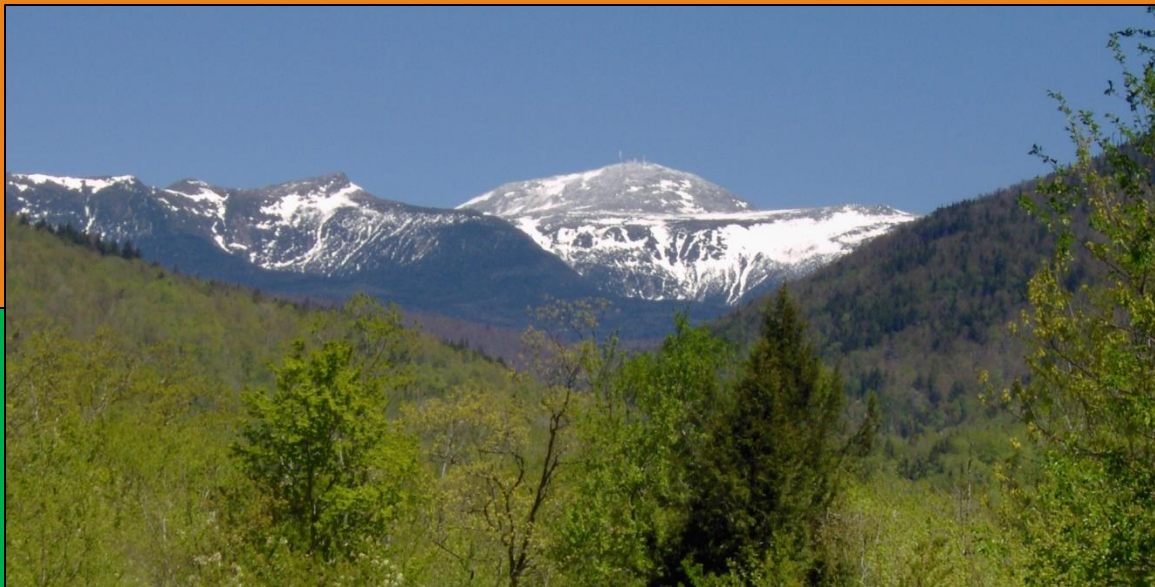


Bartlett & Hart's Location

Multi-Jurisdictional Hazard Mitigation Plan Update 2018



This Plan integrates the following:

- **Hazard Mitigation Plan Update (FEMA)**
- **Community Wildfire Protection Plan (DNCR)**

May 10, 2018

Final for Adoption (APA: 5/4/18)

**Prepared for the Towns of Bartlett & Hart's Location & NH Homeland Security &
Emergency Management by the Bartlett & Hart's Location Planning Team**

With assistance from Mapping and Planning Solutions

"Plans are worthless, but planning is everything. There is a very great distinction because when you are planning for an emergency you must start with this one thing: The very definition of "emergency" is that it is unexpected, therefore it is not going to happen the way you are planning."

-Dwight D. Eisenhower

HAZARD MITIGATION PLAN DEFINITIONS

"A natural hazard is a source of harm or difficulty created by a meteorological, environmental, or geological event."

"Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards (44CFR 201.2). Hazard mitigation activities may be implemented prior to, during, or after an event. However, it has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs."

(Source: Local Mitigation Plan Review Guide, FEMA, October 1, 2011)



Plan Prepared and Authored By

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Cover Photo: Mount Washington from US Route 302 in Hart's Location

Photo Credit: MAPS

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Acknowledgements

This Plan integrates elements to qualify it as a Community Wildfire Protection Plan (CWPP) according to the US Forest Service and the Department of Natural & Cultural Resources (DNCR). The Plan was created through a grant from New Hampshire Homeland Security & Emergency Management (HSEM). The following organizations have contributed invaluable assistance and support for this project:

- NH Homeland Security & Emergency Management (HSEM)
- Federal Emergency Management Agency (FEMA)
- NH Office of Strategic Initiatives (NH OSI)
- Mapping and Planning Solutions (MAPS)
- NH Forests & Lands (NH DNCR)

**This Plan is an update to the *Multi-Hazard, Multi-Jurisdictional Plan, Bartlett & Hart's Location, NH*
Adopted May 13, 2011 (Bartlett) – Adopted October 24, 2011 (Hart's Location)
The Plan was formally approved in April 2012**

Approval Notification Dates for 2018 Update

Approved Pending Adoption (APA):..... May 4, 2018
Jurisdiction Adoption: , 2018
CWPP Approval: , 2018
Plan Approval Date (FEMA):..... , 2018
Plan Distribution (MAPS): , 2018

Towns of Bartlett & Hart's Location Hazard Mitigation Planning Team

The Towns of Bartlett & Hart's Location would like to thank the following people for the time and effort spent to complete this Plan; the following people have attended meetings and/or been instrumental in completing this Plan:

| | |
|---|---|
| Bob King..... Bartlett EMD | Mark Dindorf..... Hart's Location BOS |
| Tom Greig Bartlett-Jackson Ambulance | John Gallagher Hart's Location BOS |
| Pat Roberts Bartlett Fire Chief | Philip St. Hilaire..... Hart's Location BOS |
| James Langdon Bartlett Assistant Fire Chief | Guy Putnam Hart's Location BOS & EMD |
| Janet Champlin Bartlett Police Chief (former) | Jennifer Gilbert..... NH OSI |
| Chris Keaton Bartlett Police Chief | Heidi Lawton NH HSEM |
| Gene Chandler..... Bartlett BOS Chair | June Garneau MAPS |
| Jonathan Hebert Bartlett BOS | Olin Garneau..... MAPS |
| David Patch..... Bartlett BOS | |
| Scott Grant Bartlett Planning Board | |

Many thanks for all the hard work and effort given by each and every one of you. This Plan would not exist without your knowledge and experience. The Towns of Bartlett & Hart's Location also thanks the Federal Emergency Management Agency and NH Homeland Security and Emergency Management as the primary funding sources for this Plan.

Acronyms associated with the above list:

EMD Emergency Management Director
BOS..... Board of Selectmen
NH HSEM..... Homeland Security & Emergency Management
NH OSI..... NH Office of Strategic Initiatives
MAPS Mapping and Planning Solutions

Two NH Departments have recently changed their names:

- ***The NH Office of Energy & Planning (OEP) is now the NH Office of Strategic Initiatives (NH OSI)***
- ***The NH Department of Economic Development (DRED) is now the NH Department of Natural & Cultural Resources (NH DNCR)***



***Bartlett Town Hall
Photo Credit: MAPS***

***Hart's Location Town Hall
Photo Credit: MAPS***





Executive Summary

The Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018 was compiled to assist the Towns of Bartlett & Hart's Location in reducing and mitigating future losses from natural or human-caused hazardous events. The Plan was developed by participants of the Town of Bartlett & Hart's Location Hazard Mitigation Planning Team, interested stakeholders, the general public and Mapping and Planning Solutions (MAPS). The Plan contains the tools necessary to identify specific hazards and aspects of existing and future mitigation efforts.

This Plan is an **update** to the 2012 Bartlett & Hart's Location Hazard Mitigation Plan. In an effort to produce an accurate and current planning document, the Planning Team used the 2012 Plan as a foundation, building upon that Plan to provide more timely information.

This Plan addresses the following natural hazards and human-caused hazards.

Natural Hazards

- | | |
|---|-----------------------------------|
| 1) Flooding (riverine, road flooding, dams, ice jam, levee failure) | 7) Wildfire |
| 2) Severe Winter Weather & Ice Storm | 8) High Winds (windstorm) |
| 3) Tornado & Downburst | 9) Aquifer Contamination |
| 4) Extreme Temperature (hot & cold) | 10) Earthquake |
| 5) Severe Thunder & Lightning Storm | 11) Erosion, Landslide & Mudslide |
| 6) Hurricane & Tropical Storm | 12) Snow Avalanche |
| | 13) Drought |

Human-Caused Hazards

- | | |
|---|-------------------------------------|
| 1) Hazardous Materials - Transport | 5) Extended Power Failure (5+ days) |
| 2) Violent Crimes | 6) Epidemic & Pandemic |
| 3) Mass Casualty Incident | 7) Terrorism |
| 4) Hazardous Materials – Fixed Location | |

Some hazards that are listed in the 2013 NH Hazard Mitigation Plan were not included in this Plan as the Team felt they were extremely unlikely to occur in Bartlett and Hart's Location or not applicable. These include: *Coastal Flooding, Radon, Dam Failure (for large Hydro), Radiological and Fire & Hazardous Materials*. The Team does acknowledge that radon exists but felt that mitigation for radon was the responsibility of the individual homeowner. Fire & Hazardous Materials are covered under the hazard categories of Wildfire, Hazardous Material-Transport and Hazardous Material-Fixed Location.

This Plan also provides a list of Critical Infrastructure and Key Resources (CIKR) categorized as follows: Necessary for Emergency Response Facilities (ERF), Non-Emergency Response Facilities (NERF), Facilities and Populations to Protect (FPP) and Potential Resources (PR). In addition, this Plan addresses the Town's involvement in the National Flood Insurance Program (NFIP).

This hazard mitigation plan was designed to include a detailed study and analysis of wildfires. The original goal was to produce separate plans but that concept produced excessive overlap and cost. To streamline the process, the Community Wildfire Protection Plan (CWPP) was fully integrated into this hazard mitigation plan as were risks from human-caused hazards.

Mitigation action items are the main focus of this Plan. Some communities, when faced with an array of natural hazards, are able to adequately cope with the impact of these hazards. For example, although Severe Winter Weather is often a common hazard in New Hampshire and more often than not considered to be the most likely to occur, most New Hampshire communities handle two to three foot snow storms with little or no disruption of services. On the other hand, an unexpected ice storm can have disastrous effects on a community. Mitigation for this type of sudden storm is difficult to achieve; establishing warming and cooling centers, establishing notification systems, providing public outreach, tree trimming, opening shelters and perhaps burying overhead power lines are just a few of the action items that may be put in place.

In summary, finding mitigation action items for every hazard that affects a community is at times difficult. In addition, with today's economic constraints, cities and towns are less likely to have the financial ability to complete some mitigation action items, such as burying power lines. In preparing this Plan, the Bartlett & Hart's Location Planning Team has considered a comprehensive list of mitigation action items that could diminish the impact of hazards but has also decided to maintain a list of preparedness action items for future reference and action.

To simplify the language in the Plan, the following abbreviations and acronyms will be used:

| | |
|--|-----------------------|
| Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018 | the Plan or this Plan |
| Bartlett & Hart's Location | the Jurisdiction |
| Hazard Mitigation Planning Team..... | the Team |
| Hazard Mitigation Plan..... | HMP |
| Emergency Operations Plan | EOP |
| Community Wildfire Protection Plan | CWPP |
| Mapping and Planning Solutions | MAPS |
| Mapping and Planning Solutions Planner..... | the Planner |
| NH Homeland Security & Emergency Management | HSEM |
| Federal Emergency Management Agency | FEMA |

For more acronyms, please refer to Appendix F: Acronyms

Mission Statement:

To make the Jurisdiction less vulnerable to the effects of hazards through the effective administration of hazard mitigation planning, wildfire hazard assessments, and a coordinated approach to mitigation policy and planning activities.

Vision Statement:

The communities of Bartlett & Hart's Location will reduce the impacts of natural hazards and other potential disasters through implementing mitigation measures, public education and deliberate capital expenditures within the community. Homes and businesses will be safer and the community's ISO rating may be improved.

Chapter 1: Hazard Mitigation Planning Process

A. Authority & Funding

The Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018 was prepared in accordance with the Disaster Mitigation Act of 2000 (DMA), Section 322 Mitigation Planning, signed into law by President Clinton on October 30, 2000. This hazard mitigation plan was prepared by the Bartlett & Hart's Location Hazard Mitigation Planning Team (HMPT) under contract with New Hampshire Homeland Security & Emergency Management (HSEM) operating under the guidance of Section 206.405 of 44 CFR Chapter 1 (10-1-97 Edition) and with the assistance and professional services of Mapping and Planning Solutions (MAPS). This Plan was funded by HSEM through grants from the Federal Emergency Management Agency (FEMA); matching funds for team members' time were also part of the funding formula.

B. Purpose & History of the FEMA Mitigation Planning Process

The ultimate purpose of Disaster Mitigation Act of 2000 (DMA) is to:

"...establish a national disaster hazard mitigation program -

- To reduce the loss of life and property, human suffering, economic disruption and disaster assistance costs resulting from natural disasters; and*
- To provide a source of pre-disaster hazard mitigation funding that will assist States and local governments (including Indian tribes) in implementing effective hazard mitigation measures that are designed to ensure the continued functionality of critical services and facilities after a natural disaster".¹*

DMA 2000 amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by, among other things, adding a new section "322 – Mitigation Planning" which states:

"As a condition of receipt of an increased Federal share for hazard mitigation measures under subsection (e), a State, local, or tribal government shall develop and submit for approval to the President a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government."²

HSEM's goal is to have all New Hampshire communities complete a local hazard mitigation plan as a means to reduce future losses from natural or human-caused events before they occur. HSEM outlined a process whereby communities throughout the state may be eligible for grants and other assistance upon completion of this hazard mitigation plan.

The Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018 is a planning tool to use to reduce future losses from natural and human-caused hazards as required by the Disaster Mitigation Act of 2000; this Plan does not constitute a section of the Towns' Master Plans, however mitigation action items from this Plan may be incorporated into future Master Plan updates.

The DMA places new emphasis on local mitigation planning. It requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans as a condition to receiving Hazard Mitigation Grant Program (HMGP) project grants. Local governments must review this Plan yearly and update this Plan every five years to continue program eligibility.

¹ Disaster Mitigation Act (DMA) of 2000, Section 101, b1 & b2

² Disaster Mitigation Act (DMA) of 2000, Section 322a

C. Jurisdiction

This Plan addresses two municipalities, the Town of Bartlett, NH & the Town of Hart's Location, NH. These two communities are hereinafter referred to as the "Jurisdiction".

D. Scope of the Plan & Federal & State Participation

A community's hazard mitigation plan often identifies a vast number of natural hazards and is somewhat broad in scope and outline. The scope and effects of this Plan were assessed based on the impact of hazards and wildfire on: *Critical Infrastructure and Key Resources (CIKR); current residential buildings; other structures within the Town; future development; administrative, technical and physical capacity of emergency response services; and response coordination between federal, state and local entities.*

In seeking approval as a Hazard Mitigation Plan (HMP) and a Community Wildfire Protection Plan (CWPP), the planning effort included participation of Homeland Security & Emergency Management, the US Forest Service, the Department of Natural & Cultural Resources (NH DNCR), the NH Office of Strategic Initiatives (NH OSI) as well as routine notification of upcoming meetings to the state and federal entities above. Designation as a CWPP will allow a community to gain access to federal funding for hazardous fuels reduction and other mitigation projects supported by the US Forest Service. By merging the two federal planning processes (hazard and wildfire), duplication is eliminated and the Jurisdiction has access to a larger pool of resources for pre-disaster planning.

The Healthy Forest Restoration Act (HFRA) of 2003 includes statutory incentives for the US Forest Service to give consideration to local communities as they develop and implement forest management and hazardous fuel reduction projects. For a community to take advantage of this opportunity, it must first prepare a CWPP. This hazard mitigation planning process not only satisfies FEMA's criteria regarding wildfires and all other hazards but also addresses the minimum requirements for a CWPP:

- **Collaboration:** *A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.*
- **Prioritized Fuel Reduction:** *A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.*
- **Treatment of Structural Ignitability:** *A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.³*

Finally, as required under Code of Federal Regulations (CFR), Title 44, Part 201.6(c) (2) (ii) and 201.6(c) (3) (ii), the Plan must address each community's participation in the National Flood Insurance Program (NFIP), its continued compliance with the program and as part of vulnerability assessment, the Plan must address the NFIP insured structures that have been repetitively damaged due to floods.

³ Healthy Forest Restoration Act; HR 1904, 2003; Section 101-3-a.b.c; http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_cong_bills&docid=f:h1904enr.txt.pdf

E. Public & Stakeholder Involvement

Public and stakeholder involvement was stressed during the initial meeting and community officials from both Bartlett and Hart's Location were given a matrix of potential team members (page 18). Community officials were urged to contact as many people as they could to participate in the planning process, including not only residents but also officials and residents from surrounding communities. The Planning Team understands that natural hazards do not recognize corporate boundaries.

It was noted that there is one school within the Jurisdiction; students from both Hart's Location and Bartlett attend the Josiah Bartlett Elementary School (K-8), in Bartlett. Students in grades (9-12) are tuitioned to Conway Schools. Representatives from the Josiah Bartlett Elementary School and the Conway School district were invited to attend the hazard mitigation planning meetings, but did not attend.

The Team provided excellent public and stakeholder notification. Many interested citizens and stakeholders had the opportunity to become aware of the hazard mitigation planning taking place in the Jurisdiction. A Press Release (see following page) was posted on the Bartlett website, at the Town Offices in both Bartlett and Hart's Location and at Patch's Market.

In addition, the signing of the hazard mitigation plan application documents was discussed and posted on Bartlett's website in April 2016 (see right) and meetings were noted on the website throughout the process. The Hart's Location 2016 Annual Report also discussed the hazard mitigation planning that was taking place (see following page).

The Board of Selectmen will be meeting on Friday, April 8, 2016 at 8:30AM at the Bartlett Town Hall, 56 Town Hall Rd., in the Town of Bartlett, NH in order to review and sign the updated Hazard Mitigation Plan with Emergency Director Bob King. This must be done in order to meet the deadline for applying for grants. The public is welcome to attend.



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105 Union Street, Suite 1
Whitefield, NH 03598*

Press Release

FOR IMMEDIATE RELEASE

Updated: October 25, 2016

Contact: June Garneau
603-837-7122

TOWN OF BARTLETT & HART'S LOCATION COMMENCES HAZARD MITIGATION PLANNING

The Bartlett Emergency Management Director met with June Garneau, of Mapping and Planning Solutions and other Team members from Bartlett & Hart's Location, to begin work on the required five-year update to the 2011 Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan. As a result of this meeting, the Emergency Management Director and Mapping and Planning Solutions are conducting a series of meetings on the Hazard Mitigation Plan over the next few months.

Through this series of public meetings, the Team will address issues such as flooding, hurricanes, drought, landslides and wildfires, and determine efforts the Town can undertake to mitigate the effects of both natural and human-caused hazards. The Team will also examine potential shelter sites and the need for generators at those sites.

By examining critical infrastructure and key resources, along with past hazards, the team will establish priorities for future mitigation projects and steps that can be taken to increase public awareness of hazards in general.

As mandated by the Disaster Mitigation Act of 2000, all municipalities are required to complete a local Hazard Mitigation Plan in order to qualify for Federal Emergency Management Administration funding should a natural disaster occur. The planning processes are made possible by grants from FEMA.


The Hazard Mitigation Planning Team is currently being formed; Bartlett & Hart's Location citizens and any interested stakeholders are invited to participate. All interested parties should contact the Bartlett EMD, Bob King, 340-4147 if they wish to be included in the process.

The next meeting is scheduled for Monday, November 14 from 8:30-11:30 AM at the Glen Fire Station. An additional meeting is scheduled for Monday, November 28, also from 8:30-11:30 am at the Glen Fire Station. The general public is encouraged to attend all meetings, regardless of whether they are a part of the Planning Team.

More information on the hazard mitigation planning process is available from June Garneau at Mapping and Planning Solutions, 603-837-7122.

Hazard Mitigation Planning in Progress: Every 5 years, the town is required to update its Hazard Mitigation Planning Manual. This is a multi-jurisdictional project with the Town of Bartlett and the State Office of Homeland Security and Emergency Management. This project is grant funded and the town's obligations for matching funds are being met with contributions in kind, ie; the financial value of time spent participating in the project by town officials. Guy Putnam has been the lead representative for the town in the HMP process, and also Phil St. Hilaire. Coordination of the project is being handled by June Garneau of Mapping Solutions, who managed the first round of Hazard Mitigation Planning while working for North Country Council.


Lastly, the Planner sent a monthly calendar to NH EMD's, Police Chiefs, Fire Chiefs, Rangers and other State, Federal and private officials throughout the State, including stake-holders for the Jurisdiction (see below).



MAPS EOP & Hazard Mitigation Meetings | 2016

New or changed Emergency Operations, Hazard Mitigation or Master Plan meetings; highlighted by "Counties".

Status update: 10/31/16



| Day | Date | Time | Town/Location | Plan Type | HSEM Field Rep | County |
|-----------|--------|----------|--|-----------|---------------------|-----------|
| Tuesday | Nov 1 | 6:00 PM | Carroll Fire Station | EOP | Heidi Lawton | Coos |
| Wednesday | Nov 2 | 6:00 PM | Bethlehem Library | MP | N/A | Grafton |
| Monday | Nov 7 | 10:00 AM | Piermont Old Church Building | HMP | Paul Hatch | Grafton |
| Wednesday | Nov 9 | 9:00 AM | Littleton Opera House | HMP | Paul Hatch | Grafton |
| Wednesday | Nov 9 | 9:30 AM | Whitefield Town Offices | EOP | Heidi Lawton | Coos |
| Monday | Nov 14 | 8:30 AM | Bartlett/Hart's Location (Glen Fire Station) | HMP | Heidi Lawton | Carroll |
| Tuesday | Nov 15 | 9:00 AM | Haverhill Town Offices | HMP | Paul Hatch | Grafton |
| Wednesday | Nov 16 | 6:30 PM | Stewartstown Town Offices | HMP | Heidi Lawton | Coos |
| Thursday | Nov 17 | 6:30 PM | Dalton Town Offices | HMP | Heidi Lawton | Coos |
| Monday | Nov 21 | 9:00 AM | Littleton Opera House | HMP | Paul Hatch | Grafton |
| Monday | Nov 28 | 8:30 AM | Bartlett/Hart's Location (Glen Fire Station) | HMP | Heidi Lawton | Carroll |
| Monday | Nov 28 | 7:00 PM | New Hampton Public Safety Building | EOP | Shawna-Leigh Morton | Belknap |
| Tuesday | Nov 29 | 9:00 AM | New Hampton Public Safety Building | EOP | Shawna-Leigh Morton | Belknap |
| Tuesday | Nov 29 | 1:00 PM | Boscawen Town Offices | EOP | Shawna-Leigh Morton | Merrimack |
| Wednesday | Dec 14 | 9:00 AM | Littleton Opera House | HMP | Paul Hatch | Grafton |
| Wednesday | Dec 14 | 6:00 PM | Bethlehem Library | MP | N/A | Grafton |

It was noted that Team composition is expected to be lower in smaller communities because of the small population base and the fact that many people "wear more than one hat". It is often very difficult to attract individual citizens to participate in town government and those who do generally hold full-time jobs and work as volunteers in a variety of town positions. With very small populations, the percent of interested citizens in the rural towns' planning processes is extremely small. Due to the lack of good job opportunities and other economic factors, the Jurisdiction has a relatively high elderly population and a dwindling amount of young people who may become interested in politics.

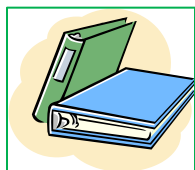
No general community members took part in the planning efforts despite efforts to include them. Therefore, no comments from the general public were integrated into this Plan. However, attendance by officials from both Bartlett and Hart's Location was very good and it played an integral part in producing this Plan.

§201.6(b) requires that there be an open public involvement process in the formation of a plan. This process shall provide an opportunity for the public to comment on the Plan during its formation as well as an opportunity for any neighboring communities, businesses, and others to review any existing plans, studies, reports, and technical information and incorporation of those in the Plan, to assist in the development of a comprehensive approach to reducing losses from natural disasters.

F. Incorporation of existing plans, studies, reports and technical information

The planning process included a complete review of the 2012 Plan for updates, development changes and accomplishments. In addition, as noted in the Bibliography and in footnotes located throughout the Plan many other documents were used to create this mitigation plan. The primary tool used to develop this Plan was the prior plan developed by the Jurisdiction, the *Multi-Hazard Mitigation Plan, Multi-Jurisdictional Plan Bartlett & Hart's Location*. Some, but not all, of the other plans and documents that were utilized are listed as follows.

| | |
|---|-----------------------------|
| The Bartlett & Hart's Location Hazard Mitigation Plan of 2012 | Compare & Contrast |
| Area Hazard Mitigation Plans (Conway, Jackson, Carroll) | Formats & Mitigation Ideas |
| Master Plan for Bartlett, NH (2016) | Community Information |
| Master Plan for Hart's Location (2000) | Community Information |
| Bartlett Annual Report, 2016..... | Fire Report |
| Hart's Location Annual Report, 2016..... | Fire Report |
| The Bartlett Subdivision Regulations..... | New Development Regulations |
| The Hart's Location Subdivision Regulations | New Development Regulations |
| Bartlett Floodplain Management Ordinance | Floodplain Regulations |
| Hart's Location Floodplain Management Ordinance | Floodplain Regulations |
| Census 2010 Data | Population Data |
| The NH DRA Summary of Inventory of Valuation MS-1 2015 for Bartlett | Structure Evaluation |
| The NH DRA Summary of Inventory of Valuation MS-1 2015 for Hart's Location .. | Structure Evaluation |
| The Economic & Labor Market Information Bureau Community Response | Population Trends |
| The American Community Survey (ACS 2011-2015) | Population Trends |
| The NH Department of Revenue property tax valuation by property type..... | Property Information |
| NH Forest Forests & Lands (DNCR) | DNCR Fire Report |
| NH Office of Strategic Initiatives (OSI) | Flood Losses |



Other technical manuals, federal and state laws as well as research data were combined with these elements to produce this

integrated hazard mitigation plan. Please refer to the Bibliography in *Appendix A: Bibliography* and the Plan's footnotes.

The "Fifth Iron" over the Saco River in Hart's Location
Photo Credit: MAPS



G. Hazard Mitigation Planning Process & Methodology

The planning process consisted of twelve specific steps; some steps were accomplished independently while other areas were interdependent. Many factors affected the ultimate sequence of the planning process such as the number of meetings, community preparation, attendance and other community needs. The planning process resulted in significant cross-talk regarding all types of natural and human-caused hazards by team members.



All steps were included but not necessarily in the numerical sequence listed. The list of steps is as follows:

PLANNING STEPS

Step 01: Team Formation and Orientation, Goal Identification

Step 02: Formulate Hazards List, Hazards Description and Threat Matrix

Table 3.1 – Hazard Risk Analysis

Step 03: Profile, List and Map Historic and Potential Hazards, Wildfire, Natural and Human-Caused

Table 3.2 – Historic and Potential Hazards

Step 04: Profile, List and Map Critical Infrastructure and Key Resources

Tables 4.1 to 4.4 – Critical Infrastructure & Key Resources

Step 05: Assess Communities' Participation in National Flood Insurance Program

Chapter 3, Section C

Step 06: Prepare an Introduction to the Jurisdiction, discuss History and Development Trends and review the Town Statistics

Chapter 2, Sections A, B and C and Table 2.1, Town Statistics

Step 07: List Existing Mitigation Strategies & Brainstorm to Identify Potential Mitigation Strategies

Table 6.1 – Current Plans, Policies and Mutual Aid

Step 08: Examine the Mitigation Strategies from the Prior Plan

Table 7.1 – Accomplishments since the Prior Plan Approval

Step 09: Evaluate and Categorize Potential Mitigation Action Items

Tables 8.1 - Potential Mitigation Strategies & the STAPLEE

Step 10: Prioritize Mitigation Action Items to Determine Action Plan

Table 9.1 – The Mitigation Action Plan

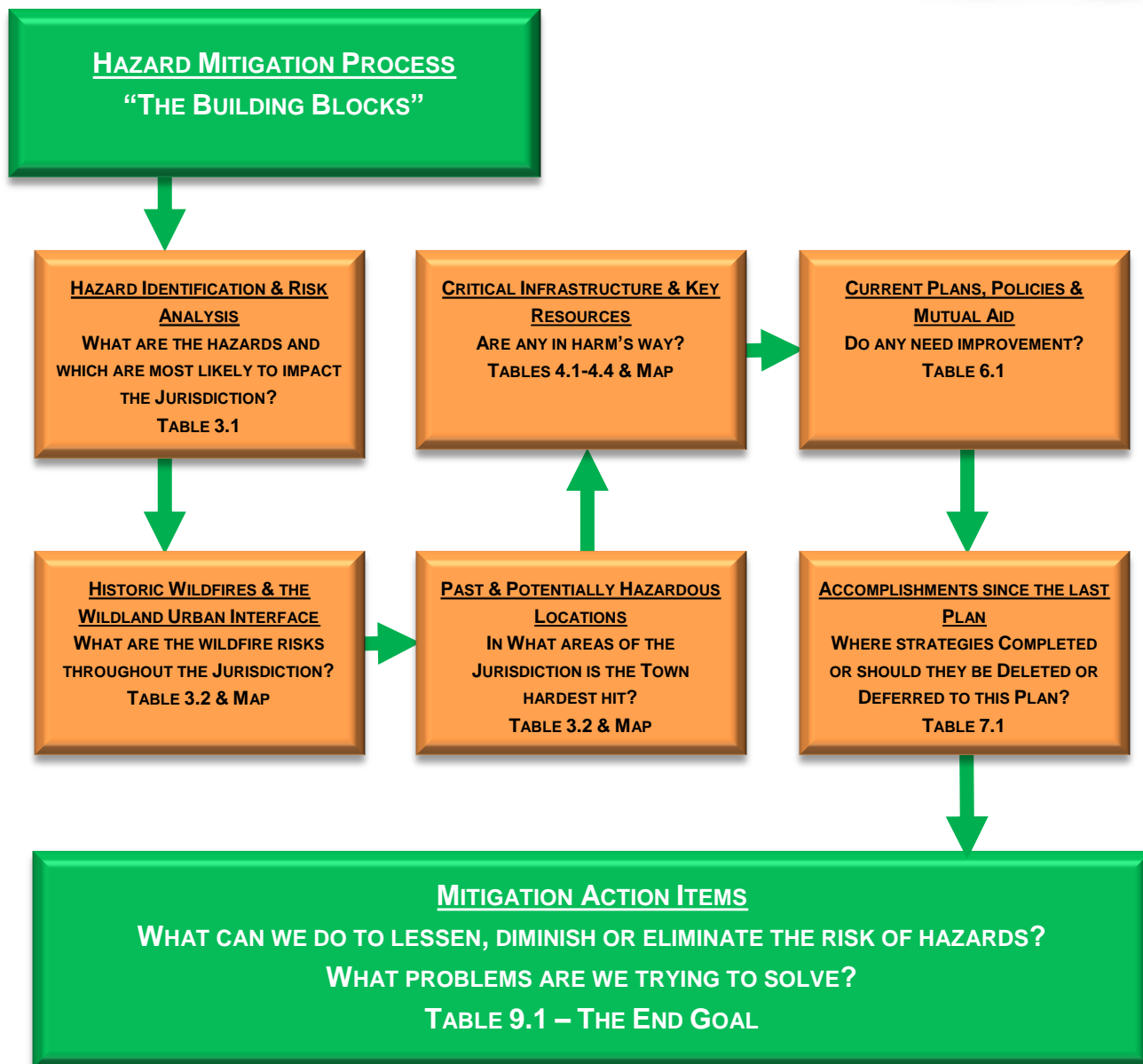
Step 11: Team Review of Plan Contents for Submission to HSEM/FEMA

Step 12: Adopt and Monitor the Plan

H. Hazard Mitigation Building Blocks & Tables

Using a “building block” approach, the base, or foundation, for the mitigation plan update was the prior plan. Each table that was completed had its starting point with the last hazard mitigation plan completed by the Jurisdiction.

Ultimately, the “building blocks” lead to the final goal, the development of prioritized mitigation “action items” that when put into an action plan, would lessen or diminish the impact of natural hazards on the Town.



I. Hazard Mitigation Goals

Before identifying new mitigation actions, the Team established and agreed to the following broad hazard mitigation goals. The goals that are in the 2013 State of New Hampshire Multi-Hazard Mitigation Plan were reviewed as were the goals that were in the 2012 Bartlett & Hart's Multi-Jurisdictional, Multi-Hazard Mitigation Plan. After discussing these goals, the current Planning Team agreed to the following goals for this Plan.

Community & Resource Protection

- To improve upon the protection of the general population, the citizens of Bartlett & Hart's Location and visitors, from all natural and human-caused hazards.
- To reduce Bartlett & Hart's Location's potential exposure to risk with respect to natural and human-caused hazards.
- To minimize the damage and public expense which might be caused to public and private buildings and infrastructure due to natural and human-caused hazards.

Coordination & Communication

- To improve the Town of Jurisdiction's Emergency preparedness and communication network and disaster response and recovery capability.
- To identify, introduce and implement improvements to establish and maintain a reliable communication system.
- To improve communication capabilities so that the citizens of Jurisdiction can be notified in the most efficient manner possible.
- To ensure that regular communication occurs between various departments and with local, regional and state officials and to have up-to-date plans in place to address various emergency situations and ensure that those involved are aware of their responsibilities.

Outreach & Education

- To build an awareness of public responsibility for hazard mitigation.
- To raise the awareness and acceptance of hazard mitigation opportunities through public education and outreach programs.
- To increase public awareness of the fire risk and the Jurisdiction's potential liability with respect to wildfires.

Damage Prevention & Reduction

- To reduce the potential impact of natural and human-caused disasters on the Jurisdiction's:
 - *Emergency Response Capability*
 - *Critical Infrastructure & Key Resources*
 - *Private property*
 - *Economy*
 - *Natural environment*
 - *Historic treasures and interests, as well as other tangible and intangible characteristics that add to the quality of life of the citizens and visitors to Bartlett and Hart's Location.*
- To identify, introduce and implement cost effective hazard mitigation measures to accomplish the Jurisdiction's goals and objectives.
- To reduce the occurrence of road closures and road erosion due to localized flooding within the Jurisdiction.

J. Narrative Description of the Process

The Plan was developed with substantial local, state and federal coordination; completion of this new hazard mitigation plan required significant planning preparation. All meetings were geared to accommodate brainstorming, open discussion and an increased awareness of potential hazardous conditions in the Jurisdiction.

The planning process included a complete review of the *Multi-Hazard Plan, Multi-Jurisdictional Plan, Bartlett & Hart's Location (2012)*. Using the 2012 Plan as a base, each element of the old plan was examined and revised to reflect changes that had taken place in development and in the priorities of the Jurisdiction. In addition, referring to the 2012 Plan, strategies from the past were reassessed and improved upon for the future.

The following narrative explains how the prior plan was used during each step of the planning process to make revisions that resulted in this Plan.

Meeting 1, October 24, 2016

The first full meeting of the Hazard Mitigation Planning Team (HMPT) was held; meeting attendance included Guy Putnam (Hart's Location Board of Selectmen), Jim Langdon (Bartlett Assistant Fire Chief), Robert King (Bartlett Emergency Management Director), Tom Grieg (Bartlett-Jackson Ambulance), Scott Grant (Bartlett Planning Board), Phil St. Hilaire (Hart's Location Board of Selectmen), Pat Roberts (Bartlett Fire Chief), Louise Staples (Mapping & Planning Solutions) and June Garneau (Mapping & Planning Solutions).

To introduce the Team to the planning process, June reviewed the evolution of hazard mitigation plans, the funding, the 12 step process (handout) and the collaboration with other agencies. June also explained the need to sign-in, track time (handout) and to provide public notice to encourage community involvement. It was suggested that June contact the Bartlett Administrative Assistant to ensure that meetings are announced on the Town's calendar. Lastly, as part of the initial process, June provided a hand-out describing the "Goals" of the Plan's development (see page 17).

Work then began on *Table 2.1, Town Statistics* for each Community. Table 2.1 endeavors to provide a "snapshot" of each community at this point in time and also provides general information that is needed to write the Plan. Most of the work on these tables was completed at this meeting with the exception of a few items that June would either determine through June's Geographic Information System (GIS) or get at a later date. There was some discussion about the population change in both Communities and it was determined that most of the change was due to campgrounds, Attitash Ski Area, second homes and Story Land.

HAZARDS MITIGATION POTENTIAL TEAM MEMBERS

FEDERAL

US Forest Service

STATE

Department of
Transportation (DOT)
Department of Cultural &
Natural Resources (DNCR)
Office of Strategic Initiatives
(OSI)

LOCAL

Selectmen (Past/Present)
Town Manager/Administrator
Town Planner
Police Chief
Fire Chief
EMD
Emergency Services
Fire Warden
Health Services
Education/School
Recreation Directors
Public Works Director
Road Agent
Water Management
Public Utilities
Waste Management
Dam Operators
Major Employers

LOCAL - SPECIAL INTEREST

Land Owners
Home Owners
Forest Management
Timber Management
Tourism & Sportsman's
Groups
Developers & Builders

EXPERTS

GIS Specialists

Although Table 2.1 was completed separately for each community within the Jurisdiction, the remaining tables in this plan were completed as joint-ventures and include information on or about both communities.

Next on the agenda were hazard identification and the completion of *Table 3.1, Hazard Threat Analysis*. After the hazards had been identified, the Team then assessed the risk severity and probability by ranking each hazard on a scale of 1-5 (5 being very high or catastrophic) based on the following:

The Human Impact Probability of Death or Injury
 The Property Impact Physical Losses and Damages
 The Business Impact Interruption of Service
 The Probability Likelihood of this occurring within 25 years

The rankings were then calculated to reveal the hazards which pose the greatest risks to the Jurisdiction; 13 natural hazards and seven human-caused hazards were identified; these hazards were determined to effect both Hart's Location and Bartlett with the same magnitude and likelihood of occurrence.

After analyzing these hazards using Table 3.1, Flooding (riverine, road flooding, dams, ice jams, levee failure), Severe Winter Weather & Ice Storm and Tornado & Downburst were designated as the primary concerns.

With time running out June thanked the Team for participating and scheduled the next meeting for November 14, 2016.

Meeting 2, November 14, 2016

Meeting attendance included Guy Putnam, Jim Langdon, Bob King, Scott Grant, Jonathan Hebert (Bartlett Board of Selectmen), Pat Roberts, Philip St. Hilaire, Heidi Lawton (HSEM), Olin Garneau (Mapping and Planning Solutions) and June Garneau.

The meeting began with a review of *Table 2.1* and *Table 3.1* which were completed at the previous meeting. These tables had been sent to the Team prior to the meeting to ensure accuracy; some minor changes were made to *Table 3.1*.

After reviewing *Table 3.1*, the Team started working on descriptions of each hazard and how they could, or do impact the Jurisdiction specifically. In order to gain more knowledge of the impact of these hazards, June asked the Team to describe each hazard as it relates to the Jurisdiction. For example, some of the questions asked were:

Meeting 1 – October 24, 2016

1) Introduction

- Evolution of Hazard Mitigation Plans & Community Wildfire Protection Plans
- Reasons for Hazard Mitigation and Update
- Community involvement to solicit input on how to mitigate the effects of hazards
- Devise a plan that lessens, diminishes or completely eliminates the threat of Hazards to the Town

2) The Process

- Funding
- Review of 12 Step Process & The Team (handout)
- Collaboration with other Agencies (HSEM, WMNF)

3) Meetings

- Community Involvement - Public Notice, Press Release
- Stakeholders
- Signing In, Tracking Time, Agendas, Narrative (handout)

4) Today's Topics

- Table 2.1, Town Information
- Table 3.1, Hazard Identification & Analysis
- Hazard Descriptions
- Table 4.1-4.4, Critical Infrastructure & Key Resources (time allowing)

5) Homework

- Homework – Critical Infrastructure & Key Resources
- Digital Photos – contributions welcome

6) Future Meetings

- November 14, 2016 @ 8:30 AM
- November 28, 2016 @ 8:30 AM

- *How often do these hazards occur?*
- *Do the hazards damage either the roads or structures?*
- *Have the hazards resulted in loss of life?*
- *Are the elderly and functional needs populations particularly at risk?*
- *What has been done in the past to cope with the hazards?*
- *Was outside help requested?*
- *Are the hazards further affected by an extended power failure?*
- *What are possible mitigation action items that can be taken to diminish or eliminate the hazard?*

In addition to bringing more awareness to the hazards, these questions provided information to further analyze the impact of the hazards on the Communities. June noted that these descriptions would be used in Chapter 5. June also took this time to discuss development in the Jurisdiction. Bartlett reported consistent building of residential and second homes, while Hart's Location did not have any development at this time.

Next on the agenda was Table 3.2, Historic Hazard Descriptions. As time was limited and this table would take a considerable amount of time, June decided to work on *Tables 4.1–4.4, Critical Infrastructure and Key Resources (CIKR)*. The Emergency Response Facilities, the Non-Emergency Response Facilities, the Facilities & Populations to Protect and the Potential Resources from the 2012 Plan were examined and a few minor adjustments were made for this Plan. In addition, the evacuation routes, helicopter landing zones and bridges on the evacuation routes were defined.

With time running out June reviewed what would take place at the next meeting which was set for November 28, 2016.

Meeting 3, November 28, 2016

Meeting attendance included Guy Putnam, Jim Langdon, Bob King, Tom Greig, Scott Grant, Jonathan Hebert, Pat Roberts, Philip St. Hilaire, Heidi Lawton, Olin Garneau and June Garneau.

First on the agenda was to complete the "Hazard Risk" section of Table 4.1-4.4. The Team evaluated each CIKR on a scale from 1-3 where three means the CIKR is in considerable risk of the specific hazard listed.

The Team then worked on *Table 3.2, Historic Hazard Identification*, a list of past and potentially hazardous locations and/or events. First, they looked at the hazards that were listed in the last plan and determined which they would like to see kept in this Plan.

While discussing past and potentially hazardous areas, June took the opportunity to explain the Wildland Urban Interface (WUI) and the Base Risk Analysis. Using GIS projection, June showed the Team *Map 1, Base Risk*

Meeting 2 – November 14, 2016

1) Last Meeting

- Introduction
 - Evolution and Reasons for Hazard Mitigation and Update
 - Community involvement to solicit input on how to mitigate the effects of hazards
 - Definition of hazard mitigation
 - Funding, the Team, collaboration, community involvement & stakeholders
 - Signing In, Tracking Time, Agendas, Narrative (handout)
- Table 2.1, Town Information
- Table 3.1, Hazard Identification & Analysis

2) Today's Topics

- Review Table 2.1 for both Towns
- Review Table 3.1 (includes the same hazards for both Towns)
- Hazard Descriptions
 - Discuss Hazards as they occur in both Towns
 - Discuss Development in both Towns
 - Discuss Roads in both Towns
- Table 3.2, Historic Hazard Identification
- Table 4.1-4.4, Critical Infrastructure & Key Resource and mapping

3) Homework

- Digital Photos – contributions welcome

4) Future Meetings

- November 28, 2016

Analysis, and explained the process that was used to develop the map. June explained that slope, type of fuel (i.e., softwood or hardwood) and exposure (southwest being the most susceptible) were analyzed in GIS to determine where the high, medium and low risk areas of the Town were. It was obvious in *Map 1, Base Risk Analysis* that the areas that are most susceptible to wildfire are on the west facing slopes, although other areas also showed considerable vulnerability for wildfire.

Next, June discussed the Wildland Urban Interface (WUI) and projected a map of the Wildland Urban Interface over the Jurisdictions' base layer and topography. The WUI was determined using GIS analysis to create a 300 foot buffer from the center line of all Class V roads and then an additional 1320 foot buffer from the first buffer (see Map 2). This area is determined to be the area in which the urban environment interfaces with the wildland environment and the area that is most prone to the risk of wildfires. Using GIS analysis and 1-foot aerial imagery (2015), June explained how she would determine the number of CIKR in the defined WUI. It should be noted that although the "WUI" was defined for the purpose of this Plan, many rangers and firefighters believe that towns with substantial wooded land, such as Bartlett and Hart's Location, are entirely within the Wildland Urban Interface.

Mitigation strategies were discussed to protect CIKR and to educate the Jurisdiction's citizens about the danger in the high risk and WUI areas. It was determined that both Bartlett and Hart's Location would acquire Firewise materials to have available at their respective Town Offices.

Next, the Team examined the record of Presidential Disaster Declarations that have taken place in recent years, a record that shows substantial increase over past decades. At this point, the Team assisted June in mapping the hazards that were identified in Table 3.2 for inclusion in *Map 3, Past & Potential Areas of Concern*.

Table 6.1, Current Plans, Policies & Mutual Aid, was next on agenda. Looking closely at the existing policies from the last plan and current mechanisms that are in place, the Team was able to determine whether the existing policies were effective or in "need of improvement". It was explained to the Team that those items that needed improvement would become "new strategies" for this Plan and that they would be discussed again and prioritized when we got to our final table, *Table 9.1, The Mitigation Action Plan*.

For Table 6.1, the Team determined if each plan, policy or mutual aid system should be designated as "No Improvements Needed" or "Improvements Needed" based on the following "Key to Effectiveness":

KEY TO EFFECTIVENESS:

- 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 does not work as intended and/or does not meet its goals.
- Poor**The existing program does not work as intended, often falls short of its goals and/or may present unintended consequences.

Table 6.1 was not completed; finalization was left for the next meeting on February 6, 2017.

Meeting 3 – November 28, 2016

1) Last Meeting

- a) Reviewed....
 - i) Table 2.1, Town Information
 - ii) Table 3.1, Hazard Identification & Analysis
- b) Worked on....
 - i) Hazard Descriptions
 - ii) Development Trends
 - iii) Table 4.1-4.4, Critical Infrastructure & Key Resource

2) Today's Topics

- a) Review Table 4.1-4.4, Critical Infrastructure & Key Resource and mapping
- b) Table 3.2, Historic Hazard Identification
- c) Table 6.1, Current Plans Policies & Mutual Aid
- d) Table 7.1, Past Hazard Mitigation Plan Assessment

3) Homework

- a) Digital Photos – contributions welcome

4) Future Meetings

- a) _____

Meeting 4, February 6, 2017

Meeting attendance included Jim Langdon, Scott Grant, Pat Roberts, Philip St. Hilaire and June Garneau.

The meeting began with a review of what was accomplished at the last meeting and a review of the “match”. It was determined that Team participation had been good and that it appeared that the “match” will be met. However, to ensure this, June encouraged more attendance and time tracking (outside of the meetings); June agreed to contact the town office to get hourly rates plus benefits for full-time meeting attendees (Bartlett) to also help with the match.

After this review June took the Team back to Table 6.1 to complete the work that was done at the last meeting. June brought the Team through the items that were completed at the last meeting and went on to complete the table. There was much discussion about regulations, ordinances and current policies while completing this table.

Also discussed was Bartlett and Hart's Location need for updated Emergency Operations Plans. It was determined that an Emergency Operations Plan for Bartlett will likely be developed in 2018 and could perhaps include the Town of Hart's Location. June pointed out that like the Bartlett/Hart's Location Hazard Mitigation Plan, there is only one other multi-jurisdictional Emergency Operations Plan in the state (Campton/Ellsworth) and that it would make good sense to also do a multi-jurisdiction EOP for Bartlett & Hart's Location. June agreed to contact Heidi Lawton to further discuss this possibility.

Table 7.1, Accomplishments since the Prior Plan Approval, also pre-populated with data from the 2012 Plan, was the next agenda item. June lead the Team through each strategy to determine which of these was “Completed” should be “Deleted” or should be “Deferred” to this Plan as a new mitigation action item. Some of the action items from the 2012 Plan had been completed by the Town; some were to be deleted as they were felt to be no longer useful or considered to be emergency preparedness, not mitigation; others were “deferred” for consideration as new “Action Items” for this Plan. At this point, only simple notes were taken and June agreed to write as much as possible based on these notes and to have the table prepared for the next meeting.

The meeting was adjourned and the next meeting was scheduled for March 6, 2017.

Meeting 5, March 6, 2017

Meeting attendance included Guy Putnam, Bob King, Scott Grant, Jonathan Hebert, Pat Roberts and June Garneau.

The first item on the agenda was a review of Table 6.1, a table that was completed at the last meeting. Looking closely at the current policies, plans and mutual aid agreements, the Team established new mitigation action items based on the need to provide improvements to already established mechanisms.

Meeting 4 – February 6, 2017

1) Last Meeting

- a) Reviewed....
 - i) Table 4.1-4.4, Critical Infrastructure & Key Resources
- b) Worked on...
 - i) Table 4.1-4.4, Hazard Risk
 - ii) Table 3.2, Historic Hazard Identification
 - iii) Table 6.1, Current Plans, Policies & Mutual Aid (did not finish)

2) Today's Topics

- a) Finish 6.1, Current Plans, Policies & Mutual Aid
- b) Table 7.1, Past Hazard Mitigation Plan Assessment
- c) Table 9.1, Mitigation Strategies (time allowing)

3) Homework

- a) Digital Photos – contributions welcome

4) Future Meetings

- a) _____
- b) _____

A review of *Table 7.1, Accomplishments since the Last Plan*, was next on the agenda. Having taken “notes” for this table at the last meeting, June lead the Team through a complete review of the table to see if her translation from “notes” into “paragraphs” maintained concepts and ideas of the Team and to verify the accuracy of the information. Once again it was explained that items in this table that were “deferred” would become new “action items” for this Plan. It was also explained that although some items from both Table 6.1 and Table 7.1 were the same, they would become only one action item in our final tables. Although several strategies from the last plan were determined to be emergency preparedness and not mitigation, the Team decided to keep some of them in the Plan as reminders to get these important action items completed.

Meeting 5 – March 6, 2017

1) Last Meeting

a) Reviewed....

i) Table 6.1, Current Plans, Policies & Mutual Aid

ii) Did a quick run-down of Table 7.1

2) Today's Topics

a) Finish Table 7.1, Past Hazard Mitigation Plan Assessment

b) Table 9.1, Mitigation Strategies (handouts)

3) Homework

a) Digital Photos – contributions welcome

4) Future Meetings

a) _____

b) _____

The remainder of the meeting was spent discussing mitigation strategies and taking a closer look at a comprehensive list of potential strategies, every Team member was provided with a handout of potential strategies that are also included in this Plan (see Chapter 8, Sections A & B and Appendix E). June also encouraged Team members to explore the link on their agendas for the FEMA Mitigation Idea booklet to see if any of the strategies in this book would be useful in Bartlett & Hart's Location. With time running out, the meeting was adjourned and the next meeting was set for April 10, 2017.

Link to explore – FEMA Mitigation Ideas:

[https://www.fema.gov/media-library-data/20130726-1904-25045-](https://www.fema.gov/media-library-data/20130726-1904-25045-0186/fema_mitigation_ideas_final508.pdf)

[0186/fema_mitigation_ideas_final508.pdf](https://www.fema.gov/media-library-data/20130726-1904-25045-0186/fema_mitigation_ideas_final508.pdf)

Meeting 6, April 10, 2017

Meeting attendance included Guy Putnam, Jim Langdon, Bob King, Tom Grieg, Jonathan Hebert, Pat Roberts, Janet Champlin (Bartlett Police Chief-Former), John Gallagher (Hart's Location Board of Selectmen), Heidi Lawton, Olin Garneau and June Garneau.

As attendance was much improved at this meeting, June once again reviewed the two tables that had been previously done, Table 6.1 and Table 7.1. A few minor changes were made.

In addition, June lead the Team through an overall recap of the work that had already been done. The recap included a brief look at each of the following completed tables:

- *Table 2.1 – Town Statistics*
- *Table 3.1 – Hazard Threat Analysis*
- *Tables 4.1-4.4 – Critical Infrastructure & Key Resources*
- *Table 6.1 – Current Plans, Policies & Mutual Aid*
- *Table 7.1 – Accomplishments since the Last Plan*

This review helped the Team understand how each of these tables served as a building block for the final two tables, *Table 8.1, Potential Mitigation Strategies & the STAPLEE* and *Table 9.1, The Mitigation Action Plan*.

June projected the final pre-populated table for the Town's review. This table, a combination of Table 8.1 and Table 9.1, enabled the Team to examine each strategy from Tables 6.1 and 7.1 that they had previously determined to be either in "need of improvement" or "deferred" for further action. June had also added a few additional mitigation strategies that had come up during discussions with the Team, and with the Team's help, several more action items were added. Before completing the list of action items, the Team also reviewed the hazard descriptions that were provided at the first meeting to be certain that any potential mitigation strategies that had been discussed in the past were included in this new table.

The Team was now able to see and understand the "Action Items" for this hazard mitigation plan. Looking carefully at each "Action Item", the Team was able to assign responsibility, the time frame for completion, the type of funding that would be required and the estimated cost of the action.

The estimated cost was determined using the following criteria:

- **Low Cost** \$0 - \$1,000 or staff time only
- **Medium Cost** \$1,000-\$10,000
- **High Cost** \$10,000 or more

The time frame was determined using the following criteria:

- **Short Term** Ongoing for the life of the Plan
- **Short Term** Less than 1 year (0-12 months)
- **Medium Term** 2-3 years (13-36 months)
- **Long Term:** 4-5 years (37-60 months)

Next on the Agenda was the STAPLEE process, a systematic method used to gauge the quality of each of the Action Items; each Team member was given a handout describing the process (Chapter 8, Section C). The Social (S), Technical (T), Administrative (A), Political (P), Legal (L), Economic (E) and Environmental (E) impact for each action item was discussed; this analysis then became Table 8.1. After reviewing each action item using the STAPLEE process, the Team settled on 28 mitigation "Action Items" they felt were achievable and that would help to diminish the impact of natural hazards in the future. Final STAPLEE scores ranged from 15-21, with 21 being the highest score. The average of all scores was 20.2.

With time running out, June provided the Team with a handout that would be used during the next meeting, an explanation of the Ranking/Prioritizing (Chapter 9) Method. The next and final meeting was scheduled for June 5, 2017.

Meeting 6— April 10, 2017

1) Last Meeting

- a) Reviewed....
 - i) Table 6.1, Current Plans, Policies & Mutual Aid
 - ii) Reviewed & finished Table 7.1, Accomplishments since the Prior Plan

2) Today's Topics

- a) Work on Tables 8.1 & 9.1
- b) STAPLEE Process
- c) Ranking & Prioritizing (handouts), time allowing

3) Homework

- a) Digital Photos – contributions welcome

4) Future Meetings

- a) _____
- b) _____

Documentation for the Planning process, including public involvement, is required to meet DMA 2000 (44CFR§201. (c) (1) and §201.6 (c) (1)). The Plan must include a description of the Planning process used to develop the Plan, including how it was prepared, who was involved in the process, and how other agencies participated. A description of the Planning process should include how the Planning team or committee was formed, how input was sought from individuals or other agencies who did not participate on a regular basis, what the goals and objectives of the Planning process were, and how the Plan was prepared. The description can be in the Plan itself or contained in the cover memo or an appendix.

Meeting 7, June 5, 2017

Meeting attendance included Guy Putnam, Bob King, Scott Grant, Jonathan Hebert, Pat Roberts, Chris Keaton (Bartlett Police Chief), John Gallagher, David Patch (Bartlett-Board of Selectmen), Gene Chandler (Bartlett-Board of Selectmen), Mark Dindorf (Hart's Location-Board of Selectmen), Olin Garneau and June Garneau.

As several new Team members attended this final meeting, including many members from both the Hart's Location and Bartlett Boards of Selectmen, June quickly reviewed the work that had already been done over the past months. Then June explained the ranking and priority methods (see Chapter 9).

Having completed the mitigation action items and determining the STAPLEE at the last meeting, the Team was now ready for the ranking & prioritizing of the action items that had been identified. June organized the action items roughly by ongoing, short term, medium term and long term and made a handout of the "action items" for the Team. Using this handout the Team was able to see all of the action items clearly and to determine the correct ranking and priority for each.

The "ranking" of the action items was done based on the time frame, the Town's authority to get the strategy accomplished and the STAPLEE score. This enabled the action items to be placed in four categories as shown below and in Chapter 9, Section A.

- **Category 0** was to include those items which are being done and will continue to be done in the future.
- **Category 1** was to include those items under the direct control of town officials, within the financial capability of the Town using only town funding, those already being done or planned and those that could generally be completed within one year.
- **Category 2** was to include those items that the Town did not have sole authority to act upon, those for which funding might be beyond the Town's capability and those that would generally take between 13-36 months to complete.
- **Category 3** was to include those items that would take a major funding effort, those that the Town had little control over the final decision and those that would take in excess of 37 months to complete.

Then within each rank, the Team assigned a priority; for example, if seven action items were ranked "1" then the priority rank was 1-7 (see explanation in Chapter 9). In this fashion, the Team was able to determine which action items were the most important within their rankings and in which order the action items would be accomplished.

With Tables 8.1 and 9.1 completed, the Team's work was complete, with the exception of the final review. June agreed to put the final "draft" plan together and email a copy for the Town's review. June explained the process from this point forward and thanked the Team for their hard work. No additional meeting was scheduled.

Meeting 7-- June 5, 2017

1) Last Meeting

- a) Reviewed....
 - i) Process for newcomers
 - ii) Continued work on Table 9.1

2) Today's Topics

- a) Table 9.1
 - i) Review action items
 - ii) Discuss ranking (handout)
 - iii) Determine priority of action items
- b) Discuss process from this point forward

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Chapter 2: Community Profile

A. Introduction

Bartlett and Hart's Location are located in Carroll County in the north central part of New Hampshire, in area known as the Mount Washington Valley. Bartlett is bordered by Jackson to the north; Chatham to the east; Conway, Hales Location and Albany to the south; and Livermore, Hart's Location, Hadleys Purchase and Sargents Purchase to the west. Hart's Location is bordered by Carroll and Bethlehem to the north; Beans Grant, Cutts Grant, Hadleys Purchase and Bartlett to the east; Bartlett and Livermore to the south; and Livermore and Bethlehem to the west.⁴

Both communities have a substantial amount of conserved land. In Bartlett, 65.2% of the land area is conserved, most of which is the White Mountain National Forest (61.8%). In Hart's Location, 87.8% of the land area is conserved, nearly evenly divided between the White Mountain National Forest (43.5%) and Crawford Notch State Park (44.1%).⁵



Mount Washington from Intervale (Bartlett, looking north) Scenic Vista, December 14, 2002; photo by Dave; www.bartlettnh.net

Bartlett is known for its beautiful vistas, hiking trails and scenic roadways. Bartlett is also host to several well-known tourist attractions including but not limited to Story Land, the Attitash Mountain Ski Area, Bear Notch Road, Diana's Bath, White Mountain Family Golf, Rocky Gorge and many other great family attractions.

Hart's Location is also known for its beautiful mountain vistas as well as Crawford Notch State Park, national forest campgrounds, hiking, fishing, climbing and other outdoor recreation. Hart's Location is also known as "The Smallest Town in New Hampshire and the First in the Nation to Vote".

Bartlett and Hart's Location form a unique area that is part of the Mount Washington Valley. Rising 6,288 feet, Mount Washington stands as the highest elevation east of the Mississippi River and north of the Great Smoky Mountains and serves as the backdrop for both Bartlett & Hart's Location.

US Route 302, in both communities, offers incredible scenic beauty and an abundance of outdoor recreational pursuits such as hiking trails, alpine skiing, Nordic skiing, waterfalls, rock climbing and snowmobiling. The combined beauty of these two communities and the welcoming nature of their citizens make Bartlett and Hart's Location a favorite location for retirement homes, second homes and family day trips.

⁴ Hales Location, Livermore, Hadleys Purchase, Sargents Purchase, Beans Grant and Cutts Grant are "Unincorporated Places"

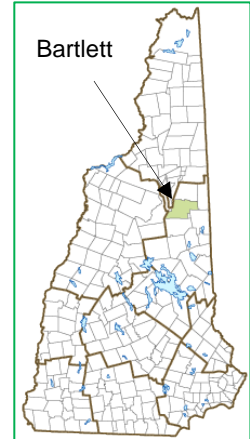
⁵ GIS analysis

B. Bartlett's History and Past Development Trends

A Short History of Bartlett, NH, By Julia King, Bartlett Planning Board (former)⁶

"Colonial settlement of Bartlett, NH began in the late 1700s after the French and Indian Wars ended and land became available. In 1790 the town was incorporated and had a population of 248 people. The town was named for Dr. Josiah Bartlett, a signer of the Declaration of Independence. The original settlers came from Lee, NH and Madbury, NH.

The town lies along the Saco River in the Mount Washington Valley. The valley is narrow with several intervals. The United States Forest Service owns and maintains the majority of land in Bartlett as part of the White Mountain National Forest.



The town is locally divided into three villages running east to west along the Saco River: Intervale, Glen, and Bartlett Village. Early development began with farming and small scale lumbering. In the mid- to the late 1800s and the early 20th century, the logging industry grew as logs were driven down the Saco River from upstream to be processed in local sawmills.

At the end of the Revolutionary War in 1783 the northern sections of New Hampshire began to outpace the rest of the state in economic development once a road was built through Crawford Notch. This road provided an east-west connection for the transport and sale of goods between the Upper Connecticut Valley and the ports of Portland and Portsmouth. As human activity increased, farmers found that switching from farming to the hospitality business was more lucrative as travelers, teamsters and eventually tourists took to the road and needed food and lodging. By 1800 the population had grown to over 500 people.

After the Civil War, Bartlett once again prospered due to tourism, large scale lumbering and other related businesses. Studies that had begun in 1839 to bring the railroad through Crawford Notch and beyond were realized in 1867 when the Portland and Ogdensburg Railroad Company was chartered. The rails finally reached Bartlett in 1873 and by 1875 the rail went through Crawford Notch to Fabyan's Station where it intersected with rails from Boston, Concord, and Montreal. Bartlett became a railroad town with a large engine house, turntable and coaling facilities. The advent of the railroad also increased tourism, and the government sale of large tracts of land to private individuals gave rise to large scale lumbering. By 1880 the population rose to just over 1,000 as more and more people moved in to create businesses that supported the railroad and the lumber industries. Bartlett Village was the center of this bustling economy and included rooming houses, inns, retail stores, and taverns.

By the turn of the century large scale lumbering was threatening the integrity of the forests and concerns arose due to continual flooding and loss of property from forest fires. In 1911 the White Mountain National Forest was established through the Weeks Act. Logging went into a steady decline as the federal government bought-up large tracts of land in what became the White Mountain National Forest, including a majority of land in Bartlett. At the same time roads improved and the automobile became affordable for many. Tourists abandoned transport by railroad in favor of their own personal motor vehicles.



Attitash Ski Area; www.newenglandusa.com

⁶ Taken from Bartlett & Hart's Location 2012 Hazard Mitigation Plan

In the 1930s Bartlett was the site of two of the twenty-eight Civilian Conservation Corps (CCC) camps in New Hampshire. One project undertaken by the CCC was the construction of Bear Notch Road, a mountain road still closed in winter but open to all kinds of outdoor recreation. Many hiking trails were built along the road; although it is doubtful they were built by the CCC. However, in 1933 the CCC began cutting eighteen ski trails including a racing trail-the Bear Mountain Trail-in Bartlett. During the 1930s skiing became a popular winter sport in the area bringing skiers regularly from Portland and Boston both by train and automobile.

The ski industry continued to boom into the 1960s. Attitash opened as a ski resort in 1965. The area had become a two season destination with hikers in the summer and skiers in the winter. The service industry survived the loss of lumbering and railroading and continued to grow as more and more outdoor enthusiasts made their way to Bartlett. In the 1980s Bartlett once again experienced a growth in population as it doubled from around 1200 to 2500 with the proliferation of the second home market.

Bartlett Village has returned to being a quiet hamlet while the center of what commerce there is can be found in the village of Glen. Tourist accommodations are centered around Attitash and there are many condominium complexes scattered throughout the town.”⁷

Bartlett

Incorporated: 1790

Origin: Bartlett was named in 1790 to honor Dr. Josiah Bartlett of Kingston, the first chief executive to bear the name governor, a representative to the Continental Congress, and one of three signers of the Declaration of Independence from New Hampshire. Dr. Bartlett was second to sign the Declaration, placing his signature directly underneath the well-known signature of John Hancock. Dr. Bartlett founded the New Hampshire Medical Society in 1791.

Villages and Place Names: Glen, Lower Bartlett, Intervale, Kearsarge

Population, Year of the First Census Taken: 248 residents in 1790

Population Trends: Population change for Bartlett totaled 1,750 over 55 years, from 1,013 in 1960 to 2,763 in 2015. The largest decennial percent change was a 47 percent increase between 1980 and 1990, following a 43 percent increase over the previous decade. The 2015 Census estimate for Bartlett was 2,763 residents, which ranked 113th among New Hampshire's incorporated cities and towns.

Population Density and Land Area, 2015 (US Census Bureau): 36.9 persons per square mile of land area. Bartlett contains 74.8 square miles of land area and 0.01 square miles of inland water area.

Source: Economic & Labor Market Bureau, NH Employment Security, November 2017; Community Response Received 6/2/17
<http://www.nh.gov/nhes/elmi/html/profiles/Bartlett.html>

C. Bartlett's Current & Future Development Trends

Bartlett's Master Plan was originally developed in 1985 and was most recently updated and adopted in April 2016. The objectives of the Master Plan are to: *“...conserve natural and cultural resources; promote a sustainable economic base through development of compatible uses; assure access to adequate essential services and recreational facilities for all citizens; and preserve the traditional character of the Town.”⁸*

The Town has steadily grown, using the Master Plan as a guiding document; the 1940 population was 1,150 and the projected population for 2040 is 2847.⁹

Early housing in Bartlett consisted primarily of single-family homes and farms with a scattering of small cabins and motels. With the opening of Attitash Ski Area in the mid-1960s, multi-unit condominium developments and chalets were more commonly built. Developers often bought farmlands for development into large condominium complexes. Examples of these are Attitash Mountain Village, Seasons at Attitash, Woodland Pines, Linderhof, River Run, Nordic Village and Cathedral Ledge Condominiums just to name a few. In addition, there are many

⁷ Bibliography of Works Consulted: Carroll, Aileen. Bartlett, New Hampshire: in the valley of the Saco. Phoenix Publishing: Kennebunk, ME: 1990. The Preservation Company .NH Division of Historical Resources Area Form. Upper Bartlett Project Area Form, NHDHR: 1994

⁸ Bartlett Master Plan, 2016

⁹ Bartlett Master Plan 2016, US Census & NH Office of Energy & Planning, 2016 Population Projections

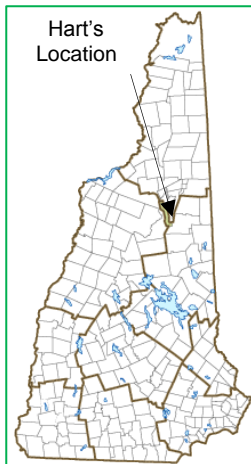
hotel and motels in town, with the Grand Summit Hotel and Resort at Bear Peak being the largest. According to the Town's Master Plan, "...Single-family homes and condominium units accounted for about 85% of residential valuation in the town in 2014".¹⁰

Year-round tourism has been a driving force in the Town's development; the scenic beauty of the Mount Washington Valley, Attitash Ski Area (and several others within a 30-mile radius), Story Land, hiking, snowmobiling and the shopping opportunities in nearby North Conway are the noted tourist attractions. Many people come for the weekend or week, but many others have built second and retirement homes in the "Valley". In fact, over more recent years, as condominium development has slowed, the building of luxury retirement homes (over \$500,000) has increased. The population of the Town is aging as there are fewer children enrolled in school and more luxury retirement homes being built.

The areas suitable for building that remain in Bartlett are along the Saco River where floodplain ordinances are in effect and on the steeper slopes of the White Mountains. The Town has developed the Ridgeline and Hillside Overlay District (17% of town land) ordinances to address concerns such as road specs, replanting to protect the land and aquifer and aesthetics on steep slopes at an elevation of 800 feet or more.

The Master Plan predicts that among many challenges, one is to "...Maintain the rural, small-town character of Bartlett in the face of population growth and ongoing residential and commercial development." At the time of this Plan, it was noted that although building has slowed in many parts of New Hampshire and has only recently picked up in the southern sector, second home development has increased in Bartlett while commercial development continues to be slow. In spite of continued growth, no development has occurred in Bartlett since the prior hazard mitigation plan that has affected the Community's vulnerability to natural hazards.

D. Hart's Location's History and Past Development Trends



"Hart's Location was named after Colonel John Hart of Portsmouth. In 1772, the land was granted to Thomas Chadbourne, also of Portsmouth. Native Americans used a trail up the Saco River valley through Crawford Notch, and during the French and Indian Wars, many English captives were taken to Canada that way. But the pass through the White Mountains was otherwise unknown until 1771, when Timothy Nash discovered it hunting moose, and told Governor John Wentworth.

The obscure Indian trail transformed into the Coös Road, on which was built a small public house in 1793. It was abandoned, but in 1825 Samuel Willey, Jr. occupied it with his wife, five children, and two hired hands.

During a violent storm on August 28, 1826, they all perished in landslide known as Willey's Slide. They fled their home and took refuge in a shelter, but it was destroyed while the house remained unscathed. A rock outcrop uphill divided the slide,



*Crawford Notch State Park
Site of the Willey House*

¹⁰ Bartlett Master Plan, 2016

which flowed around the home and reunited below it. The door was found gaping, a bible open on the table. Their tragedy inspired "The Ambitious Guest" (1835) by Nathaniel Hawthorne, and Mount Willey was named in their memory. The house became part of a larger inn, and then burned in 1898. Today, the location is a state historic site.

In 1875, the Portland and Ogdensburg Railroad completed its line up through Crawford Notch. Passengers thrilled to traverse the Frankenstein Trestle, 520 feet (158 meters) long and 85 feet (26 meters) above the ravine floor, and then the Willey Brook Bridge, 400 feet (122 meters) long and 94 feet (29 meters) high. The route is still traveled today by the Conway Scenic Railroad."¹¹

E. Hart's Location's Current & Future Development Trends

Hart's Location

Incorporated: 1772

Origin: This long, narrow piece of land encompassing Crawford Notch bears the name of Colonel John Hart, who had fought in the French War. In 1772 the land was granted to Thomas Chadbourne of Portsmouth. Hart's Location was the site of the famous Willey's Slide, an avalanche that killed Samuel Willey and his entire family in 1826. Mount Willey is named in their honor, as is the village of Avalanche. The town is also the gravesite of Abel Crawford, for whom Crawford Notch is named. Every four years this tiny community gains national attention when, along with Dixville Notch, its residents are the first to cast votes in the New Hampshire presidential primary and election.

Villages and Place Names: Notchland, Sawyers River, Willey House

Population, Year of the First Census Taken: 12 residents in 1790

Population Trends: Hart's Location remains the state's smallest incorporated town, population change totaled 35 over 55 years, from 7 in 1960 to 42 in 2015. The largest decennial percent change was a 286 percent increase between 1970 and 1980, when the numeric change was just 20. The 2015 Census estimate for Hart's Location was 42 residents, ranking last among New Hampshire's 234 incorporated cities and towns.

Population Density and Land Area, 2015 (US Census Bureau): 2.2 persons per square mile of land area, the lowest population density among the cities and towns. Hart's Location contains 19.2 square miles of land area and 0 square miles of inland water area.

Source: Economic & Labor Market Bureau, NH Employment Security, October 2017. Community Response Received 6/02/17 <http://www.nh.gov/nhes/elmi/html/profiles/Hartslocation.html>

Hart's Location has not seen any substantial change in development in the past five years and is not expected to see much change in the future. State and Federal forest lands take up 87% of available land leaving only approximately 1521 acres for development. In addition, the Town's Land Ordinances call for no commercial growth, no manufactured housing and a minimum lot size of 5 acres, unless "Grandfathered" or built prior to 2003. Subdivision development would be unlikely but not impossible; however, the general trend in the past has seen mostly the construction of single-family residential housing. Development in Hart's Location has consisted primarily of single residential housing, the number of which remains small today (54 according to the 2010 Census); no development has affected the vulnerability to natural hazards in the Community since the prior hazard mitigation plan.

The Hart's Location Team noted that there appears to be a trend away from residential "year-round" housing to a more transient or second home population, although little or no development is reported at this time. The beauty and peacefulness of the Town combined with the location in the heart of the White Mountains of New Hampshire invites skiers, hikers and others who wish to get away from city life.

F. Development Trends - Summary

Both the Bartlett and Hart's Location Hazard Mitigation Planning Teams along with the Planning Boards and the Boards of Selectmen will monitor growth in their communities using existing regulatory documents such Floodplain Ordinances, the Subdivision Regulations and the Master Plans. Building Permits are required in both communities and the Planning Board and Board of Selectmen

¹¹ http://en.wikipedia.org/wiki/Hart's_Location,_New_Hampshire

members along with other town officials are almost always aware of building that is taking place.

The Bartlett & Hart's Location Planning Boards will follow town building and subdivision regulations to ensure that any building in hazardous areas will be built to minimize vulnerability to the hazards identified in this Plan. Both towns recognize the importance of growth, but also understand the impact that hazards can have on new facilities and homes if built within hazardous areas of the Jurisdiction. Town officials will continue to monitor any new growth and development, including new critical facilities, with regards to potentially hazardous events.

TABLE 2.1A - TOWN STATISTICS - BARTLETT, NH

| Town Statistics Table | | | | |
|--|--|--------|--------|--------|
| Census Population Data | 2010 | 2000 | 1990 | 1980 |
| Bartlett, NH - Census Population Data | 2,788 | 2,721 | 2,298 | 1,566 |
| Carroll County | 47,818 | 43,918 | 35,526 | 27,929 |
| Elderly Population-% over 65 (*ACS 2011-2015) | 2,763 | | | |
| Elderly Population-% over 65 (*ACS 2011-2015) | 18.9% | | | |
| Median Age (*ACS 2011-2015) | 49.2 | | | |
| Median Household Income (*ACS 2011-2015) | \$50,536 | | | |
| Individuals below the poverty level (*ACS 2011-2015) | 10.0% | | | |
| Change in Population-Summer (%) | 400% (Campgrounds, Story Land, Second Homes, Condos, etc.) | | | |
| Change in Population-Winter (%) | 300% (Attitash, Second Homes, Condos, etc.) | | | |
| Housing Statistics (2010 Census) | | | | |
| Total Housing Units | 4,115 | | | |
| Occupied Housing Units | 1,307 | | | |
| Owner Occupied Units | 997 | | | |
| Renter Occupied | 310 | | | |
| Vacant Housing Units | 2,808 | | | |
| Units for Seasonal, Recreational, Occasional Use | 2,691 | | | |
| All other vacant housing | 40 | | | |
| Assessed structure value (2015-MS1) | \$729,601,000 | | | |
| Regional Coordination | | | | |
| County | Carroll | | | |
| Tourism Region | White Mountains | | | |
| Municipal Services & Government | | | | |
| Town Manager | No | | | |
| Board of Selectmen | Yes; elected | | | |
| Planning Board | Yes; elected | | | |
| School Board | Yes; elected | | | |
| Zoning Board of Adjustment | Yes; elected | | | |

| Town Statistics Table | |
|--|--|
| <i>Conservation Committee</i> | Yes; appointed |
| <i>Master Plan</i> | April 19, 2016 |
| <i>Emergency Operation Plan (EOP)</i> | 2007 |
| <i>Hazard Mitigation Plan (HMP)</i> | 2012 |
| <i>Zoning Ordinances</i> | 1985/13 |
| <i>Subdivisions Regulations</i> | Yes |
| <i>Capital Improvement Plan</i> | No |
| <i>Capital Reserve Funds</i> | Yes |
| <i>Building Permits Required</i> | Yes; No Building Inspector |
| <i>Town Web Site</i> | Yes; www.townofbartlettnh.org |
| <i>Floodplain Ordinance</i> | Yes; Stand alone |
| <i>Member of NFIP</i> | May 1, 1979 |
| <i>Flood Insurance Rate Maps (DFIRMS)</i> | March 19, 2013 |
| <i>Flood Insurance Rate Study (FIS)</i> | March 19, 2013 |
| Percent of Local Assessed Valuation by Property Type-2015 (NH Department of Revenue) | |
| <i>Residential Buildings</i> | 89.6% |
| <i>Commercial Land & Buildings</i> | 9.6% |
| <i>Other (including Utilities)</i> | 0.8% |
| Emergency Services | |
| <i>Town Emergency Warning System(s)</i> | NH Emergency Notification System (ENS) |
| <i>School Emergency Warning System(s)</i> | Blackboard Connect |
| <i>Emergency Page</i> | No |
| <i>Facebook Page</i> | Firefighters' Association Page |
| <i>ListServ</i> | No |
| <i>Local Newspapers</i> | Conway Daily Sun |
| <i>Local TV Stations</i> | WMUR Channel 9, WCAX Channel 3, Public Access TV |
| <i>Local Radio</i> | 93.5 FM, WMWV; 99.5 PM, NPR; 103.7 FM, WPKQ; 104.5 FM, WVMJ; 94.9 FM, WHOM |
| <i>Police Department</i> | Yes; full-time Chief; four full-time; two part-time |
| <i>Police Dispatch</i> | Carroll County Dispatch |
| <i>Police Mutual Aid</i> | Jackson & Conway; County & State |
| <i>Animal Control Officer</i> | Yes |
| <i>Fire Department</i> | Yes; full-time Chief; 16 paid on-call |
| <i>Fire Dispatch</i> | Carroll County Dispatch |
| <i>Fire Mutual Aid</i> | Mount Washington Valley |
| <i>Fire Stations</i> | Two |
| <i>Fire Warden</i> | Yes |

| Town Statistics Table | |
|---|---|
| <i>Emergency Medical Services</i> | Bartlett-Jackson Ambulance |
| <i>EMS Dispatch</i> | Carroll County Dispatch |
| <i>Emergency Medical Transportation</i> | Bartlett-Jackson Ambulance |
| <i>HazMat Team</i> | Carroll County HazMat Team |
| <i>Established EMD</i> | Yes |
| <i>Established Deputy EMD</i> | No |
| <i>Public Health Network</i> | Carroll County Coalition for Public Health |
| <i>Health Officer</i> | Yes |
| <i>Building Inspector</i> | No |
| <i>Established Public Information Officer (PIO)</i> | No |
| <i>Nearest Hospital(s)</i> | Memorial Hospital, Conway (5 miles, 25 beds) |
| <i>Alternative Hospitals</i> | Littleton Regional Healthcare (43 miles, 25 beds) |
| | Androscoggin Valley Hospital (35.4 miles, 25 beds) |
| <i>Local Humane Society or Veterinarians</i> | Conway Area Humane Society; True North (Small Animal Vet) |
| <i>Primary EOC</i> | Glen Fire Station (generator) |
| <i>Secondary EOC</i> | Bartlett Village Fire Station (generator; portable) |
| <i>Primary Shelter</i> | Josiah Bartlett Elementary School (generator) |
| <i>Secondary Shelter</i> | Grand Summit Hotel |
| Utilities | |
| <i>Town Sewer</i> | Private septic |
| <i>Highway Department</i> | Yes; full-time Road Agent; three full-time |
| <i>Public Works Mutual Aid</i> | Yes |
| <i>Water Supply</i> | Bartlett Village/Lower Bartlett Water & North Conway Water |
| <i>Waste Water Treatment Plant</i> | No |
| <i>Electric Supplier</i> | NH Electric Coop |
| <i>Natural Gas Supplier</i> | None |
| <i>Cellular Telephone Access</i> | Yes |
| <i>High Speed Internet</i> | Yes |
| <i>Telephone Company</i> | Fairpoint |
| Transportation | |
| <i>Primary Evacuation Routes</i> | US Route 302, NH Route 16 & NH Route 16A; West Side Road |
| <i>Secondary Evacuation Routes</i> | Bear Notch Road (seasonal), Jericho Road (Rocky) to Glen Ledge Road, Thorn Hill Road, Conway Scenic Railway |
| <i>Nearest Interstate</i> | I-93, Exit 32 or 24 (46 & 56 miles) |
| <i>Nearest Airstrip</i> | Easton Slopes, Fryeburg, ME (4,200 ft. asphalt runway) |
| <i>Nearest Commercial Airport(s)</i> | Portland (ME) International (68 miles) |
| | Manchester-Boston Regional Airport (106 miles) |

| Town Statistics Table | | |
|--|---|----------------------|
| <i>Public Transportation</i> | No | |
| <i>Railroad</i> | Conway Scenic Railroad | |
| Education & Childcare | | |
| <i>Elementary School</i> | Grades K-8 attend Josiah Bartlett Elementary School | |
| <i>Middle School</i> | | |
| <i>High School</i> | Grades 9-12 are tuitioned to Conway | |
| <i>School Administrative Unit</i> | SAU 9 | |
| <i>Licensed Childcare Facilities</i> | 1 facilities; capacity 20 | |
| Conserved Land as a Percent of Land in the Community (GIS Analysis) | | |
| | Square Miles | Percent of Town Land |
| <i>Approximate Square Miles in Community</i> | 74.82 | 100.0% |
| <i>Approximate Total Un-Conserved Land</i> | 26.00 | 34.8% |
| <i>Approximate Total Conserved Land</i> | 48.81 | 65.2% |
| <i>Municipal/County Land</i> | 0.00 | 0.0% |
| <i>Federal Owned Land</i> | 46.22 | 61.8% |
| <i>State Owned Land</i> | 1.31 | 1.8% |
| <i>Quasi Private</i> | 0.00 | 0.0% |
| <i>Private Land</i> | 1.28 | 1.7% |
| Fire Statistics (NH Division of Forests & Lands (DNCR), Fire Warden Report, November 2015 & the Town) | | |
| <i>Wildfire Fire Calls (15 & 16)</i> | None over 1 Acre | |
| <i>Carroll County Fire Statistics (15)</i> | 10 fire, 299.5 acres | |
| <i>State Forest Fires FY (15)</i> | 134 fires, 661 acres | |
| *ACS: Five year average of randomly mailed long-form Census Bureau surveys | | |
| Information found in Table 2.1, unless otherwise noted, was derived from the Economic & Labor Market Information Bureau, NH Employment Security, October 2017. Community Response Received 6/2/17; https://www.nhes.nh.gov/elmi/products/cp/profiles-pdf/bartlett.pdf | | |

TABLE 2.1B - TOWN STATISTICS – HART’S LOCATION

| Town Statistics Table | | | | |
|--|----------|--------|--------|--------|
| Census Population Data | 2010 | 2000 | 1990 | 1980 |
| Hart's Location, NH - Census Population Data | 41 | 38 | 35 | 27 |
| Carroll County | 47,818 | 43,918 | 35,526 | 27,929 |
| Estimated Population 2015 (*ACS 2011-2015) | 42 | | | |
| Elderly Population-% over 65 (*ACS 2011-2015) | 0.14% | | | |
| Median Age (*ACS 2011-2015) | 49.8 | | | |
| Median Household Income (*ACS 2011-2015) | \$72,917 | | | |
| Individuals below the poverty level (*ACS 2011-2015) | 0.0% | | | |

| Town Statistics Table | |
|---|---|
| <i>Change in Population-Summer (%)</i> | 600% (including campgrounds and daytime visitors) |
| <i>Change in Population-Winter (%)</i> | 90% |
| Housing Statistics (2010 Census) | |
| <i>Total Housing Units</i> | 54 |
| <i>Occupied Housing Units</i> | 21 |
| <i>Owner Occupied Units</i> | 14 |
| <i>Renter Occupied</i> | 7 |
| <i>Vacant Housing Units</i> | 33 |
| <i>Units for Seasonal, Recreational, Occasional Use</i> | 30 |
| <i>All other vacant housing</i> | 1 |
| <i>Assessed structure value (2015-MS1)</i> | \$9,957,500 |
| Regional Coordination | |
| <i>County</i> | Carroll |
| <i>Tourism Region</i> | White Mountains |
| Municipal Services & Government | |
| <i>Town Manager</i> | No |
| <i>Board of Selectmen</i> | Yes; elected |
| <i>Planning Board</i> | Yes; appointed |
| <i>School Board</i> | Yes; elected |
| <i>Zoning Board of Adjustment</i> | Yes; appointed |
| <i>Conservation Committee</i> | No |
| <i>Master Plan</i> | 2000 |
| <i>Emergency Operation Plan (EOP)</i> | No |
| <i>Hazard Mitigation Plan (HMP)</i> | 2012 |
| <i>Zoning Ordinances</i> | 1973/09 |
| <i>Subdivisions Regulations</i> | Part of Zoning |
| <i>Capital Improvement Plan</i> | No |
| <i>Capital Reserve Funds</i> | Yes |
| <i>Building Permits Required</i> | Yes |
| <i>Town Web Site</i> | Yes; www.hartslocation.com |
| <i>Floodplain Ordinance</i> | Part of Zoning |
| <i>Member of NFIP</i> | March 2, 1988 |
| <i>Flood Insurance Rate Maps (DFIRMS)</i> | Not available |
| <i>Flood Insurance Rate Study (FIS)</i> | Not available |
| Percent of Local Assessed Valuation by Property Type (2016-NH Department of Revenue) | |
| <i>Residential Buildings</i> | 87.9% |
| <i>Commercial Land & Buildings</i> | 9.5% |
| <i>Other (including Utilities)</i> | 2.6% |
| Emergency Services | |
| <i>Town Emergency Warning System(s)</i> | NH Emergency Notification System (ENS) |

| Town Statistics Table | |
|---|--|
| <i>School Emergency Warning System(s)</i> | Blackboard Connect |
| <i>Emergency Page</i> | No |
| <i>Facebook Page</i> | No |
| <i>ListServ</i> | No |
| <i>Local Newspapers</i> | Conway Daily Sun |
| <i>Local TV Stations</i> | WMUR Channel 9, WCAX Channel 3, Public Access TV |
| <i>Local Radio</i> | 93.5 FM, WMWV; 99.5 PM, NPR; 103.7 FM, WPKQ; 104.5 FM, WVMJ; 94.9 FM, WHOM |
| <i>Police Department</i> | NH State Police (Troop E) |
| <i>Police Dispatch</i> | Carroll County Dispatch; State Police Dispatch |
| <i>Police Mutual Aid</i> | NA |
| <i>Animal Control Officer</i> | No |
| <i>Fire Department</i> | No |
| <i>Fire Dispatch</i> | N/A |
| <i>Fire Mutual Aid</i> | N/A |
| <i>Fire Stations</i> | N/A |
| <i>Fire Warden</i> | Yes |
| <i>Emergency Medical Services</i> | Bartlett-Jackson Ambulance |
| <i>EMS Dispatch</i> | Carroll County Dispatch |
| <i>Emergency Medical Transportation</i> | Bartlett-Jackson Ambulance |
| <i>HazMat Team</i> | Carroll County HazMat Team |
| <i>Established EMD</i> | Yes |
| <i>Established Deputy EMD</i> | No |
| <i>Public Health Network</i> | Carroll County Coalition for Public Health |
| <i>Health Officer</i> | Board of Selectmen |
| <i>Building Inspector</i> | No |
| <i>Established Public Information Officer (PIO)</i> | No |
| <i>Nearest Hospital(s)</i> | Memorial Hospital, Conway (16 miles, 25 beds) |
| <i>Alternative Hospitals</i> | Littleton Regional Healthcare (43 miles, 25 beds) |
| | Androscoggin Valley Hospital (35.4 miles, 25 beds) |
| <i>Local Humane Society or Veterinarians</i> | Conway Area Humane Society; True North (Small Animal Vet) |
| <i>Primary EOC</i> | Notchland Inn (generator) |
| <i>Secondary EOC</i> | Undetermined |
| <i>Primary Shelter</i> | Notchland Inn (generator) |
| <i>Secondary Shelter</i> | Undetermined |
| Utilities | |
| <i>Town Sewer</i> | Private septic |
| <i>Highway Department</i> | Road Agent |
| <i>Public Works Mutual Aid</i> | No |
| <i>Water Supply</i> | Private wells |

| Town Statistics Table | | | |
|---|--|----------------------|--|
| Waste Water Treatment Plant | Not for the Town; Forest Service lagoons | | |
| Electric Supplier | NH Electric Coop | | |
| Natural Gas Supplier | None | | |
| Cellular Telephone Access | Limited | | |
| High Speed Internet | No | | |
| Telephone Company | Fairpoint | | |
| Transportation | | | |
| Primary Evacuation Routes | US Route 302 | | |
| Secondary Evacuation Routes | None | | |
| Nearest Interstate | I-93, Exit 35 (27 miles) | | |
| Nearest Airstrip | Twin Mountain Airport (2,640 ft. asphalt) | | |
| Nearest Commercial Airport(s) | Portland (ME) International (84 miles) | | |
| | Manchester-Boston Regional Airport (126 miles) | | |
| Public Transportation | No | | |
| Railroad | Conway Scenic Railroad | | |
| Education & Childcare | | | |
| Elementary School | Grades K-8 are tuitioned to Josiah Bartlett School | | |
| Middle School | | | |
| High School | Grades 9-12 are tuitioned to Conway | | |
| School Administrative Unit | SAU 9 | | |
| Licensed Childcare Facilities | 0 facilities; capacity 0 | | |
| Conserved Land as a Percent of Land in the Community (GIS Analysis) | | | |
| | Square Miles | Percent of Town Land | |
| Approximate Square Miles in Community | 19.22 | 100.0% | |
| Approximate Total Un-Conserved Land | 2.35 | 12.2% | |
| Approximate Total Conserved Land | 16.88 | 87.8% | |
| Municipal/County Land | 0.00 | 0.0% | |
| Federal Owned Land | 8.37 | 43.5% | |
| State Owned Land | 8.48 | 44.1% | |
| Quasi Private | 0.00 | 0.0% | |
| Private Land | 0.00 | 0.0% | |
| Fire Statistics (NH Division of Forests & Lands (DNCR), Fire Warden Report, November 2015 & the Town) | | | |
| Wildfire Fire Calls (15 & 16) | None | | |
| Carroll County Fire Statistics (15) | 10 fire, 299.5 acres | | |
| State Forest Fires FY (15) | 134 fires, 661 acres | | |
| *ACS: Five year average of randomly mailed long-form Census Bureau surveys | | | |
| Information found in Table 2.1, unless otherwise noted, was derived from the Economic & Labor Market Information Bureau, NH Employment Security, October 2017. Community Response Received 6/16/17; https://www.nhes.nh.gov/elmi/products/cp/profiles-pdf/hartslocation.pdf | | | |

Chapter 3: Hazard Identification for the Jurisdiction

A. Description of the Hazards

The first step in hazard mitigation is to identify hazards; the Team determined that 13 natural hazards have potential to affect both Bartlett and Hart’s Location. The hazards listed to the right and in Table 3.1 were classified based upon their relative threat score (as calculated in Column F in Table 3.1) and separated into three categories using Jenks’ Optimization, which is also known as natural breaks classification. *“The natural breaks classification process is a method of manual data classification that seeks to partition data into classes based upon natural groups within the data distribution.”*¹² By using this grouping process, the Plan demonstrates each hazard’s likelihood of occurrence in combination with its potential effect on the Jurisdiction. This process illustrates a comprehensive hazard statement and assists the Jurisdiction with understanding which hazards should receive the most attention. Determination of the probability of occurrence is contained within Column D in Table 3.1; hazards are assessed based upon their likelihood of the hazard’s manifestation within a 25 year period.

Table 3.1 provides estimates of the level of impact each listed hazard could have on humans, property and business and averages them to establish an index of “severity”. The estimate of “probability” for each hazard is multiplied by its severity to establish an overall “relative threat” factor.

Based on this analysis, the most likely natural disaster threat to Bartlett and Hart’s Location is Flooding (riverine, road flooding, dams, ice jams, levee failure). The second most likely threat is Severe Winter Weather & Ice Storm and the third is Tornado & Downbursts. Seven human-caused hazards were also discussed by the Team and are included in Chapter 5. Human-caused hazards include Hazardous Materials-Transport, Violent Crimes, Mass Casualty Incident, Hazardous Materials- Fixed Location, Extended Power Failure (5+ days), Epidemic & Pandemic and Terrorism.

In light of recent events (Tropical Storms Irene and Sandy), it should be noted that hurricanes and/or tropical storms have the potential to cause significant damage in Bartlett and Hart’s Location as a result of both wind strength and flash flooding creating road closures and damage. Tropical Storm Irene significantly impacted both Bartlett and Hart’s Location and there is a good probability that tropical storms will affect them again in the future. The Team noted that Category 1 or greater hurricanes would not likely affect Bartlett and Hart’s Location; however the tropical rains that may result could be significant.

The Natural Hazards

The natural hazards which are **MOST LIKELY** to affect **Bartlett and Hart’s Location** include:

- *Flooding (riverine, road flooding, dams, ice jams, levee failure)*
- *Severe Winter Weather & Ice Storms*
- *Tornado & Downburst*

The natural hazards which **MAY AFFECT** Bartlett and Hart’s Location include:

- *Extreme Temperatures (hot & cold)*
- *Severe Thunder & Lightning Storm*
- *Hurricane & Tropical Storm*
- *Wildfire*
- *High Winds (windstorm)*

The natural hazards which are **LESS LIKELY TO AFFECT** Bartlett and Hart’s Location include:

- *Aquifer Contamination*
- *Earthquake*
- *Erosion, Landslide & Mudslide*
- *Snow Avalanche*
- *Drought*

¹² ESRI, <http://support.esri.com/en/knowledgebase/GISDictionary/term/natural%20breaks%20classification>

TABLE 3.1: HAZARD THREAT ANALYSIS

| Table 3.1 - Hazard Threat Analysis | | | | | | |
|---|---|--|--|--|--|----------------------------|
| Hazards which are most likely to affect the Jurisdiction | | | A natural hazard is a source of harm or difficulty created by a meteorological, environmental or geological event. | | | |
| Hazards which may affect the Jurisdiction | | | | | | |
| Hazards which are less likely to affect the Jurisdiction | | | | | | |
| Scoring for Probability (Columns A, B & C) | Column A | Column B | Column C | Column D | Columns (A+B+C)/3 | Columns D x E |
| 1=Very Low (0-20%) | What is the probability of death or injury? | What is the probability of physical losses & damage? | What is the probability of interruption of service? | What is the probability of this occurring within 25 years? | Average of Human, Property & Business Impact | Relative Threat |
| 2=Low (21-40%) | | | | | | |
| 3=Moderate (41-60%) | | | | | | |
| 4=High (61-80%) | Human Impact | Property Impact | Business Impact | Probability of Occurrence | Severity | Risk Severity x Occurrence |
| 5=Very High (81-100%) | | | | | | |
| Natural Hazards | | | | | | |
| 1) Flooding (riverine, road flooding, dams, ice jam, levee failure) | 2.0 | 4.0 | 4.0 | 4.0 | 3.3 | 13.3 |
| 2) Severe Winter Weather & Ice Storm | 1.0 | 4.0 | 2.0 | 5.0 | 2.3 | 11.7 |
| 3) Tornado & Downburst | 2.0 | 3.0 | 3.0 | 4.0 | 2.7 | 10.7 |
| 4) Extreme Temperature (hot & cold) | 3.0 | 2.0 | 2.0 | 4.0 | 2.3 | 9.3 |
| 5) Severe Thunder & Lightning Storm | 2.0 | 3.0 | 2.0 | 4.0 | 2.3 | 9.3 |
| 6) Hurricane & Tropical Storm | 4.0 | 3.0 | 3.0 | 2.0 | 3.3 | 6.7 |
| 7) Wildfire | 2.0 | 4.0 | 2.0 | 2.0 | 2.7 | 5.3 |
| 8) High Winds (windstorm) | 1.0 | 2.0 | 2.0 | 3.0 | 1.7 | 5.0 |
| 9) Aquifer Contamination | 5.0 | 2.0 | 5.0 | 1.0 | 4.0 | 4.0 |
| 10) Earthquake | 4.0 | 4.0 | 4.0 | 1.0 | 4.0 | 4.0 |
| 11) Erosion, Landslide & Mudslide | 2.0 | 2.0 | 1.0 | 2.0 | 1.7 | 3.3 |
| 12) Snow Avalanche | 2.0 | 2.0 | 1.0 | 2.0 | 1.7 | 3.3 |
| 13) Drought | 1.0 | 1.0 | 2.0 | 1.0 | 1.3 | 1.3 |
| Human-Caused Hazards | | | | | | |
| 1) Hazardous Materials - Transport | 5.0 | 5.0 | 5.0 | 3.0 | 5.0 | 15.0 |
| 2) Violent Crimes | 5.0 | 4.0 | 2.0 | 2.0 | 3.7 | 7.3 |
| 3) Mass Casualty Incident | 5.0 | 3.0 | 3.0 | 2.0 | 3.7 | 7.3 |
| 4) Hazardous Materials – Fixed Location | 5.0 | 3.0 | 3.0 | 2.0 | 3.7 | 7.3 |
| 5) Extended Power Failure (5+ days) | 4.0 | 2.0 | 4.0 | 2.0 | 3.3 | 6.7 |
| 6) Epidemic & Pandemic | 4.0 | 2.0 | 2.0 | 2.0 | 2.7 | 5.3 |
| 7) Terrorism | 4.0 | 4.0 | 4.0 | 1.0 | 4.0 | 4.0 |

B. Risk Assessment

The next step in hazard mitigation planning was to identify the location of past hazard events and if possible, what facilities or areas were impacted. The Team used *Table 3.1, Hazard Threat Analysis*, to identify potential threats and prioritize their threat potential. The Team then used a base map that included the 100-year floodplain, political boundaries, water bodies, the road network and aerial photos to locate all of the past hazard events on the base map. This step in the planning process serves as a stepping stone for predicting where future hazards could potentially occur. The Team identified past events in the Jurisdiction, Carroll County and the State and listed them in *Table 3.2, Historic Hazard Identification*.

To assess the fire base risk, a formula based on the following criteria was used:

- **Ignitability** – Using the 2001 NH Land Cover Assessment GIS Layer - A value between 0 and 9 was assigned based on ignitability to 23 land cover categories from open water to pitch pine forest.
- **Slope** - A value of 1-10 was assigned to various gradients of slope.
- **Aspect** - A value of 0-8 was assigned to various aspects from flat to southwest facing slopes.

These criteria were combined using GIS analysis and weighted equally to determine risk levels throughout the Town. Once the analysis and mapping was complete in GIS, a matrix was created showing varying risk levels: low, medium and high. Each risk level was assigned a color and was mapped over a base-map of the Jurisdiction, see *Appendix G: Map Documents, Map 1: Base Risk Analysis*.

C. Bartlett & Hart's Location National Flood Insurance Program (NFIP) Status

BARTLETT

Bartlett has been a member of the National Flood Insurance Program (NFIP) since May 1, 1979. Bartlett actively monitors the NFIP and related compliance issues and participates in offered trainings by the State of NH or FEMA that address flood hazard planning.

There are 48 NFIP policies in force for \$11,446,000; five losses have been paid since 1978 for a total of \$241,978 but there have been no repetitive loss properties as reported by the NH Office of Strategic Initiatives.¹³

The Town of Bartlett Floodplain Development Ordinance (revised March 13, 2012) states “*All proposed development in any special flood hazard areas shall require a permit*” and that “*all new construction and substantial improvements shall:*



In 1968, although well-intentioned government flood initiatives were already in place, Congress established the National Flood Insurance Program (NFIP) to address both the need for flood insurance and the need to lessen the devastating consequences of flooding. The goals of the program are twofold: to protect communities from potential flood damage through floodplain management, and to provide people with flood insurance.

For decades, the NFIP has been offering flood insurance to homeowners, renters and business owners, with the one condition that their communities adopt and enforce measures to help reduce the consequences of flooding.

Source:
http://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp

¹³ Jennifer Gilbert, , NH Office of Strategic Initiatives, 1/23/17

- (i) *be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effect of buoyancy,*
- (ii) *...be constructed with materials resistant to flood damage*
- (iii) *be constructed by methods and practices that minimize flood damages, and*
- (iv) *be constructed with electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities that are designed and or located so as to prevent water from entering or accumulating within the components during conditions of flooding.”¹⁴*

The ordinance also addresses the design of water and sewer systems required to minimize or eliminate the infiltration of flood waters to avoid contamination. The ordinance states “...*the applicant shall provide the Building Inspector with assurance that new and replacement sanitary sewage systems will be designed to minimize or eliminate infiltration of flood waters in the systems and discharges from the systems in flood waters, and on-site waste disposal systems will be located to avoid impairment to them or contamination from them during periods of flooding.*”

The Bartlett Floodplain Ordinance also requires “...*certification of floodproofing*” and states that “*The Building Inspector shall not grant a building permit until the applicant certifies that necessary permits have been received from those governmental agencies from which approval is required...*” The ordinance goes on to discuss watercourses and states “...*No encroachments, including fill, new construction, substantial improvements, and other development are allowed within the floodway that would result in any increase in flood levels within the community during the base flood discharge.*”

Specific regulations for Special Flood Hazard Areas are outlined in Item VIII. These regulations include stipulations for new construction or substantial development to have “...*the lowest floor (including basement) elevated to or above 100-year flood elevation*”; or that they “(i) *be flood proofed so that below the 100-year flood elevation the structure is watertight with walls substantially impermeable to the passage of water; (ii) have structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy; and (iii) be certified by a registered professional engineer or architect that the design and methods of construction is in accordance with accepted standards of practice for meeting the provisions of this section*”¹⁵.

The Bartlett floodplain ordinance further outlines regulations regarding manufactured housing and recreational vehicles and other provisions for constructing or improving in fully enclosed areas below the lowest floor that are subject to flooding. Lastly, the ordinance discusses variances and the appeals process.

Severe Repetitive Loss (SRL) Properties--NFIP-insured buildings that, on the basis of paid flood losses since 1978, meet either of the loss criteria described on page SRL 1. SRL properties with policy effective dates of January 1, 2007, and later will be afforded coverage (new business or renewal) only through the NFIP Servicing Agent's Special Direct Facility so that they can be considered for possible mitigation activities.

Source: <http://www.fema.gov/national-flood-insurance-program/definitions#R>

¹⁴ Town of Bartlett, Floodplain Ordinance, Revised, 3/13/12

¹⁵ Ibid

HART'S LOCATION

Hart's Location has been a member of the National Flood Insurance Program since March 2, 1998. The community actively monitors the NFIP and related compliance issues and participates in offered trainings by the State of NH or FEMA that address flood hazard planning. In Hart's Location there are three NFIP policies in force for \$660,300; no losses have been paid since 1978 as reported by the NH Office of Strategic Initiatives, therefore no repetitive losses have been report.¹⁶

In an effort to comply with the NFIP, Hart's Location has included regulations regarding flood hazard areas as an Appendix to their Land Use Ordinances. Among other items, these *regulations "are intended to control and guide the uses in land areas subject to flooding"*.¹⁷ The ordinance further states that *"It is intended that the provisions of this district shall:*

- 1. Promote the general health, safety and welfare of the community through certain restrictions on the use of land located within the flood plain.*
- 2. Prevent the erection of structures in areas unfit for human usage by reason of danger from flooding, unsanitary conditions or other hazards.*
- 3. Reduce the financial burdens imposed on the community, its governmental units and its individual by frequent and periodic floods and overflow of lands.*
- 4. Permit appropriate uses to be located in the flood plain as herein defined, which will not impeded the flow of flood waters, or otherwise cause damage to life and property at or above or below their locations along the floodway.*
- 5. Permit only those uses in the flood plain compatible to the preservation of natural conditions which are conducive to the maintenance of constant rates of water flow throughout the year (a) withholding rapid water runoff contributing to downstream flooding, and (b) providing area for groundwater absorption for maintenance of the subsurface water supply."*

Other provisions of the flood plain ordinance include a requirement for *"...a minimum of one acre of land free of any alluvial soils"* for any building in the Flood Plain District. In addition, *"Any right of ways, access roads, driveways, bridges, etc.....shall be constructed in accordance with state and federal regulations."*

Permitted Uses within the flood plain are detailed in the Flood Plain Ordinance as are Conditional Uses and Prohibited Uses. In Section 5, Prohibited Uses, the ordinance states:

- 1. "All structures and buildings with the exception of flood retention dams, culverts and bridges which are in compliance with other municipal and state regulations.*
- 2. The filling of wetlands, removal of topsoil or damming or relocation of any watercourse except with the appropriate municipal and state approvals.*
- 3. Sanitary landfill, dump junkyard, outdoor storage vehicles and/or materials.*
- 4. On-site sewage disposal systems or designation of any are with the flood plan as the future site of a replacement leach field.*
- 5. Unsealed public or private water supply wells.*

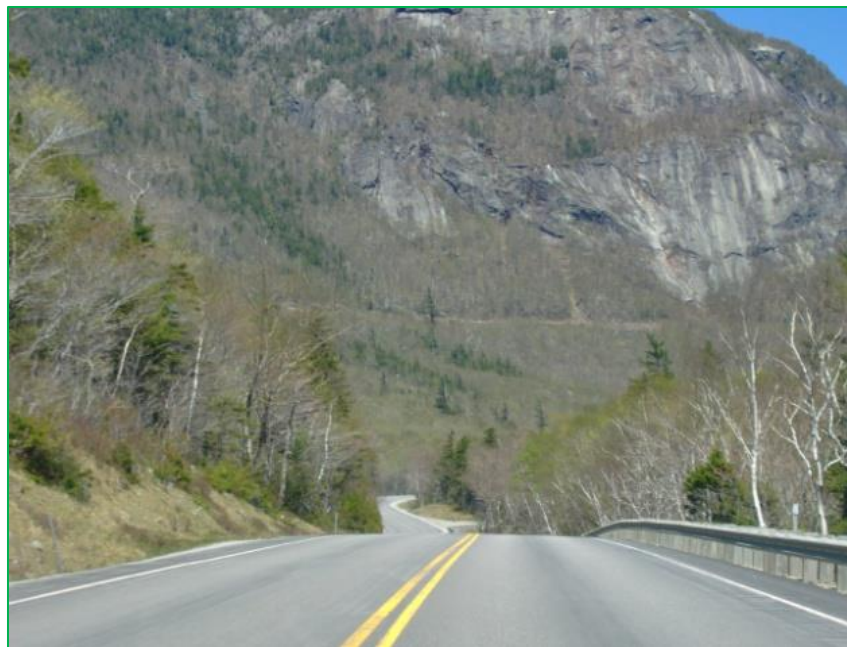
¹⁶ Jennifer Gilbert, , NH Office of Strategic Initiatives, 1/23/17

¹⁷ Town of Hart's Location, Land Use Ordinance, Appendix B, Flood Plain Conservation District Ordinance, March 2009

Ordinance language states, among other things, that *“The Board of Selectmen shall not grant a building permit until the applicant certifies that all necessary permits have been received...”* and *“the issuance of a variance to construct below base flood level will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage; and such construction below the base flood level increases risks to life and property.”* Language changes, as recommended by the NH Office of Energy & Planning, include changes to Water and Sewer Systems, Definitions and Construction Requirements. In addition, zoning changes and allowances were stated and that Section 4.02 shall read: *“That land located within the Flood Plain District meets the requirements set forth in Appendix B of the town’s Land use Regulations”*.¹⁸

It was explained to the Team that benefits of the NFIP also extend to structures that are not in the 100-year floodplain. The Team felt that the Jurisdiction should be more proactive in explaining the National Flood Insurance Program to potential developers and homeowners and that it was important to have current NFIP brochures on hand at the Town Offices of both communities. The Team felt that it is worthwhile to post flood information on the Town’s website and to add a link to the NFIP to provide public education for current homeowners and potential developers.

As small and close-knit communities, the Boards of Selectmen, Planning Boards of Bartlett and Hart’s Location and the Hazard Mitigation Planning Team are most always aware of new construction and/or substantial improvements that take place in the Jurisdiction. The Towns of Bartlett and Hart’s Location, through their respective Floodplain Management Ordinances and other best practices, comply with the National Flood Insurance Program requirements. The Towns will continue to work with the Office of Strategic Initiatives and will carefully monitor its continued compliance with the NFIP.



*Crawford Notch, Hart's Location
Photo credit: MAPS*

¹⁸ Changes to Hart’s Location’s Floodplain Conservation District Ordinance, March 2009

D. Profile of Past, Present & Potential Wildfire Events in Bartlett & Hart's Location

Historic fires can serve to help residents determine where future fires may occur, understand how the landscape and land use may have changed over time, and assist with determining priorities for future mitigation strategies. Based on the information available, and with the help of the USDA-Forest Service and DNCR-NH Forests & Lands, historic fires in Bartlett & Hart's Location (Table 3.2, Historic Hazard Identification) were identified and displayed through GIS mapping (*Map 2, Historic Wildfires & the Wildland Urban Interface*). Analysis revealed that the majority of wildfires in Bartlett & Hart's Location were human caused, usually by improper control or extinguishing of campfires; this was followed by lightning. It is noted that large areas of land in both communities is heavily forested; 87.8% of the land in Hart's Location and 65.2% of the land in Bartlett is conserved, primarily as part of the Crawford North State Park (Hart's Location) and the White Mountain National Forest (Jurisdiction).

It was also noted that in the past, the Conway Scenic Railroad travelling through Bartlett and Hart's Location on its way to the top of Crawford Notch, often created wildfires trackside. Some measures have been taken to lessen the number of these fires; however there is still concern for the dry timber left by clearing the area on both sides of the track throughout the Jurisdiction.

The Bartlett & Hart's Location Planning Team noted that no significant wildfires have occurred in Bartlett & Hart's Location in the recent past, but that most of the Jurisdiction's residences are located in the Wildland Urban Interface (WUI). It was noted that if the right conditions were in place, a large wildfire could occur. Bartlett & Hart's Location's forested lands include many of the factors associated with potential wildfire including steep terrain, a significant softwood forest and large areas where clear cuts and blow downs have occurred. In addition, there is no municipal water supply in Bartlett & Hart's Location so the fire department must rely on static water sources to fight fires.

E. Probability of Future Potential Disasters in the Jurisdiction

Overall, Bartlett and Hart's Location are fairly safe from the effects of natural hazards, with the exception of flooding. However, due to the Jurisdiction's geographic location, forested lands, steep hills, heavy snow pack, abundance of rivers and streams and the topography, there is always a possibility of future disasters. Bartlett and Hart's Location have been impacted in the past by natural disasters, including flooding, lightning, severe winter storms and severe wind.

The three most significant natural hazards in the Jurisdiction and those that would have the highest probability of occurrence are flooding, severe winter weather including ice storms and tornado and downbursts.

FLOODING (RIVERINE, ROAD FLOODING, DAMS, ICE JAM, LEVEE FAILURE)

Riverine flooding and road flooding, washouts and closures are significant in both Bartlett & Hart's Location. The primary areas of concern are at the confluence of the Saco River and the Rocky Branch and the confluence of the Saco River and the Ellis River in Bartlett and along US Route 302 in Hart's Location where, since July 1 2017, two very significant washouts have occurred.

The increased intensity of storms along with development along steep slopes and deforestation by logging operations has caused an increase in the rate of stormwater flow down the mountainsides; flash flooding has been the result. As heavy rain at higher elevations fills rivers, brooks and streams, the volume of water often causes

riverbanks to overflow and cause damage to roadways. Also, as stormwater flows into ditches, debris that is picked up along the way often jams up culverts thus causing the stormwater to find other routes, going around culverts and across roads.

Storms in recent years have created flooding in much the same locations throughout the Jurisdiction. During Tropical Storm Irene and again in both July and October 2017, both Bartlett and Hart's Location experienced significant washouts. In all three events, the town of Hart's Location was effectively "cut-off" from Bartlett, making emergency response for the residents of Hart's Location nearly impossible. Bartlett also experienced flooding and road washouts in these three storms leaving some its own residents without access by emergency responders.



Route 302 in Crawford Notch State Park, October 2017
Photo Credit: Conway Daily Sun; Jamie Gemmiti

In addition to road flooding, other flooding issues also exist in the Jurisdiction including flooding from ice jams, heavy rain and rapid snowmelt and flooding along the smaller tributaries of the Saco River. A levee in Bartlett also has the potential for causing flood damage.

There is a high probability that future flooding will occur in Bartlett & Hart's Location. However, the Jurisdiction hopes that as a result of the damage done on July 1 and October 30, 2017, most of the primary culvert issues can be mitigated with disaster funding. Bartlett has submitted a "Letter of Intent" for the October event (Presidential Declaration, DR-4355); see Mitigation Action Item #18. For more information on local road flooding, refer to Chapter 5.

SEVERE WINTER WEATHER & ICE STORM

Severe winter weather events, particularly ice storms, are felt to pose a great risk to the people of Bartlett & Hart's Location. Fortunately with the frequency of severe winter weather events, so comes a vast knowledge of how to deal with the situation. In fact, even large single-storm accumulations of snow can generally be handled by Bartlett's Highway Department and NH DOT, which is responsible for the long and winding road through Hart's Location.

As communities located in the valley of the highest peak in the East, Mount Washington, severe winter weather is a common occurrence and a high probability. Heavy snow, combined with power failure and high winds is particularly hazardous for the citizens and property of the Jurisdiction. It was also noted that there are limited food resources in Bartlett and no food resources in Hart's Location; there is a heavy reliance on the neighboring town of

North Conway for many services and employment. A severe winter storm with power outages and road closures could affect many people, particularly the elderly or handicapped.

Due to the similarities of the terrain, transportation routes and weather in these communities, severe winter weather and ice storm hazards are nearly the same in each of these communities. However, US Route 302 from Bartlett through Hart's Location and Crawford Notch is particularly dangerous due to the steepness of the terrain in "The Notch"; there is a very real risk for vehicular accidents in this location (see photo to the right).



*Top of Crawford Notch,
Entering Crawford Notch State Park*

Ice storms pose a serious threat to the Jurisdiction as they are unpredictable and can create a mass amount of damage to homes and trees and result in long-lasting power outages. Elevations in Bartlett range from 671 feet to the summit of Bear Mountain at 3,200' above sea level¹⁹ while elevations in Hart's Location range from 897' feet to just beneath the summit of Mount Willey at 4,285' above sea level²⁰. Areas above 1,000 feet are more susceptible to severe ice storms as was evidenced by the 1998 Ice Storm in the Jurisdiction.

The probability that severe winter weather and ice storms will occur in Bartlett & Hart's Location is good. See Chapter 5 for more information on severe winter weather and ice storms in Bartlett & Hart's Location.

TORNADO & DOWNBURST

Although tornadoes and downbursts are not as common in New Hampshire as they are in the Midwest United States, an increase in the occurrence of tornadoes is expected as a result of climate change. Small tornadoes have been reported in recent years throughout the State.

In 1995 a suspected downburst caused downed trees and power lines in both Bartlett and Hart's Location. It was also reported that in 1979, a downburst caused some property damage and downed trees caused the closure of Jericho Road in Bartlett.

The probability of downbursts occurring in Bartlett and Hart's Location in the future is good, although due to the terrain of these communities, it is unlikely that a tornado would occur. See Chapter 5 for more information on tornadoes and downbursts in the Jurisdiction.

CLIMATE CHANGE

Although not identified as a natural hazard in this Plan, no Plan can be considered complete today without some discussion of the impact that climate change has had on weather patterns. *"The challenges posed by climate change, such as more intense storms, frequent heavy precipitation, heat waves, drought, extreme flooding, and higher sea levels, could significantly alter the types and magnitudes of hazards impacting states in the future"*, FEMA stated in its new State Mitigation Plan Review Guide²¹. By including climate change in the new hazard mitigation guide for state planners, FEMA is recognizing the reality of climate change.

¹⁹ Town of Bartlett

²⁰ https://en.wikipedia.org/wiki/Hart%27s_Location,_New_Hampshire

²¹ State Mitigation Plan Review Guide, FEMA, Released March 2015, Effective March 2016, Section 3.2, page 13

Communities in New Hampshire, such as Bartlett & Hart’s Location, should become increasingly aware of the effects of climate change on the natural hazards that are already being experienced.

STATE HAZARD MITIGATION PLAN

The NH State Hazard Mitigation Plan includes many of the same potential hazards that have been identified in the Jurisdiction. Several of the State’s hazards however were excluded from this Plan. These include the following:

| <u>State Hazard</u> | <u>Reason for exclusion from Bartlett & Hart’s Location’s Plan</u> |
|----------------------------------|---|
| Coastal Flooding | Distance away from the sea |
| Radon | Felt to be an individual homeowner’s responsibility |
| Dam Failure (hydro)..... | For large hydro dams only; none exist in Jurisdiction |
| Radiological | Distance away from a nuclear power plant |
| Fire & Hazardous Materials | Addressed with “Wildfire” and “Hazard Materials Transport & Fixed” |

HAZARD PROBABILITY COMBINED WITH POWER FAILURE

Any potential disaster in Bartlett & Hart’s Location is particularly impactful if combined with power failure, as would most likely be the case with severe winter storms, blizzards and ice storms, hurricanes, tropical storms and windstorms. The food supply of individual citizens could become quickly depleted should a power failure last for a week or more. An outage during the winter months could result in frozen pipes and the lack of water and heat, a particular concern for the Jurisdiction’s elderly citizens. In addition, winter in New England commonly brings very low temperatures, while high temperatures can be experienced in the summer.

HAZARD PROBABILITY COMBINED TRANSPORTATION

US Rout 302 serves as the major north-south roadway for those travelling from northern communicates such as Carroll, Bethlehem and Littleton to the Mount Washington Valley. The “Valley” is a central-hub for tourism, employment and shopping for northeastern New Hampshire and includes the towns of Bartlett, Hart’s Location, Jackson, Conway (and North Conway) and other smaller communities. US Route 302 is beautiful any time of year but particularly during fall foliage as it travels through Crawford Notch State Park from Bartlett, through Hart’s Location and on into the communities “above the Notch”. US Route 302 is treacherous however in any type of adverse weather, particular in the “Notch” where the road grade is 13% for four miles.

There are of course many other roads in the Jurisdiction that pose some element of danger, particularly when combined with winter weather conditions. Many of Bartlett & Hart’s Location’s roads are narrow and winding and subject to severe winter weather; these roads are beautiful in the spring, fall and summer months, but when affected by flooding, winter snow conditions and ice they become treacherous. In these conditions, vehicular accidents, wildlife collisions and truck accidents involving hazardous materials are always a possibility. A major ice storm or other significant event can make egress and access difficult for individuals and first responders.

Table 3.1, Table 3.2 and Chapter 5, Section B provide more information on past and potential hazards in the Jurisdiction.

TABLE 3.2: HISTORIC HAZARD IDENTIFICATION

2012 HMPT = 2012 Hazard Mitigation Planning Team
2018 HMPT = 2018 Hazard Mitigation Planning Team

DR Presidential Disaster Declarations (DR) since 1953
EM Emergency Declarations (EM) since 1953

Table 3.2 includes the following sections:

- A. Flood Hazards
- B. Wildfire Hazards
- C. High Wind Hazards
- D. Winter Hazards
- E. Earthquake Hazards
- F. Drought Hazards
- G. Miscellaneous Hazards
- H. Other Hazards

| Type of Event | Date | Location | Impact | Source |
|--|------------------------------|--|---|------------------|
| A. Past Flooding Hazards including Riverine, Heavy Rainfall, Rapid Snowmelt, Ice Jams and Local Road Flooding: Riverine flooding is the most common disaster event in the State of NH. Significant riverine flooding in some areas of the State occurs in less than ten year intervals and seems to be increasing with climate change. The entire State of NH has a high flood risk. Areas prone to flooding and road erosion were indicated with "yellow" circles on Map #3, Past & Potential Areas of Concern as well as the FEMA Floodplain, which represents common areas of flooding; flood events have the potential to impact the Jurisdiction on a jurisdiction-wide basis. | | | | |
| Severe Storms Flooding | 1937 | Bartlett | Sleepy Hollow, Bartlett ; Took out homes on Sleepy Hollow (event also caused landslide on West Side Road resulting in one fatality) | 2012 HMPT |
| Severe Storms Flooding | March 15, 1979 | Bartlett | Presidential Emergency Declaration EM-3073: Bartlett experienced flooding on the Saco River; West Side Road shut down; livestock had to be rescued; ice jams. | FEMA & 2018 HMPT |
| Severe Storms Flooding | 1980 & 1990 & Present | Bartlett | River Street Bridge, Bartlett ; Flood undermined support and took out bridge; stranded people who live on other side of river; mid 1990's repeated heavy rain storms, 3 100-year storms 1 500-year storm; several times in recent history | FEMA & 2018 HMPT |
| Severe Storms Flooding | August 7-11, 1990 | Bartlett | Presidential Disaster Declaration DR-876: heavy rain; washed out Cow Hill Road in Bartlett . | FEMA & 2018 HMPT |
| Severe Storms Flooding | October 20-November 15, 1995 | Hart's Location | Presidential Disaster Declaration DR-1077: Hart's Location ; along river in southern part of town; late fall flooding; heavy rains; some riverfront properties with minor flooding. | FEMA & 2018 HMPT |
| Severe Storms Flooding | October 20-November 15, 1995 | Bartlett | Presidential Disaster Declaration DR-1077: East Branch at Town Hall Road in Bartlett ; shut down Town Hall Road because water got up to the bridge. | FEMA & 2018 HMPT |
| Severe Storms Flooding | May 12-23, 2006 | Belknap, Carroll, Grafton, Hillsborough, Merrimack, Rockingham & Strafford | Presidential Disaster Declaration DR-1643: Flooding in most of southern NH, May 12-23, 2006. (Aka: Mother's Day Storm); no significant impact in Bartlett or Hart's Location . | FEMA & 2018 HMPT |
| Severe Storms Flooding | April 15-23, 2007 | All Ten NH Counties | Presidential Disaster Declaration DR-1695: Flood damages; FEMA & SBA obligated more than \$27.9 million in disaster aid following the April nor'easter. (Aka: Tax Day Storm); no significant impact in Bartlett or Hart's Location . | FEMA & 2018 HMPT |

| Type of Event | Date | Location | Impact | Source |
|---------------------------|------------------------------------|--|---|------------------------|
| Severe Storms Flooding | July 24-August 14, 2008 | Belknap, Carroll & Grafton & Coos | Presidential Declaration DR-1787: Severe storms, tornado and flooding on July 24, 2008; no significant impact in Bartlett or Hart's Location . | FEMA & 2018 HMPT |
| Severe Storms Flooding | Annually | Bartlett & Hart's Location | Bartlett & Hart's Location along Saco River and other four rivers which are all tributaries of the Saco River; annual event particularly in Spring with snowmelt and heavy rains; the Saco River and its tributaries are prone to flooding during periods of rapid snow melt and heavy rain; flooding at the confluence of these tributaries occurs on an annual basis in some areas throughout both Bartlett & Hart's Location . | FEMA & 2018 HMPT |
| Severe Storms Flooding | August 26- September 6, 2011 | EM 3333: All Ten NH Counties DR-4026: Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan | Emergency Declaration EM-3333 & Presidential Disaster Declaration DR-4026: Tropical Storm Irene Aug 26th- Sept 6, 2011; see "C. Past High Winds..." below for details. | FEMA & 2018 HMPT |
| Severe Storms Flooding | July 1, 2017 | Coos & Grafton | Presidential Disaster Declaration DR-4329: The Federal Emergency Management Agency (FEMA) announced that federal disaster assistance is available to the state of New Hampshire to supplement state and local recovery efforts in the areas affected by severe storms and flooding from July 1, 2017 to July 2, 2017 in Grafton and Coos County; although this storm did not include Carroll County, Bartlett & Hart's Location nonetheless received considerable flood damage from this storm in many of the usual flood locations in both communities. | FEMA & 2018 HMPT |
| Severe Storms Flooding | October 30, 2017 | Belknap, Carroll Grafton, Coos, Merrimack & Sullivan | Presidential Declaration DR-4355: A Presidential Declaration has been announced for this storm; six counties in New Hampshire will be included in a declaration for this unusually heavy rain storm that hit New Hampshire on October 30, 2017; the counties included are: Belknap, Carroll, Grafton, Coos, Merrimack & Sullivan; both Bartlett and Hart's Location received considerable damage from this storm, resulting in several road closures on US Route 302, washouts of the track used by Conway Scenic Railroad, and the flooding of at least one campground (Bartlett); several homes also experienced flooding during this storm; Bartlett has submitted a "Letter of Intent" to look into potential HMGP funding for affected locations along the Saco River at various locations near Bartlett Village, along the Rocky Branch River near Jericho and Sleepy Hollow Roads in Glen, and along the East Branch River from Town Hall Road to Route 16A for flood mitigation." | FEMA & 2018 HMPT |

| Type of Event | Date | Location | Impact | Source |
|--|--------------|-----------------|---|------------------|
| B. Past Wildfire Hazards: New Hampshire is heavily forested and is therefore vulnerable to wildfire, particularly during periods of drought. The proximity of many populated areas to the State's forested land exposes these areas to the potential impact of wildfire. Wildfires from the 2012 Hazard Mitigation Plan were mapped in Map 2, Historic Wildfires & the Wildland Urban Interface to show historical patterns, although most of these fires were less than 5+ acres; wildfires have the potential to impact the Jurisdiction on a jurisdiction-wide basis. | | | | |
| Wildfire | July 2, 1953 | Carroll County | Presidential Disaster Declaration DR-11: This wildfire occurred in southern Carroll County at Pine Mountain and did not reach Bartlett or Hart's Location . | FEMA & 2018 HMPT |
| Wildfire | 07/16/1946 | Bartlett | Bartlett; Table Mountain; Lightning (Code 1); 2 acre; Class B (Map 2, ID #1) | 2012 HMPT & USFS |
| Wildfire | 07/01/1963 | Bartlett | Bartlett; Owls Cliff; Lightning (Code 1); 1.0 acre; Class B (Map 2, ID #2) | 2012 HMPT & USFS |
| Wildfire | 05/21/1977 | Hart's Location | Hart's Location; End of Lagoon Road; Smoking (Code 3); 0 acre; Unknown (Map 2, ID #3) | 2012 HMPT & USFS |
| Wildfire | 07/21/1977 | Bartlett | Bartlett; Beyond Attitash Ski Area; Lightning (Code 1); 1 acre; Class B (Map 2, ID #4) | 2012 HMPT & USFS |
| Wildfire | 08/22/1978 | Hart's Location | Hart's Location; End of Lagoon Road; Campfire (Code 4); 0.1 acre; Class A (Map 2, ID #5) | 2012 HMPT & USFS |
| Wildfire | 04/07/1980 | Hart's Location | Hart's Location; North of Sawyer River Road; Miscellaneous (Code 9); 2 acre; Class B (Map 2, ID #6) | 2012 HMPT & USFS |
| Wildfire | 06/05/1984 | Bartlett | Bartlett; Off Bear Notch road on Federal Road; Smoking (Code 3); 0.1 acre; Class A (Map 2, ID #7) | 2012 HMPT & USFS |
| Wildfire | 09/13/1984 | Hart's Location | Hart's Location; West of Route 302 on Nancy Brook; Campfire (Code 4); Unknown acre; Class A (Map 2, ID #8) | 2012 HMPT & USFS |
| Wildfire | 10/16/1984 | Bartlett | Bartlett; Table Mountain; Campfire (Code 4); 100 acre; Class D (Map 2, ID #9) | 2012 HMPT & USFS |
| Wildfire | 05/12/91 | Bartlett | Bartlett; Unknown location; Debris Burning; Class A; 0.1 acres | 2012 HMPT & DNCR |
| Wildfire | 05/12/91 | Bartlett | Bartlett; Unknown location; Miscellaneous; Class B; 0.3 acres | 2012 HMPT & DNCR |
| Wildfire | 05/08/93 | Bartlett | Bartlett; Unknown location; Debris Burning; Class A; 0.51 acres | 2012 HMPT & DNCR |

| Type of Event | Date | Location | Impact | Source |
|--|-----------------------|--------------------------|---|------------------|
| Wildfire | 05/09/93 | Bartlett | Bartlett ; Unknown location; Smoking; Class A; 0.82 acres | 2012 HMPT & DNCR |
| Wildfire | 07/04/93 | Bartlett | Bartlett ; Unknown location; Miscellaneous, Fireworks; Class A; 0.25 acres | 2012 HMPT & DNCR |
| Wildfire | 07/06/93 | Bartlett | Bartlett ; Unknown location; Miscellaneous, Power line; Class A; 0.25 acres | 2012 HMPT & DNCR |
| Wildfire | 07/23/1993 | Bartlett | Bartlett ; Mount Parker; Campfire (Code 4); 1 acre; Class B (<i>Map 2, ID #10</i>) | 2012 HMPT & DNCR |
| Wildfire | 10/13/1994 | Bartlett | Bartlett ; South of Owls Cliff; Campfire (Code 4); 2.5 acre; Class B (<i>Map 2, ID #11</i>) | 2012 HMPT & DNCR |
| Wildfire | 10/13/1995 | Bartlett | Bartlett ; Southwest of Whites Ledge; Miscellaneous (Code 9); 0.1 acre; Class A (<i>Map 2, ID #12</i>) | 2012 HMPT & DNCR |
| Wildfire | 06/07/09 | Hart's Location; Unknown | Hart's Location ; Unknown location; Miscellaneous, Improper disposal of ashes; Class B; 1 acres | 2012 HMPT & DNCR |
| Wildfire | 2011 | Hart's Location | Hart's Location ; Nine fires occurred in one day in Hart's Location as a result of sparks thrown from the train (Conway Scenic Railroad). | 2018 HMPT |
| Wildfire | 2013 | Bartlett | Bartlett ; Glen Ledge; Wildfire burned for a few days before being controlled; no structure damage | 2018 HMPT |
| Wildfire | Date Unknown | Bartlett | Bartlett ; Wildfire lasted 10 days before it was eventually controlled by the Forest Service | 2018 HMPT |
| No significant wildfires (5+ acres) have been reported in either Bartlett or Hart's Location since the last Hazard Mitigation Plan in 2012 | | | | |
| C. Past High Wind Hazards including Hurricanes, Tropical Storms, Tornadoes, Downbursts & Windstorms: Tornadoes are spawned by thunderstorms and occasionally by hurricanes; tornadoes may occur singularly or in multiples. A downburst is a severe localized wind blasting down from a thunderstorm. Downburst activity is prevalent throughout NH and is becoming more common with climate change; most downbursts go unrecognized unless significant damage occurs. Hurricanes develop from tropical depressions which form off the coast of Africa. New Hampshire's exposure to direct and indirect impacts from hurricanes is real, but modest, as compared to other states in New England. A hurricane that is downgraded to a Tropical Storm is more likely to have an impact in New Hampshire. These hazards were not mapped; tornadoes and other wind events have the potential to impact the Jurisdiction on a jurisdiction-wide basis. | | | | |
| Hurricane Great NE Hurricane | September 21, 1938 | Region Wide | The Great New England Hurricane: Statewide there were 12 (or 13) deaths; damages in NH were about \$12.3 million dollars in 1938 dollars (about \$200 million now); in New England, 20,000 structures were damaged, 26,000 automobiles lost, 6,000 boats, 325, 000 sugar maples were lost and 80% of the people lost power; Bartlett & Hart's Location had damage similar to the rest of the state. (Source http://nhpr.org/post/75th-anniversary-new-englands-greatest-hurricane) | 2018 HMPT |

| Type of Event | Date | Location | Impact | Source |
|-------------------------------------|-----------------------------|--|--|------------------|
| Hurricane Carol & Edna | August 31, 1954 | Region Wide | Hurricane Carol: Hurricane Carol resulted in an extensive amount of trees blown down and property damage; large crop loss; localized flooding; winds measured at over 100 mph; followed by Hurricane Edna just 12 days later, which caused already weakened trees to fall; Bartlett & Hart's Location had damage similar to the rest of the state. (Source: http://www.wmur.com/Timeline-History-Of-NH-Hurricanes/11861310) | 2018 HMPT |
| Downburst | 1979 | Bartlett | A downburst in Bartlett caused downed trees and the closing of Jericho Road and some minor property damage. | 2018 HMPT |
| Hurricane Bob | August 18-20, 1991 | Region Wide | Presidential Disaster Declaration DR-917: Hurricane Bob brought rain to Bartlett & Hart's Location but no significant damage occurred. | FEMA & 2018 HMPT |
| Highwinds (windstorm) | 1995 | Bartlett & Hart's Location | A high wind event in Bartlett and Hart's Location caused downed trees in both communities. | 2018 HMPT |
| Hurricane Katrina Evacuation | August 29-October 1, 2005 | All Ten NH Counties | Emergency Declaration EM-3258: Assistance to evacuees from the area struck by Hurricane Katrina and to provide emergency assistance to those areas beginning on August 29, 2005 and continuing; The President's action makes Federal funding available to the State and all 10 counties of the State of New Hampshire; no evacuees or pets came to Bartlett & Hart's Location . | FEMA & 2018 HMPT |
| Tornado | July 24, 2008 | Belknap, Carroll, Merrimack, Strafford & Rockingham | Presidential Declaration DR-1782: Tornado damage to several NH counties and particularly Carroll County; the tornado hit south of the Jurisdiction and did not reach either Bartlett or Hart's Location . | FEMA & 2018 HMPT |
| Tropical Storm Irene | August 26-September 6, 2011 | EM 3333: All Ten NH Counties DR-4026: Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan | Emergency Declaration EM-3333 & Presidential Disaster Declaration DR-4026: Tropical Storm Irene Aug 26th- Sept 6, 2011 Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan Counties; Emergency Declaration for all ten counties; in Bartlett , Tropical Storm Irene caused significant damage to roads, buildings, bridges and a levee; part of the community cut off when River Street bridge was affected (mitigated with FEMA money); Bartlett village was cut off; the East Branch River flooded undermining land near structures; all four rivers in Bartlett-the Rocky Branch, Ellis, Saco and East Branch-flooded and all four caused structure damage with buildings and land lost; portions of US 302 were impassable; the railroad trestle at Stony Brook was washed out; in Hart's Location , Tropical Storm Irene caused the Sawyer River bridge to be washed out; also lost road on US Route 302 in the northern part of the Town from Saco River flooding; Hart's Location was cut off on both ends; campgrounds were damaged by the Saco River and land loss occurred. | FEMA & 2018 HMPT |

| Type of Event | Date | Location | Impact | Source |
|---|------------------------------------|---|--|------------------------|
| Tropical Storm Sandy | October 26- November 8, 2012 | EM 3660: All Ten NH Counties DR-4095: Belknap, Carroll, Coos, Grafton & Sullivan | Emergency Declaration EM-3660 & Presidential Disaster Declaration DR-4095: The declaration covers damage to property from the storm that spawned heavy rains, high winds, high tides and flooding over the period of October 26-November 8, 2012; both Bartlett & Hart's Location received heavy rain and high winds during Tropical Storm Sandy but no significant damage occurred. | FEMA & 2017 HMPT |
| D. Past Severe Winter Weather Hazards including Nor'easters, Blizzards & Ice Storms: Severe winter weather in NH may include heavy snow storms, blizzards, Nor'easters and ice storms, particularly at elevations over 1,000 feet above sea level. Generally speaking, NH will experience at least one of these hazards during any winter season; however, most NH communities are well prepared for such hazards. These hazards were not mapped; severe winter weather and ice storms have the potential to impact the Jurisdiction on a jurisdiction-wide basis. | | | | |
| Severe Winter Weather Snowstorm | Winter of 1968-69 | Region Wide | The winter of 1968-69 brought record amounts of snow to all of NH; Pinkham Notch at the base of Mount Washington recorded more than 75" of snowfall in a four day period at the end of February 1969 in addition to snow that had already fallen; all of NH experienced difficulty with snow removal because of the great depths that had fallen from December 1968 to April 1969; like the rest of northern New Hampshire, Bartlett and Hart's Location saw incredible snow accumulation during this winter, but the snow was handled by the Bartlett Highway Department and NH DOT. | 2018 HMPT |
| Severe Winter Weather Blizzard, High Winds, Tidal Surge, Coastal Flooding & Snow | February 6, 1978 | Region Wide | Presidential Disaster Declaration DR-549: Blizzard of '78; region-wide blizzard severely affecting southern New England and leaving high accumulations throughout all of New England and New Hampshire; accumulations to 28" in northeast New Hampshire, 25" in west central New Hampshire and 33" along coastal New Hampshire; hurricane-force winds and record-breaking snowfall made this storm one of the more intense to occur this century across parts of the northeastern United States; the snow storm left both Bartlett & Hart's Location with heavy snow that was handled well by both NH DOT and the Bartlett Highway Department. | FEMA & 2018 HMPT |
| Severe Winter Weather Ice Storm | January 7-25, 1998 | Bartlett & Hart's Location | Presidential Disaster Declaration DR-1199: The 1998 ice storm caused damage in both Bartlett & Hart's Location , primarily at the higher elevations in both Towns; some residents were without power for up to 10 days as a result of downed trees and power lines. | FEMA & 2018 HMPT |
| Severe Winter Weather Snowstorm | December 6-7, 2003 | Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan | Emergency Declaration EM-3193: The declaration covers jurisdictions with record and near-record snowfall that occurred over the period of December 6-7, 2003; heavy snow in Bartlett & Hart's Location that was handled well by both NH DOT and the Bartlett Highway Department. | FEMA & 2018 HMPT |

| Type of Event | Date | Location | Impact | Source |
|---|---|--|---|------------------|
| Severe Winter Weather Snowstorm | January, 22-23, 2005 February 10-11, 2005 March 11-12, 2005 | EM-3207 (Jan): Belknap, Carroll, Cheshire, Grafton, Hillsborough, Rockingham, Merrimack, Strafford & Sullivan EM-3208 (Feb): Carroll, Cheshire, Coos, Grafton & Sullivan EM-3211 (Mar): Carroll, Cheshire, Hillsborough, Rockingham & Sullivan | Emergency Declaration EM-3207: January storm; more than \$3.5 million had been approved to help pay for costs of the heavy snow and high winds; total aid for the January storm was \$3,658,114.66 (Carroll: \$52,864); Emergency Declaration EM-3208: February storm; total aid for the February storm was \$1,121,727.20 (Carroll: \$291,832); Emergency Declaration EM-3211: March storm; total aid for the March storm was \$1,121,727.20 (Carroll: \$73,964); EM 3208-002: The Federal Emergency Management Agency (FEMA) had obligated more than \$6.5 million to reimburse state and local governments in New Hampshire for costs incurred in three snow storms that hit the state, according to disaster recovery officials. Total aid for all three storms was \$6,892,023.87 (January: \$3,658,114.66; February: \$1,121,727.20; March: \$2,113,182.01); heavy snow in Bartlett & Hart's Location that was handled well by both NH DOT and the Bartlett Highway Department. | FEMA & 2018 HMPT |
| Severe Winter Weather Snow & Ice Storm | December 11-23, 2008 | All Ten NH Counties | Presidential Disaster Declaration DR-1812 & Emergency Declaration EM-3297: Damaging ice storms to entire state including all 10 NH counties; fallen trees and large scale power outages; nearly \$15 million in federal aid had been obligated by May 2009; heavy snow in Bartlett & Hart's Location that was handled well by both NH DOT and the Bartlett Highway Department. | FEMA & 2018 HMPT |
| Severe Winter Weather Snowstorm | October 29-30, 2011 | All Ten NH Counties | Emergency Declaration EM-3344: Severe storm during the period of October 29-30, 2011; all ten counties in the State of New Hampshire. (Aka: Snowtober); heavy snow in Bartlett & Hart's Location that was handled well by both NH DOT and the Bartlett Highway Department. | FEMA & 2018 HMPT |
| Severe Winter Weather Snowstorm | February 8, 2013 | All Ten NH Counties | Emergency Declaration DR-4105: Nemo; heavy snow in February 2013; heavy snow in Bartlett & Hart's Location that was handled well by both NH DOT and the Bartlett Highway Department. | FEMA & 2018 HMPT |
| Severe Winter Weather Snowstorm | March 14-15, 2017 | Belknap & Carroll Counties | Presidential Disaster Declaration DR-4316: Severe winter storm and snowstorm in Belknap & Carroll Counties; disaster aid to supplement state and local recovery efforts; heavy snow in Bartlett & Hart's Location that was handled well by both NH DOT and the Bartlett Highway Department. | FEMA & 2018 HMPT |

| Type of Event | Date | Location | Impact | Source |
|---|-----------|------------------------|---|--------------------------------------|
| E. Past Earthquake Hazards: According to the NH State Hazard Mitigation Plan, New Hampshire is considered to lie in an area of "Moderate" seismic activity when compared to other areas of the United States. New Hampshire is bordered to the north and southwest by areas of "Major" activity. Generally, earthquakes in NH do not cause significant damage and have not exceeded a magnitude of 5.5 since 1940. These hazards were not mapped; earthquakes have the potential to impact the Jurisdiction on a jurisdiction - wide basis. | | | | |
| Earthquake | 12/20/40 | Ossipee, NH | Magnitude 5.5 | State Hazard Mitigation Plan 2013 |
| Earthquake | 12/24/40 | Ossipee, NH | Magnitude 5.5 | |
| Earthquake | 12/28/47 | Dover NH- Foxcroft, ME | Magnitude 4.5 | |
| Earthquake | 06/10/51 | Kingston, RI | Magnitude 4.6 | |
| Earthquake | 04/26/57 | Portland, ME | Magnitude 4.7 | |
| Earthquake | 04/10/62 | Middlebury, VT | Magnitude 4.2 | |
| Earthquake | 06/15/73 | Quebec Border / NH | Magnitude 4.8 | |
| Earthquake | 01/19/82 | West of Laconia, NH | Magnitude 4.5 | |
| Earthquake | 06/23/10 | Ontario-Quebec Border | Magnitude 5.0 | |
| Earthquake | 06/26/10 | Boscawen, NH | Magnitude 3.1 | |
| Earthquake | 08/23/11 | Virginia | Magnitude 5.8 | |
| Earthquake | 09/18/12 | Concord, NH | Magnitude 1.2 | |
| Earthquake | 10/16/12 | Waterboro, ME | Magnitude 4.0; felt in Bartlett & Hart's Location ; no damage occurred in either community. | |
| E. Past Drought Hazards: Droughts are generally not as damaging or disruptive as floods and other hazards and they are more difficult to define. A drought is a natural hazard that evolves over months or even years and can last as long as several years to as short as a few months. According to the NH State Hazard Mitigation Plan, New Hampshire has a low probability, severity and overall risk for drought. These hazards were not mapped; however droughts have the potential to impact the Jurisdiction on a jurisdiction-wide basis. | | | | |
| Drought | 1929-1936 | Statewide | Regional | NH Drought Historical Event - NH DES |
| Drought | 1939-1944 | Statewide | Severe in southeast and moderate elsewhere | |
| Drought | 1947-1950 | Statewide | Moderate | |
| Drought | 1960-1969 | Statewide | Regional longest recorded continuous spell of less than normal precipitation | |
| Drought | 2001-2002 | Statewide | Third worst drought on record; | |
| Drought | 2016 | Southern NH | Declared drought for the summer of 2016 moderating from severe in southern New Hampshire to dry in the most northern communities; the drought affected both Hart's Location and Bartlett with several wells in both communities going dry as a result. | NH HSEM |

| Type of Event | Date | Location | Impact | Source |
|---|-----------|----------------------------|--|-----------|
| F. Miscellaneous Past or Potential Hazards: Human-caused hazards and other unusual hazardous events have been noted throughout NH. Among others, one concern is the transport of hazardous material through communities by rail and tractor-trailer. These hazards were not mapped; other natural or human-caused hazards have the potential to impact the Jurisdiction on a jurisdiction-wide basis | | | | |
| Landslide | 1937 | Bartlett | Bartlett; Took out buildings and resulted in single fatality; Landslide - West Side Road at Humphrey's Ledge | 2012 HMPT |
| Conflagration | 1896 | Bartlett Village | Bartlett; Half of the Town burned down; cluster housing from logging industry and railroad; exact cause unknown | 2012 HMPT |
| Landslide | 1826 | Hart's Location | Hart's Location; Willey House; Killed seven people (total population at that time in Hart's Location) | 2012 HMPT |
| High Winds | Late 1979 | Bartlett & Hart's Location | Bartlett & Hart's Location; Powerful winds leveled forests | 2012 HMPT |
| Violent Crime | 2006 | Bartlett | Bartlett; Moose Tracks Restaurant; One fatality and two intentional structure fires | 2012 HMPT |
| G. Other Hazards: Although the Team did not identify specific examples or past occurrences of these hazards, it was felt worthwhile to list them as potential hazards to the Town. See Table 3.1, Hazard Threat Matrix and Chapter 5 for more details on these hazards. | | | | |
| Extreme Temperatures (hot & cold) | | | | |
| Severe Thunder & Lightning Storm | | | | |
| Aquifer Contamination | | | | |
| Snow Avalanche | | | | |
| Hazardous Materials-Transport | | | | |
| Mass Casualty Incident | | | | |
| Hazardous Materials-Fixed Location | | | | |
| Extended Power Failure (5+days) | | | | |
| Epidemic & Pandemic | | | | |
| Terrorism | | | | |

*Historic hazard events were derived from the following sources unless noted otherwise:

- Website for NH Disasters: <http://www3.gendisasters.com/mainlist/newhampshire/Tornadoes>
- FEMA Disaster Information: <http://www.fema.gov/disasters>
- The Tornado Project: <http://www.tornadoproject.com/alltorns/nhtorn.htm>
- The Tornado History Project: <http://www.tornadohistoryproject.com/>
- The Disaster Center (NH): <http://www.disastercenter.com/newhamp/tornado.html>
- EarthquakeTrack.com; <http://www.EarthquakeTrack.com>

For more information on state and county-wide past events, see Presidential Disaster and Emergency Declaration, Appendix D, *NH Presidential & Emergency Declarations*.

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Chapter 4: Critical Infrastructure & Key Resources (CIKR)

With Team discussion and brainstorming, Critical Infrastructure and Key Resources (CIKR) within Bartlett & Hart's Location were identified and mapped for this Plan. The "ID" numbers in the following lists are also represented as CIKR in *Appendix G: Map Documents, Map 4: Critical Infrastructure and Key Resources*. Facilities located in adjacent towns were not mapped (NM). The Hazard Risk rating was based on a scale of 1-3 with 1 indicating little or no risk. The initial ID# is used throughout the table for those items that are in one or more category.

TABLE 4.1 - EMERGENCY RESPONSE FACILITIES (ERF) & EVACUATION

| Emergency Response Facilities (ERF) | | | | | |
|--|-----------------|--|---|--|---|
| ERFs are primary facilities and resources that may be immediately needed during an emergency response. | | | | | |
| Map ID | Town | Facility | Expected use of the Facility | Hazard Risk | |
| 1 | Bartlett | Glen Fire House | Bartlett-EOC & Fire | All Hazards | 1 |
| 2 | Bartlett | Josiah Bartlett Elementary School | Bartlett-Primary Shelter | All Hazards | 1 |
| 3 | Bartlett | Bartlett/Jackson Ambulance | Ambulance & EMS | All Hazards | 1 |
| 4 | Bartlett | Bartlett Police Department | Police | All Hazards & Flooding | 1 |
| 5 | Bartlett | Bartlett Village Fire Station | Fire | All Hazards | 1 |
| 6 | Bartlett | Bartlett Highway Department | Public Works-Equipment & Fuel | All Hazards & Flooding | 1 |
| 7 | Bartlett | NH Department of Transportation | Emergency Assistance; Diesel; Heavy Equipment; Salt | All Hazards | 1 |
| 8 | Bartlett | Bartlett Town Hall | Bartlett-Town Hall | All Hazards & Flooding | 1 |
| 9 | Bartlett | D Repeater-Top of Attitash | Communication | All Hazards & Highwinds & Lightning | 1 |
| 10 | Bartlett | Water Storage-Lower Bartlett Water Precinct | Water Supply | All Hazards | 1 |
| 11 | Bartlett | Water Storage-Bartlett Village Precinct | Water Supply | All Hazards & Hazardous Materials-Transport | 1 |
| 12 | Bartlett | USDA-Forest Service Facility (Experimental Forest) | Fire Protection | All Hazards & Wildfire | 1 |
| 13 | Hart's Location | Hart's Location Town Hall | Hart's Location-Town Hall | All Hazards & Wildfire & Hazardous Materials-Transport | 2 |
| 14 | Hart's Location | Notchland Inn | Hart's Location-Primary EOC & Primary Shelter | All Hazards & Wildfire & Hazardous Materials-Transport | 2 |
| NM | Ossipee | Carroll County Sheriff | Police-Dispatch for Hart's Location | All Hazards | 1 |

| Emergency Response Facilities (ERF) | | | | | |
|--|-----------------|--|--|-------------------------------------|---|
| NM | Conway | Memorial Hospital | Hospital | All Hazards | 1 |
| NM | Conway | North Conway Water Precinct | Water Supply | All Hazards | 1 |
| NM | Jackson | Link on top of Tyrol | Communication | All Hazards & Highwinds & Lightning | 1 |
| Helicopter Landing Zones (shown in Map #5 with symbology, but not labeled to reduce clutter in the map) | | | | | |
| 15 | Bartlett | Elementary School Field | Emergency Heli Landing Zone | All Hazards | 1 |
| 16 | Bartlett | Hodgekin's Park | Emergency Heli Landing Zone | All Hazards | 1 |
| 17 | Bartlett | Black Fly Ball Field | Emergency Heli Landing Zone | All Hazards | 1 |
| 18 | Bartlett | Story Land Parking Lot | Emergency Heli Landing Zone | All Hazards | 1 |
| 19 | Bartlett | Fields of Attitash | Emergency Heli Landing Zone | All Hazards & Flooding | 1 |
| 20 | Bartlett | Bear Peak Parking Lot | Emergency Heli Landing Zone | All Hazards | 1 |
| 21 | Bartlett | Field at Cobb Farm Road | Emergency Heli Landing Zone | All Hazards | 1 |
| 22 | Hart's Location | Davis Path Parking Lot | Emergency Heli Landing Zone | All Hazards | 1 |
| 23 | Hart's Location | Entrance to Crawford Notch State Park | Emergency Heli Landing Zone | All Hazards | 1 |
| 24 | Hart's Location | Arethusa Falls Parking Lot | Emergency Heli Landing Zone | All Hazards | 1 |
| Evacuation Routes & Bridges (29) on Evacuation Route (shown in Map #5 with symbology, but not labeled to reduce clutter in the map) | | | | | |
| Bartlett & Hart's Location | | US Route 302 (18 bridges) | All Hazards & Flooding & Hazardous Materials-Transport | | 2 |
| Bartlett & Hart's Location | | Conway Scenic Railroad (seasonal) (10 bridges) | All Hazards | | 1 |
| Bartlett | | NH Route 16 (1 bridge) | All Hazards & Flooding & Hazardous Materials-Transport | | 2 |
| Bartlett | | NH Route 16A | All Hazards & Flooding & Hazardous Materials-Transport | | 1 |
| Bartlett | | West Side Road | All Hazards & Flooding & Hazardous Materials-Transport | | 1 |
| Bartlett | | Jericho Road (Rocky) to Glen Ledge Road | All Hazards & Flooding | | 2 |
| Bartlett | | Thorn Hill Road | All Hazards | | 1 |
| Bartlett | | Bear Notch Road (seasonal) | All Hazards | | 1 |

TABLE 4.2 – NON- EMERGENCY RESPONSE FACILITIES (NERF)

| Non-Emergency Response Facilities (NERF) | | | | | |
|--|----------|--|------------------------------|-------------------------|---|
| NERFs are facilities, that although they are critical, they are not necessary for the immediate emergency response efforts; this includes facilities to protect public health and safety, utilities, and provide backup to emergency facilities. | | | | | |
| Map ID | Town | Facility | Expected use of the Facility | Hazard Risk | |
| 25 | Bartlett | Grand Summit Hotel | Bartlett-Secondary Shelter | All Hazards | 1 |
| 26 | Bartlett | Linderhof Cell Tower | Communications-Cell Tower | All Hazards & Highwinds | 1 |
| 27 | Bartlett | Peg Mill Cell tower | Communications-Cell Tower | All Hazards | 1 |
| 28 | Bartlett | Alpendorf Cell Tower | Communications-Cell Tower | All Hazards | 1 |
| 29 | Bartlett | Attitash Cell Tower (summit) | Communications-Cell Tower | All Hazards & Highwinds | 1 |
| 30 | Bartlett | NH Electric Cooperative-Intervale | Substation-Electric Power | All Hazards | 1 |
| 31 | Bartlett | NH Electric Cooperative-Glen | Substation-Electric Power | All Hazards | 1 |
| 32 | Bartlett | NH Electric Cooperative-Bartlett Village | Substation-Electric Power | All Hazards | 1 |
| 33 | Bartlett | Goodrich Falls Dam | Substation-Electric Power | All Hazards | 1 |
| NM | Bartlett | Black Mountain (Jackson) | Cell Tower | All Hazards & Highwinds | 1 |
| Note on Hart's Location: No cell tower in Hart's Location - no service for 10 mile stretch of Route 302; no other NERFs | | | | | |

TABLE 4.3 – FACILITIES & POPULATIONS TO PROTECT (FPP)

| Facilities & People to Protect (FPP) | | | | | |
|---|----------|-------------------------|------------------------------|--|---|
| FPPs are facilities that need to be protected because of their importance to the Jurisdiction and to residents who may need help during a hazard event. | | | | | |
| Map ID | Town | Facility | Expected use of the Facility | Hazard Risk | |
| 34 | Bartlett | Attitash Ski Area | Gathering Place & Tourists | All Hazards & Wildfire | 1 |
| 35 | Bartlett | Story Land | Gathering Place & Tourists | All Hazards & Hazardous Materials-Transport & Wildfire | 1 |
| 36 | Bartlett | Green Meadow Campground | Gathering Place & Tourists | All Hazards & Hazardous Materials-Transport & Wildfire | 1 |
| 37 | Bartlett | Glen Ellis Campground | Gathering Place & Tourists | All Hazards & Flooding | 2 |

| Facilities & People to Protect (FPP) | | | | | |
|--------------------------------------|-----------------|--|----------------------------------|---|---|
| 38 | Bartlett | Theatre in the Woods | Gathering Place & Tourists | All Hazards | 1 |
| 1 | Bartlett | Glen Fire Station | Fire House | All Hazards | 1 |
| 2 | Bartlett | Josiah Bartlett Elementary School | School | All Hazards | 1 |
| 5 | Bartlett | Bartlett Village Fire Station | Fire House | All Hazards | 1 |
| 6 | Bartlett | Bartlett Highway Department | Public Works-Equipment & Fuel | All Hazards & Flooding | 1 |
| 8 | Bartlett | Town Hall | Town Records & Police Department | All Hazards & Flooding | 1 |
| 31 | Bartlett | NH Electric Cooperative-Intervale | Substation-Electric Power | All Hazards | 1 |
| 32 | Bartlett | NH Electric Cooperative-Glen | Substation-Electric Power | All Hazards | 1 |
| 33 | Bartlett | NH Electric Cooperative-Bartlett Village | Substation-Electric Power | All Hazards | 1 |
| 34 | Bartlett | Goodrich Falls Dam | Substation-Electric Power | All Hazards | 1 |
| 39 | Hart's Location | Willey Historic Site | Historic Site & Tourists | All Hazards & Landslide & Hazardous Materials-Transport & Wildfire & Flooding | 3 |
| 40 | Hart's Location | Crawford Notch Campground | Gathering Place & Tourists | All Hazards & Wildfire & Flooding | 3 |
| 41 | Hart's Location | USDA-NF Campground @ 4th Iron & Sawyer River | Gathering Place-Tent & Shelters | All Hazards & Wildfire & Flooding | 2 |
| 42 | Hart's Location | USDA-NF Dry River Campground | Gathering Place-Tourists | All Hazards & Wildfire & Flooding | 2 |
| 14 | Hart's Location | Notchland Inn | Lodging (32-35 Person Occupancy) | All Hazards & Wildfire & Hazardous Materials-Transport | 2 |
| NM | Conway | Water distribution, storage & pumping facilities | Water Supply | All Hazards | 1 |
| NM | Jackson | Link on top of Tyrol | Emergency Communications | All Hazards & Highwinds & Lightning | 1 |

TABLE 4.4 – POTENTIAL RESOURCES (PR)

| Potential Resources (PRs) | | | | | |
|---|----------|---|------------------------------|-------------|---|
| PRs are potential resources that could be helpful for emergency response in the case of a hazard event. | | | | | |
| Map ID | Town | Facility | Expected use of the Facility | Hazard Risk | |
| 43 | Bartlett | Grant's Store | Food Supply | All Hazards | 1 |
| 44 | Bartlett | Glen Food Pantry (Community Baptist Church) | Food Supply | All Hazards | 1 |
| 45 | Bartlett | Patch's Market | Fuel & Food Supply | All Hazards | 1 |

| Potential Resources (PRs) | | | | | |
|--|-----------------|---|--|---|---|
| 46 | Bartlett | Glen Ledge Corner Store | Fuel & Food Supply | All Hazards | 1 |
| 47 | Bartlett | Circle K (Irving) | Fuel & Food Supply | All Hazards | 1 |
| 48 | Bartlett | Glen Sand & Gravel | Gravel & Heavy Equipment | All Hazards | 1 |
| 49 | Bartlett | LA Drew | Gravel & Heavy Equipment | All Hazards | 1 |
| 50 | Bartlett | A Eastman & Sons | Heavy Equipment | All Hazards | 1 |
| 51 | Bartlett | Lucy Lumber | Lumber, Hardware, Equipment Rental | All Hazards | 1 |
| 52 | Bartlett | Northern Extremes Snowmobile Rental | Transport Assistance & All Weather Vehicles | All Hazards | 1 |
| 34 | Bartlett | Attitash Ski Area | Transportation Assistance & All Weather Vehicles | above | 1 |
| 2 | Bartlett | Josiah Bartlett Elementary School | Food Supply, Storage & Prep | above | 1 |
| 53 | Bartlett | Veterans of Foreign Wars Post | Possible Shelter & Man power | All Hazards & Flooding | 1 |
| 54 | Bartlett | Bart's Deli | Food & Water | All Hazards | 1 |
| 55 | Hart's Location | Crawford Notch General Store (seasonal) | Food Supply | All Hazards & Flooding & Hazardous Materials-Transport & Wildfire | 3 |
| NM | Jurisdiction | Ham Radio Operators | Communication | | |
| NM | Conway | WMWV, 93.5 FM Radio | Public Information & Emergency Announcements | | |
| NM | Jackson Concord | WEVJ, 99.5 FM, NHPR Radio | Public Information & Emergency Announcements | | |
| NM | Conway | WPKQ, 103.7 FM Radio | Public Information & Emergency Announcements | | |
| NM | Jackson | WJSK, 101.1 FM Radio | Public Information & Emergency Announcements | | |
| NM | Conway | Channel 3 - Local Public TV | Public Information & Emergency Announcements | | |
| NM | Manchester | WMUR, TV - Channel 9 | Public Information & Emergency Announcements | | |
| NM | Portland, ME | WMTW TV - Channel 8 | Public Information & Emergency Announcements | | |
| NM | North Conway | Furber & White | Funeral Home | | |
| NM | Carroll County | Carroll County Hazmat Team | Hazardous Materials (HazMat) Response | | |
| NM | Concord | Concord Bomb Squad | Bomb Diffusion | | |
| NM | Concord | Concord Swat Team | SWAT | | |
| NM | State Wide | American Red Cross | Shelter & Health Assistance | | |
| NM | Regional | Mount Washington Valley Mutual Aid | Fire, Police, Public Works, EMS | | |
| For additional resources, please refer to the Town's Emergency Operations Plan (EOP) | | | | | |

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Chapter 5: Hazard Effects in Bartlett & Hart's Location

A. Identifying Vulnerable Critical Infrastructure & Key Resources (CIKR)

Because damages from floods and wildfires are more predictable than damages from other disasters, it is important to identify the Critical Facilities and Key Resources (CIKR) and that are most likely to be damaged by these events. Using GIS analysis and aerial imagery, at-risk CIKR were identified throughout the Town.

All CIKR in Bartlett & Hart's Location were identified in GIS; this list was then narrowed by those CIKRs that were located in the FEMA floodplain. Fifteen CIKR were found in the FEMA flood zone including eleven bridges on the evacuation route and one helicopter landing zone (see chart to right). Patch's Market and Bart's Deli are on the very edge of the floodplain and are less likely to be affected by flooding. On the other hand, Glen Ellis Campground has seen repeated flooding and will most likely see flooding again in the future. Officials of the

| ID | ALL_HAZA | NAME | TOWN | Hazmit_Type |
|----|----------|--------------------------|----------|-----------------------------|
| 19 | ERFH | Fields of Attitash | Bartlett | Emergency Heli Landing Zone |
| 45 | PR | Patches Market | Bartlett | Fuel & Food Supply |
| 37 | FPP | Glen Ellis Campground | Bartlett | Gathering Place & Tourists |
| 54 | PR | Bart's Deli | Bartlett | Food, water |
| 56 | ERFB | US Route 302-Evac Bridge | Bartlett | Evac Bridge |
| 56 | ERFB | US Route 302-Evac Bridge | Bartlett | Evac Bridge |
| 56 | ERFB | US Route 302-Evac Bridge | Bartlett | Evac Bridge |
| 56 | ERFB | US Route 302-Evac Bridge | Bartlett | Evac Bridge |
| 56 | ERFB | US Route 302-Evac Bridge | Bartlett | Evac Bridge |
| 57 | ERFB | NH Route 16-Evac Bridge | Bartlett | Evac Bridge |
| 58 | ERFB | Conway Scenic-Bridge | Harts | Evac Bridge |
| 58 | ERFB | Conway Scenic-Bridge | Harts | Evac Bridge |
| 58 | ERFB | Conway Scenic-Bridge | Bartlett | Evac Bridge |
| 58 | ERFB | Conway Scenic-Bridge | Bartlett | Evac Bridge |
| 58 | ERFB | Conway Scenic-Bridge | Bartlett | Evac Bridge |

Town of Bartlett and the owners of the campground are aware of the flood risk in this area and strive to protect campers, visitors, staff and structures on site from the ill effects of flooding. No other CIKR were found to be in the designated FEMA floodplain although it is expected that many non-CIKR structures are within the FEMA floodplain.

Using the same methodology that was used for flooding, CIKR falling within the Wildland Urban Interface (WUI) were reviewed. Identifying these facilities assists the Team in creating wildfire mitigation action items and prioritizing those action items; it is important to determine which Critical Infrastructure and Key Resources are most vulnerable to wildfires.

Many structures were found to be in the traditional WUI, however, only 14 CIKR were found in the WUI as seen in the chart to the right and in *Map #2, Historic Wildfires & the Wildland Urban Interface*. An analysis of these CIKR reveals the importance of these facilities and the need to ensure defensible space wherever possible. Many of these CIKR are expected to be in the WUI, such as campgrounds and bridges on the Conway Scenic Railroad; however, others, such as Notchland Inn in Hart's Location and the Grand Summit Hotel in Bartlett should be closely monitored if a wildfire threatens the area. The rest of the Town's Critical Infrastructure & Key Resources were found to be within the 300 foot WUI buffer, therefore accessible by fire apparatus and hoses. However, as stated elsewhere in this Plan, the entire Jurisdiction, including many structures, is thought to be in the WUI because it is so heavily forested; therefore, all structures in Jurisdiction can be assumed to be in the WUI.

| ID | ALL | NAME | Hazmit_Type |
|----|------|--|---------------------------------|
| 7 | ERF | NH Department of Transportatin | Emergency Assistance |
| 14 | ERF | Notchland Inn (if no power at Town Hall) | Hart's Location-Secondary EOC |
| 18 | ERFH | Story Land Parking Lot | Emergency Heli Landing Zone |
| 19 | ERFH | Fields of Attitash | Emergency Heli Landing Zone |
| 25 | NERF | Grand Summit Hotel | Bartlett-Secondary Shelter |
| 36 | FPP | Green Meadow Campground | Gathering Place & Tourists |
| 37 | FPP | Glen Ellis Campground | Gathering Place & Tourists |
| 41 | FPP | USDA-NF Campground @ 4th Iron & Sawyer River | Gathering Place-Tent & Shelters |
| 42 | FPP | USDA-NF Dry River Campground | Gathering Place-Tourists |
| 48 | PR | Glen Sand & Gravel | Gravel & Heavy Equipment |
| 58 | ERFB | Conway Scenic-Bridge | Evac Bridge |
| 58 | ERFB | Conway Scenic-Bridge | Evac Bridge |
| 58 | ERFB | Conway Scenic-Bridge | Evac Bridge |
| 58 | ERFB | Conway Scenic-Bridge | Evac Bridge |

Table 3.1, The Hazard Threat Analysis, is used to evaluate the probability and the potential impact of all hazards.

B. Calculating the Potential Loss

It is difficult to ascertain the amount of damage that could be caused by a natural or human-caused hazard because the damage will depend on the hazard's extent and severity, making each hazard event somewhat unique. Therefore, we have used the assumption that hazards that impact structures could result in damage to either 0-1% or 1-5% of Bartlett & Hart's Location's structures, depending on the nature of the hazard and whether or not the hazard is localized.

Based on this assumption, the potential loss from any of the identified hazards would range from **\$0 to \$7,395,585** or **\$7,395,585 to \$36,977,925** based on the Jurisdiction's combined town valuations which lists the assessed value of all structures in the Jurisdiction to be **\$739,558,500** (see chart to right).

Human loss of life was not included in the potential loss estimates, but could be expected to occur, depending on the severity and type of the hazard.

C. Natural Hazards

Descriptions below represent the “**local impact**” to the Jurisdiction for the hazards that were identified by the Team. For the “**extent**” of these hazards, please refer to *Appendix C, The Extent of Hazards*, which includes charts such as the Saffir-Simpson Hurricane Wind Scale, the Beaufort Wind Scale, the National Weather Service Heat Index, the Sperry-Piltz Ice Accumulation Index and the Enhanced Fujita Scale for tornadoes. The numbers preceding the hazard name in this section, correspond to the numbers in *Table 3.1, Hazard Threat Analysis*.

| Bartlett: MS-1 Assessed Value of All Structures | | | |
|---|---------------|-------------|--------------|
| 2015 | Value | 1% Damage | 5% Damage |
| Residential | \$654,264,500 | \$6,542,645 | \$32,713,225 |
| Manufactured Housing | \$2,043,100 | \$20,431 | \$102,155 |
| Commercial | \$57,707,200 | \$577,072 | \$2,885,360 |
| Other Utilities | \$0 | \$0 | \$0 |
| Tax Exempt | \$8,325,800 | \$83,258 | \$416,290 |
| Utilities | \$7,260,400 | \$72,604 | \$363,020 |
| Total | \$729,601,000 | \$7,296,010 | \$36,480,050 |
| Summary Inventory of Valuation for Tax Year 2015 - Bartlett Town Report | | | |
| Hart's Location: MS-1 Assessed Value of All Structures | | | |
| 2015 | Value | 1% Damage | 5% Damage |
| Residential | \$7,698,400 | \$76,984 | \$384,920 |
| Manufactured Housing | \$0 | \$0 | \$0 |
| Commercial | \$1,297,200 | \$12,972 | \$64,860 |
| Other Utilities | \$0 | \$0 | \$0 |
| Tax Exempt | \$543,000 | \$5,430 | \$27,150 |
| Utilities | \$418,900 | \$4,189 | \$20,945 |
| Total | \$9,957,500 | \$99,575 | \$497,875 |
| Provided by the Town-Hart's Location | | | |
| Jurisdiction: MS-1 Assessed Value of All Structures | | | |
| 2015 | Value | 1% Damage | 5% Damage |
| Residential | \$661,962,900 | \$6,619,629 | \$33,098,145 |
| Manufactured Housing | \$2,043,100 | \$20,431 | \$102,155 |
| Commercial | \$59,004,400 | \$590,044 | \$2,950,220 |
| Other Utilities | \$0 | \$0 | \$0 |
| Tax Exempt | \$8,868,800 | \$88,688 | \$443,440 |
| Utilities | \$7,679,300 | \$76,793 | \$383,965 |
| Total | \$739,558,500 | \$7,395,585 | \$36,977,925 |
| Combined totals for both Bartlett & Hart's Location | | | |



Sawyer River Bridge, Crawford Notch, August 29, 2011
Photo Credit: Union Leader

The hazards listed in Table 3.1 are further described here for both Bartlett & Hart's Location. The proximity and geographic similarities between Bartlett and Hart's Locations lead to the assumption that hazards that affect one town will most likely affect the other. More details are included in this section of the Plan.

1) Flooding (riverine, road flooding, dams, ice jam and levee failure)

| | |
|------------------------------|-------------------------------------|
| Bartlett | \$7,296,010 to \$36,480,050 |
| Hart’s Location | \$99,575 to \$497,875 |
| Jurisdiction | \$7,395,585 to \$36,977, 925 |

Flooding is often associated with hurricanes, heavy rains, ice jams and rapid snowmelt in the spring. Based on the Carroll County Floodplain Map, Bartlett has a significant 100-year floodplain and many structures within the flood zone. Hart’s Location on the other hand, has a very small floodplain in the southernmost part of the community near the Bartlett town line. Aerial imagery and GIS show two structures in the Hart’s Location 100-year floodplain and one structure in the 200-year floodplain. It should be noted that there are other structures along the Saco River in both Bartlett and Hart’s Location that could be threatened by flooding although they are not on the FEMA floodplain map.



The potential loss structure values above are based on the high probability of flooding throughout the Jurisdiction and the impact major flood events can have on structures, the economy and the communities in general. Therefore, the estimated potential loss structure value is based on 1-5% of the total assessed value of structures.

RIVERINE FLOODING:

Bartlett & Hart’s Location is subject to a good deal of flooding, particularly along the banks of the Saco River and its tributaries including: Ellis River, Rocky Branch and the East Branch in Bartlett and the Sawyer River and Dry River in Hart’s Location. With the right combination of conditions, the effects of flooding, particularly along the Saco could be and have been significant. Riverine flooding in Bartlett and Hart’s Location is also described to some extent in other sections of this chapter, including “Road Flooding” and “Hurricane & Tropical Storms”.

Riverine flooding that affected the Jurisdiction during Tropical Storm Irene and again on July 1 and October 30, 2017 occurred in many of the same locations. These three storm events produced large amounts of rainfall on the high peaks of the White Mountains which quickly found its way down the Saco and its tributaries. The Glen Ellis campground, US Route 302 and several homes were impacted in all three storms. During the October 2017 storm, the Bartlett Emergency Management Director (EMD) opened the Emergency Operations Center and the shelter to accommodate residents who were advised to evacuate. The EMD felt that this storm had an even bigger impact on the community than Tropical Storm Irene; 25 homes had flood damage and at least three near Glen Junction were significantly damaged. In Hart’s Location, as stated elsewhere in this Plan, US Route 302 was heavily damaged and required closing for a period of time.

With an expectation that the October 2017 will be declared a Presidential Disaster, it is hoped that many of the issues that have surfaced in the three most recent storms can be mitigated to prevent future flooding. However, as the Bartlett EMD stated, some rivers can be controlled, but the Saco River is uncontrollable. Rapid snowmelt and heavy spring rains can cause riverine flooding elsewhere in Bartlett & Hart’s Location as a result of overwhelmed brooks and streams. Tropical Storms, hurricanes and summer and fall heavy rain storms could also produce riverine flooding.

ROAD FLOODING

Heavy rain, rapid snowmelt and stream flooding can cause culverts to be overwhelmed and roads to wash out. Today, with changes in land use, aging roads, designs that are no longer effective and undersized culverts, the risk of road flooding is a serious concern. Old and substandard roads in the Jurisdiction, combined with the steep terrain, make it more likely that road erosion could occur. Inadequate drainage and undersized culverts in developed areas along West Side Road could also cause erosion of soils and infrastructure failure. In addition, flash flooding as a result of heavy rains falling on the mountain peaks and rapidly traveling down the Saco River and its tributaries, overwhelms ditches and culverts and floods roadways before quickly receding.

As recently as July 1 and again on October 30, 2017, the Jurisdiction experienced significant rain storms that caused damage in several locations, similar to the damage that occurred during Tropical Storm Irene. On October 30, the Saco River Bridge in Bartlett Village failed due to scouring under the pavement and was left with one open lane. During the same event, the Rocky Branch destroyed a portion of US Route 302 and washed out part of the Conway Scenic Railroad track. Other roads that were affected in Bartlett included Jericho Road and Sleepy Hollow Road.

In Hart's Location, also in October 2017, the Sawyer River Bridge (replaced after Tropical Storm Irene) held but the Dry River Bridge was eroded by the Saco River down to one narrow center lane. The road buckled from the force of water exposing the bridge structure beneath and closing the road for about a week. This bridge was also damaged during Tropical Storm Irene and the July 2017 storm.

The continuous erosion of roads makes for a daunting task of "up-keep" for the Bartlett Highway Department and the NH DOT. Fortunately, two of the Jurisdiction's major thoroughfares, NH Route 16 and US Route 302 are the responsibility of the State. The Bartlett Highway Department maintains approximately 55 miles of Class V roads, 1-2 miles of which are gravel. Hart's Location has only one 2-mile long paved Class V road that is maintained by a local contractor.

ICE JAMS:

Flooding resulting from ice jams has the potential to happen in both Bartlett & Hart's Location, primarily along the Saco River and its tributaries. Although no record of ice jam flooding in the past five years was indicated, ice jams have the potential to cause flood damage throughout the Jurisdiction.

DAM FAILURE:

Dam failures within the communities of Bartlett and Hart's Location, although possible, do not represent significant hazardous threats. However, of some concern are three dams within the Jurisdiction: the Bartlett Village levee, the Goodrich Falls hydro-dam, and the dam at the Willey Historic Site.

The Bartlett Village levee is located on private property; this dam has significantly deteriorated over time and required repair after Tropical Storm Irene. Failure of this levee caused minor flooding in the Village affecting structures that were in close proximity to the dam. Failure of the Goodrich Falls hydro-dam could create a surge of water that would have a limited affect, primarily impacting the Glen Ellis Campground. Lastly, dam failure at the Willey House Historic Site would only produce a minor surge of water.

2) Severe Winter Weather & Ice Storm

| | |
|------------------------------|-------------------------------------|
| Bartlett | \$7,296,010 to \$36,480,050 |
| Hart's Location | \$99,575 to \$497,875 |
| Jurisdiction | \$7,395,585 to \$36,977, 925 |

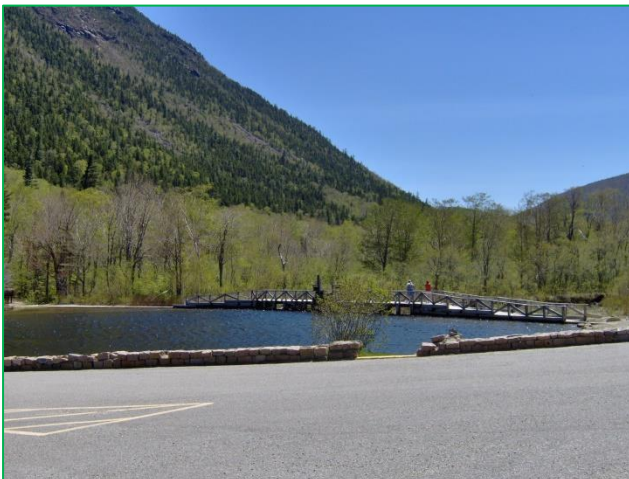
Heavy snowstorms typically occur from December through April. New England usually experiences at least one or two heavy snow storms with varying degrees of severity each year. Power outages, extreme cold and impacts to infrastructure are all effects of winter storms that have been felt in the Jurisdiction in the past. All of these impacts are a risk to the Jurisdiction, including isolation, especially of the elderly, and increased traffic accidents. Damage caused as a result of this type of hazard varies according to wind velocity, snow accumulation, duration and moisture content. Seasonal accumulation can also be as significant as an individual snowstorm.



Winter snow and ice storms often cause trees to fall creating widespread power outages by downing power lines. Road closures are also often a result of snow accumulations, ice storms and downed power lines. With two or more feet of snow accumulation, structural collapse of buildings is not uncommon. In addition, US Route 302 through Crawford Notch in Hart's Location is dangerous even in good weather; adding snow and ice to this section of the road potentially makes driving through the "Notch" treacherous. Heavy snow can also cause roof collapse, heart attacks due to overwork from shoveling, carbon monoxide issues within homes and impaired emergency response.

Of more concern in the Jurisdiction than 2-4' snow storms are ice storms, though the probability of the occurrence of a major ice storm is lower than that of a major snowstorm. A significant ice storm can inflict several million dollars' worth of damage to forests and structures.

Several ice storms have affected the Jurisdiction in the past. The 1998 Ice Storm had a significant impact in Bartlett & Hart's Location as it did in many other northern New Hampshire communities. This ice storm downed trees, closed roads and caused power and phone outages for many in northern New Hampshire, particularly at elevations greater than 1,000'. It was reported that some residents in the Jurisdiction were without power for as many as ten days. In Bartlett & Hart's Location, no significant damage occurred during the 1979 or 2008 ice storms.



Future ice storms in Bartlett & Hart's Location could be expected to cause damage ranging from a few thousand dollars to several million, depending on the severity of the storm. Due to the widespread nature of severe winter storms, particularly ice storms, the potential loss value is estimated to be between 1% and 5% of the total assessed value of all structures in town.

Willey House Historic Site & Pond
Photo Credit: MAPS

3) Tornado/Downburst

| | |
|------------------------------|---------------------------|
| Bartlett | \$0 to \$7,296,010 |
| Hart's Location | \$0 to \$99,575 |
| Jurisdiction | \$0 to \$7,395,585 |

A tornado generally covers a large area, perhaps even several miles. It has winds that blow in a circular fashion leaving behind downed trees that lie in a swirling pattern. Straight-line winds and winds that burst downward are indicative of a microburst; the fallen trees that are left behind lay in roughly the same direction. A microburst must be 2.5 miles in width or less, whereas a macroburst is a similar wind event that is greater than 2.5 miles wide and generally lasts longer than a microburst.



A tornado touched down in Carroll County in July 2008, but it did not reach Bartlett & Hart's Location. Additionally, in recent years a tornado was spotted in Berlin, but there has been no reported tornado activity in Bartlett & Hart's Location in the past five years. More common in the Jurisdiction would be a downburst event; these are becoming more and more common in the North Country and could result in damage. A downburst occurred in Bartlett in 1979 which caused the temporary closure of Jericho Road. Another suspected downburst affected Bartlett Village and parts of Hart's Location in 1995.

Due to the rareness of these events in New Hampshire, the likelihood of a tornado or downburst is low and the affects would be localized. Therefore, the potential loss value was determined to be between 0% and 1% for both downbursts and tornadoes.

4) Extreme Temperatures (Hot & Cold)..... **Structure loss value was not estimated**

For those who are familiar with New Hampshire weather, it is obvious that temperature extremes are very common. Winter temperatures can fall below -30°F and summer temperatures, laden with high humidity can soar to nearly 100°F; it is not unusual for the temperature to be below zero for as many as 30 days in a single winter season. In the past, there was more concern about extreme cold temperatures, but with improved heating systems and local communications, most New Hampshire residents are able to cope with extreme cold.

Also of concern today are extreme heat conditions. Few residents, particularly the elderly and vulnerable populations, have air conditioners and are less able to cope with extreme heat. The estimated 65+ population is 14% in Hart's Location and 18.9% in Bartlett according to the American Community Survey, 2011-2015.

Extreme temperatures when combined with power failure are of the most concern; power failure would result in no water, heat and air conditioning for the Jurisdiction's vulnerable populations. Both town officials and the communities as a whole should be concerned and should look after their citizens to ensure that extreme temperatures do not create a life or property threatening disaster.

The cost of extreme temperatures is difficult to calculate as it is not based on the loss of structures. The expected loss value would be primarily on the economic impact on Jurisdiction and the time and cost of emergency response; based on the assumption that damage would not occur to structures, the structure loss value due to extreme temperatures was not estimated.

5) Severe Thunderstorms & Lightning

| | |
|------------------------------|---------------------------|
| Bartlett | \$0 to \$7,296,010 |
| Hart's Location | \$0 to \$99,575 |
| Jurisdiction | \$0 to \$7,395,585 |



Severe lightning as a result of summer and mountain storms or as a residual effect from hurricanes and tornadoes has occurred in Bartlett and Hart's Location. Some of the Jurisdiction's structures are older buildings and many structures are surrounded by forest. Dry timber on the forest floor and the age of many buildings and out-buildings combined with lightning strikes can pose a significant disaster threat. With the possibility of trees being toppled by lightning onto power lines and creating sparks and the age of many buildings and out-buildings, lightning is a significant disaster threat. Power loss, road closures, forests fires and rapid flooding could occur with a significant downpour. Lightning could do damage to specific structures or injure or kill an individual, but the direct damage would not be widespread.

Although lightning is a potential problem, the Jurisdiction reported few occurrences, none of which were severe. In Bartlett, it was reported that lightning struck the Linderhof Resort, a tree at Story Land and a building at Christmas Mountain; Story Land has subsequently outfitted nearly every building with lightning rods. Team members from Hart's Location recalled a lightning strike on a cabin in the early 2000s.

The Team noted that summer storms are often more damaging than spring snowmelt and that it appears that severe thunder and lightning storms are happening more often with climate change. Lightning is a potential problem, but one who's affects would be localized. Based on the localized nature of lightning strikes, the potential loss value was determined to be 0-1% of the total assessed structure value in Town.

6) Hurricane & Tropical Storm

| | |
|------------------------------|---------------------------|
| Bartlett | \$0 to \$7,296,010 |
| Hart's Location | \$0 to \$99,575 |
| Jurisdiction | \$0 to \$7,395,585 |

Wind damage due to hurricanes is a consideration because of the forest and valley floors in Bartlett & Hart's Location. Like the 1938 hurricane and hurricane Carol in 1954, major forest damage could occur. Although hurricanes could fit into several different categories (wind and flooding), the Team considered hurricanes to be separate events. Hurricanes are rare in New Hampshire, but they should not be ruled out as potential hazards. In most cases, hurricanes have been down-graded to tropical storms by the time they reach northern New Hampshire.

Tropical Storm Irene, the remnants of Hurricane Irene, brought heavy rain to Bartlett & Hart's Location as well as significant road washouts, damage to bridges and levee damage. River Street in Bartlett Village was affected when the Saco River rose and levee damage near Bartlett Village eroded the bank of the old town landfill. At one point during Tropical Storm Irene, Bartlett Village was cut off from the rest of the community.

Heavy rainfall at higher elevations caused significant flash flooding; all of Bartlett's major rivers, the East Branch, Rocky Branch, Ellis and Saco, experienced flooding during Tropical Storm Irene. Scouring of riverbanks and bridge abutments, structure flooding and lost land were all a result of this unusually severe August storm. US

Route 302 was made impassable in several locations in Bartlett when the Rocky Branch “ran down US 302” and the Saco River blocked the road at the Old Silver Springs campground. In addition, a railroad trestle at Stony Brook was washed out. The rescue of 6-8 residents from the Saco River encouraged campground owners to re-establish evacuation plans. Bartlett opened its Primary Shelter and its Emergency Operations Center (EOC) during Irene.

In Hart’s Location, Tropical Storm Irene did similar damage, although fortunately, there are fewer roads and rivers within the community. The Saco River however, experienced significant flash flooding beginning at the top of the “Notch” at Saco Lake in the town of Carroll. With its steep drop into the “Notch”, the Saco and its tributaries in Hart’s Location became raging rivers, cascading over US Route 302 in two locations, cutting off the residents of Hart’s Location in both the north and south. The Sawyer River Bridge and the Conway Scenic Railroad iron trestle where both heavily damaged; rebuilding estimates for the Sawyer River Bridge on US Route 302 were approximately \$3 million.²² Tropical Storm Sandy in 2012 brought heavy wind and rain to the Jurisdiction, but no significant damage.

The probability that a hurricane would remain a Category 1 or better in this part of the State is low and it is fortunately rare for tropical storms of the significance of Irene to occur. Therefore, the potential loss value due to hurricanes was determined to be between 0% and 1% of the total assessed structure value.

7) Wildfire

| | |
|------------------------------|-------------------------------------|
| Bartlett | \$7,296,010 to \$36,480,050 |
| Hart’s Location | \$99,575 to \$497,875 |
| Jurisdiction | \$7,395,585 to \$36,977, 925 |

There are two main potential losses with a wildfire: the forest itself and the threat to the built-up human environment (the structures within the WUI). In many cases, the only time it is feasible for a community to control a forest fire is when it threatens the built-up human environment.

Due to the abundance of slash on the forest floor left by logging operations, blow downs and storms, there is potential for fast burning fuels. In addition, the recreational use of woods-trails by snowmobilers, ATV operators, campers and other outdoor enthusiasts creates an opportunity for sparks and out-of-control fires to ignite the Jurisdiction’s forested areas. To help combat fire, the Bartlett Fire Department, which also serves Hart’s Location, maintains and improves firefighting equipment and continuously maintains hydrants and fire ponds.

Several campgrounds are located within the Jurisdiction and although they could present risk, they are not the usual cause of wildfires. More likely, sparks from the Conway Scenic Railroad, illegal camping, isolated fire pits, lightning and drought are the cause. In addition, because much of the Jurisdiction, particularly in Hart’s Location, contains vast areas of forested land, access to wildfires could be an issue. It was reported that in 2013, a fire occurred on Glen Ledge but did not exceed five acres. Team members from Hart’s Location recalled one day several years ago when nine small fires were started as a result of sparks from the Conway Scenic Railroad. No wildfires of five or more acres have occurred in Bartlett & Hart’s Location in several years.

²² Irene’s effects still felt in the White Mountains; Sara Young-Know; August 26, 2012;
<http://www.unionleader.com/apps/pbcs.dll/article?AID=/20120827/NEWS11/708279963/1013>

The Team described the forests of Bartlett & Hart’s Location as consisting of primarily a combination of softwoods and northern hardwoods. With a low probability of drought and high humidity, it was felt that most fires are “duff” fires, the burning of *“the layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.”*²³ Burn permits are required in Bartlett & Hart’s Location, as they are throughout the State, but often burning takes place without the proper permits. The steep terrain and heavily forested areas of the Jurisdiction are difficult to monitor, therefore the occasional unauthorized burn will take place. Currently available documentation on fires in Bartlett & Hart’s Location indicates that the majority of fires are human-caused.

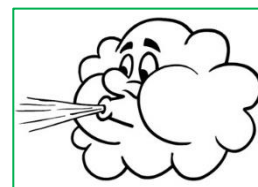
In the mid-2000s, the Wildland Urban Interface (WUI) was determined in collaboration with the NH Division of Forests & Lands (DNCR) and the US Forest Service; the WUI represents the area in which the forest and human habitation intersect. It was defined to be a 1/4 mile buffer located 300 feet off the centerline of Class V roads. All structures within the WUI are generally assumed to be at some level of risk and therefore, vulnerable to wildfire. It should be noted that in communities that are heavily forested, like Bartlett & Hart’s Location, many Rangers feel that the entire community is in the WUI and therefore the extent of a wildfire could potentially be the entire community.

Large wildfires in New Hampshire are uncommon; however, given the right set of conditions (drought, lightning, human interface), the potential for large wildfires is good. Because the Jurisdiction is heavily forested, the potential loss value was determined to be between 1% and 5% of the total assessed structure value.

8) High Winds (windstorms)

| | |
|------------------------------|---------------------------|
| Bartlett | \$0 to \$7,296,010 |
| Hart’s Location | \$0 to \$99,575 |
| Jurisdiction | \$0 to \$7,395,585 |

Due to the location of Bartlett & Hart’s Location, the Jurisdiction’s proximity to some of New Hampshire’s high peaks and the effect of wind in the river valleys, isolated high winds and down drafts often occur. These wind events are unpredictable; winds of this magnitude could fall timber, which in turn could block roadways, down power lines and impair emergency response. In addition, the fallen timber left behind creates conditions that are more prone to forest fires.



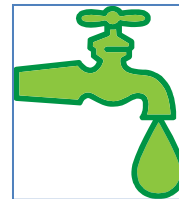
While discussing high wind events, the Team indicated that virtually all of Hart’s Location is a “wind tunnel”. US Route 302 in Hart’s Location travels between several of New Hampshire’s highest peaks. High winds often roll down the mountain sides and roar through the valley that is known as Crawford Notch. In Bartlett, it was noted that the most likely location for high winds is at the Hart’s Location town line.

The effect of isolated high winds would most likely be localized in nature; therefore, the potential loss value due to hazards of this type was determined to be between 0% and 1% of the total assessed structure value.

²³ <http://www.fs.fed.us/nwacfire/home/terminology.html>

9) Aquifer Contamination Structure Loss Value Cannot Be Estimated

“From its headwaters at Saco Lake high in the White Mountains, the river (Saco) drops nearly 1500 feet in elevation as it flows for approximately 40 miles through the towns of Hart’s Location, Bartlett, and Conway before entering Maine and continuing to the Atlantic Ocean. In Hart’s Location, the Saco River flows through Crawford Notch, a spectacular, narrow, steep-sided valley with exposed rock cliffs.”²⁴ Although known for its dramatic beauty and recreational use, the Saco River throughout the Jurisdiction is at risk. Steep terrain in Hart’s Location adds to the risk of a hazardous material transportation accident.



The Saco River and its watershed hold a vast amount of water. It is estimated that there are 200-250 vertical feet of saturated gravel within the aquifer alone; contamination to this aquifer could be devastating to the communities downstream from the Jurisdiction. Contamination by way of a hazardous material accident is concerning as is contamination from other sources. Although federal and state regulations and well-head protection help prevent dump leaching, runoff from salt sheds and seepage from leach beds, the improper disposal of hazardous materials (degreasing compounds, MBTE and petroleum products) pose potential threats.

Springtime presents the greatest potential when the water table in the Intervale section of Bartlett is at the 3-5 feet below grade level; a discharge of hazardous materials from a fuel truck could be in the aquifer within an hour. Other concerns within the Jurisdiction include a potential for seepage of ash from the old landfill station in Bartlett and the “automotive dump” used as rip rap along the Saco River in Hart’s Location. There is also some risk with an abandoned pile of creosote-soaked railroad ties that lie near the banks of the Saco River in Hart’s Location.

It is difficult to estimate the potential loss to structures for this hazard; therefore no structure loss value was assessed.

10) Earthquake

| | |
|------------------------------|------------------------------------|
| Bartlett | \$7,296,010 to \$36,480,050 |
| Hart’s Location | \$99,575 to \$497,875 |
| Jurisdiction | \$7,395,585 to \$36,977,925 |

Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric and phone lines and are often associated with landslides and flash floods. Five earthquakes occurred in New Hampshire between 1924-1989 having a magnitude of 4.2 or more. Two of these occurred in Ossipee, one west of Laconia and one near the Quebec border. It is well documented that there are fault lines running throughout New Hampshire, but high magnitude earthquakes have not been frequent in New Hampshire history.

The fifth and most recent earthquake over a 4.0 occurred in October 2012. This earthquake, with its epicenter in Hollis, ME and a magnitude of 4.6 on the Richter was felt through most of New England and in Bartlett & Hart’s Location, although no damage was reported.

Although historically earthquakes have been rare in New Hampshire, the potential does exist and depending on the location, the impact could be significant. The potential structure loss value due to earthquakes was determined to be between 1% and 5% of the total assessed structure value.

²⁴ NH DES, Designated Rivers, des.nh.gov/organization/divisions/water/wmb/rivers/saco_river.htm

11) Erosion, Landslide & Mudslide

| | |
|------------------------------|---------------------------|
| Bartlett | \$0 to \$7,296,010 |
| Hart's Location | \$0 to \$99,575 |
| Jurisdiction | \$0 to \$7,395,585 |



Although road erosion is a big concern in any community, road erosion is further detailed as part of “Flooding” earlier in this chapter. For this section, erosion, landslides and mudslides, which are often associated with heavy rains, steep terrain and the overflow of river banks will be detailed more generally.

Bartlett & Hart’s Location have been impacted by these types of events in the past, but most always because of excessive rain and rapid snow melt causing the Saco River and its tributaries to rise. Erosion and the subsequent loss of land along the river banks, road washouts, overburdened culverts, and changes in the course of rivers have been some of the effects of this type of erosion in the Jurisdiction.

Within the Jurisdiction, particularly in Hart’s Location, there is a substantial amount of steep terrain; in particular, the area through Crawford Notch where Route 302 descends into the “Notch” at a 13% grade. A landslide in the Notch could have a major impact on the Conway Scenic Railroad and could limit the use of this rail corridor as a potential means of evacuation. In addition, although it is unlikely, a landslide in Crawford Notch could impact US Route 302 and cause isolation of the residents of Hart’s Location as well as impacting the northern road system.

Lastly, minor landslides could result from clear cuts, new development, deforestation and improper land conservation. An area of particular concern is Glen Ledge in Bartlett, where expensive homes have been built along the top and side of steep terrain.

Although erosion is an issue, no structures currently appear to be in harm’s way. In the unlikelihood that structure loss would be experienced, it would be “localized”; therefore the structure loss value was estimated to be between 0% and 1% of the total assessed structure value.

12) Snow Avalanche

| | |
|------------------------------|---------------------------|
| Bartlett | \$0 to \$7,296,010 |
| Hart's Location | \$0 to \$99,575 |
| Jurisdiction | \$0 to \$7,395,585 |

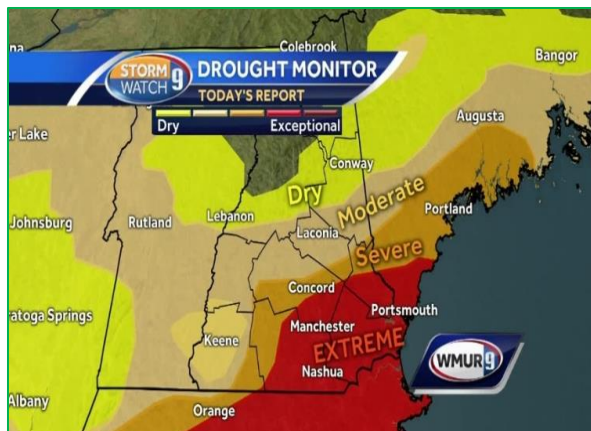
The steepness of the terrain and heavy snowfall potential within the Jurisdiction lead the Team to feel that snow avalanches should be listed, although most areas where avalanche is possible are remote and within forested lands. Of these remote areas, the mountains on both sides of Crawford Notch, the road in the Notch itself, and the rail corridor through the Notch are most susceptible to the effects of avalanche. A significant snow avalanche within the “Notch” could cause isolation of the citizens of Hart’s Location and significantly affect the Conway Scenic Railroad track.

The impact on human life, property or business would be minimal if any; only with a unique combination of factors could a snow avalanche cause damage to structures within the Jurisdiction, but the possibility does exist. The potential loss value was determined to be between 0% and 1% due to the expected minimal effect.

13) Drought

| | |
|------------------------------|---------------------------|
| Bartlett | \$0 to \$7,296,010 |
| Hart's Location | \$0 to \$99,575 |
| Jurisdiction | \$0 to \$7,395,585 |

The cost of drought in Bartlett & Hart's Location is difficult to calculate as any cost would primarily result from an associated fire risk, crop loss and diminished water supply. An extended period without precipitation could elevate the risk for wildfire and blow-downs in the forest and with an extreme drought, the water supply and aquifer levels could be threatened. As mentioned above, there is a significant aquifer within the Jurisdiction. Many of the Jurisdiction's residents rely on their own wells, particularly in Hart's Location. Bartlett Village relies on surface water for its water supply.

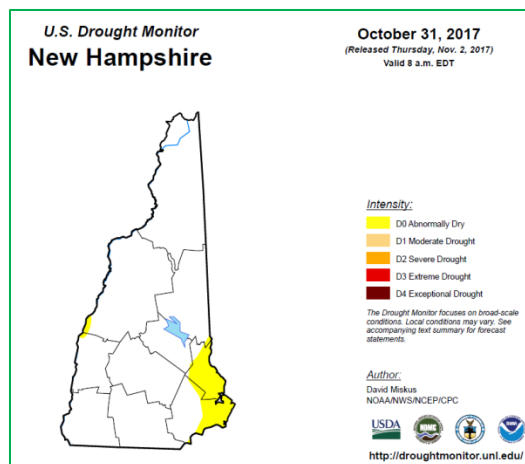


WMUR Archives; September 15, 2016

Fortunately, significant droughts rarely occur in New Hampshire or the Jurisdiction. 2016 brought extreme and severe drought conditions to southern New Hampshire, but Bartlett & Hart's Location remained in the "dry or moderate" category (see map above). It was reported that a few private wells "dried up" in the Jurisdiction during the summer of 2016, most of which were dug wells. Extreme droughts in northern New Hampshire are particularly rare and have no significant effect on structures, unless wildfire events occur. According to the NH Department of Environmental Services, five significant droughts have occurred since 1929²⁵, not including the 2016 drought.

Fortunately, the 2016 drought has abated, although recovery is still taking place in some areas of the State. Recent drought monitoring depicts drought conditions in New Hampshire and shows no drought to be currently present in Bartlett & Hart's Location (see chart to right).²⁶

If it were to occur, a significant drought in Bartlett & Hart's Location would not only impact the forested lands of the Jurisdiction, but also agricultural land and the economy. The estimated loss value above, based on a 0-1% risk reflects the potential for not only lost woodlands and structures due to wildfire, but also the economic impact to the Jurisdiction.



²⁵ NH DES; <http://des.nh.gov/organization/divisions/water/dam/drought/documents/historical.pdf>

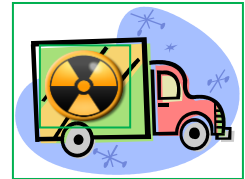
²⁶ US Drought Monitor-New Hampshire, April 18, 2017; <https://www.drought.gov/drought/new-hampshire>

D. Human-caused Hazards

The following human-caused hazards were also considered while developing this hazard mitigation plan. Though these hazards are not analyzed in more detail as part of this Plan, they are none-the-less worth mentioning as real and possible hazards that could occur in Bartlett & Hart's Location.

1) Hazardous Material - Transport

The possibility of vehicular accidents involving hazardous materials is identified as a serious hazard in both Bartlett and Hart's Location. The Jurisdiction's major routes, US Route 302 and NH Route 16 (Bartlett) are major thoroughfares and are very heavily traveled, both by large and small vehicles.



These highways are used by small delivery vehicles, often travelling at fast speeds, and carrying materials to residents; the contents of these vehicles are rarely known. A high volume of tractor trailers hauling fuel, Canadian concrete, petroleum products and other hazardous materials travel through the Jurisdiction on a constant basis, traveling north-south between southern New England and New Hampshire's North County as well as to the industrial town of Berlin. In addition, trucks carry goods from the more commercial centers of Portsmouth and Portland (Maine).

A hazardous material accident along either US Route 302 or NH Route 16 could have an impact on the wells of the Lower Bartlett Water Precinct and on the nearby Conway Water Precinct. There is also concern for ground water contamination; a hazardous material accident could impact a significant area around the Saco and Ellis rivers and the aquifer that lies beneath and runs into Maine (see Aquifer Contamination above). The very steep grade of US Route 302 in Crawford Notch (Hart's Location) contributes to the risk of a hazardous materials accident and to possible contamination of the water supply as the Saco River has its beginnings in the Notch.

2) Violent Crime

Although not a "natural hazard", the Team chose to identify violent crime as a significant problem, including domestic disagreements, break-ins, assaults, the use of drugs and other crimes. Most of the Jurisdiction's crime issues revolve around human issues such as: high unemployment rates, drug use, alcoholism, poor mental health services, low education attainment, transient populations and tourism and the possibility of retaliatory crime. The quality of life for some residences is low. The opioid crisis is of course an important part of law enforcement today.

3) Mass Casualty Incident

Mass Causality Incidents are a concern for both large and small communities, but are particularly worrisome to communities with difficult or limited access to emergency services. Bartlett-Jackson Ambulance which covers not only Jackson but Bartlett and Hart's Location has only one ambulance. Within the Jurisdiction, the concern is primarily for potential bus accidents and train wrecks that can quickly overwhelm emergency response.

As the major north-south route between towns directly north of Crawford Notch to the southern communities of the Mount Washington Valley, many busses carrying students, athletic teams and tourists travel through the hazardous conditions of Crawford Notch in Hart's Location. A mass casualty incident in the Notch would be disastrous and

only made worse by poor weather conditions and the lack of emergency services in Hart's Location. First responders would have to travel from Carroll in the north and from Bartlett in the south. To compound matters further, there is very limited or no cell service through most of Crawford Notch. The Hart's Location Team recalled an incident in 2011 (approximately) when a van rolled over in the "Notch" with seven occupants, five of which were thrown from the van.

Bartlett's concerns are not only for mass casualty incidents involving vehicles, but also for the potential of mass casualties at Story Land and Attitash Ski Area, both major New England tourist attractions. Equipment, such as chairlifts and amusement rides, could fail and result in multiple casualties. Although the Bartlett Fire Department has a Mass Casualty and Emergency Operations Plan in place, mass casualties are still a concern.

4) Hazardous Material – Fixed Location



Hazardous Material-Fixed Location is a concern in many of New Hampshire's communities. Manufacturers, gas stations, fuel depots, small businesses and even homes can be found to have hazardous chemicals, explosive materials or poisons on site. Breaches in the storage, use, production or disposal can affect the groundwater, aquifers and water supply of a community as well as the air we breathe.

Although the risk is low, several facilities contribute to the potential risk for a hazardous material fixed location event in the Jurisdiction. They include: chemicals at a local peg mill, propane tanks at the Grand Summit Resort in Bartlett, diesel fuel at Attitash Mountain, an old landfill in Bartlett and an accumulation of creosote soaked railroad ties in Hart's Location (wildfire, environmental and personal injury risk). Also, hazardous materials collected at the transfer station and the improper disposal of hazardous materials are of concern.

5) Extended Power Failure (5+ days)



Extended power failure is a concern, particularly when combined with any of the natural hazards detailed above. Extended power outages of several days have occurred in the Jurisdiction, both as a result of local line damage from high winds and storms and problems with the power grid. The Team from Hart's Location reported a loss of power for more than five days in 1995; however, no extended periods (5+ days) without power were reported to have taken place since the last hazard mitigation plan. The Team reported that long term power outages have diminished as a result of continued efforts by NH Electric Coop to trim trees and branches near power lines.

If a major and/or extended power outage occurs and lasts for more than a week, a significant hardship on individual residents could result, particularly those citizens who are elderly, handicapped or poor. The Team felt that many residents were somewhat self-sufficient; many residences are equipped with generators and many others have woodstoves. Extended power failure could result in carbon monoxide poisoning with the misuse of generators, a diminished food supply and increased crime. Some residents who have private wells, particular in Hart's Location where there is no public water, would also be impacted with the inability to pump. There would also be a significant business impact; major tourist facilities in Bartlett (Story Land, Attitash Ski Area, campgrounds and many condominium projects) would be unable to generate revenue.

It is also noted that the Jurisdiction is a somewhat difficult place for senior citizens to live. Driving, particularly south from Hart's Location can be difficult due to weather conditions and steep terrain and all services including pharmacies and major grocers are located out of town.

6) Epidemic/Pandemic

The Jurisdiction's unique geography provides hikers, campers and summer and winter recreation enthusiasts many opportunities to visit the Jurisdiction. The area is known for its many vacation and second homes, tourist facilities and a high transient population. The population of these communities swells significantly during summer months and winter weekends (see Table 2.1 for each community). This influx of people travelling from all over New England and Canada provides opportunity for the spread of disease.



The threat of either an epidemic or a pandemic is a concern for the Jurisdiction. The incredibly high influx of winter and summer visitors along with a substantial elderly population increases this concern (Hart's Location, 14%; Bartlett 18.9%). Illnesses may be brought from other places, and in doing so would place a severe burden on the Jurisdiction's already limited resources. In addition, the Jurisdiction's school, Josiah Bartlett Elementary School, provides education for students in grades K-8 and welcomes students from the neighboring town of Jackson for grades 7-8. All high school students from the Jurisdiction and Jackson attend school at Kennett High School in Conway unless they are tuitioned elsewhere. Attending school in neighboring towns enables infection and viruses to be transmitted from elsewhere, thus increasing the risk of exposure.

Bartlett & Hart's Location's unique geography provides hikers and other recreation enthusiasts opportunities to visit the Jurisdiction. Because of these factors and those described above, the Team decided that an epidemic or pandemic could present a possible threat to Bartlett & Hart's Location. With the occurrence of world-wide pandemics such as SARS, the Zika Virus, H1N1 and Avian Flu, the Jurisdiction could be susceptible to an epidemic and subsequent quarantine.

7) Terrorism

Terrorism is a fear throughout our country and although Bartlett & Hart's Location is not home to any substantial "hard targets" there is always a potential for a terrorism event at local "soft targets". Concern for terrorist activity primarily surrounds the tourist attractions of the Jurisdiction. Homeland Security has designated Story Land as a soft target; also, the Josiah Bartlett Elementary School and the Attitash Ski Area may be considered targets as well.

There are two major roads in Bartlett & Hart's Location (US Route 302 and NH Route 16) and one significant crossroad in the Glen district of Bartlett. These roads provide access to the rest of New England and Canada, and as such could be used as primary routes for terrorists. The terrorism threat is minimal; if a terrorist incident were to occur, it would most likely be a home-grown terrorist event.

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Chapter 6: Current Policies, Plans & Mutual Aid

After researching historic hazards, identifying CIKR and determining potential hazards, the Team determined what is already being done in Town to protect its citizens and structures.



Once identified, the Team addressed each current policy or plan to determine its effectiveness and to determine whether or not improvements were needed. This analysis became one of the tools the Team used to identify mitigation action items for this Plan.

With the knowledge of what regulations Bartlett & Hart's Location currently had in place, creating new action items was less difficult. This process was helpful in identifying current plans and policies that were working well and those that should be addressed as a new "action item" as well as the responsible departments. The table that follows, *Table 6.1, Policies, Plans & Mutual Aid*, shows the analysis that resulted from discussion with the Team.

Existing policies, plans and mutual aid that were designated as "Improvements Needed" were added to **Table 9.1, Mitigation Action Items** as new strategies and were reprioritized to meet the current needs of the Town.

TABLE 6.1: CURRENT POLICIES, PLANS & MUTUAL AID

KEY TO EFFECTIVENESS:

- 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 does not work as intended and/or does not meet its goals.
Poor The existing program does not work as intended, often falls short of its goals, and/or may present unintended consequences.

| Current Program or Activity | Description | Area of Town | Responsible Department | Effectiveness | Improvements Needed |
|-----------------------------|---|----------------------------|--------------------------------|----------------------|--|
| Functional Needs List | A prepared and updated list of those citizens of the Jurisdiction who may require special assistance at the time of an emergency. | Bartlett & Hart's Location | Emergency Management Directors | Poor (B) Poor (H) | Improvements Needed: A list of the functional needs population has not been developed in Bartlett or Hart's Location; these lists needs to be developed and maintained in order to serve as an effective tool during an emergency. Action Item #23 (Bartlett & Hart's Location) (also in Table 7.1) |

| Current Program or Activity | Description | Area of Town | Responsible Department | Effectiveness | Improvements Needed |
|---|---|----------------------------|---------------------------------------|-------------------------|--|
| Storm Drain / Culvert Maintenance | The Bartlett Road Agent and the State DOT clean the drainage basins once a year and after major flooding events. Culverts are repaired as needed. | Bartlett & Hart's Location | Highway Departments | Poor (H) Poor (B) | Improvements Needed: Although the Hart's Location and Bartlett Highway Departments do a good job cleaning and repairing drainage basins and culverts, a written storm water maintenance plan should be developed to insure continuity of actions and efficient storm water management; deferred for continued maintenance and the development of a written storm water maintenance plan; several culverts and drainage systems in both Bartlett & Hart's Location need improvement; deferred for each town to develop a storm water maintenance plan and for each town to address needed storm water projects. Action Items #27 (Bartlett & Hart's Location) (also in Table 7.1) |
| Zoning Regulations (Bartlett 2013) Land Use Ordinance (Hart's Location 2009) | Regulations dealing with land use including rural, residential, agriculture and timber management | Bartlett & Hart's Location | Boards of Selectmen & Planning Boards | Good (H) Average (B) | Improvements Needed: Hart's Location's Zoning Regulations were last updated in 2009 and include Subdivision Regulations, the Floodplain Conservation District Ordinance and the Personal Wireless Service Facilities Ordinance; deferred to review the regulations to protect the town for possible future growth and development and with a focus on water suppression capabilities in new developments. Action Item #24 (Hart's Location) (also in Table 7.1) Improvements Needed: In Bartlett, two different zoning areas exist, one defined by water precinct zoning and the other by town zoning; this is represented by two separate elected boards; deferred to review the regulations to protect the town for possible future growth and development and with a focus on water suppression capabilities in new developments. Action Item #24 (Bartlett) (also in Table 7.1) |

| Current Program or Activity | Description | Area of Town | Responsible Department | Effectiveness | Improvements Needed |
|--|--|----------------------------|--------------------------------|----------------------|--|
| Emergency Operation Plan (2007-Bartlett); (none Hart's Location) | This plan identifies the response procedures and capabilities of the Town of Bartlett in the event of a natural or man-made disaster. | Bartlett & Hart's Location | Emergency Management Directors | Good (B) Poor (H) | Improvements Needed: The Bartlett Emergency Operations Plan is currently in need of an update according to the recommended five-year cycle; the EOP was last updated in 2007 and will need to be updated again in 2018 according to the new State format of 15-ESFs; the new EOP will include an EOC Call Alert List as well as a detailed Resource Inventory List; deferred to this Plan for the 2018 update; perhaps to be done in conjunction with Hart's Location as a Multi-Jurisdictional EOP. Action Item #19 (Bartlett & Hart's Location) (also in Table 7.1) |
| NIMS & ICS Training | Ensure effective command, control, and communications during emergencies. | Bartlett & Hart's Location | Emergency Management Directors | Good (H) Good (B) | Improvements Needed: NIMS & ICS training has been done by most first responders in Bartlett; although this is preparedness, this is deferred to this plan to continue to provide NIMS (IS-700) & ICS (ICS 100 & ICS 200) training to new first responders and to new Town officials in both Bartlett & Hart's Location as they become elected and/or appointed. Action Item #3 (Bartlett & Hart's Location) (also in Table 7.1) |
| Emergency Back-up Power | The Town of Bartlett has emergency back-up power at the Fire Department and the Josiah Bartlett Elementary School; the Town of Hart's Location has emergency back-up power at Notchland Inn. | Bartlett & Hart's Location | Emergency Management Directors | Good (H) Good (B) | Improvements Needed: Although the Fire Station and the Josiah Bartlett Elementary School have generators, the Bartlett Town Hall/Police Station and the Highway Department do not have permanent generators (a portable generator can be used at the Highway Department); the Town of Hart's Location has a generator at Notchland Inn but there is no generator at the Hart's Location Town Offices; deferred to this Plan to obtain funding and install a permanent generator at the Hart's Location Town Offices and at the Bartlett Town Hall/Police Station that may be able to be shared with the Highway Department. Action Items #20 & 21 (Bartlett & Hart's Location) |

| Current Program or Activity | Description | Area of Town | Responsible Department | Effectiveness | Improvements Needed |
|---|---|----------------------------|--------------------------------------|----------------------|---|
| Capital Reserve Fund (CRF) | A type of account on a town's balance sheet that is reserved for long-term capital investment projects or any other large and anticipated expense(s) that will be incurred in the future; reserve funds set aside to ensure adequate funding to at least partially finance future projects, equipment and other expenditures. | Bartlett & Hart's Location | Boards of Selectmen | Poor (B) Good (H) | <p>Improvements Needed: Both Bartlett and Hart's Location have Capital Reserve fund for the future purchase of a new fire truck, one for the Recreation Department and the Library; deferred to work with the Bartlett Board of Selectmen to establish capital reserve funds for emergency management. Action Item #16 (Bartlett)</p> <p>Improvements Needed: Hart's Location maintains Capital Reserve Funds which sets aside funds each year at budget time to assist the Town's departments with planned purchases of equipment and supplies; deferred to work with the Hart's Location Board of Selectmen to establish capital reserve funds for emergency management. Action Item #16 (Hart's Location)</p> |
| Mutual Aid Agreements (Fire, Police, Highway & EMS) | Mutual Aid agreements provide communications capabilities and cooperative assistance between area cities and towns; mutual aid provides access to resources that are appropriate to the scope of the emergency. | Bartlett & Hart's Location | Bartlett Fire, Police, Highway & EMS | Good (H) Good (B) | <p>Improvements Needed: The Bartlett Fire Department, which also serves Hart's Location, has a mutual aid agreement with Mount Washington Valley Mutual Aid; the Bartlett Police Department has agreements with the neighboring towns of Jackson and Conway; the Highway Department has an agreement with NH Public Works Mutual Aid Association; EMS & ambulance transport is provided by Bartlett-Jackson Ambulance; Hart's Location relies on Bartlett for emergency response with the exception of law enforcement which is the NH State Police and the Carroll County Sheriff's Department; deferred to this Plan to review and update all current mutual aid agreements in both communities. Action Item #16 (Bartlett & Hart's Location)</p> |

| Current Program or Activity | Description | Area of Town | Responsible Department | Effectiveness | Improvements Needed |
|---|---|----------------------------|--------------------------------|-------------------------|---|
| Master Plan (2016/Bartlett; 2000/Hart's Location) | The Master Plan serves as the guiding document for future development and serves as the guiding document to assist the Planning Board as it updates the Town Zoning Ordinances, Subdivision and Site Plan Review Regulations. | Bartlett & Hart's Location | Boards of Selectmen | Good (B) Average (H) | <p>Improvements Needed: The Bartlett Master Plan was updated in 2016 and will need a recommended 10-year update in 2026 which is not within the life of this Plan; however the Planning Board reviews the Master Plan periodically and amends it as needed on an annual basis; it is recommended that any future updates to the Master Plan include a Natural Hazards section; deferred to consider changes to reflect items in this plan when periodic reviews take place. Action Item #29 (Bartlett)</p> <p>Improvements Needed: Hart's Location does not have a current Master Plan (2000); Hart's Location is ready for an update; deferred to develop an updated Master Plan and to include a Natural Hazards section in any new update. Action Item #25 (Hart's Location)</p> |
| Emergency Warning System | The Emergency Notification System (ENS) through E-911 provides reverse calling; door-to-door notification; PA systems in all Fire & Police vehicles; the NH Alert phone app also available. | Bartlett & Hart's Location | Emergency Management Directors | Poor (H) Poor (B) | <p>Improvements Needed: The NH Emergency Notification System (ENS) is an excellent warning system but it has not yet been implemented in either Bartlett or Hart's Location; deferred to this Plan for each community to enroll two persons with E-911 so that reverse calling can be implemented; the ENS only stores resident phone numbers that are listed in the phone book; also deferred for the Towns to provide information to residents on the ENS to encourage all residents to contact ENS to add cell numbers, emails, unlisted numbers and to verify information; use the website, a possible brochure or a sign up at Town Meeting. Action Items #1 (Bartlett & Hart's Location)</p> |

| Current Program or Activity | Description | Area of Town | Responsible Department | Effectiveness | Improvements Needed |
|------------------------------|--|----------------------------|--|----------------------|--|
| 911 Signage Compliance | A system that complies with recommended signage size, location and visibility to insure identification by emergency responders; markers at driveway entrances that identify residence locations in conjunction with the E-911 alerting system. | Bartlett & Hart's Location | Boards of Selectmen & Emergency Management Directors | Good (H) Good (B) | Improvements Needed: The Towns of Bartlett and Hart's Location are both about 50% compliant now; deferred to this Plan to continue to promote effective signage on individual properties so that emergency responders can better assist the public at the time of need; through public outreach and a current fund raiser program in Bartlett, this is deferred to encourage all residents of both communities to increase the signage compliance levels; use Towns' webpages and other mechanisms to improve compliance. Action Item #4 (Bartlett & Hart's Location) |
| Public Education & Awareness | Public Education and Awareness can provide mitigation techniques and ideas to the residents that will help them protect their properties during an emergency or natural disaster. | Bartlett & Hart's Location | Emergency Management Directors & Other Departments | Good (H) Good (B) | Improvements Needed: The Towns' websites are great ways to provide outreach to residents on not only emergency preparedness but also mitigation techniques property owners can use to reduce or eliminate the impact of natural hazards; deferred to this Plan to establish an Emergency Webpage on both Towns' websites to provide robust information and links to educate the public on general and seasonal mitigation techniques. Action Item #2 (Bartlett & Hart's Location) |
| Building Code & Permits | The Town has not adopted International Building Codes (IBC) but does require builders to follow the NH State adopted codes for new construction to meet national standards for flood, wind, earthquake, fire and snow load. | Bartlett & Hart's Location | Planning Boards | Good (H) Poor (B) | No Improvements Needed: The Towns do not have a residential Building Inspector however, the permitting process requires builders to abide by the International Building Codes (IBC) and the International Residential Codes (IRC) which have been adopted by the State of New Hampshire; oversight is available from builders and insurance companies; the system that is in place is fairly effective and there is little probability that Building Inspector will be hired, therefore no improvements are needed. (Bartlett & Hart's Location) |

| Current Program or Activity | Description | Area of Town | Responsible Department | Effectiveness | Improvements Needed |
|--|--|--|--|----------------------|---|
| National Flood Insurance Program (NFIP) Bartlett & Hart's Location | The minimum National Flood Insurance Program (NFIP) requirements (Section 60.3(c)) have been adopted in both Hart's Location and Bartlett; Bartlett has been a member of the NFIP since May 1, 1979; Hart's Location has been a member of the NFIP since March 2, 1988. | Bartlett Floodplain (No floodplain in Hart's Location) | Boards of Selectmen | Good (H) Good (B) | No Improvements Needed: The Floodplain Development Ordinance (Bartlett) regulates all new and substantially improved structures located in the 100-year floodplain, as identified on the FEMA Flood Maps dated March 19, 2013. Both Towns' Floodplain Development Ordinances work well to successfully prohibit or force compliance to the ordinance for building and substantial improvements to structures within the FEMA flood zone. (Bartlett & Hart's Location) |
| Burning Index | New Hampshire Forests & Lands (DNCR) has a burning index, which measures the risk for wildfires; how likely they are to start on a given day. It also evaluates the potential damages wildfires can create, the number of people that will be needed to fight it and the type of equipment that might be needed as well. | Bartlett & Hart's Location | NH Forests & Lands (DNCR) | Good (H) Good (B) | No Improvements Needed: The Bartlett Fire Department, which is also responsible for Hart's Location, receives regular notification of the burning index via fax and email from NH Forests & Lands (DNCR); this notification is made daily during the fire danger season. (Bartlett & Hart's Location) |
| State Health Department Public Health Plan | State plan, "Influenza, Pandemic, Public Health Preparedness and Response Plan" written by state health department to be prepared for any public health emergency; Bartlett and Hart's Location are part of the Carroll County Coalition for Public Health (3CPH) | Bartlett & Hart's Location | Carroll County Coalition for Public Health | Good (H) Good (B) | No Improvements Needed: The Public Health Plan does what it is meant to do; both Hart's Location and Bartlett participate in regional public health meetings whenever possible. (Bartlett & Hart's Location) |

| Current Program or Activity | Description | Area of Town | Responsible Department | Effectiveness | Improvements Needed |
|---|---|----------------------------|---|----------------------|---|
| Road Design Standards | Bartlett & Hart's Location Subdivision and Site Plan Regulations include road design standards that control the amount and retention of storm water runoff. | Bartlett & Hart's Location | Boards of Selectmen | Good (H) Good (B) | No Improvements Needed: Road design standards are detailed within the each Town's planning mechanisms and adhere to State standards; new roads will not be accepted by the Towns as "town" roads unless approved at Town Meeting. (Bartlett & Hart's Location) |
| State Division of Forest and Lands/Fire Permits | State regulations for open burning and permits | Bartlett & Hart's Location | NH Forests & Lands(DNCR) & local fire wardens | Good (H) Good (B) | No Improvements Needed: System that is in place with NHFL and the local fire warden works well; public is aware of fire permitting requirements. (Bartlett & Hart's Location) |
| School Emergency Plan (2016) | A School Comprehensive Emergency Management Plan insures preparedness and response for school personnel and Town emergency personnel in the instance of a major disaster in the schools | Bartlett Elementary School | SAU 76 | Good (H) Good (B) | No Improvements Needed: The Josiah Bartlett Elementary School Emergency Plan was updated in 2016; continued updates and training are needed; the school plan is a good plan; students from both Hart's Location and Bartlett attend the Bartlett Elementary School. (Bartlett & Hart's Location) |
| Subdivision Regulations | The purpose of Bartlett and Hart's Location subdivision regulations is to provide for the orderly present and future development of the town by promoting the public health, safety, convenience and welfare of the town's residents. | Bartlett & Hart's Location | Planning Boards | Good (H) Good (B) | No Improvements Needed: The Bartlett Subdivision Regulations have been recently updated but they are also reviewed annually and are in good shape; the Bartlett Subdivision Regulations address building on steep slope, ridgeline protection, the slope of driveways, water resources for fire suppression, regulations on maintaining adequate storm water flow to prevent flooding and much more; the Bartlett Subdivision Regulations work as they are intended and address many issues that help eliminate or diminish the impact from natural hazards. (Bartlett) No Improvements Needed: The Hart's Location Land Use Ordinance has minimum subdivision regulations, as there is little to no available land for subdividing. (Hart's Location) |

Chapter 7: Prior Mitigation Plan(s)

A. Date of Prior Plan

Bartlett & Hart's Location have participated in the development of hazard mitigation plans in the past, based on the Disaster Mitigation Act (DMA) of 2000. The most recent update was formally approved in 2012. This Plan, the "Bartlett & Hart's Location Hazard Mitigation Plan Update 2018" is an update to the 2012 Plan.

Below are the action items that were identified in the 2012 Plan. The Team identified the current status of each strategy based on three sets of questions:

Completed

- Has the strategy been completed?
- If so, what was done?

Strategies "deferred" from the prior plan, were added to **Table 9.1, Mitigation Action Plan** as new strategies and were reprioritized to meet the current needs of the Town.

Deleted

- Should the strategy be deleted?
- Is the strategy mitigation or preparedness?
- Is the strategy useful to the Town under the current circumstances?

Deferred

- Should the strategy be deferred for consideration in this Plan?
- If the strategy was not completed, should this strategy be reconsidered and included as a new action item for this Plan?

TABLE 7.1: ACCOMPLISHMENTS SINCE PRIOR PLAN(S) APPROVAL

NOTE: Items in **red** were extracted word-for-word from the 2012 Hazard Mitigation Plan and do not represent a time frame for this Plan.

| Priority | Project | Responsibility Oversight | Funding Support | Time Frame | Completed, Deleted or Deferred |
|----------|--|--------------------------|-----------------|------------|--|
| 0 - 1 | (17) Maintain resource list with updated information and advise resource of their possible involvement in an emergency situation (B & H) | Town Administration | Local | Ongoing | Deferred: The Bartlett Emergency Operations Plan is currently in need of an update according to the recommended five-year cycle; the EOP was last updated in 2007 and will need to be updated again in 2018 according to the new State format of 15-ESFs; the new EOP will include an EOC Call Alert List as well as a detailed Resource Inventory List; deferred to this Plan for the 2018 update; perhaps to be done in conjunction with Hart's Location as a Multi-Jurisdictional EOP. Action Item #19 (Bartlett & Hart's Location) (also in Table 6.1) |

| Priority | Project | Responsibility Oversight | Funding Support | Time Frame | Completed, Deleted or Deferred |
|----------|---|---|-----------------|------------|--|
| 0 - 2 | (19) Continue work to get a new cell tower in Hart's Location to eliminate a 10± mile area of no coverage (H) | Select Board | Local & Grants | Ongoing | Partially Completed & Deferred: As of the writing of this Plan, a new cell tower has not been installed in Hart's Location however the Town is working on this; deferred to continue to seek a location and funding for a cell tower in Hart's Location to eliminate 10± miles of no coverage. Action Item #5 |
| 0 - 3 | (11) Ongoing training for Mass Casualty incidents (B) | Fire Department & EMS | Local & Grants | Ongoing | Completed & Deleted: Mass Casualty training by the Towns' emergency response personnel has been done and continues to be done on a regular basis; this strategy from the prior plan is deleted as it is felt that it is emergency preparedness, not mitigation. |
| 0 - 4 | (12) Ongoing training for Terrorism incidents (B) | Fire Department & EMS | Local & Grants | Ongoing | Completed & Deleted: Terrorism training by the Towns' emergency response personnel has been done and continues to be done on a regular basis; this strategy from the prior plan is deleted as it is felt that it is emergency preparedness, not mitigation. |
| 0 - 5 | (13) Ongoing training for Pandemic & Epidemic events (B) | Fire Department & EMS | Local & Grants | Ongoing | Completed & Deleted: Pandemic and epidemic training by the Towns' emergency response personnel has been done and continues to be done on a regular basis; this strategy from the prior plan is deleted as it is felt that it is emergency preparedness, not mitigation. |
| 0 - 6 | (10) Assess town's culverts and determine need for repair or replacement (B) | Highway Department | Local & Grants | Ongoing | Completed & Deferred: Although the Hart's Location, NH DOT and the Bartlett Highway Department do a good job cleaning and repairing drainage basins and culverts, a written storm water maintenance plan should be developed to insure continuity of actions and efficient storm water management; deferred for continued maintenance and the development of a written storm water maintenance plan; several culverts and drainage systems in Bartlett need improvement; deferred for each town to develop a storm water maintenance plan and for each town to address needed storm water projects. Action Item #29 (Bartlett & Hart's Location) (also in Table 6.1) |
| 1 - 1 | (16) Educate residents on proper storage or release of hazardous materials in subsurface disposal systems; possible through website using links (DES) and general information (B & H) | Planning Board & Water Precincts & Fire Chief | Local | 06/30/11 | Completed & Deferred: As part of ongoing public education on the dangers of household hazards, continue to offer a hazardous materials collection day (Conway) and to educate homeowners on the dangers of hazardous materials in their homes and on their properties. Action Item #6 (Bartlett & Hart's Location) |

| Priority | Project | Responsibility Oversight | Funding Support | Time Frame | Completed, Deleted or Deferred |
|----------|--|------------------------------------|-----------------|------------|--|
| 1 - 2 | (03) Volunteering Develop a list of special needs citizens who will need to be contacted during or prior to an emergency; perhaps using the Town Report (B & H) | Town Administration | Local | 06/30/11 | Deferred: A list of the functional needs population has not been developed in Bartlett or Hart's Location; these lists need to be developed and maintained in order to serve as an effective tool during an emergency. Action Item #23 (Bartlett & Hart's Location) (also in Table 6.1) |
| 1 - 3 | (18) Obtain written permission to utilize Notchland Inn as a primary shelter (H) | Select Board | Local | 04/30/11 | Deferred: Although the owners of Notchland Inn are aware of the possible use as the primary shelter for Hart's Location, this strategy from the prior plan was not completed due to oversight; deferred to develop a Memorandum of Understanding (MOU) to obtain written permission to use the Notchland Inn as Hart's Location's primary shelter. Action Item #17 (Hart's Location) |
| 1 - 4 | (07) Consider the development of a long term Capital Improvement Plan (CIP) (B) | Planning Board | Local | 01/31/11 | Deleted: Bartlett has not developed a Capital Improvement Plan (CIP) and has no intention of developing one in the next five years (life of this Plan); therefore this strategy from the prior plan is deleted. (Bartlett) |
| 1 - 4 | (21) Urge FEMA to reinstall and relocate all benchmarks in jurisdiction (B & H) | Select Board | Local | 03/31/11 | Deleted: This strategy from the prior Plan to urge FEMA to reinstall and relocate "benchmarks" in the jurisdiction had no specific meaning to the current Hazard Mitigation Planning Team (HMPT); the Team also felt that "benchmarks" were not the responsibility of the Towns involved and therefore this strategy is deleted. (Bartlett & Hart's Location) |
| 1 - 5 | (06) Work to get all town officials educated and certified in NIMS and ICS training (B & H) | Fire Chief & EMD (Hart's Location) | Local | 03/31/11 | Completed & Deferred: NIMS & ICS training has been done by most first responders in Bartlett; although this is preparedness, this is deferred to this plan to continue to provide NIMS (IS-700) & ICS (ICS 100 & ICS 200) training to new first responders and to new Town officials in both Bartlett & Hart's Location as they become elected and/or appointed. Action Item #3 (Bartlett & Hart's Location) (also in Table 6.1) |

| Priority | Project | Responsibility Oversight | Funding Support | Time Frame | Completed, Deleted or Deferred |
|----------|---|--------------------------|-----------------|------------|--|
| 1 - 6 | (01) Obtain NFIP brochures to have available at the Town Hall for all residents, in particularly for any person who is building within the Flood Zone (B & H) | Town Administration | Local | 12/31/10 | Completed & Deferred: Although both Bartlett and Hart's Location had obtained NFIP brochures in the past, the supply has dwindled; deferred to this Plan to advise the public about the local flood hazard, flood insurance and flood protection measures by obtaining and keeping on hand a supply of NFIP brochures to have available in both Town Offices; give NFIP materials to homeowners and builders when proposing new development or substantial improvements; notify property owners that flood insurance is available whether or not they are in the flood zone and provide appropriate links to the NFIP and Ready.gov on the Towns' websites and Facebook pages. Action Item #8 (Bartlett & Hart's Location) |
| 1 - 7 | (02) Obtain Firewise brochures to have available at the Town Hall for all residents (B & H) | Fire Chief | Local | 12/31/10 | Completed & Deferred: Although both Bartlett and Hart's Location had obtained Firewise brochures in the past, the supply has dwindled; deferred to this Plan to advise the public about the local risk for wildfire and protection measures that homeowners can take by obtaining and keeping on hand a supply of Firewise brochures to have available in both Town Offices and to hand out to those persons seeking burn permits; provide public outreach via the Towns' website and/or Facebook pages and a possible assessment link to Firewise.org to enable homeowners to understand the wildfire risks on their properties. Action Item #12 (Bartlett & Hart's Location) |
| 1 - 8 | (09) Obtain assessment form from Firewise.org that can be adapted to assist homeowners in determining their fire risk (B) | Fire Chief | Local | 12/31/10 | As stated above regarding "Firewise", search for a suitable link that would enable homeowners to self-assess the wildfire risk on their own properties. See strategy above. (Bartlett & Hart's Location) |
| 1 - 9 | (05) Provide a place on the Town's website to educate owners of the risks of wildfires (B & H) | Town Administration | Local | 03/31/11 | As stated above regarding "Firewise", continue to provide public education to homeowners about the risk of wildfire and protective actions they can take to lessen the impact from this risk. See strategy above. (Bartlett & Hart's Location) |

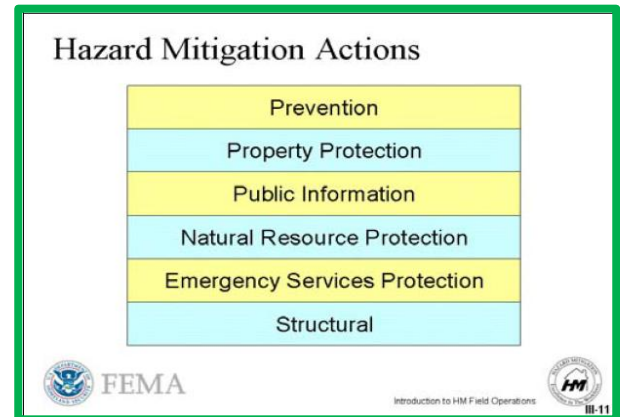
| Priority | Project | Responsibility Oversight | Funding Support | Time Frame | Completed, Deleted or Deferred |
|----------|---|---|-----------------|------------|---|
| 1 - 10 | (08) Plan a meeting to discuss zoning regulations in order to consider the impact new development will have on the overall water capabilities in Town and the need for cisterns in new developments as well as aquifer protection (B) | Planning Board & Water Precincts | Local | 06/30/11 | Deferred: Both Bartlett & Hart's Location have zoning ordinances that are in need of review; deferred to review both Towns' zoning ordinances to consider requirements for the development of water resources (fire ponds, cisterns, draft sites, etc.) in new subdivisions, to assess the impact of new developments on the Saco River Aquifer and the impact new development will have on current water resources within the Bartlett water precincts (2). Action Items #23 (Bartlett & Hart's Location) (also in Table 6.1) |
| 1 - 11 | (04) Explore the possibility of obtaining/building a fire status sign for the Fire Station and/or the Bartlett school (B) | Fire Chief & USDA-FS | Local & Grants | 08/31/11 | Deferred: A fire status or Smokey the Bear sign has not been obtained for either Bartlett or Hart's Location; deferred to this Plan as the HMPT felt there is still a need to post the fire status in both communities as they are both heavily wooded, very well-travelled and include campsites/campgrounds. Action Item #15 (Bartlett & Hart's Location) |
| 1 - 12 | (15) Research and collect information on hazardous materials storage (B & H) | Fire Chief & EMD (Hart's Location/EMD only) | Local | 10/31/11 | Completed & Deferred: This strategy from the prior plan could be considered more preparedness than mitigation; however, the Jurisdiction wished to continue to publicize and participate in a hazardous materials collection day in Conway. Action Item #6. |
| 2 - 1 | (20) Develop an Emergency Operations Plan using new Emergency Support Functions guidelines (H) | Select Board & EMD | Local | 12/31/11 | Deferred: The Bartlett Emergency Operations Plan is currently in need of an update according to the recommended five-year cycle; the EOP was last updated in 2007 and will need to be updated again in 2018 according to the new State format of 15-ESFs; the new EOP will include an EOC Call Alert List as well as a detailed Resource Inventory List; deferred to this Plan for the 2018 update; perhaps to be done in conjunction with Hart's Location as a Multi-Jurisdictional EOP. Action Item #19 (Bartlett & Hart's Location) (see above; in both Table 6.1 and 7.1) |
| 3 - 1 | (14) Engineering assessment of levees along the Saco River in the upper village (private land; Town may need grant to fund this) (B) | Select Board | Grants | 11/30/12 | Partially Completed & Deferred: This strategy from the prior Plan to obtain an engineering assessment of the Saco River has not been done due to oversight and funding; this strategy is deferred as at least one levee could potentially fail and cause flooding; the Town of Bartlett requested information in late 2016 from the State (DES) to see what can be done and to determine responsibility; this issue has not been resolved and the levee(s) have potential to cause flooding in the future; deferred to continue to seek a determination of responsibility and possible solutions to this problem. Action Item #7 (Bartlett) |

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Chapter 8: New Mitigation Strategies & STAPLEE

A. Mitigation Strategies by Type

The following list of mitigation categories and comprehensive possible strategy ideas was compiled from a number of sources including the USFS, FEMA, other Planners and past hazard mitigation plans. This list was used during a brainstorming session to discuss what issues there may be in Town. Team involvement and the brainstorming sessions proved helpful in bringing new ideas, better relationships and a more in depth knowledge of the Jurisdiction.



Prevention

- Forest fire fuel reduction programs
- Special management regulations
- Fire Protection Codes NFPA 1
- Firewise landscaping
- Culvert and hydrant maintenance
- Planning and zoning regulations
- Building Codes
- Density controls
- Driveway standards
- Slope development regulations
- Master Plan
- Capital Improvement Plan
- Rural Fire Water Resource Plan
- NFIP compliance

Public Education & Awareness

- Hazard information centers
- Public education and outreach programs
- Emergency website creation
- "Firewise" training
- NFIP awareness
- Public hazard notification
- Defensible space brochures

Emergency Service Protection

- Critical facilities protection
- Critical infrastructure protection
- Emergency training for town officials
- Ongoing training for first responders

Property Protection

- Current use or other conservation measures
- Transfer of development rights
- Firewise landscaping
- Water drafting facilities
- High risk notification for homeowners
- Structure elevation
- Real estate disclosures
- Flood proofing
- Building codes
- Development regulations

Natural Resource Protection

- Best management practices within the forest
- Forest and vegetation management
- Forestry and landscape management
- Wetlands development regulations
- Watershed management
- Erosion control
- Soil stabilization
- Open space preservation initiatives

Structural Projects

- Structure acquisition and demolition
- Structure acquisition and relocation
- Bridge replacement
- Dam removal
- Culvert up-size and/or realignment

B. Potential Mitigation Strategies by Hazard

In order to further promote the concept of mitigation, the Town was provided with a flier that was developed by Mapping and Planning Solutions and used to determine what additional mitigation action items might be appropriate for the Town. The mitigation action items from that flier are listed on the following two pages; each item from this comprehensive list of possible mitigation action items was considered by the Planning Team to determine if any of these action items could be put in place for Bartlett & Hart's Location with special emphasis on new and existing buildings and infrastructure.

Strategies that may apply to more than one hazard

Type of Project

- Community Outreach & Education.....Public Awareness
- Changes to Zoning Regulations.....Prevention
- Changes to Subdivision Regulations.....Prevention
- Steep Slopes Ordinance.....Prevention
- Density Controls.....Prevention
- Driveway Standards.....Prevention
- Emergency Website Creation.....Public Awareness
- Critical Infrastructure & Key Resources.....Emergency Service Protection
- Emergency Training for Town Officials.....Emergency Service Protection
- High Risk Notification to Homeowners.....Property Protection
- Master Plan Update or Development.....Prevention
- Capital Improvement Plan.....Prevention

Flood Mitigation Ideas

Type of Project

- Storm Water Management Ordinances.....Prevention
- Floodplain Ordinances.....Prevention
- Updated Floodplain Mapping.....Prevention
- Watershed Management.....Natural Resource Protection
- Drainage Easements.....Prevention
- Purchase of Easements.....Prevention
- Wetland Protection.....Natural Resource Protection
- Structural Flood Control Measures.....Prevention
- Bridge Replacement.....Structural Project
- Dam Removal.....Structural Project
- NFIP Compliance.....Prevention
- Acquisition, Demolition & Relocation.....Structural Project
- Structure Elevation.....Structural Project
- Flood Proofing.....Property Protection
- Erosion Control.....Natural Resource Protection
- Floodplain/Coastal Zone Management.....Prevention
- Building Codes Adoption or Amendments.....Prevention
- Culvert & Hydrant Maintenance.....Prevention
- Culvert & Drainage Improvements.....Structural Protection
- Transfer of Development Rights.....Property Protection

Natural Hazard Mitigation Ideas

Type of Project

Landslide

- Slide-Prone Area Ordinance..... Prevention
- Drainage Control Regulations..... Prevention
- Grading Ordinances..... Prevention
- Hillside Development Ordinances..... Prevention
- Open Space Initiatives..... Prevention
- Acquisition, Demolition & Relocation..... Structural Project
- Vegetation Placement and Management..... Natural Resource Protection
- Soil Stabilization..... Natural Resource Protection

Thunderstorms & Lightning

- Building Construction..... Property Protection

Tornado & Severe Wind

- Construction Standards and Techniques..... Property Protection
- Safe Rooms..... Prevention
- Manufactured Home Tie Downs..... Property Protection
- Building Codes..... Property Protection

Wildfire

- Building Codes..... Property Protection
- Defensible Space..... Prevention
- Forest Fire Fuel Reduction..... Prevention
- Burning Restriction..... Property Protection
- Water Resource Plan..... Prevention
- Firewise Training & Brochures..... Public Awareness
- Woods Roads Mapping..... Prevention

Extreme Temperatures

- Warming & Cooling Stations..... Prevention

Winter Weather Snowstorms

- Snow Load Design Standards..... Property Protection

Subsidence

- Open Space..... Natural Resource Protection
- Acquisition, Demolition & Relocation..... Structural Project

Earthquake

- Construction Standards and Techniques..... Property Protection
- Building Codes..... Property Protection
- Bridge Strengthening..... Structural Project
- Infrastructure Hardening..... Structural Project

Drought

- Water Use Ordinances..... Prevention

C. STAPLEE Methodology

Table 8.1, *Potential Mitigation Items & the STAPLEE*, reflects the newly identified potential hazard and wildfires mitigation action items as well as the results of the STAPLEE evaluation as explained below. It should also be noted that although some areas are identified as “All Hazards”, many of these would apply indirectly to wildfire response and capabilities. Many of these potential mitigation action items overlap.

The goal of each proposed mitigation action item is “to reduce or eliminate the long-term risk to human life and property from hazards”. To determine the effectiveness of each mitigation action item in accomplishing this goal, a set of criteria that was developed by FEMA, the STAPLEE method, was applied to each proposed action item.

The STAPLEE method analyzes the Social, Technical, Addministrative, Political, Legal, Economic and Environmental aspects of a project and is commonly used by public administration officials and planners for making planning decisions. The following questions were asked about the proposed mitigation action items discussed in Table 8.1.

Social: Is the proposed action item socially acceptable to the Jurisdiction? Is there an equity issue involved that would result in one segment of the Jurisdiction being treated unfairly?

Technical: Will the proposed action item work? Will it create more problems than it solves?

Administrative: Can the Jurisdiction implement the action item? Is there someone to coordinate and lead the effort?

Political: Is the action item politically acceptable? Is there public support both to implement and to maintain the project?

Legal: Is the Jurisdiction authorized to implement the proposed action item? Is there a clear legal basis or precedent for this activity?

Economic: What are the costs and benefits of this action item? Does the cost seem reasonable for the size of the problem and the likely benefits?

Environmental: How will the action item impact the environment? Will it need environmental regulatory approvals?

Each proposed mitigation action item was then evaluated and assigned a score based on the above criteria. Each of the STAPLEE categories was discussed and was awarded one of the following scores:

3 - Good 2 - Average..... 1 - Poor

An evaluation chart with total scores for each new action item is shown in Table 8.1.

The “Type” of Action Item was also considered (see section A of this chapter for reference):

- **Prevention**
- **Public Education & Awareness**
- **Emergency Service Protection**
- **Property Protection**
- **Natural Resource Protection**
- **Structural Projects**

D. Team’s Understanding of Hazard Mitigation Action Items

The Team determined that any strategy designed to reduce personal injury or damage to property that could be done prior to an actual disaster would be listed as a potential mitigation action item. This decision was made even though not all projects listed in Table 8.1 and Table 9.1, *The Mitigation Action Plan*, are fundable under FEMA pre-mitigation guidelines. The Team determined that this Plan was in large part a management document designed to assist the Boards of Selectmen and other town officials in all aspects of managing and tracking potential emergency planning action items. For instance, the Team was aware that some of these action items are more properly identified as preparedness or readiness issues. As there are no other established planning mechanisms that recognize some of these issues, the Team did not want to “lose” any of the ideas discussed during these planning sessions and thought this method was the best way to achieve that objective.

Also, it should be noted that the Town understands that the “Mitigation Action Items” for a town of 200 are not the same as the “Mitigation Action Items” for a town of 30,000. In addition, the “Mitigation Action Items” for a town in the middle of predominantly hardwood forests, are not the same as the “Mitigation Action Items” for a town on the Jersey Shore. Therefore the Jurisdiction has accepted the “Mitigation Action Items” in Tables 8.1 and 9.1 as the complete list of “Mitigation Action Items” for this Jurisdiction only and hereby indicates that having carefully considered a comprehensive list of other possible mitigation action items (see sections A & B of this chapter) for this Plan, there are no additional “Mitigation Action Items” to add at this time.



Bartlett (Glen) Fire Station
Photo Credit: MAPS



Bartlett Village Fire Station
Photo Credit: MAPS

TABLE 8.1: POTENTIAL MITIGATION ACTION ITEMS & THE STAPLEE

- Potential mitigation action items in Table 8.1 on the following page are listed in numerical order and indicate if they were derived from prior tables in this Plan, i.e., (Table 7.1).
- Items in green such as (MU14) represent mitigation action items taken from Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013; see *Appendix E: Potential Mitigation Ideas*, for more information.

Action Items are listed in numerical order.

| Proposed Mitigation Action Items | Affected Location | Type of Activity | TTL | S | T | A | P | L | E | E |
|---|----------------------------|--|-----|---|---|---|---|---|---|---|
| Action Item #1: Provide public outreach to encourage all residents to contact NH ENS to add cell numbers, unlisted numbers and to verify information; use the website, a possible brochure or a sign up at Town Meeting. (MU14) (Table 6.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |
| Action Item #2: Provide robust information on the Towns' Emergency websites for educating the public on hazard mitigation and preparedness measures (MU14) by adding to the Towns' website a webpage that will include such information as emergency contacts, shelter locations, evacuation routes (SW7, WF11 & T3), methods of emergency alerting, 911 compliance, water saving techniques (D9), earthquake risk and mitigation activities that can be taken in residents' homes (EQ7), steps homeowners can take to protect themselves and their properties when extreme temperatures occur (ET1 & ET4), safety measures that can be taken during hail (HA3) and lightning storms (L2), mitigation techniques for property protection and links to available sources; educate homeowners regarding the risks of building in hazard zones and encourage homeowners to install carbon monoxide monitors and alarms (WW5); continue to develop ways to provide notification to citizens. (Tables 6.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness | 15 | 3 | 1 | 2 | 1 | 3 | 2 | 3 |
| Technical: Challenge is lack of staff experience with web technology Administrative: Time, staff and staff experience Political: Some won't see the importance using the website for hazard mitigation techniques Economic: Budget constraints if training is needed | | | | | | | | | | |
| Action Item #3: EMDs in both Hart's Location and Bartlett to encourage all town officials and new hires to take NIMS 700 and ICS 100 and 200. (Tables 6.1 & 7.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness Emergency Service Protection | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |

| Proposed Mitigation Action Items | Affected Location | Type of Activity | TTL | S | T | A | P | L | E | E |
|---|----------------------------|---|-----|---|---|---|---|---|---|---|
| Action Item #4: Consider ways to improve 911 signage compliance so that emergency responders can better assist the public at the time of need; encourage all residents of both communities to increase the signage compliance levels; use the Towns' websites and other mechanisms to improve compliance. (Table 6.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness Emergency Service Protection Property Protection Natural Resource Protection | 20 | 3 | 3 | 3 | 2 | 3 | 3 | 3 |
| | | | | Political: Some people just do not want a sign on their properties | | | | | | |
| Action Item #5: Continue to seek a location and adjust zoning regulations for a cell tower to be located in Hart's Location to eliminate 10± miles of no coverage. (Table 7.1) (Hart's Location) | Hart's Location | Prevention Emergency Service Protection | 19 | 3 | 3 | 3 | 1 | 3 | 3 | 3 |
| | | | | Political: Some may not want to change the zoning to accommodate the regulations with regards to cell towers; others may not want any new cell towers to be visible (aesthetics) | | | | | | |
| Action Item #6: As part of ongoing public education on the dangers of household hazards, continue to publicize and offer a hazardous materials collection day (Conway) and to educate homeowners on the dangers of hazardous materials in their homes and on their properties. (Bartlett & Hart's Location) (Table 7.1) | Bartlett & Hart's Location | Prevention Public Education & Awareness | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | | | No apparent issues with this action item | | | | | | |
| Action Item #7: Continue to lobby the Department of Environmental Services (NH DES) (last done in 2016) to seek a determination of responsibility for at least one levee (and possibly more) that could cause flooding along the Saco River; determine possible solutions to this problem and work with DES to develop an engineering assessment of the problem. (Table 7.1) (Bartlett) | Bartlett | Prevention Property Protection Natural Resource Protection Structural Projects | 15 | 3 | 3 | 3 | 3 | 1 | 1 | 1 |
| | | | | Legal: Private homeowner must take part in any solution as the known levee with issues is on private property Economic: Budget constraints could become a reality for the homeowner and possibly the community. Environmental: The NH Department of Environmental Services is integral to finding a solution to the problem. | | | | | | |

| Proposed Mitigation Action Items | Affected Location | Type of Activity | TTL | S | T | A | P | L | E | E |
|--|----------------------------|---|-----|---|---|---|---|---|---|---|
| Action Item #8: Advise the public about the local flood hazard, flood insurance and flood protection measures (F10) by obtaining and keeping on hand a supply of NFIP brochures to have available in the Town Offices; give NFIP materials to homeowners and builders when proposing new development or substantial improvements; encourage property owners to purchase flood insurance (F22), whether or not they are in the flood zone and provide appropriate links to the NFIP and Ready.gov on the Towns' websites; educate homeowners regarding the risks of building in flood zone and measures that can be taken to reduce the chance of flooding, such as securing debris, propane tanks, yard items or stored objects that may otherwise be swept away, damaged, or pose a hazard if picked up and washed away by floodwaters; add links and info to website; continue to actively work with residents to ensure they are in compliance with each Town's Floodplain Ordinance. (F23) (Table 7.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |
| Action Item #9: Routinely inspect the functionality of fire hydrants and continue the maintenance and repair of all hydrants and other water resources in Bartlett; consider other areas of the Community that have limited water resources and address these issues by installing new hydrants, fire ponds and/or cisterns; consult with the Bartlett FD to determine the most suitable locations for new hydrants. (WF8) (Bartlett) | Bartlett | Prevention Emergency Service Protection Property Protection Natural Resource Protection | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |
| Action Item #10: Advise residents of Bartlett & Hart's Location who live on private roads of the importance of maintaining their roads for first responders (WF8); perhaps using the Towns' websites or other venues. (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness Emergency Service Protection | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |
| Action Item #11: Continue program to mow roadsides and cut limbs and branches in an effort to mitigate the effects of wind damage to power lines and structures and to ensure defensible space for mitigating wildfires; continue tree maintenance program to reduce or eliminate the damage that may result during a natural hazard such as a wildfire, windstorm, hurricane or tropical storm. (SW4 & WF7) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Property Protection Natural Resource Protection | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |

| Proposed Mitigation Action Items | Affected Location | Type of Activity | TTL | S | T | A | P | L | E | E |
|---|-----------------------------|--|-----|---|---|---|---|---|---|---|
| Action Item #12: Post important information on the Towns' websites with notices of red flag burning days; obtain and have available "Firewise" brochures to educate homeowners on methods to reduce fire risk around their homes (WF10); provide "Firewise" brochures to those residents seeking burn permits; advise residents of the importance of maintaining defensible space, the safe disposal of yard and household waste and the removal of dead or dry leaves, needles, twigs, and combustible materials from roofs, decks, eaves, porches and yards. (WF12) (Table 7.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |
| Action Item #13: Review and update all mutual aid agreements to ensure readiness and cooperation at the time of an emergency in either Hart's Location or Bartlett. (Table 6.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Emergency Service Protection | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |
| Action Item #14: Improve the flow of storm water by upgrading the granite box culvert on Thorn Hill Road with a more modern and efficient culvert system to control the active running stream that passes through the current culvert. (F13) | Thorn Hill Road Bartlett | Structural Projects | 19 | 3 | 3 | 3 | 3 | 3 | 2 | 2 |
| Economic: Budget constraints Environmental: May need DES approval | | | | | | | | | | |
| Action Item #15: Work with NH Forests & Lands (DNCR) to obtain a fire status board or Smokey the Bear Sign and determine the best locations in both Towns for installment. (Table 7.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |
| Action Item #16: Work with the Boards of Selectmen to establish capital reserve funds for emergency management. (Table 6.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Emergency Service Protection | 19 | 3 | 3 | 3 | 2 | 3 | 2 | 3 |
| Political: Some won't see the need for this type of funding. Economic: Budget Constraints | | | | | | | | | | |
| Action Item #17: Develop a Memorandum of Understanding (MOU) to obtain written permission to use the Notchland Inn as the primary shelter in Hart's Location. (Table 7.1) (Hart's Location) | Hart's Location | Prevention Emergency Service Protection | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| No apparent issues with this action item | | | | | | | | | | |
| Action Item #18: As stated in Bartlett's "Letter of Intent" to Homeland Security, look into potential HMGP funding for affected locations along the Saco River at various locations near Bartlett Village, along the Rocky Branch River near Jericho and Sleepy Hollow Roads in Glen, and along the East Branch River from Town Hall Road to Route 16 A for flood mitigation. (F13) (Bartlett) | Bartlett | Prevention Emergency Service Protection Structural Project | 16 | 3 | 3 | 2 | 3 | 3 | 1 | 1 |
| Administrative: Will require extensive cooperation with the State, DOT and DES Economic: Budget Constraints Environmental: Will require participation and permitting from DES | | | | | | | | | | |

| Proposed Mitigation Action Items | Affected Location | Type of Activity | TTL | S | T | A | P | L | E | E |
|--|-----------------------------------|---|-----|---|---|---|---|---|---|---|
| Action Item #19: Update the Emergency Operations Plan and consider a Multi-jurisdictional Plan as Hart's Location relies on Bartlett for the majority of its emergency response. (Tables 6.1 & 7.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness Emergency Service Protection | 21 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| <i>No apparent issues with this action item</i> | | | | | | | | | | |
| Action Item #20: Improve the flow of storm water by upgrading the two 24" culverts on Rolling Ridge Road to either a single arch or oval structure. (F13) (Bartlett) | Rolling Ridge Road Bartlett | Structural Projects | 19 | 3 | 3 | 3 | 3 | 3 | 2 | 2 |
| <i>Economic:</i> Budget constraints <i>Environmental:</i> May need DES approval | | | | | | | | | | |
| Action Item #21: Obtain funding and install a permanent generator at the Bartlett Town Hall/Police Station that can also provide emergency power for the Highway Garage; these are critical facilities within the Community. (Table 6.1) (Bartlett) | Bartlett Town Hall/Police Station | Emergency Service Protection | 18 | 3 | 3 | 3 | 1 | 3 | 2 | 3 |
| <i>Political:</i> Some people may not want to spend money on this and see the need for a generator <i>Economic:</i> Budget constraints | | | | | | | | | | |
| Action Item #22: Obtain funding and install a permanent generator at the Hart's Location Town Offices as this is a critical facility within the Community. (Table 6.1) (Hart's Location) | Hart's Location Town Offices | Emergency Service Protection | 19 | 3 | 3 | 3 | 2 | 3 | 2 | 3 |
| <i>Political:</i> Some people may not want to spend money on this and see the need <i>Economic:</i> Budget Constraints | | | | | | | | | | |
| Action Item #23: Consider the creation of a database to track those individuals at high risk of death, such as the elderly, homeless, etc. by developing a new and updated survey of the functional needs population and a method of maintaining the data. (ET3 & WW6) (Tables 6.1 & 7.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Emergency Service Protection | 20 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |
| <i>Administrative:</i> Staff time to establish and maintain the Functional Needs List may be difficult to maintain. | | | | | | | | | | |
| Action Item #24: Review both Towns' ordinances and regulations to consider requirements for the development of water resources (fire ponds, cisterns, draft sites, etc.) in new subdivisions, to assess the impact of new developments on the Saco River Aquifer and the impact new development will have on current water resources in both communities and within the Bartlett water precincts (2). (Tables 6.1 & 7.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Public Education & Awareness Property Protection Natural Resource Protection | 19 | 2 | 3 | 3 | 2 | 3 | 3 | 3 |
| <i>Social:</i> There may be resistance from the citizens of both communities; some don't like change <i>Political:</i> There may be resistance from the citizens of both communities; some don't like change | | | | | | | | | | |

| Proposed Mitigation Action Items | Affected Location | Type of Activity | TTL | S | T | A | P | L | E | E |
|--|----------------------------|--|-----|---|---|---|---|---|---|---|
| Action Item #25: Consider the development of a new Master Plan for Hart's Location and incorporate a Natural Hazards section and mitigation action items from this Plan. (MU6) (Table 6.1) (Hart's Location) | Hart's Location | Prevention Public Education & Awareness | 19 | 3 | 3 | 2 | 2 | 3 | 3 | 3 |
| | | | | Administrative: Limited staff time Political: Some may be resistance to the development of a Master Plan for the Community | | | | | | |
| Action Item #26: Consider the development of new regulations or ordinances in both Bartlett & Hart's Location that could further define requirements for timber cutting to lessen the potential for erosion, landslide and blow downs. (ER2, SW4 & MU4) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Property Protection Natural Resource Protection | 20 | 3 | 3 | 3 | 2 | 3 | 3 | 3 |
| | | | | Political: Some residents may be resistant to change and additional ordinances and controls | | | | | | |
| Action Item #27: Improve the flow of storm water by upgrading the granite box culvert on Spring Avenue with a more modern and efficient culvert system to control the active running stream that passes through the current culvert. (F13) (Bartlett) | Spring Avenue Bartlett | Structural Projects | 19 | 3 | 3 | 3 | 3 | 3 | 2 | 2 |
| | | | | Economic: Budget constraints Environmental: May need DES approval | | | | | | |
| Action Item #28: Continue maintenance of culverts and ditches in the Communities, and develop a written stormwater maintenance plan in order to insure more efficient storm water management; include the location (GPS if possible), type, size, age and expected replacement date of all culverts, catch basins and drainage ditches in the Communities. (F5) (Tables 6.1 & 7.1) (Bartlett & Hart's Location) | Bartlett & Hart's Location | Prevention Emergency Service Protection Property Protection Natural Resource Protection | 18 | 3 | 3 | 2 | 2 | 3 | 2 | 3 |
| | | | | Administrative: Staff availability to do this project Political: Some people will not see the need to do this "it has not been done in the past, why do we need it?" Economic: Budget constraints | | | | | | |
| Action Item #29: With the next review of the Bartlett Master Plan, consider the incorporation of a Natural Hazards section and mitigation action items from this Plan. (MU6) (Table 6.1) (Bartlett) | Bartlett | Prevention Public Education & Awareness | 19 | 3 | 3 | 2 | 2 | 3 | 3 | 3 |
| | | | | Administrative: Limited staff time Political: Since the Master Plan was just recently updated, this action item may not seem important to those who worked on the Plan and there may be resistance to changing the current Master Plan | | | | | | |

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Chapter 9: Implementation Schedule for Prioritized Action Items

A. Priority Methodology

After reviewing the finalized STAPLEE numerical ratings, the Team prepared to develop *Table 9.1, The Mitigation Action Plan*. To do this, team members created four categories into which they would place the potential mitigation action items.

- **Category 0** was to include those items which are being done and will continue to be done in the future.
- **Category 1** was to include those items under the direct control of town officials, within the financial capability of the Town using only town funding, those already being done or planned and those that could generally be completed within one year.
- **Category 2** was to include those items that the Town did not have sole authority to act upon, those for which funding might be beyond the Town's capability and those that would generally take between 13-36 months to complete.
- **Category 3** was to include those items that would take a major funding effort, those that the Town had little control over the final decision and those that would take in excess of 37 months to complete.

Each potential mitigation action item was placed in one of these four categories and then those action items were prioritized within each category according to cost-benefit, time frame and capability. Actual cost estimates were unavailable during the planning process, although using the STAPLEE process along with the methodology detailed above and a Low-High estimate (see following page) the Team was able to come up with a general consensus on cost-benefit for each proposed action item.

The Team also considered the following criteria while ranking and prioritizing each action item:

- Does the action reduce damage?
- Does the action contribute to Jurisdiction objectives?
- Does the action meet existing regulations?
- Does the action protect historic structures?
- Does the action keep in mind future development?
- Can the action be implemented quickly?

The prioritization exercise helped the committee seriously evaluate the new hazard mitigation action items that they had brainstormed throughout the hazard mitigation planning process. While all actions would help improve the Jurisdictions hazard and wildfire responsiveness capability, funding availability will be a driving factor in determining what and when new mitigation action items are implemented.

B. Who, When, How?

Once this was completed, the Team developed an action plan that outlined who is responsible for implementing each action item, as well as when and how the actions will be implemented. The following questions were asked in order to develop a schedule for the identified mitigation action items.

WHO? Who will lead the implementation efforts? Who will put together funding requests and applications?

WHEN? When will these actions be implemented and in what order?

HOW? How will each Jurisdiction fund these projects? How will each Jurisdiction implement these projects? What resources will be needed to implement these projects?

In addition to the prioritized mitigation action items, *Table 9.1, The Mitigation Action Plan*, includes the responsible party (WHO), how the project will be supported (HOW) and what the time frame is for implementation of the project (WHEN).

Once the Plan is approved, the Communities will begin working on the action items listed in *Table 9.1, The Mitigation Action Plan* (following page). An estimation of completion for each action item is noted in the “Time Frame” column of Table 9.1. Some projects, including most training and education of residents on emergency and evacuation procedures, could be tied into the emergency operations plan and implemented through that planning effort.

TABLE 9.1: THE MITIGATION ACTION PLAN

Table 9.1, The Mitigation Action Plan, located on the next page, includes Problem Statements that were expressed by the Planning Team. These action items are listed in order of priority and indicate if they were derived from prior tables in this Plan.

The estimated cost was determined using the following criteria:

- **Low Cost**.....\$0 - \$1,000 or staff time only
- **Medium Cost** \$1,000-\$10,000
- **High Cost** \$10,000 or more

The time frame was determined using the following criteria:

- **Short Term**..... Ongoing for the life of the Plan
- **Short Term**..... Less than 1 year (0-12 months)
- **Medium Term**..... 2-3 years (13-36 months)
- **Long Term:** 4-5 years (37-60 months)

Items in green such as (MU14) represent mitigation action items taken from Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013; see *Appendix E: Potential Mitigation Ideas*, for more information.



Mitigation Action Items are listed in order of priority.

TTL = Total STAPLEE Score (See Table 8.1)

| Priority | Problem Statement New Mitigation Action Item | Type of Hazard | Responsible Department | Funding or Support | Time Frame | Est. Cost | TTL |
|----------|--|---|---|--------------------------|---|---|-----|
| 0-1 | <p>Problem Statement: The NH Emergency Notification System (ENS) is an excellent warning system but it only stores resident phone numbers that are listed in the phone book; residents may not be aware that they can add cell numbers and unlisted numbers.</p> <p>Action Item #1: Provide public outreach to encourage all residents to contact NH ENS to add cell numbers, unlisted numbers and to verify information; use the website, a possible brochure or a sign up at Town Meeting. (MU14) (Table 6.1) (Bartlett & Hart's Location)</p> | All Hazards | Bartlett & Hart's Location Emergency Management Directors | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 21 |
| 0-2 | <p>Problem Statement: Although the Town has made a great effort in providing public education, more can be done to provide not only emergency preparedness but also hazard mitigation techniques that residents can take to protect their homes and properties.</p> <p>Action Item #2: Provide robust information on the Towns' Emergency websites for educating the public on hazard mitigation and preparedness measures (MU14) by adding to the Towns' website a webpage that will include such information as emergency contacts, shelter locations, evacuation routes (SW7, WF11 & T3), methods of emergency alerting, 911 compliance, water saving techniques (D9), earthquake risk and mitigation activities that can be taken in residents' homes (EQ7), steps homeowners can take to protect themselves and their properties when extreme temperatures occur (ET1 & ET4), safety measures that can be taken during hail (HA3) and lightning storms (L2), mitigation techniques for property protection and links to available sources; educate homeowners regarding the risks of building in hazard zones and encourage homeowners to install carbon monoxide monitors and alarms (WW5); continue to develop ways to provide notification to citizens. (Tables 6.1) (Bartlett & Hart's Location)</p> | All Hazards including: Severe Wind, Drought, Earthquake, Extreme Temperatures, Hail, Lightning, Severe Winter Weather, Tornado & Wildfire | Bartlett & Hart's Location Boards of Selectmen & Department Heads | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 15 |

| Priority | Problem Statement New Mitigation Action Item | Type of Hazard | Responsible Department | Funding or Support | Time Frame | Est. Cost | TTL |
|----------|--|--------------------------------------|--|--------------------|---|---|-----|
| 0-3 | <p>Problem Statement: Although most police officers and firefighters have received NIMS & ICS trainings, not all of Hart's Location's or Bartlett's town officials have.</p> <p>Action Item #3: EMDs in both Hart's Location and Bartlett to encourage all town officials and new hires to take NIMS 700 and ICS 100 and 200. (Tables 6.1 & 7.1) (Bartlett & Hart's Location)</p> | All Hazards | Bartlett & Hart's Location Emergency Management Directors | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 21 |
| 0-4 | <p>Problem Statement: The Towns of Bartlett and Hart's Location have continuously used public outreach to advise residents of the need for proper 911 signage; however, the Jurisdiction is currently only about 50% compliant with the proper 911 signage.</p> <p>Action Item #4: Consider ways to improve 911 signage compliance so that emergency responders can better assist the public at the time of need; encourage all residents of both communities to increase the signage compliance levels; use the Towns' websites and other mechanisms to improve compliance. (Table 6.1) (Bartlett & Hart's Location)</p> | All Hazards | Bartlett & Hart's Location Emergency Management Directors & the Bartlett Fire Department | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 20 |
| 0-5 | <p>Problem Statement: Approximately 10 miles of US Route 302 and the surrounding areas in Hart's Location have no cell coverage.</p> <p>Action Item #5: Continue to seek a location and adjust zoning regulations for a cell tower to be located in Hart's Location to eliminate 10± miles of no coverage. (Table 7.1) (Hart's Location)</p> | All Hazards | Hart's Location Board of Selectmen & Planning Board | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 19 |
| 0-6 | <p>Problem Statement: Residents of both Bartlett & Hart's Location may not be aware of the dangers that may result from hazardous materials stored in their own homes.</p> <p>Action Item #6: As part of ongoing public education on the dangers of household hazards, continue to publicize and offer a hazardous materials collection day (Conway) and to educate homeowners on the dangers of hazardous materials in their homes and on their properties. (Bartlett & Hart's Location) (Table 7.1)</p> | Hazardous Materials - Fixed Location | Bartlett & Hart's Location Boards of Selectmen & Emergency Management Directors | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 21 |

| Priority | Problem Statement New Mitigation Action Item | Type of Hazard | Responsible Department | Funding or Support | Time Frame | Est. Cost | TTL |
|----------|---|-------------------|---|--------------------------|---|---|-----|
| 0-7 | <p>Problem Statement: <i>At least one levee (private property) on the Saco River could potentially fail and cause flooding.</i></p> <p>Action Item #7: Continue to lobby the Department of Environmental Services (NH DES) (last done in 2016) to seek a determination of responsibility for at least one levee (and possibly more) that could cause flooding along the Saco River; determine possible solutions to this problem and work with DES to develop an engineering assessment of the problem. (Table 7.1) (Bartlett)</p> | Flooding | Bartlett Board of Selectmen & Emergency Management Director | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 15 |
| 0-8 | <p>Problem Statement: <i>Residents and Builders may not be aware of flood regulations & the availability of flood insurance through the NFIP.</i></p> <p>Action Item #8: Advise the public about the local flood hazard, flood insurance and flood protection measures (F10) by obtaining and keeping on hand a supply of NFIP brochures to have available in the Town Offices; give NFIP materials to homeowners and builders when proposing new development or substantial improvements; encourage property owners to purchase flood insurance (F22), whether or not they are in the flood zone and provide appropriate links to the NFIP and Ready.gov on the Towns' websites; educate homeowners regarding the risks of building in flood zone and measures that can be taken to reduce the chance of flooding, such as securing debris, propane tanks, yard items or stored objects that may otherwise be swept away, damaged, or pose a hazard if picked up and washed away by floodwaters; add links and info to website; continue to actively work with residents to ensure they are in compliance with the each Town's Floodplain Ordinance. (F23) (Table 7.1) (Bartlett & Hart's Location)</p> | Flooding | Bartlett & Hart's Location Boards of Selectmen | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 21 |

| Priority | Problem Statement New Mitigation Action Item | Type of Hazard | Responsible Department | Funding or Support | Time Frame | Est. Cost | TTL |
|----------|--|--|--|--------------------------|---|---|-----|
| 0-9 | <p>Problem Statement: <i>Pressurized fire hydrants need annual inspection and maintenance to ensure functionality during a wildfire emergency.</i></p> <p>Action Item #9: Routinely inspect the functionality of fire hydrants and continue the maintenance and repair of all hydrants and other water resources in Bartlett; consider other areas of the Community that have limited water resources and address these issues by installing new hydrants, fire ponds and/or cisterns; consult with the Bartlett FD to determine the most suitable locations for new hydrants. (WF8) (Bartlett)</p> | Wildfire | Bartlett Water Precincts (2) & North Conway Water Precinct | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 21 |
| 0-10 | <p>Problem Statement: <i>Residents may not be aware of the hindrance to first responders that results when private road clearance is not maintained.</i></p> <p>Action Item #10: Advise residents of Bartlett & Hart's Location who live on private roads of the importance of maintaining their roads for first responders (WF8); perhaps using the Towns' websites or other venues. (Bartlett & Hart's Location)</p> | All Hazards & Wildfire | Bartlett & Hart's Location Boards of Selectmen & Emergency Management Directors | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 21 |
| 0-11 | <p>Problem Statement: <i>Brush along roadsides, hanging limbs and dying trees can damage power lines and structures in severe wind events and can create fuel for wildfires.</i></p> <p>Action Item #11: Continue program to mow roadsides and cut limbs and branches in an effort to mitigate the effects of wind damage to power lines and structures and to ensure defensible space for mitigating wildfires; continue tree maintenance program to reduce or eliminate the damage that may result during a natural hazard such as a wildfire, windstorm, hurricane or tropical storm. (SW4 & WF7) (Bartlett & Hart's Location)</p> | High Winds (windstorm); Wildfire; Tornado & Downburst; Hurricane | Bartlett & Hart's Location Boards of Selectmen & Bartlett's Highway Department & Hart's Locations Road Agent | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 21 |

| Priority | Problem Statement New Mitigation Action Item | Type of Hazard | Responsible Department | Funding or Support | Time Frame | Est. Cost | TTL |
|----------|--|-------------------|--|--------------------------|---|---|-----|
| 0-12 | <p>Problem Statement: Residents may not be aware of the steps they can take to reduce the risk of fire at their homes.</p> <p>Action Item #12: Post important information on the Towns' websites with notices of red flag burning days; obtain and have available "Firewise" brochures to educate homeowners on methods to reduce fire risk around their homes (WF10); provide "Firewise" brochures to those residents seeking burn permits; advise residents of the importance of maintaining defensible space, the safe disposal of yard and household waste and the removal of dead or dry leaves, needles, twigs, and combustible materials from roofs, decks, eaves, porches and yards. (WF12) (Table 7.1) (Bartlett & Hart's Location)</p> | Wildfire | Bartlett & Hart's Location Boards of Selectmen & Bartlett Fire Chief | Local | Short Term Ongoing for the life of the Plan | Low Cost \$0-\$1,000 or Staff Time Only | 21 |
| 1-1 | <p>Problem Statement: All current mutual aid agreements are in need of review and updating.</p> <p>Action Item #13: Review and update all mutual aid agreements to ensure readiness and cooperation at the time of an emergency in either Hart's Location or Bartlett. (Table 6.1) (Bartlett & Hart's Location)</p> | All Hazards | Bartlett & Hart's Location Boards of Selectmen & Department Heads | Local | Short Term Less than 1 year (0-12 months) | Low Cost \$0-\$1,000 or Staff Time Only | 21 |
| 1-2 | <p>Problem Statement: The granite box culvert that crosses under Thorn Hill Road (just before the Russell residence) shows wear-and-tear and the embankments are threatened by frequently appearing sink holes causing flooding.</p> <p>Action Item #14: Improve the flow of storm water by upgrading the granite box culvert on Thorn Hill Road with a more modern and efficient culvert system to control the active running stream that passes through the current culvert. (F13) (Bartlett)</p> | Flooding | Bartlett Highway Department | Local & Grants | Short Term Less than 1 year (0-12 months) | High Cost \$10,000 or More | 19 |
| 1-3 | <p>Problem Statement: A fire status or Smokey the Bear sign has not been obtained for either Bartlett or Hart's Location; this type of public education is warranted as both communities are heavily wooded, very well-travelled and include campsites/campgrounds.</p> <p>Action Item #15: Work with NH Forests & Lands (DNCR) to obtain a fire status board or Smokey the Bear Sign and determine the best locations in both Towns for installment. (Table 7.1) (Bartlett & Hart's Location)</p> | Wildfire | Bartlett & Hart's Location Boards of Selectmen & Bartlett Fire Chief | Local | Short Term Less than 1 year (0-12 months) | Low Cost \$0-\$1,000 or Staff Time Only | 21 |

| Priority | Problem Statement New Mitigation Action Item | Type of Hazard | Responsible Department | Funding or Support | Time Frame | Est. Cost | TTL |
|----------|--|-------------------|---|--------------------------|---|---|-----|
| 1-4 | <p>Problem Statement: <i>Neither Bartlett or Hart's Location have Capital Reserve funds set aside for emergency management.</i></p> <p>Action Item #16: Work with the Boards of Selectmen to establish capital reserve funds for emergency management. (Table 6.1) (Bartlett & Hart's Location)</p> | All Hazards | Bartlett & Hart's Location Boards of Selectmen & Emergency Management Directors | Local | Short Term Less than 1 year (0-12 months) | Low Cost \$0-\$1,000 or Staff Time Only | 19 |
| 1-5 | <p>Problem Statement: <i>Although the owners of Notchland Inn are aware of their possible use as the primary shelter for Hart's Location, a Memorandum of Understanding (MOU) to use the Notchland Inn as Hart's Location's primary shelter was never prepared.</i></p> <p>Action Item #17: Develop a Memorandum of Understanding (MOU) to obtain written permission to use the Notchland Inn as the primary shelter in Hart's Location. (Table 7.1) (Hart's Location)</p> | All Hazards | Hart's Location Board of Selectmen | Local | Short Term Less than 1 year (0-12 months) | Low Cost \$0-\$1,000 or Staff Time Only | 21 |
| 1-6 | <p>Problem Statement: <i>The areas were damage that occurred during the October 2017 storm (President Declaration DR-4355) need to be mitigated to prevent future flooding.</i></p> <p>Action Item #18: As stated in Bartlett's "Letter of Intent", look into potential HMGP funding for affected locations along the Saco River at various locations near Bartlett Village, along the Rocky Branch River near Jericho and Sleepy Hollow Roads in Glen, and along the East Branch River from Town Hall Road to Route 16A for flood mitigation. (F13) (Bartlett)</p> | Flooding | Bartlett board of Selectmen & Emergency Management Director | Local & Grants | Short Term Less than 1 year (0-12 months) | High Cost \$10,000 or More | 16 |
| 2-1 | <p>Problem Statement: <i>The Hart's Location and Bartlett Emergency Operations Plans are currently in need of updates according to the recommended five-year cycle; the Bartlett EOP was last updated in 2007 and Hart's Location does not have an EOP.</i></p> <p>Action Item #19: Update the Emergency Operations Plan and consider a Multi-jurisdictional Plan as Hart's Location relies on Bartlett for the majority of its emergency response. (Tables 6.1 & 7.1) (Bartlett & Hart's Location)</p> | All Hazards | Bartlett & Hart's Location Boards of Selectmen & Emergency Management Directors | Local & Grants | Medium Term 2-3 Years (13-36 months) | Medium Cost \$1,000-\$10,00 | 21 |

| Priority | Problem Statement New Mitigation Action Item | Type of Hazard | Responsible Department | Funding or Support | Time Frame | Est. Cost | TTL |
|----------|--|-------------------|--|--------------------------|---|---|-----|
| 2-2 | <p>Problem Statement: The two 24" steel culverts located across the railroad tracks (bearing right at the Y) underperform and create flooding issues on Rolling Ridge Road.</p> <p>Action Item #20: Improve the flow of storm water by upgrading the two 24" culverts on Rolling Ridge Road to either a single arch or oval structure. (F13) (Bartlett)</p> | Flooding | Bartlett Highway Department | Local & Grants | Medium Term 2-3 Years (13-36 months) | High Cost \$10,000 or More | 19 |
| 2-3 | <p>Problem Statement: The Bartlett Town Hall/Police Station & the Highway Garage do not have permanent generators.</p> <p>Action Item #21: Obtain funding and install a permanent generator at the Bartlett Town Hall/Police Station that can also provide emergency power for the Highway Garage; these are critical facilities within the Community. (Table 6.1) (Bartlett)</p> | All Hazards | Bartlett Board of Selectmen & Emergency Management Director | Local & Grants | Medium Term 2-3 Years (13-36 months) | High Cost \$10,000 or More | 18 |
| 2-4 | <p>Problem Statement: The Town of Hart's Location has a generator at Notchland Inn but there is no generator at the Hart's Location Town Offices.</p> <p>Action Item #22: Obtain funding and install a permanent generator at the Hart's Location Town Offices as this is a critical facility within the Community. (Table 6.1) (Hart's Location)</p> | All Hazards | Hart's Location Board of Selectmen & Emergency Management Director | Local & Grants | Medium Term 2-3 Years (13-36 months) | High Cost \$10,000 or More | 19 |
| 2-5 | <p>Problem Statement: A survey was not done to identify the functional needs population in Bartlett & Hart's Location.</p> <p>Action Item #23: Consider the creation of a database to track those individuals at high risk of death, such as the elderly, homeless, etc. by developing a new and updated survey of the functional needs population and a method of maintaining the data. (ET3 & WW6) (Tables 6.1 & 7.1) (Bartlett & Hart's Location)</p> | All Hazards | Bartlett Fire Department & Bartlett-Jackson Ambulance | Local | Medium Term 2-3 Years (13-36 months) | Low Cost \$0-\$1,000 or Staff Time Only | 20 |

| Priority | Problem Statement New Mitigation Action Item | Type of Hazard | Responsible Department | Funding or Support | Time Frame | Est. Cost | TTL |
|----------|---|---|---|--------------------------|---|--|-----|
| 2-6 | <p>Problem Statement: Both Bartlett & Hart's Location have ordinances that are in need of review and consideration with a focus on requirements for the development of water resources (fire ponds, cisterns, draft sites, etc.) in new subdivisions, the impact of new developments on the Saco River Aquifer and the impact new development will have on current water resources in both communities and within the Bartlett water precincts (2).</p> <p>Action Item #24: Review both Towns' ordinances and regulations to consider requirements for the development of water resources (fire ponds, cisterns, draft sites, etc.) in new subdivisions, to assess the impact of new developments on the Saco River Aquifer and the impact new development will have on current water resources in both communities and within the Bartlett water precincts (2). (Tables 6.1 & 7.1) (Bartlett & Hart's Location)</p> | Wildfire | Bartlett Water Precincts (2); North Conway Water Precinct; Bartlett & Hart's Location Planning Boards | Local | Medium Term 2-3 Years (13-36 months) | Low Cost \$0-\$1,000 or Staff Time Only | 19 |
| 2-7 | <p>Problem Statement: Hart's Location does not have a current Master Plan; it was last done in 2000.</p> <p>Action Item #25: Consider the development of a new Master Plan for Hart's Location and incorporate a Natural Hazards section and mitigation action items from this Plan. (MU6) (Table 6.1) (Hart's Location)</p> | All Hazards | Hart's Location Planning Board | Local | Medium Term 2-3 Years (13-36 months) | Low Cost \$0-\$1,000 or Staff Time Only | 19 |
| 2-8 | <p>Problem Statement: Deforestation due to forest management or clear cutting has the potential to create landslides, erosion and blow downs during high wind events.</p> <p>Action Item #26: Consider the development of new regulations or ordinances in both Bartlett & Hart's Location that could further define requirements for timber cutting to lessen the potential for erosion, landslide and blow downs. (ER2, SW4 & MU4) (Bartlett & Hart's Location)</p> | Erosion, Landslide & Mudslide; High Winds (windstorm) | Bartlett & Hart's Location Planning Boards | Local | Medium Term 2-3 Years (13-36 months) | Low Cost \$0-\$1,000 or Staff Time Only | 20 |

| Priority | Problem Statement New Mitigation Action Item | Type of Hazard | Responsible Department | Funding or Support | Time Frame | Est. Cost | TTL |
|----------|---|-------------------|--|--------------------------|--|---|-----|
| 3-1 | <p>Problem Statement: The culvert that crosses under Spring Avenue consists of granite slabs that are apparently sitting on ledge with no indication that they are secured and sink holes are common; the integrity of the culvert is questionable and flooding occurs.</p> <p>Action Item #27: Improve the flow of storm water by upgrading the granite box culvert on Spring Avenue with a more modern and efficient culvert system to control the active running stream that passes through the current culvert. (F13) (Bartlett)</p> | Flooding | Bartlett Highway Department | Local & Grants | <u>Long Term</u> 4-5 Years (37-60 months) | <u>High Cost</u> \$10,000 or More | 19 |
| 3-2 | <p>Problem Statement: Although the Hart's Location and Bartlett Highway Departments do a good job cleaning and repairing drainage basins and culverts, a written maintenance plan should be developed to insure continuity of actions and efficient storm water management.</p> <p>Action Item #28: Continue maintenance of culverts and ditches in the Communities, and develop a written stormwater maintenance plan in order to insure more efficient storm water management; include the location (GPS if possible), type, size, age and expected replacement date of all culverts, catch basins and drainage ditches in the Communities. (F5) (Tables 6.1 & 7.1) (Bartlett & Hart's Location)</p> | Flooding | Bartlett Highway Department & Hart's Location Road Agent | Local | <u>Long Term</u> 4-5 Years (37-60 months) | <u>Medium Cost</u> \$1,000-\$10,000 (if outside contractors are used) | 18 |
| 3-3 | <p>Problem Statement: The Bartlett Master Plan (2016) will be in need of an update based on the recommended ten year guidelines in 2026; however it does not include a Natural Hazards section or mitigation action items from this Plan.</p> <p>Action Item #29: With the next review of the Bartlett Master Plan, consider the incorporation of a Natural Hazards section and mitigation action items from this Plan. (MU6) (Table 6.1) (Bartlett)</p> | All Hazards | Bartlett Planning Board | Local | <u>Medium Term</u> 2-3 Years (13-36 months) | <u>Low Cost</u> \$0-\$1,000 or Staff Time Only | 19 |

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Chapter 10: Adopting, Monitoring, Evaluating and Updating the Plan

A. Hazard Mitigation Plan Monitoring, Evaluation and Updates

A good mitigation plan must allow for updates where and when necessary, particularly since communities may suffer budget cuts or experience personnel turnover during both the planning and implementation stages. A good plan will incorporate periodic monitoring and evaluation mechanisms to allow for review of successes and failures or even just simple updates. The Emergency Management Directors of each community are responsible for initiating Plan reviews and will consult with members of the hazard mitigation planning team identified in this Plan.

The Bartlett & Hart's Location Hazard Mitigation Plan Update 2018 is considered a work in progress. There are three situations which will prompt revisiting this Plan:

- First, as a minimum, it will be reviewed annually or after any emergency event to assess whether the existing and suggested mitigation action items were successful. This review will focus on the assessment of the Plan's effectiveness, accuracy and completeness in monitoring of the implementation action items. The review will also address recommended improvements to the Plan as contained in the FEMA plan review checklist and address any weaknesses the Jurisdiction identified that the Plan did not adequately address.
- Second, the Plan will be thoroughly updated every five years.
- Third, if the Jurisdiction adopts any major modifications to its land use planning documents, the Jurisdiction will conduct a Plan review and make changes as applicable.

In keeping with the process of adopting this hazard mitigation plan, the public and stakeholders will have the opportunity for future involvement as they will be invited to participate in any and all future reviews or updates of this Plan. Public notice before any review or update will be given by such means as: press releases in local papers, posting meeting information on the Town website and at the Town Offices, sending letters to federal, state and local organizations impacted by the Plan and posting notices in public places in the Town. This will ensure that all comments and revisions from the public and stakeholders will be considered. The Emergency Management Directors of each community will ensure that these actions will be done.

Concurrence forms to be used for post-hazard or annual reviews are available in Chapter 11 of this Plan. Each Town is encouraged to use these forms to document any changes and accomplishments since the development of this Plan. Forms are available for years 1-4, with expectation that the five-year annual update will be in process during the fifth year.

B. Integration with Other Plans

This Plan will only enhance mitigation if balanced with all other town plans. Bartlett & Hart's Location completed its last hazard mitigation plan in 2012 and has completed many of projects from that Plan. Examples of these can be found in Table 7.1 and include items such as beginning the process to prepare an engineering assessment of the Saco River and its levee(s); continued tree maintenance, assessing culvert damage and replacement needs and providing training for first responders on NIMS/ICS, Mass Casualty, Terrorism and Pandemic/Epidemic. Each applicable Town was able to integrate these actions into other town activities, budgets, plans and mechanisms.

The Town will incorporate elements from this Plan into the following documents:

Bartlett & Hart's Location Master Plan:

Traditionally, Master Plans are updated every 5 to 10 years and detail the use of capital reserves funds and capital improvements within the Town. A complete update of the Bartlett & Hart's Location's Master Plans was completed in 2016 and is due for a recommended update in 2026. Hart's Location completed its last Master Plan in 2000 and is ready for a complete update. Future updates of both Master Plans will include a Natural Hazards section and will integrate concepts, ideas and action items from this Hazard Mitigation Plan. **(Action Items #25 & 29)**

Bartlett & Hart's Location Emergency Operations Plan (EOP):

The EOP is designed to allow the Town to respond more effectively to disasters as well as mitigate the risk to people and property; EOPs are generally reviewed after each hazardous event and updated on a five-year basis. The last Bartlett EOP was completed in 2007 and Hart's Location does not currently have an EOP. With the assistance of expected to develop a "Multi-Jurisdictional" EOP with completion expected in 2018. The new EOP will include elements from this hazard mitigation plan. **(Action Items #19)**

Town Budget, Capital Improvement Plan & Capital Reserve Funds:

The Towns of Bartlett & Hart's Location do not maintain Capital Improvement Plans and have no expectation of developing CIPs in the future. Both communities do maintain Capital Reserve Funds for major expenditures. Capital Reserve Funds are adjusted annually in coordination with the Boards of Selectmen and each Town's department heads at budget time. The budget is then voted on at the annual Town Meeting. During the annual budget planning process, specific mitigation actions identified in this Plan that require Town fiscal support will be reviewed for incorporation into the budget. **Action Item #16** also calls for the development of a Capital Reserve Account for emergency management. **Refer to those Action Items that require local money or match money (multiple Action Items).**

Bartlett & Hart's Location- New Regulations and/or Ordinances:

As time goes by and the needs of the Town change, each Town will review the planning mechanisms that are currently in place and update them according to current circumstances. In coordination with these actions, the Planning Boards will review this Plan and incorporate any changes that help mitigate the susceptibility of the Jurisdiction and its citizens to the dangers of natural or human-caused disasters. **Action Item #24** calls for a complete review of each Town's ordinance and regulations, with specific attention paid to water resources in new developments. **Action Item #26** calls for a review and development of new regulations that could help mitigate erosion and landslide.

The local governments will modify other plans and actions as necessary to incorporate hazard and/or wildfire issues; the Board of Selectmen for each town ensures this process will be followed in the future. In addition, the Town will review and make note of instances when this has been done and include it as part of their annual review of the Plan.

C. Plan Approval & Adoption

This Plan was completed in a series of open meetings beginning on October 24 2016. The Plan was presented to each Town for review, submitted to HSEM for Conditional Approval (*APA, Approved Pending Adoption*), formally adopted by the Boards of Selectmen and resubmitted to HSEM for Final Approval. Once Final Approval from HSEM was met, copies of the Plan were distributed to the Towns, HSEM, FEMA, DNCR and the USDA-FS; the Plan was then distributed as these entities saw fit. Copies of the Plan remain on file at Mapping and Planning Solutions in both digital and paper format.

Adoption by the local governing body demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in the Plan. Adoption legitimizes the Plan and authorizes responsible agencies to execute their responsibilities. The Plan shall include documentation of the resolution adopting the Plan as per requirement §201.6(c)(5).

(Note: for the purposes of clarity, the above paragraph was written in future tense, noting that these actions have not yet transpired – this box will be deleted when final hard copy is distributed)



River Street Bridge in Bartlett, October 2017

Photo Credit: Conway Daily Sun; Vicki Garland; https://www.conwaydailysun.com/news/local/after-the-deluge-valley-recovers-from-storm/article_92c2e592-bff2-11e7-94d6-2b2b63fea126.html

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Chapter 11: Signed Jurisdiction Documents and Approval Letters

A. Planning Scope of Work & Agreement



Proposal & Planning Scope of Work/Agreement Multi-Jurisdictional Hazard Mitigation Plan Update

PARTIES TO THE PROPOSAL/AGREEMENT

Mapping and Planning Solutions
Towns of Bartlett & Hart's Location, NH

Bartlett & Hart's Location Plan Expiration: April 30, 2017
PDM15 Grant Expiration: October 31, 2018

This Proposal/Agreement between the Towns of Bartlett & Hart's Location (the Town) or their official designees and Mapping and Planning Solutions (MAPS) outlines the Towns' desire to engage the services of MAPS to assist in planning and technical services in order to produce the 2017 Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update (the Plan).

PROPOSAL/AGREEMENT

This Proposal/Agreement outlines the responsibilities that will ensure that the Plan is developed in a manner that involves Town members and local, federal and state emergency responders and organizations. The Proposal/Agreement identifies the work to be done by detailing the specific tasks, schedules and finished products that are the result of the planning process.

The goal of this Proposal/Agreement is that the Plan and planning process be consistent with Town policies and that it accurately reflects the values and individuality of both Bartlett and Hart's Location. This is accomplished by forming a working relationship between the Towns' citizens, the Planning Team and MAPS.

The Plan created as a result of this Proposal/Agreement will be presented to the Towns for adoption once conditional approval is received from FEMA. When adopted, the Plan provides guidance to the Towns, commissions, and departments; adopted plans serve as a guide and do not include any financial commitments by the Towns. Additionally, all adopted plans should address mitigation strategies for reducing the risk of natural, human-caused, and wildfire disasters on life and property and written so that they may be integrated within other Town planning initiatives.

SCOPE OF WORK

MAPS - Responsibilities include, but are not limited to, the following:

- MAPS will collect data that is necessary to complete the Plan and meet the requirements of the FEMA Plan Review Tool by working with the Planning Team (the Team) and taking public input from community members.
- With the assistance of the Team, MAPS will coordinate and facilitate meetings and provide any materials, handouts and maps necessary to provide a full understanding of each step in the planning process.
- MAPS will assist the Team in the development of goals, objectives and implementation strategies and clearly define the processes needed for future plan monitoring, educating the public and integrating the Plan with other Town plans and activities.
- MAPS will coordinate and collaborate with other federal, state and local agencies throughout the process.

- MAPS will explain and delineate the Town's Wildland Urban Interface (WUI) and working with the Team, will establish a list of potential hazards and analyze the risk severity of each.
- MAPS will author, edit and prepare the Plan for review by the Team prior to submitting the Plan to FEMA for conditional approval. Upon conditional approval by FEMA, MAPS will assist the planning team as needed with presentation of the Plan to the Bartlett & Hart's Location Boards of Selectmen and/or Planning Boards and continue to work with the Town until final approval and distribution of the Plan is complete, unless extraordinary circumstances prevail.
- MAPS shall provide, at its office, all supplies and space necessary to complete the Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan.
- After final approval is received from FEMA, MAPS will provide each Town with a one copy of the Plan containing all signed documents, approvals and GIS maps along with CDs containing these same documents in digital form, for distribution by the Towns as it sees fit. Additional CDs may be requested at no additional cost; additional copies of the Plan will be priced according to number of pages. CD copies of the Plan will be distributed by MAPS to collaborating agencies including, but not limited to, NH Homeland Security (HSEM), NH Forests & Lands and FEMA.
- MAPS will provide Plan maintenance reminders and assistance on an annual basis leading up to the next five-year plan update at no cost to the Towns, if requested by the Towns.

The Towns - Responsibilities include but are not limited to the following:

- The Towns shall insure that the Planning Team includes members from both communities who are able to support the planning process by identifying available Town resources including people who will have access to and can provide pertinent data. The planning team should include, but not be limited to, such Town members as the local Emergency Management Director, the Fire, Ambulance and Police Chiefs, members of the Board of Selectmen and the Planning Board, the Public Works Director or Road Agent, representatives from relevant federal and state organizations, other local officials, property owners, and relevant businesses or organizations.
- The Towns shall determine a lead contact to work with MAPS. This contact shall assist with recruiting participants for planning meetings, including the development of mailing lists when and if necessary, distribution of flyers, and placement of meeting announcements. In addition, this contact shall assist MAPS with organizing public meetings to develop the Plan and offer assistance to MAPS in developing the work program which will produce the Plan.
- The Towns shall gain the support of stakeholders for the recommendations found within the Plan.
- The Towns shall provide public access for all meetings and provide public notice at the start of the planning process and at the time of adoption, as required by FEMA.
- The proposed Plan shall be submitted to the Boards of Selectmen and/or Planning Boards for consideration and adoption.
- After adoption and final approval from FEMA is received, the Towns will:
 - *Distribute copies of the Plan as it sees fit throughout the local community.*
 - *Develop a team to monitor and work toward plan implementation.*
 - *Publicize the Plan to the Community and insure citizen awareness.*
 - *Urge the Planning Board to incorporate priority projects into the Towns' Capital Improvement Plan (if available).*
 - *Integrate mitigation strategies and priorities from the Plan into other Town planning documents.*

TERMS

- **Fees & Payment Schedule:** As allowed by HSEM, the contract price is limited to \$6,000; an invoice will be sent to the Town for each payment as outlined below. The Town of Bartlett will be the fiscal agent for this Plan.

- 1. Initial payment upon signing of this contract and receipt of first invoice\$3,000
- 2. Second payment upon Plan submittal to FEMA for Conditional Approval.....\$2,800
- 3. Final payment upon project completion and receipt of final Plan copy\$200
- Total Fees\$6,000

- **Payment Procedures:** The payment procedure is as follows:

- MAPS will invoice the Town (Bartlett)
- The Town will pay MAPS
- The Town will forward the MAPS invoice along with an invoice from the Town on letterhead to HSEM
- HSEM will reimburse the Town for the monies paid to MAPS

All payments to MAPS are fully reimbursable to the Town by Homeland Security & Emergency Management.

- **Required Matching Funds:** The Towns of Bartlett & Hart's Location will be responsible to provide and document any and all resources to be used to meet the FEMA required matching funds in the amount of \$2,000. Matching funds are the responsibility of the Towns of Bartlett & Hart's Location, not MAPS. Mapping and Planning Solutions will however assist the Towns with attendance tracking by asking meeting attendees to "sign in" at all meetings and to "log" any time spent outside of the meetings working on this project. MAPS will provide the Towns with final attendance records in spreadsheet form at project's end for the Towns to use in its match fulfillment.
- **Project Period:** This project shall begin upon signing this Proposal/Agreement by both parties and continue through October 31, 2018 or whenever the planning process is complete. The project period may be extended by mutual written Proposal between the Towns, MAPS and Homeland Security if required. The actual project end date is dependent upon timely adoptions and approvals which may be outside of the control of MAPS and the Town. It is anticipated that five or six two-hour meetings will be required to gather the necessary information to create the updated the Plan.
- **Ownership of Material:** All maps, reports, documents and other materials produced during the project period shall be owned by the Towns; each party may keep file copies of any generated work. MAPS shall have the right to use work products collected during the planning process; however, MAPS shall not use any data in such a way as to reveal personal or public information about individuals or groups which could reasonably be considered confidential.
- **Termination:** This Proposal/Agreement may be terminated if both parties agree in writing. In the event of termination, MAPS shall forward all information prepared to date to the Towns. MAPS shall be entitled to recover its costs for any work that was completed.
- **Limit of Liability:** MAPS agrees to perform all work in a diligent and efficient manner according to the terms of this Proposal/Agreement. MAPS' responsibilities under this Proposal/Agreement depend upon the cooperation of the Towns of Bartlett & Hart's Location. MAPS and its employees, if any, shall not be liable for opinions rendered, advice, or errors resulting from the quality of data that is supplied. Adoption of the Plan by the Towns and final approval of the Plan by FEMA, relieve MAPS of content liability. Mapping and Planning Solutions carries annual general liability insurance.
- **Amendments:** Changes, alterations or additions to this Proposal/Agreement may be made if agreed to in writing between both the Towns of Bartlett & Hart's Location and Mapping and Planning Solutions.

- **About Mapping and Planning Solutions:** Mapping and Planning Solutions provides hazard mitigation and emergency operations planning throughout New Hampshire. Mapping and Planning Solutions has developed more than 50 Hazard Mitigation Plans, more than 35 Emergency Operations Plans and has completed the following FEMA courses in Emergency Planning and Operations:

- Introduction to Incident Command System, IS-100.a
- ICS Single Resources and Initial Action Incidents, IS-200.a
- National Incident Management System (NIMS) An Introduction, IS-700.a
- National Response Framework, An Introduction, IS 800.b
- Emergency Planning, IS-235
- Homeland Security Exercise & Evaluation Program (HSEEP)
- IS-547.a – Introduction to Continuity Operations
- IS-546.a – Continuity of Operations (COOP) Awareness Course
- G-318; Preparing & Review Hazard Mitigation Plans

➤ **Contacts:**

For Mapping & Planning Solutions

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For the Town of Bartlett

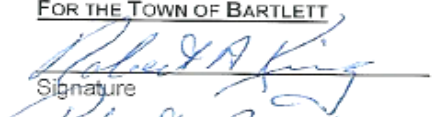
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Bartlett Town Hall
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(603) 383-8137
Bob181@roadrunner.com

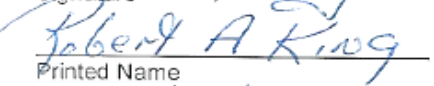
For the Town of Hart's Location

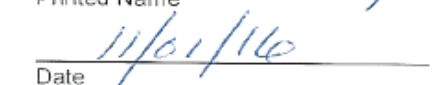
Mark Dindorf
Board of Selectmen
Hart's Location Town Hall
PO Box 540
Hart's Location, NH 03812
(603) 374-6644
smallesttown@gmail.com

SIGNATURE BELOW INDICATES ACCEPTANCE OF AND PROPOSAL/AGREEMENT TO DETAILS OUTLINED IN THIS PROPOSAL/AGREEMENT

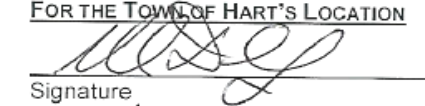
FOR THE TOWN OF BARTLETT

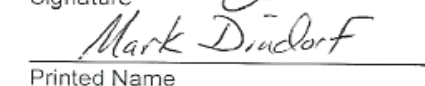

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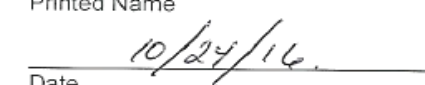

Printed Name


Date

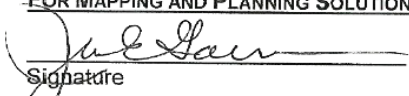
FOR THE TOWN OF HART'S LOCATION


Signature

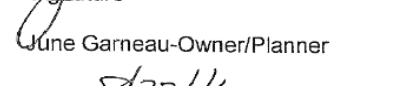

Printed Name


Date

FOR MAPPING AND PLANNING SOLUTIONS


Signature

June Garneau-Owner/Planner


Date

Signatures are scanned facsimiles; original signatures are on file.

B. Approved Pending Adoption (APA) Letter from HSEM**Bartlett and Hart's Location, NH - Approvable Pending Adoption**

Hazard Mitigation Planning <HazardMitigationPlanning@dos.nh.gov>

Sent: Fri 5/4/2018 2:38 PM

To: June Garneau

Cc: 'bob181@roadrunner.com'; 'smallesttown@gmail.com'; Lawton, Heidi

Good afternoon!

The Department of Safety, Division of Homeland Security & Emergency Management (HSEM) has completed its review of the Bartlett and Hart's Location, NH Multi-Jurisdictional Hazard Mitigation Plan and found it approvable pending adoption. Congratulations on a job well done!

With this approval, the jurisdiction meets the local mitigation planning requirements under 44 CFR 201 **pending HSEM's receipt of electronic copies of the adoption documentation and the final plan.**

Acceptable electronic formats include Word or PDF files and must be submitted to us via email at HazardMitigationPlanning@dos.nh.gov. Upon HSEM's receipt of these documents, notification of formal approval will be issued, along with the final Checklist and Assessment.

The approved plan will be submitted to FEMA on the same day the community receives the formal approval notification from HSEM. FEMA will then issue a Letter of Formal Approval to HSEM for dissemination that will confirm the jurisdiction's eligibility to apply for mitigation grants administered by FEMA and identify related issues affecting eligibility, if any. If the plan is not adopted within one calendar year of HSEM's Approval Pending Adoption, the jurisdiction must update the entire plan and resubmit it for HSEM review. If you have questions or wish to discuss this determination further, please contact me at Kayla.Henderson@dos.nh.gov or 603-223-3650.

Thank you for submitting the Bartlett and Hart's Location, NH Multi-Jurisdictional Hazard Mitigation Plan and again, congratulations on your successful community planning efforts.

Sincerely,

Kayla J. Henderson
Hazard Mitigation Planning
NH Homeland Security and Emergency Management
33 Hazen Drive
Concord, NH 03301
NEW: 603-223-3650
603-223-3609 (fax)



Signature is a scanned facsimile; original signatures are on file.

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C. Signed Certificate of Adoption – Bartlett, NH

CERTIFICATE OF ADOPTION

BARTLETT, NH

BOARD OF SELECTMEN

A RESOLUTION ADOPTING THE BARTLETT & HART'S LOCATION

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN 2018

FOR THE TOWN OF BARTLETT

WHEREAS, the Town of Bartlett has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of those natural hazards profiled in this Plan, resulting in loss of property and life, economic hardship and threats to public health and safety; and

WHEREAS, the Town of Bartlett has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for the Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan 2018 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held between October 24, 2016 and June 5, 2017 regarding the development and review of the Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan 2018 and

WHEREAS, the Plan specifically addresses hazard mitigation strategies and Plan maintenance procedure for the Town of Bartlett; and

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

RESOLVED by the Board of Selectmen:

1. The Plan is hereby adopted as an official plan of the Town of Bartlett;
2. The respective officials identified in the mitigation action items of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;

Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan, 2018

Certificate of Adoption, page two

For the Town of Bartlett

-
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 Emergency Management Director.

Adopted this day, the _____ of _____, 2018

Chairman of the Board of Selectmen

Signature

Print Name

Member of the Board of Selectmen

Signature

Print Name

Member of the Board of Selectmen

Signature

Print Name

Emergency Management Director

Signature

Print Name

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of Bartlett on this day, _____, 2018

Notary

Expiration

Date

Signatures are scanned facsimile; original signatures are on file.

D. Signed Certificate of Adoption – Hart's Location, NH

CERTIFICATE OF ADOPTION

HART'S LOCATION, NH

BOARD OF SELECTMEN

**A RESOLUTION ADOPTING THE BARTLETT & HART'S LOCATION MULTI-JURISDICTIONAL HAZARD MITIGATION
PLAN 2018**

FOR THE TOWN OF HART'S LOCATION

WHEREAS, the Town of Hart's Location has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of those natural hazards profiled in this Plan, resulting in loss of property and life, economic hardship and threats to public health and safety; and

WHEREAS, the Town of Hart's Location has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for the Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan 2018 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held between October 24, 2016 and June 5, 2017 regarding the development and review of the Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan 2018 and

WHEREAS, the Plan specifically addresses hazard mitigation strategies and Plan maintenance procedure for the Town of Hart's Location; and

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

RESOLVED by the Board of Selectmen:

1. The Plan is hereby adopted as an official plan of the Town of Hart's Location;
2. The respective officials identified in the mitigation action items of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;

Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan, 2018

Certificate of Adoption, page two

For the Town of Hart's Location

-
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 Emergency Management Director.

Adopted this day, the _____ of _____, 2018

Chairman of the Board of Selectmen

Signature

Print Name

Member of the Board of Selectmen

Signature

Print Name

Member of the Board of Selectmen

Signature

Print Name

Emergency Management Director

Signature

Print Name

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of Bartlett on this day, _____, 2018

Notary

Expiration

Date

Signatures are scanned facsimile; original signatures are on file.

E. Final Approval Letter from FEMA

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INSERTION OF FINAL APPROVAL LETTER FROM
FEMA WHEN RECEIVED.

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INSERTION OF FINAL APPROVAL LETTER
(PAGE 2) FROM FEMA WHEN RECEIVED.

Signatures are scanned facsimile; original signatures are on file.

F. CWPP Approval Letter from DNCR – Bartlett, NH

**Bartlett, NH
A Resolution Approving the
Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018
As a Community Wildfire Protection Plan**

Several public meetings and committee meetings were held between October 24, 2016 and June 5, 2017 regarding the development and review of the *Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018*. The *Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018* contains potential future projects to mitigate hazard and wildfire damage in the Town of Bartlett.

The Bartlett Fire Chief along with the Board of Selectmen and the Emergency Management Director desire that this Plan be accepted by the Department of Natural and Cultural Resources (DNCR) as a Community Wildfire Protection Plan, having adhered to the requirements of said Plan.

The Bartlett Board of Selectmen, the Emergency Management Director and the Bartlett Fire Chief approve the *Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018* and understand that with approval by DNCR, this Plan will also serve as a Community Wildfire Protection Plan.

For the Town of Bartlett

APPROVED and SIGNED this day, _____, 2018.

Chairman of the Board of Selectmen (Bartlett)

Printed Name

Fire Chief (Bartlett)

Printed Name

Emergency Management Director (Bartlett)

Printed Name

For the Department of Natural & Cultural Resources (DNCR)

APPROVED and SIGNED this day, _____, 2018.

Forest Ranger – NH Division of Forest and Lands, DNCR

APPROVED and SIGNED this day, _____, 2018.

Director – NH Division of Forest and Lands, DNCR

Signature is a scanned facsimile; original signatures are on file.

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G. CWPP Approval Letter from DNCR – Hart's Location, NH

**Hart's Location, NH
A Resolution Approving the
Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018
As a Community Wildfire Protection Plan**

Several public meetings and committee meetings were held between October 24, 2016 and June 5, 2017 regarding the development and review of the *Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018*. The *Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018* contains potential future projects to mitigate hazard and wildfire damage in the Town of Hart's Location.

The Bartlett Fire Chief along with the Board of Selectmen and the Emergency Management Director of Hart's Location desire that this Plan and be accepted by the Department of Natural and Cultural Resources (DNCR) as a Community Wildfire Protection Plan, having adhered to the requirements of said Plan.

The Hart's Location Board of Selectmen, the Emergency Management Director and the Bartlett Fire Chief approve the *Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update 2018* and understand that with approval by DNCR, this Plan will also serve as a Community Wildfire Protection Plan.

For the Town of Hart's Location

APPROVED and SIGNED this day, _____, 2018.

| | |
|---|-----------------------|
| _____ Chairman of the Board of Selectmen (Hart's Location) | _____ Printed Name |
| _____ Fire Chief (Bartlett) | _____ Printed Name |
| _____ Emergency Management Director (Hart's Location) | _____ Printed Name |

For the Department of Natural & Cultural Resources (DNCR)

APPROVED and SIGNED this day, _____, 2018.

Forest Ranger – NH Division of Forest and Lands, DNCR

APPROVED and SIGNED this day, _____, 2018.

Director – NH Division of Forest and Lands, DNCR

Signature is a scanned facsimile; original signatures are on file.

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H. Annual or Post-Hazard Review Forms

YEAR ONE

BARTLETT & HART'S LOCATION MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

Check all that apply

- ☐ Annual Review & Concurrence - **Year One:** _____ (Date)
- ☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)
- ☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

The Jurisdiction (the towns of Bartlett & Hart's Location, NH) shall execute this page annually by the members of each Towns' governing body and the Towns' designated Emergency Management Director after inviting the public to attend any and all hearings that pertain to this annual and/or post hazard review and/or update by means such as press releases in local papers, posting meeting information on Town websites and at the Town Office(s), sending letters to federal, state local organizations impacted by the Plan posting notices in public places in the Towns.

FOR THE TOWN OF: _____

REVIEWED AND APPROVED

DATE: _____

SIGNATURE: _____

PRINTED NAME: _____

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: _____

PRINTED NAME: _____

Chairman of the Selectboard

Changes and notes regarding the Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update

Please use reverse side for additional notes 

Additional Notes – Year One:

[illegible]

YEAR TWO

BARTLETT & HART'S LOCATION MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

Check all that apply

- ☐ Annual Review & Concurrence - **Year Two:** _____ (Date)
- ☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)
- ☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

The Jurisdiction (the towns of Bartlett & Hart's Location, NH) shall execute this page annually by the members of each Towns' governing body and the Towns' designated Emergency Management Director after inviting the public to attend any and all hearings that pertain to this annual and/or post hazard review and/or update by means such as press releases in local papers, posting meeting information on Town websites and at the Town Office(s), sending letters to federal, state local organizations impacted by the Plan posting notices in public places in the Towns.

FOR THE TOWN OF: _____

REVIEWED AND APPROVED

DATE: _____

SIGNATURE: _____

PRINTED NAME: _____

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: _____

PRINTED NAME: _____

Chairman of the Selectboard

Changes and notes regarding the Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update

Please use reverse side for additional notes 

[illegible]

YEAR THREE

BARTLETT & HART'S LOCATION MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

Check all that apply

- ☐ Annual Review & Concurrence - **Year Three:** _____ (Date)
- ☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)
- ☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

The Jurisdiction (the towns of Bartlett & Hart's Location, NH) shall execute this page annually by the members of each Towns' governing body and the Towns' designated Emergency Management Director after inviting the public to attend any and all hearings that pertain to this annual and/or post hazard review and/or update by means such as press releases in local papers, posting meeting information on Town websites and at the Town Office(s), sending letters to federal, state local organizations impacted by the Plan posting notices in public places in the Towns.

FOR THE TOWN OF: _____

REVIEWED AND APPROVED

DATE: _____

SIGNATURE: _____

PRINTED NAME: _____

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: _____

PRINTED NAME: _____

Chairman of the Selectboard

Changes and notes regarding the Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update

Please use reverse side for additional notes 

Additional Notes – Year Three:

[illegible]

YEAR FOUR

BARTLETT & HART'S LOCATION MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

Check all that apply

- ☐ Annual Review & Concurrence - **Year Four:** _____ (Date)
- ☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)
- ☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

The Jurisdiction (the towns of Bartlett & Hart's Location, NH) shall execute this page annually by the members of each Towns' governing body and the Towns' designated Emergency Management Director after inviting the public to attend any and all hearings that pertain to this annual and/or post hazard review and/or update by means such as press releases in local papers, posting meeting information on Town websites and at the Town Office(s), sending letters to federal, state local organizations impacted by the Plan posting notices in public places in the Towns.

FOR THE TOWN OF: _____

REVIEWED AND APPROVED

DATE: _____

SIGNATURE: _____

PRINTED NAME: _____

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: _____

PRINTED NAME: _____

Chairman of the Selectboard

Changes and notes regarding the Bartlett & Hart's Location Multi-Jurisdictional Hazard Mitigation Plan Update

Please use reverse side for additional notes 

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Chapter 12: Appendices

- APPENDIX A: BIBLIOGRAPHY
- APPENDIX B: TECHNICAL AND FINANCIAL ASSISTANCE FOR HAZARD MITIGATION
 - *Hazard Mitigation Grant Program (HMGP)*
 - *Pre-Disaster Mitigation (PDM)*
 - *Flood Mitigation Assistance (FMA)*
 - *Repetitive Flood Claims (RFC)*
 - *Severe Repetitive Loss (SRL)*
- APPENDIX C: THE EXTENT OF HAZARDS
- APPENDIX D: PRESIDENTIAL DISASTER & EMERGENCY DECLARATIONS
- APPENDIX E: POTENTIAL MITIGATION IDEAS
- APPENDIX F: ACRONYMS
- APPENDIX G: MAP DOCUMENTS
 - *Map 1 – Base Risk Analysis*
 - *Map 2 – Historic Fires & the Wildland Urban Interface (WUI)*
 - *Map 3 – Past & Potential Areas of Concern*
 - *Map 4 – Critical Infrastructure & Key Resources*
 - *Map 5 – Evacuation Routes, Bridges & Helicopter Landing Zones*

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Appendix A: Bibliography

Documents

- **Local Hazard Mitigation Planning Review Guide**, FEMA, October 2011
- **Local Hazard Mitigation Planning Handbook**, FEMA, March 2013
- **Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards**, FEMA, January 2013
- **Hazard Mitigation Unified Guidance**, FEMA, July 12, 2013
- **Hazard Mitigation Assistance Guidance**, FEMA, February 27, 2015
- **Hazards Mitigation Plans**
 - Bartlett & Hart's Location Hazard Mitigation Plan, 2012
 - Conway Hazard Mitigation Plan, 2014
 - Jackson Hazard Mitigation Plan, 2014
 - Carroll Hazard Mitigation Plan, 2015
- **NH State Multi-Hazard Mitigation Plan**, 2013
 - <http://www.nh.gov/safety/divisions/hsem/HazardMitigation/documents/hazard-mitigation-plan.pdf>
- **NH Division of Forests and Lands Quarterly Update**
 - <http://www.nhdfi.org/fire-control-and-law-enforcement/fire-statistics.aspx>
- **Disaster Mitigation Act (DMA) of 2000**, Section 101, b1 & b2 and Section 322a
 - <http://www.fema.gov/library/viewRecord.do?id=1935>
- **Economic & Labor Market Information Bureau**, NH Employment Security, October 2017;Community Response for Bartlett, Received, 6/2/17, Census 2000 and Revenue Information derived from this site;
<https://www.nhes.nh.gov/elmi/products/cp/profiles-pdf/bartlett.pdf>
- **Economic & Labor Market Information Bureau**, NH Employment Security, October 2017;Community Response for Hart's Location, Received, 6/16/17, Census 2000 and Revenue Information derived from this site;
<https://www.nhes.nh.gov/elmi/products/cp/profiles-pdf/hartslocation.pdf>

Photos: Photos taken by MAPS unless otherwise noted.

Additional Websites

- **Wildfire Links**
 - US Forest Service; <http://www.fs.fed.us>
 - US Fire Administration; <http://www.usfa.dhs.gov/>
 - US Department of Agriculture Wildfire Programs: <http://www.wildfireprograms.usda.gov/>
 - Firewise; <http://www.firewise.org/>
 - Fire Adapted Communities; www.fireadapted.org
 - Wildfire Preparedness Guide to Forest Wardens; www.quickseries.com
 - Ready Set Go; www.wildlandfires.org
 - Fire education for children; www.smokeybear.com

- NH Homeland Security & Emergency Management; <http://www.nh.gov/safety/divisions/hsem/>
- US Geological Society; <http://water.usgs.gov/ogw/subsidence.html>
- Department Environmental Services;
<http://des.nh.gov/organization/divisions/water/dam/drought/documents/historical.pdf>
- The Disaster Center (NH); <http://www.disastercenter.com/newhamp/tornado.html>
- Floodsmart, about the NFIP; http://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp
- NOAA, National Weather Service; <http://www.nws.noaa.gov/glossary/index.php?letter=w>
- NOAA, Storm Prediction Center; <http://www.spc.noaa.gov/faq/tornado/beaufort.html>
- National Weather Service; http://www.nws.noaa.gov/om/cold/wind_chill.shtml
- Center for Disease Control; <https://www.cdc.gov/disasters/winter/index.html>
- Slate; <http://www.slate.com/id/2092969/>
- NH Office Strategic Initiatives; <http://www.nh.gov/oep/planning/programs/fmp/join-nfip.htm>
- Code of Federal Regulations; Title 14, Aeronautics and Space; Part 1, Definitions and Abbreviations;
https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title14/14tab_02.tpl
- Federal Aviation Administration; <http://faa.custhelp.com>
- US Legal, Inc.; <http://definitions.uslegal.com/v/violent-crimes/>

Appendix B: Technical & Financial Assistance for Hazard Mitigation

FEMA's Hazard Mitigation Assistance (HMA) grant programs provide funding FEMA's Hazard Mitigation Assistance (HMA) grant programs provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages. Currently, FEMA administers the following HMA grant programs²⁷:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Repetitive Flood Claims (RFC)
- Severe Repetitive Loss (SRL)

Did You Know?



Money spent on reducing the risk of natural hazards is a wise investment. FEMA administers three grant programs that provide funding for eligible mitigation planning and projects: the Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance (FMA) Program, and the Pre-Disaster Mitigation (PDM) Program.

FEMA's HMA grants are provided to eligible Applicants (States/Tribes/Territories) that, in turn, provide sub-grants to local governments and communities. The Applicant selects and prioritizes subapplications developed and submitted to them by subapplicants. These subapplications are submitted to FEMA for consideration of funding.

Prospective subapplicants should consult the office designated as their Applicant for further information regarding specific program and application requirements. Contact information for the FEMA Regional Offices and State Hazard Mitigation Officers is available on the FEMA website, www.fema.gov.

HMA Grant Programs

The HMA grant programs provide funding opportunities for pre- and post-disaster mitigation. While the statutory origins of the programs differ, all share the common goal of reducing the risk of loss of life and property due to Natural Hazards. Brief descriptions of the HMA grant programs can be found below.

A. Hazard Mitigation Grant Program (HMGP)

HMGP assists in implementing long-term hazard mitigation measures following Presidential disaster declarations. Funding is available to implement projects in accordance with State, Tribal and local priorities.

Table 3: Eligible Activities by Program

| Eligible Activities | HMGP | PDM | FMA |
|--|------|-----|-----|
| 1. Mitigation Projects | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Demolition | ✓ | ✓ | ✓ |
| Property Acquisition and Structure Relocation | ✓ | ✓ | ✓ |
| Structure Elevation | ✓ | ✓ | ✓ |
| Mitigation Reconstruction | ✓ | ✓ | ✓ |
| Dry Floodproofing of Historic Residential Structures | ✓ | ✓ | ✓ |
| Dry Floodproofing of Non-residential Structures | ✓ | ✓ | ✓ |
| Generators | ✓ | ✓ | |
| Localized Flood Risk Reduction Projects | ✓ | ✓ | ✓ |
| Non-localized Flood Risk Reduction Projects | ✓ | ✓ | |
| Structural Retrofitting of Existing Buildings | ✓ | ✓ | ✓ |
| Non-structural Retrofitting of Existing Buildings and Facilities | ✓ | ✓ | ✓ |
| Safe Room Construction | ✓ | ✓ | |
| Wind Retrofit for One- and Two-Family Residences | ✓ | ✓ | |
| Infrastructure Retrofit | ✓ | ✓ | ✓ |
| Soil Stabilization | ✓ | ✓ | ✓ |
| Wildfire Mitigation | ✓ | ✓ | |
| Post-Disaster Code Enforcement | ✓ | | |
| Advance Assistance | ✓ | | |
| 5 Percent Initiative Projects | ✓ | | |
| Miscellaneous/Other ⁽¹⁾ | ✓ | ✓ | ✓ |
| 2. Hazard Mitigation Planning | ✓ | ✓ | ✓ |
| Planning Related Activities | ✓ | | |
| 3. Technical Assistance | | | ✓ |
| 4. Management Cost | ✓ | ✓ | ✓ |

⁽¹⁾ Miscellaneous/Other indicates that any proposed action will be evaluated on its own merit against program requirements. Eligible projects will be approved provided funding is available.

Eligibility Chart taken from Hazard Mitigation Assistance Guidance, February 27, 2015

²⁷ Information in Appendix B is taken from the following website and links to specific programs unless otherwise noted http://www.fema.gov/media-library-data/1424983165449-38f5dfc69c0bd4ea8a161e8bb7b79553/HMA_Guidance_022715_508.pdf

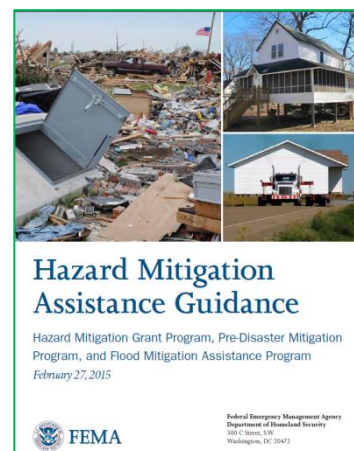
What is the Hazard Mitigation Grant Program?

The Hazard Mitigation Grant Program (HMGP) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Authorized under Section 404 of the Stafford Act and administered by FEMA, HMGP was created to reduce the loss of life and property due to natural disasters. The program enables mitigation measures to be implemented during the immediate recovery from a disaster.

Who is eligible to apply?

Hazard Mitigation Grant Program funding is only available to applicants that reside within a presidentially declared disaster area. Eligible applicants are

- State and local governments
- Indian tribes or other tribal organizations
- Certain non-profit organizations



Individual homeowners and businesses may not apply directly to the program; however a community may apply on their behalf.

How are potential projects selected and identified?

The State's administrative plan governs how projects are selected for funding. However, proposed projects must meet certain minimum criteria. These criteria are designed to ensure that the most cost-effective and appropriate projects are selected for funding. Both the law and the regulations require that the projects are part of an overall mitigation strategy for the disaster area.

The State prioritizes and selects project applications developed and submitted by local jurisdictions. The State forwards applications consistent with State mitigation planning objectives to FEMA for eligibility review. Funding for this grant program is limited and States and local communities must make difficult decisions as to the most effective use of grant funds.

B. Pre-Disaster Mitigation (PDM)

PDM provides funds on an annual basis for hazard mitigation planning and the implementation of mitigation projects prior to a disaster. The goal of the PDM program is to reduce overall risk to the population and structures, while at the same time, also reducing reliance on Federal funding from actual disaster declarations.

Program Overview

The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event.

Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds.

C. Flood Mitigation Assistance (FMA)

FMA provides funds on an annual basis so that measures can be taken to reduce or eliminate risk of flood damage to buildings insured under the National Flood Insurance Program.

Program Overview

The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP).

FEMA provides FMA funds to assist States and communities implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other structures insurable under the National Flood Insurance Program.

Types of FMA Grants

Three types of FMA grants are available to States and communities:

Planning Grants to prepare Flood Mitigation Plans. Only NFIP-participating communities with approved Flood Mitigation Plans can apply for FMA Project grants.

Project Grants to implement measures to reduce flood losses, such as elevation, acquisition, or relocation of NFIP-insured structures. States are encouraged to prioritize FMA funds for applications that include repetitive loss properties; these include structures with 2 or more losses each with a claim of at least \$1,000 within any ten-year period since 1978.

Technical Assistance Grants for the State to help administer the FMA program and activities. Up to ten percent (10%) of Project grants may be awarded to States for Technical Assistance Grants

D. Repetitive Flood Claims (RFC)

RFC provides funds on an annual basis to reduce the risk of flood damage to individual properties insured under the NFIP that have had one or more claim payments for flood damages. RFC provides up to 100% federal funding for projects in communities that meet the reduced capacity requirements.

Program Overview

The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al).

Up to \$10 million is available annually for FEMA to provide RFC funds to assist States and communities reduce flood damages to insured properties that have had one or more claims to the National Flood Insurance Program (NFIP).

Federal / Non-Federal Cost Share

FEMA may contribute up to 100 percent of the total amount approved under the RFC grant award to implement approved activities, if the Applicant has demonstrated that the proposed activities cannot be funded under the Flood Mitigation Assistance (FMA) program.

E. Severe Repetitive Loss (SRL)

SRL provides funds on an annual basis to reduce the risk of flood damage to residential structures insured under the NFIP that are qualified as severe repetitive loss structures. SRL provides up to 90% federal funding for eligible projects.

Program Overview

The Severe Repetitive Loss (SRL) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) structures insured under the National Flood Insurance Program (NFIP).

Definition

The definition of severe repetitive loss as applied to this program was established in section 1361A of the National Flood Insurance Act, as amended (NFIA), 42 U.S.C. 4102a. An SRL property is defined as a **residential property** that is covered under an NFIP flood insurance policy and:

- (a) That has at least four NFIP claim payments (including building and contents) over \$5,000 each and the cumulative amount of such claims payments exceeds \$20,000; or
- (b) For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

For both (a) and (b) above, at least two of the referenced claims must have occurred within any ten-year period and must be greater than 10 days apart.

Purpose

To reduce or eliminate claims under the NFIP through project activities that will result in the greatest savings to the National Flood Insurance Fund (NFIF).

Federal / Non-Federal cost share

75/25%; up to 90% Federal cost-share funding for projects approved in States, Territories and Federally-recognized Indian tribes with FEMA-approved Standard or Enhanced Mitigation Plans or Indian tribal plans that include a strategy for mitigating existing and future SRL properties.

**For further information all of these programs, please refer to
the new FEMA Hazard Mitigation Assistance Guidance:**

http://www.fema.gov/media-library-data/1424983165449-38f5dfc69c0bd4ea8a161e8bb7b79553/HMA_Guidance_022715_508.pdf

Appendix C: The Extent of Hazards

Hazards indicated with an asterisk * are included in this Plan.

*DAM FAILURE

A "Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water, and which has a height of 4 feet or more, or a storage capacity of 2 acre-feet or more, or is located at the outlet of a great pond^[1]. A dam failure occurs when water overtops the dam, or there is structural failure of the dam which causes there to be a breach and an unintentional release of water. Dams are classified in the following manner²⁸:

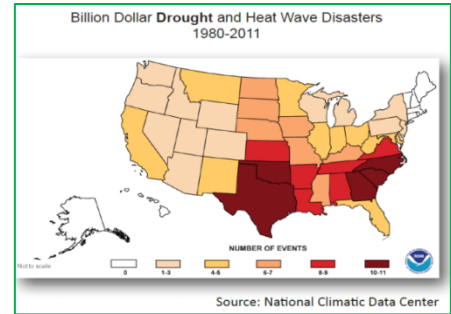
| Classification | Description | Inspection Intervals |
|---------------------------|--|----------------------|
| Non-Menace | A dam that is not a menace because it is in a location and of a size that failure or misoperation of the dam would not result in probable loss of life or loss to property. The dam must be less than six feet in height if the storage capacity is greater than 50 acre-feet or less than 25 feet in height if it has a storage capacity of 15-50 acre-feet. | Every 6 years |
| Low Hazard | A dam that has a low hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in no possible loss of life, low economic loss to structures or property, structural damage to a town or city road or private road accessing property other than the dam owner's that could render the road impassable or otherwise interrupt public safety services, the release of liquid industrial, agricultural, or commercial wastes, septage, or contained sediment if the storage capacity is less two-acre-feet and is located more than 250 feet from a water body or water course, and/or reversible environmental losses to environmentally-sensitive sites. | Every 6 years |
| Significant Hazard | A dam that has a significant hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in no probable loss of lives; however, there would be major economic loss to structures or property, Structural damage to a Class I or Class II road that could render the road impassable or otherwise interrupt public safety services, major environmental or public health losses including one or more of the following: Damages to a public water system (RSA 485:1-a, XV) which will take longer than 48 hours to repair, the release of liquid industrial, agricultural, or commercial wastes, septage, sewage, or contaminated sediments if the storage capacity is 2 acre-feet or more; or damage to an environmentally-sensitive site that does not meet the definition of reversible environmental losses. | Every 4 years |
| High Hazard | A dam that has a high hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in probable loss of human life as well 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 which is occupied under normal conditions; water levels rising above the first floor elevation of a habitable residential structure or a commercial or industrial structure, which is occupied under normal conditions when the rise due to a dam failure is greater than one foot; structural damage to an interstate highway, which could render the roadway impassable or otherwise interrupt public safety services; the release of a quantity and concentration of material, which qualify as "hazardous waste" as defined by RSA 147-A:2 VII; or any other circumstance that would more likely than not cause one or more deaths. | Every 2 years |

^[1] NH DES http://des.nh.gov/organization/divisions/water/dwgb/wrpp/documents/primer_chapter11.pdf

²⁸ <http://des.nh.gov/organization/commissioner/pip/factsheets/db/documents/db-15.pdf>

*DROUGHT

A drought is defined as a long period of abnormally low precipitation, especially one that adversely affects the growing season or living conditions of plants and animals. Droughts are rare in New Hampshire. They generally are not as damaging and disruptive as floods and are more difficult to define. The effect of drought is indicated through measurements of soil moisture, groundwater levels and stream flow.



However, not all of these indicators will be minimal during a drought. For example, frequent minor rainstorms can replenish the soil moisture without raising groundwater levels or increasing stream flow. Low stream flow also correlates with low groundwater levels because groundwater discharge to streams and rivers maintains stream flow during extended dry periods. Low stream flow and low groundwater levels commonly cause diminished water supply.

NEW HAMPSHIRE DROUGHT HISTORY

| Dates | Area Affected | Recurrence Interval Yrs | Remarks |
|-----------|---------------|-------------------------|--|
| 1929-1936 | Statewide | 10 to > 25 | Regional |
| 1939-1944 | Statewide | 10 to > 25 | Severe in southeast and moderate elsewhere |
| 1947-1950 | Statewide | 10 to 25 | Moderate |
| 1960-1969 | Statewide | > 25 | Regional longest recorded continuous spell of less than normal precipitation |
| 2001-2002 | Statewide | Not yet determined | Third worst drought on record, exceeded only by the drought of 1956-1966 and 1941-1942 |

NH DES; <http://des.nh.gov/organization/divisions/water/dam/drought/documents/historical.pdf>

*EARTHQUAKE

An earthquake is a rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric and phone lines and often cause landslides, flash floods, fires and avalanches. Larger earthquakes usually begin with slight tremors but rapidly take the form of one or more violent shocks and end in vibrations of gradually diminishing force called aftershocks. The underground point of origin of an earthquake is called its focus; the point on the surface directly above the focus is the epicenter. The magnitude and intensity of an earthquake is widely determined by the use of two scales, the more commonly used Richter scale (measures strength or magnitude) and the Mercalli Scale (measures intensity or severity). The chart to the right shows the two scales relative to one another. The Richter Scale measures earthquakes starting at 1 as the lowest with each successive unit being about 10 times stronger and more severe than the previous one.²⁹

Four earthquakes occurred in New Hampshire between 1924-1989 having a magnitude of 4.2 or more. Two of these occurred in Ossipee, one west of Laconia and one near the Quebec border. It is well documented that there are fault lines running throughout New Hampshire, but high magnitude earthquakes have not been frequent in New Hampshire history.

| Modified Mercalli Scale | | Richter Magnitude Scale |
|-------------------------|--|-------------------------|
| I | Detected only by sensitive instruments | 1.5 |
| II | Felt by few persons at rest, especially on upper floors; delicately suspended objects may swing | 2 |
| III | Felt noticeably indoors, but not always recognized as earthquake; standing autos rock slightly, vibration like passing truck | 2.5 |
| IV | Felt indoors by many, outdoors by few, at night some may awaken; dishes, windows, doors disturbed; autos rock noticeably | 3 |
| V | Felt by most people; some breakage of dishes, windows, and plaster; disturbance of tall objects | 3.5 |
| VI | Felt by all, many frightened and run outdoors; falling plaster and chimneys, damage small | 4 |
| VII | Everybody runs outdoors; damage to buildings varies depending on quality of construction; noticed by drivers of autos | 4.5 |
| VIII | Panel walls thrown out of frames; fall of walls, monuments, chimneys; sand and mud ejected; drivers of autos disturbed | 5 |
| IX | Buildings shifted off foundations, cracked, thrown out of plumb; ground cracked; underground pipes broken | 5.5 |
| X | Most masonry and frame structures destroyed; ground cracked, rails bent, landslides | 6 |
| XI | Few structures remain standing; bridges destroyed, fissures in ground, pipes broken, landslides, rails bent | 6.5 |
| XII | Damage total; waves seen on ground surface, lines of sight and level distorted, objects thrown up in air | 7 |

²⁹ Modified Mercalli Scale/Richter Scale Chart; MO DNR, http://www.dnr.mo.gov/geology/geosrv/geores/richt_mercalli_relation.htm

*EROSION, MUDSLIDE & LANDSLIDE

EROSION

Erosion is the wearing away of land, such as loss of riverbank, beach, shoreline or dune material. It is measured as the rate of change in the position or displacement of a riverbank or shoreline over a period of time. Short-term erosion typically results from periodic natural events, such as flooding, hurricanes, storm surge and windstorms but may be intensified by human activities. Long-term erosion is a result of multi-year impacts such as repetitive flooding, wave action, sea level rise, sediment loss, subsidence and climate change. Death and injury are not typically associated with erosion; however, it can destroy buildings and infrastructure.³⁰

LANDSLIDE & MUDSLIDE

A landslide is the movement down a slope of "masses or rock, earth or debris (rubble or trash)". "Debris and mud flows are rivers of rocks, earth, and other debris soaked with water. They develop when water builds up quickly in the ground, during heavy rainfall or rapid snowmelt and changes the earth into a flowing river of mud or "slurry". They can occur quickly, striking fast with little or no warning. They also can travel several miles from their source, growing in size as they pick up trees, boulders, cars, and other materials." Landslides..."can be caused by a variety of things including earthquakes, storms, volcanic eruptions, fire and even construction. They are more common in mountain, canyon and coastal regions".³¹ A mudslide or mudflow is a "river of liquid and flowing mud on surfaces of normally dry land areas, as when earth is carried by a current of water."³²

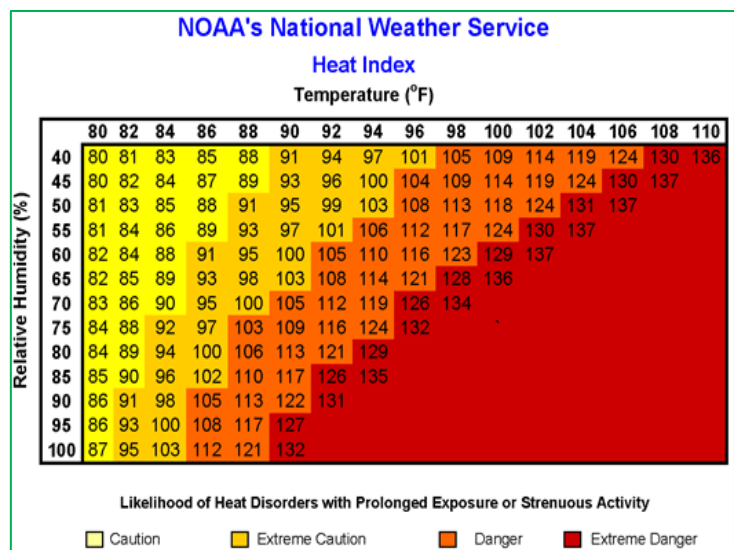
*EXTREME TEMPERATURES

EXTREME HEAT

A Heat Wave is a "Prolonged period of excessive heat, often combined with excessive humidity." Heat kills by pushing the human body beyond its limits. In extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature.

Most heat disorders occur because the victim has been overexposed to heat or has over-exercised for his or her age and physical condition. Older adults, young children and those who are sick or overweight are more likely to succumb to extreme heat.

Conditions that can induce heat-related illnesses include stagnant atmospheric conditions and poor air quality. Consequently, people living in urban areas may be at greater risk from the effects of a prolonged heat wave than those living in rural areas. Also, asphalt and concrete store heat longer and gradually release heat at night, which can produce higher nighttime temperatures known



³⁰ Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013

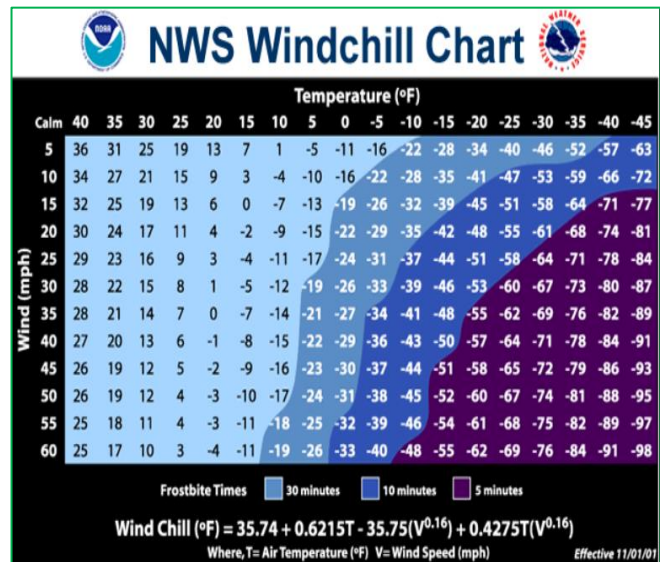
³¹ https://www.fema.gov/media-library-data/fa6b5d7e2ba787033672ad1afeb04bbb/FEMA_FS_landslides_508.pdf

³² <https://www.fema.gov/national-flood-insurance-program/definitions>

as the "urban heat island effect."³³ The chart above explains the likelihood of heat disorders that may result from high heat.³⁴

EXTREME COLD

What constitutes extreme cold and its effects can vary across different areas of the country. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered "extreme cold." Whenever temperatures drop decidedly below normal and as wind speed increases, heat can leave your body more rapidly; these weather related conditions may lead to serious health problems. Extreme cold is a dangerous situation that can bring on health emergencies in susceptible people without shelter or who are stranded, or who live in a home that is poorly insulated or without heat.³⁵ The National Weather Service Chart (see right) shows windchill as a result of wind and temperature.³⁶

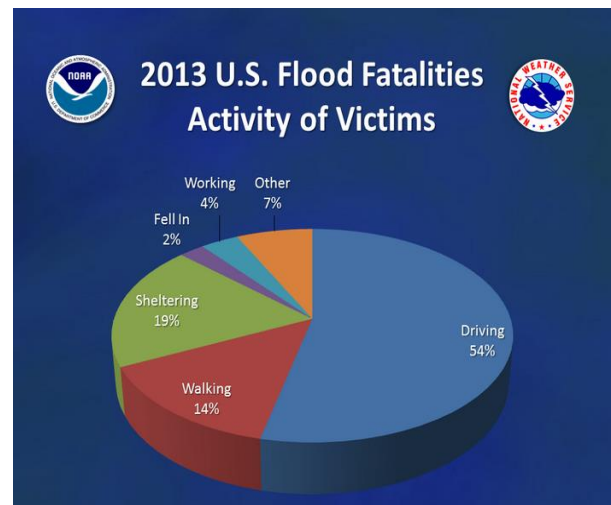


*FLOODING

GENERAL FLOODING CONDITIONS

Floods are defined as a temporary overflow of water onto lands that are not normally covered by water. Flooding results from the overflow of major rivers and tributaries, storm surges and/or inadequate local drainage. Floods can cause loss of life, property damage, crop/livestock damage and water supply contamination. Floods can also disrupt travel routes on roads and bridges.

Inland floods are most likely to occur in the spring due to the increase in rainfall and melting of snow; however, floods can occur at any time of the year. A sudden thaw in the winter or a major downpour in the summer can cause flooding because there is suddenly a lot of water in one place with nowhere to go; warm temperatures and heavy rains cause rapid snowmelt producing prime conditions for flooding. In addition, rising waters in early spring often breaks ice into chunks that float downstream and pile up, causing flooding behind them. Small rivers and streams pose special flooding risks because they are easily blocked by jams. Ice in riverbeds and against structures presents a significant flooding threat to bridges, roads and the surrounding lands.



³³ NOAA, Index/Heat Disorders; <http://www.srh.noaa.gov/ssd/html/heatwv.htm>

³⁴ NOAA; <http://www.nws.noaa.gov/os/heat/index.shtml>

³⁵ CDC; <http://www.bt.cdc.gov/disasters/winter/guide.asp>

³⁶ National Weather Service; <http://www.nws.noaa.gov/om/windchill/>

FLOODING (LOCAL, ROAD EROSION)

Heavy rain, rapid snowmelt and stream flooding often cause culverts to be overwhelmed and roads to wash out. Today, with changes in land use, aging roads, designs that are no longer effective and undersized culverts, the risk of flooding is a serious concern. Inadequate and aging stormwater drainage systems create local flooding on both asphalt and gravel roads.

FLOODING (RIVERINE)

Floodplains are usually located in lowlands near rivers and flood on a regular basis. The term 100-year flood does not mean that flood will occur once every 100 years. It is a statement of probability that scientists and engineers use to describe how one flood compares to others that are likely to occur. It is more accurate to use the phrase "1% annual chance flood". What this means is that there is a 1% chance of a flood of that size happening in any year. Flooding is often associated with hurricanes, heavy rains, ice jams and rapid snowmelt in the spring.

FLOODING (DAM FAILURE)

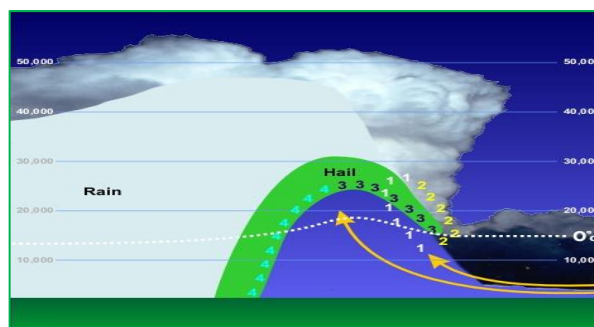
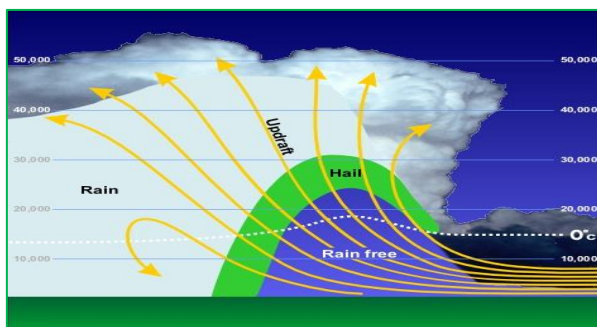
Flooding as a result of dam failure can be small enough to only affect the immediate area of the dam, or large enough to cause catastrophic results to cities, towns and human life that is below the dam. The extent of flooding depends largely on the size of the dam, the amount of water that is being held by the dam, the size of the breach, the amount of water flow from the dam and the amount of human habitation that is downstream.

HAILSTORM

Hailstones are balls of ice that grow as they're held up by winds, known as updrafts that blow upwards in thunderstorms. The updrafts carry droplets of supercooled water, water at a below-freezing temperature that is not yet ice. The supercooled water droplets freeze into balls of ice and grow to become hailstones. The faster the updraft, the bigger the stones can grow. Most hailstones are smaller in diameter than a dime, but stones weighing more than a pound have been recorded. "The largest hailstone recovered in the US fell in Vivian, SD on June 23, 2010 with a diameter of 8 inches and a circumference of 18.62 inches. It weighed 1 lb. 15 oz."³⁷

| | | |
|-------------|------|--|
| Dime/Penny | 0.75 |  |
| Nickel | 0.88 | |
| Quarter | 1.00 | |
| Half Dollar | 1.25 | |
| Ping Pong | 1.50 | |
| Golf Ball | 1.75 | |
| Hen Egg | 2.00 | |
| Tennis Ball | 2.50 | |
| Baseball | 2.75 | |
| Tea Cup | 3.00 | |
| Grapefruit | 4.00 | |
| Softball | 4.50 | |

Details of how hailstones grow are complicated, but the results are irregular balls of ice that can be as large as baseballs. The chart above shows the relative size differences and a common way to "measure" the size of hail based on diameter.³⁸ The charts below show how hail is formed.³⁹



³⁷ NOAA National Severe Storms Laboratory; <https://www.nssl.noaa.gov/education/svrwx101/hail/>

³⁸ <http://www.pinterest.com/pin/126171227030590678/>

³⁹ <http://oceanservice.noaa.gov/education/yos/resource/JetStream/tstorms/hail.htm#hail>

*HIGH WIND (WINDSTORM)

As stated by NOAA (National Oceanic & Atmospheric Administration), wind is defined as “The horizontal motion of the air past a given point. Winds begin with differences in air pressures. Those pressures which are higher at one place than another place set up a force pushing from the high pressure toward the low pressure; the greater the difference in pressures, the stronger the force. The distance between the area of high pressure and the area of low pressure also determines how fast the moving air is accelerated. Meteorologists refer to the force that starts the wind flowing as the "pressure gradient force." High and low pressures are relative. There's no set number that divides high and low pressure. Wind is used to describe the prevailing direction from which the wind is blowing with the speed given usually in miles per hour or knots.” In addition, NOAA’s issuance of a Wind Advisory takes place when sustained winds reach 25 to 39 mph and/or gusts to 57 mph.⁴⁰

On the following page is the Beaufort Wind Scale, showing expected damage based on wind (knots), developed in 1805 by Sir Francis Beaufort of England and posted on NOAA’s Storm Prediction Center website.⁴¹

| Force | Wind (Knots) | WMO Classification | Appearance of Wind Effects | |
|-------|--------------|--------------------|---|--|
| | | | On the Water | On Land |
| 0 | Less than 1 | Calm | Sea surface smooth and mirror-like | Calm, smoke rises vertically |
| 1 | 1-3 | Light Air | Scaly ripples, no foam crests | Smoke drift indicates wind direction, still wind vanes |
| 2 | 4-6 | Light Breeze | Small wavelets, crests glassy, no breaking | Wind felt on face, leaves rustle, vanes bring to move |
| 3 | 7-10 | Gentle Breeze | Large wavelets, crests begin to break, scattered whitecaps | Leaves and small twigs constantly moving, light flags extended |
| 4 | 11-16 | Moderate Breeze | Small waves 1-4 ft. becoming longer, numerous whitecaps | Dust, leaves, and loose paper lifted, small tree branches move |
| 5 | 17-21 | Fresh Breeze | Moderate waves 4-8 ft. taking longer form, many whitecaps, some spray | Small trees in leaf begin to sway |
| 6 | 22-27 | Strong Breeze | Larger waves 8-13 ft., whitecaps common, more spray | Larger tree branches moving, whistling in wires |
| 7 | 28-33 | Near Gale | Sea heaps up, waves 13-20 ft., white foam streaks off breakers | Whole trees moving, resistance felt walking against wind |
| 8 | 34-40 | Gale | Moderately high (13-20 ft.) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks | Whole trees in motion, resistance felt walking against wind |
| 9 | 41-47 | Strong Gale | High waves (20 ft.), sea begins to roll, dense streaks of foam, spray may reduce visibility | Slight structural damage occurs, slate blows off roofs |
| 10 | 48-55 | Storm | Very high waves (20-30 ft.) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility | Seldom experienced on land, trees broken or uprooted, "considerable structural damage" |
| 11 | 56-63 | Violent Storm | Exceptionally high(30-45 ft.) waves, foam patches cover sea, visibility more reduced | |
| 12 | 64+ | Hurricane | Air filled with foam, waves over 45 ft., sea completely white with driving spray, visibility greatly reduced | |

⁴⁰ NOAA; <http://www.nws.noaa.gov/glossary/index.php?letter=w>

⁴¹ NOAA, Storm Prediction Center, <http://www.spc.noaa.gov/faq/tornado/beaufort.html>

*HURRICANE & TROPICAL STORM

HURRICANES

A hurricane is a tropical cyclone in which winds reach speeds of 74 miles per hour or more and blow in a large spiral around a relatively calm center. The eye of the storm is usually 20-30 miles wide and the storm may extend over 400 miles. High winds are a primary cause of hurricane-inflicted loss of life and property damage.

"The Saffir-Simpson Hurricane Wind Scale" (to the right⁴²) is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however and require preventative measures. In the western North Pacific, the term "super typhoon" is used for tropical cyclones with sustained winds exceeding 150 mph.⁴³

Flooding is often caused from the coastal storm surge of the ocean and torrential rains, both of which may accompany a hurricane; these floods can result in loss of lives and property.

| Category | Sustained Winds | Types of Damage Due to Hurricane Winds |
|--------------|---|---|
| 1 | 74-95 mph 64-82 kt 119-153 km/h | 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. |
| 2 | 96-110 mph 83-95 kt 154-177 km/h | 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. |
| 3 (major) | 111-129 mph 96-112 kt 178-208 km/h | Devastating damage will occur: Well-built frame 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. |
| 4 (major) | 130-156 mph 113-136 kt 209-251 km/h | Catastrophic damage will occur: Well-built frame 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. |
| 5 (major) | 157 mph or higher 137 kt or higher 252 km/h 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 possibly months. Most of the area will be uninhabitable for weeks or months. |

TROPICAL STORMS

A tropical depression becomes a tropical storm when its maximum sustained winds are between 39-73 mph. Although tropical storms have winds of less than 74 miles per hour, like hurricanes, they can do significant damage. The damage most felt by tropical storms is from the torrential rains they produce which cause rivers and streams to flood and overflow their banks.

Rainfall from tropical storms has been reported at rates of up to 6 inches per hour; 43 inches of rain in a 24 hour period was reported in Alvin, TX as a result of Tropical Storm Claudette.⁴⁴

⁴² National Hurricane Center; <http://www.nhc.noaa.gov/aboutsshws.php>

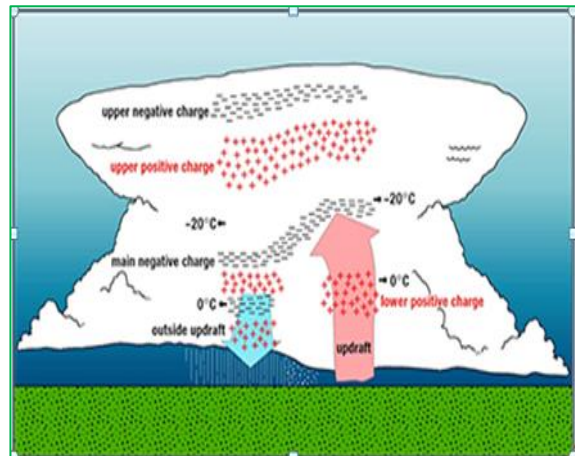
⁴³ National Hurricane Center, NOAA; <http://www.nhc.noaa.gov/aboutsshws.php>

⁴⁴ http://www.wpc.ncep.noaa.gov/research/mcs_web_test_test_files/Page1637.htm

*SEVERE THUNDER & LIGHTNING STORM

As stated by the NOAA National Severe Storms Laboratory (NSSL) "Lightning is a giant spark of electricity in the atmosphere between clouds, the air, or the ground. In the early stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground. When the opposite charges build up enough, this insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning. The flash of lightning temporarily equalizes the charged regions in the atmosphere until the opposite charges build up again."⁴⁵

Thunder, a result of lightning, is created when the "lightning channel heats the air to around 18,000 degrees Fahrenheit..."⁴⁶ thus causing the rapid expansion of the air and the sounds we hear as thunder. Although thunder that is heard during a storm cannot hurt you, the lightning that is associated with the thunder can not only strike people but also strike homes, out-buildings, grass and trees sparking disaster. Wildfires and structure loss are at a high risk during severe lightning events.



"A conceptual model shows the electrical charge distribution inside deep convection (thunderstorms), developed by NSSL and university scientists. In the main updraft (in and above the red arrow), there are four main charge regions. In the convective region but outside the out draft (in and above the blue arrow), there are more than four charge regions."- NOAA

Although thunderstorms and their associated lightning can occur any time of year, in New England they are most likely to occur in the summer months and during the late afternoon or early evening hours and may even occur during a winter snowstorm. Trees, tall buildings and mountains are often the targets of lightning because their tops are closer to the cloud; however, lightning is unpredictable and does not always strike the tallest thing in the area.

"Lightning strikes the ground somewhere in the U.S. nearly every day of the year. Thunderstorms and lightning occur most commonly in moist warm climates. Data from the National Lightning Detection Network shows that over the continental U.S. an average of 20,000,000 cloud-to-ground flashes occur every year. Around the world, lightning strikes the ground about 100 times each second, or 8 million times a day.

In general, lightning decreases across the U.S. mainland toward the northwest. Over the entire year, the highest frequency of cloud-to-ground lightning is in Florida between Tampa and Orlando. This is due to the presence, on many days during the year, of a large moisture content in the atmosphere at low levels (below 5,000 feet), as well as high surface temperatures that produce strong sea breezes along the Florida coasts. The western mountains of the U.S. also produce strong upward motions and contribute to frequent cloud-to-ground lightning. There are also high frequencies along the Gulf of Mexico coast, the Atlantic coast and in the southeast United States. US Regions along the Pacific west coast have the least cloud-to-ground lightning."⁴⁷

⁴⁵ NOAA National Severe Storms Laboratory, <https://www.nssl.noaa.gov/education/svrwx101/lightning>

⁴⁶ Ibid

⁴⁷ Ibid

*SEVERE WINTER SNOW & ICE STORM

Ice and snow events typically occur during the winter months and can cause loss of life, property damage and tree damage.

SNOW STORMS

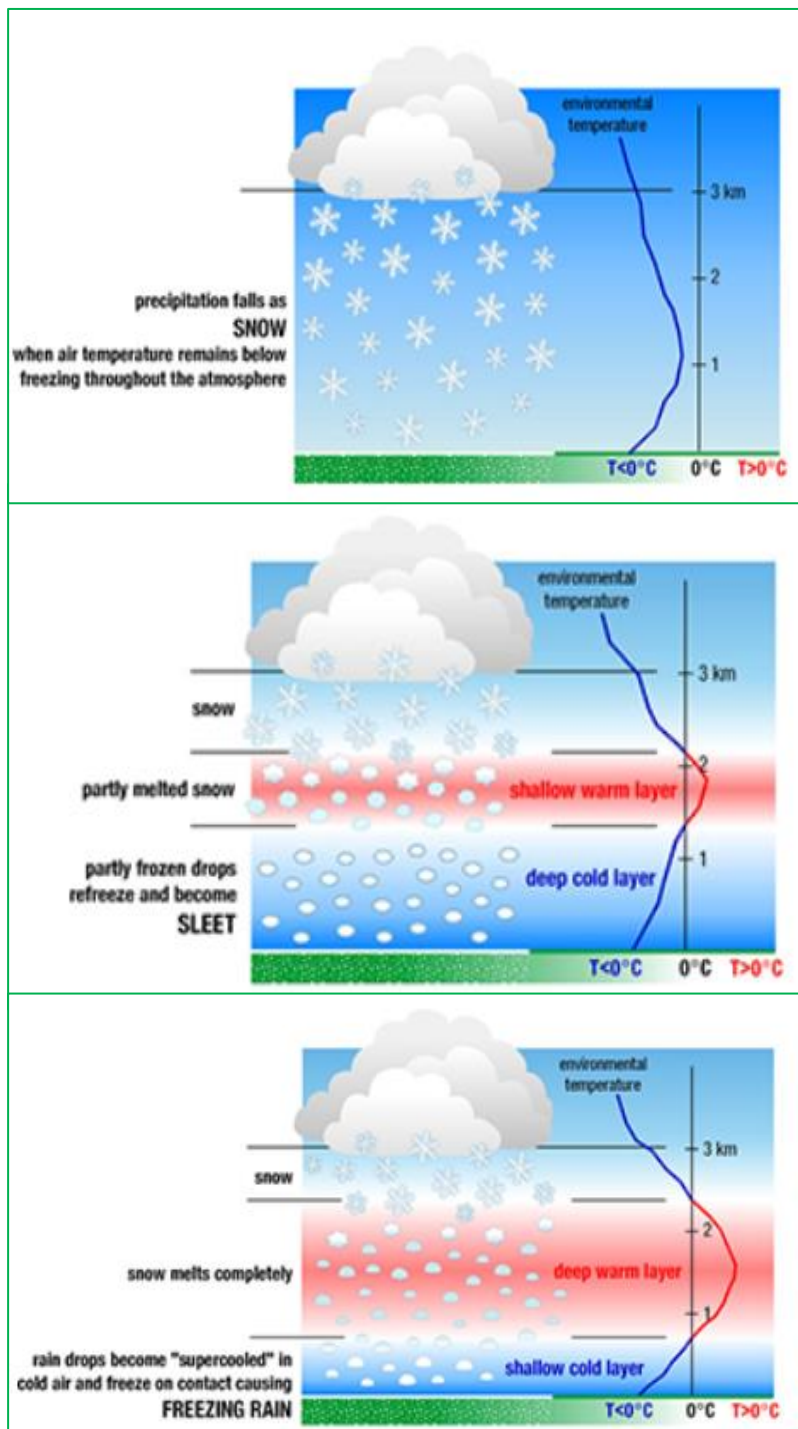
A winter storm can range from moderate snow to blizzard conditions. Blizzard conditions are considered blinding wind-driven snow over 35 mph that lasts several days. A severe winter storm deposits four or more inches of snow during a 12-hour period or six inches of snow during a 24-hour period.

SLEET

Snowflakes melt as they fall through a small band of warm air and later refreeze when passing through a wider band of cold air. These frozen rain drops then fall to the ground as "sleet".

FREEZING RAIN & ICE STORMS

Snowflakes melt completely as they fall through a warm band of air then fall through a shallow band of cold air close to the ground to become "supercooled". These supercooled raindrops instantly freeze upon contact with the ground and anything else that is below 32 degrees Fahrenheit. This freezing creates accumulations of ice on roads, trees, utility lines and other objects resulting in what we think of as an "Ice Storm". "Ice coating at least one-fourth inch in thickness is heavy enough to damage trees, overhead wires and similar objects."⁴⁸



Types of Severe Winter Weather
NOAA – National Severe Storms Laboratory

⁴⁸ NOAA, National Severe Storms Laboratory, <https://www.nssl.noaa.gov/education/svrwx101/winter/types/>

The Sperry-Piltz Ice Accumulation Index (SPIA) (below) is designed to help utility companies better prepare for predicated ice storms.⁴⁹

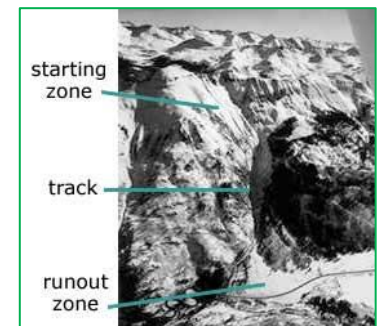
The Sperry-Piltz Ice Accumulation Index, or "SPIA Index" – Copyright, February, 2009

| ICE DAMAGE INDEX | * AVERAGE NWS ICE AMOUNT (in inches) <small>* Revised-October, 2011</small> | WIND (mph) | DAMAGE AND IMPACT DESCRIPTIONS |
|------------------|--|------------|--|
| 0 | < 0.25 | < 15 | Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages. |
| 1 | 0.10 – 0.25 | 15 – 25 | Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous. |
| | 0.25 – 0.50 | > 15 | |
| 2 | 0.10 – 0.25 | 25 – 35 | Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation. |
| | 0.25 – 0.50 | 15 – 25 | |
| | 0.50 – 0.75 | < 15 | |
| 3 | 0.10 – 0.25 | > = 35 | Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days. |
| | 0.25 – 0.50 | 25 – 35 | |
| | 0.50 – 0.75 | 15 – 25 | |
| | 0.75 – 1.00 | < 15 | |
| 4 | 0.25 – 0.50 | > = 35 | Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days. |
| | 0.50 – 0.75 | 25 – 35 | |
| | 0.75 – 1.00 | 15 – 25 | |
| | 1.00 – 1.50 | < 15 | |
| 5 | 0.50 – 0.75 | > = 35 | Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed. |
| | 0.75 – 1.00 | > = 25 | |
| | 1.00 – 1.50 | > = 15 | |
| | > 1.50 | Any | |

(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

*SNOW AVALANCHE

According to the National Snow & Ice Data Center “An avalanche is a rapid flow of snow down a hill or mountainside. Although avalanches can occur on any slope given the right conditions, certain times of the year and certain locations are naturally more dangerous than others. Wintertime, particularly from December to April, is when most avalanches tend to happen. However, avalanche fatalities have been recorded for every month of the year.”⁵⁰



“All that is necessary for an avalanche is a mass of snow and a slope for it to slide down...A large avalanche in North America might release 230,000 cubic meters (300,000 cubic yards) of snow. That is the equivalent of 20 football fields filled 3 meters (10 feet) deep with snow. However, such large avalanches are often naturally released, when the snowpack becomes unstable and layers of snow begin to fail. Skiers and recreationalists usually trigger smaller, but often more deadly avalanches.”

There are three main parts to an avalanche (see image above). The first and most unstable is the “starting zone”, where the snow can “fracture” and slide. “Typical starting zones are higher up on slopes. However, given the right conditions, snow can fracture at any point on the slope.”⁵¹

⁴⁹ The Weather Channel, <http://www.weather.com/news/weather-winter/rating-ice-storms-damage-sperry-piltz-20131202>

⁵⁰ Copyright Richard Armstrong, NSIDC, <http://nsidc.org/cryosphere/snow/science/avalanches.html>






⁵¹ NSIDC, <http://nsidc.org/cryosphere/snow/science/avalanches.html>; image credit: Betsy Armstrong

The second part is the “avalanche track”, or the downhill path that the avalanche follows. The avalanche is evident where large swaths of trees are missing or where there are large pile-ups of rock, snow, trees and debris at the bottom of an incline.

The third part of an avalanche is the “runout zone”. The runout zone is where the avalanche has come to a stop and left the largest and highest pile of snow and debris.

“Several factors may affect the likelihood of an avalanche, including weather, temperature, slope steepness, slope orientation (whether the slope is facing north or south), wind direction, terrain, vegetation and general snowpack conditions. Different combinations of these factors can create low, moderate, or extreme avalanche conditions. Some of these conditions, such as temperature and snowpack, can change on a daily or hourly basis.”⁵²

When the possibility of an avalanche is evident, an “avalanche advisory” is issued. This preliminary notification warns hikers, skiers, snowmobilers and responders that conditions may be favorable for the development of avalanches. The chart below shows avalanche danger as determined by likelihood, size & distribution.⁵³

| North American Public Avalanche Danger Scale | | | | |
|---|---|--|--|--|
| Avalanche danger is determined by the likelihood, size and distribution of avalanches. | | | | |
| Danger Level | | Travel Advice | Likelihood of Avalanches | Avalanche Size and Distribution |
| 5 Extreme |  | Avoid all avalanche terrain. | Natural and human-triggered avalanches certain. | Large to very large avalanches in many areas. |
| 4 High |  | Very dangerous avalanche conditions. Travel in avalanche terrain <u>not</u> recommended. | Natural avalanches likely; human-triggered avalanches very likely. | Large avalanches in many areas; or very large avalanches in specific areas. |
| 3 Considerable |  | Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential. | Natural avalanches possible; human-triggered avalanches likely. | Small avalanches in many areas; or large avalanches in specific areas; or very large avalanches in isolated areas. |
| 2 Moderate |  | Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern. | Natural avalanches unlikely; human-triggered avalanches possible. | Small avalanches in specific areas; or large avalanches in isolated areas. |
| 1 Low |  | Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features. | Natural and human-triggered avalanches unlikely. | Small avalanches in isolated areas or extreme terrain. |
| Safe backcountry travel requires training and experience. You control your own risk by choosing where, when and how you travel. | | | | |

⁵² Copyright Richard Armstrong, NSIDC, <http://nsidc.org/cryosphere/snow/science/avalanches.html>

⁵³ http://www.avalanche.org/danger_card.php

*TORNADO & DOWNBURST

TORNADO

A tornado is a violent windstorm characterized by a twisting, funnel shaped cloud. Tornadoes develop when cool air overrides a layer of warm air, causing the warm air to rise rapidly. The atmospheric conditions required for the formation of a tornado include great thermal instability, high humidity and the convergence of warm, moist air at low levels with cooler, drier air aloft. Most tornadoes remain suspended in the atmosphere, but if they touch down they become a force of destruction.

Tornadoes produce the most violent winds on earth, at speeds of 280 mph or more. In addition, tornadoes can travel at a forward speed of up to 70 mph. Damage paths can be in excess of one mile wide and 50 miles long. Violent winds and debris slamming into buildings cause the most structural damage.

The Fujita Scale is the standard scale for rating the severity of a tornado as measured by the damage it causes. A tornado is usually accompanied by thunder, lightning, heavy rain and a loud "freight train" noise. In comparison to a hurricane, a tornado covers a much smaller area but can be more violent and destructive.

"Dr. T. Theodore Fujita developed the Fujita Tornado Damage Scale (F-Scale) to provide estimates of tornado strength based on damage surveys. Since it's practically impossible to make direct measurements of tornado winds, an estimate of the winds based on damage is the best way to classify a tornado. The new Enhanced Fujita Scale (EF-Scale) addresses some of the limitations identified by meteorologists and engineers since the introduction of the Fujita Scale in 1971. The new scale identifies 28 different free standing structures most affected by tornadoes taking into account construction quality and maintenance. The range of tornado intensities remains as before, zero to five, with 'EF-0' being the weakest, associated with very little damage and 'EF-5' representing complete destruction, which was the case in Greensburg, Kansas on May 4th, 2007, the first tornado classified as 'EF-5'. The EF scale was adopted on February 1, 2007."⁵⁴ The chart (above), adapted from wunderground.com, shows a comparison of the Fujita Scale to the Enhanced Fujita Scale.

Tornadoes are relatively uncommon natural hazards in New Hampshire; on average, about six tornadoes touch down each year. Damage largely depends on where the tornado strikes. If it were to strike an inhabited area, the impact could be severe.

| EF SCALE | OLD F-SCALE | TYPICAL DAMAGE |
|------------------------------|--|---|
| EF-0 (65-85mph) | F0 (65-73 mph) | Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. |
| EF-1 (86-110 mph) | F1 (74-112 mph) | Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken. |
| EF-2 (111-135 mph) | F2 (113-157 mph) | Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off |
| EF-3 (136-165 mph) | F3 (158-206 mph) | Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance. |
| EF-4 (166-200 mph) | F4 (207-260 mph) | Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars through and small missiles generated. |
| EF-5 (> 200 mph) | F5 (261-318 mph) | Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yards); high-rise buildings have significant structural deformation; incredible phenomena will occur. |
| EF No rating | F6-F12 (319 mph to speed of sound) | Inconceivable damage. Should a tornado with the maximum wind speed in excess of EF5 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water heaters, storage tanks, automobiles, etc. will create serious secondary damage on structures. |

⁵⁴ Enhance Fujita Scale, http://www.wunderground.com/resources/severe/fujita_scale.asp

DOWNBURST

A downburst is a strong downdraft which causes damaging winds on or near the ground according to NOAA. Not to be confused with downburst, the term "microburst" describes the size of the downburst. A comparison of a microburst and the larger macroburst shows that both can cause extreme winds.

A microburst is a downburst with winds extending 2 ½ miles or less, lasting 5 to 15 minutes and causing damaging winds as high as 168 MPH. A macroburst is a downburst with winds extending more than 2 ½ miles lasting 5 to 30 minutes. Damaging winds, causing widespread, tornado-like damage, could be as high as 134 MPH.⁵⁵

*WILDFIRE

As stated by the National Wildfire Coordinating Group (NWCG), wildfires are designated in seven categories as seen in the top chart to the right.⁵⁶ For the purpose of statistical analysis, the US Forest Service recognizes the cause of fires according to the bottom chart to the right.⁵⁷

The definition according to the International Wildland-Urban Interface Code of wildfire is "an uncontrolled fire spreading through vegetative fuels exposing and possibly consuming structures". In addition, the IWUIC goes on to define the wildland urban interface area as "that geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels."⁵⁸

There are two main potential losses with a wildfire: the forest itself and the threat to the built-up human environment (the structures within the WUI). In many cases, the only time it is feasible for a community to control a wildfire is when it threatens the built-up human environment. Therefore, the loss to the forest itself will not be a factor in our loss calculation analysis.

| Class | Aces Burned |
|---------|----------------------|
| Class A | 0 to .25 acres |
| Class B | .26 to 9 acres |
| Class C | 10 to 99 acres |
| Class D | 100 to 299 acres |
| Class E | 300 to 999 acres |
| Class F | 1,000 to 4,999 acres |
| Class G | 5,000 acres or more |
| Code | Statistical Cause |
| 1 | Lightning |
| 2 | Equipment Use |
| 3 | Smoking |
| 4 | Campfire |
| 5 | Debris Burning |
| 6 | Railroad |
| 7 | Arson |
| 8 | Children |
| 9 | Miscellaneous |

*AQUIFER CONTAMINATION

The Bartlett and Hart's Location Planning Team also included "Aquifer Contamination" as a potential natural hazard for both communities. The Saco River Aquifer, one of the largest in New Hampshire, is a vital source for drinking water for a large number of people, both in New Hampshire and in Maine, and supplies water for the Lower Bartlett Water Precinct, the North Conway Water Precinct, the Attitash Ski Area, a number of residential developments and many wells in both communities. The Saco River also serves as a major asset for the entire area for natural resource protection, for its scenic and recreation value and for the promotion of tourism and the economy. Damage to the Saco River aquifer and to the river itself, could impact the Mount Washington Valley for many years; a significant contamination to the river and aquifer could create both local and regional impacts.⁵⁹

⁵⁵ NOAA - <http://www.srh.noaa.gov/jetstream/tstorms/wind.html>

⁵⁶ <http://www.nwcg.gov/pms/pubs/glossary/s.htm>

⁵⁷ https://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsh?5109.14

⁵⁸ International Wildland-Urban Interface Code, 2012, International Code Council, Inc.

⁵⁹ Saco River Report to the General Court; <https://www.des.nh.gov/organization/divisions/water/wmb/rivers/documents/saco-report.pdf>

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Appendix D: NH Presidential Disaster & Emergency Declarations

Presidential Disaster Declarations

| Number | Description | Date of Event | Counties | Description |
|---------|-----------------------------------|-----------------------------|---|--|
| DR-4355 | Severe Storms, Flooding | October 29-November 1, 2017 | Sullivan, Grafton, Coos, Carroll, Belknap & Merrimack | Anticipated Presidential Declaration, DR-4355: The Federal Emergency Management Agency (FEMA) announced that federal disaster assistance is available to the state of New Hampshire to supplement state and local recovery efforts in the areas affected by severe storms and flooding from October 29-November 1, 2017 in five New Hampshire Counties. |
| DR-4329 | Severe Storms, Flooding | July 1-2, 2017 | Grafton | Presidential Disaster Declaration DR-4329: The Federal Emergency Management Agency (FEMA) announced that federal disaster assistance is available to the state of New Hampshire to supplement state and local recovery efforts in the areas affected by severe storms and flooding from July 1, 2017 to July 2, 2017 in Grafton County |
| DR-4316 | Severe Winter Storm and Snowstorm | March 14-15, 2017 | Belknap & Carroll | Presidential Emergency Declaration DR-4316: Severe winter storm and snowstorm in Belknap & Carroll Counties; disaster aid to supplement state and local recovery efforts. |
| DR-4209 | Severe Winter Storm and Snowstorm | January 26-28, 2015 | Hillsborough, Rockingham & Strafford | Presidential Emergency Declaration DR-4206: Severe winter storm and snowstorm in Hillsborough, Rockingham and Strafford Counties; disaster aid to supplement state and local recovery efforts. |
| DR-4139 | Severe Storms, Flooding | July 9-10, 2013 | Cheshire, Sullivan & Grafton | Presidential Emergency Declaration DR-4139: Severe storms, flooding, and landslides during the period of June 26 to July 3, 2013 in Cheshire, Sullivan and southern Grafton Counties. |
| DR-4105 | Severe Winter Storm | 8-Feb-13 | All Ten NH Counties | Presidential Emergency Declaration DR-4105: Nemo; heavy snow in February 2013. |
| DR-4095 | Hurricane Sandy | October 26-November 8, 2012 | Belknap, Carroll, Coos, Grafton & Sullivan | Presidential Disaster Declaration DR-4095: The declaration covers damage to property from the storm that spawned heavy rains, high winds, high tides and flooding over the period of October 26-November 8, 2012. |
| DR-4065 | Severe Storm & Flooding | May 29-31, 2012 | Cheshire | Presidential Disaster Declaration DR-4065: Severe Storm and Flood Event May 29-31, 2012 Cheshire County. |
| DR-4049 | Severe Storm & Snowstorm | October 29-30, 2011 | Hillsborough & Rockingham | Presidential Disaster Declaration DR-4049: Severe Storm and Snowstorm Event October 29-30, 2011 Hillsborough and Rockingham Counties. |
| DR-4026 | Tropical Storm Irene | August 26-September 6, 2011 | Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan | Presidential Disaster Declaration DR-4026: Tropical Storm Irene Aug 26th- Sept 6, 2011 Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan Counties. |
| DR-4006 | Severe Storms & Flooding | May 26-30, 2011 | Coos & Grafton County | Presidential Disaster Declaration DR-4006: May Flooding Event, May 26th-30th 2011 Coos & Grafton County. (aka: Memorial Day Weekend Storm) |
| DR-1913 | Severe Storms & Flooding | March 14-31, 2010 | Hillsborough & Rockingham | Presidential Disaster Declaration DR-1913: Flooding to two NH counties including Hillsborough and Rockingham counties. |

| Number | Description | Date of Event | Counties | Description |
|---------|--------------------------------------|------------------------------|--|--|
| DR-1892 | Severe Winter Storm, Rain & Flooding | February 23 - March 3, 2010 | Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan | Presidential Disaster Declaration: DR-1892: Flood and wind damage to most southern NH including six counties; 330,000 homes without power; more than \$2 million obligated by June 2010. |
| DR-1812 | Severe Winter Storm & Ice Storm | December 11-23, 2008 | All Ten NH Counties | Presidential Declaration DR-1812: Damaging ice storms to entire state including all ten NH counties; fallen trees and large scale power outages; five months after December's ice storm pummeled the region, nearly \$15 million in federal aid had been obligated by May 2009. |
| DR-1799 | Severe Storms & Flooding | September 6-7, 2008 | Hillsborough | Presidential Declaration: DR-1799: Severe storms and flooding beginning on September 6-7, 2008. |
| DR-1787 | Severe Storms & Flooding | July 24-August 14, 2008 | Belknap, Carroll & Grafton & Coos | Presidential Declaration DR-1787: Severe storms, tornado, and flooding on July 24, 2008. |
| DR-1782 | Severe Storms, Tornado, & Flooding | 24-Jul-08 | Belknap, Carroll, Merrimack, Strafford & Rockingham | Presidential Declaration DR-1782: Tornado damage to several NH counties. |
| DR-1695 | Nor'easter, Severe Storms & Flooding | April 15-23, 2007 | All Ten NH Counties | Presidential Disaster Declaration DR-1695: Flood damages; FEMA & SBA obligated more than \$27.9 million in disaster aid following the April nor'easter. (aka: Tax Day Storm) |
| DR-1643 | Severe Storms & Flooding | May 12-23, 2006 | Belknap, Carroll, Grafton, Hillsborough, Merrimack, Rockingham & Strafford | Presidential Disaster Declaration DR-1643: Flooding in most of southern NH; May 12-23, 2006. (aka: Mother's Day Storm) |
| DR-1610 | Severe Storms & Flooding | October 7-18, 2005 | Belknap, Cheshire, Grafton, Hillsborough, Merrimack & Sullivan | Presidential Disaster Declaration DR-1610: To date, state and federal disaster assistance has reached more than \$3 million to help residents and business owners in New Hampshire recover from losses resulting from the severe storms and flooding in October. |
| DR-1489 | Severe Storms & Flooding | July 21-August 18, 2003 | Cheshire & Sullivan | Presidential Disaster Declaration DR-1489: Floods stemming from persistent rainfall and severe storms that caused damage to public property occurring over the period of July 21 through August 18, 2003. |
| DR-1305 | Tropical Storm Floyd | September 16-18, 1999 | Belknap, Cheshire & Grafton | Presidential Disaster Declaration DR-1305: The declaration covers damage to public property from the storm that spawned heavy rains, high winds and flooding over the period of September 16-18. |
| DR-1231 | Severe Storms & Flooding | June 12-July 2, 1998 | NA | Presidential Disaster Declaration DR-1231: |
| DR-1199 | Ice Storms | January 7-25, 1998 | NA | Presidential Disaster Declaration DR-1199: |
| DR-1144 | Severe Storms/Flooding | October 20-23, 1996 | NA | Presidential Disaster Declaration DR-1144: |
| DR-1077 | Storms/Floods | October 20-November 15, 1995 | NA | Presidential Disaster Declaration DR-1077: |

| Number | Description | Date of Event | Counties | Description |
|--------|--|-------------------------|----------|--|
| DR-923 | Severe Coastal Storm | October 30-31, 1991 | NA | Presidential Disaster Declaration DR-923: |
| DR-917 | Hurricane Bob, Severe Storm | August 18-20, 1991 | NA | Presidential Disaster Declaration DR-917: |
| DR-876 | Flooding, Severe Storm | August 7-11, 1990 | NA | Presidential Disaster Declaration DR-876: |
| DR-789 | Severe Storms & Flooding | March 30-April 11, 1987 | NA | Presidential Disaster Declaration DR-789 |
| DR-771 | Severe Storms & Flooding | July 29-August 10, 1986 | NA | Presidential Disaster Declaration DR-771: |
| DR-549 | High Winds, Tidal Surge, Coastal Flooding & Snow | 16-Feb-78 | NA | Presidential Disaster Declaration DR-549: Blizzard of 1978 |
| DR-411 | Heavy Rains, Flooding | 21-Jan-74 | NA | Presidential Disaster Declaration DR-411: |
| DR-399 | Severe Storms & Flooding | 11-Jul-73 | NA | Presidential Disaster Declaration DR-399: |
| DR-327 | Coastal Storms | 18-Mar-72 | NA | Presidential Disaster Declaration DR-327: |
| DR-11 | Forest Fire | 2-Jul-53 | NA | Presidential Disaster Declaration DR-11: |

Emergency Disaster Declarations

| Number | Description | Date of Event | Counties | Description |
|---------|------------------------------|-----------------------------|---------------------|--|
| EM-3360 | Hurricane Sandy | October 26-31, 2012 | All Ten NH Counties | Presidential Emergency Declaration EM-3360: Hurricane Sandy came ashore in NJ and brought high winds, power outages and heavy rain to NH- All ten counties in the State of New Hampshire. |
| EM-3344 | Severe Snow Storm | October 29-30, 2011 | All Ten NH Counties | Presidential Emergency Declaration EM-3344: Severe storm during the period of October 29-30, 2011; all ten counties in the State of New Hampshire. (aka: Snowtober) |
| EM-3333 | Hurricane Irene | August 26-September 6, 2011 | All Ten NH Counties | Presidential Emergency Declaration EM-3333: Emergency Declaration for Tropical Storm Irene for in all ten counties. |
| EM-3297 | Severe Winter Storm | 11-Dec-08 | All Ten NH Counties | Presidential Emergency Declaration EM-3297: Severe winter storm beginning on December 11, 2008. |
| EM-3258 | Hurricane Katrina Evacuation | August 29-October 1, 2005 | All Ten NH Counties | Presidential Emergency Declaration EM-3258: Assistance to evacuees from the area struck by Hurricane Katrina and to provide emergency assistance to those areas beginning on August 29, 2005, and continuing; The President's action makes Federal funding available to the State and all 10 counties of the State of New Hampshire. |

| Number | Description | Date of Event | Counties | Description |
|---------|------------------------------|----------------------|--|--|
| EM-3211 | Snow | March 11-12, 2005 | Carroll, Cheshire, Hillsborough, Rockingham & Sullivan | Presidential Emergency Declaration EM-3211: March snowstorm; more than \$2 million has been approved to help pay for costs of the snow removal; Total aid for the March storm is \$2,112,182.01 (Carroll: \$73,964.57; Cheshire: \$118,902.51; Hillsborough: \$710,836; Rockingham: \$445,888.99; Sullivan: \$65,088.53; State of NH: \$697,501.41) |
| EM-3208 | Snow | February 10-11, 2005 | Carroll, Cheshire, Coos, Grafton & Sullivan | Presidential Emergency Declaration EM-3208: FEMA had obligated more than \$1 million by March 2005 to help pay for costs of the heavy snow and high winds; Total aid for the February storm is \$1,121,727.20 (Carroll: \$91,832.72; Cheshire: \$11,0021.18; Coos: \$11,6508.10; Grafton: \$213,539.52; Sullivan: \$68,288.90; State of NH: \$521,536.78) EM 3208-002: The Federal Emergency Management Agency (FEMA) has obligated more than \$6.5 million to reimburse state and local governments in New Hampshire for costs incurred in three snow storms that hit the state earlier this year, according to disaster recovery officials. Total aid for all three storms is \$6,892,023.87 (January: \$3,658,114.66; February: \$1,121,727.20; March: \$2,113,182.01) |
| EM-3207 | Snow | January, 22-23, 2005 | Belknap, Carroll, Cheshire, Grafton, Hillsborough, Rockingham, Merrimack, Strafford & Sullivan | Presidential Emergency Declaration EM-3207: JANUARY STORM DAMAGE: More than \$3.5 million has been approved to help pay for costs of the heavy snow and high winds; Total aid for the January storm is \$3,658,114.66 (Belknap: \$125,668.09; Carroll: \$52,864.23; Cheshire: \$134,830.95; Grafton: \$137,118.71; Hillsborough: \$848,606.68; Merrimack: \$315,936.55; Rockingham: \$679,628.10; Strafford: \$207,198.96; Sullivan: \$48,835.80; State of NH: \$1,107,426.59) |
| EM-3193 | Snow | December 6-7, 2003 | Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan | Presidential Emergency Declaration EM-3193: The declaration covers jurisdictions with record and near-record snowfall that occurred over the period of December 6-7, 2003 |
| EM-3177 | Snowstorm | February 17-18, 2003 | Cheshire, Hillsborough, Merrimack, Rockingham & Strafford | Presidential Emergency Declaration EM-3177: Declaration covers jurisdictions with record and near-record snowfall from the snowstorm that occurred February 17-18, 2003 |
| EM-3166 | Snowstorm | March 5-7, 2001 | Cheshire, Coos, Grafton, Hillsborough, Merrimack, & Strafford | Presidential Emergency Declaration EM-3166: Declaration covers jurisdictions with record and near-record snowfall from the late winter storm that occurred March 2001 |
| EM-3101 | High Winds & Record Snowfall | March 13-17, 1994 | NA | Presidential Emergency Declaration EM-3101: |
| EM-3073 | Flooding | 15-Mar-79 | NA | Presidential Emergency Declaration EM-3073: |

Source:

Disaster Declarations for New Hampshire

http://www.fema.gov/disasters/grid/state-tribal-government/33?field_disaster_type_term_tid_1=All

Appendix E: Potential Mitigation Ideas⁶⁰

Drought

- D1 Assess Vulnerability to Drought Risk
- D2 Monitoring Drought Conditions
- D3 Monitor Water Supply
- D4 Plan for Drought
- D5 Require Water Conservation during Drought Conditions
- D6 Prevent Overgrazing
- D7 Retrofit Water Supply Systems
- D8 Enhance Landscaping & Design Measures
- D9 Educate Residents on Water Saving Techniques
- D10 Educate Farmers on Soil & Water Conservation Practices
- D11 Purchase Crop Insurance

Earthquake

- EQ1 Adopt & Enforce Building Codes
- EQ2 Incorporate Earthquake Mitigation into Local Planning
- EQ3 Map & Assess Community Vulnerability to Seismic Hazards
- EQ4 Conduct Inspections of Building Safety
- EQ5 Protect Critical Facilities & Infrastructure
- EQ6 Implement Structural Mitigation Techniques
- EQ7 Increase Earthquake Risk Awareness
- EQ8 Conduct Outreach to Builders, Architects, Engineers and Inspectors
- EQ9 Provide Information on Structural & Non-Structural Retrofitting

Erosion

- ER1 Map & Assess Vulnerability to Erosion
- ER2 Manage Development in Erosion Hazard Areas
- ER3 Promote or Require Site & Building Design Standards to Minimize Erosion Risk
- ER4 Remove Existing Buildings & Infrastructure from Erosion Hazard Areas
- ER5 Stabilize Erosion Hazard Areas
- ER6 Increase Awareness of Erosion Hazards

Extreme Temperatures

- ET1 Reduce Urban Heat Island Effect
- ET2 Increase Awareness of Extreme Temperature Risk & Safety
- ET3 Assist Vulnerable Populations
- ET4 Educate Property Owners about Freezing Pipes

Hailstorm

- HA1 Locate Safe Rooms to Minimize Damage
- HA2 Protect Buildings from Hail Damage
- HA3 Increase Hail Risk Awareness

Landslide

- LS1 Map & Assess Vulnerability to Landslides
- LS2 Manage Development in Landslide Hazard Areas
- LS3 Prevent Impacts to Roadways
- LS4 Remove Existing Buildings & Infrastructure from Landslide

Lightning

- L1 Protect Critical Facilities
- L2 Conduct Lightning Awareness Programs

Flood

- F1 Incorporate Flood Mitigation in Local Planning
- F2 Form Partnerships to Support Floodplain Management
- F3 Limit or Restrict Development in Floodplain Areas
- F4 Adopt & Enforce Building Codes and Development Standards
- F5 Improve Stormwater Management Planning
- F6 Adopt Policies to Reduce Stormwater Runoff
- F7 Improve Flood Risk Assessment
- F8 Join or Improve Compliance with NFIP
- F9 Manage the Floodplain beyond Minimum Requirements
- F10 Participate in the CRS
- F11 Establish Local Funding Mechanism for Flood Mitigation
- F12 Remove Existing Structures from Flood Hazard Areas
- F13 Improve Stormwater Drainage System Capacity
- F14 Conduct Regular Maintenance for Drainage Systems & Flood Control Structures
- F15 Elevate or Retrofit Structures & Utilities
- F16 Flood proof Residential & Non-Residential Structures
- F17 Protect Infrastructure
- F18 Protect Critical Facilities
- F19 Construct Flood Control Measures
- F20 Protect & Restore Natural Flood Mitigation Features
- F21 Preserve Floodplains as Open Space
- F22 Increase Awareness of Flood Risk & Safety
- F23 Educate Property Owners about Flood Mitigation Techniques

Severe Wind

- SW1 ... Adopt & Enforce Building Codes
- SW2 ... Promote or Require Site & Building Design Standards to Minimize Wind Damage
- SW3 ... Assess Vulnerability to Severe Wind
- SW4 ... Protect Power Lines & Infrastructure
- SW5 ... Retrofit Residential Buildings
- SW6 ... Retrofit Public Buildings & Critical Facilities
- SW7 ... Increase Severe Wind Awareness

Severe Winter Weather

- WW1.. Adopt & Enforce Building Codes
- WW2.. Protect Buildings & Infrastructure
- WW3.. Protect Power Lines
- WW4.. Reduce Impacts to Roadways
- WW5.. Conduct Winter Weather Risk Awareness Activities
- WW6.. Assist Vulnerable Populations

Tornado

- T1 Encourage Construction of Safe Rooms
- T2 Require Wind-Resistant Building Techniques
- T2 Conduct Tornado Awareness Activities

⁶⁰ Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013

Wildfire

WF1 ... Map & Assess Vulnerability to Wildfire
WF2 ... Incorporate Wildfire Mitigation in the Comprehensive Plan
WF3 ... Reduce Risk through Land Use Planning
WF4 ... Develop a Wildland Urban Interface Code
WF5 ... Require or Encourage Fire-Resistant Construction Techniques
WF6 ... Retrofit At-Risk Structure with Ignition-Resistant Materials
WF7 ... Create Defensible Space around Structures & Infrastructure
WF8 ... Conduct Maintenance to Reduce Risk
WF9 ... Implement a Fuels Management Program
WF10 . Participate in the Firewise Program
WF11 . Increase Wildfire Awareness
WF12 . Educate Property Owners about Wildfire Mitigation Techniques

Multi-Hazards

MU1 ... Assess Community Risk
MU2 ... Map Community Risk
MU3 ... Prevent Development in Hazard Areas
MU4 ... Adopt Regulations in Hazard Areas
MU5 ... Limit Density in Hazard Areas
MU6 ... Integrate Mitigation into Local Planning
MU7 ... Strengthen Land Use Regulations
MU8 ... Adopt & Enforce Building Codes
MU9 ... Create Local Mechanisms for Hazard Mitigation
MU10 . Incentivize Hazard Mitigation
MU11 . Monitor Mitigation Plan Implementation
MU12 . Protect Structures
MU13 . Protect Infrastructure & Critical Facilities
MU14 . Increase Hazard Education & Risk Awareness
MU15 . Improve Household Disaster Preparedness
MU16 . Promote Private Mitigation Efforts

Appendix F: Acronyms

**Hazard Mitigation Planning
List of Acronyms**

| | |
|---------------|---|
| ACS..... | American Community Survey (Census) |
| BFE | Base Flood Elevation |
| BOCA | Building Officials and Code Administrators International |
| CIKR | Critical Infrastructure & Key Resources |
| CIP | Capital Improvements Program |
| CWPP | Community Wildfire Protection Plan |
| NH DNCR | NH Department of Natural & Cultural Resources (formerly DRED) |
| EMD | Emergency Management Director |
| EMS | Emergency Medical Services |
| EOC | Emergency Operations Center |
| ERF | Emergency Response Facility |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Map |
| FPP | Facilities & Populations to Protect |
| GIS..... | Geographic Information System |
| HFRA | Healthy Forest Restoration Act |
| HMGP | Hazard Mitigation Grant Program |
| HSEM..... | Homeland Security & Emergency Management (NH) |
| ICS | Incident Command System |
| LEOP | Local Emergency Operations Plan |
| MOU..... | Memorandum of Understanding |
| NOAA..... | National Oceanic and Atmospheric Association |
| NSSL..... | National Severe Storms Laboratory (NOAA) |
| MAPS..... | Mapping and Planning Solutions |
| NERF | Non-Emergency Response Facility |
| NFIP | National Flood Insurance Program |
| NGVD..... | National Geodetic Vertical Datum of 1929 |
| NH DOT | NH Department of Transportation |
| NH OSI..... | NH Office of Strategic Initiatives (formerly OEP) |
| NIMS | National Incident Management System |
| PR | Potential Resources |
| SPNHF | Society for the Protection of New Hampshire Forests |
| USDA | US Department of Agriculture |
| USDA-FS | USDA-Forest Service |
| USGS..... | United States Geological Society |
| WMNF..... | White Mountain National Forest |
| WUI | Wildland Urban Interface |

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Appendix G: Map Documents

The following 11" x 17" maps are included in hard copy plans:

Map 1 – Base Risk Analysis

Map 2 – Historic Wildfires & Wildland Urban Interface

Map 3 – Past & Potential Areas of Concern

Map 4 – Critical Infrastructure & Key Resources

Map 5 – Evacuation Routes, Bridges & Helicopter Landing Zones

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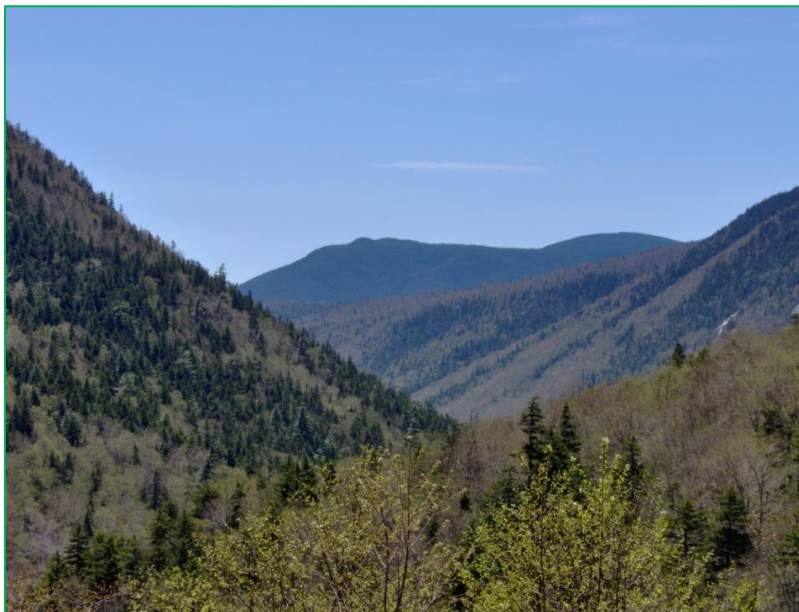
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*Scenic View from the Top of Crawford Notch looking south (Hart's Location)
Photo Credit: MAPS*

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