Town of Mont Vernon, New Hampshire

Hazard Mitigation Plan Update 2021

Prepared with Assistance from the Nashua Regional Planning Commission

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

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ACKNOWLEDGMENTS

The 2021 Town of Mont Vernon, NH Hazard Mitigation Planning Committee
The Nashua Regional Planning Commission and the Town of Mont Vernon 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:

Kevin Furlong	Chief of Police/Emergency Management Director, Town of Mont Vernon
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Executive Summary

Jurisdiction and Scope of the Plan

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

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

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 Mont Vernon Hazard Mitigation Team established the following goals and objectives, based on its desire to protect the Town's population, critical facilities, infrastructure, emergency services, natural resources, and private property. These goals provided the basis for identifying and prioritizing mitigation actions.

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

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

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

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

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

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

Goal 4—Address the challenges of natural resource degradation and the associated increased risk from hazards.

- 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.

Goal 5—Protect emergency services, critical facilities, and other critical capabilities from hazard damage in order for them to remain operational.

- Objective 5.1—Identify critical facilities, infrastructure, and emergency services and their vulnerabilities to natural hazards.
- Objective 5.2— Develop and implement programs to promote hazard mitigation actions that protect the provision of emergency services in Town.
- Objective 5.3—Identify, maintain, and protect evacuation routes from hazard damage so they are usable when needed.

CHAPTER 1. PLANNING PROCESS

Section 1.1 ~ Overview of the Planning Process

The Mont Vernon Hazard Mitigation Plan Update 2021 was prepared by the Nashua Regional Planning Commission (NRPC) for the Town of Mont Vernon, NH. NRPC staff worked closely with the Mont Vernon Hazard Mitigation Committee to write this Plan.

NRPC staff met with the Mont Vernon Hazard Mitigation Committee for a series of 4 meetings in order to prepare the Mont Vernon Hazard Mitigation Plan Update 2021. Agendas from these meetings appear in the Appendix to this Plan. In between meetings, NRPC worked directly with the Mont Vernon Hazard Mitigation Team members to obtain additional information needed to write the Plan.

The primary differences between the 2021 Plan and the 2015 Plan are 1) Fluvial Erosion is no longer recognized as a hazard in the 2021 Plan, 2) Infectious Disease is now recognized by the State as a hazard, and 3) Solar and Space Weather is now recognized by the State as a hazard.

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

At the first Hazard Mitigation Team meeting, held on December 17, 2020, the group discussed who should be invited to participate on the planning team. 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:

- Adam Steel, Superintendent, School Administrative Unit 39, Amherst, NH
- Kevin Furlong, Chief of Police, Mont Vernon Police Department, Mont Vernon, NH
- Jay Wilson, Fire Chief, Mont Vernon Fire Department, Mont Vernon, NH
- Ben Crosby, DPW Director, Mont Vernon, NH
- John Esposito, Chairman, Mont Vernon Board of Selectmen, Mont Vernon, NH
- Mark Chamberlain, Chairman, Lyndeborough Board of Selectmen, Lyndeborough, NH
- Matthew Fish, Chairman, Wilton Board of Selectmen, Wilton, NH
- Gary Daniels, Chairman, Milford Board of Selectmen, Milford, NH
- Peter Lyon, Chairman, Amherst Board of Selectmen, Amherst, NH
- David Litwinovich, Chairman, New Boston Board of Selectmen, New Boston, NH
- Elizabeth Gilboy, NH Homeland Security Emergency Management Field Representative
- Richard Malkin, Defense Force Commander, New Boston Air Force Station

A copy of the letter that was sent to these entities appears in the Appendix to this Plan. Elizabeth Gilboy responded and joined in on the January 28, 2021 meeting.

Section 1.3 ~ Public Participation

During the Hazard Mitigation meeting on December 17, 2020, the Team brainstormed methods currently employed to notify the public of Town meetings and news. These methods primarily include the Town's website (https://www.montvernonnh.us/), Police Department Facebook page (https://www.facebook.com/MontVernonPoliceDepartment), and Fire Department Facebook page (https://www.facebook.com/Mont-Vernon-NH-Fire-Department-1377767042492676). The Team determined that these methods should also be used to encourage public participation in the Hazard Mitigation Plan update process. There was no public response to provide input to the Mont Vernon Hazard Mitigation Plan Update 2021 process.

NRPC staff also developed a webpage for the Mont Vernon Hazard Mitigation Plan Update 2021 (http://www.nashuarpc.org/energy-environmental-planning/hazard-mitigation-planning/), 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 2015 Mont Vernon Hazard Mitigation Plan, 2021 Hazard Mitigation Plan Outline, draft Hazard Mitigation Plan Update 2021, and Hazard Mitigation Plan Review Checklist. It also provides meeting times, locations, agendas, and homework assignments. The Town of Mont Vernon'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 screen shot of the website appears in Appendix to this Plan.

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

At the first Hazard Mitigation Team meeting, held on December 17, 2020, the Team discussed Mont Vernon'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 Mont Vernon's existing authorities, policies, programs, and resources includes planning and regulatory capabilities, emergency management capabilities, floodplain management capabilities, administrative and technical capabilities, and fiscal capabilities. Each of these areas provides an opportunity to integrate hazard mitigation principles and practices into the local decision-making process.

Planning and Regulatory Capabilities

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate Mont Vernon'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 Mont Vernon. Each one should be considered as an available mechanism for incorporating the recommendations of the Mont Vernon Hazard Mitigation Plan Update 2021.

- Mont Vernon Planning and Zoning Regulations, Floodplain Management – Zoning Ordinance (Chapter 1), Article 7. Amended March 2009. Regulations apply to all lands designated as special flood hazard areas by FEMA.
- Mont Vernon Planning and Zoning Regulations, Wetland Zoning Regulations – Wetlands Zoning Regulations (Chapter 2). Amended 2006. The regulations of this District are intended to guide

the use of areas of land with extended period of high water tables to control building and land uses on naturally occurring wetlands which would contribute to pollution of surface and ground water by sewage; to prevent the destruction of natural wetlands which provide flood protection, recharge of ground water supply, and augmentation of stream flow during dry periods; to prevent unnecessary or excessive expenses to the Town to provide and maintain essential services and utilities which arise because of inharmonious use of wetlands; and to encourage those uses that can be appropriately and safely located in wetland areas.

- Mont Vernon Planning and Zoning Regulations, Subdivision Special Hazard Areas – Subdivision Regulations (Chapter 3), Article 9. Regulations includes provisions and data for Special Flood Hazard Areas.
- Mont Vernon Planning and Zoning Regulations, Non-Residential Site Plan Special Flood Areas - Non-Residential Site Plan Review Regulations (Chapter 4), Article 11. Regulations includes provisions and data for Special Flood Hazard Areas.
- Mont Vernon Master Plan—the most recent version of the Town's Master Plan was adopted on November 28, 2000. Mont Vernon's Master Plan is currently being updated by the Planning Board.
- 2019 International Building Code and 2019 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 Mont Vernon include:

Emergency Management Plans

- 2018 School Emergency Operations Plan
- Mont Vernon 2015 Hazard Mitigation Plan
- Mont Vernon 2020 Emergency Operations Plan

Emergency Management Departments, Facilities, Personnel, and Volunteers

- Mont Vernon Fire Department
- Mont Vernon Police Department
- Ambulance service provided by Amherst Emergency Medical Services
- Souhegan Valley Mutual Aid—Provides fire, police, ambulance, and highway assistance to municipalities in southwest Hillsborough County
- Hillsborough County Police Mutual Aid
- New Hampshire State Mutual Aid
- Souhegan CERT—Serving Amherst, Mont Vernon, Milford, and Lyndeborough, NH
- Emergency Operations Center—Located at the Fire Station

- Shelter available at Mont Vernon Village School (no overnight accommodations), backup shelter in Milford
- Emergency Charging Stations
- Emergency Management Director

Emergency Management Communications

- 911 dispatch—primary communications center through MACC-Base in Milford. Mont Vernon Fire Station can provide backup.
- Code Red emergency alert system
- Mont Vernon Town website—emergency management announcements and education
- Mont Vernon Fire Department Facebook Page
- Mont Vernon Police Department Facebook Page

Floodplain Management Capabilities

The Town of Mont Vernon 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). Mont Vernon joined the NFIP on October 25, 2010. As a participant in the NFIP, communities must agree to adopt a floodplain management ordinance and enforce the regulations found in the ordinance. Mont Vernon has adopted the "Floodplain Conservation District," which establishes regulations for development activities in the Town's designated flood hazard areas. Additional information on the Floodplain Conservation District and Mont Vernon's participation in the NFIP can be found in Section 3.7 of this Plan.

Administrative and Technical Capabilities

Mont Vernon'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 Mont Vernon's hazard mitigation administrative and technical capabilities:

- Fire Department
- Police Department
- Planning Board
- Building Inspector
- Public Health Officer
- DPW Director
- Emergency Management Director
- Board of Selectmen
- Zoning Board of Adjustments
- Budget Committee

Fiscal Capabilities

In addition to administrative and technical capabilities, the ability of the Town of Mont Vernon to implement mitigation actions is closely associated with the amount of money available for these

projects. Mitigation actions identified in this Plan, including those in Table 12—Implementation and Administration, may utilize the following funding sources:

- State and Federal Grants, including, but not limited to:
  - Congestion Mitigation and Air Quality (CMAQ) Program—this program is administered by the Federal Highway Administration and was implemented to support surface transportation projects and related efforts that contribute to air quality improvements and provide congestion relief.
  - FEMA Hazard Mitigation Grant Program—the Hazard Mitigation Grant Program provides grants to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the Program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.
  - FEMA Pre-Disaster Mitigation Program—the Pre-Disaster Mitigation Program provides funds for hazard mitigation planning and the implementation of mitigation projects prior to a disaster.
  - Community Development Block Grant Program—the Community Development Block Grant (CDBG) program, administered through the US Department of Housing and Urban Development, provides communities with resources to address a wide range of unique community development needs, including Disaster Recovery Assistance. HUD provides flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations.

Summary and Analysis of Mont Vernon'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	Floodplain Management; Wetlands Zoning Regulations; Subdivision and Site Plan Regulations; Master Plan; Building Code; NFIP	Entire jurisdiction	Planning Board and Zoning Board	Good	Planning Board should ensure that a consistent schedule is maintained to review Planning and Regulatory documents and make updates when appropriate.

Emergency Management	Plans; Departments, Facilities, Personnel, and Volunteers; Communications	Entire jurisdiction	Mont Vernon Fire Dept., Mont Vernon Police Dept., Emergency Management Director, Souhegan CERT Team, Amherst Emergency Medical Services	Good	Emergency Management Director should ensure Emergency Management Plans are updated in a timely manner. Board of Selectmen should ensure Emergency Management Director position is always filled.
Floodplain Management	Floodplain Management Ordinance, NFIP	Designated Flood Hazard Areas in Mont Vernon	Mont Vernon Planning Board	Excellent	No changes or improvements needed.
Administrative and Technical	Fire Dept., Police Dept., Planning Board, Building Inspector, Public Health Officer, DPW Director, Emergency Management Director, Board of Selectmen, Zoning Board of Adjustments, Budget Committee	Entire jurisdiction	Entities listed in Description	Good	Department heads should promote communication and integration of work across departments.
Fiscal	Grant funding	Entire jurisdiction	Board of Selectmen, Planning Board	Poor	Mont Vernon'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

A number of existing documents were reviewed and incorporated into the Mont Vernon Hazard Mitigation Plan Update 2021. The Mont Vernon Zoning Regulations were used to provide information on where and how the Town builds. This was particularly helpful when mapping critical facilities corridors (Section 3.4). The Mont Vernon 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 Mont Vernon 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 2018 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). Finally, the City of Nashua's Comprehensive Emergency Management Plan was referenced to write the hazard descriptions used to determine Mont Vernon's vulnerability by hazard (Section 3.5).

Section 1.6 ~ Updating the Plan

The Town of Mont Vernon is required to update its Hazard Mitigation Plan at least every five years. In order to monitor, evaluate, and update the Mitigation Strategies identified in Table 12—Implementation and Administration, the Mont Vernon Hazard Mitigation Team will meet annually. The Emergency Management Director is responsible for initiating this review and will consult with members of the Mont Vernon Hazard Mitigation Team and the community. During this meeting, the Team will identify mitigation actions that can be conducted in the current year as well as mitigation actions that will require budget requests for the following year. These mitigation actions will be monitored throughout the year by the Team.

Changes should be made to the Plan to accommodate projects that have failed or are not considered feasible after an evaluation and review for their consistency with the benefit cost analysis, STAPLEE analysis, timeframe, community's priorities, and funding resources. Mitigation strategies that were not ranked as priorities during the 2021 update should be reviewed during the monitoring, evaluation, and update of this Plan to determine feasibility of future implementation. New mitigation actions or plans proposed upon adoption of this Plan should follow the benefit cost and STAPLEE analysis methods utilized in this Plan to ensure consistency with the adopted Plan and to help the Hazard Mitigation Team evaluate overall potential for success.

In addition to this annual meeting, the Hazard Mitigation Team will meet after any hazard occurrence as part of the Town's debriefing exercise. The Hazard Mitigation Plan will be updated following this meeting to reflect changes in priorities and mitigation strategies that have resulted from the hazard event. It is especially important to incorporate updates within one year after a Presidential Disaster Declaration.

The Town of Mont Vernon will utilize its website and existing social media outlets to notify members of the public about the annual Hazard Mitigation Plan Update meeting and to involve them in the update process. Any public input that is received will be incorporated into the Plan update. The Hazard Mitigation Team will also set up an informational table at Town Meeting. In addition, following its annual meeting, the Hazard Mitigation Team will report the results of its update process to the Mont Vernon Board of Selectmen.

CHAPTER 2. CHANGES FROM PREVIOUS PLAN

Section 2.1 ~ Changes in Development

Since the 2015 Hazard Mitigation Plan, a large open-space subdivision has been approved increasing the number of buildable lots and creating a new road. The Town of Mont Vernon also purchased the Public Library, which was formerly owned by the Library Board of Trustees. The Town's overall vulnerability has increased since the 2015 plan, due to the additional infrastructure and population.

Section 2.2 ~ Progress on Local Mitigation Efforts

In order to assess progress on local mitigation efforts, the Hazard Mitigation Team reviewed the actions originally presented in the Mont Vernon Hazard Mitigation Plan 2015 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

2015 Mitigation Action	Status	Explanation
Removing underbrush and standing deadwood around residences and in residential areas to reduce the likelihood of wildfires jumping to residential housing.	Ongoing	This is a mitigation action (Wildfire, Property Protection). 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 2021.
Protect conditions of roads used for evacuation routes by minimizing or eliminating hazardous culverts and bridges on these routes. Use culvert assessment data to prioritize undersized and poorly aligned culverts for upgrades.	Deleted	This is a preparedness action. As such, it will not be tracked in future hazard mitigation plans.
Establish mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.	Completed	This is a mitigation action. Because it has been completed, this action will not be tracked in future hazard mitigation plans.
Prepare, distribute, or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.	Deferred	This is a mitigation action (Flooding, Property Protection). This action was not completed over the span of the 2015 Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2021.
Enforce the International Building Code and International Residential Code to protect buildings and infrastructure from the impacts of earthquakes, flooding, hurricanes, and winter storms.	Ongoing	This is a mitigation action (Structural, Property Protection). 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 2021.

2015 Mitigation Action	Status	Explanation
Protect critical facilities and infrastructure from lightning damage by installing lightning rods and surge protection equipment on critical electronics.	Deferred	This is a mitigation action (Lightning, Property Protection). This action was not completed over the span of the 2015 Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2021.
Map and assess vulnerability to erosion. Focus on repetitive problem areas around Brook Road and Beech Hill Road.	Deleted	Fluvial Erosion is no longer tracked in Hazard Mitigation Planning. This action will not be tracked in future hazard mitigation plans.
Take measures to ensure vulnerable populations are adequately protected from the impacts of extreme temperature, including establishing warming and cooling stations as needed.	Ongoing	This is a mitigation action (Prevention, Human Lives). 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 2021.
Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations and erosion control regulations to improve floodplain management in Mont Vernon.	Deferred	This is a mitigation action (Flooding, Property Protection). This action was not completed over the span of the 2015 Hazard Mitigation Plan and will be moved to the Hazard Mitigation Plan Update 2021.
Improve stormwater draining system capacity and conduct regular maintenance for drainage systems and flood control structures.	Deleted	This is a preparedness action. As such, it will not be tracked in future hazard mitigation plans.
Conduct risk awareness activities to raise public awareness of mitigation strategies for a variety of natural hazards.	Ongoing	This is a mitigation action (Prevention, Human Lives). 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 2021.

Section 2.3 ~ Changes in Priorities

Many of the "mitigation" actions identified in Mont Vernon's 2015 Hazard Mitigation Plan were actually preparedness actions. While preparedness actions are important, the Mont Vernon Hazard Mitigation Plan Update 2021 will focus exclusively on mitigation actions.

The following mitigation actions dropped in priority level from the 2015 Plan to the 2021 Plan:

- Removing underbrush and standing deadwood around residences and in residential areas to reduce the likelihood of wildfires jumping to residential housing.
- Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations to improve floodplain management in Mont Vernon.
- Conduct risk awareness activities to raise public awareness of mitigation strategies for a variety of natural hazards.

The following mitigation actions rose in priority level from the 2015 Plan to the 2021 Plan:

- Prepare, distribute, or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.

The following mitigation actions maintained consistent priority level from the 2015 Plan to the 2021 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 tornado.
- Protect critical facilities and infrastructure from lightning damage by maintaining lightning rods and surge protection equipment on critical electronics and replacing when necessary.
- Take measures to ensure vulnerable populations are adequately protected from the impacts of extreme temperature, including establishing warming and cooling stations as needed.

The following preparedness actions were no longer included in the 2021 Plan:

- Protect conditions of roads used for evacuation routes by minimizing or eliminating hazardous culverts and bridges on these routes. Use culvert assessment data to prioritize undersized and poorly aligned culverts for upgrades.
- Improve stormwater draining system capacity and conduct regular maintenance for drainage systems and flood control structures.

The following mitigation actions were completed and/or deleted and will no longer be included in the 2021 Plan:

- Establish mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.
- Map and assess vulnerability to erosion. Focus on repetitive problem areas around Brook Road and Beech Hill Road.

Table 2—Changes in Mitigation Priorities

2015 Mitigation Action	Current Status	Priority Level in 2015 Plan	Priority Level in 2021 Plan
Removing underbrush and standing deadwood around residences and in residential areas to reduce the likelihood of wildfires jumping to residential housing.	Ongoing	STAPLEE Score = 8 Rank = 5 out of 11	STAPLEE Score = 10 Rank = 6 out of 18
Protect conditions of roads used for evacuation routes by minimizing or eliminating hazardous culverts and bridges on these routes. Use culvert assessment data to prioritize undersized and poorly aligned culverts for upgrades.	Deleted	STAPLEE Score = 9 Rank = 4 out of 11	This action is no longer considered a priority. A similar action was not identified in the 2021 Plan update.
Establish mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.	Completed	STAPLEE Score = 11 Rank = 2 out of 11	This action has been completed and is no longer considered a priority. A similar action was not identified in the 2021 Plan update.
Prepare, distribute, or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.	Deferred	STAPLEE Score = 4 Rank = 7 out of 11	STAPLEE Score = 10 Rank = 6 out of 18

2015 Mitigation Action	Current Status	Priority Level in 2015 Plan	Priority Level in 2021 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 tornado.	Ongoing	STAPLEE Score = 12 Rank = 1 out of 11	STAPLEE Score = 16 Rank = 1 out of 18
Protect critical facilities and infrastructure from lightning damage by maintaining lightning rods and surge protection equipment on critical electronics and replacing when necessary.	Deferred	STAPLEE Score = 6 Rank = 6 out of 11	STAPLEE Score = 10 Rank = 6 out of 18
Map and assess vulnerability to erosion. Focus on repetitive problem areas around Brook Road and Beech Hill Road.	Deleted	STAPLEE Score = 10 Rank = 3 out of 11	This action is no longer considered a priority. A similar action was not identified in the 2021 Plan update.
Take measures to ensure vulnerable populations are adequately protected from the impacts of extreme temperature, including establishing warming and cooling stations as needed.	Ongoing	STAPLEE Score = 10 Rank = 3 out of 11	STAPLEE Score = 14 Rank = 3 out of 18
Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations to improve floodplain	Deferred	STAPLEE Score = 11 Rank = 2 out of 11	STAPLEE Score = 9 Rank = 10 out of 18

2015 Mitigation Action	Current Status	Priority Level in 2015 Plan	Priority Level in 2021 Plan
management in Mont Vernon.			
Improve stormwater draining system capacity and conduct regular maintenance for drainage systems and flood control structures.	Deleted	STAPLEE Score = 9 Rank = 4 out of 11	This action is no longer considered a priority. A similar action was not identified in the 2021 Plan update.
Conduct risk awareness activities to raise public awareness of mitigation strategies for a variety of natural hazards.	Ongoing	STAPLEE Score = 12 Rank = 1 out of 11	STAPLEE Score = 11 Rank = 5 out of 18

CHAPTER 3. HAZARD IDENTIFICATION AND RISK ASSESSMENT

Section 3.1 ~ Description of Natural Hazards

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

Hazards Not Included in this Plan

The State of New Hampshire identifies avalanches, landslides, and solar storms and space weather as hazards in the State Multi-Hazard Mitigation Plan Update of 2018.

Landslides and avalanches have not been included in the Mont Vernon Hazard Mitigation Plan Update 2021. “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” (State of NH Multi-Hazard Mitigation Plan Update 2018, pg 115). “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.” (State of NH Multi-Hazard Mitigation Plan Update 2018, pg 48). Mont Vernon 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 plan (Update 2018, page 137), "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, have the ability to 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." There have been no documented occurrences of Solar Storms & Space weather impacting the Town, and the Mont Vernon 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 to this Plan during subsequent updates of the Plan.

Lastly, infectious disease is also included in the 2018 NH State Hazard Mitigation Plan. The CDC defines infectious diseases as illnesses caused by germs (such as bacteria, viruses, and fungi) that can enter the body, multiply, and can cause an infection. Some infectious diseases are contagious (or communicable), that is, spread from one person to another. Other infectious diseases can be spread by germs carried in air, water, food, or soil. They can also be spread by vectors (like biting insects) or by animals. In 2020, all communities around the globe were impacted by the COVID-19 pandemic and continue to be affected today. To date, 141 Mont Vernon residents have tested positive for COVID-19, and there are ongoing mass vaccination efforts being conducted by local medical providers. Multiple disaster declarations were issued for Hillsborough County (see below).

> Presidential declared disaster for Hillsborough County of: New Hampshire
> COVID-19 PANDEMIC (DR-4516-NH)
> Incident Period: January 20, 2020 and continuing
> Major Disaster Declaration declared on April 3, 2020

As this pandemic event is still unfolding, the Mont Vernon Hazard Mitigation Team does not have enough information to fully document and analyze the risk to infectious disease in this Plan. The Town will re-evaluate and include infectious disease in subsequent updates of this 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 slowing planting, growth of crops • some lingering water deficits • crops not fully recovered <u>D1</u> • some damage to crops • streams, reservoirs, or wells low, some water shortages developing or imminent • voluntary water-use restrictions requested <u>D2</u> • crop losses likely • water shortages common • water restrictions imposed <u>D3</u> • major crop losses • widespread water shortages or restrictions <u>D4</u> • Exceptional & widespread crop loss • Shortages of water in reservoirs, streams, & wells creating water emergencies <u>S</u> • impacts on agriculture <u>L</u> • impacts on hydrology & ecology
Earthquake	Entire jurisdiction.	<u>Richter Scale</u> • <3.4—detected only by seismometers • >8—total damage, surface waves seen, objects thrown in air For full definitions of Richter Scale, see Section 3.5 Vulnerability by Hazard	Structural damage or collapse of buildings. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, 911 communications, radio system. Loss of water for fire

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
			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 water sources for drinking water and fire protection due to freezing temperatures.
Flooding	Floodplains cover approximately 0.28% of Mont Vernon—0.20% of Mont Vernon is located in 1% annual floodplain and 0.08% of Mont Vernon is located in the 0.2% annual floodplain. See Section 3.5 for additional information on flood-prone areas.	FEMA flood probabilities: • 1% possibility per year • 0.2% possibility per year State of NH Dam Hazard Potential Classification system (for flooding resulting from dam/levee failure): • Class S—significant hazard • Class H—high hazard • Class L—low hazard • Class NM—non-menace For full definitions of Dam Hazard Classes, see Section 3.5 Vulnerability by Hazard	Water damage to structures and their contents. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, 911 communications, radio system. Environmental hazards resulting from damage. Isolation of neighborhoods resulting from flooding.
Lightning	Entire jurisdiction. Recurring lighting strikes near Mont Vernon Congregational Church on S Main St. Areas with large populations present outdoors and large open	Lightning Activity Level: • Level 1 • Level 2 • Level 3 • Level 4 • Level 5 • Level 6 For full definitions of Lightning Activity Level, see Section 3.5 Vulnerability by Hazard	Smoke and fire damage to structures and property. Disruption to power lines, municipal communications, and 911 communications. Damage to critical electronic equipment. Injury or death to people involved in outdoor activity.

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

Hazard Type	Hazard Location within Jurisdiction	Hazard Extent	Impact
		• EF2—winds 111-135 mph • EF3—winds 136-165 mph • EF4—winds 166-200 mph • EF5—winds >200 mph	infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, 911 communications, radio system. Environmental hazards resulting from damage. Medical surge. Loss of natural resources.
Wildfire	Areas particularly prone to wildfire include forested areas near residential development.	NWCG Fire Size Classification: • A—greater than 0 but less than or equal to 0.25 acres • B—0.26 to 9.9 acres • C—10.0 to 99.9 acres • D—100-299 acres • E—300 to 999 acres • F—1,000 to 4,999 acres • G—5,000 to 9,999 acres • H—10,000 to 49,999 acres • I—50,000 to 99,999 acres • J—100,000 to 499,999 acres • K—500,000 to 999,999 acres • L—1,000,000+ acres	Smoke and fire damage to structures in wild land/urban interface. Damage to habitat. Impacts to air quality. Impact to roadways. Loss of natural resources.

Section 3.2 ~ Probability of Future Hazard Events

After documenting the occurrence of previous hazard events in the Town of Mont Vernon and the surrounding region, the Hazard Mitigation Team used this information to calculate the annual probability of these events occurring in the future. The first step was to determine how many times a particular hazard had occurred in a given number of years. The number of occurrences was then divided by the number of years to determine annual probability. For example, if history shows that a particular hazard typically occurs 1 time every 4 years, the annual probability is 25%. 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 Mont Vernon is outlined in Table 5.

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).	"Climate Change in Southern New Hampshire," Sustainability Institute, University of New Hampshire, 2014
Climate Change—Increased Precipitation	Annual average precipitation is predicted to increase 17-20% in southern New Hampshire by the end of the century under both the low and high emissions scenarios. Larger increases in precipitation are expected in the winter and spring, while summer and fall will only experience slight increases (Wake et al., "Climate Change in Southern New Hampshire," pg. 29). Southern New Hampshire can also expect more extreme precipitation events, defined as those where more than 1 inch of rain falls within 24 hours or more than 2-4 inches falls in 48 hours. Under both low and high emissions scenarios, the frequency of extreme precipitation events in predicted to more than double by the end of the century (Wake et al., "Climate Change in Southern New Hampshire," pg. 29).	"Climate Change in Southern New Hampshire," Sustainability Institute, University of New Hampshire, 2014
Climate Change—Warmer Temperatures	Temperatures in southern New Hampshire will continue to rise under a lower or higher future emissions scenario. In the short-term (2010-2039), average annual temperatures are predicted to increase by	"Climate Change in Southern New Hampshire," Sustainability Institute,

Hazard Type	Probability of Future Event	Source
	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).	University of New Hampshire, 2014
Drought	17 years of drought from 1960 through 2020. 17 events in 60 years = 0.28 events per year **Annual Probability = 28%** 7 years of drought from 2000 through 2020. 4 events in 20 years = 0.35 **Annual Probability = 35%**	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 Mont Vernon. However, this hazard is still possible. 2 magnitude 5.0 or greater earthquakes felt in NH from 1926 through 2020. 2 events in 94 years = 0.02 events per year **Annual Probability = 2%** 0 magnitude 5.0 or greater earthquakes felt in NH from 2000 through 2020. 0 events in 20 years = 0 events per year **Annual Probability = 0-25%**	US Geological Survey http://earthquake.usgs.gov/earthquakes/search/
Extreme Temperatures	34 extreme heat events from 2000 through 2020. 34 events in 20 years = 1.7 events per year **Annual Probability = 100%**	NOAA National Climatic Data Center https://www.ncdc.noaa.gov/cdo-web/search

Hazard Type	Probability of Future Event	Source
	23 extreme cold events from 2000 through 2020. 23 events in 20 years = 1.2 events per year **Annual Probability = 100%**	
Flooding	13 flooding events in Mont Vernon and Hillsborough County from 1927 to 2020. 21 events in 93 years = .226 events per year **Annual Probability = 22.6%** 13 flooding events in Hillsborough County from 2000 to 2020. 13 events in 20 years = .65 events per year **Annual Probability = 65.0%**	FEMA, local knowledge, and public input
Flooding – Dam Failure	4 Class NM dams (Non-Menace), 1 Class L dams (Low hazard potential Mont Vernon's Dams all have either a non-menacing or low hazard classification, which means that they have a relatively low hazard potential because of their size and location. Failure or misoperation of any number of these dams would not result in an economic loss to structures and property and no probable loss of lives. 1 dam failure event in Mont Vernon from 2000 to 2020. 1 event in 20 years = 0.05 events per year **Low probability is defined as a 0-25% chance of occurrence annually.**	NHDES, local knowledge, and public input.
Hurricane/Severe Wind	9 hurricanes/tropical storms from 1938 to 2020. 9 events in 82 years = .109 events per year **Annual Probability = 10.9%** 3 hurricanes/tropical storms from 2000 to 2020. 3 events in 20 years = .15 events per year **Annual Probability = 15.0%**	National Weather Service and public input
Lightning	Because of limited data on previous lightning events, probability cannot be calculated statistically.	Local knowledge and public input

Hazard Type	Probability of Future Event	Source
	History shows no occurrences of lightning strikes causing damage in Mont Vernon. However, this hazard is still possible and therefore the probability is low. **Low probability is defined as a 0-25% chance of occurrence annually.**	
Severe Winter Weather	22 severe winter weather events in Hillsborough County from 1888 through 2020. 22 events in 132 years = 0.17 events per year **Annual Probability = 17%** 7 severe winter weather events in Hillsborough County from 2000 through 2020. 7 events in 20 years = 0.35 events per year **Annual Probability = 35%**	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 2020. 17 events in 59 years = 0.29 events per year **Annual Probability = 29%** 0 tornados and 0 downbursts in Hillsborough Co. from 2000 through 2020. 0 events in 20 years = 0 events per year **Annual Probability = 0-25%**	Tornado History Project (Joshua Lietz, Storm Prediction Center, National Climatic Data Center) and public input http://www.tornadohistoryproject.com
Wildfire	Because of limited data on previous wildfire events, probability cannot be calculated statistically. Low probability is defined as 0-25% chance of occurrence annually. **Annual Probability = 0-25%**	FEMA Mitigation Planning Workshop (Unit 3), local knowledge, and public input

Section 3.3 ~ Critical Facilities and their Vulnerability

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

1. **General Occupancy**
    a. Residential
    b. Commercial
    c. Industrial
    d. Agriculture
    e. Religion
    f. Government
    g. Education
2. **Essential Facilities**
    a. Fire Station
    b. Police Station
    c. Department of Public Works
    d. Schools
    e. Emergency Operations Centers
    f. Medical Care Facilities
3. **Transportation Systems**
    a. Highway Systems—Roads
    b. Highway Systems—Bridges
    c. Railway Systems
    d. Bus Facilities
    e. Airport Systems
4. **Utility Systems**
    a. Potable Water
    b. Drinking Water
    c. Oil/Propane Facilities
    d. Natural Gas Facilities
    e. Electric Power
    f. Communications
5. **High Potential Hazard Facilities**
    a. Dams/Levees
    b. Nuclear Power Plants
6. **Hazardous Materials Facilities**
    a. EPA Toxics Release Inventory facilities (http://www2.epa.gov/toxics-release-inventory-tri-program)

The critical facilities within each category appear in the Tables 6.1-6.6 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
Government—Town Hall – 2 S Main St	Official records and documents, evacuation point, historic resource		✓			✓	✓	✓	✓	✓
Government—Mont Vernon Library – 5 N Main St	Official records and documents, large population present		✓			✓	✓	✓	✓	✓
Government—Post Office – 4 Grand Hill Road	Contents important to communication		✓			✓	✓	✓	✓	✓
Commercial—Mont Vernon General Store – 10 N Main St	Retail, contents valuable to local economy		✓			✓	✓	✓	✓	✓
Recreation—McCollum Field	Potentially large population present	✓					✓			
Religion—Congregational Church of Mont Vernon – 4 S Main St	Potentially large population present, potential shelter		✓			✓	✓	✓	✓	✓
Agriculture – Pomeroy Farm – 6 Amherst Rd	Contents valuable to local economy; Potentially large population present	✓	✓			✓	✓	✓	✓	✓
Agriculture – Julie's Happy Hens – 7 Carson Way	Contents valuable to local economy; Potentially large population present	✓	✓			✓	✓	✓	✓	✓
Residential – Rolling Acres Mobile Home Park – Third St	Potentially large population present		✓	✓		✓	✓	✓	✓	✓

Table 5.2—Essential Facilities

Facility Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire
McCollum Building/Police Station – 2 S Main St	Contents and staff valuable to emergency management		✓			✓	✓	✓	✓	✓
Fire Station/Emergency Operations Center – 1 Main St	Contents and staff valuable to emergency management, serves as emergency operations center		✓			✓	✓	✓	✓	✓
Public Works Garage – Mason Rd	Contents valuable to transportation network and public infrastructure		✓			✓	✓	✓	✓	✓
Mont Vernon Transfer Station – 16 Weston Hill Rd	Potentially large population present.		✓			✓	✓	✓	✓	✓
Mont Vernon Village School – 1 Kittredge Rd	Potentially large population present, shelter		✓			✓	✓	✓	✓	✓

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. Mont Vernon has a total of 56.8 road miles, of which 0 miles or 0% are located in the floodplain. The following table lists all the roadways and transportation infrastructure in Mont Vernon that are critical to the transportation network.

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado/Downburst	Wildfire
Highway System—Brook Road Bridge	Structure valuable to motor vehicle travel and safety		✓			✓		✓	✓	
Highway System—NH Route 13 North and South	Valuable to motor vehicle travel and safety, evacuation route		✓			✓		✓	✓	
Highway System—Brook Road Culvert over Beaver Brook	Structure valuable to motor vehicle travel and safety; culvert received partially compatible rating		✓			✓		✓	✓	
Highway System—Francestown Turnpike Culvert	Structure valuable to motor vehicle travel and safety; culvert received mostly compatible rating		✓			✓		✓	✓	

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
Electric (Eversource) — Distribution system (poles & wires), including transformers and other electrical equipment.	Structures valuable to utility network		✓			✓	✓	✓	✓	✓
Water—100% of the population in Mont Vernon has private well water.	Structures valuable to water supply	✓	✓							
Communications – Tower – Cross Rd	Structure valuable to communication system.		✓			✓	✓	✓	✓	✓
Communications – Consolidated Tower – Rt 13/Amherst Rd	Structure valuable to communication system.		✓			✓	✓	✓	✓	✓

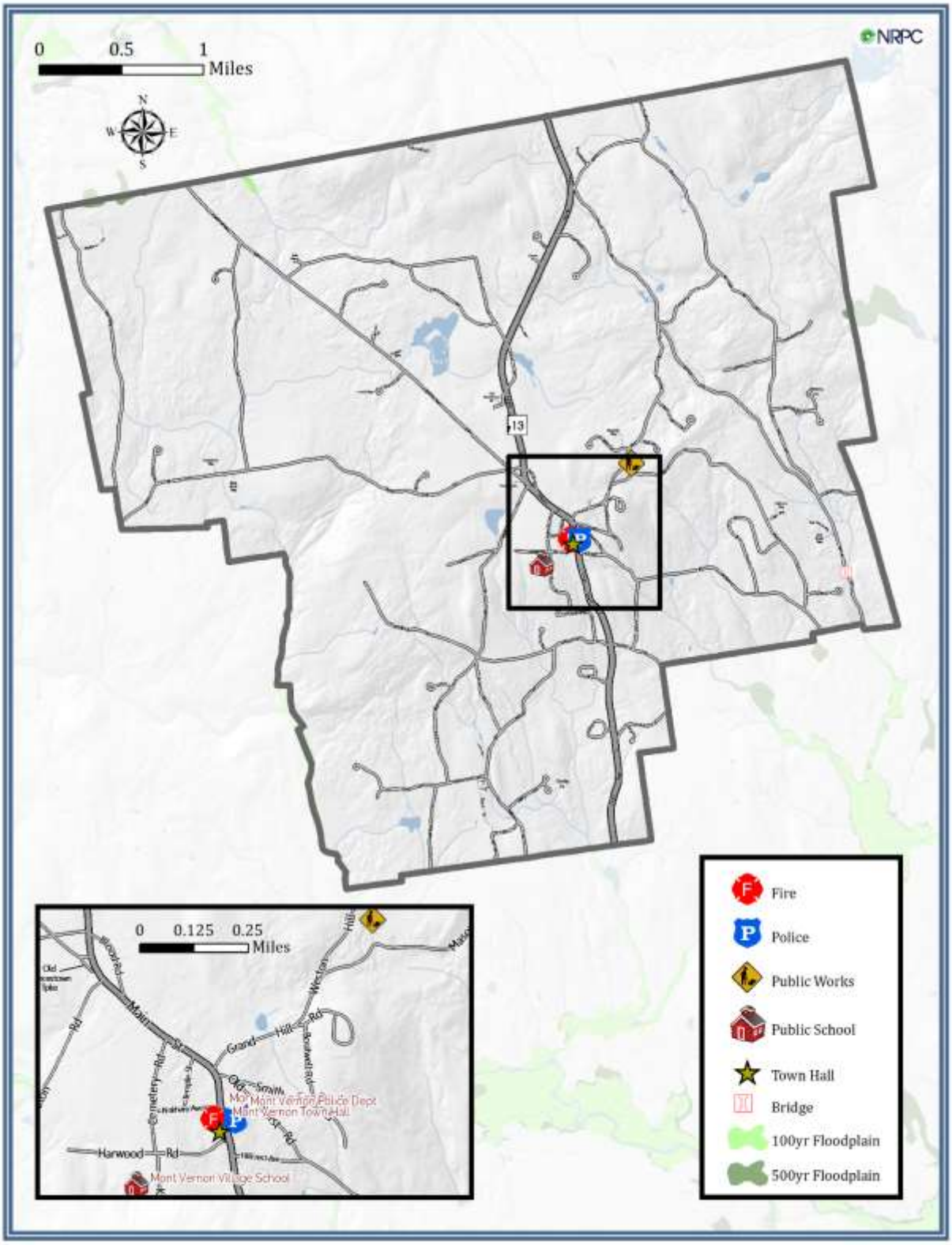
Table 5.5—High Potential Hazard Facilities

Facility Type and Name	Content Vulnerability	Drought	Earthquake	Extreme Temperatures	Flooding	Severe Wind	Lightning	Severe Winter Weather	Tornado	Wildfire
Name – Hartshorn Brook II Dam #D163007 Hazard Class—L Water body—Hartshorn Brook Owner – Privately Held	Structure valuable to flood control		✓		✓	✓		✓	✓	
Name – Ice Pond #D163004 Hazard Class—NM Water body—Unnamed Brook Owner – US Air Force Station New Boston	Structure valuable to flood control		✓		✓	✓		✓	✓	
Name – Farm Pond Dam #D163009 Hazard Class—NM Water body—Unnamed Stream Owner – Privately Held	Structure valuable to flood control		✓		✓	✓		✓	✓	
Name – Rowe Recreation Pond #D163010 Hazard Class—NM Water body—Unnamed Stream Owner – Privately Held	Structure valuable to flood control		✓		✓	✓		✓	✓	
Name – Upper Stearns Pond Dam #D163013 Hazard Class—NM Water body—Hartshorn 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
Comcast Substation—172 Brook Road	Sulfuric acid in lead-acid batteries		✓			✓	✓	✓	✓	✓

Map 1—Mont Vernon Critical Facilities Map



Climate Change

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

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

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

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

Climate Change Hazard Loss Estimate

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

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

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

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

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

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, Mont Vernon 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 declared.	Damage to crops. Low water levels in dug wells.
May 2015	Entire jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
June 2015	Entire jurisdiction	USDA D1 (Moderate Drought)	Damage to crops.
August-September 2015	Entire jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
October 2015-February 2016	Entire jurisdiction	USDA D1 (Moderate Drought)	Damage to crops.
March 2016-June 2016	Entire jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops. Low water levels in wells.
July 2016-September 2016	Entire jurisdiction	USDA D2 (Severe Drought)	Low water levels in wells.
October 2016-December 2016	Entire jurisdiction	USDA D3 (Extreme Drought)	Low water levels in wells.
January 2017-March 2017	Entire jurisdiction	USDA D2 (Severe Drought)	Low water levels in wells.
April 2017	Entire jurisdiction	USDA D1 (Moderate Drought)	Low water levels in wells.
June-July 2018	Entire Jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
September-October 2019	Entire Jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
May 26-June 22 2020	Entire Jurisdiction	USDA D0 (Abnormally Dry)	Damage to crops.
June 23 - August, 2020	Entire Jurisdiction	USDA D1 (Moderate Drought)	Low water levels in wells.
September 2020	Entire Jurisdiction	USDA D2 (Severe Drought)	Low water levels in wells, wells went dry.

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

Total Acres of Land in Mont Vernon	Total Acres of Agricultural Land in Mont Vernon	% of Land in Mont Vernon Vulnerable to Drought
66.1	10,688	0.6%

% of population with Public Drinking Water in Mont Vernon	% of population with Private Well Water in Mont Vernon	Water Utility	Primary Water Source	Secondary Water Source
0%	100%	N/A	Private Wells	N/A

Critical Facility Type	Total Number of this type of Critical Facilities in Mont Vernon	Number of this type of Critical Facilities in Drought Hazard Area	Percentage of this type of Critical Facilities in Drought Hazard Area
General Occupancy	9	3	33%
Essential Facilities	5	0	0%
Transportation	4	0	0%
Utility System	4	1	25%
High Potential Hazard	5	0	0%
Hazardous Materials	1	0	0%

Earthquake

An earthquake is a sudden and violent shaking of the ground, sometimes causing great destruction, as a result of movements within the earth's crust or volcanic action. The Richter magnitude scale was developed by Charles F. Richter in 1935 as a way to compare the size of earthquakes. The magnitude of an earthquake is calculated from the logarithm of the amplitude of waves recorded by seismographs.

- Magnitude <2.0—micro-earthquakes. Recorded by seismographs, but not felt or rarely felt by people. Several million occur annually worldwide on average.
- Magnitude 2.0-2.9—felt slightly by some people. No damage to buildings. Over 1 million occur annually worldwide on average.
- Magnitude 3.0-3.9—often felt by people but very rarely cause damage. Shaking of indoor objects can be noticeable. Over 100,000 occur annually worldwide on average.
- Magnitude 4.0-4.9—noticeable shaking of indoor objects and rattling noises. Felt by most people in affected area. Generally causes minimal to no damage. Moderate to significant damage is very unlikely. 10,000-15,000 occur annually worldwide on average.
- Magnitude 5.0-5.9—felt by everyone. Can cause damage of varying severity to poorly constructed buildings; slight to no damage to all other buildings. Few, if any, casualties. 1,000-1,500 occur annually worldwide on average.

- Magnitude 6.0-6.9—felt up to hundreds of miles from epicenter. Strong to violent shaking in epicenter. Damage to many buildings in populated areas. Poorly designed structures have moderate to severe damage. Earthquake-resistant structures have slight to moderate damage. Damage can be caused far from epicenter. Death tolls up to 25,000. 100-150 occur annually worldwide on average.
- Magnitude 7.0-7.9—felt in very large area. Damage to most buildings, including partial or complete collapse. Death tolls up to 250,000. 10-20 occur annually worldwide on average.
- Magnitude 8.0-8.9—felt in extremely large region. Major damage to buildings over large areas. Structures likely destroyed. Moderate to heavy damage to sturdy or earthquake-resistant buildings. Death tolls up to 1 million. 1 occurs annually worldwide on average.
- Magnitude 9.0< —damage and shaking extends to distant locations. Near or total destruction. Severe damage and collapse to all buildings. Permanent changes in ground topography. 1 occurs every 10-50 years worldwide on average.

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

Previous Occurrences of Earthquakes

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
	There have been no earthquakes centered in Mont Vernon 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 Mont Vernon
December 24, 1940	Lake Ossipee, NH	Magnitude 5.5 on Richter Scale	No damage in Mont Vernon
December 4, 1963	Laconia, NH (43.6 latitude, -71.5 longitude)	Magnitude 3.7 on Richter Scale	No damage in Mont Vernon
June 28, 1981	Sanbornton, NH (43.56 latitude, -71.56 longitude)	Magnitude 3.0 on Richter Scale	No damage in Mont Vernon
January 19, 1982	Sanbornton, NH (43.5 latitude, -71.6 longitude)	Magnitude 4.7 on Richter Scale	No damage in Mont Vernon
October 25, 1986	Northfield, NH	Magnitude 3.9 on	No damage in Mont

	(43.399 latitude, -71.59 longitude)	Richter Scale	Vernon
October 20, 1988	Milan, NH (44.539 latitude, -71.158 longitude)	Magnitude 3.9 on Richter Scale	No damage in Mont Vernon
November 22, 1988	Milan, NH (44.557 latitude, -71.183 longitude)	Magnitude 3.2 on Richter Scale	No damage in Mont Vernon
April 6, 1989	Berlin, NH (44.511 latitude, -71.144 longitude)	Magnitude 3.5 on Richter Scale	No damage in Mont Vernon
October 6, 1992	Canterbury, NH (43.324 latitude, -71.578 longitude)	Magnitude 3.4 on Richter Scale	No damage in Mont Vernon
June 16, 1995	Lyman, NH (44.286 latitude, -71.915 longitude)	Magnitude 3.8 on Richter Scale	No damage in Mont Vernon
August 21, 1996	Bartlett, NH (44.184 latitude, -71.352 longitude)	Magnitude 3.8 on Richter Scale	No damage in Mont Vernon
January 27, 2000	Raymond, NH (43.00 latitude, -71.18 longitude)	Magnitude 3.0 on Richter Scale	No damage in Mont Vernon
September 26, 2010	Boscawen, NH (43.2915 latitude, -71.6568 longitude)	Magnitude 3.4 on Richter Scale	No damage in Mont Vernon
October 11, 2013	Contoocook, NH (43.255 latitude, -71.747 longitude)	Magnitude 2.6 on Richter Scale	No damage in Mont Vernon
March 21, 2016	Contoocook, NH (43.264 latitude, -71.767 longitude)	Magnitude 2.8 on Richter Scale	No damage in Mont Vernon
February 15, 2018	East Kingston, NH (42.921° latitude -71.011° longitude)	Magnitude 2.7 on Richter Scale	No damage in Mont Vernon
	Earthquakes noted below were centered outside of NH but were felt by NH municipalities.		No damage in Mont Vernon
November 18, 1929	Grand Banks, Newfoundland	Magnitude 7.2 on Richter Scale	No damage in Mont Vernon
November 1, 1935	Timiskaming, Canada	Magnitude 6.25 on Richter Scale	No damage in Mont Vernon
June 15, 1973	Near Canadian/NH border	Magnitude 4.8 on Richter Scale	No damage in Mont Vernon
June 23, 2010	Buckingham, Quebec, Canada	Magnitude 5.0 on Richter Scale	No damage in Mont Vernon
August 23, 2011	Washington, DC	Magnitude 5.8 on Richter Scale	No damage in Mont Vernon
October 16, 2012	Hollis Center, ME	Magnitude 4.0 on Richter Scale	No damage in Mont Vernon

Earthquake Hazard Loss Estimate

Step 1. Determine potential earthquake strength in Mont Vernon

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

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

Step 4. Determine total assessed value of structures in Mont Vernon

- Total Assessed Value of all Structures in Mont Vernon = $224,215,270.00
- *Source: Mont Vernon Assessing Department (2020)*

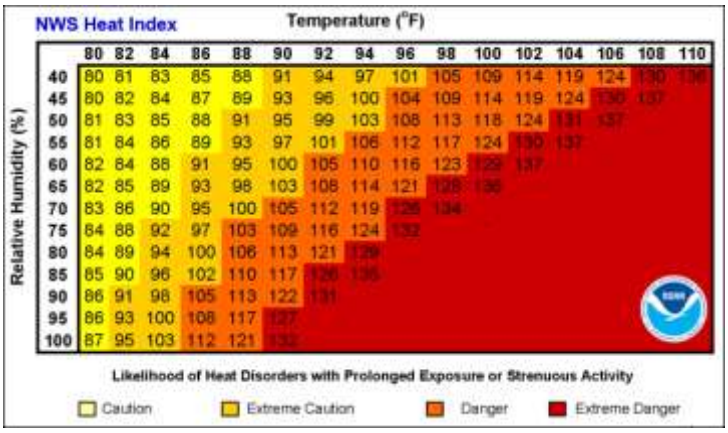
Step 5. Determine total loss from PGA (g) 0.25 Mont Vernon

- 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 = $224,215,270.00* 0.01 * 0.046 = $103,139.02
- Total Loss from Earthquake = $224,215,270.00* 0.05 * 0.046 = $515,695.12
- **$103,109.00 to $515,695.12**

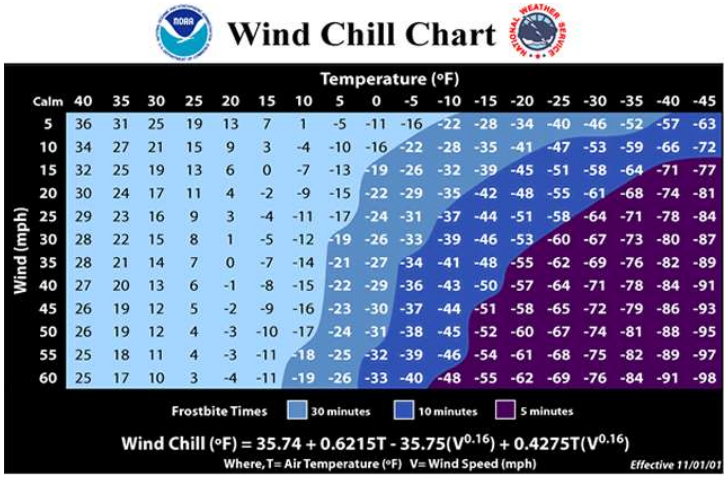
Critical Facility Type	Total Number of this type of Critical Facilities in Mont Vernon	Number of this type of Critical Facilities in Earthquake Hazard Area	Percentage of this type of Critical Facilities in Earthquake Hazard Area
General Occupancy	9	8	89%
Essential Facilities	5	5	100%
Transportation	4	4	100%
Utility System	4	4	100%
High Potential Hazard	5	5	100%
Hazardous Materials	1	1	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 Mont Vernon.



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



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

Previous Occurrences of Extreme Temperatures

Hazard	Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
Extreme Temperature (Cold)	January 16-20, 2000	Entire jurisdiction	5 consecutive days of minimum temperatures at or below 0°F: • 1/16/00: -3°F • 1/17/00: -2°F • 1/18/00: -5°F • 1/19/00: -6°F • 1/20/00: -4°F	No known impact in Mont Vernon
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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
Extreme	January 9-12, 2004	Entire jurisdiction	4 consecutive days	No known impact in

Temperature (Cold)			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	Mont Vernon
Extreme Temperature (Cold)	January 14-17, 2004	Entire jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 1/14/04: -10°F • 1/15/04: -10°F • 1/16/04: -12°F • 1/17/04: -9°F	Wind chills of -30°F, 6 fatalities in NH. No known impacts in Mont Vernon.
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 Mont Vernon
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 • 1/25/05: -1°F	No known impact in Mont Vernon
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 Mont Vernon
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 Mont Vernon
Extreme Temperature (Cold)	January 25-27, 2009	Entire jurisdiction	3 consecutive days of minimum	No known impact in Mont Vernon

			temperatures at or below 0°F: • 1/25/09: -7°F • 1/26/09: -7°F • 1/27/09: -5°F	
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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
Extreme Temperature (Cold)	February 11-13, 2014	Entire Jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 2/11/14: -7°F • 2/12/14: -7°F • 2/13/14: -7°F	No known impact in Mont Vernon
Extreme Temperature (Cold)	February 1-4, 2015	Entire Jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 2/1/15: 0°F • 2/2/15: 0°F • 2/3/15: -3°F • 2/4/15: -2	No known impact in Mont Vernon
Extreme Temperature (Cold)	February 14-19, 2015	Entire Jurisdiction	6 consecutive days of minimum temperatures at or below 0°F: • 2/14/15: -7°F • 2/15/15: -4°F • 2/16/15: -5°F	No known impact in Mont Vernon

			• 2/17/15: -2°F • 2/18/15: -3°F • 2/19/15: -4°F	
Extreme Temperature (Cold)	February 14-16, 2016	Entire Jurisdiction	3 consecutive days of minimum temperatures at or below 0°F: • 2/14/16: -11°F • 2/15/16: -9°F • 2/16/16: -9°F	No known impact in Mont Vernon
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 Mont Vernon
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 Mont Vernon
Extreme Temperature (Cold)	January 31-February 3, 2019	Entire Jurisdiction	4 consecutive days of minimum temperatures at or below 0°F: • 1/31/19: -3°F • 2/1/19: -3°F • 2/2/19: -5°F • 2/3/19: -4°F	No known impact in Mont Vernon
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 Mont Vernon
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 Mont Vernon
Extreme Temperature (Heat)	July 22-26, 2001	Entire jurisdiction	5 consecutive days of temperatures above 90°F:	No known impact in Mont Vernon

			• 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	
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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
Extreme Temperature (Heat)	August 13-20, 2002	Entire jurisdiction	8 consecutive days of temperatures above 90°F: • 8/13/02—94°F • 8/14/02—96°F • 8/15/02—98°F • 8/16/02—95°F • 8/17/02—94°F • 8/18/02—92°F • 8/19/02—94°F • 8/20/02—92°F	No known impact in Mont Vernon
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 Mont Vernon
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 Mont Vernon

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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
Extreme Temperature (Heat)	July 17-20, 2010	Entire jurisdiction	4 consecutive days of temperatures above 90°F: • 7/17/10—93°F • 7/18/10—93°F • 7/19/10—93°F • 7/20/10—90°F	No known impact in Mont Vernon
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 Mont Vernon
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—	No known impact in Mont Vernon

			101°F • 7/24/11—96°F	
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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
Extreme Temperature (Heat)	July 16-21, 2013	Entire jurisdiction	6 consecutive days of temperatures above 90°F: • 7/16/13—90°F • 7/17/13—91°F • 7/18/13—93°F • 7/19/13—93°F • 7/20/13—96°F • 7/21/13—91°F	No known impact in Mont Vernon
Extreme Temperature (Heat)	July 29-31, 2015	Entire Jurisdiction	3 consecutive days of temperatures above 90°F: • 7/29/15—93°F • 7/30/15—94°F • 7/31/15—90°F	No known impact in Mont Vernon
Extreme Temperature (Heat)	August 16-20, 2015	Entire Jurisdiction	5 consecutive days of temperatures above 90°F: • 8/16/15—90°F • 8/17/15—90°F • 8/18/15—91°F • 8/19/15 – 93°F • 8/20/15 – 90°F	No known impact in Mont Vernon

Extreme Temperature (Heat)	September 2-4, 2015	Entire Jurisdiction	3 consecutive days of temperatures above 90°F: • 9/2/15—91°F • 9/3/15—92°F • 9/4/15—92°F	No known impact in Mont Vernon
Extreme Temperature (Heat)	September 7-11, 2015	Entire Jurisdiction	5 consecutive days of temperatures above 90°F: • 9/7/15—90°F • 9/8/15—94°F • 9/9/15—94°F • 9/10/15 – 94°F • 9/11/15 – 93°F	No known impact in Mont Vernon
Extreme Temperature (Heat)	July 22-29, 2016	Entire Jurisdiction	8 consecutive days of temperatures above 90°F: • 7/22/16—95°F • 7/23/16—93°F • 7/24/16—93°F • 7/25/16—92°F • 7/26/16—96°F • 7/27/16—96°F • 7/28/16—93°F • 7/29/16—93°F	No known impact in Mont Vernon
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 Mont Vernon
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 Mont Vernon
Extreme Temperature (Heat)	August 1-4, 2017	Entire Jurisdiction	4 consecutive days of temperatures above 90°F: • 8/1/17—90°F • 8/2/17—92°F • 8/3/17—91°F • 8/4/17—90°F	No known impact in Mont Vernon
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 Mont Vernon

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 Mont Vernon
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 Mont Vernon
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 Mont Vernon
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 Mont Vernon

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 Mont Vernon resulting from extreme temperatures. Though the entire Mont Vernon population may experience a thermal emergency, populations without adequate climate control are most at risk. Extreme temperatures are not likely to cause damage to structures, although pipes can burst in extreme cold conditions.

Flooding

Special flood areas are defined as the 100-year or 1% annual floodplain. These are areas with a 1% annual chance of flood or the probability of one flood every 100 years. Special flood areas also include the 500-year or 0.2% annual floodplain. In these areas there is a 0.2% annual chance of flood, or the probability of one flood every 500 years. Special flood areas are the most likely places to experience flooding in a municipality. Mont Vernon has very limited areas within the 1% annual floodplain along its southwestern border with Mont Vernon and a very small area within the 0.2% annual floodplain along its eastern border with Amherst.

Localized Flooding

Localized flooding can result from even minor storms. Runoff overloads the drainage ways and flows

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

Riverine Flooding

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

Floodplains cover approximately 1.86% of Mont Vernon; 1.76% of Mont Vernon is located in 1% annual floodplain and 0.1% of Mont Vernon is located in the 0.2% annual floodplain.

Dam Failure

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

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

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

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

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

Class NM—non-menace: dam that is not a menace because it is in a location and of a size that failure or misoperation of the dam would not result in probable loss of life or loss to property, provided the dam is less than 6 feet in height it if has a storage capacity greater than 50 acre-feet; or less than 25 feet in height if it has a storage capacity of 15-50 acre-feet. See Table 5.5 for all Dams and Dam locations in Mont Vernon.

Mont Vernon has 4 Class NM dams (Non-Menace), 1 Class L dams (Low hazard potential), 0 Class S dams (Significant hazard potential), and 0 Class H dams (High hazard potential).

Mont Vernon has an overall low risk to dam failure. Mont Vernon only has 5 damns, and all have either a non-menacing or low hazard classification, which means that they have a relatively low hazard potential because of their size and location. Failure or misoperation of any number of these dams would not result in an economic loss to structures and property and no probable loss of lives.

Previous Occurrences of Flooding

Hazard Type	Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
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 Mont Vernon are unknown.
Flooding	July 11, 1973	Hillsborough County	No data on extent	FEMA Disaster

			available	Declaration #399. Specific impacts to Mont Vernon are unknown.
Flooding	July 29-August 10, 1986	Hillsborough County	No data on extent available	FEMA Disaster Declaration #771. Many roads impassable in Hillsborough County. Specific impacts to Mont Vernon are unknown.
Flooding	March 30-April 11, 1987	Hillsborough County	25-50+ year recurrence interval	$4,888,889 in damage in NH. FEMA Disaster Declaration #789. Primary impact to agricultural fields in Hillsborough County. Primary impact to agricultural fields in Mont Vernon.
Flooding	August 7-11, 1990	Hillsborough County	No data on extent available	$2,297,777 in damage in NH. FEMA Disaster Declaration #876. Primary impact to infrastructure in Hillsborough County. Primary impact to infrastructure in Mont Vernon.
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 Mont Vernon.
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 Mont Vernon 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 Mont Vernon are unknown.
Flooding	May 12-23, 2006	Hillsborough County	As much as 14 inches of rainfall in region. 100-500-year recurrence interval.	7 counties impacted in NH, including Hillsborough. FEMA Disaster Declaration #1643. Specific impacts to Mont Vernon 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 Mont Vernon 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 Mont Vernon are unknown.
Flooding	March 14, 2010	Hillsborough County	50-100-year recurrence interval	$1,880,685 in FEMA public assistance in NH; $1.80 per capita in Hillsborough County. Flooding near Johnson Corner due to undersized culvert. FEMA Disaster Declaration #1913 Primary impact to roads and bridges in Hillsborough County. Specific impacts to Mont Vernon are unknown.
Flooding	May 26, 2011	Hazard was not experienced in jurisdiction.	N/A	Disaster Declaration #4006. No impact to Mont Vernon.
Flooding	May 29, 2012	Hazard was not experienced in jurisdiction.	N/A	Disaster Declaration #4065. No impact to Mont Vernon.
Flooding	June 26, 2013	Hazard was not experienced in jurisdiction.	N/A	Disaster Declaration #4139. No impact to Mont Vernon.
Flooding	July 1, 2017	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4329. No impacts to Mont Vernon.
Flooding	October 29 – November 1, 2017	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4355. No impacts to Mont Vernon.
Flooding	March 2-8, 2018	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4370. No impacts to Mont Vernon.
Flooding	July 11-12, 2019	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4357. No impacts to Mont Vernon.
Flooding – Dam Failure	2019	Woods Pond Dam (DES “Farm Pond Dam” #D163009)	Pond Road	Dam failure washed out Pond Road, making it unpassable.

Flood Hazard Loss Estimate

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

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

Step 2. Determine number of structures in Mont Vernon located in the floodplain

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

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

- Average assessed value of all structures in Mont Vernon = $ $224,215,270.00
- Total number of structures in Mont Vernon located in 1% floodplain = 0
- Total assessed value of all structures in Mont Vernon in 1% floodplain = $0.00
- *Source:* Mont Vernon *Hazard Mitigation Team calculations based on Mont Vernon Assessing data & NRPC GIS data*

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

- Total Loss from Flooding = Total Assessed Value of all structures in 1% Floodplain * Percent Building Damage Ratio
- Total Loss from 1-foot flood depth = $0.00 * 0.15 = **$0.00**
- Total Loss from 2-foot flood depth = $0.00 * 0.20 = **$0.00**
- Total Loss from 3-foot flood depth = $0.00 * 0.23 = **$0.00**
- Total Loss from 4-foot flood depth = $0.00 * 0.28 = **$0.00**

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

- Average assessed value of all structures in Mont Vernon = $0.00
- Total number of structures in Mont Vernon located in 0.2% floodplain = 0
- Total assessed value of all structures in Mont Vernon in 0.2% floodplain = $0.00 * 0
- Total assessed value of all structures in Mont Vernon in 0.2% floodplain = $0.00
- *Source:* Mont Vernon *Hazard Mitigation Team calculations based on Mont Vernon Assessing data & NRPC GIS data*

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

- Total Loss from Flooding = Total Assessed Value of all structures in 0.2% Floodplain * Percent Building Damage Ratio
- Total Loss from 1-foot flood depth = $0.00 * 0.15 = **$0.00**

- Total Loss from 2-foot flood depth = $0.00 * 0.20 = **$0.00**
- Total Loss from 3-foot flood depth = $0.00 * 0.23 = **$0.00**
- Total Loss from 4-foot flood depth = $0.00 * 0.28 = **$0.00**

Critical Facility Type	Total Number of this type of Critical Facility in Mont Vernon	Number of this type of Critical Facility vulnerable to flooding	Percentage of this type of Critical Facility vulnerable to flooding
General Occupancy	9	0	0%
Essential Facilities	5	0	0%
Transportation	4	0	0%
Utility System	4	0	0%
High Potential Hazard	5	5	100%
Hazardous Materials	1	0	0%

Severe Wind/Tropical Storm

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

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

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

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

Category 4—sustained winds 130-156 mph. Catastrophic damage will occur. Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate

residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

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

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

Previous Occurrences of Severe Wind/Tropical Storm

Hazard Type	Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
Severe Wind	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.
Severe Wind	August 31, 1954 (Carol)	Hillsborough County	Saffir-Simpson Scale Category 3.	Extensive tree and crop damage.
Severe Wind	September 12, 1960 (Donna)	Hillsborough County	Saffir-Simpson Scale Category 3	Water damage to structures due to flooding.
Severe Wind	September 27, 1985 (Gloria)	Hillsborough County	Saffir-Simpson Scale Category 2	Damage to trees and power lines from high winds.
Severe Wind	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.
Severe Wind	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.
Severe Wind	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.

Severe Wind	October 26, 2012 (Sandy)	Hillsborough County	Tropical Storm (winds 39-73 mph).	FEMA Disaster Declaration #4095. Minimal damage.
Severe Wind	October 29-30, 2017	Hillsborough County	Tropical Storm (winds 39-73 mph).	A powerful storm fed by tropical moisture knocked out power to more than 270,000 homes and business across the state. Mont Vernon 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.
Severe Wind	There has been no significant damage from tropical-post tropical cyclones (severe wind) in Mont Vernon since 2018.			

Severe Wind Hazard Loss Estimate

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

Step 1. Determine percent building damage ratio to single family residence from Category 3 hurricane

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

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

- 5% of structures estimated to be damaged by Category 3 hurricane

- *Source: Mont Vernon Hazard Mitigation Team (no historical data on hurricane damage in Mont Vernon)*

Step 3. Determine total assessed value of structures in *Mont Vernon*

- Total Assessed Value of all Structures in *Mont Vernon* = **$224,215,270.00**
- *Source: Mont Vernon Assessing Department (2020)*

Step 4. Determine total loss from Category 3 hurricane

- Total Loss from Hurricane = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Hurricane = $224,215,270 * 0.05 * 0.2 = **$2,242,152.70**

Critical Facility Type	Total Number of this type of Critical Facilities in Mont Vernon	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	9	8	89%
Essential Facilities	5	5	100%
Transportation	4	4	100%
Utility System	4	3	75%
High Potential Hazard	5	5	100%
Hazardous Materials	1	1	100%

Lightning

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

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

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

LAL	Cloud & Storm Development	Lightning Strikes/15 min
1	No thunderstorms	-
2	Cumulus clouds are common but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds	1-8

	produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two or three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common and lightning is frequent.	16-25
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rian is moderate to heavy and lightning is frequent and intense.	>25
6	Similar to LAL 3 except thunderstorms are dry.	9-15

Previous Occurrences of Lightning

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
There are no historical records of significant damage from lightning in Mont Vernon.			

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 percent building damage ratio to single family residence from lightning

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

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

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

Step 3. Determine total assessed value of structures in *Mont Vernon*

- Total Assessed Value of all Structures in *Mont Vernon* = **$224,215,270.00**
- *Source: Mont Vernon Assessing Department (2020)*

Step 4. Determine 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 = $224,215,270.00* 0.0025 * 0.05 = **$28,026.91**

Critical Facility Type	Total Number of this type of Critical Facilities in Mont Vernon	Number of this type of Critical Facilities in Lightning Hazard Area	Percentage of this type of Critical Facilities in Lightning Hazard Area
General Occupancy	9	9	100%
Essential Facilities	5	5	100%
Transportation	4	0	0%
Utility System	4	3	75%
High Potential Hazard	5	0	0%
Hazardous Materials	1	1	100%

Severe Winter Weather

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

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

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

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

In recent years, FEMA issued disaster declarations in Hillsborough County for severe winter weather in 1998, 2008, 2010, 2011, 2013, 2015, 2017 and 2018. Among these storms was a rare Nor'easter in late October of 2011 that caused major destruction in Hillsborough and Rockingham Counties. Heavy wet snow fell on trees that had much of their foliage remaining. Many trees could not withstand the extra weight of the snow and collapsed under the stress. Damage was very focused in the southern part of New Hampshire and caused nearly three times the amount of debris that the 2008 ice storm produced.

Previous Occurrences of Severe Winter Weather

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
March 11-14, 1888	Entire jurisdiction	30-50 inches of snow	No historic data on impact
1922	Entire jurisdiction	No historic data on extent	Extreme snow drifts paralyzed road network.
February 14-15, 1940	Entire jurisdiction	Over 30 inches of snow	Snow and high winds paralyzed road network.
February 14-17, 1958	Entire jurisdiction	20-33 inches of snow	Primary impact to road network.
March 18-21, 1958	Entire jurisdiction	22-24 inches of snow	Primary impact to road network.
March 2-5, 1960	Entire jurisdiction	Up to 25 inches of snow	Primary impact to road network.
January 18-20, 1961	Entire jurisdiction	Up to 25 inches of snow	Blizzard conditions paralyze road network.
February 22-28, 1969	Entire jurisdiction	24-98 inches of snow in Central NH	Primary impact to road network. Slow moving storm.
December 25-28, 1969	Entire jurisdiction	12-18 inches of snow	Primary impact to road network.
January 19-21, 1978	Entire jurisdiction	Up to 16 inches of snow	Primary impact to road network.
February 5-7, 1978 (Blizzard of '78)	Entire jurisdiction	25-33 inches of snow	Snow paralyzed road network, trapped commuters in cars, and forced closure of businesses.
April 5-7, 1982	Entire jurisdiction	18-22 inches of snow	Primary impact to road network.
March, 1983	Entire jurisdiction	Over 18 inches of snow, 30-40 mph winds	Snow paralyzed road network and forced closure of businesses.
December 1996	Entire jurisdiction	14 inches of snow	Damage to power lines forces closure of businesses.

			Heavy wet snow caused many trees to come down.
January 7, 1998	Entire jurisdiction	Ice storm, no data on extent available	$12,446,202 in total damages, 1 death and 6 injuries in NH. $17,000,000 in damages to PSNH equipment. FEMA Disaster Declaration #1199. 20 major road closures; 67,586 without power; 2,310 without phone service; 1 communication tower failure.
December 11, 2008	Entire jurisdiction	Ice storm, no data on extent available	$10,383,602 in FEMA public assistance in NH; $6.35 per capita in Hillsborough County. FEMA Disaster Declaration #1812. Damage to power and phone lines, and trees. Damage to power and phone lines and trees.
February 23, 2010	Entire jurisdiction	Snow followed by rainfall between 2-6 inches. Winds over 70 mph.	$6,268,179 in FEMA public assistance in NH; $3.68 per capita in Hillsborough County. FEMA Disaster Declaration #1892 Damage to power and phone lines, trees, and road network. Over 330,000 customers without power state-wide.
October 29-30, 2011	Entire jurisdiction	15-20 inches of snow.	$3,052,769 in FEMA public assistance in NH; $5.11 per capita in Hillsborough County. FEMA Disaster Declaration #4049

			Damage to power and phone lines, trees, and road network.
February 8-10, 2013	Entire jurisdiction	Snowfall totals of 12-18 inches across region, up to 30 inches in parts of NH. Winds 10-20 mph with gusts up to 40 mph. Visibility less than ¼ mile.	FEMA Disaster Declaration #4105
January 26-28, 2015	Entire jurisdiction.	Snowfall totals of 18-24 inches across region. Winds 35 mph. Visibility 0.	$3,293,059 in FEMA public assistance in NH; $3.88 per capita in Hillsborough County. FEMA Disaster Declaration DR-4209.
March 14-15, 2017	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4316. No impacts to Mont Vernon.
March 13-14, 2018	Hazard was not experienced in jurisdiction	N/A	Disaster Declaration #4371. No impacts to Mont Vernon.

Severe Winter Weather Hazard Loss Estimate

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

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

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

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

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

Step 3. Determine total assessed value of structures in Mont Vernon

- Total Assessed Value of all Structures in Mont Vernon = $224,215,270.00
- *Source: Mont Vernon Assessing Department (2020)*

Step 4. Determine total loss from Severe Winter Weather

- Total Loss from Severe Winter Weather = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Severe Winter Weather = $224,215,270.00 * 0.01 * 0.05 = **$112,107.64**

Critical Facility Type	Total Number of this type of Critical Facilities in Mont Vernon	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	9	8	89%
Essential Facilities	5	5	100%
Transportation	4	4	100%
Utility System	4	3	75%
High Potential Hazard	5	5	100%
Hazardous Materials	1	1	100%

Tornado/Downburst

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

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

Hillsborough County has a higher risk of tornado activity compared to the rest of the State. Between 1961 and 1998 there were 15 known tornadoes in Hillsborough County. The most recent downburst activity occurred on July 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

Date	Hazard Location within Jurisdiction	Hazard Extent	Impact
	No Tornados have originated in Mont Vernon to-date. Tornados noted below originated in Hillsborough Co, NH.		http://www.tornadohistoryproject.com/tornado/New_Hampshire
July 2, 1961	Northern Hillsborough Co, originated near Weare, NH	Fujita Scale F2	0 fatalities, 0 injuries

July 21, 1961	Central Hillsborough Co, originated near New Boston, NH	Fujita Scale F1	0 fatalities, 0 injuries
May 9, 1963	Northeastern, Hillsborough Co, originated near Goffstown, NH	Fujita Scale F1	0 fatalities, 0 injuries
May 20, 1963	Western Hillsborough Co, originated near Peterborough, NH	Fujita Scale F1	0 fatalities, 0 injuries
June 9, 1963	Northeastern Hillsborough Co, originated near Manchester, NH	Fujita Scale F2	0 fatalities, 0 injuries
August 28, 1965	Eastern Hillsborough Co, originated near Litchfield, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 19, 1966	Southern Hillsborough Co, originated near Amherst, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 17, 1968	Central Hillsborough Co, originated near Wilton, NH	Fujita Scale F2	0 fatalities, 0 injuries
August 20, 1968	Northeastern Hillsborough Co, originated near Manchester, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 19, 1972	Southeastern Hillsborough Co, originated near Hudson, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 5, 1984	Western Hillsborough Co, originated near Harrisville, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 5, 1984	Southeastern Hillsborough Co, originated near Pelham, NH	Fujita Scale F1	0 fatalities, 0 injuries
June 16, 1986	Western Hillsborough Co, originated near Swanzey, NH	Fujita Scale F1	0 fatalities, 0 injuries
July 3, 1997	Central Hillsborough Co, originated near Greenfield, NH	Fujita Scale F2	0 fatalities, 0 injuries
May 31, 1998	Western Hillsborough Co, originated near Antrim, NH	Fujita Scale F2	0 fatalities, 0 injuries

July 6, 1999	Merrimack, Grafton, and Hillsborough Co.	Macroburst	2 fatalities, 2 lost roofs, damage to trees and utility infrastructure
July 24, 2008	Rockingham, Merrimack, Belknap, Strafford and Carrol Co.	Fujita Scale F2	1 fatality, 2 injuries, significant structural damage

Tornado Hazard Loss Estimate

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

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

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

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

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

Step 3. Determine total assessed value of structures in Mont Vernon

- Total Assessed Value of all Structures in Mont Vernon = $224,215,270.00
- *Source: Mont Vernon Assessing Department (2020)*

Step 4. Determine total loss from F2 Tornado

- Total Loss from Tornado = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Tornado = $224,215,270.00* 0.01 * 0.5 = **$1,121,076.35**

Critical Facility Type	Total Number of this type of Critical Facilities in Mont Vernon	Number of this type of Critical Facilities in Tornado Hazard Area	Percentage of this type of Critical Facilities in Tornado Hazard Area
General Occupancy	9	8	89%
Essential Facilities	5	5	100%
Transportation	4	4	100%
Utility System	4	3	75%
High Potential Hazard	5	5	100%
Hazardous Materials	1	1	100%

Wildfire

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

Previous Occurrences of Wildfire

Wildfire	June 2012	Cemetery Road	NWCG Fire Class A—¼ acre of brush burned	No significant damage
Wildfire	2020	Rolling Acres Mobile Home Park	NWCG Fire Class A—¼ acre of brush burned	No significant damage

Wildfire Hazard Loss Estimate

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

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

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

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

Step 3. Determine total assessed value of structures in Mont Vernon

- Total Assessed Value of all Structures in Mont Vernon = $224,215,270.00
- *Source: Mont Vernon Assessing Department (2020)*

Step 4. Determine total loss from Wildfire

- Total Loss from Wildfire = Total Assessed Value of all Structures *Percentage of Structures Estimated to be Damaged * Percent Building Damage Ratio
- Total Loss from Wildfire = $224,215,270.00 * 0.005 * 0.2 = **$224,215.27**

Critical Facility Type	Total Number of this type of Critical Facilities in Mont Vernon	Number of this type of Critical Facilities in Wildfire Hazard Area	Percentage of this type of Critical Facilities in Wildfire Hazard Area
General Occupancy	9	8	89%
Essential Facilities	5	5	100%
Transportation	4	0	0%
Utility System	4	3	75%
High Potential Hazard	5	0	0%
Hazardous Materials	1	1	100%

Section 3.4 ~ Overall Summary of Vulnerability

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

Table 6—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 - 0% of Mont Vernon population on public drinking water, 100% of Mont Vernon population on private well water. Loss of water for fire protection. Increased risk of fire.	General Occupancy = 33% Essential Facilities = 0% Transportation = 0% Utility Systems = 33% High Potential Hazard = 0% Hazardous Materials = 0%	66.1 acres of agricultural land (0.6% of total land area)	Calculating $ value of losses is beyond the scope of this Plan (see Section 3.3 Drought for explanation)
Earthquake	• General Occupancy • Essential Facilities • Transportation • Utility Systems • High Potential	Structural damage or collapse of buildings. Damage or loss of infrastructure, including roads,	General Occupancy = 89% Essential Facilities = 100%	1% to 5%	**$103,109 to $515,695**

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	bridges, railroads, power and phone lines, municipal communications, radio system. 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 = 0% Essential Facilities = 0% Transportation = 0% Utility Systems = 0% High Potential Hazard = 0% Hazardous Materials = 0%	0%	**$0**
Flooding	Not likely to have a significant impact on structures in Mont Vernon.	Water damage to structures and their contents. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, radio system. Environmental hazards resulting from damage. Isolation of	Occupancy = 0% in floodplain Essential Facilities = 0% in floodplain Transportation = 0% in floodplain Utility Systems = 0% in floodplain High Potential Hazard = 0% in floodplain	0 structures in 1% annual floodplain 0 structures in 0.2% annual floodplain	Loss in 1% floodplain: 1-foot flood = **$0** 2-foot flood = **$0** 3-foot flood = **$0** 4-foot flood = **$0** Loss in 0.2% floodplain: 1-foot flood = **$0**

Hazard	Types of Critical Facilities Impacted by Hazard	Impact of Hazard	% of Critical Facilities in Hazard Area	% of Structures Estimated to be Damaged	$ Value of Loss
		neighborhoods resulting from flooding.	Hazardous Materials = 0% in floodplain		2-foot flood = **$0** 3-foot flood = **$0** 4-foot flood = **$0**
Severe Wind/Hurricane	• General Occupancy • Essential Facilities • Transportation • Utility Systems • High Potential Hazard • Hazardous Materials	Wind damage to structures and trees. Water damage to structures and their contents. Damage or loss of infrastructure, including roads, bridges, railroads, power and phone lines, municipal communications, radio system. Environmental hazards resulting from damage. Isolation of neighborhoods resulting from flooding.	General Occupancy = 89% Essential Facilities = 100% Transportation = 100% Utility Systems = 75% High Potential Hazard = 100% Hazardous Materials = 100%	5%	**$2,242,153**
Lightning	• General Occupancy • Essential Facilities • Utility System • Hazardous Materials	Smoke and fire damage to structures. Disruption to power lines and municipal communications. Damage to critical electronic equipment.	General Occupancy = 100% Essential Facilities = 100% Transportation = 0% Utility Systems = 75%	0.5%	**$28,027**

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
		Injury or death to people involved in outdoor activity.	High Potential Hazard = 0% Hazardous Materials = 100%		
Severe Winter Weather	• General Occupancy • Essential Facilities • Transportation System • Utility System • High Potential Hazard • Hazardous Materials	Disruption to road network. Damage to trees and power lines, communications. Structural damage to roofs/collapse. Increase in CO, other hazards.	General Occupancy = 89% Essential Facilities = 100% Transportation = 100% Utility Systems = 75% High Potential Hazard = 100% Hazardous Materials = 100%	1%	**$112,108**
Tornado/Downburst	• General Occupancy • Essential Facilities • Transportation System • 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 = 89% Essential Facilities = 100% Transportation = 100% Utility Systems = 75% High Potential Hazard = 100% Hazardous Materials = 100%	1%	**$1,121,076**
Wildfire	• General	Smoke and fire	General	0.5%	**$224,215**

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
	Occupancy • Essential Facilities • Utility System • Hazardous Materials	damage to structures in wild land/urban interface. Damage to habitat. Impacts to air quality. Loss of natural resources.	Occupancy = 89% Essential Facilities = 100% Transportation = 0% Utility Systems = 75% High Potential Hazard = 0% Hazardous Materials = 100%		

Table 7—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
General Occupancy Critical Facilities	9	3	8	0	0	8	9	8	8	8
Essential Facilities	5	0	5	0	0	5	5	5	5	5

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
Transportation	4	0	4	0	0	4	0	4	4	0
Utility	4	1	4	0	0	3	3	3	3	3
High Hazard	5	0	5	0	5	5	0	5	5	0
Hazardous Materials	1	0	1	0	0	1	1	1	1	1

Section 3.5 ~ National Flood Insurance Program

The Town of Mont Vernon 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). Mont Vernon joined the NFIP on October 25, 2010. The Town's initial Flood Hazard Boundary Map was identified on January 17, 1975 and its initial Flood Insurance Rate Map was identified on September 25, 2009. The current effective map date is September 25, 2009.

Mont Vernon has 1 NFIP policy in force and $350,000 of insurance in force. There have been 0 paid losses totaling $0. Mont Vernon has no repetitive loss properties.

As a participant in the NFIP, communities must agree to adopt a floodplain management ordinance and enforce the regulations found in the ordinance. Mont Vernon has adopted the "Floodplain Management" ordinance, which establishes a permit system and review procedure for development activities in the designated flood hazard areas of the Town. The regulations in this ordinance overlay and supplement the regulations in the Town of Mont Vernon Zoning Ordinance, Building Code, and Subdivision Regulations and are considered part of the Zoning Ordinance, Building Code, and Subdivision Regulations for purposes of administration and appeals under state law. If any provision of this ordinance differs or appears to conflict with any provision of the Zoning Ordinance or Building Code or

other ordinance or regulation, the provision imposing the greater restriction or more stringent standard shall be controlling. This ordinance is administered by the building inspector.

The regulations in this ordinance apply only to lands designated as special flood hazard areas by the Federal Emergency Management Agency (FEMA) in its "Flood Insurance Study for the County of Hillsborough, N.H." dated September 25, 2009 or as amended, together with the associated Flood Insurance Rate Maps dated September 25, 2009 or as amended. The ordinance includes the following sections: Purpose (§1-701), Establishment (§1-702), Permits (§1- 703), Construction Requirements (§1-704), Water and Sewer Systems (§1-705), Certification (§1-706), Other Permits (§1-707), Watercourses (§1-708), Special Flood Hazard Areas (§1-709), Variances and Appeals (§1-710), Severability (§1-711), Enforcement (§1-712), and Definitions (§1-713).

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

Table 8—National Flood Insurance Program Mitigation Actions

National Flood Insurance Program Mitigation Actions			
Mitigation Action	**Mitigation Type**	**Hazard Addressed**	**Critical Facilities Addressed**
Prepare, distribute, or make available NFIP, insurance, and building codes explanatory pamphlets or booklets.	• Public Information	• Flooding	• General Occupancy • Essential Facilities
Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.	• Public Information	• Flooding	• General Occupancy • Essential Facilities
Prepare, distribute or make available NFIP, insurance and building codes explanatory pamphlets or booklets.	• Public Information	• Flooding	• General Occupancy • Essential Facilities

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—Mitigation Actions

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
Mitigation Actions Originally Identified in Mont Vernon Hazard Mitigation Plan 2015			
Removing underbrush and standing deadwood around residences and in residential areas to reduce the likelihood of wildfires jumping to residential housing.	• Natural Resource Protection	• Wildfire	• General Occupancy
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.	• Prevention	• Earthquake • Flooding • Severe Wind • Severe Winter Weather	• General Occupancy • Essential Facilities • Hazardous Materials Facilities
Protect critical facilities and infrastructure from lightning damage by maintaining lightning rods and surge protection equipment on critical electronics and replacing when necessary.	• Prevention • Property Protection	• Lightning	• General Occupancy • Essential Facilities
Take measures to ensure vulnerable populations are adequately protected	• Prevention • Public Information	• Extreme Temperatures • Severe Winter	• Human lives

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
from the impacts of extreme temperature, including establishing warming and cooling stations as needed.		Weather	
Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations to improve floodplain management in Mont Vernon.	• Prevention	• Flooding	• General Occupancy • Essential Facilities • Transportation Systems • Utility Systems • High Potential Hazard • Hazardous Materials
Conduct risk awareness activities to raise public awareness of mitigation strategies for a variety of natural hazards.	• Public Information	• Severe Winter Weather • Drought • Tornado	• General Occupancy
National Flood Insurance Program Mitigation Actions			
Prepare, distribute, and make available NFIP, insurance, and building codes explanatory pamphlets or booklets by updating with current best practices and floodplain information.	• Public Information	• Flooding	• General Occupancy • Essential Facilities
Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.	• Public Information	• Flooding	• General Occupancy • Essential Facilities
Additional Mitigation Actions			
Encourage the use of permeable driveways and surfaces in planning to reduce runoff and promote groundwater recharge.	• Prevention • Natural Resource Protection • Public information	• Flooding • Drought	• General Occupancy • Essential Facilities
Review construction plans for all bridges to	• Prevention • Property Protection	• Flooding • Severe Winter	• Transportation Systems

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
determine their susceptibility to collapse and retrofit old bridges.		Weather • Severe Wind • Tornado • Earthquake	
Inventory of town-wide special needs and at-risk populations for mitigation planning as well as town-wide questionnaire to identify privately maintained social and physical resources available to town officials during an emergency response.	• Prevention • Public Information	• Extreme Temperatures	• Human Lives
Promote the increase of tree plantings around buildings to shade parking lots and public rights of way.	• Prevention • Public Information	• Extreme Temperatures	• Human Lives
Upgrade all existing overhead utility lines (adjust pole sizes, utility pole span, widths, and/or line strength). Bury all new power lines to provide uninterrupted power after severe winds.	• Prevention	• Severe Winter Weather • Severe Wind • Tornado	• Utility Systems
Educate homeowners on the benefits of wind retrofits such as shutters, hurricane clips, etc.	• Prevention • Public Information	• Severe Wind	• Human Lives
Educate homeowners of the importance of installing carbon monoxide monitors and alarms, and that all fuel burning equipment should be vented outside.	• Prevention • Public Information	• Severe Winter Weather • Extreme Temperatures	• Human Lives
Promote the construction of safe	• Prevention • Property Protection	• Tornado • Severe Wind	• Human Lives

Mitigation Action	Mitigation Type	Hazard Addressed	Critical Facilities Addressed
rooms in new schools and nursing homes in all new developments.			
Sponsor local "slash and clean-up days" to reduce fuel loads along the wildland-urban interface.	• Prevention • Property Protection • Public Information	• Wildfire	• General Occupancy • Essential Facilities
Continue to work with Eversource to harden electrical infrastructure, including trimming trees near power lines.	• Prevention	• Severe Winter Weather • Severe Wind	• Transportation Systems • Utility Systems

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
Remove underbrush and standing deadwood around residences and in residential areas to reduce the likelihood of wildfires jumping to residential housing.	• This action would be effective at preventing wildfire and reducing future losses. • This action would be most beneficial to portions of Town near wooded areas. • This action would help reduce fire suppression costs.	• Additional disposal and wage expenses. • Large scale wildfires are relatively rare in Mont Vernon and therefore the costs of implementing this action may outweigh the benefits.
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	• 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 Code Enforcement budget

Mitigation Action	Likely Benefits	Likely Costs
and infrastructure from the impacts of earthquake, flooding, severe wind, severe winter weather, and tornado.		(source: 2020-21 Mont Vernon Town budget item)
Protect critical facilities and infrastructure from lightning damage by maintaining lightning rods and surge protection equipment on critical electronics.	• Reduced inconvenience and loss associated with a shutdown of critical facilities due to lightning damage.	• 1,000-$5,000 per critical facility for lightning protection devices (source: 2020-21 Operating Budget)
Take measures to ensure vulnerable populations are adequately protected from the impacts of extreme temperature, including establishing warming and cooling stations as needed.	• 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	• Percentage of existing Fire Department and Emergency Management budget (source: 2020-21 Operating Budget, Code Enforcement)
Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations to improve floodplain management in Mont Vernon.	• This action would be most beneficial to residents in flood-prone areas of Town. • This action has the potential to reduce flood related economic losses.	• There are potential economic costs associated with limiting where development can go. • Percentage of existing Planning/Zoning Item (source: 2020-21 Operating Budget, Planning and Zoning)
Conduct risk awareness activities to raise public awareness of mitigation strategies for a variety of natural hazards.	• 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/activities. • Percentage of Fire Department Education and Training Budget (source: 2020-21 Operating Budget)
Prepare, distribute, and make available NFIP, insurance, and building codes explanatory pamphlets or booklets by updating with current best practices and floodplain information.	• Educate residents, builders, and other professionals about NFIP. • Reduce property loss costs associated with flooding.	• Minimal, part of normal town operations • $500 annually; part of existing Code Enforcement budget (source: 2020-21 Operating Budget, Code Enforcement)
Participate in NFIP training offered by the State and/or	• Educate residents, builders, and other	• $0 in additional costs; Percentage of existing

Mitigation Action	Likely Benefits	Likely Costs
FEMA (or in other training) that addresses flood hazard planning and management.	professionals about NFIP • Reduce property loss costs associated with flooding	Code Enforcement budget (source: 2020-21 Operating Budget, Code Enforcement)
Encourage the use of permeable driveways and surfaces in planning to reduce runoff and promote groundwater recharge.	• This action would benefit residents in flood-prone areas. • This action has the potential to reduce the impacts of drought.	• Enforced by the Planning Board during normal operations. • $0 in additional costs; Percentage of existing Planning and Zoning budget (source: 2020-21 Operating Budget, Code Enforcement)
Review construction plans for all bridges to determine their susceptibility to collapse and retrofit old bridges.	• Taking this action helps reduce the risk of major repair costs that might occur if no action were taken. • Solves the problem of bridge and roadway failure during hazard events and ensures safe, reliable transportation.	• Very costly action to implement (Future CIP item)
Inventory of town-wide special needs and at-risk populations for mitigation planning as well as town-wide questionnaire to identify privately maintained social and physical resources available to town officials during an emergency response.	• Helps vulnerable populations. • Voluntary participation.	• Percentage of existing Fire Department and Emergency Management budgets (source: 2020-21 Operating Budget, Code Enforcement)
Promote the increase of tree plantings around buildings to shade parking lots and public rights of way.	• This action would help alleviate the impacts of extreme temperatures. • Helps vulnerable populations.	• $0 additional costs; Percentage of existing Planning and Zoning budget (source: 2020-21 Operating Budget, Code Enforcement)
Upgrade all existing overhead utility lines (adjust pole sizes, utility pole span, widths, and/or line strength). Bury all new power lines to provide uninterrupted power after severe winds.	• Reduced inconvenience and loss associated with a shutdown of critical facilities. • Decreased burden on vulnerable populations.	• Burying power lines may be cost prohibitive • Buried power lines would only benefit those living in areas with underground utilities. • $5,000 for preliminary cost benefit review of power line burial (source: 2020-

Mitigation Action	Likely Benefits	Likely Costs
		21 Operating Budget, Planning and Zoning)
Educate homeowners on the benefits of wind retrofits such as shutters, hurricane clips, etc.	• This action would be effective at avoiding and preventing future losses. • This action is beneficial to residential structures	• $0 additional costs; Percentage of existing Code Enforcement budget (source: 2020-21 Operating Budget, Code Enforcement)
Educate homeowners of the importance of installing carbon monoxide monitors and alarms, and that all fuel burning equipment should be vented outside.	• Protects human life during severe winter weather • Voluntary participation	• Percentage of existing Fire Department budget (source: 2020-21 Operating Budget)
Promote the construction of safe rooms in new schools and nursing homes in all new developments.	• Helps protect vulnerable populations.	• Could be cost-prohibitive to developers • Percentage of existing Planning and Zoning and Code Enforcement budget (source: 2020-21 Operating Budget, Code Enforcement)
Sponsor local “slash and clean-up days” to reduce fuel loads along the wildland-urban interface.	• This action would result in reduced fire-fighting costs. • This action would be most beneficial to portions of Town near wooded areas.	• $0 additional costs; Percentage of existing Fire Department budget (source: 2020-21 Operating Budget, Code Enforcement)
Continue to work with Eversource to harden electrical infrastructure, including trimming trees near power lines.	• This action would result in reduced fire-fighting costs. • This action would be most beneficial to portions of Town near wooded areas. • Fewer trees directly along road would also reduce root systems in roadways, allow more sunlight for better snowmelt, and improve overall improve road conditions.	• Minimal, part of normal town operations • Removal of trees along designated scenic roads requires Planning Board approval • Tree removal may be incompatible with local aesthetics • $1,200-$1,500 per large tree for removal (source: 2020-21 Operating Budget, Road Maintenance)

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

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

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

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

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. Actions that received the same STAPLEE score will be further prioritized by the Hazard Mitigation Team based on implementation costs. The STAPLEE analysis and prioritized mitigation actions appear in Table 11 below.

Table 11—STAPLEE Analysis

Mitigation Action: 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.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	There are not social impacts associated with this action. Enforcement would apply evenly across all applicable buildings, including new construction, major renovations, and changes of use.	0	3
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)	Mont Vernon has the capability to implement this action. Responsibility would fall under the Mont Vernon Building Inspector.	0	3
Political	There is public support for this action. Concerns may exist among some property owners who would be directly impacted.	-1	2
Legal	Mont Vernon has adopted these codes and has the legal authority to enforce them.	0	2
Economic (including direct cost)	There would be no additional costs associated with enforcing building codes, as it falls under the existing Building Inspection budget. This action could have a positive economic impact by reducing the number of emergency response calls.	0	2
Environmental	This action is environmentally beneficial if residents pay attention to and comply with reduced water consumption measures.	0	2
Subtotal		**-1**	**17**
Total		**16**	
Priority		**1**	

Mitigation Action: Upgrade all existing overhead utility lines (adjust pole sizes, utility pole span, widths, and/or line strength). Bury all new power lines to provide uninterrupted power after severe winds.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would not unfairly affect any segment of the population or disrupt established neighborhoods. It is generally compatible with community values.	0	2
Technical	This action would be effective in avoiding or reducing future losses. It is very likely that a severe winter storm or severe wind event will occur and impact power lines. It would not create more problems than it solves, and it solves the problem rather than only a symptom.	0	3
Administrative (including responsible party)	Mont Vernon has the capacity to implement this action. The Mont Vernon Public Works Department and Eversource would be the responsible parties. The Planning Board is responsible for considering the costs/benefits of burying power lines.	0	3
Political	In general, there is political support for this action. Developers may not support this action if it significantly increases their costs.	-1	3
Legal	Mont Vernon has the legal authority to implement this action.	0	3
Economic (including direct cost)	Some costs associated with this action would be borne by developers. The remaining costs would be borne by the Town. The benefits of a more resilient electrical infrastructure far outweigh the costs of this action.	-1	3
Environmental	There are no environmental impacts associated with this action.	0	0
Subtotal		**-2**	**17**
Total		**15**	
Priority		**2**	

Mitigation Action: Continue to work with Eversource to harden electrical infrastructure, including trimming trees near power lines.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would not unfairly affect any segment of the population or disrupt established neighborhoods. It is generally compatible with community values that understand trees need to be trimmed for road maintenance and public safety, although all residents do not agree with this.	-1	2
Technical	This action would be effective in avoiding or reducing future losses. It is very likely that a severe winter storm or severe wind event will occur and impact power lines. It would not create more problems than it solves, and it solves the problem rather than only a symptom. Fewer trees directly along the road would also improve drainage, reduce rood systems in the roadway, and allow more sunlight to melt the snow, all resulting in better road conditions.	0	2
Administrative (including responsible party)	Mont Vernon has the capacity to implement this action. The Mont Vernon Public Works Department and Eversource would be the responsible parties.	0	3
Political	In general, there is political support for this action, although there may be some opposition to tree trimming along designated scenic roads. Developers may not support this action if it significantly increases their costs.	-1	3
Legal	The Town does not have the authority to trim trees along scenic roads without first receiving approval from the Planning Board. The Planning Board has the legal authority to declare dead trees along a scenic road a public hazard and therefore allow them to be removed.	-1	3
Economic (including direct cost)	Some costs associated with this action would be borne by Eversource. The remaining costs would be borne by the Town. The removal of large trees would cost an estimated $1,200 per tree and would be performed by a hired contractor. The benefits of a more resilient electrical infrastructure far outweigh the costs of this action.	-1	3
Environmental	This action would positively impact the environment by improving road drainage and decreasing the need to use ice melting agents.	0	3
Subtotal		**-4**	**19**
Total		**15**	
Priority		**2**	

Mitigation Action: Take measures to ensure vulnerable populations are adequately protected from the impacts of extreme temperature, including establishing warming and cooling stations as needed.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action primarily benefits Mont Vernon's most vulnerable residents. It is compatible with present and future community values.	0	2
Technical	This action does not solve the problem of extreme temperatures, but it does solve the symptom of exposure. Extreme temperatures are very likely to occur in Mont Vernon, so mitigation measures are important.	0	2
Administrative (including responsible party)	Mont Vernon has the capability to implement this action. Emergency Management and the Fire Department are responsible for it and it falls under ongoing emergency management operations. This action can be implemented in a very timely manner.	0	3
Political	There is public support to implement and maintain this action.	0	2
Legal	Mont Vernon 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	3
Environmental	There are no environmental impacts associated with this action.	0	0
Subtotal		**0**	**14**
Total		**14**	
Priority		**3**	

Mitigation Action: Inventory of town-wide special needs and at-risk populations for mitigation planning as well as town-wide questionnaire to identify privately maintained social and physical resources available to town officials during an emergency response.			
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 Fire Department and Emergency Management are responsible for implementing this action.	-1	2
Political	There is political support for this action.	0	2
Legal	The Town has the authority to implement this action and no enabling legislation is necessary. Participation in this program in entirely voluntary.	0	2
Economic (including direct cost)	This action would cost roughly $750 annually. It is consistent with normal town operations and does not impose additional economic costs.	-1	2
Environmental	This action would not impact the environment.	0	0
Subtotal		**-2**	**14**
Total		**12**	
Priority		**4**	

Mitigation Action: Conduct risk awareness activities to raise public awareness of mitigation strategies for a variety of natural hazards.			
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 does not solve the problem of natural hazards, but it does solve the symptoms and helps protect human life.	0	3
Administrative (including responsible party)	The Town has the capability to implement this action if residents partake in activities. Participation is entirely voluntary. The Fire and Police Departments are the responsible party for implementing this action.	0	1
Political	There is political support for this action.	0	2
Legal	There are no legal issues associated with this action.	0	1
Economic (including direct cost)	This action is consistent with normal Fire Department operations and does not impose additional economic costs.	0	2
Environmental	This action would not impact the environment.	0	0
Subtotal		**0**	**11**
Total		**11**	
Priority		**5**	

Mitigation Action: Encourage the use of permeable driveways and surfaces in planning to reduce runoff and promote groundwater recharge.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would affect property owners. It would have a positive social impact on the community by reducing flooding.	0	2
Technical	This action helps solve the problem of flood related damage. It is effective in reducing future losses.	0	2
Administrative (including responsible party)	Mont Vernon has the capability to implement this action. Revisions to regulations require a public hearing. The Planning Board and Public Works Department are the responsible party for this action.	-1	2
Political	There is public support for this action, though concerns exist among some property owners who would be directly impacted.	-1	2
Legal	Mont Vernon has the legal authority to implement this action.	0	1
Economic (including direct cost)	It is recommended that this action is completed in conjunction with similar mitigation actions to maximize economic benefits.	0	1
Environmental	This action has positive environmental impacts by encouraging erosion control and reduced floodplain development. It is consistent with community environmental goals.	0	2
Subtotal		**-1**	**12**
Total		**11**	
Priority		**5**	

Mitigation Action: Promote the increase of tree plantings around buildings to shade parking lots and public rights of way.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action does not unfairly impact any segment of the population and it is compatible with present and future community values.	0	2
Technical	This action helps to mitigate the effects of extreme temperatures (heat).	0	1
Administrative (including responsible party)	The Mont Vernon Planning Board is responsible for drafting new ordinances.	0	2
Political	There may be some opposition to additional regulations.	-1	1
Legal	The Town has the authority to implement this action.	0	1
Economic (including direct cost)	There are minimal costs associated with this action, it is consistent with normal Planning Board operation.	0	2
Environmental	This action has a positive impact on the environment by promoting green designs.	0	3
Subtotal		**-1**	**12**
Total		**11**	
Priority		**5**	

Mitigation Action: Educate homeowners of the importance of installing carbon monoxide monitors and alarms, and that all fuel burning equipment should be vented outside.			
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 does not solve the problem of severe winter weather, but it does solve the symptom of carbon monoxide poisonings and protects human life.	0	2
Administrative (including responsible party)	The Town has the capability to implement this action if information is voluntarily provided by residents. The Mont Vernon Fire Department is responsible for implementing this action.	0	2
Political	There is political support for this action.	0	2
Legal	There are no legal issues associated with this action.	0	2
Economic (including direct cost)	This action is consistent with normal Fire Department operations and does not impose additional economic costs.	0	2
Environmental	This action would not impact the environment.	0	0
Subtotal		**0**	**11**
Total		**11**	
Priority		**5**	

Mitigation Action: Protect critical facilities and infrastructure from lightning damage by maintaining lightning rods and surge protection equipment on critical electronics and replacing as necessary.			
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	3
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 outages. However, incidents related to lightning are very rare in Mont Vernon.	0	1
Administrative (including responsible party)	Mont Vernon has the capacity to implement this action. Each critical facility department head is responsible for implementing the installation of lightning protection devices. There are already grounding devices on the Communications building.	0	2
Political	There is political support to implement and maintain this action.	0	2
Legal	Merrimack has the authority to implement this action.	0	2
Economic (including direct cost)	The cost of $1,000-$5,000 per critical facility for lightning protection devices would come out of the Mont Vernon Town Buildings and Grounds appropriation. Given the infrequent occurrence of lightning strikes and the fact that there has been no damage recorded, the costs of this action seem to outweigh the benefits.	-2	1
Environmental	This action would not impact the environment.	0	0
Subtotal		**-2**	**12**
Total		**10**	
Priority		**6**	

Mitigation Action: Remove underbrush and standing deadwood around residences and in residential areas to reduce the likelihood of wildfires jumping to residential housing.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would be particularly beneficial to those living in rural areas.	0	2
Technical	This action would help to solve the problem of wildfires and reduce future loss	0	3
Administrative (including responsible party)	Mont Vernon has the administrative capability to implement this action. The Fire Department and Public Works Department would be the responsible parties.	0	0
Political	There is public support to implement and maintain this action.	0	1
Legal	Mont Vernon has the legal authority to implement this action. Scenic roads and town owned ROW must use best management practices.	-1	2
Economic (including direct cost)	This action is not part of the Fire Department's existing budget and additional funding would be needed to implement it.	-2	3
Environmental	Maintaining forest ecology can reduce wildlife risk and have a positive impact on habitat.	0	1
Subtotal		**-3**	**12**
Total		**10**	
Priority		**6**	

Mitigation Action: Prepare, distribute, and make available NFIP, insurance, and building codes explanatory pamphlets or booklets by updating with current best practices and floodplain information.			
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 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	1
Administrative (including responsible party)	Mont Vernon has the capability to implement this action. The Building Inspector would be responsible for it. It can be accomplished in a timely manner.	0	1
Political	There is public support to implement and maintain this action.	0	2
Legal	Mont Vernon 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	1
Economic (including direct cost)	This action is consistent with normal town operations and does not impose additional economic costs.	0	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	2
Subtotal		**0**	**10**
Total		**10**	
Priority		**6**	

Mitigation Action: Review construction plans for all bridges to determine their susceptibility to collapse and retrofit old bridges.			
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	3
Technical	This action is effective in avoiding or reducing future losses. It would improve community and municipal safety by protecting human lives. Further engineering review could be expensive.	-2	3
Administrative (including responsible party)	The Building Inspector and Public Works Department are the responsible parties.	0	2
Political	There is public support to implement this action.	0	2
Legal	Mont Vernon has the legal authority to implement this action.	0	1
Economic (including direct cost)	Reviewing construction plans is consistent with normal town operations and does not impose additional economic costs. Retrofitting old bridges could be costly.	-2	3
Environmental	This action would not impact the environment.	0	0
Subtotal		**-4**	**14**
Total		**10**	
Priority		**6**	

Mitigation Action: Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations to improve floodplain management in Mont Vernon.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would impact property owners subject to the revised subdivision regulations. It would have a positive social impact on the community by reducing flooding.	-1	1
Technical	This action helps solve the problem of flood related damage. It is effective in reducing future losses.	0	2
Administrative (including responsible party)	Mont Vernon has the capability to implement this action. Revisions to regulations require a public hearing. The Planning Board is the responsible party for this action.	0	1
Political	There is public support to implement and maintain this action and the Town Council is willing to support it.	0	0
Legal	Mont Vernon has the legal authority to implement this action.	0	1
Economic (including direct cost)	There are no additional costs to the Town to implement this action because it falls under the existing Community Development budget. There are potential economic costs associated with limiting where development can go.	-1	2
Environmental	This action has positive environmental impacts by encouraging erosion control and reduced floodplain development. It is consistent with community environmental goals.	0	3
Subtotal		**-1**	**10**
Total		**9**	
Priority		**7**	

Mitigation Action: Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.			
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. Given that flooding is relatively rare in Mont Vernon, this action would likely have minimal impact.	0	1
Administrative (including responsible party)	The Mont Vernon Building Inspector would participate in this training. Given how rare flooding is in Mont Vernon, it might not make administrative sense to have additional staff participate.	0	1
Political	There is political support to implement this action.	0	1
Legal	Mont Vernon 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. The cost for the Building Inspector to attend the training would come out of the Building Inspection budget. Given how rare flooding is in Mont Vernon, it might not make financial sense to have additional staff participate.	-1	1
Environmental	This action has the potential to reduce property damage and subsequent environmental impacts.	0	1
Subtotal		**-1**	**9**
Total		**8**	
Priority		**8**	

Mitigation Action: Promote the construction of safe rooms in new schools and nursing homes in all new developments.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would be implemented on a voluntary basis, so it would not unfairly affect any one segment of the population. Protecting vulnerable and large populations is compatible with community values.	0	2
Technical	This action is only affective at avoiding or reducing future losses if residents/developers voluntarily construct safe rooms.	-1	2
Administrative (including responsible party)	The Town has the capability to implement this action. The Planning Board and Building Inspector are responsible for implementing this action.	0	1
Political	There could be opposition from developers as safe rooms would impose additional costs.	-1	2
Legal	The Town has the authority to implement this action and no enabling legislation is necessary. Construction of safe rooms is entirely voluntary.	-1	2
Economic (including direct cost)	This action is consistent with normal Planning Board and Building Inspection operations. It would not impose any additional economic costs.	0	1
Environmental	This action would not impact the environment.	0	0
Subtotal		**-3**	**10**
Total		**7**	
Priority		**9**	

Mitigation Action: Sponsor local "slash and clean-up days" to reduce fuel loads along the wildland-urban interface.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action does not unfairly impact any segment of the population and it is compatible with present and future community values. It is most valuable to portions of town near wooded areas	0	2
Technical	This action helps to avoid or reduce future losses. It has the potential to solve the underlying problem of wildfires by removing the fuel source. It will not create additional problems or cause secondary impacts.	0	2
Administrative (including responsible party)	Mont Vernon has the capability to implement this action, although it poses an additional burden on the Fire Department. Eversource is responsible for removing underbrush and standing deadwood under power lines.	-1	1
Political	There is public and political support for this action.	0	1
Legal	Mont Vernon 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 Mont Vernon and therefore the costs of implementing this action may outweigh the benefits. It is part of the existing Fire Department budget. Eversource would be responsible for the direct costs of brush removal under power lines.	-1	2
Environmental	Fire is a natural part of the ecosystem and suppressing it may have negative consequences. On the other hand, large-scale, man-made fires can have a detrimental impact on the environment.	0	0
Subtotal		**-2**	**9**
Total		**7**	
Priority		**9**	

Mitigation Action: Educate homeowners on the benefits of wind retrofits such as shutters, hurricane clips, etc.			
Criteria	**Evaluation**	**Cost**	**Benefit**
Social	This action would not unfairly affect any segment of the population, disrupt established neighborhoods, or adversely affect cultural resources.	0	0
Technical	This action does not solve the problem of severe wind, but it does protect human life.	0	2
Administrative (including responsible party)	The Town has the capability to implement this action. The Building Inspector is responsible for implementing this action.	0	1
Political	There is political support for this action.	0	1
Legal	There are no legal issues associated with this action.	0	1
Economic (including direct cost)	This action is consistent with normal Building Inspection operations and does not impose additional economic costs.	0	1
Environmental	This action would not impact the environment.	0	0
Subtotal		**0**	**6**
Total		**6**	
Priority		**10**	

Section 4.4 ~ Implementing and Administering Mitigation Actions

The Town of Mont Vernon has incorporated and will continue to integrate requirements of the Mont Vernon Hazard Mitigation Plan Update 2021 into other planning mechanisms. For example, mitigation and preparedness actions from the 2015 Hazard Mitigation Plan were incorporated into the last update of the Mont Vernon Emergency Operations Plan. Hazard assessments from the Mont Vernon Hazard Mitigation Plan Update 2021 will be integrated into the next update of the Mont Vernon Emergency Operations Plan. In addition, updates to Mont Vernon's Capital Improvement Plan will include any applicable mitigation projects identified in the Hazard Mitigation Plan. The next update to the Town's Master Plan will also incorporate elements of the Hazard Mitigation Plan where applicable.

The Merrimack Hazard Mitigation Team will be responsible for helping Town boards and departments to integrate the Hazard Mitigation Plan into their own planning mechanisms. The Hazard Mitigation Team developed Table 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, or ongoing*
Medium Term	2-3 years
Long Term	4-5 years

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

Table 12—Implementation and Administration

Mitigation Action	Responsible Party	Cost & Funding	Timeframe
1. 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.	Building Inspector	Cost = $0 additional costs, percentage of existing Code Enforcement budget. Funding Source: Mont Vernon Operating Budget	Ongoing
2. Upgrade all existing overhead utility lines (adjust pole sizes, utility pole span, widths, and/or line strength). Bury all new power lines to provide uninterrupted power after severe winds.	Public Works Department, Eversource	Cost = Burying power lines may be cost prohibitive; $5,000 for preliminary cost benefit review of power line burial. Funding Source: Mont Vernon CIP, Operating Budget	Short Term
3. Continue to work with Eversource to harden electrical infrastructure, including trimming trees near power lines.	Public Works Department, Eversource	Cost = Minimal, part of normal town operations, $1,200-1,500 per tree for removal. Funding Source: Mont Vernon Operating Budget	Ongoing
4. Take measures to ensure vulnerable populations are adequately protected from the impacts of extreme temperature, including establishing warming and cooling stations as needed.	Emergency Management, Fire Department	Cost = $0 additional costs, this action falls under Mont Vernon's existing Fire Department and Emergency Management budget. Funding Source: Mont Vernon Operating Budget	Short Term
5. Inventory of town-wide special needs and at-risk populations for mitigation planning as well as town-wide questionnaire to identify privately maintained social and physical resources available to town officials during an emergency response.	Fire Department, Emergency Management	Cost = This action would cost roughly $750 annually but is consistent with normal town operations and does not impose additional economic costs. Funding Source: Mont Vernon Operating Budget	Ongoing
6. Conduct risk awareness activities to	Fire	Cost = Minimal, part of	Short

Mitigation Action	Responsible Party	Cost & Funding	Timeframe
raise public awareness of mitigation strategies for a variety of natural hazards.	Department, Police Department	normal town operations. Part of existing Police and Fire Department budgets. Funding Source: Mont Vernon Operating Budget	Term
7. Encourage the use of permeable driveways and surfaces in planning to reduce runoff and promote groundwater recharge.	Planning Board, Public Works Department	Cost = Minimal, part of normal town operations. Part of existing Planning/Zoning and Public Works Department budget. Funding Source: Mont Vernon Operating Budget	Ongoing
8. Promote the increase of tree plantings around buildings to shade parking lots and public rights of way.	Planning Board	Cost = Minimal, part of normal town operations. Part of existing Planning/Zoning budget. Funding Source: Mont Vernon Operating Budget	Ongoing
9. Educate homeowners of the importance of installing carbon monoxide monitors and alarms, and that all fuel burning equipment should be vented outside.	Fire Department	Cost = Minimal, part of normal town operations. Part of existing Fire Department budget. Funding Source: Mont Vernon Operating Budget	Ongoing
10. Protect critical facilities and infrastructure from lightning damage by maintaining lightning rods and surge protection equipment on critical electronics and replacing as necessary.	Each Department Head	Cost = $1,000- $5,000 per critical facility for lightning protection devices. Funding Source: Mont Vernon Operating Budget	Short Term
11. Remove underbrush and standing deadwood around residences and in residential areas to reduce the likelihood of wildfires jumping to residential housing.	Public Works Department, Fire Department	Cost = Additional disposal and wage expenses. Large scale wildfires are relatively rare in Mont Vernon and therefore the costs of implementing this action may outweigh the benefits. Funding Source: Mont Vernon Operating Budget	Ongoing

Mitigation Action	Responsible Party	Cost & Funding	Timeframe
12. Prepare, distribute, and make available NFIP, insurance, and building codes explanatory pamphlets or booklets by updating with current best practices and floodplain information.	Building Inspector	Cost = Minimal, part of normal town operations. Part of existing Code Enforcement budget. Funding Source: Mont Vernon Operating Budget	Short Term
13. Review construction plans for all bridges to determine their susceptibility to collapse and retrofit old bridges.	Building Inspector, Public Works Department	Cost = Very costly to implement. Engineering review and new construction would need to be a CIP item. Funding Source: Mont Vernon CIP, Operating Budget	Long Term
14. Incorporate flood mitigation into local planning. Revise/adopt subdivision regulations to improve floodplain management in Mont Vernon.	Planning Board	Cost = Minimal, part of normal town operations. Part of existing Planning/Zoning budget. Funding Source: Mont Vernon Operating Budget	Long Term
15. Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.	Building Inspector	Cost = Minimal, part of normal town operations. Part of existing Code Enforcement budget. Funding Source: Mont Vernon Operating Budget	Short Term
16. Promote the construction of safe rooms in new schools and nursing homes in all new developments.	Planning Board, Building Inspector	Cost = Minimal, part of normal town operations. Part of existing Planning/Zoning and Code Enforcement budget. Funding Source: Mont Vernon Operating Budget	Long term
17. Sponsor local “slash and clean-up days” to reduce fuel loads along the wildland-urban interface.	Fire Department, Eversource	Cost = Minimal, part of normal town operations. Percentage of existing Fire Department budget. Funding Source: Mont Vernon Operating Budget	Ongoing

Mitigation Action	Responsible Party	Cost & Funding	Timeframe
18. Educate homeowners on the benefits of wind retrofits such as shutters, hurricane clips, etc.	Building Inspector	Cost = Minimal, part of normal town operations. Part of existing Planning/Zoning and Code Enforcement budget. Funding Source: Mont Vernon Operating Budget	Ongoing

CHAPTER 5. PLAN ADOPTION

Section 5.1 ~ Formal Adoption by Governing Body

CERTIFICATE OF ADOPTION

TOWN OF MONT VERNON, NH BOARD OF SELECMEN

A RESOLUTION ADOPTING THE TOWN OF MONT VERNON, NH HAZARD MITIGATION PLAN UPDATE 2021

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

WHEREAS, public and committee meetings were held between December 17, 2020 and April 4, 2021 regarding the development and review of the Hazard Mitigation Plan Update 2021; and

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

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

RESOLVED by the Mont Vernon Board of Selectmen:

1. The Plan is hereby adopted as an official plan of the Town of Mont Vernon
2. The respective officials identified in the mitigation strategy of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;
3. Future revisions and Plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as a part of this resolution for a period of five (5) years from the date of this resolution.

4. An annual report on the progress of the implementation elements of the Plan shall be presented to the Board of Selectmen by the Mont Vernon Hazard Mitigation Team.

Adopted this day, the 23 **of** August, **2021.**

John M. Esposito, Chairman, Mont Vernon Board of Selectmen

Tim Berry, Mont Vernon Board of Selectmen

Howard Brown, Mont Vernon Board of ~~Selectmen~~

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of Mont Vernon the 23rd of August, 2021.

Witness

Section 5.2 ~ FEMA Approval Letter

U.S. Department of Homeland Security
FEMA Region I
99 High Street, Sixth Floor
Boston, MA 02110-2132

FEMA

October 27, 2021

Brian Eaton, State Hazard Mitigation Officer
New Hampshire Department of Safety, Homeland Security and Emergency Management
33 Hazen Drive
Concord, New Hampshire 03303

Dear Mr. Eaton:

As outlined in the FEMA-State Agreement for FEMA-DR-4457, your office has been delegated the authority to review and approve local mitigation plans under the Program Administration by States Pilot Program. Our Agency has been notified that your office completed its review of the Town of Mont Vernon, New Hampshire Hazard Mitigation Plan Update 2021 and approved it effective **October 11, 2021** through **October 10, 2026** in accordance with the planning requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended, the National Flood Insurance Act of 1968, as amended, and Title 44 Code of Federal Regulations (CFR) Part 201.

With this plan approval, the jurisdiction 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 the 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 I Mitigation Division for approval every five years to remain eligible for FEMA mitigation grant funding.

Thank you for your continued commitment and dedication to risk reduction demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please contact Jay Neiderbach at (617) 832-4926 or Josiah.Neiderbach@fema.dhs.gov.

Sincerely,

Paul F. Ford
Acting Regional Administrator
DHS, FEMA Region I

PFF:jn

cc: Fallon Reed, Chief of Planning, New Hampshire