

Town of Hudson, New Hampshire

Hazard Mitigation Plan Update 2025



Prepared with Assistance from the Nashua Regional Planning Commission



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Emergency Management



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ACKNOWLEDGMENTS

The 2025 Town of Hudson, NH Hazard Mitigation Planning Committee

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

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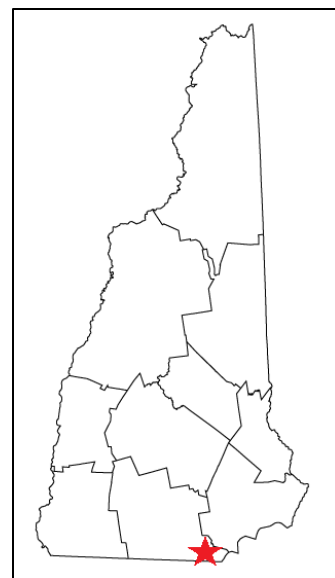
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EXECUTIVE SUMMARY

Jurisdiction and Community Profile

This plan addresses the Town of Hudson, NH. Hudson is located in the southern part of the state in Hillsborough County, bordering Nashua to the west, Pelham to the east, and the state of Massachusetts along its southern border (indicated by the red star in the image to the right). The town is comprised of 18,770 total acres, with the Merrimack River running along the entirety of its western border. Robinson Pond and Musquash pond are some other significant water bodies. For major transportation networks, New Hampshire Routes 111 and 3A both run through the Town of Hudson.



According to the 2023 American Community Survey, there are approximately 25,595 residents and the median age is 45.6. At this time there were approximately 9,920 housing units, with 80% being single-family homes, 18% multifamily, and 2% mobile homes and other housing units. Much of the housing is concentrated in the western portion of town near the Nashua border. Hudson operates grades K-12, with five schools including an Early Learning Center (grades K-1), two elementary schools (grades 2-5), a middle school (grades 6-8), and a High School with a Career and Technical Education Center (grades 9-12).

Hudson is governed by a Board of Selectmen with an Annual Town Meeting, with a Town Administrator running the daily administrative functions. Town departments include but are not limited to Fire, Police, Public Works, Recreation, Planning, Zoning/Code Enforcement, Inspectional Services, Engineering, Welfare, Sewer, and Water.

Scope of the Plan

This Plan addresses the following types of Hazards:

- Drought
- Earthquake
- Extreme Temperatures
- Flooding
- Severe Wind
- Lightning & Hail
- 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 Hudson 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 Planning Process

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

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

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

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

At the first Hazard Mitigation Team meeting, held on June 4, 2024, the group discussed who should be invited to participate on the planning team that was not currently represented. It was determined that the current Team provided adequate representation, and no additional members were necessary. The Team also discussed who should be informed about the Plan, such as neighboring communities, local and regional agencies involved in hazard mitigation, agencies with authority to regulate development, and others. It was concluded that the following entities should be informed of the Plan update:

- BAE Systems Inc., Nashua, NH
- NH National Guard, Concord, NH
- Dartmouth Health, Hudson, NH
- St. Joseph's Family Medical Center, Hudson, NH
- Homeland Security and Emergency Management, Concord, NH
- American Red Cross, Nashua NH and Manchester, NH
- Eversource of NH, Nashua, NH
- Pennichuck Water Works, Nashua, NH
- Manchester-Boston Regional Airport, Manchester, NH
- Nashua Airport Authority, Nashua, NH
- Eastern Propane & Oil, Hudson, NH
- Superior Plus Propane, Hudson, NH
- Hudson School District, Hudson, NH
- Presentation of Mary Academy, Hudson, NH
- Town Administrator, Town of Litchfield, NH
- Town Administrator, Town of Pelham, NH
- Town Manager, Town of Londonderry, NH

- Town Administrator, Town of Windham, NH
- Mayor's Office, City of Nashua, NH
- Town Manager, Town of Tyngsborough, MA
- Nashua Community College, Nashua, NH
- Rivier University, Nashua, NH
- Southern New Hampshire Health, Hudson, NH
- Liberty Utilities, Salem, NH
- Life is Good, Hudson, NH
- Target Distribution Center, Hudson, NH
- Walmart, Hudson, NH
- Sams Club, Hudson, NH
- Hudson Chamber of Commerce, Hudson, NH

A number of these entities, especially the American Red Cross, St. Joseph's Family Medical Center, Dartmouth Health, and neighboring local governments work with/provide support to underserved communities and the socially vulnerable making notification of this plan update imperative.

A copy of the letter that was sent to these entities appears in the Appendix to this Plan. NH HSEM staff Lynne Doyle (State Hazard Mitigation Planner) and Nicole Zerendow attended the first meeting. Nicole Zerendow attended the remaining three meetings as well. No other entities responded or attended.

Section 1.3. Public Participation

During the first Hazard Mitigation Team meeting, held on June 4, 2024, the Team brainstormed all the methods currently employed to notify the public of Town meetings and news. These methods include the Town's website (<https://www.hudsonnh.gov/>), Hudson's Public Access TV Channel (<https://www.hudsonnh.gov/community-media>), Hudson Police Department Facebook page (<https://www.facebook.com/Hudson-NH-Police-Department-313736485310030/>), and Hudson Fire Department Facebook page (<https://www.facebook.com/hfdhudsonnh/>). The Team determined that these methods should also be used to encourage public participation in the Hazard Mitigation Plan update process.

In addition, announcements were made at various televised Board of Selectmen meetings regarding the update process. Hazard Mitigation meetings were also all held using Zoom to ensure greater access to the public. There was no public response to provide input to the Hudson Hazard Mitigation Plan Update 2025 process.

NRPC staff also developed a webpage for the Hudson Hazard Mitigation Plan Update 2025 (<https://nashuarpc.org/about-nrpc/our-region-communities/hudson-hazard-mitigation-plan-update-2024.php>), which allows members of the public to participate in the update process even if they cannot attend meetings. The webpage was updated throughout the planning process and includes the 2018 Hudson Hazard Mitigation Plan, 2025 Hazard Mitigation Plan Outline, and Hazard Mitigation Plan Review Checklist. It also provides meeting times, locations, agendas, and homework assignments. The

Town of Hudson's website links to this webpage. The Nashua Regional Planning Commission will keep the website active and will add information about ongoing updates over the next 5 years. A screenshot of the website appears in the Appendix to this Plan.

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

At the first Hazard Mitigation Team meeting, held on June 4, 2024, the Team discussed Hudson'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 Hudson's existing authorities, policies, programs, and resources includes planning and regulatory capabilities, emergency management capabilities, floodplain management capabilities, administrative and technical capabilities, and fiscal capabilities. Each of these areas provides an opportunity to integrate hazard mitigation principles and practices into the local decision-making process.

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

Emergency Management Director – The EMD will facilitate any update to emergency operations and plans/programs. Many hazard mitigation actions involve providing education and services to residents, which falls under the jurisdiction of emergency management.

- Fire Chief/Emergency Management Director (EMD) – The Fire Chief implements improvements to programs and policies of the Fire Department to support mitigation strategies and priorities. Also acting as the EMD, the Fire Chief will facilitate any update operations and plans/programs. Many hazard mitigation actions involve providing education and services to residents, which falls under the jurisdiction of emergency management.
- Deputy Fire Chief - The Deputy Fire Chief assists the Fire Chief in implementing improvements to programs and policies of the Fire Department to support mitigation strategies and priorities.
- Public Works Director – The Public Works Director provides insight on existing conditions and deficiencies in municipal infrastructure as well as directs Public Works Department functions such as maintenance of transportation and stormwater infrastructure. Many mitigation actions include infrastructure maintenance and improvement as well as implementation of new programs.
- Town Administrator – The Town Administrator is a central contact for all departments and will assist in implementing department-wide changes and mitigation actions.
- Chief of Police – The Chief of Police interacts with the public on a regular basis and will directly support expansion and improvement programs involving public education, protection, and communication as well as the Police Department in general.

- Associate Town Planner – The Town Planner works with the town Planning and Zoning Boards to implement new regulatory changes that support hazard mitigation and goals.
- Fire Marshal – The Fire Marshal ensures that buildings meet safety requirements.
- Town Engineer – The Town Engineer ensures that all future development as well as town transportation networks and utilities comply with regulatory and safety requirements.
- Zoning Administrator – The Zoning Administrator works with the Zoning Board of Adjustment to implement and enforce current regulations and regulatory changes.

Planning and Regulatory Capabilities

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate Hudson’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 Hudson. Each one should be considered as an available mechanism for incorporating the recommendations of the Hudson Hazard Mitigation Plan Update 2025.

- [Open Space Development Zoning Regulations](#)—the purpose of this ordinance is to enhance and protect the health, safety, convenience, and general welfare of the residents of Hudson while encouraging flexibility in the design and development of land, promote environmentally sound planning, conserve open space, retain and protect important natural and cultural features, provide for efficient use of land and community services, and preserve the traditional rural character of Hudson to advance the goals stated in the master plan.
- [Flood Damage Prevention Ordinance](#)—the Flood Hazard Area is enacted to ensure that development on land within the District will not endanger the health, safety, and welfare of the occupants of the land within the floodplain or the public during time of flood, that development will not result in increased flood levels during the base flood discharge, and to encourage the most appropriate use of land within the community. Regulations in the Hudson Floodplain Ordinance apply to all lands designated as special flood hazard areas by the Federal Emergency Management Agency (FEMA) in its “Flood Insurance Study for the County of Hillsborough, NH” dated September 25, 2009 or as amended, together with the associated Flood Insurance Rate Maps dated September 25, 2009 or as amended.
- [Wetlands Conservation District](#)—the purpose of the Wetlands Conservation District is to protect the public health, safety, and general welfare by controlling and guiding the use of land areas which have been found to be subject to high water tables for extended periods of time. Wetlands buffer zones were recently expanded to 75 feet in non-residential zones.
- [Hudson Master Plan](#) – Undergoing full update.
- [Town of Hudson, Land Use Laws, 2024 Zoning Ordinance](#)
- [Town of Hudson, Land Use Laws, 2015 Site Plan Regulations](#)
- [Town of Hudson, Land Use Laws, 2015 Subdivision Regulations](#)
- [International Building Code](#) and [International Residential Code](#)
- [National Flood Insurance Program](#)

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 Hudson include:

Emergency Management Plans

- [Hudson Hazard Mitigation Plan 2018](#)—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 Hudson’s critical facilities to these hazards. The Hazard Mitigation Plan also identifies and prioritizes mitigation actions to reduce Hudson’s vulnerability to natural hazards.
- Hudson Emergency Operations Plan—this document outlines responsibilities and the means by which resources are deployed during and following an emergency or disaster. Updating this year
- Each Hudson school has an emergency operations plan – recently updated.

Emergency Management Departments, Facilities, Personnel, and Volunteers

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

Emergency Management Communications

- Dispatch— Hudson has its own dispatch, with backup capabilities in the EOC.
- NH Alerts through Genesis
- [Hudson Police Facebook](#)
- [Hudson Fire Facebook](#)
- Hudson Public Access Television—emergency management announcements
- [Hudson Municipal Website](#)—emergency management announcements and education

Floodplain Management Capabilities

The Town of Hudson 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). Hudson joined the NFIP on January 3, 1979. As a participant in the NFIP, communities must agree to adopt a floodplain management ordinance and enforce the regulations found in the ordinance. Hudson has adopted the “Flood Damage Prevention Ordinance,” found in Chapter 218 of the Town of Hudson, NH Town Code Book, and adopted by reference in Article XVI of the Town of Hudson, NH Zoning Ordinance. The Flood Damage Prevention Ordinance was originally adopted in 1987 and was most recently amended in March 2024. The Flood Damage Prevention Ordinance is enacted to ensure that development on land within the District will not endanger the health, safety and welfare of the occupants of the land within the floodplain or the public during time of flood; to ensure that development will not result in increased flood levels during the base flood discharge; and to encourage the most appropriate use of land within the community. Additional information on the Flood Damage Prevention Ordinance and Hudson’s participation in the NFIP can be found in Section 3.7 of this Plan.

Administrative and Technical Capabilities

Hudson’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 Hudson’s hazard mitigation administrative and technical capabilities:

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

Fiscal Capabilities

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

- [Congestion Mitigation and Air Quality \(CMAQ\) Program](#)—this program is administered by the Federal Highway Administration and was implemented to support surface transportation

projects and related efforts that contribute to air quality improvements and provide congestion relief.

- [FEMA Hazard Mitigation Grant Program](#)—the Hazard Mitigation Grant Program provides grants to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the Program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.
- Community Development Block Grant Program—the Community Development Block Grant (CDBG) program, administered through the US Department of Housing and Urban Development, provides communities with resources to address a wide range of unique community development needs, including Disaster Recovery Assistance. HUD provides flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations.
- Unexpended Fund Balance—these funds could be used in the wake of a natural disaster.
- [Hudson Capital Improvements Plan \(2020\)](#)— the Hudson Capital Improvements Plan (CIP) links local infrastructure investments with long-term planning. As authorized by RSA 674:5-8 the CIP is the responsibility of the Planning Board or a formally appointed capital improvements program committee, to prepare and amend a recommended program of municipal capital improvements projected over a period of at least six years. The following funding methods may be used:
 - 1-Year Appropriation—most used financing option and refers to those projects that are to be funded by property tax revenues within a single fiscal year. Funds for projects that are financed using this method are most often included in the Town’s operating budget but can appear as warrant articles to be voted on individually.
 - Capital Reserve—a capital reserve account is a non-lapsing savings account, separate from the General Fund. Voters can deposit funds into with approval of a warrant article, with the intent of withdrawing the funds to use for the specific purpose or purchase for which the account was established. This method requires appropriations over more than one year, with the actual project being accomplished only when the total appropriations meet the project cost.
 - Lease Purchase—lease purchasing an item allows a municipality to spread the cost over a period of years, generally no more than 7. A municipal lease typically allows for Town ownership at the end of the lease term and usually enjoys lower tax-exempt interest rates. Unlike a bond or loan, a municipal lease has a “non-appropriation clause” that allows the town to cancel the lease if the annual payment is not appropriated. The town then loses the equipment that was financed.
 - Bonding—bonding allows the municipality to negotiate the purchase of goods or services at a set price and then pay for that item or service over a period of time. Bonds, unlike capital reserve accounts, allow the town to utilize the item being purchased or constructed while payments are being made. The most important part of a bond transaction is the promise of the town to repay the debt with interest. There are two major types of bonds: general obligation and special revenue. General Obligation Bonds typically have lower interest rates

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

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

Summary and Analysis of Hudson’s Existing Authorities, Policies, Programs, and Resources

Measures of Effectiveness are defined as follows:

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

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

					hazard mitigation measures they can take.
Floodplain Management	Flood Damage Prevention Ordinance, NFIP	Designated Flood Hazard Areas in Hudson	Hudson Planning Board	Good	Incorporate references to floodplains within excavation regulations
Administrative and Technical	Planning Dept., Building Inspector, Fire Department, Health Officer, Road Agent, Solid Waste, Police Department, Town Administrator, Board of Selectmen, ZBA, Budget Committee, School Dept., IT Dept.	Entire jurisdiction	Entities listed in Description	Good	Promote communication across all departments and committees to ensure Hazard Mitigation Plan goals and actions are implemented.
Fiscal	Grant funding, Hudson annual budget, Capital Improvements Program (CIP)	Entire jurisdiction	Board of Selectmen, Budget Committee, Planning Board	Good	Hazard mitigation actions should be considered for inclusion in the CIP and departmental budgets. Hudson'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 Hudson Hazard Mitigation Plan Update 2025. The Hudson Zoning Ordinance was used to provide information on where and how the Town builds. This was particularly helpful when mapping critical facilities corridors (Section 3.3). The Hudson Capital Improvements Plan was used to help document the Town's fiscal capabilities (Section 1.4). The Hudson 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 Hudson Emergency Operations Plan was also used to inform the analysis and prioritization of mitigation actions. The State

of New Hampshire Multi-Hazard Mitigation Plan Update 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 Hudson's vulnerability by hazard (Section 3.5). Finally, the Nashua Regional Planning Commission's "Nashua Regional Water Resiliency Action Plan" provided insight when developing the description of natural hazards (Section 3.1), probability of future hazards (Section 3.3), vulnerability by hazard (Section 3.4), 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 Hudson Emergency Management Director will call meetings of all responsible town parties to review plan progress annually on the anniversary of plan adoption and as needed, based on occurrence of hazard events, and report outcomes to the Selectboard. The public will be notified of these meetings in advance through a posting of the agenda at Town Hall. Responsible parties identified for specific mitigation actions will be asked to submit their reports in advance of the meeting. Meetings will entail the following actions:

- Review previous hazard events to discuss and evaluate major issues, effectiveness of current mitigation, and possible mitigation for future events.
- Assess how the mitigation strategies of the plan can be integrated with other Town plans and operational procedures, including the Zoning & 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 is used to evaluate and update the plan:

Plan Mission and Goal

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

Hazard Identification and Risk Assessment

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

Existing Mitigation Strategies

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

Proposed Mitigation Strategies

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

Review of the Plan and Integration with Other Planning Documents

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

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

Plan Update

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

The public meetings of the hazard mitigation team shall be publicized through legal notices in local newspapers, posted fliers, and on the town and regional planning commission websites. Written and email comments shall be directed to the EMD. The updated plan will incorporate input from the public, other municipalities and government agencies. The Selectboard is responsible for approving the plan 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. Development in Hazard Prone Areas/Development that Increases Hazard Risk

There have been some significant changes in development since the 2018 Hazard Mitigation Plan. There have been several large, new single-family residential communities constructed. Eagles Nest Estates, located off Bush Hill Road, currently has added 67 new homes creating a large population center. Hudson has done some rezoning to residential, which will likely add to the growing population. There are also multiple multifamily and single-family developments that are currently in the planning process. There are also large new commercial developments in the works, including the new Target Logistics Center located off Steele Road, which is estimating the addition of over 2,000 workers. Large population increases could increase Hudson's vulnerability to hazards such as extreme temperatures and infectious disease.

Some of the new development areas including the Target Distribution Area have portions of lots within the floodplain. There are no planned buildings within the flood zone currently. To decrease vulnerability to flooding, Hudson expanded the Wetland Buffer Zones to 75 feet in non-residential zones.

Section 2.2. Progress on Local Mitigation Efforts

The mitigation actions and implementation framework identified in the Hudson Hazard Mitigation Plan Update 2025 have been revised to reflect progress in local mitigation efforts. Progress has been made on a number of local mitigation efforts identified in the 2018 Plan, including expanding the municipal water system; cleaning existing town wells; reviewing and updating Site Plan Regulations and Zoning Regulations; implementing the Transportation Emergency Preparedness Plan for the Nashua Region; updating the hazardous materials plan; implementing the emergency notification system; and distributing, or make available NFIP, insurance, and building code explanatory pamphlets or booklets.

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

Table 1—Status of Previous Actions

Mitigation Action	Status	Explanation
Review and update Building Codes, Floodplain Ordinance, and Zoning Regulations. Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquake, flooding, severe wind, severe winter weather, and tornado.	Completed/Ongoing	This action will be completed on an ongoing basis throughout the life of this Plan. As such, this action will continue to be tracked in the Hazard Mitigation Plan Update 2025.
Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquakes, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornado, wildfire, and carbon monoxide risks. Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls. Utilize Old Home Day, Genesys, Hudson Community TV, and posters in Town Hall to disseminate information. Also consider hosting a hazard mitigation educational event each year for residents.	Completed/Ongoing	This action will be completed on an ongoing basis throughout the life of this Plan. As such, this action will continue to be tracked in the Hazard Mitigation Plan Update 2025.
Revise and enforce stormwater and erosion control regulations to improve floodplain management in Hudson. Excavation permits should be revised to include reference to the floodplain ordinance.	Completed/Deleted	This action was completed over the span of the 2018 Hazard Mitigation Plan and will not be tracked in the Hazard Mitigation Plan Update 2025.
Distribute and/or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.	Defer	This action was not completed over the span of the 2018 Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2025.
Identify and become knowledgeable of non-compliant structures in the community	Defer	This action was not completed over the span of the 2018 Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2025.

Mitigation Action	Status	Explanation
Require use of elevation certificates for new structures in the floodplain.	Completed/Deleted	This action was completed over the span of the 2018 Hazard Mitigation Plan and will not be tracked in the Hazard Mitigation Plan Update 2025.
Enforce RSA 41:11-d, which allows municipalities to restrict all residential lawn watering for properties on public water systems and those on private domestic wells within their political boundaries if the state or federal government declares a drought condition for that region of the state. The governing body can enforce the lawn watering restrictions by imposing fines in accordance with RSA 625:9. Notice shall be given at least 3 calendar days before the regulations are implemented and shall be published in a paper of general circulation in the municipality and shall be posted in at least 2 public places. Other outreach methods include Hudson town website, social media accounts, and community television.	Completed/Deleted	This action was completed over the span of the 2018 Hazard Mitigation Plan and will not be tracked in the Hazard Mitigation Plan Update 2025.
Protect vulnerable populations from the impacts of extreme temperatures by establishing cooling and warming stations at community centers and working with the City of Nashua to utilize their emergency shelters. Develop targeted outreach methods, including notifying occupants of senior housing facilities.	Completed/Deleted	This action was completed over the span of the 2018 Hazard Mitigation Plan and will not be tracked in the Hazard Mitigation Plan Update 2025.
Protect critical facilities and equipment from lightning damage. Install and maintain surge protection on critical electronic equipment at municipal buildings and Fire Station.	Completed/Deleted	This action was completed over the span of the 2018 Hazard Mitigation Plan and will not be tracked in the Hazard Mitigation Plan Update 2025.
Continue to enforce the requirement that overhead power	Completed/Deleted	This action was completed over the span of the 2018 Hazard Mitigation Plan and

Mitigation Action	Status	Explanation
lines be buried in all new developments. Continue to trim and remove trees within the right of way.		will not be tracked in the Hazard Mitigation Plan Update 2025.
Implement structural inspections of roofs and deploy trained maintenance personnel for roof snow-removal operations at critical facilities. Actively communicate with residents regarding snow loads through mechanisms such as Old Home Day, Code Red, community access TV, and posters in Town Hall to disseminate information.	Completed/Deleted	This action was completed over the span of the 2018 Hazard Mitigation Plan and will not be tracked in the Hazard Mitigation Plan Update 2025.
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. Continue to require cisterns in developments in the outskirts of Town.	Completed/Deleted	This action was completed over the span of the 2018 Hazard Mitigation Plan and will not be tracked in the Hazard Mitigation Plan Update 2025.

Section 2.3. Changes in Priorities

Table 2 (below) shows all mitigation actions from the 2018 plan that were carried over to the 2025 Plan along with how they changed in priority.

The following mitigation actions have risen in priority from the 2018 Plan to the 2025 Plan:

- Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquakes, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornadoes, wildfire, and carbon monoxide risks. Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls. Utilize Old Home Day, Genesys, Hudson Community TV, and posters in Town Hall to disseminate information. Also consider hosting a hazard mitigation educational event each year for residents.
- Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquakes, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornadoes, wildfire, and carbon monoxide risks. Educate homeowners and builders on how to protect their pipes, including locating water pipes on the

inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls. Utilize Old Home Day, Genesys, Hudson Community TV, and posters in Town Hall to disseminate information. Also consider hosting a hazard mitigation educational event each year for residents.

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

- Review and update Building Codes, Floodplain Ordinance, and Zoning Regulations. Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquake, flooding, severe wind, severe winter weather, and tornadoes.
- Identify and become knowledgeable of non-compliant structures in the community.

The following actions were no longer included in the 2025 Plan:

- Revise and enforce stormwater and erosion control regulations to improve floodplain management in Hudson. Excavation permits should be revised to include reference to the floodplain ordinance.
- Require use of elevation certificates for new structures in the floodplain.
- Enforce RSA 41:11-d, which allows municipalities to restrict all residential lawn watering for properties on public water systems and those on private domestic wells within their political boundaries if the state or federal government declares a drought condition for that region of the state. The governing body can enforce the lawn watering restrictions by imposing fines in accordance with RSA 625:9. Notice shall be given at least 3 calendar days before the regulations are implemented and shall be published in a paper of general circulation in the municipality and shall be posted in at least 2 public places. Other outreach methods include Hudson town website, social media accounts, and community television.
- Protect vulnerable populations from the impacts of extreme temperatures by establishing cooling and warming stations at community center and working with the City of Nashua to utilize their emergency shelters. Develop targeted outreach methods, including notifying occupants of senior housing facilities.
- Protect critical facilities and equipment from lightning damage. Install and maintain surge protection on critical electronic equipment at municipal buildings and Fire Station.
- Continue to enforce the requirement that overhead power lines be buried in all new developments. Continue to trim and remove trees within the right of way.
- Implement structural inspections of roofs and deploy trained maintenance personnel for roof snow-removal operations at critical facilities. Actively communicate with residents regarding snow loads through mechanisms such as Old Home Day, Code Red, community access TV, and posters in Town Hall to disseminate information.
- 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. Continue to require cisterns in developments in the outskirts of Town.

Table 2—Changes in Mitigation Priorities

2018 Mitigation Action	Current Status	Priority Level in 2018 Plan	Priority Level in 2025 Plan
Review and update Building Codes, Floodplain Ordinance, and Zoning Regulations. Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquake, flooding, severe wind, severe winter weather, and tornadoes.	Completed/Ongoing	STAPLEE Score = 13 Rank = 4 out of 12	STAPLEE Score = 12 Rank = 5 out of 13
Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquakes, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornadoes, wildfire, and carbon monoxide risks. Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls. Utilize Old Home Day, Genesys, Hudson Community TV, and posters in Town Hall to disseminate information. Also consider hosting a hazard mitigation educational event each year for residents.	Completed/ Ongoing	STAPLEE Score = 6 Rank = 11 out of 12	STAPLEE Score = 15 Rank = 2 out of 13
Distribute and/or make available NFIP, insurance, and building codes explanatory	Deferred	STAPLEE Score = 4	STAPLEE Score = 14

2018 Mitigation Action	Current Status	Priority Level in 2018 Plan	Priority Level in 2025 Plan
pamphlets or booklets.		Rank = 12 out of 12	Rank = 3 out of 13
Identify and become knowledgeable of non-compliant structures in the community.	Deferred	STAPLEE Score = 14 Rank = 3 out of 12	STAPLEE Score = 6 Rank = 11 out of 13

CHAPTER 3. HAZARD IDENTIFICATION AND RISK ASSESSMENT

Section 3.1. Description of Natural Hazards

The Town of Hudson is susceptible to a variety of natural hazards, which are outlined in Table 3. For each hazard type, the hazard location within the Town, extent, and impact are also noted. Extent refers to how bad the hazard can be; it is different from 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 Hudson Hazard Mitigation Plan Update 2025. A landslide is the downward or outward movement of earth materials on a slope that is reacting to a combination of the force of gravity and a predisposed weakness in the material that allows the sliding process to initiate.¹ An avalanche is a slope failure consisting of a mass of rapidly moving, fluidized snow that slides down a mountainside. The flow can be composed of snow, ice, water, soil, rocks, and trees. An avalanche can be comparable to a landslide; only with snow instead of earth.² Hudson has relatively stable terrain and there have been no historic landslide or snow avalanche events in town. As such, the Hazard Mitigation Team did not feel it was necessary to include these hazards in this Plan.

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

¹ [State of New Hampshire Multi-Hazard Mitigation Plan Update 2023](#), page 236

² [State of New Hampshire Multi-Hazard Mitigation Plan Update 2023](#), page 114

³ [State of New Hampshire Multi-Hazard Mitigation Plan Update 2023](#), page 255

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

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

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

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

Table 3—Natural Hazards in Jurisdiction

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

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

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
			- major crop losses - widespread water shortages or restrictions <u>D4</u> - Exceptional & widespread crop loss - Shortages of water in reservoirs, streams, & wells creating water emergencies <u>S</u> - impacts on agriculture <u>L</u> - impacts on hydrology & ecology
Earthquake	Entire jurisdiction.	<u>Richter Scale</u> <3.4—detected only by seismometers. >8—total damage, surface waves seen, objects thrown in air. For full definitions of Richter Scale, see Section 3.5 Vulnerability by Hazard	Structural damage or collapse of buildings. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, 911 communications, radio system. Loss of water for fire protection. Increased risk of fire (gas break). Risk to life, medical surge.
Extreme Temperatures	Entire jurisdiction.	Extreme heat—period of 3 consecutive days when air temperature reaches 90°F or higher on each day. Extreme cold— period of 3 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 municipal water supply for drinking water and fire protection due to freezing temperatures.
Flooding	Floodplains cover approximately 10.6% of the municipality—6.8%	FEMA flood probabilities: 1% possibility per year 0.2% possibility per year	Water damage to structures and their contents. Damage or loss of

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
	of Hudson is located in 1% annual floodplain and 3.8% of Hudson is located in the 0.2% annual floodplain. Areas prone to flooding include: - County Road and Belknap Road (neighborhood area) - Wason Road - NH Route 111 at Merrill Brook See Section 3.5 for additional information on flood-prone areas.	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	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 vulnerable. Areas that have experienced repeat lightning strikes include: 12 Groves Farm Road – Water Tank hit twice by lightning in past 3 years.	Lightning Activity Level: - Level 1 - Level 2 - Level 3 - Level 4 - Level 5 - Level 6 For full definitions of Lightning Activity Level, see Section 3.5 Vulnerability by Hazard	Smoke and fire damage to structures and property. Disruption to power lines, municipal communications, and 911 communications. Damage to critical electronic equipment. Injury or death to people involved in outdoor activity.
Severe Wind	Entire jurisdiction.	Saffir-Simpson Hurricane Wind Scale: Category 1—sustained winds 74-95 mph	Wind damage to structures and trees. Water damage to structures

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

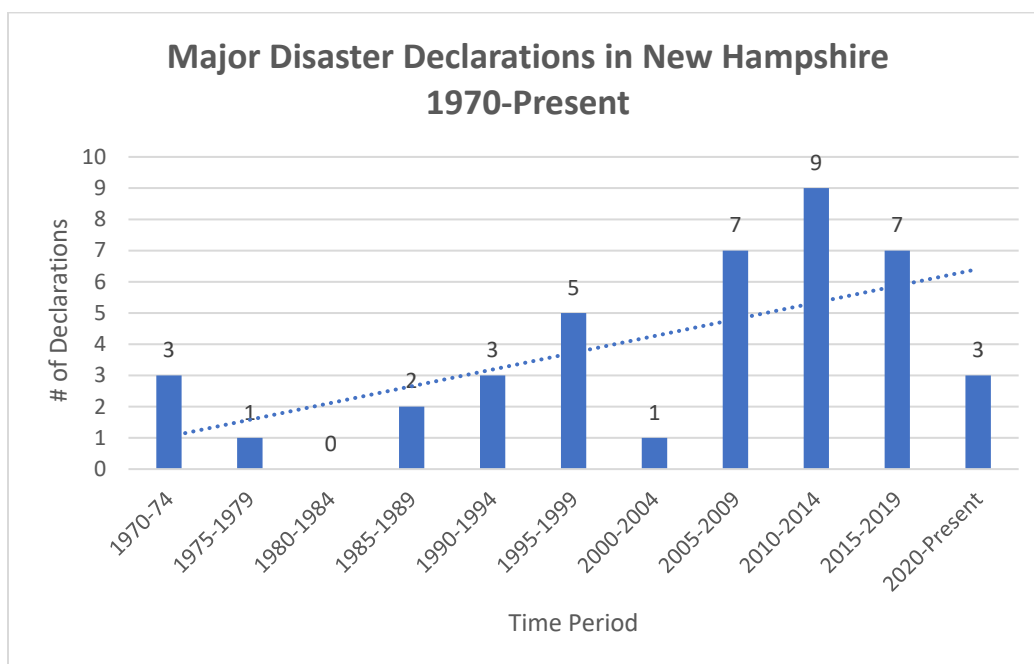
Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
			resulting from damage. Medical surge. Loss of natural resources.
Wildfire	Areas particularly prone to wildfire include forested areas near residential development.	NWCG Fire Size Classification: • A—greater than 0 but less than or equal to 0.25 acres • B—0.26 to 9.9 acres • C—10.0 to 99.9 acres • D—100-299 acres • E—300 to 999 acres • F—1,000 to 4,999 acres • G—5,000 to 9,999 acres • H—10,000 to 49,999 acres • I—50,000 to 99,999 acres • J—100,000 to 499,999 acres • K—500,000 to 999,999 acres • L—1,000,000+ acres	Smoke and fire damage to structures in wild land/urban interface. Damage to habitat. Impacts to air quality. Impacts to roadways. Loss of natural resources.
Infectious Diseases	Entire Jurisdiction. Vulnerable populations are especially at risk.	Center for Disease Control Disease Occurrence: • Endemic – Constant presence and/or usual prevalence of a disease or infection agent in a population within a geographic area • Hyperendemic – The persistent, high levels of disease occurrence • Cluster – Aggregation of cases grouped in place and time that 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.	Burden on healthcare facilities, medical surge. Risk to life.

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 future⁵.”

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. Hudson 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.



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

Municipal Impacts of Climate Change

Increased probability and severity of natural hazards can create a much larger impact on the critical facilities within a municipality, especially utility and transportation systems. Severe winter weather and severe wind events can result in long-term utility outages and create transportation impediments. The general population would also experience additional impacts with the increase of natural hazard probability and severity. More damage to critical facilities and municipal systems can result in extended

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

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 Hudson and the surrounding region, the Hazard Mitigation Team used this information to calculate the annual probability of these events occurring in the future. The first step was to determine how many times a particular hazard had occurred in a given number of years. The number of occurrences was then divided by the number of years to determine annual probability. For example, if history shows that a particular hazard typically occurs 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 Hudson is outlined in Table 4.

Table 4—Probability of Future Hazard Events

Hazard Type	Probability of Future Event	Source
Climate Change— Drought	The frequency of short-term drought (1-3 months) in New Hampshire is predicted to increase 2-3 times in the long term (2070-2099) under the higher emissions scenario. The state will experience a more significant increase in medium-term drought (3-6 months) during this period. Short- and medium-term droughts are primarily caused by evapotranspiration as a result of hotter summers. The frequency of long-term drought (6 plus months) does not change significantly in the future under the low or high emissions scenario compared to past long-term drought events in New Hampshire (Wake et al., “Climate Change in Southern New Hampshire,” pg. 30-31).	"New Hampshire Climate Assessment 2021" (2022). The Sustainability Institute.
Climate Change— Increased Precipitation	Annual average precipitation is predicted to increase 17-20% in southern New Hampshire by the end of the century under both the low and high emissions scenarios. Larger increases in precipitation are	"Climate Change in Southern New Hampshire," Sustainability Institute, University of New Hampshire, 2014

Hazard Type	Probability of Future Event	Source
	expected in the winter and spring, while summer and fall will only experience slight increases (Wake et al., "Climate Change in Southern New Hampshire," pg. 29). Southern New Hampshire can also expect more extreme precipitation events, defined as those where more than 1 inch of rain falls within 24 hours, or more than 2-4 inches falls in 48 hours. Under both low and high emissions scenarios, the frequency of extreme precipitation events is predicted to more than double by the end of the century (Wake et al., "Climate Change in Southern New Hampshire," pg. 29).	
Climate Change— Warmer Temperatures	Temperatures in southern New Hampshire will continue to rise under a lower or higher future emissions scenario. In the short-term (2010-2039), average annual temperatures are predicted to increase by approximately 2°F. Under a higher emissions scenario, long-term (2070-2099) average annual temperatures are predicted to increase by 8 to 9°F. If a lower emissions scenario is achieved, long-term average annual temperatures are predicted to increase by 4°F (Wake et al., "Climate Change in Southern New Hampshire," pg. 23). The region is also predicted to experience more extreme heat events. From 1970-1999, southern New Hampshire had an average of seven days above 90°F each year. In the long-term under a higher emissions scenario, southern New Hampshire is predicted to have over 54 days per year above 90°F. Under	"Climate Change in Southern New Hampshire," Sustainability Institute, University of New Hampshire, 2014

Hazard Type	Probability of Future Event	Source
	a lower emissions scenario, the region is predicted to have 23 days per year above 90°F in the long-term (Wake et al., "Climate Change in Southern New Hampshire," pg. 25).	
Drought	21 years of drought from 1960 through 2024. 21 events in 64 years = .33 events per year Annual Probability = 33% 10 years of drought from 2000 through 2024. 10 events in 24 years = .42 Annual Probability = 42%	NH DES Current Drought Conditions http://des.nh.gov/organization/divisions/water/dam/drought/drought-conditions.htm US Drought Monitor http://droughtmonitor.unl.edu/Home.aspx
Earthquake	History shows no known earthquakes centered in Hudson. However, this hazard is still possible. 7 magnitude 5.0 or greater earthquakes felt in NH from 1929 through 2024. 6 events in 95 years = .06 events per year Annual Probability = 6% 3 magnitude 5.0 or greater earthquakes felt in NH from 2000 through 2024. 3 events in 24 years = .13 events per year Annual Probability = 13%	US Geological Survey http://earthquake.usgs.gov/earthquakes/search/

Hazard Type	Probability of Future Event	Source
Extreme Temperatures	42 extreme cold events from 2000 through 2024. 42 events in 24 years = 1.75 events per year Annual Probability = 100% 30 extreme heat events from 2010 through 2024. 30 events in 24 years = 1.25 events per year Annual Probability = 100%	NOAA National Climatic Data Center https://www.ncdc.noaa.gov/cdo-web/search
Flooding	14 flooding events in Hillsborough County from 1785 through 2024. 14 events in 239 years = .06 events per year Annual Probability = 6% 1 flooding event in Hillsborough County from 2010 through 2024. 1 event in 14 years = .04 events per year Annual Probability = 4%	Local knowledge FEMA Presidential Disaster Declaration https://www.fema.gov/disasters/grid/year
Severe Wind	12 hurricanes/tropical storms from 1938 through 2024. 12 events in 86 years = .14 events per year Annual Probability = 14% 5 hurricanes/tropical storms from 2010 through 2024.	Local knowledge FEMA Presidential Disaster Declaration https://www.fema.gov/disasters/grid/year National Hurricane Center http://www.nhc.noaa.gov/data/tcr/index.php?season=2014&basin=atl

Hazard Type	Probability of Future Event	Source
	5 events in 14 years = .08 events per year Annual Probability = 36%	
Lightning & Hail	Because of limited data on previous lightning events, probability cannot be calculated statistically. History shows no occurrences of lightning strikes causing damage in Hudson. However, this hazard is still possible and therefore the probability is low. Low probability is defined as a 0-25% chance of occurrence annually	Local knowledge and public input
Severe Winter Weather	21 severe winter weather events from 1888 through 2024. 21 events in 136 years = .15 events per year Annual Probability = 15% 4 severe winter weather events from 2010 through 2024. 4 events in 14 years = .29 events per year Annual Probability = 29%	Local knowledge FEMA Presidential Disaster Declaration https://www.fema.gov/disasters/grid/year
Tornado/Downburst	16 tornados and 1 downburst in Hillsborough Co. from 1961 through 2024. 17 events in 63 years = .27 events per year Annual Probability = 27% 0 tornados and 0 downbursts in Hillsborough Co. from 2010	Tornado History Project (Joshua Lietz, Storm Prediction Center, National Climatic Data Center) and public input http://www.tornadohistoryproject.com

Hazard Type	Probability of Future Event	Source
	through 2024. 0 events in 14 years = 0 events per year Annual Probability = 0-25%	
Wildfire	Because of limited data on previous wildfire events, probability cannot be calculated statistically. History shows no occurrences of wildfires causing damage in Hudson. However, this hazard is still possible and therefore the probability is low. Low probability is defined as a 0-25% chance of occurrence annually.	Local knowledge and public input
Infectious Disease	Like the rest of the state, the Town of Hudson experiences seasonal outbreaks that occur annually such as Influenza. There is a 100% annual probability that Hudson will continue to experience some extent of infectious disease.	Local knowledge NH DHHS Infectious Disease Control https://www.dhhs.nh.gov/programs-services/disease-prevention/infectious-disease-control

Section 3.4. Critical Facilities and their Vulnerability

The next step in determining Hudson’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 Hudson 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 Hudson, including critical facilities essential to health and welfare; vulnerable populations, such as children and the elderly; economic assets and major employers; areas of high-density residential and commercial development; and historic, cultural, and natural resources. The Team then further divided the Town’s critical facilities into the following categories:

1. General Occupancy

- a. Commercial
- b. Education
- c. Government
- d. Recreation

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

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

Table 5.1—General Occupancy Critical Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Commercial—NH 111 Commercial Sites, Central Street between Burnham Road and Windham Town Line	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial—NH 3A Commercial Sites, Lowell Road between Central Street and Executive Drive	Potentially large population present, contents valuable to local economy, partially located in 1% annual floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Commercial— Hudson Mall, 77 Derry Street	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— Industrial Park, Friars Drive, Executive Drive, and Wentworth Drive	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— BAE Systems, 65 River Road	Potentially hazardous materials present, contents valuable to local economy. Parking lot partially located in 1% annual floodplain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Commercial—NH 3A Commercial Sites, Lowell Road between Sagamore Bridge and Rena Avenue	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— Walmart, 254 Lowell Road	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Commercial— Sam's Club, 7 Wal-Mart Boulevard	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— Eastern Propane, 5 West Road	Potentially hazardous materials present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— Irving/Circle K, 329 Derry Road	Potentially hazardous materials present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— Superior Plus, 13 Tracy Lane	Potentially hazardous materials present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
B&H Oil – Commercial – 19 Constitution Drive	Potentially hazardous materials present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— Pete's Gun Shop, 2 Dracut Road	Potentially hazardous materials present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— Hudson Lumber, 261 Lowell Road	Potentially hazardous materials present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— Market Basket, 212 Lowell Road	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial— Hannaford Supermarket, 102 Derry Street	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Commercial— Goodwill, 9 Wason Road	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Target Logistics Center, 32 Green Meadows Drive	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – Life is Good, 48 Friars Drive	Potentially large population present, contents valuable to local economy	✓	✓	✓		✓	✓	✓	✓	✓	✓
Commercial – FITLAB Fitness Club, 142 Lowell Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Education— Presentation Of Mary Academy, 182 Lowell Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Education— Stonewood School, 99 Lowell Road #2	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Education— Country Bear Pre-School and Child Care, 1 Cutler Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Education— Hudson Child Learning Center, 292 Derry Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Education— Ashleigh's Learning Place, 3 Ridgecrest Drive	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Education— Stonewood Family Day Care, 22 Stonewood Lane	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Government—Hudson Cable TV, PTV Studio, 19 Kimball Hill Road	Contents valuable to public communications	✓	✓	✓		✓	✓	✓	✓	✓	✓
Government—Community Center, 12 Lions Ave	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Government—Rodgers Memorial Library, 194 Derry Road	Official records and documents, potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Government—US Post Office, 35 Executive Drive	Contents valuable to communications	✓	✓	✓		✓	✓	✓	✓	✓	✓
Government—US Post Office, Hudson Mall	Contents valuable to communications	✓	✓	✓		✓	✓	✓	✓	✓	✓
Recreation—Hudson Senior Center, 19 Kimball Hill Road	Potentially large population present, elderly population present, generator	✓	✓	✓		✓	✓	✓	✓	✓	✓
Recreation—Benson Park, Kimball Hill Road	Potentially large population present, located in 1% annual floodplain	✓		✓	✓		✓			✓	
Recreation—Musquash Conservation Land, North of Gowing Road	Potentially large population present, located in 1% annual floodplain	✓		✓	✓		✓			✓	
Recreation—Greeley Field, Greeley Street	Potentially large population present	✓		✓			✓			✓	
Recreation—Lions Field, Connell Street	Potentially large population present	✓		✓			✓			✓	
Recreation—Kiwanis Field, Cross Street off Winn Ave.	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/Downburst	Wildfire	Infectious Disease
Recreation— Jette Field, County Road	Potentially large population present, located in 1% annual floodplain	✓		✓	✓		✓			✓	
Recreation— Merrifield Park, 2 Burnham Road	Potentially large population present, located in 1% annual floodplain	✓		✓	✓		✓			✓	
Recreation – Liberty Park, 211 Derry Road	Potentially large population present	✓		✓	✓		✓			✓	
Recreation – Freedom Field, 194 Derry	Potentially large population present	✓		✓	✓		✓			✓	
Recreation— Municipal Beach and Picnic Area, Robinson Road	Potentially large population present, located in 1% annual floodplain	✓		✓	✓		✓			✓	
Recreation—Whip-Poor-Will Golf Club, 55 Marsh Road	Potentially large population present	✓		✓			✓			✓	✓
Recreation— World Cup Driving Range, 4 Friel Golf Road	Potentially large population present	✓		✓			✓			✓	✓
Recreation— Hank Center Field, 14 Melendy Road	Potentially large population present, located in 0.2% floodplain	✓		✓	✓		✓			✓	✓
Religious— First Baptist Church of Hudson-ABC, 236 Central Street	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious—Calvary Assembly of God, 284 Webster	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious—Maranatha Bible Church, 292 Derry Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Religious— St Kathryn Church, 6 Dracut Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious— Jehovah's Witnesses, 128 Greeley	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious— Cross Pointe Community Church, 200 Lowell Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious— Community Church of Hudson, 19 Central Street	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious— United Pentecostal Church, 123 Derry Road	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Religious— Saint John the Evangelist, 23 Library Street	Potentially large population present	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Compass Point Condos, Holly Lane Partridge Circle Quail Run	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Krystal Estates Mobile Home Park, Krystal Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Otarnic Pond Cooperative, Pond View Drive, Village Lane Otter Way, Ferry Street	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Hudson Mobile Estates, Mobile Drive, Loop Road Front Street	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Residential— Highland Woods Condos, Glasgow Circle, Logan Court Scottsdale Drive, Sterling Court	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Robinson Road Condos, Robinson Road	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Westchester Court, Westchester Court Berkeley Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Abbott Farm, Abbott Farm Lane	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Bonnie Heights, Bonnie Heights Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Brookside Village Apartments, 18, 20, 22, 24 Roosevelt Avenue	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Fox Hollow, Fox Hollow Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Rolling Green at Whipoorwill, Baltusrol Drive, Pinehurst Street, Waubeeka Springs Road Riviera Road, Shoal Creek Road	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Lockwood Place Condos, Joel Path, Melissa Trail, Barbara Lane, Lockwood Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Residential— Villages at Barrett Hill Condos, Elk Run, Fox Run, Pheasant Run	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Willow Creek Condos, Willow Creek Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Robin View Condos, Old Robinson Road	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Burns Hill Road Apartments, Burns Hill Road	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Dana Drive Apartments, 3 and 5 Dana Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Library & Highland Street Condos, Library & Highland Streets	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Elmwood Village Condos, Elmwood Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Franklin D Estates Condos, Roosevelt Avenue	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Hudson Garden Apartments, Cross Street	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Hudson Common, Hopkins Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Residential— Shepherd’s Hill Condos; Allard, April, Aster, Chandler, Canterbury, Charity, Clearview, Cypress, Dogwood, Farnum, Intervale, Iroquois, Maitland, Monarch, Seminole, Sequoia, Tammy & Yale Courts and Shadowbrook Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Tracy Lane Condos, Tracy Lane	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Terrace Condos, Oliver Drive	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Woodland Heights, Overlook Circle	Large population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Buttercup Hill, 51 Webster Street	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Lexington Palace, Lexington Court	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Reeds Brook Village, Amanda Drive, Katherine Court Madeleine Court	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Residential— Mission Point, Coventry Court, Mission Lane Reflection Drive, Oblate Drive St. Eugene Drive	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Sparkling River, Brackett Lane, Weymouth Court Leybridge Drive, Doveton Lane, Cricketfield Lane, Taunton Lane	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Abbie's Landing Condos, Bowes Circle	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Hudson Meadows, Nicolls Circle	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Roosevelt Ave, Roosevelt Avenue	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Oak Ridge, Belknap Road	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓
Residential— Cobblestone, Belknap Road	Large population present, elderly population present, contents have personal value to owners	✓	✓	✓		✓	✓	✓	✓	✓	✓

Table 5.2—Essential Facilities

Facility Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Central Fire Station—15 Library Street	Contents and staff valuable to emergency management, generator present	✓	✓			✓	✓	✓	✓	✓	✓
Robinson Rd Fire Station—52 Robinson Road	Contents and staff valuable to emergency management, generator present	✓	✓			✓	✓	✓	✓	✓	✓
Fire Station—204 Lowell Road	Contents and staff valuable to emergency management, generator present	✓	✓			✓	✓	✓	✓	✓	✓
Burns Hill Station – 88 Burns Hill Road	Contents valuable to emergency management	✓	✓			✓	✓	✓	✓	✓	✓
Police Station and Emergency Operations Center—1 Constitution Drive	Contents and staff valuable to emergency management, generator	✓	✓			✓	✓	✓	✓	✓	✓
Town Hall—12 School Street	Contents valuable to municipal operations, generator (critical services only)	✓	✓			✓	✓	✓	✓	✓	✓
Highway Department—2 Constitution Drive	Contents valuable to transportation network and public infrastructure,	✓	✓			✓	✓	✓	✓	✓	✓
Alvirne High School, 200 Derry Road	Potentially large population present	✓	✓			✓	✓	✓	✓	✓	✓
Hudson Memorial School, 1 Memorial Drive	Potentially large population present; located in 1% annual floodplain	✓	✓		✓	✓	✓	✓	✓	✓	✓
Library Street School, 22 Library Street	Potentially large population present	✓	✓			✓	✓	✓	✓	✓	✓

Facility Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Nottingham West School, 10 Pelham Road	Potentially large population present, generator	✓	✓			✓	✓	✓	✓	✓	✓
Hills Garrison School, 190 Derry Road	Potentially large population present, generator	✓	✓			✓	✓	✓	✓	✓	✓
Dr. H.O. Smith School, 33 School Street	Potentially large population present	✓	✓			✓	✓	✓	✓	✓	✓
Private School (pre-k through K) – 143 Lowell Road	Potentially large population present	✓	✓			✓	✓	✓	✓	✓	✓
St. Joseph's Medical— 208 Robinson Road	Contents valuable to public health, potentially large staff and population present,	✓	✓			✓	✓	✓	✓	✓	✓
Primary Care of Hudson —300 Derry Road	Contents valuable to public health, potentially large staff and population present, generator	✓	✓			✓	✓	✓	✓	✓	✓
Public Works Fuel Station – 2 Constitution Drive	14,000-gal capacity		✓				✓	✓	✓	✓	

Map 1. Hudson Essential Facilities

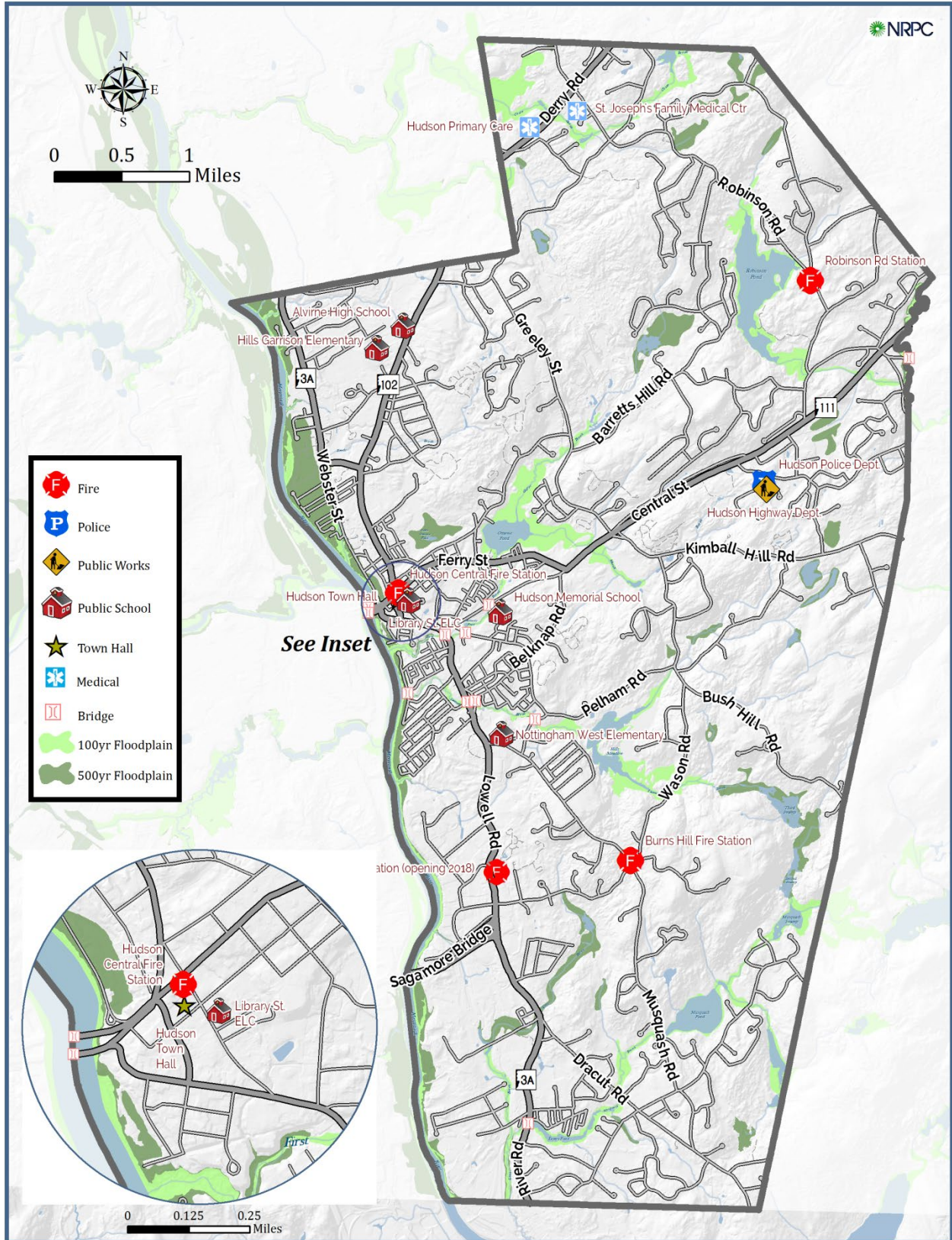


Table 5.3—Transportation Critical Facilities

Transportation infrastructure is particularly vulnerable to flooding hazards. Flooding events frequently cause culvert failures and undermine bridges and roads. Hudson has a total of 191.5 road miles, of which 21.2 miles or approximately 11% are in the floodplain.

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Highway System— Dracut Rd	Structure valuable to motor vehicle travel and safety, frequent flooding, portions located in 1% annual floodplain		✓		✓	✓		✓	✓		
Highway System— Kimball Hill Rd	Structure valuable to motor vehicle travel and safety, prone to flooding though not in floodplain		✓		✓	✓		✓	✓		
Highway System—Town Center Road Network (Highland St., Ferry St., Burnham Rd., Library St., Chase St., Central St., Melendy Rd., and Belknap Rd)	Structure valuable to motor vehicle travel and safety, frequent flooding, portions located in 1% annual floodplain		✓		✓	✓		✓	✓		
Highway System—NH 111/Central St	Structure valuable to motor vehicle travel and safety, evacuation route, portions in 1% and 0.2% annual floodplain		✓		✓	✓		✓	✓		
Highway System—NH 3A/Lowell Rd	Structure valuable to motor vehicle travel and safety, evacuation route, portions in 1% and 0.2% annual floodplain		✓		✓	✓		✓	✓		
Highway System—NH 102/Derry Rd	Structure valuable to motor vehicle travel and safety, evacuation route, portions in 1% and 0.2% annual floodplain		✓		✓	✓		✓	✓		

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Highway System— Veteran’s Memorial Bridge over Merrimack River	Structure valuable to motor vehicle travel and safety, structure located in 0.2% annual floodplain		✓		✓			✓	✓		
Highway System— Taylor Falls Bridge over Merrimack River	Structure valuable to motor vehicle travel and safety, structure located in 1% annual floodplain		✓		✓			✓	✓		
Highway System— Lowell Road Bridge over First Brook	Structure valuable to motor vehicle travel and safety, structure located in 1% annual floodplain		✓		✓			✓	✓		
Highway System— Sagamore Bridge over Merrimack River	Structure valuable to motor vehicle travel and safety, structure located in 1% annual floodplain		✓		✓			✓	✓		

Table 5.4—Utility Systems

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Communications Tower—46 Trigate Road	Structure valuable to communications		✓			✓	✓		✓	✓	
Communications Tower—53 Gibson	Structure valuable to Police and Fire communications		✓			✓	✓		✓	✓	
US Cellular Tower—10 A, 10 B Park Ave	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Cellular Tower—15 West Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Cellular Tower—4 Greeley Street	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Cellular Tower—193 Central Street	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Cellular Tower—166 Bush Hill Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Cellular Tower—143 Dracut Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Cellular Tower—50 Griffin Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Cellular Tower—19 Sagamore Park Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Cellular Tower—28-30 Lowell Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Verizon Communication Booster Tower – 12 Groves Farm	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Gas Line Conversion Station —126 Highland	Structure valuable to natural gas supply		✓			✓	✓	✓	✓	✓	

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Communications (town) and water – 26 West Road	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Communications – Town Hall – 12 School St	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Communications (Police station) – 1 Constitution	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
Water communication tower – 33 Rivier	Structure valuable to communications		✓			✓	✓	✓	✓	✓	
High voltage power lines—throughout municipality	Structure valuable to electric grid		✓			✓	✓	✓	✓	✓	
Eversource Electric Substation—15 Powers Street	Structure valuable to electric grid		✓			✓	✓	✓	✓	✓	
Eversource Electric Substation—34 Lawrence Road	Structure valuable to electric grid		✓			✓	✓	✓	✓	✓	
Eversource Electric Substation—52 Lowell Road	Structure valuable to electric grid		✓			✓	✓	✓	✓	✓	
Wastewater—Wastewater pumping station at 2 Rangers Drive	Structure valuable to sewage pumping		✓			✓	✓				
Wastewater—Wastewater pumping station at 27 Federal Street	Structure valuable to sewage pumping		✓			✓	✓				
Wastewater—Wastewater pumping station at 19 Industrial Drive	Structure valuable to sewage pumping		✓			✓	✓				
Wastewater—Wastewater pumping station at 23 Sagamore Drive	Structure valuable to sewage pumping		✓			✓	✓				

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Wastewater— Wastewater pumping station at 33 Glen Drive	Structure valuable to sewage pumping		✓			✓	✓				
Wastewater— Wastewater pumping station at Wason Road	Structure valuable to sewage pumping		✓			✓	✓				
Wastewater— Wastewater pumping station at 25 Sycamore Street	Structure valuable to sewage pumping, located in 0.2% annual floodplain		✓		✓	✓	✓				
Wastewater – Pumping station – 1 Pond View Drive	Structure valuable to sewage pumping, located in 1% annual floodplain		✓		✓	✓	✓				
Water—Water Tank, Between 32 & 33 Riviera Road	Water supply	✓	✓			✓	✓				
Water—Water Tank, 11 Gordon Street	Water supply	✓	✓			✓	✓				
Water—Water Tank, 12 Groves Farm Road	Water supply	✓	✓			✓	✓				
Water—Pumping Station, E Street Connect North Side of Taylor Falls Bridge	Water supply pump house, located in the 0.2% annual floodplain	✓	✓		✓	✓	✓				

Table 5.5—High Potential Hazard Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Name—Ice Pond Dam Dam #D122001 Hazard Class—NM Water body—Merrill Brook Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Name— Merrill Brook Dam Dam #D122002 Hazard Class—NM Water body— Merrill Brook Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Name— Ottarnic Pond Dam Dam #D122003 Hazard Class—NM Water body— First Brook Owner—privately held	Structure valuable to flood control, located in 1% annual floodplain		✓		✓	✓		✓	✓		
Name— Melendy Pond Dam Dam #D122004 Hazard Class—NM Water body— Hadley Brook Owner—privately held	Structure valuable to flood control, located in 1% annual floodplain		✓		✓	✓		✓	✓		
Name—Ayers Pond Dam Dam #D122007 Hazard Class—L Water body—Musquash Brook Owner—privately held	Structure valuable to flood control, located in 1% annual floodplain		✓		✓	✓		✓	✓		
Name— Recreation Pond Dam Dam #D122015 Hazard Class—NM Water body— TR First Brook Owner—privately held	Structure valuable to flood control		✓			✓		✓	✓		
Name— Robinson Pond Dam Dam #D122016 Hazard Class—NM Water body— TR Beaver Brook Owner—Town of Hudson	Structure valuable to flood control, located in 1% annual floodplain		✓		✓	✓		✓	✓		
Name— Fire Pond Dam Dam #D122017 Hazard Class—NM Water body— TR Merrimack River 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/Downburst	Wildfire	Infectious Disease
Name— Allard Dam Dam #D122023 Hazard Class—NM Water body—Unnamed Stream Owner—Privately Held	Structure valuable to flood control		✓			✓		✓	✓		
Name—Village At Barretts Hill Lower Dam Dam #D122025 Hazard Class— L Water body— Runoff Owner—Privately Held	Structure valuable to flood control		✓			✓		✓	✓		
Name— Village At Barretts Hill Upper Dam Dam # D122026 Hazard Class—NM Water body—Runoff Owner— Privately Held	Structure valuable to flood control		✓			✓		✓	✓		
Name— Highlands Woods Dam Dam # D122031 Hazard Class—NM Water body—Runoff Owner— Privately Held	Structure valuable to flood control		✓			✓		✓	✓		
Name— Snowflake Rd Det Pond Dam Dam # D122040 Hazard Class—NM Water body—Runoff Owner— Privately Held	Structure valuable to flood control		✓			✓		✓	✓		
Name— Oak Ridge Condo Detention Pond 1 Dam Dam # D122042 Hazard Class—NM Water body—Unnamed Brook Owner— Privately Held	Structure valuable to flood control		✓			✓		✓	✓		
Name— Oak Ridge Condo Detention Pond 2 Dam Dam # D122043 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/Downburst	Wildfire	Infectious Disease
Name—Oak Ridge Condo Detention Pond 3 Dam Dam # D122044 Hazard Class—NM Water body—Runoff Owner— Privately Held	Structure valuable to flood control		✓			✓		✓	✓		
Name— Oak Ridge Condo Detention Pond 4 Dam Dam # D122045 Hazard Class—NM Water body—Unnamed Brook Owner— Privately Held	Structure valuable to flood control		✓			✓		✓	✓		

Table 5.6—Hazardous Materials Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire	Infectious Disease
Teledyne Printed Circuit Technology, 110 Lowell Rd	Chemicals reported to Toxics Release Inventory (TRI) = lead;	✓	✓			✓	✓	✓	✓	✓	
Brox Industries Inc, 85 Greeley St	Chemicals reported to Toxics Release Inventory (TRI) = polycyclic aromatic compounds, benzo(g,h,i) perylene. Partially located within 1% annual floodplain	✓	✓		✓	✓	✓	✓	✓	✓	
Parker Hannifin Corp Chomerics Div, 16 Flagstone Dr	Chemicals reported to Toxics Release Inventory (TRI) = toluene, tetrabromobisphenol	✓	✓			✓	✓	✓	✓	✓	
Princeton Technology Corp, 18-94 Hudson Park Dr	Chemicals reported to Toxics Release Inventory (TRI) = lead compounds	✓	✓			✓	✓	✓	✓	✓	
Varitron, 12 Executive Dr, #2	Chemicals reported to Toxics Release Inventory (TRI) = lead;	✓	✓			✓	✓	✓	✓	✓	
Morgan Advanced Ceramics Inc, 4 Park Ave	Chemicals reported to Toxics Release Inventory (TRI) = hydrochloric acid (1995 and after acid aerosols" only)"	✓	✓			✓	✓	✓	✓	✓	

Section 3.5. Vulnerability by Hazard

Climate Change

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

slow the rate of climate change, some level of change is inevitable. Therefore, municipalities must make sound decisions to help their communities adapt to a new climate normal.

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

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

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

Climate Change Hazard Loss Estimate

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

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

Threats related to warmer temperatures are highly likely to occur, are broad ranging, have critical severity, and moderately effective mitigation options. In addition, while the region has experience with

flooding (and drought to a smaller extent), the region has no experience with warming temperatures to provide historical guidance.

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

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

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

Drought

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

Southern New Hampshire also experienced a 50-year drought event beginning in May 2015 and lasting through April 2017. During that time, Hudson 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 a drought may lead to an increase wildfire risk. Drought can cause the most significant impact to agricultural land and assets.

Previous Occurrences of Drought

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
1960-1969	Entire jurisdiction	Long term drought—9 years of less than normal precipitation	Farms had minimal grass for grazing animals and poor crops. Wells went dry for 2 consecutive years in mid-1960s.
1999	Entire jurisdiction	Level 2—Warning. Drought warning issued on June 29, 1999.	Damage to crops. Low water levels in dug wells.
March 2002	Entire jurisdiction	Level 3—Emergency. First time Level 3 Drought Impact Level had been	Damage to crops. Low water levels in dug wells.

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
		declared.	
2016	Entire jurisdiction	USDA D2 (Severe Drought)	Low water levels in wells. Hudson Water Utility issued water restrictions.
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 in both 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 – November 14 (Current)	Entire Jurisdiction	USDA D0 (Abnormally Dry). 41% of the state (southern NH) experienced D1 conditions, and some areas saw D2 conditions.	Damage to crops, dramatic increase in brush fires in November 2024.

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 Hudson resulting from drought. Instead, the Hazard Mitigation Team estimated the percentage of land in Hudson vulnerable to drought and the percentage of the population vulnerable to drought as a quantitative measure of this hazard's impact.

Total Acres of Agricultural Land in Hudson	Agriculture as % of Total Land Area in Hudson	% of Land in Hudson Vulnerable to Drought
231.8	1.2%	1.2%

% of population with Public Drinking Water in Hudson	% of population with Private Well Water in Hudson	Water Utility	Primary Water Source	Secondary Water Source
62%	38%	Hudson Water Dept/Pennichuck Water Services	Dame, Ducharme, & Weinstein Wells	Pennichuck Pond System supplementary during peak demand

Critical Facility Type	Total Number of this type of Critical Facilities in Hudson	Number of this type of Critical Facilities in Drought Hazard Area	Percentage of this type of Critical Facilities in Drought Hazard Area
General Occupancy	91	91	100%
Essential Facilities	17	16	94%
Transportation	10	0	0%
Utility System	33	4	12%
High Potential Hazard	17	0	0%
Hazardous Materials	6	6	100%

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 toll up to 25,000. 100-150 occur annually worldwide on average.
- Magnitude 7.0-7.9—felt in very large area. Damage to most buildings, including partial or complete collapse. Death toll 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 toll 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. One 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 Hudson, however, one could occur.

Previous Occurrences of Earthquakes

Date	Location within Jurisdiction	Extent	Impact
	There have been no earthquakes centered in Hudson 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 Wilton.
December 20, 1940	Lake Ossipee, NH	Magnitude 5.5 on Richter Scale	No damage in Hudson
December 24, 1940	Lake Ossipee, NH	Magnitude 5.5 on Richter Scale	No damage in Hudson
December 4, 1963	Laconia, NH (43.6 latitude, -71.5	Magnitude 3.7 on Richter Scale	No damage in Hudson

	longitude)		
June 28, 1981	Sanbornton, NH (43.56 latitude, - 71.56 longitude)	Magnitude 3.0 on Richter Scale	No damage in Hudson
January 19, 1982	Sanbornton, NH (43.5 latitude, -71.6 longitude)	Magnitude 4.7 on Richter Scale	No damage in Hudson
October 25, 1986	Northfield, NH (43.399 latitude, - 71.59 longitude)	Magnitude 3.9 on Richter Scale	No damage in Hudson
October 20, 1988	Milan, NH (44.539 latitude, - 71.158 longitude)	Magnitude 3.9 on Richter Scale	No damage in Hudson
November 22, 1988	Milan, NH (44.557 latitude, - 71.183 longitude)	Magnitude 3.2 on Richter Scale	No damage in Hudson
April 6, 1989	Berlin, NH (44.511 latitude, - 71.144 longitude)	Magnitude 3.5 on Richter Scale	No damage in Hudson
October 6, 1992	Canterbury, NH (43.324 latitude, - 71.578 longitude)	Magnitude 3.4 on Richter Scale	No damage in Hudson
June 16, 1995	Lyman, NH (44.286 latitude, - 71.915 longitude)	Magnitude 3.8 on Richter Scale	No damage in Hudson
August 21, 1996	Bartlett, NH (44.184 latitude, - 71.352 longitude)	Magnitude 3.8 on Richter Scale	No damage in Hudson
January 27, 2000	Raymond, NH (43.00 latitude, - 71.18 longitude)	Magnitude 3.0 on Richter Scale	No damage in Hudson
September 26, 2010	Boscawen, NH (43.2915 latitude, - 71.6568 longitude)	Magnitude 3.4 on Richter Scale	No damage in Hudson
October 11, 2013	Contoocook, NH (43.255 latitude, - 71.747 longitude)	Magnitude 2.6 on Richter Scale	No damage in Hudson
March 21, 2016	Contoocook, NH (43.264 latitude, - 71.767 longitude)	Magnitude 2.8 on Richter Scale	No damage in Hudson
February 11, 2017	Bedford, NH (42.946°N latitude, 71.541°W longitude)	Magnitude 2.2 on Richter Scale	No damage in Hudson
February 15, 2018	East Kingston, NH (42.921°N latitude, 71.011°W longitude)	Magnitude 2.7 on Richter Scale	No damage in Hudson
February 4, 2022	Gorham, NH (44.386°N latitude, 71.175°W longitude)	Magnitude 2.9 on Richter Scale	No damage in Hudson
April 25, 2023	Center Sandwich, NH (43.780°N 71.480°W)	Magnitude 2.9 on Richter Scale	No damage in Hudson

December 23, 2023	Chichester, NH (43.217°N latitude 71.445°W longitude)	Magnitude 2.7 on Richter Scale	No damage in Hudson
June 18, 2024	Haverhill, NH (44.016°N latitude 72.035°W longitude)	Magnitude 2.6 on Richter Scale	No damage in Hudson
	Earthquakes noted below were centered outside of NH but were felt by NH municipalities.		No damage in Hudson
November 18, 1929	Grand Banks, Newfoundland	Magnitude 7.2 on Richter Scale	No damage in Hudson
November 1, 1935	Timiskaming, Canada	Magnitude 6.25 on Richter Scale	No damage in Hudson
June 15, 1973	Near Canadian/NH border	Magnitude 4.8 on Richter Scale	No damage in Hudson
June 23, 2010	Buckingham, Quebec, Canada	Magnitude 5.0 on Richter Scale	No damage in Hudson
August 23, 2011	Washington, DC	Magnitude 5.8 on Richter Scale	No damage in Hudson
October 16, 2012	Hollis Center, ME	Magnitude 4.0 on Richter Scale	No damage in Hudson
May 17, 2013	Shawville, Canada	Magnitude 5.1 on Richter Scale	No damage in Hudson
November 11, 2017	Little Creek, DE	Magnitude 4.1 on Richter Scale	No damage in Hudson
January 15, 2019	Ocean City, MD	Magnitude 4.6 on Richter Scale	No damage in Hudson
November 8, 2020	Bliss Corner, MA	Magnitude 3.6 on Richter Scale	No damage in Hudson
April 5, 2024	Tewksbury, NJ	Magnitude 4.8 on Richter Scale	No damage in Hudson

Earthquake Hazard Loss Estimate

Step 1. Determine potential earthquake strength in Hudson.

- US Seismic Hazard, 2% in 50 years PGA is 0.2625(g) in Hudson
- 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 Hudson that would be damaged by PGA (g) 0.25 earthquake.

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

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

- Total Assessed Value of all Structures in Hudson = \$3,645,975,712
- *Source: Hudson Assessing Department (June 2024)*

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 = \$3,645,975,712 * .01 * .046 = \$1,677,149
- Total Loss from Earthquake = \$3,645,975,712 * .05 * .046 = \$8,385,744
- **\$1,677,149 - \$8,385,744**

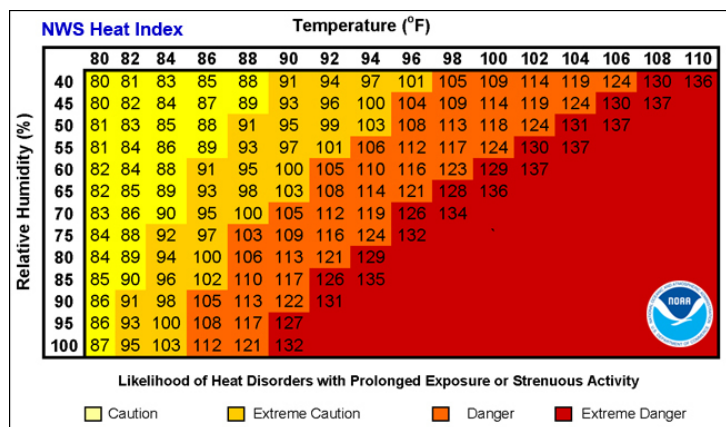
Critical Facility Type	Total Number of this type of Critical Facilities in Hudson	Number of this type of Critical Facilities in Earthquake Hazard Area	Percentage of this type of Critical Facilities in Earthquake Hazard Area
General Occupancy	91	78	86%
Essential Facilities	17	17	100%
Transportation	10	10	100%
Utility System	33	33	100%
High Potential Hazard	17	17	100%
Hazardous Materials	6	6	100%

Extreme Temperatures

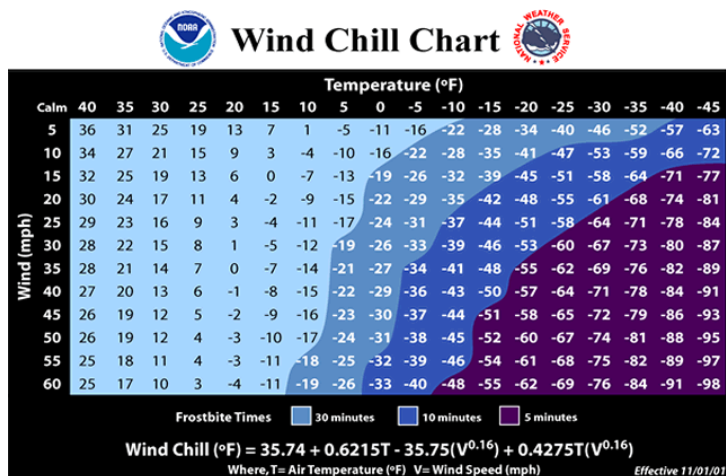
Extreme temperatures can be broken into both extreme heat and extreme cold. Though the hazards are different, the effects would be similar to vulnerable populations in Hudson.

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 heat disorders with prolonged exposure or strenuous activity.



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



Previous Occurrences of Extreme Temperatures

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

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 Hudson
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 Hudson
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 Hudson
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	No known impact in Hudson
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 Hudson
Extreme Temperature (Cold)	January 18-25, 2005	Entire jurisdiction	8 consecutive days of minimum temperatures at or below 0°F: • 1/18/05: 0°F • 1/19/05: -8°F • 1/20/05: -3°F • 1/21/05: -5°F • 1/22/05: -12°F • 1/23/05: -9°F • 1/24/05: 0°F	No known impact in Hudson

			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 Hudson
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 Hudson
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 Hudson
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 Hudson
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 Hudson
Extreme Temperature (Cold)	January 15-17, 2012	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: 1/15/12: -2°F 1/16/12: -2°F 1/17/12: 0°F	No known impact in Hudson
Extreme Temperature (Cold)	January 3-5, 2014	Entire jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: 1/3/14: 0°F	No known impact in Hudson

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

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

			below 0°F: • 1/15/22: -2°F • 1/16/22: -6°F • 1/17/22: 0°F	
Extreme Temperature (Heat)	May 3-5, 2001	Entire jurisdiction*	3 consecutive days of temperatures above 90°F: • 5/3/01—93°F • 5/4/01—92°F • 5/5/01—92°F	No known impact in Hudson
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 Hudson
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 Hudson
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 Hudson
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 Hudson
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 Hudson
Extreme Temperature (Heat)	August 13-20, 2002	Entire jurisdiction	8 consecutive days of temperatures above 90°F: • 8/13/02—94°F • 8/14/02—96°F	No known impact in Hudson

			• 8/15/02—98°F • 8/16/02—95°F • 8/17/02—94°F • 8/18/02—92°F • 8/19/02—94°F • 8/20/02—92°F	
Extreme Temperature (Heat)	June 25-28, 2003	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 6/25/03—90°F • 6/26/03—93°F • 6/27/03—92°F • 6/28/03—92°F	No known impact in Hudson
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 Hudson
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 Hudson
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 Hudson
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 Hudson
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 Hudson
Extreme Temperature (Heat)	July 17-20, 2010	Entire jurisdiction	4 consecutive days of temperatures	No known impact in Hudson

			above 90°F: • 7/17/10—93°F • 7/18/10—93°F • 7/19/10—93°F • 7/20/10—90°F	
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 Hudson
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 Hudson
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 Hudson
Extreme Temperature (Heat)	July 13-16, 2012	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 7/13/12—92°F • 7/14/12—92°F • 7/15/12—93°F • 7/16/12—91°F	No known impact in Hudson
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 Hudson
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 Hudson
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	No known impact in Hudson

			• 7/18/13—93°F • 7/19/13—93°F • 7/20/13—96°F • 7/21/13—91°F	
Extreme Temperature (Heat)	July 29-31, 2015	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 7/29/15—90°F • 7/30/15—93°F • 7/31/15—90°F	No known impact in Hudson
Extreme Temperature (Heat)	July 29-31, 2015	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 7/29/15—90°F • 7/30/15—93°F • 7/31/15—90°F	No known impact in Hudson
Extreme Temperature (Heat)	September 8-10, 2015	Entire jurisdiction	3 consecutive days of temperatures above 90°F: • 9/8/15—93°F • 9/9/15—93°F • 9/10/15—94°F	No known impact in Hudson
Extreme Temperature (Heat)	July 23-29, 2016	Entire jurisdiction	7 consecutive days of temperatures above 90°F: • 7/23/16—96°F • 7/24/16—95°F • 7/25/16—90°F • 7/26/16—95°F • 7/27/16—93°F • 7/28/16—94°F • 7/29/16—93°F	No known impact in Hudson
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 Hudson
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 Hudson
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	No known impact in Hudson

			• 8/4/17—90°F	
Extreme Temperature (Heat)	September 25-28, 2017	Entire Jurisdiction	4 consecutive days of temperatures above 90°F: • 9/25/17—93°F • 9/26/17—91°F • 9/27/17—90°F • 9/28/17—91°F	No known impact in Hudson
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 Hudson
Extreme Temperature (Heat)	August 29-31, 2018	Entire Jurisdiction	3 consecutive days of temperatures above 90°F: • 8/29/18—92°F • 8/30/18—93°F • 8/31/18—93°F	No known impact in Hudson
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 Hudson
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 Hudson
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 Hudson
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 Hudson
Extreme	August 11-14, 2021	Entire Jurisdiction	3 consecutive days	No known impact in

Temperature (Heat)			of temperatures above 90°F: • 7/11/21—92°F • 7/12/21—94°F • 7/13/21—93°F	Hudson
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 Hudson
Extreme Temperature (Heat)	July 19-24, 2022	Entire Jurisdiction	6 consecutive days of temperatures above 90°F: • 7/19/22—92°F • 7/20/22—96°F • 7/21/22—95°F • 7/22/22—92°F • 7/23/22—95°F • 7/24/22—97°F	No known impact in Hudson
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 Hudson
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 Hudson
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 Hudson

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

Extreme Temperatures Hazard Loss Estimate

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

Flooding

Localized Flooding

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

Riverine Flooding

Riverine flooding involves the overflowing of normal flood channels, rivers or streams, generally because 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 10.6% of Hudson; 6.8% of Hudson is located in 1% annual floodplain and 3.8% of Hudson is located in the 0.2% annual floodplain. Watersheds in Hudson include Merrimack River Drainage (3,999 acres, 21%), Musquash Brook (3,840 acres, 20%), Second River Brook (3,323 acres, 18%), and Glover Brook (3,060 acres, 16%).

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 probably loss of lives; major economic loss to structures or property; structural damage to a Class I or Class II road that would render the road impassable or otherwise interrupt public safety services; major environmental or public health losses.

Class L—low hazard: dam has a low hazard potential because it is in a location and of a size that failure or 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 if it has a storage capacity greater than 50 acre-feet; or less than 25 feet in height if it has a storage capacity of 15-50 acre-feet.

Hudson has 15 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). The 2 Class L dams (Low Hazard Potential) are the Village at Barretts Hill Lower Pond and the Ayers Pond Dam on Musquash Brook. There have been no known dam breaches to-date in Hudson.

Previous Occurrences of Flood

Hazard	Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
Flooding – Dam Failure	There have been no flooding events caused by dam failure in Hudson 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. Impact listed here are general to Hillsborough County. Specific impacts to Hudson are unknown.
Flooding	July 11, 1973	Hillsborough County	No data on extent available	FEMA Disaster Declaration #399. Specific impacts to Hudson are unknown.
Flooding	July 29-August 10, 1986	Hillsborough County	No data on extent available	FEMA Disaster Declaration #771. Dupaw Gould bridge and North Mason Road bridge in Brookline washed out. Hundreds of tires floated down Nissitissit River near Bahannon bridge in Brookline. DOT worked with Brookline to rebuild and improve Dupaw Gould bridge. Many roads impassable in Hillsborough

				County.
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 Hudson 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. Series of storms with moderate to heavy rain causing widespread flooding. Impact listed here are general to Hillsborough County. Specific impacts to Hudson are unknown.
Flooding	March 11-21, 1996	Hillsborough County	No data on extent available	Specific impacts to Hudson 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 Hudson 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 Hudson are unknown.
Flooding	October 26, 2005	Hillsborough County	50–100-year recurrence interval	5 counties impacted in NH, including Hillsborough. FEMA Disaster Declaration #1610. Primary impact to structures and infrastructure in Hillsborough County. Specific impacts to Hudson are unknown.
Flooding	May 12-23, 2006	Hillsborough County	As much as 14 inches of rainfall in region. 100–500-year recurrence interval.	7 counties impacted in NH, including Hillsborough. FEMA Disaster Declaration #1643. Numerous road closures in Hillsborough Co. Specific impacts to Hudson are unknown.
Flooding	April 15, 2007	Hillsborough County	100–500-year recurrence interval	\$27,000,000 in damages in NH; 2,005 homeowners and renters applied for assistance in NH. FEMA Disaster Declaration #1695. Primary impact to structures and infrastructure in Hillsborough County. Specific impacts to Hudson are unknown.
Flooding	September 6-7, 2008	Hillsborough County	50–100-year recurrence interval	\$6.90 per capita in damages in Hillsborough County. FEMA Disaster Declaration #1799. Primary impact to structures and infrastructure in Hillsborough County. Specific impacts to Hudson

				are unknown.
Flooding	March 14, 2010	Hillsborough County	50–100-year recurrence interval	\$1,880,685 in FEMA public assistance in NH; \$1.80 per capita in Hillsborough County. FEMA Disaster Declaration #1913 Primary impact to roads and bridges in Hillsborough County. Specific impacts to Hudson are unknown.
There have been no major flooding events in Hillsborough County since 2010.				

Flood Hazard Loss Estimate

Step 1. Determine the percentage of building damage to a 1 or 2-story building with basement.

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

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

- 12 structures located in 1% floodplain.
- 678 structures located in 0.2% floodplain.
- *Source: Nashua Regional Planning Commission GIS*

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

- Average assessed value of all structures in Hudson = \$351,047
- Total number of structures in Hudson located in 1% floodplain = 12
- Total assessed value of all structures in Hudson in 1% floodplain = \$351,047 * 12
- Total assessed value of all structures in Hudson in 1% floodplain = \$4,212,564
- *Source: Hudson Hazard Mitigation Team calculations based on Hudson Assessing data & NRPC GIS data*

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

- Total Loss from Flooding = Total Assessed Value of all Buildings in 1% Floodplain * Percent Building Damage Ratio

- Total Loss from 1-foot flood depth = \$4,212,564 * .15 = **\$631,885**
- Total Loss from 2-foot flood depth = \$4,212,564 * .20 = **\$842,513**
- Total Loss from 3-foot flood depth = \$4,212,564 * .23 = **\$968,890**
- Total Loss from 4-foot flood depth = \$4,212,564 * .28 = **\$1,179,518**

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

- Average assessed value of all structures in Hudson = \$351,047
- Total number of structures in Hudson located in 0.2% floodplain = 678
- Total assessed value of all structures in Hudson in 0.2% floodplain = \$351,047 * 678
- Total assessed value of all structures in Hudson in 0.2% floodplain = \$238,009,866
- *Source: Hudson Hazard Mitigation Team calculations based on Hudson Assessing data & NRPC GIS data*

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

- Total Loss from Flooding = Total Assessed Value of all Buildings in 0.2% Floodplain * Percent Building Damage Ratio
- Total Loss from 1-foot flood depth = \$238,009,866 * .15 = **\$35,701,480**
- Total Loss from 2-foot flood depth = \$238,009,866 * .20 = **\$47,601,973**
- Total Loss from 3-foot flood depth = \$238,009,866 * .23 = **\$54,742,269**
- Total Loss from 4-foot flood depth = \$238,009,866 * .28 = **\$66,642,762**

Critical Facility Type	Total Number of this type of Critical Facilities in Hudson	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	91	8	9%	1	1%
Essential Facilities	17	1	6%	0	0%
Transportation	10	8	80%	1	10%
Utility System	33	1	3%	2	6%
High Potential Hazard	17	4	2%	0	0%
Hazardous Materials	6	1	17%	0	0%

Severe Wind

The Atlantic hurricane season lasts from June 1 through November 30 and peaks in late August and September. The Saffir-Simpson Hurricane Wind Scale categorizes hurricanes from 1 to 5 based on sustained wind speed. The National Weather Service National Hurricane Center provides the following estimates of potential property damage based on hurricane wind speed.⁶

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

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

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

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

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

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

⁶ <http://www.nhc.noaa.gov/aboutsshws.php>

Previous Occurrences of Severe Wind/Tropical Storm

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
Great Hurricane of 1938	Hillsborough County	No data on extent available	\$12,337,643 total damages (not adjusted for inflation), 13 deaths and 494 injuries in NH. Damage to road network and structures caused by flooding.
August 31, 1954 (Carol)	Hillsborough County	Saffir-Simpson Scale Category 3.	Extensive tree and crop damage.
September 12, 1960 (Donna)	Hillsborough County	Saffir-Simpson Scale Category 3	Water damage to structures due to flooding.
September 27, 1985 (Gloria)	Hillsborough County	Saffir-Simpson Scale Category 2	Damage to trees and power lines from high winds.
August 19, 1991 (Bob)	Hillsborough County	Saffir-Simpson Scale Category 1	FEMA Disaster Declaration #917. Damage to structures, trees, and power lines from high winds.
September 16-18, 1999 (Floyd)	Hillsborough County	Tropical Storm (winds 39-73 mph)	FEMA Disaster Declaration #1305. Primary impact to trees, infrastructure, and road network.
February 17-18, 2006	Hillsborough County	No data on extent available	Trees down. Much of Town without power. Emergency Operations Center remained open to provide shelter and food for any of the 649 families without power.
August 28, 2011 (Irene)	Hillsborough County	Tropical Storm (winds 39-73 mph).	FEMA Disaster Declaration #4026. Damage to trees and power lines from high winds. Flash floods.
October 26, 2012 (Sandy)	Hillsborough County	Tropical Storm (winds 39-73 mph).	FEMA Disaster Declaration #4095. Minimal damage.
October 29-November 1, 2017	Hillsborough County	Tropical Storm (winds 39-73 mph).	FEMA Disaster Declaration #4355. A powerful storm

			fed by tropical moisture knocked out power to more than 270,000 homes and business across the state. Parts of the region experienced 2.8 inches of rainfall and widespread power outages. Falling trees severely damaged many homes and electrical infrastructure. Local roads were closed due to downed trees and flash flooding.
August 3-6, 2020 (Isaias)	Hillsborough County	Tropical Storm (winds 39-73 mph).	Tropical storm with extreme wind gusts, flash flooding, high rainfall, tree damage, and power outages.
August 19-27, 2021 (Henri)	Hillsborough County	Tropical Storm (winds 39-73 mph).	Strong tropical storm with flash flooding, high winds, power outages, tree damage, heavy rain between 2 and 4 inches.
There has been no significant damage from tropical-post tropical cyclones (severe wind) in Hudson since 2021.			

Severe Wind Hazard Loss Estimate

There are no standard loss estimation models or tables for wind damage⁷. As such, the Hazard Mitigation Team used data from previous hurricane events to determine damage estimates.

Historically, the strongest hurricane seen in New Hampshire 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 New Hampshire. 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

⁷ *Understanding Your Risks*, FEMA, pg. 4-30

Team used the following calculations to estimate loss to single family residential structures from a hurricane.

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

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

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

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

Step 3. Determine the total assessed value of structures in Hudson.

- Total Assessed Value of all Structures in Hudson = \$3,645,975,712
- *Source: Hudson Assessing Department (June 2024)*

Step 4. Determine total loss from a 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 = \$3,645,975,712 * .05 * .2 = **\$36,459,757**

Critical Facility Type	Total Number of this type of Critical Facilities in Hudson	Number of this type of Critical Facilities in Severe Wind Hazard Area	Percentage of this type of Critical Facilities in Severe Wind Hazard Area
General Occupancy	91	78	86%
Essential Facilities	17	16	94%
Transportation	10	6	60%
Utility System	33	33	100%
High Potential Hazard	17	17	100%
Hazardous Materials	6	6	100%

Lightning & Hail

Lightning

By definition, all thunderstorms contain lightning. Lightning is a giant spark of electricity that occurs within the atmosphere or between the atmosphere and the ground. As lightning passes through the air, it heats the air to a temperature of about 50,000 degrees Fahrenheit, considerably hotter than the surface of the Sun. During a lightning discharge, the sudden heating of the air causes it to expand rapidly. After the discharge, the air contracts quickly as it cools back to ambient temperatures. This rapid expansion and contraction 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 event⁸.

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. Rain 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 not common in Hudson, 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 Hudson.

⁸ <http://www.prh.noaa.gov/hnl/pages/LAL.php>

Previous Occurrences of Lightning & Hail

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
There has been no significant damage from lightning & hail in Hudson to date.			

Lightning 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 the percentage of building damage ratio to single family residence from lightning.

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

Step 2. Determine the percentage of structures in Hudson that would be damaged by lightning.

- 0.25% of structures are estimated to be damaged by lightning.
- *Source: Hudson Hazard Mitigation Team (no historical data on lightning damage in Hudson)*

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

- Total Assessed Value of all Structures in Hudson = \$3,645,975,712
- *Source: Hudson Assessing Department (June 2024)*

Step 4. Determine the total loss from lightning.

- 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 = \$3,645,975,712 * .0025 * .05 = **\$455,747**

Critical Facility Type	Total Number of this type of Critical Facilities in Hudson	Number of this type of Critical Facilities in Lightning Hazard Area	Percentage of this type of Critical Facilities in Lightning Hazard Area
General Occupancy	91	78	86%
Essential Facilities	17	17	100%
Transportation	8	0	0%
Utility System	33	33	100%
High Potential Hazard	17	0	0%
Hazardous Materials	6	0	0%

Severe Winter Weather

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

A blizzard is a violent snowstorm with winds blowing at a minimum speed of 35 miles per hour and visibility of less than one-quarter mile for three hours. A Nor'easter is a large weather system traveling from south to north, passing along the coast. As the storm's intensity increases, the resulting counterclockwise winds impact the coast and inland areas in a Northeasterly direction. Winds from a Nor'easter can meet or exceed hurricane force, knocking down trees, utility poles, and power lines.

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

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

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

Previous Occurrences of Severe Winter Weather

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
March 11-14, 1888	Entire jurisdiction	30-50 inches of snow	No historic data on impact
1922	Entire jurisdiction	No historic data on extent	Extreme snow drifts paralyzed road network.
February 14-15, 1940	Entire jurisdiction	Over 30 inches of snow	Snow and high winds paralyzed road network.
February 14-17, 1958	Entire jurisdiction	20-33 inches of snow	Primary impact to road network.
March 18-21, 1958	Entire jurisdiction	22-24 inches of snow	Primary impact to road network.
March 2-5, 1960	Entire jurisdiction	Up to 25 inches of snow	Primary impact to road network.
January 18-20, 1961	Entire jurisdiction	Up to 25 inches of snow	Blizzard conditions paralyze road network.
February 22-28, 1969	Entire jurisdiction	24-98 inches of snow in Central NH	Primary impact to road network. Slow moving storm.
December 25-28, 1969	Entire jurisdiction	12-18 inches of snow	Primary impact to road network.
January 19-21, 1978	Entire jurisdiction	Up to 16 inches of snow	Primary impact to road network.
February 5-7, 1978 (Blizzard of '78)	Entire jurisdiction	25-33 inches of snow	Snow paralyzed road network, trapped commuters in cars, and forced closure of businesses.
April 5-7, 1982	Entire jurisdiction	18-22 inches of snow	Primary impact to road network.
March, 1983	Entire jurisdiction	Over 18 inches of snow, 30-40 mph winds	Snow paralyzed road network and forced closure of businesses.
December 1996	Entire jurisdiction	14 inches of snow	Damage to power lines forces closure of businesses. Heavy wet snow caused many trees to come down. Power outage for 5 days.
January 7, 1998	Entire jurisdiction	Ice storm, no data on extent available	\$12,446,202 in total damages, 1 death and 6 injuries in NH. \$17,000,000 in damages to PSNH

			equipment. FEMA Disaster Declaration #1199. 20 major road closures; 67,586 without power; 2,310 without phone service; 1 communication tower failure.
January 24, 1998	Entire jurisdiction	No data on extent available	Numerous power lines down.
December 11, 2008	Entire jurisdiction	Ice storm, no data on extent available	\$10,383,602 in FEMA public assistance in NH; \$6.35 per capita in Hillsborough County. FEMA Disaster Declaration #1812 Damage to power and phone lines and trees.
February 23, 2010	Entire jurisdiction	Snow followed by rainfall between 2-6 inches. Winds over 70 mph.	\$6,268,179 in FEMA public assistance in NH; \$3.68 per capita in Hillsborough County. FEMA Disaster Declaration #1892 Damage to power and phone lines, trees, and road network. Over 330,000 customers 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	FEMA Disaster Declaration #4105

		NH. Winds 10-20 mph with gusts up to 40 mph. Visibility less than ¼ mile.	
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.

Severe Winter Weather Hazard Loss Estimate

Severe Winter Weather events have primarily damaged road networks and infrastructure in NH. It is beyond the scope of this project to estimate the costs of repairing or replacing transportation and utility infrastructure damaged by severe winter weather. The Hazard Mitigation Team used the following calculations to estimate loss to single family residential structures from severe winter weather.

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

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

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

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

Step 3. Determine the total assessed value of structures in Hudson.

- Total Assessed Value of all Structures in Hudson = \$3,645,975,712
- *Source: Hudson Assessing Department (June 2024)*

Step 4. Determine the 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 = \$3,645,975,712 * .01 * .05 = **\$1,822,988**

Critical Facility Type	Total Number of this type of Critical Facilities in Hudson	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	91	78	86%
Essential Facilities	17	17	100%
Transportation	10	10	100%
Utility System	33	4	12%
High Potential Hazard	17	17	100%
Hazardous Materials	6	6	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 one mile wide and 50 miles long. Tornadoes are created when cold air overrides warm air, causing the warm air to rise rapidly.

A downburst is a severe localized wind blasting down from a thunderstorm. These 'straight line' winds are distinguishable from tornadic activity by their pattern of destruction and debris. Depending on the size and location of these events, the destruction to property may be devastating. Downbursts fall into two categories. Microbursts cover an area less than 2.5 miles in diameter and macrobursts cover an area at least 2.5 miles in diameter.

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

Previous Occurrences of Tornado/Downburst

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
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,	Fujita Scale F1	0 fatalities, 0 injuries

	originated near Peterborough, NH		
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.	Macrobust	2 fatalities, 2 lost roofs, damage to trees and utility infrastructure
July 24 th , 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.
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Tornado Hazard Loss Estimate

There are no standard loss estimation models or tables for tornados⁹. As such, the Hazard Mitigation Team used data from previous tornado events to determine damage estimates. Historically, the strongest tornado seen in Hillsborough County was an F2, so loss estimates were calculated based on a tornado of that strength.

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

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

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

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

Step 3. Determine the total assessed value of structures in Hudson.

- Total Assessed Value of all Structures in Hudson = \$3,645,975,712
- *Source: Hudson Assessing Department (June 2024)*

Step 4. Determine the 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 = \$3,645,975,712 * .01 * .5 = **\$1,822,988**

Critical Facility Type	Total Number of this type of Critical Facilities in Hudson	Number of this type of Critical Facilities in Tornado Hazard Area	Percentage of this type of Critical Facilities in Tornado Hazard Area
General Occupancy	91	91	100%
Essential Facilities	17	17	100%
Transportation	10	10	100%
Utility System	33	4	12%
High Potential Hazard	17	17	100%
Hazardous Materials	6	6	100%

⁹ *Understanding Your Risks, FEMA, pg. 4-27*

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 stations may pose a higher risk to structures and residents than those located closer to the fire stations.

Previous Occurrences of Wildfire

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
There has been no significant damage from wildfires in Hudson to date.			

Wildfire Hazard Loss Estimate

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

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

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

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

Step 3. Determine the total assessed value of structures in Hudson.

- Total Assessed Value of all Structures in Hudson = \$3,645,975,712
- *Source: Hudson Assessing Department (June 2024)*

Step 4. Determine the 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 = \$3,645,975,712 * .005 * .2 = **\$3,645,976**

Critical Facility Type	Total Number of this type of Critical Facilities in Hudson	Number of this type of Critical Facilities in Wildfire Hazard Area	Percentage of this type of Critical Facilities in Wildfire Hazard Area
General Occupancy	91	91	100%
Essential Facilities	17	17	100%
Transportation	8	0	0%
Utility System	33	0	0%
High Potential Hazard	17	0	0%
Hazardous Materials	6	6	100%

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.¹⁰

- Endemic – Constant presence and/or usual prevalence of a disease or infection agent in a population within a geographic area
- Hyperendemic – The persistent, high levels of disease occurrence
- Cluster – Aggregation of cases grouped in place and time that are suspected to be greater than the number expected even though the expected number may not be known
- Epidemic – An increase, usually sudden, in the number of cases of a disease above what is normally expected
- Outbreak – The same as epidemic, but over a much smaller geographical area
- Pandemic – Epidemic that has spread over several countries or continents, usually affecting many people

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

Incidents may be insidious or obvious, and both have unique impacts. Insidious incidents (such as

¹⁰ <https://www.cdc.gov/ophss/csels/dsepd/ss1978/lesson1/section11.html>

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

The duration of the incident can also cause unique impacts. In a short duration incident, there may be a medical surge at the beginning which tapers off as the incident goes on and may not result in significant disruption to everyday life. However, longer duration incidents may have significant impacts not only for the public health response, but also for business/industry and the economy.¹¹

Previous Occurrences of Infectious Disease

As does the rest of the state, Hudson 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, Hudson had 7,676 Covid-19 cases total (NH DHHS).

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

Infectious Disease Hazard Loss Estimate

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

Section 3.6. Overall Summary of Vulnerability

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

¹¹ State of NH Multi-Hazard Mitigation Plan Update 2018 pg. 110-113

Table 7.1—Overall Summary of Vulnerability by Hazard

Hazard	Types of Critical Facilities Impacted by Hazard	Impact of Hazard	% of Critical Facilities in Hazard Area	% of Structures Estimated to be Damaged	\$ Value of Loss
Climate Change	- General Occupancy - Essential Facilities - Transportation - Utility Systems - High Potential Hazard - Hazardous Materials - Agricultural Land	See Impacts related to Drought, Extreme Temperatures, and Flooding below.	See Critical Facilities calculations for Drought, Extreme Temperatures, and Flooding below.	See damage estimates for Drought, Extreme Temperature, and Flooding below.	Calculating \$ value of losses is beyond the scope of this Plan (see Section 3.5 Climate Change for explanation)
Drought	Agricultural land. Not likely to have a significant impact on structures themselves but can have significant impact on people’s ability to utilize them.	Loss of crops. Inadequate quantity of drinking water—62% of Hudson population on public drinking water, 38% of Hudson population on private well water. Loss of water for fire protection. Increased risk of fire.	General Occupancy = 100% Essential Facilities = 94% Transportation = 0% Utility Systems = 12% High Potential Hazard = 0% Hazardous Materials = 100%	231.8 acres of agricultural land (1% 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	Structural damage or collapse of buildings. Damage or loss of infrastructure, including roads, bridges, railroads,	General Occupancy = 86% Essential Facilities = 100%	1-5%	\$1,677,149 to \$8,385,744

Hazard	Types of Critical Facilities Impacted by Hazard	Impact of Hazard	% of Critical Facilities in Hazard Area	% of Structures Estimated to be Damaged	\$ Value of Loss
	Hazardous Materials	power and phone lines, municipal communications, radio system. Loss of water for fire protection. Risk to life, medical surge.	Transportation = 100% Utility Systems = 100% High Potential Hazard = 100% Hazardous Materials = 100%		
Extreme Temperatures	Not likely to have a significant impact on structures.	Overburdened power networks. Heating fuel shortages. Risk to life from prolonged exposure.	General Occupancy = 100% Essential Facilities = 0% Transportation = 0% Utility Systems = 0% High Potential Hazard = 0% Hazardous Materials = 0%	0%	\$0
Flooding	- General Occupancy - Transportation - High Potential Hazard - Hazardous Materials	Water damage to structures and their contents. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications,	General Occupancy = 9% in 1% annual floodplain; 1% in 0.2% annual floodplain Essential Facilities = 6% in 1% annual	12 structures in 1% floodplain; 678 structures in 0.2% floodplain	Loss in 1% floodplain: 1 foot flood = \$631,885 2-foot flood = \$842,513 3-foot flood = \$968,890

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
		radio system. Environmental hazards resulting from damage. Isolation of neighborhoods resulting from flooding.	floodplain; 0% in 0.2% annual floodplain Transportation = 80% in 1% annual floodplain; 10% in 0.2% annual floodplain Utility Systems = 3% in 1% annual floodplain; 6% in 0.2% annual floodplain High Potential Hazard = 2% in 1% annual floodplain; 0% in 0.2% annual floodplain Hazardous Materials = 17% in 1% annual floodplain; 0% in 0.2% annual floodplain		4-foot flood = \$1,179,518 Loss in 0.2% floodplain: 1 foot flood = \$35,701,480 2-foot flood = \$47,601,973 3-foot flood = \$54,742,269 4-foot flood = \$66,642,762
Severe Wind	- General Occupancy - Essential Facilities - Transportation - Utility Systems - High Potential	Wind damage to structures and trees. Water damage to structures and their contents.	General Occupancy = 86% Essential Facilities = 94%	5%	\$36,459,757

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
	- Hazard - Hazardous Materials	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.	Transportation = 60% Utility Systems = 100% High Potential Hazard = 100% Hazardous Materials = 100%		
Lightning	- General Occupancy - Essential Facilities - Utility System - High Potential Hazard - Hazardous Materials	Smoke and fire damage structures. Disruption to power lines and municipal communications. Damage to critical electronic equipment. Injury or death to people involved in outdoor activity.	General Occupancy = 86% Essential Facilities = 100% Transportation = 0% Utility Systems = 100% High Potential Hazard = 0% Hazardous Materials = 0%	0.5%	\$455,747
Severe Winter Weather	- General Occupancy - Essential Facilities - Transportation	Disruption to road network. Damage to trees and power lines,	General Occupancy = 86% Essential	1%	\$1,822,988

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
	- Utility - High Potential Hazard - Hazardous Materials	communications. Structural damage to roofs/collapse. Increase in CO, other hazards.	Facilities = 100% Transportation = 100% Utility Systems = 12% 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 = 100% Essential Facilities = 100% Transportation = 100% Utility Systems = 12% High Potential Hazard = 100% Hazardous Materials = 100%	1%	\$1,822,988
Wildfire	- General Occupancy - Essential Facilities - Utility System - High Potential	Smoke and fire damage to structures in wild land/urban interface.	General Occupancy = 100% Essential Facilities =	0.5%	\$3,645,976

Hazard	Types of Critical Facilities Impacted by Hazard	Impact of Hazard	% of Critical Facilities in Hazard Area	% of Structures Estimated to be Damaged	\$ Value of Loss
	Hazardous Materials	Damage to habitat. Impacts to air quality. Loss of natural resources.	100% Transportation = 0% Utility Systems = 0% High Potential Hazard = 0% Hazardous Materials = 100%		
Infectious Diseases	- General Occupancy - Essential Facilities	Risk to life, medical surge/overburdened healthcare systems.	General Occupancy = 100% Essential Facilities = 100% Transportation = 0% Utility Systems = 0% High Potential Hazard = 0% Hazardous Materials = 0%	0%	Calculating \$ value of losses is beyond the scope of this Plan (see Section 3.5 Infectious Diseases for explanation)

Table 7.2—Overall Summary of Vulnerability by Facility Type

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

Facility Type	Total # of facilities	# susceptible to Drought	# susceptible to Earthquake	# susceptible to Extreme Temperatures	# susceptible to Flooding	# susceptible to Severe Wind	# susceptible to Lightning	# susceptible to Severe Winter Weather	# susceptible to Tornado/Downburst	# susceptible to Wildfire	# susceptible to Infectious Disease
General Occupancy	91	91	78	91	8 in 1% annual, 1 in 0.2% annual	78	78	78	91	91	91
Essential Facilities	17	16	17	0	1 in 1% annual; 0 in 0.2% annual	16	17	17	17	17	17
Transportation	10	0	10	0	8 in 1% annual; 1 in 0.2% annual	6	0	10	10	0	0
Utility	33	4	33	0	1 in 1% annual; 2 in 0.2% annual	33	33	4	4	0	0
High Hazard	17	0	17	0	4 in 1% annual; 0 in 0.2% annual	17	0	17	17	0	0
Hazardous Materials	6	6	6	0	1 in 1% annual; 0 in 0.2% annual	6	6	6	6	6	0

Section 3.7. National Flood Insurance Program

The Town of Hudson 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). Hudson joined the NFIP on January 3, 1979. The Town's initial Flood Hazard Boundary Map was identified on March 8, 1974, and its initial Flood Insurance Rate Map was identified on January 3, 1979. The current effective map date is April 18, 2011.

Hudson has 52 NFIP policies in force and \$13,267,800 of insurance in force. There have been 6 paid losses totaling \$78,869. Hudson has 4 repetitive loss properties with total repetitive loss payments of \$63,191. All repetitive loss structures in Hudson have been single family residential.

As a participant in the NFIP, communities must agree to adopt a floodplain management ordinance and enforce the regulations found in the ordinance. Hudson has adopted the "[Flood Damage Prevention Ordinance](#)," Chapter 218 of the Town of Hudson, [NH Town Code Book](#), and adopted by reference in Article XVI of the Town of Hudson, NH Zoning Ordinance. The Flood Damage Prevention Ordinance is enacted to prevent the development of buildings and uses in areas that are unsatisfactory and hazardous due to the threat of flooding, protect natural flows and drainage, and comply with the requirements of the National Flood Insurance Act of 1968 (P.L. 90-488, as amended). All lands designated as special flood hazard areas by the Federal Emergency Management Agency (FEMA) in its "Flood Insurance Study for the County of Hillsborough, NH" dated September 25, 2009, together with the associated Flood Insurance Rate Maps dated September 25, 2009, are declared to be part of the Hudson Flood Plain ordinance.

The Floodplain Administrator Hudson 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.

To demonstrate Hudson’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 9—Mitigation Actions.

Table 8—National Flood Insurance Program Mitigation Actions

National Flood Insurance Program Mitigation Actions			
Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
Distribute and/or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.	• Public Information	• Flooding	• General Occupancy
Identify and become knowledgeable of non-compliant structures in the community	• Prevention • Property protection • Structural	• Flooding	• General Occupancy

CHAPTER 4. MITIGATION STRATEGY

Section 4.1. Mitigation Actions

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

Table 9—2025 Mitigation Actions

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
MITIGATION ACTIONS FROM 2018 PLAN			
Review and update Building Codes, Floodplain Ordinance, and Zoning Regulations. Proactively enforce the International Building Code (IBC) and International Residential Code (IRC) to protect buildings and infrastructure from the impacts of earthquakes, flooding, severe wind, severe winter weather, and tornadoes.	• Prevention • Property Protection	• Earthquake • Flooding • Severe Wind • Severe Winter Weather • Tornado	• General Occupancy • Essential Facilities • Hazardous Materials
Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquakes, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornadoes, wildfire, and carbon monoxide risks. Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls. Utilize Old Home Day, Code Red, community access TV, and posters in Town Hall to disseminate information. Also consider hosting a hazard mitigation educational event each year for residents.	• Public Information • Prevention • Natural Resource Protection	• Drought • Earthquake • Extreme Temperatures • Flooding • Lightning & Hail • Severe Wind • Severe Winter Weather • Tornado • Wildfire	• General Occupancy • Human Lives
NATIONAL FLOOD INSURANCE PROGRAM MITIGATION ACTIONS			
Distribute and/or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.	• Public Information	• Flooding	• General Occupancy
Identify and become knowledgeable of non-compliant structures in the community	• Prevention • Property protection • Structural	• Flooding	• General Occupancy
ADDITIONAL MITIGATION ACTIONS			
Improve water infrastructure inventory and management database to better inform the Town of water supply and conservation needs.	• Public Information • Natural Resource Protection	• Drought	• General Occupancy • Essential Facilities
Incorporate structural and non-structural seismic strengthening actions into ongoing plans and	• Prevention • Structural	• Earthquake	• General Occupancy

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
activities in the capital improvements plan, along with permit reviews for commercial and residential buildings to mitigate structural damage from Earthquakes.			• Essential Facilities • Hazardous Materials
Increase tree plantings around new buildings to create shaded areas and parking lots.	• Prevention	• Extreme Temperatures	• General Occupancy
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 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.	• Prevention	• Extreme Temperatures • Severe Winter Weather	• Human Lives
Create a policy requiring the installation of lightning protection and surge protection devices on all new communications infrastructure.	• Prevention • Property Protection	• Lightning & Hail	• Essential Facilities
Limit the use of aerial extensions to water, sewer, and gas lines to reduce vulnerability to severe wind.	• Prevention • Property Protection	• Severe Wind • Tornado	• General Occupancy • Essential Facilities
Retrofit all public municipal buildings to withstand snow loads and prevent roof collapse.	• Prevention • Structural	• Severe Winter Weather	• Essential Facilities
Perform arson prevention cleanup activities in areas of abandoned or collapsed structures, accumulated trash or debris, and with a history of storing flammable materials where spills or dumping may have occurred.	• Prevention • Property Protection	• Wildfire	• General Occupancy • Essential Facilities
The Emergency Management Director will work to establish and implement municipal infectious disease standard operating guidelines, as well as update the PPE point of distribution plan to reduce the hazard of spreading infectious diseases.	• Prevention • Public Information	• Infectious Diseases	• General Occupancy • Essential Facilities • Human Lives

Section 4.2. Prioritizing Mitigation Actions

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

Table 10—Benefit Cost Review

Mitigation Action	Likely Benefits	Likely Costs
Review and update Building Codes, Floodplain Ordinance, and Zoning Regulations to support hardened infrastructure and development as time and budget allows. 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.	• 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. • \$0 additional costs, percentage of existing Inspectional Services budget
Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquakes, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornadoes, wildfire, and carbon monoxide risks. Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls. Utilize Old Home Day, Code Red, community access TV, and posters in Town Hall to disseminate information. Also consider hosting a hazard mitigation educational event each year for residents.	• 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 Emergency Management budget.
Distribute and/or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.	• Educate residents, builders, and other professionals about NFIP. • Reduce property loss costs associated with flooding	• Minimal, part of normal town operations • \$0 additional costs, percentage of existing Inspectional Services budget
Identify and become knowledgeable of non-compliant structures in the community	• This action would be most beneficial to residents in flood-prone areas of Town. • This action has the potential to reduce flood related structural damage and	• Some individuals may view these building standards as an economic hardship. • Additional responsibility for building inspector. • \$0 additional costs,

Mitigation Action	Likely Benefits	Likely Costs
	economic losses.	percentage of existing Inspectional Services budget
Improve water infrastructure inventory and management database to better inform the Town of water supply and conservation needs.	- This action is beneficial to residents utilizing town water. - This action has the potential to improve water efficiency and conservation	- Cost approximately \$20,000 - There is grant funding available for this action.
Incorporate structural and non-structural seismic strengthening actions into ongoing plans and activities in the capital improvements plan, along with permit reviews for commercial and residential buildings to mitigate structural damage from Earthquakes.	- Preventative - Beneficial to densely populated areas or buildings with large populations present.	Cost varies by plan/activity. Permit reviews are part of the existing Inspectional Services budget.
Increase tree plantings around new buildings to create shaded areas and parking lots.	- The town currently has the capacity to implement this action. - Reduces “heat island” effect - Beneficial to vulnerable populations during the hotter months.	\$0 in additional costs, part of existing Planning budget and expense of plantings will fall on developers.
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 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.	- The town currently has the capacity to implement this action. - Prevent loss of human life.	- This action may have limited impact as it would be conducted on a voluntary basis. \$0 in additional costs. Part of existing Emergency Management budget.
Create a policy requiring the installation of lightning protection and surge protection devices on all new communications infrastructure.	- The town currently has the capacity to implement this action. - Reduced inconvenience and loss associated with a shutdown of critical facilities due to lightning damage	\$0 in additional cost, part of existing buildings/maintenance budget.
Limit the use of aerial extensions to water, sewer, and gas lines to	This action would reduce the risk of infrastructure damage	Could be more costly to create a work around to

Mitigation Action	Likely Benefits	Likely Costs
reduce vulnerability to severe wind.	- during severe wind events. - Reduced inconvenience and loss associated with impaired infrastructure.	direct aerial extensions
Retrofit all public buildings to withstand snow loads and prevent roof collapse.	- Prevent loss of human life - This action is beneficial in the maintenance and improvement of municipal buildings - Reduce property loss costs associated with severe winter weather	- Costs vary based on building needs. - Costs can be planned using the Capital Improvements Plan
Perform arson prevention cleanup activities in areas of abandoned or collapsed structures, accumulated trash or debris, and with a history of storing flammable materials where spills or dumping may have occurred.	- This action would result in reduced firefighting 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. - Increases Public Works workload \$0 additional costs, Percentage of existing Public Works Department budget appropriation (<i>source: Hudson Town Budget</i>)
The Emergency Management Director will work to establish and implement municipal infectious disease standard operating guidelines, as well as update the PPE point of distribution plan to reduce the hazard of spreading infectious diseases.	- This action would benefit the entire Town and particularly the most at risk and needy populations. - This action has broad social benefits for the community.	\$0 additional costs, percentage of Emergency Management budget

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

- Social— Will the action unfairly affect any one segment of the population? Will it disrupt established neighborhoods? Is it compatible with present and future community values? Will it adversely affect cultural resources?
- Technical—How effective is the action in avoiding or reducing future losses? Will it create more problems than it solves? What are some secondary impacts? Does it solve a problem or only a symptom?
- Administrative— Does the community have the capability to implement the action? Can the community provide the necessary maintenance? Can it be accomplished in a timely manner?

- Political— Is there public support both to implement and maintain the action? Is the political leadership willing to support it? Does it present a financial burden to stakeholders?
- Legal— Does the community have the authority to implement the action? Is enabling legislation necessary? What are the legal side effects? Will the community be liable for the actions, support of actions, or lack of actions?
- Economic— What are the costs of this action? How will the costs be borne? Are state/federal grant programs applicable? Does the action fit into existing capital improvements or economic development budgets?
- Environmental— How will this action affect the environment? Does it comply with local, state, and federal environmental regulations? Is it consistent with community environmental goals? Are endangered or threatened species likely to be affected?

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

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

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

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

Table 11—STAPLEE Analysis

Mitigation Action: 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 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.			
Criteria	Evaluation	Cost	Benefit
Social	This is a voluntary program, so it would not affect any one segment of the population. Helping vulnerable populations is compatible with community values.	0	3
Technical	This action is only effective at avoiding or reducing future losses if residents voluntarily participate in it.	0	3
Administrative (including responsible party)	The Town has the capability to implement this action if information is voluntarily provided by residents. The Hudson Emergency Management Director is responsible for implementing this action.	0	2
Political	There is political support for this action.	0	3
Legal	The Town has the authority to implement this action and no enabling legislation is necessary. Participation in this program is entirely voluntary.	0	2
Economic (including direct cost)	This action would cost roughly \$750 annually. It is consistent with normal town operations and does not impose additional economic costs.	0	2
Environmental	This action would not impact the environment.	0	0
Subtotal		0	15
Total			15
Priority			1

Mitigation Action: Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquakes, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornadoes, wildfire, and carbon monoxide risks. Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls. Utilize Old Home Day, Code Red, community access TV, and posters in Town Hall to disseminate information. Also consider hosting a hazard mitigation educational event each year for residents.

Criteria	Evaluation	Cost	Benefit
Social	This action does not unfairly affect any one segment of the population. It is available to all Hudson residents, provided that a variety of distribution methods are utilized.	0	2
Technical	There is a high likelihood that at least one of the hazards addressed through this action will occur. This action would help to decrease risk and avoid future loss, but only if residents take personal action as a result of this educational campaign.	-2	3
Administrative (including responsible party)	Hudson has the capability to implement this action and it could be accomplished in a very timely manner. This action would be the responsibility of the Hudson Emergency Management Director.	0	3
Political	There is public support to implement and maintain this action.	0	2
Legal	Hudson has the legal authority to implement this action.	0	3
Economic (including direct cost)	There is \$0 in additional costs to implement this action. It is part of the existing Emergency Management budget.	0	3
Environmental	This action has the potential to reduce property damage and subsequent environmental impacts.	0	1
Subtotal		-2	17
Total			15
Priority			2

Mitigation Action: Distribute and/or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.			
Criteria	Evaluation	Cost	Benefit
Social	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	2
Technical	This action would help to avoid or reduce future losses. It has more potential to solve symptoms related to flooding than the underlying problem itself. It would not create additional problems or cause secondary impacts.	0	3
Administrative (including responsible party)	Hudson has the capability to implement this action. The Inspectional Services department would be responsible for it. It can be accomplished in a timely manner.	0	3
Political	There is public support to implement and maintain this action. The political leadership is also willing to support it.	0	2
Legal	Hudson has the legal authority to implement this action. The Town's role is only to provide and distribute the materials, not to make actual insurance determinations.	0	2
Economic (including direct cost)	This action is consistent with normal town operations and does not impose additional economic costs. It takes roughly 60 hours of staff time per year to implement (approximately \$2,400) and would come out of the Inspectional Services department budget.	-1	2
Environmental	This action has the potential to reduce property damage and subsequent environmental impacts only if the recommendations in the literature are implemented.	0	1
Subtotal		-1	15
Total			14
Priority			3

Mitigation Action: The Emergency Management Director will work to establish and implement municipal infectious disease standard operating guidelines, as well as update the PPE point of distribution plan to reduce the hazard of spreading infectious diseases.			
Criteria	Evaluation	Cost	Benefit
Social	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	2
Technical	This action would help to avoid or reduce future losses. It has more potential to solve symptoms related to infectious disease than the underlying problem itself. It would not create additional problems or cause secondary impacts.	0	2
Administrative (including responsible party)	Hudson has the capability to implement this action. The Hudson Emergency Management Director would be responsible for it.	0	2
Political	There is public support to implement and maintain this action, especially since the recent Covid-19 pandemic. The political leadership is also willing to support it.	0	3
Legal	Hudson has the legal authority to implement this action.	0	2
Economic (including direct cost)	This action is consistent with normal town operations and does not impose additional economic costs.	0	2
Environmental	This action will not impact the environment.	0	0
Subtotal		0	13
Total			13
Priority			4

Mitigation Action: Review and update Building Codes, Floodplain Ordinance, and Zoning Regulations to support hardened infrastructure and development as time and budget allows. 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
Social	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	2
Technical	This action is effective at avoiding and reducing future losses and it mitigates the impacts of these hazards.	0	3
Administrative (including responsible party)	Hudson has the capability to implement this action. Responsibility would fall under the Hudson Planning Department and Inspectional Services department.	0	2
Political	There is public support for this action. Concerns may exist among some property owners who would be directly impacted.	0	1
Legal	There are no legal issues related to this action.	0	2
Economic (including direct cost)	It would cost roughly \$10,000 to update ordinances, regulations, and the Master Plan. However, this expenditure would simultaneously accomplish a number of similar mitigation actions.	-3	3
Environmental	This action has the potential to reduce property damage and subsequent environmental impacts.	0	2
Subtotal		-3	15
Total			12
Priority			5

Mitigation Action: Create a policy requiring the installation of lightning protection and surge protection devices on all new communications infrastructure.			
Criteria	Evaluation	Cost	Benefit
Social	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	1
Technical	This action is effective in avoiding or reducing future losses. It would not create more problems than it solves. It would improve safety for municipal staff and reduce the inconvenience from a shutdown of critical facilities resulting from power outages. However, incidents related to lightning are very rare in Hudson.	0	3
Administrative (including responsible party)	Hudson has the capacity to implement this action. Each critical facility department head is responsible for implementing the installation of lightning protection devices. A private developer will be responsible for creating the additional emergency access as a condition of approval for a development project.	0	1
Political	There is political support to implement and maintain this action.	0	2
Legal	Hudson has the authority to implement this action.	0	2
Economic (including direct cost)	Creating the policy would not incur additional costs.	0	
Environmental	This action would not impact the environment.	0	2
Subtotal		0	11
Total			11
Priority			6

Mitigation Action: Retrofit all public municipal buildings to withstand snow loads and prevent roof collapse.			
Criteria	Evaluation	Cost	Benefit
Social	This action does not unfairly impact any segment of the population, and it is compatible with present and future community values of preserving community character.	0	3
Technical	Hudson has the capacity to implement this action. Projects can be incorporated into regular building maintenance and improvement.	0	2
Administrative (including responsible party)	The Engineering Department and Town Engineer specifically would be responsible for identifying and planning projects.	0	1
Political	There is public and political support for this action.	0	2
Legal	Hudson has the authority to implement this action.	0	1
Economic (including direct cost)	Costs will vary depending on each building. This action will most likely be funded through taxpayer money and the capital improvements plan, however there may be some grants available for historical buildings or areas of municipal importance.	-2	3
Environmental	This action would not impact the environment.	0	0
Subtotal		-2	12
Total			10
Priority			7

Mitigation Action: Increase tree plantings around new buildings to create shaded areas and parking lots.			
Criteria	Evaluation	Cost	Benefit
Social	This action does not unfairly impact any segment of the population, and it is compatible with present and future community values. Vulnerable populations could benefit from added shade areas during months of extreme temperatures.	0	1
Technical	This action would help reduce impacts to vulnerable populations. It has more potential to solve symptoms related to extreme temperatures than the underlying problem itself. It would not create additional problems or cause secondary impacts.	0	0
Administrative (including responsible party)	Hudson has the capability to implement this action. This regulatory change would fall under the Planning Board duties, but would add to the existing workload.	-1	3
Political	There is public and political support for this action.	0	2
Legal	Hudson has the authority to implement this action.	0	0
Economic (including direct cost)	This would not create any additional costs for the Town. The expense of additional plantings.	0	2
Environmental	This action would positively impact the environment by reducing the heat island effect and break up large stretches of impervious surfaces.	0	2
Subtotal		-1	10
Total			9
Priority			8

Mitigation Action: Improve water infrastructure inventory and management database to better inform the Town of water supply and conservation needs.			
Criteria	Evaluation	Cost	Benefit
Social	There are no known social issues associated with this action.	0	0
Technical	This action would improve efficiency and conservation of the water systems in Hudson. 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	3
Administrative (including responsible party)	Hudson has the authority to implement this action. The Town Engineer will oversee this project.	0	2
Political	Hudson still has a blend of public and private wells, so those with private wells will not necessarily benefit directly from this action.	0	2
Legal	There are no legal issues associated with this action.	0	0
Economic (including direct cost)	This action was quoted at about \$20,000. There are grants available to fund it.	-3	3
Environmental	This action is environmentally beneficial once in place.	0	1
Subtotal		-3	11
Total			8
Priority			9

Mitigation Action: Limit the use of aerial extensions to water, sewer, and gas lines to reduce vulnerability to severe wind.			
Criteria	Evaluation	Cost	Benefit
Social	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	2
Technical	This action is effective in avoiding or reducing future losses. It would not create more problems than it solves. It would reduce the inconvenience from a shutdown of critical facilities resulting from power or utility outages.	0	2
Administrative (including responsible party)	Hudson has the capability to implement and maintain this action. The Town Engineer will be the lead responsible party.	0	2
Political	There is public support to implement this action.	0	2
Legal	Hudson has the legal authority to implement this action.	0	2
Economic (including direct cost)	This action could lead to additional costs to establish a work-around to a direct aerial connection.	-2	
Environmental	This action could impact the environment if utilities are buried.	-1	0
Subtotal		-3	10
Total			7
Priority			10

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

Mitigation Action: Perform arson prevention cleanup activities in areas of abandoned or collapsed structures, accumulated trash or debris, and with a history of storing flammable materials where spills or dumping may have occurred.			
Criteria	Evaluation	Cost	Benefit
Social	This action does not unfairly impact any segment of the population, and it is compatible with present and future community values. It is most valuable to portions of town near wooded areas.	0	1
Technical	This action helps to avoid or reduce future losses. It has the potential to solve the underlying problem of wildfires by removing the fuel source. It will not create additional problems or cause secondary impacts.	0	2
Administrative (including responsible party)	Hudson has the capability to implement this action, although it poses an additional burden on the Public Works department.	-1	1
Political	There is public and political support for this action.	0	1
Legal	Hudson has the legal authority to implement this action.	0	1
Economic (including direct cost)	The benefits of reduced fire-fighting costs and potential decrease in property damage could exceed the costs of implementing this action. At the same time, large scale wildfires are relatively rare in Hudson and therefore the costs of implementing this action may outweigh the benefits. It is part of the existing Public Works department.	-1	1
Environmental	Fire is a natural part of the ecosystem and suppressing it may have negative consequences. On the other hand, large-scale, man-made fires can have a detrimental impact on the environment	0	0
Subtotal		-2	7
Total			5
Priority			12

Mitigation Action: Incorporate structural and non-structural seismic strengthening actions into ongoing plans and activities in the capital improvements plan, along with permit reviews for commercial and residential buildings to mitigate structural damage from Earthquakes.			
Criteria	Evaluation	Cost	Benefit
Social	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	1
Technical	This action helps to avoid or reduce future losses, however damage from earthquakes in Hudson is rare.	-1	2
Administrative (including responsible party)	Hudson has the capability to enact this requirement. The Engineering and Inspectional Services Department will be responsible for this action.	0	1
Political	There is no opposition to this action.	0	0
Legal	Hudson has the legal authority to implement this action.	0	0
Economic (including direct cost)	Taxpayer cost will vary depending on action to be incorporated in the capital improvements plan. However permit reviews are an existing function of the Engineering Department and Inspectional Services, so this aspect would not generate any additional expense.	-1	2
Environmental	This action would not impact the environment.	-2	6
Subtotal			4
Total			4
Priority			13

Section 4.3. Implementing and Administering Mitigation Actions

The Town of Hudson has integrated its 2018 Hazard Mitigation Plan into a variety of other planning mechanisms, including the Hudson Emergency Response Plan and Hudson Master Plan. In addition, the Town of Hudson has incorporated and will continue to integrate requirements of the Hudson Hazard Mitigation Plan Update 2025 into other planning mechanisms and actions, such as mutual aid agreements for Public Works and drought mitigation measures.

Updates to Hudson's Capital Improvement Plan will include any applicable mitigation projects identified in the Hazard Mitigation Plan, such as bridge improvements. The next update to the Town's Master Plan will also incorporate elements of the Hazard Mitigation Plan where applicable.

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

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

Table 12—Implementation and Administration

Priority	Mitigation Action	Responsible Party	Cost & Funding	Timeframe
1	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 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.	Emergency Management Director	Cost = \$750 Funding Source = Emergency Management Budget	Short Term
2	Distribute Community Hazards Guides and conduct outreach and education programs to increase awareness of drought, earthquakes, extreme temperatures, flooding, lightning, severe wind, severe winter weather, tornadoes, wildfire, and carbon monoxide risks. Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls. Utilize Old Home Day, Code Red, community access TV, and posters in Town Hall to disseminate information. Also consider hosting a hazard mitigation educational event each year for residents.	Emergency Management Director	Cost = \$0 additional costs Funding Source = Emergency Management Budget	Short Term

Priority	Mitigation Action	Responsible Party	Cost & Funding	Timeframe
3	Distribute and/or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.	Inspectional Services Department	Cost = \$2,400 Funding Source = Inspectional Services Budget	Short Term
4	The Emergency Management Director will work to establish and implement municipal infectious disease standard operating guidelines, as well as update the PPE point of distribution plan to reduce the hazard of spreading infectious diseases.	Emergency Management Department	Cost = \$0 additional Funding Source = Emergency Management budget	Short Term
5	Review and update Building Codes, Floodplain Ordinance, and Zoning Regulations to support hardened infrastructure and development as time and budget allows. 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.	Planning Department/Inspectional Services Department	Cost = \$10,000 Funding Source = Planning Board/ Inspectional Services budgets, various grants	Short Term
6	Create a policy requiring the installation of lightning protection and surge protection devices on all new communications infrastructure.	All Department Heads	Cost = \$0 additional costs Funding Source = Hudson General Operating Fund/Buildings appropriation	Short Term
7	Retrofit all public municipal buildings to withstand snow loads and prevent roof collapse.	Engineering Department/Town Engineer	Cost = Varies Funding Source: = Large projects will be placed on CIP, other projects - Hudson General Operating Fund/Buildings appropriation	Medium Term
8	Increase tree plantings around new buildings to create shaded areas and parking lots.	Planning Department	Cost = \$0 additional costs Funding Source: Planning	Long Term

Priority	Mitigation Action	Responsible Party	Cost & Funding	Timeframe
			Board budget	
9	Improve water infrastructure inventory and management database to better inform the Town of water supply and conservation needs.	Engineering Department/Town Engineer	Cost = \$20,000 Funding Source = Water Fund Operating Budget, grants	Short Term
10	Limit the use of aerial extensions to water, sewer, and gas lines to reduce vulnerability to severe wind.	Engineering Department/Town Engineer	Cost = \$0 additional costs Funding Source = Engineering Department budget	Short Term
11	Identify and become knowledgeable of non-compliant structures in the community.	Inspectional Services/Emergency Management Director	Cost = \$0 additional costs Funding Source = Emergency Management/Inspectional Services/Assessing Department budgets	Short Term
12	Perform arson prevention cleanup activities in areas of abandoned or collapsed structures, accumulated trash or debris, and with a history of storing flammable materials where spills or dumping may have occurred.	Public Works Department	Cost = \$0 additional costs Funding Source = Public Works Department budget	Short Term
13	Incorporate structural and non-structural seismic strengthening actions into ongoing plans and activities in the capital improvements plan, along with permit reviews for commercial and residential buildings to mitigate structural damage from Earthquakes.	Engineering Department/Inspectional Services	Cost = Varies Funding Source = Capital Improvements Plan	

CHAPTER 5. PLAN ADOPTION

Section 5.1. Formal Adoption by Governing Body

CERTIFICATE OF ADOPTION

TOWN OF HUDSON, NH BOARD OF SELECMEN

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

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

WHEREAS, public and committee meetings were held between June 4, 2024 and June 25, 2024 regarding the development and review of the Hazard Mitigation Plan Update 2025; and

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

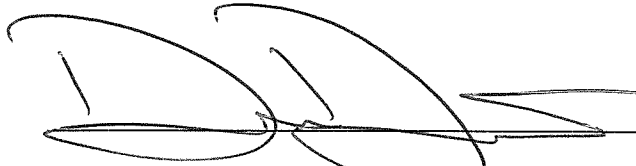
WHEREAS, the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural hazards that impact the Town of Hudson, with the effect of protecting people and property from loss associated with those hazards; and

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

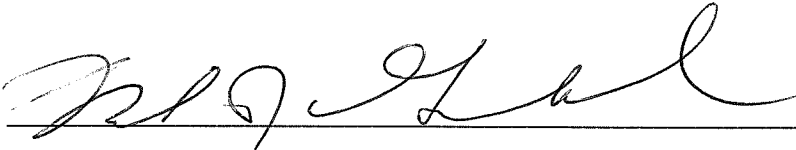
RESOLVED by the Hudson Board of Selectmen:

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

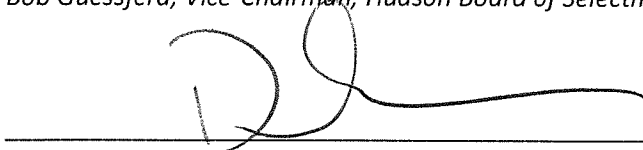
Adopted on this day, the 27th of MAY, 2025.



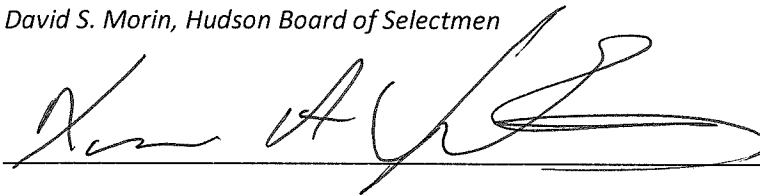
Dillon Dumont, Chairman, Hudson Board of Selectmen



Bob Guessferd, Vice-Chairman, Hudson Board of Selectmen



David S. Morin, Hudson Board of Selectmen

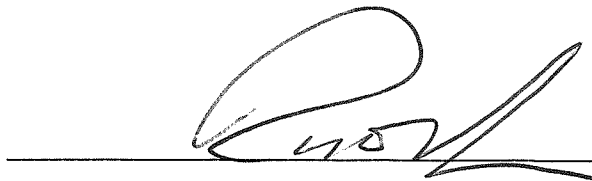


Xen Vurgaropoulos, Hudson Board of Selectmen



Heidi Jakoby, Hudson Board of Selectmen

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the
Town of Hudson the 27th of MAY, 2025.



Witness

Section 5.2. FEMA Approval Letter



FEMA

May 30, 2025

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

Director Buxton:

The U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region 1 Mitigation Division has approved the *Town of Hudson, New Hampshire Hazard Mitigation Plan Update 2025* effective **May 30, 2025** through **May 29, 2030** in accordance with the planning requirements of the Robert T. Stafford Relief and Emergency Assistance Act (Stafford Act), as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; and Title 44 Code of Federal Regulations (CFR) Part 201.

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

With this plan approval, the Town of Hudson, 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.

Robert M. Buxton, Director
Page 2

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 joshiah.neiderbach@fema.dhs.gov.

Sincerely,

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

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

Town of Hudson, New Hampshire

Hazard Mitigation Plan Update 2024

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



**Hudson Hazard Mitigation Plan Update 2024
Meeting 1
June 4, 2024 | 3:00pmam | Zoom Meeting**

Agenda

1. Review the planning process.
2. Determine who to notify about the planning process.
3. Determine how to involve members of the public in the planning process.
4. Determine what existing plans, documents, and reports to review and incorporate into the update.
5. Determine changes in development and land use since last plan that impact hazard mitigation.
6. Determine Hudson's existing capabilities in the following areas and its ability to expand and improve on these:
 - a. Planning and Regulatory Authority
 - b. Emergency Management
 - c. Floodplain Management
 - d. Administrative and Technical
 - e. Fiscal
7. Discuss homework and set next meeting date.

Join Zoom Meeting

<https://nashuarpc.zoom.us/j/84176048565>

Meeting ID: 841 7604 8565

One tap mobile

+13126266799,,84176048565# US (Chicago)

+16469313860,,84176048565# US

Dial by your location

- +1 312 626 6799 US (Chicago)
- +1 646 931 3860 US
- +1 929 205 6099 US (New York)
- +1 301 715 8592 US (Washington DC)
- +1 305 224 1968 US
- +1 309 205 3325 US
- +1 669 444 9171 US
- +1 669 900 6833 US (San Jose)
- +1 689 278 1000 US
- +1 719 359 4580 US
- +1 253 205 0468 US
- +1 253 215 8782 US (Tacoma)
- +1 346 248 7799 US (Houston)
- +1 360 209 5623 US
- +1 386 347 5053 US
- +1 507 473 4847 US
- +1 564 217 2000 US

Meeting ID: 841 7604 8565

Find your local number: <https://nashuarpc.zoom.us/j/kdmbRtao72>

meeting 1

Hudson Hazard Mitigation Meeting ~ June 4, 2024

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**Hudson Hazard Mitigation Plan Update 2024
Meeting 2
June 11, 2024 | 8:00am | Zoom**

Agenda

1. Table 3—Natural Hazards in Jurisdiction
2. Table 4—Previous Occurrences of Hazards
3. Table 5—Probability of Future Hazard Events
4. Table 6—Critical Facilities and their Vulnerabilities
5. Section 3.5—Vulnerability by Hazard
6. Discuss homework and set next meeting date.

Join Zoom Meeting

<https://nashuarpc.zoom.us/j/83517591593>

Meeting ID: 835 1759 1593

One tap mobile

+13052241968,,83517591593# US

+13092053325,,83517591593# US

Dial by your location

- +1 305 224 1968 US
- +1 309 205 3325 US
- +1 312 626 6799 US (Chicago)
- +1 646 931 3860 US
- +1 929 205 6099 US (New York)
- +1 301 715 8592 US (Washington DC)
- +1 386 347 5053 US
- +1 507 473 4847 US
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- +1 689 278 1000 US
- +1 719 359 4580 US
- +1 253 205 0468 US
- +1 253 215 8782 US (Tacoma)
- +1 346 248 7799 US (Houston)
- +1 360 209 5623 US

Meeting ID: 835 1759 1593

Find your local number: <https://nashuarpc.zoom.us/u/kbm0YfJKda>

Hudson Hazard Mitigation Meeting ~ June 11, 2024

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**Hudson Hazard Mitigation Plan Update 2024
Meeting 3
June 18, 2024 | 2:00pm | Zoom**

Agenda

1. Complete Table 1—Status of Previous Actions (Section 2.2)
2. Select at least 2 NFIP mitigation actions (Section 3.7 and 4.2)
3. Select at least 1 mitigation action per hazard (Section 4.2)
4. Homework and next meeting date

Join Zoom Meeting

<https://nashuarpc.zoom.us/j/88022569113>

Meeting ID: 880 2256 9113

One tap mobile

+13126266799,,88022569113# US (Chicago)

+16469313860,,88022569113# US

Dial by your location

- +1 312 626 6799 US (Chicago)
- +1 646 931 3860 US
- +1 929 205 6099 US (New York)
- +1 301 715 8592 US (Washington DC)
- +1 305 224 1968 US
- +1 309 205 3325 US
- +1 507 473 4847 US
- +1 564 217 2000 US
- +1 669 444 9171 US
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- +1 719 359 4580 US
- +1 253 205 0468 US
- +1 253 215 8782 US (Tacoma)
- +1 346 248 7799 US (Houston)
- +1 360 209 5623 US
- +1 386 347 5053 US

Meeting ID: 880 2256 9113

Find your local number: <https://nashuarpc.zoom.us/u/kCFrIUd2J>

meeting 3

Hudson Hazard Mitigation Meeting ~ June 18, 2024

Name	Title	Agency	Email
David Hebert	Fire Marshal		Town of Hudson
James Paquette	Fire Dep. Chief		Town of Hudson
Emma Rearick	Regional Planner		MRPC
Nicolle Terenceau	Com. Stakeholder		MTH HSEM
Jason Twardosky	Public Works Dir.		Town of Hudson
Scott Tice	Fire Chief/Emd		Town of Hudson
Ted Dionne	Police Chief		Town of Hudson
Chris Sullivan	Zoning Admin		Town of Hudson
Elvis Dhima	Town Engineer		Town of Hudson
Ben Grader	Associate Planner		Town of Hudson



Hudson Hazard Mitigation Plan Update 2024
Meeting 4
June 25, 2024 | 9:00am | Zoom

Agenda

1. Complete Table 11—STAPLEE Analysis
2. Determine how elements of Hazard Mitigation Plan will be incorporated into other planning documents and initiatives (*Section 4.4*)
3. Determine method and schedule for keeping plan current after update (*Section 1.6*)
4. Determine how public will continue being involved in plan maintenance (*Section 1.6*)

Join Zoom Meeting

<https://nashuarpc.zoom.us/j/89322379856>

Meeting ID: 893 2237 9856

One tap mobile

+16469313860,,89322379856# US

+19292056099,,89322379856# US (New York)

Dial by your location

- +1 646 931 3860 US
- +1 929 205 6099 US (New York)
- +1 301 715 8592 US (Washington DC)
- +1 305 224 1968 US
- +1 309 205 3325 US
- +1 312 626 6799 US (Chicago)
- +1 507 473 4847 US
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- +1 253 205 0468 US
- +1 253 215 8782 US (Tacoma)
- +1 346 248 7799 US (Houston)
- +1 360 209 5623 US
- +1 386 347 5053 US

Meeting ID: 893 2237 9856

Find your local number: <https://nashuarpc.zoom.us/j/kdr5zNA7UE>

Hudson Hazard Mitigation Plan Update - June 25, 2024

Name	Title	Agency	Email
Ben Graderert	Associate Planner	Town of Hudson	
Dave Hebert	Fire Marshal	Town of Hudson	
Elvis Dhima	Town Engineer	Town of Hudson	
Jason Twardosky	Public Works Director	Town of Hudson	
Nicole Zerendow	Community Stakeholder ^{Erason}	HSZM	
Tad Dionne	Police Dept. Chief	Town of Hudson	
Scott Tice	Fire Chief / EMD	Town of Hudson	
Scott Lambertson		HSZM	
Chris Sullivan	Zoning Admin	Town of Hudson	

Notification Letter



June 4, 2024

Hudson, NH Hazard Mitigation Plan Update

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

You can stay informed by visiting the Hudson Hazard Mitigation Plan Update website at https://nashuarpc.org/energy_environment/hazard_mitigation_planning.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

A handwritten signature in blue ink that reads "Cassie Cashin".

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



Hazard Mitigation Plan Update Website Screen Shot

Hudson Hazard Mitigation Plan Update 2024

PAGE MENU

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

HOME > ABOUT NRPC > OUR REGION & COMMUNITIES > HUDSON HAZARD MITIGATION PLAN UPDATE 2024

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

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

Steering Committee Members

Name	Title/Department
Scott Tice	Fire Department Chief and Emergency Management Director
Tad Dionne	Police Department Chief
Elvis Ohima	Town Engineer
Dave Hebert	Fire Marshal (Inspectional Services)
Ben Gradert	Associate Planner
Chris Sullivan	Zoning Administrator/Code Enforcement Officer
Jason Twardosky	Public Works Director
James Paquette	Fire Department Deputy Chief

Hazard Mitigation Plan Update Meetings

Hazard Mitigation Plan Update Meetings will all be held virtually using Zoom. Meetings will take place on Tuesdays throughout the month of June in 2024, see below for more details.

Meeting 1

June 4, 2024 | 3:00-4:00pm (Zoom)

[Agenda](#)

Task 1: planning process, identifying resources

**Zoom link included in agenda*

Meeting 2

June 11, 2024 | 8:00-9:00am (Zoom)

[Agenda](#)

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

**Zoom link included in agenda*

Meeting 3

June 18, 2024 | 2:00-3:00pm (Zoom)

[Agenda](#)

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

**Zoom link included in agenda*

Meeting 4

June 25, 2024 | 9:00-10:00am (Zoom)

[Agenda](#)

Task 4: prioritize mitigation actions, implementation schedule

**Zoom link included in agenda*

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