lightning & hail.

- Total Loss from Lightning = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Severe Thunderstorm = $5,623,360,200 * 0.0025 * 0.05 = **$702,920**

Critical Facility Type	Total Number of this type of Critical Facilities in Merrimack	Number of this type of Critical Facilities in Lightning Hazard Area	Percentage of this type of Critical Facilities in Lightning Hazard Area
General Occupancy	47	47	100%
Essential Facilities	18	18	100%
Transportation	24	17	71%
Utility System	55	52	95%
High Potential Hazard	22	0	0%
Hazardous Materials	20	19	95%

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 encounters 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 lasing on 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 lasing 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 lasing 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, 2015, 2017 and 2018. 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.

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.
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. 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 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 of 18-24 inches across 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.
March 13-15, 2023 (Unofficially named Winter Storm Sage)	Entire Jurisdiction	Nearly 3 feet of heavy, wet snow and heavy wind gusts	Road infrastructure closures and power outages.

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 percent 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: Merrimack Hazard Mitigation Team*

Step 2. Determine percent of structures in Merrimack that would be damaged by severe winter weather.

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

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

- Total Assessed Value of all Structures in Merrimack = $5,623,360,200
- *Source: Merrimack Assessing Department (2025)*

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 = $5,623,360,200 * 0.01 * 0.05 = **$2,811,680**

Critical Facility Type	Total Number of this type of Critical Facilities in Merrimack	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	47	40	85%
Essential Facilities	18	18	100%
Transportation	24	17	71%
Utility System	55	52	95%
High Potential Hazard	22	22	100%
Hazardous Materials	20	20	100%

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 16, 2024, in the form of a microbust in Milford, NH. Homes and vehicles were damaged, there were widespread power outages, and approximately 150 downed trees along with downed utility poles and wires.

Previous Occurrences of Tornado/Downburst

Date	Location within Jurisdiction	Extent	Impact
	There have been no tornados originating in Merrimack to date. Tornados noted below originated in Hillsborough Co., NH		
July 2, 1961	Northern Hillsborough Co, originated near Weare, NH	Fujita Scale F2	0 fatalities, 0 injuries
July 21, 1961	Central Hillsborough Co, originated near New Boston, NH	Fujita Scale F1	0 fatalities, 0 injuries
May 9, 1963	Northeastern, Hillsborough Co, originated near Goffstown, NH	Fujita Scale F1	0 fatalities, 0 injuries
May 20, 1963	Western Hillsborough Co, originated near Peterborough, NH	Fujita Scale F1	0 fatalities, 0 injuries
June 9, 1963	Northeastern Hillsborough Co, originated near Manchester, NH	Fujita Scale F2	0 fatalities, 0 injuries
August 28, 1965	Eastern Hillsborough Co, originated near Litchfield, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 19, 1966	Southern Hillsborough Co, originated near Amherst, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 17, 1968	Central Hillsborough Co, originated near Wilton, NH	Fujita Scale F2	0 fatalities, 0 injuries
August 20, 1968	Northeastern Hillsborough Co, originated near Manchester, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 19, 1972	Southeastern Hillsborough Co, originated near Hudson, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 5, 1984	Western Hillsborough Co, originated near Harrisville, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 5, 1984	Southeastern Hillsborough Co, originated near Pelham, NH	Fujita Scale F1	0 fatalities, 0 injuries
June 16, 1986	Western Hillsborough Co, originated near Swanzey, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 3, 1997	Central Hillsborough Co, originated near Greenfield, NH	Fujita Scale F2	0 fatalities, 0 injuries
May 31, 1998	Western Hillsborough Co, originated near Antrim, NH	Fujita Scale F2	0 fatalities, 0 injuries
July 6, 1999	Merrimack, Grafton, and Hillsborough Co.	Macroburst	2 fatalities, 2 lost roofs, damage to trees and utility infrastructure

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.
July 16, 2024	Milford, NH and surrounding towns	Microburst	95mph winds, 150 downed trees, 7 homes damaged, 2 vehicles destroyed, widespread power outages and road closures.

Tornado/Downburst 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 a F2, so loss estimates were calculated based on a tornado of that strength.

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

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

Step 2. Determine percent of structures in Merrimack that would be damaged by F2 tornado.

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

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

- Total Assessed Value of all Structures in Merrimack = $5,623,360,200
- *Source: Merrimack Assessing Department (2025)*

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 = $5,623,360,200 * 0.01 * 0.5 = **$28,166,801**

Critical Facility Type	Total Number of this type of Critical Facilities in Merrimack	Number of this type of Critical Facilities in Tornado Hazard Area	Percentage of this type of Critical Facilities in Tornado Hazard Area
General Occupancy	47	40	85%
Essential Facilities	18	18	100%
Transportation	24	17	71%
Utility System	55	52	95%
High Potential Hazard	22	22	100%
Hazardous Materials	20	20	100%

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
May 4, 1942	Fire began in Merrimack then jumped Merrimack River into Litchfield near McQuesten Farms. Fire eventually spread to Nashua and Amherst.	NWCG Fire Size Classification F: 2,000 acres in Merrimack, Litchfield, Nashua, and Amherst	Numerous area fire departments battled the blaze. Many firefighters were injured.
May 8, 1950	2 separate fires roughly 1 mile apart near Wildcat Falls	NWCG Fire Size Classification C: approximately 40 acres	Destruction of commercial property (Art's Garage), large barn, and silo. Death to livestock
September 1, 2007	Power lines along Route 3 near Pointer Fish and Game Club, Merrimack to Bedford	NWCG Fire Size Classification C: approximately 20 acres	8-day event, no damage to houses
March 22, 2012	Median on the Everett Turnpike, just north of Wire Road overpass	NWCG Fire Size Classification A	Fire started by cigarette butt, no impact to structures or roadway.
May 4, 2013	Ichabod Drive	NWCG Fire Size Classification B: 1 acre	No damage to structures. Firefighters from Merrimack, Nashua, and Amherst fought fire.
May 6, 2015	Fidelity Investments Property	NWCG Fire Size Classification C	A large brush fire was found in a heavily wooded area of walking trails; the fire began to rapidly spread due to the windy dry

			conditions. At the fire's peak over 14-acres were burning. No damage to structures. Mutual aid from Amherst, Hollis, Bedford, Nashua, Manchester, Londonderry, Hudson, Goffstown, Milford, and the NH Forest Protection Service. One firefighter was injured.
November 12, 2023	Everette Turnpike	Eight individual brush fires along the portion of the Everette Turnpike in Merrimack.	No property damages reported, firetruck was hit by a vehicle.
March 14, 2025	Peaslee Road	0.32 acres burned	No property damages reported.

Wildfire Hazard Loss Estimate

Step 1. Determine percent building damage ratio to single family residence from wildfire.

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

Step 2. Determine percent of structures in Merrimack that would be damaged by wildfire.

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

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

- Total Assessed Value of all Structures in Merrimack = $5,623,360,200
- *Source: Merrimack Assessing Department (2025)*

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 = $5,623,360,200 * 0.005 * 0.2 = **$5,623,360**

Critical Facility Type	Total Number of this type of Critical Facilities in Merrimack	Number of this type of Critical Facilities in Wildfire Hazard Area	Percentage of this type of Critical Facilities in Wildfire Hazard Area
General Occupancy	47	40	85%
Essential Facilities	18	18	100%
Transportation	24	17	71%
Utility System	55	41	75%
High Potential Hazard	22	0	0%
Hazardous Materials	20	19	95%

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 its speed of onset (how quickly people become sick or cases are reported) and how widespread the infection is. Some infectious diseases are inherently more dangerous and deadly than others, but the best way to describe the extent of infectious diseases relates to the disease occurrence.[7]

- 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.

[7] https://www.cdc.gov/ophss/csels/dsepd/ss1978/lesson1/section11.html

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, and 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. [8]

Previous Occurrences of Infectious Disease
As does the rest of the state, Merrimack 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 when daily tracking stopped, Merrimack had 7,033 Covid-19 cases in total since the start of the pandemic (NH DHHS).

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

Infectious Diseases 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 3.6. Overall Summary of Vulnerability

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

[8] State of NH Multi-Hazard Mitigation Plan Update 2018 pg. 110-113

Table 12 - 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
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—51% of Merrimack population on public drinking water, 49% of Merrimack population on private well water. Loss of water for fire protection. Increased risk of wildfire.	General Occupancy = 17% Essential Facilities = 0% Transportation = 0% Utility Systems = 41% High Potential Hazard = 0% Hazardous Materials = 0%	0 acres of agricultural land (0% of total land area)	Calculating $ value of losses is beyond the scope of this Plan (see Section 3.5 Drought for explanation)
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 = 85% Essential Facilities = 100% Transportation = 100% Utility Systems = 100% High Potential Hazard = 100% Hazardous Materials = 100%	1-5%	**$2,586,746 to $12,933,728**
Extreme Temperatures	Not likely to have a significant impact on structures.	Overburdened power networks. Heating fuel shortages.	General Occupancy = 100%	0%	$0

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
		Risk to life from prolonged exposure.	Essential Facilities = 100% Transportation = 0% Utility Systems = 1000% High Potential Hazard = 0% Hazardous Materials = 95%		
Flooding	• General Occupancy • Essential Facilities • Transportation • Utilities • High Potential Hazard	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 resulting from flooding.	General Occupancy = 19% in floodplain Essential Facilities = 12% in floodplain Transportation = 62% susceptible to flooding Utility Systems = 32% susceptible to flooding High Potential Hazard = 18% in floodplain Hazardous Materials = 5% in floodplain	14 structures in 1% annual floodplain 402 structures in 0.2% annual floodplain	Loss in 1% floodplain: 1-foot flood = **$1,126,430** 2-foot flood = **$1,501,906** 3-foot flood = **$1,727,192** 4-foot flood = **$2,102,668** Loss in 0.2% floodplain: 1-foot flood = **$32,344,619** 2-foot flood = **$43,126,158** 3-foot flood = **$49,595,082** 4-foot flood = **$60,376,621**
Severe Wind	• General Occupancy	Wind damage to structures and trees.	General Occupancy = 85%	5%	**$56,233,602**

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
	• Essential Facilities • Transportation • Utility Systems • 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 communications, radio system. Environmental hazards resulting from damage. Isolation of neighborhoods resulting from flooding.	Essential Facilities = 100% Transportation = 71% Utility Systems = 87% High Potential Hazard = 100% Hazardous Materials = 100%		
Lightning	• General Occupancy • Essential Facilities • Transportation • 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 = 100% Essential Facilities = 100% Transportation = 71% Utility Systems = 94% High Potential Hazard = 0% Hazardous Materials = 100%	0.5%	**$702,902**
Severe Winter Weather	• General Occupancy • Essential Facilities	Disruption to road network.	General Occupancy = 85%	1%	**$2,811,680**

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
	• Transportation • Utility • High Potential Hazard • Hazardous Materials	Damage to trees and power lines, communications. Structural damage to roofs/collapse. Increased risk of CO issues, other hazards.	Essential Facilities = 100% Transportation = 71% Utility Systems = 94% High Potential Hazard = 100% Hazardous Materials = 100%		
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. Environmental hazards resulting from damage. Medical surge.	General Occupancy = 85% Essential Facilities = 100% Transportation = 71% Utility Systems = 94% High Potential Hazard = 100% Hazardous Materials = 100%	1%	**$ 28,166,801**
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.	General Occupancy = 85% Essential Facilities = 100% Transportation = 71%	0.5%	**$ 5,623,360**

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
		Loss of natural resources.	Utility Systems = 74% High Potential Hazard = 0% Hazardous Materials = 95%		
Infectious Diseases	• General Occupancy • Essential Facilities • Utility System • Hazardous Materials	Risk to life, medical surge/ overburdened healthcare systems.	General Occupancy = 100% Essential Facilities = 100% Transportation = 0.5% Utility Systems = 65% High Potential Hazard = 0% Hazardous Materials = 60%	0%	Calculating $ value of losses is beyond the scope of this Plan (see Section 3.5 Infectious Diseases for explanation)

Table 13 - Overall Summary of Vulnerability by Facility Type

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	# Susceptible to Severe Winter Weather	# Susceptible to Tornado/Downburst	# Susceptible to Wildfire	# Susceptible to Infectious Diseases
General Occupancy	47	8	40	47	9	40	47	40	40	40	47
Essential Facilities	18	0	18	18	2	18	18	18	18	18	18
Transportation	24	0	24	0	15	17	17	17	17	17	1
Utility	55	23	55	55	21	48	52	52	52	41	36
High Hazard	22	0	22	0	4	22	0	22	22	0	0
Hazardous Materials	20	0	20	19	1	20	19	20	20	19	12

Section 3.7. National Flood Insurance Program

The Town of Merrimack 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). Merrimack joined the NFIP on July 16, 1979. The Town's initial Flood Hazard Boundary Map was identified on April 12, 1974 and its initial Flood Insurance Rate Map was identified on July 16, 1979. The current effective map date is September 25, 2009.

Merrimack has 95 NFIP policies in force and $22,316,200 of insurance in force. There have been 51 paid losses totaling $1,205,852. Merrimack has 8 repetitive loss properties with repetitive loss payments totaling $818,835. All repetitive loss structures in Merrimack have been single family residential.

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

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

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

As a participant in the NFIP, communities must agree to adopt a floodplain management ordinance and enforce the regulations found in the ordinance. Merrimack has adopted the "Flood Hazard Conservation District," found in Section 2.02.8 of the Merrimack Zoning Ordinance and Building Code. The Flood Hazard Conservation District is determined to be the flood hazard areas designated by the Federal Insurance Administration, through on-site mapping of elevations in the flood hazard areas of the Town of Merrimack, dated September 25, 2009. The Flood Hazard Conservation District is shown in the Flood Insurance Study and on the Flood Insurance Rate Maps of Hillsborough County, NH. In all cases where the Flood Hazard Conservation District is super-imposed over another zoning district in the Town, the district whose regulations are the more restrictive shall apply.

The purpose of the Flood Hazard Conservation District is:

- To prevent unwise use of lands susceptible to flooding within Special Flood Hazard Areas; to promote sound orderly development of the Town's resources; and to reduce future flood damage, financial loss, suffering, and loss of life.

- To prevent the development of residential, commercial, and industrial buildings and other land uses in Special Flood Hazard Areas, which would impede the natural water flow or result in an increase in flood levels during flood periods.
- To prevent the destruction and inappropriate use of flood-prone land.
- To prevent unnecessary or excessive expenses on the part of the Town to provide and maintain essential services and utilities which arise because of inharmonious use of lands within Special Flood Hazard Area.
- To prevent culverting, damming, dredging or obstructing such as to impede or obstruct natural water flow during its maximum flood level.
- To prevent the building of public facilities such as schools, hospitals, fire, police departments, or other similarly related agencies except those necessary for the public health, safety, and welfare, whereupon such uses shall otherwise remain in full conformance with applicable Federal requirements.

To demonstrate the Merrimack's continued compliance with NFIP requirements, the Hazard Mitigation Team identified the following mitigation actions as part of its comprehensive mitigation strategy. These actions also appear in Section 4.2, **Table 15 - 2026 Hazard Mitigation Actions**

Table 14 - National Flood Insurance Program (NFIP) Mitigation Actions

National Flood Insurance Program Mitigation Actions			
Mitigation Action	**Mitigation Type**	**Hazard Addressed**	**Critical Facilities Addressed**
Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations and erosion control regulations to improve floodplain management in Merrimack.	• Prevention • Natural Resources Protection	• Flooding • Severe Wind/Tropical Storm	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard • Hazardous Materials
Participate in NFIP training offered by the State and/or FEMA (or in another training) that addresses flood hazard planning and management.	• Prevention • Natural Resources Protection	• Flooding	• General Occupancy • Essential Facilities
Revise and enhance mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.	• Emergency Services Protection	• Flooding • Severe Wind/Tropical Storm	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard • Hazardous Materials
Improve stormwater drainage system capacity and flood control infrastructure. Consider costs and benefits of a variety of infrastructure upgrades, including stormwater pipe storage, stormwater ponds, stormwater tank storage, and culvert upsizing and realignments.	• Prevention • Natural Resource Protection	• Flooding • Severe Wind/Tropical Storm	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard • Hazardous Materials

CHAPTER 4. MITIGATION STRATEGY

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 15 - 2026 Hazard Mitigation Actions** below.

Table 15 - 2026 Hazard Mitigation Actions

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
2021 Mitigation Actions			
Require water conservation by enforcing the year round even/odd water ordinance, which limits the days outside watering is allowed based on street address and date.	• Prevention • Public Education • Natural Resources Protection	• Drought	• General Occupancy • Utility Systems
Elevate new roads and bridges above the base flood elevation and raise existing low-lying bridges and roads.	• Structural • Prevention	• Flooding	• Transportation Systems
Protect critical emergency management facilities and equipment from lightning damage. Install and maintain surge protection and battery backup on critical electronic equipment.	• Property Protection	• Lightning & Hail	• Essential Facilities • Utility Systems
Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquakes, flooding, hurricanes, and winter storms.	• Property Protection	• Earthquake • Severe Wind/Tropical Storm • Severe Winter Weather • Tornado/Downburst	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard • Hazardous Materials
Protect power lines by working with utility companies to harden electrical infrastructure, including trimming trees near power lines. Consider the costs and benefits of requiring overhead power lines be buried in all new developments.	• Prevention	• Lightning & Hail • Severe Wind/Tropical Storm • Severe Winter Weather • Tornado/Downburst	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard

			• Hazardous Materials
Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the New Hampshire Drought Management Team (DMT) and the State Drought Management.	• Natural Resources Protection	• Drought	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard • Hazardous Materials
Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquake, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks. Utilize Nixle, community access TV, Merrimack website, and social media.	• Public Information • Prevention • Natural Resource Protection	• Drought • Earthquake • Extreme Temperatures • Flooding • Lightning & Hail • Severe Wind/Tropical Storm • Severe Winter Weather • Tornado/Downburst • Wildfire • Infectious Diseases	• General Occupancy • Human Lives
Tightly control burn permits and revoke when not properly and safely being utilized. Post fire danger categories. Work with Eversource to remove underbrush and standing deadwood in residential areas and under power lines to reduce the likelihood of wildfires spreading.	• Natural Resource Protection • Property Protection • Prevention	• Wildfire	• General Occupancy
NFIP Actions			
Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations and erosion control regulations to improve floodplain management in Merrimack.	• Prevention • Natural Resources Protection	• Flooding • Severe Wind/Tropical Storm	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard • Hazardous Materials
Participate in NFIP training offered by the State and/or	• Prevention	• Flooding	• General Occupancy

FEMA (or in another training) that addresses flood hazard planning and management.	• Natural Resources Protection		• Essential Facilities •
Revise and enhance mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.	• Emergency Services Protection	• Flooding • Severe Wind/Tropical Storm	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard • Hazardous Materials
Improve stormwater drainage system capacity and flood control infrastructure. Consider costs and benefits of a variety of infrastructure upgrades, including stormwater pipe storage, stormwater ponds, stormwater tank storage, and culvert upsizing and realignments.	• Prevention • Natural Resource Protection	• Flooding • Severe Wind/Tropical Storm	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard • Hazardous Materials
Additional Mitigation Actions			
Participate in the NH DHHS wastewater surveillance program to track levels of infectious disease like COVID-19, RSV, and Influenza. Proactively enact municipal infectious disease standards/protocols to minimize spread of disease when necessary.	• Public Information • Prevention	• Infectious Diseases	• General Occupancy • Essential Facilities • Utility Systems • High Potential Hazard • Hazardous Materials

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 16 - Benefit vs. Cost Review

Mitigation Action	Likely Benefits	Likely Costs
Require water conservation by enforcing the year round even/odd water ordinance, which limits the days outside watering is allowed based on street address and date.	• If followed, it would help to reduce the impacts of drought.	• The effectiveness of this action depends on the ability of the Town to enforce it. • This action is costly to enforce. • $4,400 Advertising & Public Information; $500 Public Education (Source: 2026 Merrimack Village District budget)
Elevate new roads and bridges above the base flood elevation and raise existing low-lying bridges and roads.	• Taking this action helps reduce the risk of major repair costs that might occur if no action were taken. • Solves the problem of bridge and roadway flooding and ensures safe, reliable transportation.	• Very costly action to implement. • Around $12,000,000 (Source: Merrimack CIP/Capital Reserve Fund, Grants/DOT Funding)
Protect critical emergency management facilities and equipment from lightning damage. Install and maintain surge protection and battery backup on critical electronic equipment.	• Reduced inconvenience and loss associated with a shutdown of critical facilities due to lightning damage	• $200 per department (Source: 2026 Merrimack Operating Budget)
Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquakes, flooding, hurricanes, and winter storms.	• This action would be effective at avoiding and reducing future losses. • This action is beneficial to all applicable buildings across the entire Town.	• This action may not benefit older structures, not subject to newer building codes. • Percentage of existing Building Inspector Budget (Source: 2026 Merrimack Operating Budget)
Protect power lines by working with utility companies to harden electrical infrastructure, including trimming trees near power lines. Consider the costs and benefits of requiring overhead power lines be buried in all new developments.	• Reduced inconvenience and loss associated with a shutdown of critical facilities. • Decreased burden on vulnerable populations.	• Tree removal may be incompatible with local aesthetics. • Burying power lines may be cost prohibitive. • Buried power lines would only benefit those living in areas with underground utilities. • $5,000 per large tree for removal (Source: Merrimack Operating Budget - Highway Dept. Tree Service line item) • $5,000 for preliminary cost benefit review of power line burial (Source: Merrimack 2026 Operating Budget, CIP)

Mitigation Action	Likely Benefits	Likely Costs
Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the New Hampshire Drought Management Team (DMT) and the State Drought Management Plan to monitor drought indicators.	• If followed, it would help to reduce the impacts of drought.	• $0 additional costs, percentage of existing Merrimack Village District Budget (Source: 2026 Merrimack Village District Operating Budget)
Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquake, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks. Utilize Nixle, community access TV, Merrimack website, and social media.	• 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 existing Fire Department Emergency Management budget (Source: 2026 Merrimack Operating Budget)
Tightly control burn permits and revoke when not properly and safely being utilized. Post fire danger categories. Work with Eversource to remove underbrush and standing deadwood in residential areas and under power lines to reduce the likelihood of wildfires spreading.	• This action would result in reduced fire-fighting costs. • 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 manmade fire related hazards.	• 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: 2026 Merrimack Operating Budget)
Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations and erosion control regulations to improve floodplain management in Merrimack.	• This action would be most beneficial to residents in 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 Administrator Wages Line Item (Source: 2026 Merrimack Operating Budget)
Revise and enhance mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.	• This action helps municipalities to share resources and decreases the burden on any one community. • This action helps the Town to know what resources are available for use in an emergency. • This action has the potential to reduce flood related economic losses.	• Responding to a mutual aid call in a neighboring community could take away resources from Merrimack. • Mutual aid calls for non-federally declared disasters would not be reimbursed by FEMA. • Percentage of existing Fire Department Emergency Management budget

Mitigation Action	Likely Benefits	Likely Costs
		(source: 2026 Merrimack Operating Budget)
Improve stormwater drainage system capacity and flood control infrastructure. Consider costs and benefits of a variety of infrastructure upgrades, including stormwater pipe storage, stormwater ponds, stormwater tank storage, and culvert upsizing and realignments.	• This action would be effective at avoiding and reducing future losses. • This action is beneficial to all applicable transportation systems throughout the town along with critical facility access off impact transportation infrastructure.	• Costly to implement, engineering and construction costs vary by project (Source: 2026 Merrimack Operating budget, CIP, grants)
Participate in NFIP training offered by the State and/or FEMA (or in another training) that addresses flood hazard planning and management.	• Educate residents, builders, and other professionals about NFIP. • Reduce property loss costs associated with flooding	• $0 additional costs, • Percentage of existing Planning/Zoning and Code Enforcement budget (Source: 2026 Merrimack Operating Budget)
Participate in the NH DHHS wastewater surveillance program to track levels of infectious disease like COVID-19, RSV, and Influenza. Proactively enact municipal infectious disease standards/protocols to minimize spread of disease when necessary.	• This action would benefit the entire town and particularly the most at-risk populations. • Increased public awareness and education of infectious disease prevalence	• $0 additional costs, percentage of existing Public Works Wastewater Division and Emergency Management budgets (source: 2026 Merrimack 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?

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

Table 17 - STAPLEE Analysis

Mitigation Action: Elevate new roads and bridges above the base flood elevation and raise existing low-lying bridges and roads.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	This action is compatible with present and future community values, including ensuring safe, reliable transportation. This action could be disruptive to residents living near construction. It may also affect property owners if easements are taken.	-1	3
T: is it Technically feasible?	This action solves the problem of bridge and roadway flooding. Steps are also taken to ensure all bridges upstream are at proper elevation to avoid backups.	0	3
A: is it Administratively possible (including responsible party)?	Merrimack has the capability to implement and maintain this action. Evaluations of roadways occur annually to ensure it is accomplished in a timely manner. The Public Works department is the responsible party.	0	3
P: Is it Politically acceptable/supported?	There is public and political support to implement and maintain this action.	0	3
L: Is there Legal authority to implement?	Merrimack has the legal authority to implement this action, and no enabling legislation is needed.	0	3
E: Is it Economically feasible and beneficial? (including direct cost)	This action is very costly to implement. It does fit into the existing Capital Improvements budget.	-2	3
E: Are there any Environmental impacts?	This action is beneficial to the environment by reducing flooding and road washout.	0	3
Subtotal		**-3**	**21**
Total		**18**	
Priority		**1**	

Mitigation Action: Participate in the NH DHHS wastewater surveillance program to track levels of infectious disease like COVID-19, RSV, and Influenza. Proactively enact municipal infectious disease standards/protocols to minimize spread of disease when necessary.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	There is social support for this action, as it will help detect rising local illness.	0	3
T: is it Technically feasible?	This action is easy to implements and the Public Works Wastewater Division will integrate this action into its regular operations.	0	2
A: is it Administratively possible (including responsible party)?	Merrimack is capable of implementing this action, the Public Works Wastewater Division is the responsible party.	0	3
P: Is it Politically acceptable/supported?	There is political support for this action.	0	3
L: Is there Legal authority to implement?	Merrimack has legal authority to implement this action.	0	3
E: Is it Economically feasible and beneficial? (including direct cost)	No additional costs, part of normal operations	0	3
E: Are there any Environmental impacts?	There are no environmental impacts associated with this action.	0	0
Subtotal		**0**	**17**
Total		**17**	
Priority		**2**	

Mitigation Action: 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 tornadoes.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	There are no social impacts associated with this action. Enforcement would apply evenly across all applicable buildings, including new construction, major renovations, and changes of use.	0	3
T: is it Technically feasible?	This action is effective at avoiding and reducing future losses and it mitigates the impacts of these hazards.	0	3
A: is it Administratively possible (including responsible party)?	Merrimack has the capability to implement this action. Responsibility would fall under the Building & Code Enforcement Division.	0	3
P: Is it Politically acceptable/supported?	There is public support for this action. Concerns may exist among some property owners who would be directly impacted.	-1	2
L: Is there Legal authority to implement?	Merrimack has adopted these codes and has the legal authority to enforce them.	0	2
E: Is it Economically feasible and beneficial? (including direct cost)	There would be no additional costs associated with enforcing building codes, as it falls under the existing Code Enforcement budget. This action could have a positive economic impact by reducing the number of emergency response calls.	0	2
E: Are there any Environmental impacts?	This action is environmentally beneficial if residents pay attention to and comply with reduced water consumption measures.	0	2
Subtotal		**-1**	**17**
Total		**16**	
Priority		**3**	

Mitigation Action: Protect power lines by working with utility companies to harden electrical infrastructure, including trimming trees near power lines. Consider the costs and benefits of requiring overhead power lines be buried in all new developments.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	This action would not unfairly affect any segment of the population or disrupt established neighborhoods. It is generally compatible with community values that understand trees need to be trimmed for road maintenance and public safety, although all residents do not agree with this.	-1	3
T: is it Technically feasible?	This action would be effective in avoiding or reducing future losses. It is very likely that a severe winter storm or severe wind event will occur and impact power lines. It would not create more problems than it solves, and it solves the problem rather than only a symptom. 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
A: is it Administratively possible (including responsible party)?	Merrimack has the capacity to implement this action. The Merrimack Public Works department and Eversource would be the responsible parties. The Planning Department is responsible for considering the costs/benefits of burying power lines.	0	3
P: Is it Politically acceptable/supported?	In general, there is political support for this action, although there may be some opposition to tree trimming along designated scenic roads. Developers may not support this action if it significantly increases their costs.	-1	3
L: Is there Legal authority to implement?	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.	-1	2
E: Is it Economically feasible and beneficial? (including direct cost)	Some costs associated with this action would be borne by Eversource. 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 benefits of a more resilient electrical infrastructure far outweigh the costs of this action.	-1	3
E: Are there any Environmental impacts?	This action would positively impact the environment by improving road drainage and decreasing the need to use ice melting agents.	0	2
Subtotal		**-4**	**19**
Total		**15**	
Priority		**4**	

Mitigation Action: Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the New Hampshire Drought Management Team (DMT) and the State Drought Management			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	There are no known social issues associated with this action.	0	2
T: is it Technically feasible?	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
A: is it Administratively possible (including responsible party)?	Merrimack Village District Water Works is the responsible party.	0	2
P: Is it Politically acceptable/supported?	This action is consistent with normal Merrimack Village District Water Works operations and does not impose additional economic costs.	0	2
L: Is there Legal authority to implement?	There are no legal issues associated with this action.	0	2
E: Is it Economically feasible and beneficial? (including direct cost)	This action is consistent with normal Town Health Department operations and does not impose additional economic costs.	0	2
E: Are there any Environmental impacts?	This action is environmentally beneficial if residents pay attention to and comply with reduced water consumption measures.	0	2
Subtotal		**0**	**14**
Total		**14**	
Priority		**5**	

Mitigation Action: Tightly control burn permits and revoke when not properly and safely being utilized. Post fire danger categories. Work with Eversource to remove underbrush and standing deadwood in residential areas and under power lines to reduce the likelihood of wildfires spreading.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	This action does not unfairly impact any segment of the population, and it is compatible with present and future community values.	0	2
T: is it Technically feasible?	This action helps to avoid or reduce future losses. Wildfire poses danger during dry periods, which Merrimack has been experiencing in recent years. 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
A: is it Administratively possible (including responsible party)?	Merrimack has the capability to implement this action, although it poses an additional burden on the Fire Dept., particularly for enforcement of burn permits. Eversource is responsible for removing underbrush and standing deadwood under power lines.	-2	3
P: Is it Politically acceptable/supported?	There is public and political support for this action.	0	2
L: Is there Legal authority to implement?	Merrimack has the legal authority to implement this action.	0	3
E: Is it Economically feasible and beneficial? (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 Merrimack and therefore the costs of implementing this action may outweigh the benefits. Eversource would be responsible for the direct costs of brush removal under power lines.	-2	3
E: Are there any Environmental impacts?	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	2
Subtotal		**-4**	**17**
Total		**13**	
Priority		**6**	

Mitigation Action: Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquake, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks. Utilize Nixle, community access TV, Merrimack website, and social media.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	This action does not unfairly affect any one segment of the population. It is available to all Merrimack residents.	0	2
T: is it Technically feasible?	This action would help to decrease risk and avoid future loss.	0	2
A: is it Administratively possible (including responsible party)?	Merrimack has the capability to implement this action. This action would be the responsibility of Emergency Management. It would be implemented through the Fire and Police Departments using a combination of Nixle, community access TV, the Town website, and social media.	0	2
P: Is it Politically acceptable/supported?	There is public support to implement and maintain this action.	0	2
L: Is there Legal authority to implement?	Merrimack has the legal authority to implement this action.	0	1
E: Is it Economically feasible and beneficial? (including direct cost)	There are no additional costs associated with this project since it is part of the existing Emergency Management budget.	0	1
E: Are there any Environmental impacts?	This action has the potential to reduce property damage and subsequent environmental impacts.	0	2
Subtotal		**0**	**12**
Total		**12**	
Priority		**7**	

Mitigation Action: Require water conservation by enforcing the year round even/odd water ordinance, which limits the days outside watering is allowed based on street address and date.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	This action does not unfairly affect any one segment of the population because it is applied evenly to all residents and businesses. It is compatible with present and future community values.	0	1
T: is it Technically feasible?	The effectiveness of this action depends on the ability of the Town to enforce it. If followed, it would help to reduce the impacts of drought.	-1	3
A: is it Administratively possible (including responsible party)?	Merrimack has the capability to implement this action. Merrimack Village District is the responsible party.	0	3
P: Is it Politically acceptable/supported?	The Town Council supports this action. There is general public support for this action, although some residents are unsatisfied with it.	-1	2
L: Is there Legal authority to implement?	There are no legal issues associated with this action.	0	0
E: Is it Economically feasible and beneficial? (including direct cost)	Implementation of this action falls under the Merrimack Village District budget. It can be costly to enforce.	-1	3
E: Are there any Environmental impacts?	This action has a positive impact on the environment by promoting water conservation.	0	2
Subtotal		**-3**	**14**
Total		**11**	
Priority		**8**	

Mitigation Action: Protect critical emergency management facilities and equipment from lightning damage. Install and maintain surge protection and battery backup on critical electronic equipment.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	3
T: is it Technically feasible?	This action is effective in avoiding or reducing future losses. It would not create more problems than it solves. It would reduce the inconvenience from a shutdown of critical facilities resulting from power outages. However, incidents related to lightning are very rare in Merrimack.	0	1
A: is it Administratively possible (including responsible party)?	Merrimack has the capacity to implement this action. Each critical facility department head is responsible for implementing the installation of lightning protection devices. There are already grounding devices on the Communications building.	0	2
P: Is it Politically acceptable/supported?	There is political support to implement and maintain this action.	0	2
L: Is there Legal authority to implement?	Merrimack has the authority to implement this action.	0	3
E: Is it Economically feasible and beneficial? (including direct cost)	The cost of $1,000-$5,000 per critical facility for lightning protection devices would come out of the Merrimack Town Buildings and Grounds appropriation. Given the infrequent occurrence of lightning strikes and the fact that there has been no damage recorded, the costs of this action seem to outweigh the benefits.	-2	1
E: Are there any Environmental impacts?	This action would not impact the environment.	0	0
Subtotal		**-2**	**12**
Total		**10**	
Priority		**9**	

Mitigation Action: Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations, erosion control regulations, board of health regulations, etc. to improve floodplain management in the community.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	This action would impact property owners subject to the revised subdivision regulations. It would have a positive social impact on the community by reducing flooding.	-1	1
T: is it Technically feasible?	This action helps solve the problem of flood related damage. It is effective in reducing future losses.	0	2
A: is it Administratively possible (including responsible party)?	Merrimack has the capability to implement this action. Revisions to regulations require a public hearing. The Community Development department is the party responsible for this action.	0	1
P: Is it Politically acceptable/supported?	There is public support to implement and maintain this action and the Town Council is willing to support it.	0	0
L: Is there Legal authority to implement?	Merrimack has the legal authority to implement this action.	0	1
E: Is it Economically feasible and beneficial? (including direct cost)	There are no additional costs to the Town to implement this action because it falls under the existing Community Development budget. There are potential economic costs associated with limiting where development can go.	-1	2
E: Are there any Environmental impacts?	This action has positive environmental impacts by encouraging erosion control and reduced floodplain development. It is consistent with community environmental goals.	0	3
Subtotal		**-1**	**10**
Total		**9**	
Priority		**10**	

Mitigation Action: Improve stormwater drainage system capacity and flood control infrastructure. Consider costs and benefits of a variety of infrastructure upgrades, including stormwater pipe storage, stormwater ponds, stormwater tank storage, and culvert upsizing and realignments.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	1
T: is it Technically feasible?	This action would help to avoid or reduce future losses.	0	2
A: is it Administratively possible (including responsible party)?	The Stormwater and Public Works Departments will be the responsible parties.	0	1
P: Is it Politically acceptable/supported?	There is political support to implement this action.	0	1
L: Is there Legal authority to implement?	Merrimack has the legal authority to implement this action.	0	1
E: Is it Economically feasible and beneficial? (including direct cost)	This action could be costly to implement depending on engineering and construction needs.	-2	3
E: Are there any Environmental impacts?	This action has the potential to reduce property damage and subsequent environmental impacts.	0	1
Subtotal		**-2**	**10**
Total		**8**	
Priority		**11**	

Mitigation Action: Revise and enhance mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	There are no social impacts related to this action. It will not unfairly affect any segment of the population or disrupt established neighborhoods. It is compatible with present and future community values of working cooperatively with neighboring municipalities.	0	2
T: is it Technically feasible?	This action may reduce future losses by allowing Merrimack to provide flood aid more quickly. It also helps the Town to know what resources are available for use in an emergency.	0	2
A: is it Administratively possible (including responsible party)?	Merrimack has the capability to implement this action, and it can be accomplished in a timely manner. Police, Fire, and Public Works departments are each responsible for establishing their own agreements.	-1	2
P: Is it Politically acceptable/supported?	There is public support to implement and maintain this action and the Town Council is willing to support it.	0	2
L: Is there Legal authority to implement?	Merrimack has the legal authority to implement this action. No enabling legislation is necessary.	0	0
E: Is it Economically feasible and beneficial? (including direct cost)	The cost of mutual aid calls would be covered by FEMA if the Town was responding to a declared disaster. This action could add costs for non-declared events (ex. overtime to cover Merrimack needs while its staff is elsewhere).	-1	1
E: Are there any Environmental impacts?	This action has no negative environmental impacts. It could positively benefit the environment by improving floodplain management.	0	0
Subtotal		**-2**	**9**
Total		**7**	
Priority		**12**	

Mitigation Action: Participate in NFIP training offered by the State and/or FEMA (or in another training) that addresses flood hazard planning and management.			
Criteria	**Evaluation**	**Cost**	**Benefit**
S: is it Socially acceptable?	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	1
T: is it Technically feasible?	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 Merrimack, this action would likely have minimal impact.	0	1
A: is it Administratively possible (including responsible party)?	The Land Use Boards and Building Inspector would participate in this training.	0	1
P: Is it Politically acceptable/supported?	There is political support to implement this action.	0	1
L: Is there Legal authority to implement?	Merrimack has the legal authority to implement this action.	0	0
E: Is it Economically feasible and beneficial? (including direct cost)	This action is consistent with normal town operations and does not impose additional economic costs. The cost for the Building Inspector or Land Use board members to attend this training would come out of the existing operating budget.	0	1
E: Are there any Environmental impacts?	This action has the potential to reduce property damage and subsequent environmental impacts	0	1
Subtotal		**0**	**6**
Total		**6**	
Priority		**13**	

Section 4.4. Implementing and Administering Mitigation Actions

The Town of Merrimack has integrated its 2021 Hazard Mitigation Plan into a variety of other planning mechanisms, including the Merrimack Emergency Response Plan, Evacuation Plan for the Mastricola and High School Campus, DPW Plan for Bridge and Culvert Repairs, and Capital Improvement Plan. In addition, the Town of Merrimack has incorporated and will continue to integrate requirements of the Merrimack Hazard Mitigation Plan Update 2026 into other planning mechanisms. For example, hazard assessments from the Merrimack Hazard Mitigation Plan Update 2026 will be integrated into the Emergency Response Plan. Updates to Merrimack's Capital Improvement Plan will include any applicable mitigation projects identified in the Hazard Mitigation Plan, such as drainage improvements. The next update to the Town's Master Plan will also incorporate elements of the Hazard Mitigation Plan where applicable.

The Merrimack 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 19 - Implementation and Administration**, 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, or ongoing*
Medium Term	2-3 years
Long Term	4-5 years

*Ongoing indicates that the action will be completed on an ongoing basis throughout the life of the Plan.

Table 18 - Implementation and Administration

Mitigation Action	Responsible Party	Cost & Funding	Timeframe
1. Elevate new roads and bridges above the base flood elevation and raise existing low-lying bridges and roads.	Public Works Department	Cost = ~$12,000,000 Funding Source: 2026 Merrimack Operating Budget, CIP/Capital Reserve Funds, Grants/DOT Funding)	Medium Term
2. Participate in the NH DHHS wastewater surveillance program to track levels of infectious disease like COVID-19, RSV, and Influenza. Proactively enact municipal infectious disease standards/protocols to minimize spread of disease when necessary.	Wastewater Division	Cost = Percentage of Existing Wastewater Division Budget Funding Source: 2026 Merrimack Operating Budget	Short Term
3. 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 tornadoes.	Building & Code Enforcement Division	Cost = Percentage of Existing Building and Code Enforcement Budget Funding Source: 2026 Merrimack Operating Budget	Short Term/Ongoing
4. Protect power lines by working with utility companies to harden electrical infrastructure, including trimming trees near power lines. Consider the costs and benefits of requiring overhead power lines be buried in all new developments.	Public Works Department, Eversource	$5,000 per large tree for removal $5,000 for preliminary cost benefit review of power line burial Funding Source: 2026 Merrimack Operating Budget – Public Works Department Budget, CIP	Short Term
5. Monitor water supply and drought conditions. Utilize NH Division of Forest and Lands reports and consult the New Hampshire Drought Management Team (DMT) and the State Drought Management Plan to monitor drought indicators.	Merrimack Village District	Cost = Percentage of Existing Merrimack Village District Budget Funding Source: 2026 Merrimack	Short Term/ Ongoing

Mitigation Action	Responsible Party	Cost & Funding	Timeframe
		Village District Budget	
6. Tightly control burn permits and revoke when not properly and safely being utilized. Post fire danger categories. Work with Eversource to remove underbrush and standing deadwood in residential areas and under power lines to reduce the likelihood of wildfires spreading.	Fire Department	Cost = Percentage of Existing Fire Department Budget Funding Source: 2026 Merrimack Operating Budget	Short Term/ Ongoing
7. Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquake, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks. Utilize Nixle, community access TV, Merrimack website, and social media.	Emergency Management, Fire Department, Police Department	Cost = Percentage of Existing Emergency Management, Fire, and Police Department Budgets Funding Source: 2026 Merrimack Operating Budget	Short Term/ Ongoing
8. Require water conservation by enforcing the year round even/odd water ordinance, which limits the days outside watering is allowed based on street address and date.	Merrimack Village District	Cost = $4,400 Advertising & Public Information; $500 Public Education Funding Source: 2026 Merrimack Village District Budget	Short Term/Ongoing
9. Protect critical emergency management facilities and equipment from lightning damage. Install and maintain surge protection and battery backup on critical electronic equipment.	Department Heads	Cost = $200 Per Department Funding Source: 2026 Merrimack Operating Budget	Short Term
10. Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations and to improve floodplain management in Merrimack.	Community Development, Planning Board	Cost = Percentage of existing Community Development Budget Funding Source: 2026 Merrimack Operating Budget	Long Term
11. Improve stormwater drainage system capacity and flood control infrastructure. Consider costs and benefits of a variety of infrastructure upgrades, including stormwater pipe	Public Works Department, Stormwater Division	Cost = Varies by Project Funding Source: 2026 Merrimack	Long Term

Mitigation Action	Responsible Party	Cost & Funding	Timeframe
storage, stormwater ponds, stormwater tank storage, and culvert upsizing and realignments.		Operating budget, CIP, grants	
12. Revise and enhance mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.	Public Works Department, Fire Department, Police Department	Cost = Percentage of Existing Emergency Management Budget Funding Source: 2026 Merrimack Operating Budget	Short Term
13. Participate in NFIP training offered by the State and/or FEMA (or in another training) that addresses flood hazard planning and management.	Community Development Department, Code Enforcement/Building Inspector	Cost = Percentage of Existing Code Enforcement and Community Development Budgets Funding Source: 2026 Merrimack Operating Budget	Long Term

CHAPTER 5. PLAN ADOPTION

Section 5.1. Formal Adoption by Governing Body

CERTIFICATE OF ADOPTION

TOWN OF MERRIMACK, NH TOWN COUNCIL

A RESOLUTION ADOPTING THE TOWN OF MERRIMACK, NH HAZARD MITIGATION PLAN UPDATE 2026

WHEREAS, the Town of Merrimack 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, 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 Merrimack has developed and received conditional approval from NH Homeland Security & Emergency Management (HSEM) for its Hazard Mitigation Plan Update 2021 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held between May 8, 2025 and November 13, 2025 regarding the development and review of the Hazard Mitigation Plan Update 2026; and

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

WHEREAS, the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural hazards that impact the Town of Merrimack, 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 Merrimack eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by the Merrimack Town Council:

1. The Plan is hereby adopted as an official plan of the Town of Merrimack.
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. Future revisions and Plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as a part of this resolution for a period of five (5) years from the date of this resolution.

Adopted this day, the 20 **of** August **, 2026.**

Nancy M. Harrington, Chairman, Merrimack Town Council

Jennifer Jobin, Vice Chair, Merrimack Town Council

Nancy Murphy, Merrimack Town Council

Finlay Rothhaus, Merrimack Town Council

Tom Thornton, Merrimack Town Council

Peter Albert, Merrimack Town Council

Pauline Landrigan, Merrimack Town Council

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of Merrimack the 20 of August, 2026.

Witness

Section 5.2. FEMA Approval Letter

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

FEMA

September 1, 2026

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 Merrimack, NH Hazard Mitigation Plan Update 2026* effective **September 1, 2026** through **August 31, 2031** 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 Merrimack, 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 Ryan, State Planner, NH HSEM
Richard Verville, Mitigation Division Director, DHS, FEMA Region 1
Josiah (Jay) Neiderbach, Hazard Mitigation Community Planner, DHS, FEMA Region 1

Town of Merrimack, New Hampshire

Hazard Mitigation Plan Update 2026

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

Merrimack Hazard Mitigation Meeting ~ May 8, 2025

Name	Title	Agency	Email
Amanda-Marie Goode	Assistant Planner	Community Development	agoode@merrimacknh.gov
Leo Gaudette	Assistant Director PW/WW	Public Works	lgaudette@merrimacknh.gov
DAWN TUOMALA	DPW - DIRECTOR	P.W.	DTUOMALA@MERRIMACKNH.GOV
Matt Casparius	Director of Parks + Recreation	Parks + Recreation	mcasparius@merrimacknh.gov
EVERETT OLSEN	SUPERINTENDENT OF SCHOOLS	School Dept.	everett.olsen@sau26.org
Ron Miner Jr.	Superintendent MVD		ron.miner@mvdwater.org
MATT TARLETON	DEPUTY CHIEF OF POLICE	MPD	MTARLETON@MERRIMACKNH.GOV
CHRIS WYMAN	LT. / FIRE INSPECTOR	MERRIMACK FIRE	CWYMAN@MERRIMACKNH.GOV

Merrimack Hazard Mitigation Meeting ~ July 10, 2025

Name	Title	Agency	Email
Casey Wolfe-Smith	Planning + Zoning Administrative	CommDev	cwolfe-smith@merrimacknh.gov
Ron Miner	MVD Superintendent		ron.miner@mvdwater.org
CHRISTOPHER WYMAN	LT. / INSPECTOR	MERRIMACK FD	cwyman@merrimacknh.gov
PAUL Micali	Town Manager	Merrimack	PMicali@MERRIMACKNH.GOV
DAWN TUOMALA	DPW DIRECTOR	MERRIMACK	DTUOMALA@MERRIMACKNH.GOV
Amanda-Marie Goode	Assistant Planner	CommDev	agoode@merrimacknh.gov

Merrimack Hazard Mitigation Meeting 3 - September 4, 2025

Name	Title	Agency	Email
Amanda-Marie Goode	Assistant Planner	Community Development	agoode@merrimacknh.gov
CHRISTOPHER WYMAN	LT. / FIRE INSPECTOR	MERRIMACK FIRE DEPT.	CWYMAN@MERRIMACKNH.GOV
Ron Miner	Superintendent	MVD	ron.miner@mvdwater.org
ERIC MARQUIS	ADMIN. CAPTAIN	POLICE	emarquis@merrimacknh.gov
Leo Gaudette	Assistant Director PW/WW	Wastewater	lgaudette@merrimacknh.gov
DAWN TUOMALA	DPW DIRECTOR	DPW ADMIN	DTUOMALA@MERRIMACKNH.GOV
Matthew Casparius	Parks + Recreation Director	Parks + Recreati	mcasparius@merrimacknh.gov
EVERETT OLSEN	SUPERINTENDENT OF SCHOOLS	MERRIMACK SCHOOL DISTRICT	everett.olsen@sau26.org

meeting 4

Merrimack Hazard Mitigation Meeting 4 - November 13, 2025

Name	Title	Agency	Email
Christopher Wyman	Lieutenant	Merrimack F.D.	cwyman@merrimacknh.gov
Amanda-Marie Goode	Assistant Planner	Community Development	agoode@merrimacknh.gov
Leo Gaudette	Assistant Director WW	Wastewater	lgaudette@merrimacknh.gov
Dawn Tuomala	DPW Director	Public Works	DTUOMALA@MERRIMACKNH.GOV
Ron Miner	Superintendent MVD		rminer@mvdwaternh.gov
Matt Tarleton	Deputy Chief of Police	Merrimack PD	MTARLETON@MERRIMACKNH.GOV

Notification Letter

May 12, 2025

Merrimack, NH Hazard Mitigation Plan Update

The Town of Merrimack, 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 Merrimack Hazard Mitigation Plan Update will examine changes in development and mitigation priorities that have occurred since the 2021 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 Merrimack's critical facilities to these hazards. The Plan will conclude by identifying and prioritizing mitigation actions to reduce Merrimack's vulnerability to natural hazards.

You can stay informed by visiting the Merrimack Hazard Mitigation Plan Update website at https://cms5.revize.com/revize/nrpc/about_nrpc/our_region___communities/merrimack_hazard_mitigation_plan_update_2026.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
Regional Planner III
(603) 417-6570 x6567
cassiec@nashuarpc.org

Hazard Mitigation Plan Update Website Screen Shot

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

Hazard Mitigation Team Members

Name	Title/Department
Chris Wyman	LT/Fire Inspector, Fire Department
Casey Wolf Smith	Planning & Zoning Administrator, Town of Merrimack
Amanda-Marie Goode	Assistant Planner, Town of Merrimack
Paul Micali	Town Manager, Town of Merrimack
Matthew Casparius	Parks & Recreation Director, Town of Merrimack
Dawn Tuomala	Public Works Director, Town of Merrimack
Leo Gaudette	Public Works Asst. Director, Town of Merrimack
Everett Olsen	Superintendent of Schools, Merrimack School District
Ron Miner Jr.	Superintendent, Merrimack Village District
Matt Tarleton	Chief, Police Department
Eric Marquis	Administrative Captain, Police Department

Hazard Mitigation Plan Update Meetings

All meetings will be held at the Merrimack Town Hall located at 6 Baboosic Lake Rd, Merrimack, NH 03054 in the Memorial Meeting Room.

Meeting 1

Thursday March 8, 2025 | 10:00am | Merrimack Town Hall

Agenda

Task 1: planning process, identifying resources

Meeting 2

Thursday July 10, 2025 | 10:00am | Merrimack Town Hall

Agenda

Task 2: natural hazards, previous occurrences of hazards, probability of future hazards, critical facilities, vulnerabilities by hazard

Meeting 3

Thursday September 4, 2025 | 10:00am | Merrimack Town Hall

Agenda

Task 3: status of previous mitigation actions, new mitigation actions

Meeting 4

Thursday November 13, 2025 | 10:00am | Merrimack Town Hall

Agenda

Task 4: prioritize mitigation actions, implementation schedule