

# TOWN OF WEARE, NEW HAMPSHIRE



*River Road Bridge over the Piscataquog River, replaced in 2016*

## HAZARD MITIGATION PLAN UPDATE 2018



# TOWN OF WEARE NEW HAMPSHIRE

## HAZARD MITIGATION PLAN UPDATE

Adopted November 5, 2018

**Prepared by the Southern New Hampshire Planning Commission**

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## Acknowledgements

Appreciation is extended to the following people for contributing their time and effort to complete the *Weare Hazard Mitigation Plan Update 2018*:

### Weare Hazard Mitigation Committee Members

Sean Kelly	- Chief of Police, Weare Police Department
Naomi Bolton	- Town Administrator
Sue Tuthill	- Administrative Secretary, Weare Fire Department
Robert Vezina	- Emergency Management Director & Fire Chief, Town of Weare
Benjamin Knapp	- Director, Weare Department of Public Works
Chip Meany	- Land Use Coordinator, Weare Building Department
Tom Clow	- Weare Board of Selectmen
Chip Meany	- Building Inspector
Marjory Burke	- School Board Representative
Aprylle Desrosiers	- Associate Principal, John Stark Regional High School
Emily Dauphinais	- Administrative Secretary, Police Department

Thanks also to:

- The New Hampshire Department of Safety, Homeland Security and Emergency Management,, which developed the *State of New Hampshire Multi-Hazard Mitigation Plan Update 2013*;
- The Southwest Region Planning Commission, which developed *Hazard Mitigation Planning for New Hampshire Communities*; and
- The Auburn, Bedford, Chester, Derry, Goffstown, Hooksett, Londonderry, Manchester, and New Boston Hazard Mitigation Committees and their respective Hazard Mitigation Plans.

All the above publications served as models for this plan.

*"We will of course be there to help after disaster strikes, but as you all know, there's no substitute for mitigation before it does....*

*As a poet once wrote, "the test of men lies in action." We as emergency managers and first responders cannot afford to wait for action....*

*Through planning, mitigation, education, and cooperation, we can make sure our at-risk communities are prepared before the first drop of rain or gust of wind ever threatens our shores."*

—Joe Allbaugh, Director of FEMA,  
addressing the 2002 National Hurricane Conference

## Preface

Hazard mitigation planning is a relatively new field, spearheaded by the Federal Emergency Management Agency (FEMA) during the 1990s after Hurricane Andrew caused more than \$20 billion in damage across several southern states. That event resulted in 54 fatalities and the disruption of millions of lives. The Disaster Mitigation Act of 2000, developed by FEMA, was intended to help both communities and states prepare for, and deal with, such disasters. While New England normally does not have hurricanes of Andrew's magnitude, this area does experience many types of natural disasters that cost both lives and money.

These disasters and other natural hazards occur during all four seasons in the Northeast: winter ice, snow, and nor'easters; spring flooding; summer downbursts and thunderstorms; and fall hurricanes. Planning to make a community *disaster-resistant* before these events occur can help save lives as well as homes and infrastructure. FEMA has several programs designed to strengthen the nation's disaster resistance by reducing risks and changing conditions and behaviors before a disaster in order to protect lives and prevent the loss of property.

A community's eligibility for hazard mitigation funding depends upon its having adopted a hazard mitigation plan that addresses these issues. Mitigation measures contained within the *Weare Hazard Mitigation Plan* may be sufficient to receive grant funding.

It is hoped that this document will be a good first step toward analyzing hazards in Weare, forecasting where potential disasters might occur, and reducing their impact on people and the community.

## Table of Contents

Acknowledgements .....	i
Preface.....	ii
Executive Summary .....	vii
 <b>I. INTRODUCTION</b>	
Natural Hazards and Their Consequences .....	1
What Is Hazard Mitigation? .....	3
Why Develop a Hazard Mitigation Plan? .....	3
Benefits of Hazard Mitigation.....	4
Background: Weare Hazard Mitigation Planning.....	4
Purpose.....	4
Authority .....	5
Scope of the Plan .....	5
Methodology.....	5
Plan Update Methodology .....	6
Plan Update Public Committee Meetings .....	6
Public Outreach and Coordination .....	6
Incorporation into Town Planning.....	9
Existing Weare Emergency Management Plan.....	9
State of New Hampshire Legislation Related to Master Plans .....	10
Plan Development Steps 1-10 .....	11
Hazard Mitigation Goals for the Town of Weare.....	13
 <b>II. HAZARD IDENTIFICATION</b>	
Location, Population, Topography, and Climate.....	14
Current Land Use Development Trends in Weare .....	15
National Flood Insurance Program.....	16
Hazard Identification .....	20
A. Flooding.....	22
1. Riverine flooding .....	22
2. Hurricanes.....	27
3. Debris-impacted infrastructure and river ice jams .....	29
4. Erosion and mudslides.....	29
5. Rapid snow pack melt.....	30
6. Dam breach or failure.....	30
B. Wind.....	33
1. Hurricanes.....	34
2. Tornadoes.....	35
3. Nor'easters .....	36
4. Downbursts.....	37
5. Lightning.....	38

## Table of Contents (continued)

C. Fire.....	39
1. Wild land fires .....	39
2. Isolated homes.....	41
D. Ice and Snow Events.....	42
1. Heavy snowstorms .....	42
2. Ice storms .....	45
3. Hailstorms.....	47
E. Seismic Events .....	48
1. Earthquakes .....	48
2. Landslides .....	52
F. Other Hazards .....	52
1. Utility pipe failure.....	52
2. Drought .....	53
3. Extreme heat .....	54
4. Extreme cold .....	56
 <b>III. VULNERABILITY ASSESSMENT</b>	
Disaster Risk and Vulnerability Assessment .....	58
Flooding.....	59
Hurricanes.....	59
Debris-Impacted Infrastructure and River Ice Jams .....	59
Erosion, Mudslides, and Rapid Snowpack Melt .....	60
Dam Breach or Failure.....	60
Tornadoes.....	60
Heavy Snowstorms, Nor'easters, Ice Storms .....	60
Lightning .....	61
Wild Land Fires.....	61
Earthquakes .....	61
Utility Pipe Failure.....	62
Downbursts, Hailstorms, Landslides, Geomagnetism, Drought, Extreme Heat/Cold .....	62
Critical Facilities.....	63
Areas at Risk .....	66
Commercial Economic Impact Areas.....	68
Hazardous Materials Facilities.....	70



## Table of Contents (continued)

<b>IV. EXISTING MITIGATION STRATEGIES AND PROPOSED IMPROVEMENTS</b>	
Description of Existing Programs.....	72
Existing Protection Matrix .....	77
<b>V. NEWLY IDENTIFIED MITIGATION STRATEGIES AND CRITICAL EVALUATION</b>	
Summary of Existing and New Strategies.....	79
Existing and New Mitigation Strategies Table .....	79
Mitigation Strategy Evaluation Process.....	82
STAPLEE Chart .....	83
<b>VI. PRIORITIZED IMPLEMENTATION SCHEDULE AND FUNDING SOURCES</b>	
Implementation Strategy for Priority Mitigation Actions.....	85
Overview of Mitigation Strategies and Related Cost Estimate .....	85
Time Frame Delineation.....	88

### LIST OF MAPS

Location Map of Weare, New Hampshire .....	
Critical Facilities Map.....	Following Section II
Identified Hazard Zones Map.....	Following Section II
Areas at Risk Map .....	Following Section II

### APPENDIXES

- A. Definitions
- B. New Hampshire Dam Classification Schedule
- C. Bibliography, Agencies, Web Sites
- D. Technical and Financial Assistance for Hazard Mitigation
- E. WHMC Meeting Agendas, Minutes and Attendance Sheets
- F. Documentation of Plan Adoption



## Town of Weare, New Hampshire

### Hazard Mitigation Plan

#### Executive Summary

The *Weare Hazard Mitigation Plan* has been developed to help Weare become a disaster-resistant community by taking measures to reduce future losses from natural or man-made hazardous events before they occur. The Weare Hazard Mitigation Committee (WHMC), made up of community members and town officials, developed the plan.

Natural hazards are addressed as follows:

- |             |                        |                   |
|-------------|------------------------|-------------------|
| A. Flooding | C. Fire                | E. Seismic Events |
| B. Wind     | D. Ice and Snow Events | F. Other Hazards  |

The Weare Hazard Mitigation Committee identified critical facilities, areas at risk, commercial economic impact areas, and hazardous materials facilities.

#### **Critical Facilities:**

- Town Offices
- Post Offices
- Police and Fire Stations
- Emergency Operations Centers
- Emergency Shelters
- Emergency Fuel Facilities
- Fuel Facilities
- Cell Towers
- Public Works Garages
- Public Water Systems
- Sewer Pumps

#### **Areas at Risk:**

- Solid Waste and Recycling Facilities
- Internet Services
- Telephone Facilities
- Bridges
- Dams
- Transportation Services
- Historic Properties
- Libraries
- Schools
- Child Care Facilities
- Community Centers
- Indoor Recreation Areas
- Outdoor Recreation Areas
- Commercial Resources
- Religious Facilities

## Existing Hazard Mitigation Strategies

The Weare Hazard Mitigation Committee identified existing strategies related to hazard mitigation as follows:

- Emergency Operations Plan
- Floodplain Development Regulations
- Elevation Certificates
- Wetlands Zone Land Planning Ordinance
- Aquifer Protection Ordinance
- Residential Manufactured Housing District
- Excavation and Soil Removal Regulations
- Erosion and Sediment Control Regulations
- Drainage Requirements
- Road Design Standards
- Fire Protection Cistern Specifications
- Weare Building Codes
- Weare Fire Department Regulations
- Hazardous Materials Regulations
- Town Radio System
- Police Department
- Winter Maintenance Ordinance
- Comprehensive Emergency Management Planning for Schools (CEMPS)
- NH State Dam Program
- NH Shoreland Protection Act
- Best Management Practices

## New Mitigation Programs and Policies

The Weare Hazard Mitigation Committee identified *new* hazard mitigation strategies as follows:

- Address flood and other mitigation strategies during pre-construction meetings, to review road designs, with project applicants, a representative of the Planning Board and the Public Works Department.
- Establish a committed community network to check on elderly populations during hazard or extreme weather events.
- Establish a program to remove snow off of municipal building roofs including the town offices, fire and police stations and the schools, among many others
- Inform residents of the importance of fire and other emergency personnel communication including the need in Weare to place short communication towers throughout the town.
- Implement Nixle or a similar public outreach system
- Purchase an emergency generator for the transfer station
- Provide alternate access road to Route 77 from the highway department
- Provide NFIP information/brochures at Town Hall and links on the town website
- Update the Emergency Operations Plan
- Develop a communications plan/outreach campaign for getting emergency info out before and during emergencies and disasters

- Develop a hazardous tree removal program to identify & remove diseased or damaged trees.
- Upgrade electrical at Weare Middle School Emergency Shelter to increase capacity/capability for sheltering and supply
- Replace and upgrade the inadequate culvert at Lull Road per specifications of the State Transportation Improvement Program.
- Upgrade River Road
- Upgrade road including Culvert on John Stark School Emergency Access Road
- Purchase 2-4 portable electronic signs
- Support CIP to upgrade town vehicles
- Obtain emergency generators for Town Office

This plan is to be reviewed on an annual basis and updated every three to five years by the Weare Planning Department in coordination with the Weare Board of Selectmen.



## SECTION I INTRODUCTION

*"Plans are worthless. Planning is essential." –Dwight D. Eisenhower*

### **Natural Hazards and Their Consequences**

During the past decade, the United States has suffered a record number of natural disasters. In 1992, Hurricane Andrew caused an estimated \$20 billion in damage. The 1993 Midwest floods resulted in some \$12-\$16 billion in damage. The 1994 Northridge earthquake caused \$20 billion in damage, and the 2002 summer flooding in central Texas is expected to top \$1 billion in damage. In 2005, Hurricane Katrina inflicted unprecedented financial and human costs. Flooding 80 percent of the City of New Orleans, damage is estimated to surpass \$75 billion, making it the costliest hurricane in United States history. Katrina was also the deadliest U.S. hurricane since the 1928 Okeechobee Hurricane with at least 1,383 lives lost.



*Photo of four homes lost in Tennessee due to a mile-wide tornado during November 2002. Portions of the Midwest and South are assessing the damage from more than 70 tornadoes that touched down. The death toll stands at 35 throughout five states. President George W. Bush declared a major disaster for Tennessee, opening the way for the use of federal disaster funds to help meet the recovery needs of families and businesses devastated by the tornadoes. Mossy Grove, Tennessee, was among the hardest hit areas as 12 people were killed and the rural town was destroyed. (FEMA photo courtesy of Jason Pack)*

In New England, more than 100 natural disasters during the past quarter century have been sufficiently catastrophic to be declared "disaster areas" by the president, making them eligible for federal disaster relief. That is about four

major disasters per year. Nine out of ten of these disasters were the result of flooding.

The October 2005 floods in southwestern New Hampshire caused catastrophic damage. At least five bridges were washed out, up to 18 families left homeless, more than 1,000 people displaced by evacuations and seven deaths. Rainfall amounts of approximately 9 inches in southwestern New Hampshire from October 7-12 made for swollen rivers, streams and brooks. While events of this magnitude are not commonplace, damage could be averted or reduced with the implementation of foresighted hazard mitigation efforts.



*North of the Village of Gilsum, Southwestern New Hampshire  
October 2005*

Another recent severe flooding event in New Hampshire took place over Mother's Day weekend 2006. Like the October 2005 floods, this flood was due to record breaking amounts of rainfall of 8.8 inches, as recorded in Concord, from May 13<sup>th</sup> to the 16<sup>th</sup>. Preliminary damage assessments estimate 25 homes in the State were destroyed, another 235 severely damaged, and another nearly 4,750 damaged. Over 600 roads were closed statewide. Additionally, over 200 schools closed for at least the Monday and Tuesday following the onset of flooding. Three dams were breached, another four required controlled breaches, and two other dams failed. Additional damages to businesses are estimated to be greater than four million dollars and 115 businesses were damaged. Damages to state and local infrastructure are estimated to be beyond \$14 million. Other recent serious floods occurred in the state in October of 2005, April of 2007, late summer/early fall of 2008 and March of 2010.



Floods, tornadoes, winter storms, hurricanes, earthquakes, and wildfires - natural disasters - are part of the world around us. Their occurrence is inevitable. These events can wreak havoc on the natural environment by uprooting trees, eroding riverbanks and shorelines, carving new inlets, and blackening forests. Yet the natural environment is amazingly resilient, often recuperating in a matter of days or weeks.

When these events strike the man-made environment, however, the result is often more devastating. Disasters occur when a natural hazard crosses paths with elements of the man-made environment, including buildings, roads, pipelines, or crops. When hurricanes tear roofs off houses, it is a disaster. When tornadoes ravage a town, it is a disaster. When floods invade low-lying homes, it is a disaster. If only undeveloped wetlands and floodplains are flooded, rather than homes and businesses, few take notice. The natural environment takes care of itself. The fabricated environment, in contrast, often needs some emergency assistance.

### **What Is Hazard Mitigation?**

Hazard mitigation is the practice of reducing risks to people and property from natural hazards. FEMA's Federal Response Plan defines hazard mitigation as "activities designed to alleviate the effects of a major disaster or emergency or long-term activities to minimize the potentially adverse effects of future disaster in affected areas (A-5)." It includes both structural interventions, such as flood control devices, and nonstructural measures, such as avoiding construction in the most flood-prone areas. Mitigation includes not only avoiding the development of vulnerable sections of the community, but also making existing development in hazard-prone areas safer. For example, a community could identify areas that are susceptible to damage from natural disasters and take steps to make these areas less vulnerable. It could also steer growth to less risky areas. Keeping buildings and people out of harm's way is the essence of mitigation.

Mitigation should not be seen as an impediment to growth and development. On the contrary, incorporating mitigation into development decisions can result in a safer, more resilient community, one that is more attractive to new families and businesses.

### **Why Develop a Hazard Mitigation Plan?**

The full cost of the damage resulting from natural hazards—personal suffering, loss of lives, disruption of the economy, and loss of tax base—is difficult to measure. New Hampshire is subject to many types of natural disasters: floods, hurricanes, nor'easters, winter storms, earthquakes, tornadoes, and wildfires, all

of which can have significant economic and social impacts. Some, such as hurricanes, are seasonal and often strike in predictable locations. Others, such as floods, can occur any time of the year and almost anywhere in the state.

### **Benefits of Hazard Mitigation**

Hazard mitigation offers many benefits for a community. It can:

- **Save lives and property.** A community can save lives and reduce property damage from natural hazards through identifying risks and taking action, such as elevating structures in the floodplain.
- **Reduce vulnerability to future hazards.** By having a mitigation plan in place, a community is prepared to take steps that will permanently reduce the risk of future losses. This opportunity is often lost when communities are built without regard to natural hazards, or when they are rebuilt after a disaster "just like they were before." While it is natural to want to return things to the way they were, it is important to remember that, in many cases, the disaster would not have been as severe if a mitigation plan had been implemented.
- **Facilitate post-disaster funding.** By identifying and ranking recovery projects before the next disaster, a community will be in a better position to obtain post-disaster funding because much of the background work necessary for applying for federal funding will already be done.
- **Speed recovery.** By developing a mitigation strategy, a community can identify post-disaster mitigation opportunities in advance of a disaster and be ready to respond quickly after a disaster.

### **Background: Weare Hazard Mitigation Planning**

The Federal Emergency Management Agency (FEMA) has recommended that all communities establish local hazard mitigation plans as a means to reduce future losses from natural or man-made hazard events before they occur. Beginning November 1, 2004, FEMA has mandated an approved hazard mitigation plan be in place to receive specific disaster related grants. With a Pre-Disaster Mitigation Grant from FEMA, New Hampshire Homeland Security and Emergency Management (NHHSEM) provided funding to the Southern New Hampshire Planning Commission (SNHPC) to develop a local hazard mitigation plan for the Town of Weare. SNHPC began working with Weare representatives during November 2005 to produce this plan and updated it in 2011 and in 2018.

### **Purpose**

The *Weare Hazard Mitigation Plan* serves as a strategic planning tool for use by the Town of Weare in its efforts to reduce future losses from natural or man-made hazard events before they occur. This *Plan* may constitute a new section of the Weare Master Plan, in accordance with RSA 674:2.

### **Authority**

This *Hazard Mitigation Plan* was prepared in accordance with the Town of Weare's Emergency Operations Plan, 2006, and under the authority of the Planning Mandate of Section 409 of Public Law 93-288 as amended by Public Law 100-707, the Robert T. Stafford Act of 1988, and the Disaster Mitigation Act of 2000. The *Weare Hazard Mitigation Plan* will be referred to as the "*Plan*." After a public hearing was held at the Weare Town Offices on November 5, 2018 the Weare Board of Selectmen formally adopted this *Plan* on November 5, 2018. Documentation of this *Plan*'s adoption is provided in Appendix F.

### **Scope of the Plan**

The scope of the *Weare Hazard Mitigation Plan* includes the identification of natural hazards affecting the Town, as identified by the Weare Hazard Mitigation Committee. The committee reviewed hazards in the following categories as outlined in the *State of New Hampshire Multi-Hazard Mitigation Plan Update 2013* and identified by the Committee:

- A. Flooding - including riverine flood events, hurricanes, debris-impacted infrastructure and river ice jams, erosion and mudslides, rapid snowpack melt, and dam breach or failure.
- B. Wind - including hurricanes, tornadoes, nor'easters, downbursts, and lightning.
- C. Fire - including wild land fires, target hazards, and isolated homes.
- D. Ice and snow events - including heavy snowstorms, ice storms, and hailstorms.
- E. Seismic events - including earthquakes and landslides.
- F. Other events - including utility pipe failure, geomagnetism, drought, extreme heat, and extreme cold.

### **Methodology**

In November 2005, the Weare Hazard Mitigation Committee (WHMC) was formed to begin the initial planning stages of the *Weare Hazard Mitigation Plan*. The WHMC developed the contents of the *Plan* using the 10-step planning process set forth in the Southwest Regional Planning Commission's *Hazard Mitigation Planning for New Hampshire Communities* handbook, along with the FEMA *State and Local Mitigation Planning How-To Guides*. The SNHPC assisted the WHMC in the development of this *Plan*. The Committee consisted of representatives from various local agencies, including the Weare Planning and Zoning Department, Land Use Department, Emergency Management, Fire Department, Police Department, Building Department, Public Works, and Board of Selectmen. The Committee held five meetings beginning in November 2005 and ending in May 2006 to collect information, compile, and review the *Plan*.

### **Plan Update Methodology**

In April 2011, the Weare Hazard Mitigation Committee (WHMC) was formed to begin updating the plan. The Update Committee used the same ten-step planning process set forth in the *Hazard Mitigation Planning for New Hampshire Communities* handbook as did the original Committee. Each section of the plan was reviewed and updated according to new information and the events of the past 5 years. The Update Committee consisted of representatives from various local agencies, including Emergency Management, Town Administration, Code Enforcement, Planning, Fire Department, Police Department, Department of Public Works, Planning Board and Board of Selectmen, and the Weare Middle School. The Committee held a total of five public meetings beginning in April 2011 and ending in August 2011 to collect information, compile the plan update, and review the plan update.

In January 2016, the WHMC reconvened to update the Plan. The WHMC utilized the State's 2013 State Multi-Hazard Mitigation Plan as well as the FEMA Local Hazard Mitigation Handbook to guide the update process. Each section of the plan was reviewed and updated according to new information considering any events during the past five years. The WHMC was comprised of leadership staff from the Police Department, Land Use Department, Fire Department, Town Administration, Department of Public Works, Building Department, Board of Selectmen, Building Inspector, School Board Representative, and John Stark Regional High School.

### **Plan Update Public Committee Meetings**

On the following dates, the Weare Hazard Mitigation Committee held committee meetings at the Weare Safety Complex: August 23, 2016, September 27, 2016, November 3, 2016, January 11, 2017 and May 17, 2017. **Committee meetings from January 2016 to May 2017 were made public and posted in a minimum of two public places as required by New Hampshire state law for public meetings. Postings were made on the Town website, the SNPC website, and public bulletin board.**

Minutes were kept for each meeting. Each committee member received an e-mail that contained minutes of the previous meeting and an agenda. The minutes were available to the public on the SNHPC website. Copies of the meeting agendas, minutes, and attendance sheets are provided in Appendix E.

### **Public Outreach and Coordination with Other Agencies and Individuals**

The Hazard Mitigation Committee members and their respective town departments contributed the contents and reviewed the *Plan* drafts. Departments represented were:

- Building Department

- Fire Department
- Land Use Department
- Planning Board
- Emergency Management
- Police Department
- Department of Public Works
- Town Administration
- Weare Middle School

The Committee Chair and Emergency Management Director, Robert Vezina contacted the following individuals and agencies for their review and comment on the *Plan* during August 2011:

- Weare Conservation Commission
- Citizens Corps Director
- Weare School System
- Weare Fire Wards
- Weare Board of Selectmen

### **Public Officials**

**Board of Selectmen:** – Tom Clow (Vice Chair) - [tcLOW@weare.nh.gov](mailto:tcLOW@weare.nh.gov)

### **Staff**

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**Chief of Police:** Sean Kelly, (603) 529-7755 - [sean.kelly@wearepolice.com](mailto:sean.kelly@wearepolice.com)

**Building Inspector :** Chip Meany, (603) 529-7586 – [cmeany@weare.nh.gov](mailto:cmeany@weare.nh.gov)

### **Land Use Boards**

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**Planning Board Rep (Vice Chair):** F. Bruce Fillmore - [fbfillmore@gsinet.net](mailto:fbfillmore@gsinet.net)

**Chairman of Zoning Board:** Jack Dearborn – [jack.l.dearborn@comcast.net](mailto:jack.l.dearborn@comcast.net)

**Conservation Commission:** Bill Bolton - [bill.bolton@mygsc.com](mailto:bill.bolton@mygsc.com)

### **Schools**

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**School Board Rep:** Marjory Burke - [marge.burke@sau24.org](mailto:marge.burke@sau24.org)

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## **Emergency Management Contacts for Surrounding Communities**

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Director

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### **Francestown**

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### **Field Representative**

Heather Dunkerley, Sr. Field Representative at NH Department of Safety - Homeland Security & Emergency Management

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On August 27, 2016 Weare Police Officer Sheila Savaria and Administrative Secretary Emily Dauphinas distributed information on the Weare Hazard Mitigation Plan Update at the town's Old Home Day event. Weare Police handed out informative FEMA pamphlets on the Unified Hazard Mitigation Assistance Grant Programs as well as a brochure on Hazard Mitigation from NH Homeland Security and Emergency Management.



The *Plan* was distributed to all abutting communities, including Dunbarton, Goffstown, New Boston, Francestown, Deering, Henniker, and Hopkinton for their review and comments. Availability of the *Plan* and its locations were publicized by public notice in the Union Leader, and postings at the Town Hall, post office, and town web site. No comments were received from the copies distributed to other agencies, departments, and the public.

## **Incorporation into Town Planning**

### **Existing Weare Emergency Operations Plan**

The Town of Weare last updated the *Town of Weare Emergency Operations Plan (EOP)* in 2006. This *Plan* describes *preparedness* activities to improve the Town's ability to respond to an incident; *response* activities, including rescue operations, evacuation, emergency medical care, and emergency personnel training; and *recovery* activities that begin after the disaster. *Mitigation* activities help to reduce or eliminate the damages from future disaster events, and can occur before, during and after a disaster. The *Weare Emergency Operations Plan* states in part:

*The Comprehensive Hazard Analysis shows that the community could be subjected to the damaging effects of (hazards). Various programs are*

*available to prevent or lessen these effects through mitigation. In order that these mitigation programs be effective, certain regulations and/or ordinances must be enacted by the community and must be accomplished during a pre-crisis period.*

*The citizens would be receptive to initiating mitigation programs when the potential benefits are properly explained. Private companies, which might present potential hazards to the community, would cooperate with officials to plan for mitigating these hazards. (Town of Weare, EMP O-1)*

Since the last Hazard Mitigation Update, the town has incorporated some of the 2012 Mitigation Actions into the town's Capital Improvement Program, including the replacement and upgrades of culverts. However, not every mitigation action identified in the 2012 Hazard Mitigation Plan was incorporated into town planning processes.

**Hazard identification, risk assessment data, goals, objectives and mitigation strategies contained in the Weare Hazard Mitigation Plan will be incorporated into the Weare EOP as appropriate.**

#### **State of New Hampshire Legislation Related to Master Plans**

During 2002, the State of New Hampshire adopted legislation related to master plans that requires municipalities to "provide more definitive guidance in planning and managing future growth." This new legislation allows a natural hazards section to be considered during the master planning process and incorporated into the master plan. The *Weare Hazard Mitigation Plan* may serve as a new section of the existing or future *Weare Master Plan*. This legislation, RSA 674:2 *Master Plan; Purpose and Description*, reads:

*The Master Plan may also include the following sections:*

*...(e) A natural hazards section which documents the physical characteristics, severity, frequency, and extent of any potential natural hazards to the community. It should identify those elements of the built environment at risk from natural hazards as well as extent of current and future vulnerability that may result from current zoning and development policies.*



The following narrative explains how the 2018 Weare Hazard Mitigation Plan was used during each step of the planning process to make revisions that resulted in this Plan

**Tasks to complete the Plan Update were as follows:**

**Task 1: Determine the Planning Area & Resources:** This task was conducted by town staff and the Regional Planning Commission. Information from the previous plan was reviewed and revised. The results of this research can be found in Section II, “Community Profile”.

**Task 2: Building the Planning Team:** This task was conducted by town staff and the Regional Planning Commission. Commission staff contacted department heads and land use board volunteers. Town staff made further inquiries and posted notices for residents and other stakeholders who might wish to volunteer their time and serve on a committee.

**Task 3: Create an Outreach Program:** This task was conducted by town staff and the Regional Planning Commission throughout the plan’s update. Together multiple efforts were made to involve and educate the public regarding the process and input of the plan. Details of various outreach efforts can be found in this section of the plan.

**Task 4: Review Community Capabilities:** The Committee reviewed each type of hazard and which sections of town were vulnerable to that type of hazard. The results were the Identified Hazards Map, which can be found at the end of Section II. Furthermore, the Committee identified and catalogued all of the critical facilities and areas at risk within the town, see Section V and maps "Critical Facilities," and “Areas at Risk” following Section II.

**Task 5: Conduct a Risk Assessment:** The Committee conducted several assessments to help determine the gaps in coverage. These include Assessing Probability, Severity, and Risk and Vulnerability Assessment (Section III).

**Task 6: Develop a Mitigation Strategy:** The Committee reviewed all hazards and the existing mitigation strategies meant to address those hazards in Section VI. In addition, the Committee evaluated the effectiveness of the existing measures to identify where they can be improved. Section VII summarizes the Committees efforts in reviewing “complete”, “completed and ongoing”, “deferred” and “new” mitigation action items. They evaluated all mitigation actions and prioritized them. The results are found in Section VIII, which provides the Committee’s rank, the projects STAPLEE score, problem statement, mitigation action, hazard addressed, responsible party, anticipated cost, potential funding source and timeframe.

**Task 7: Keep the Plan Current:** The Town of Weare understands the ramifications for ensuring that this plan be monitored and updated annually or after a presidentially

declared disaster. Section IX addresses this issue.

**Task 8: Review & Adopt the Plan:** The Committee members reviewed and approved each section of the plan as it was completed. After acceptance by the Committee, the Plan was submitted to the New Hampshire Homeland Security and Emergency Management (HSEM) for review. At a public meeting, the Board of Selectmen formally adopted the plan on November 5, 2018. The plan was then granted formal approval by HSEM on (date of FEMA approval).

**Task 9: Create a Safe & Resilient Community:** The committee discussed the mitigation actions in the Action Plan and the ways in which the implementation of the actions will be beneficial to the community. Annual reviews of the Action Plan by the committee are needed to maintain the timeframes identified for completion of activities. Incorporation of the plan into other land use plans and the Capital Improvement Plan help to ensure that the goals of the plan are met.

*"... [M]itigation works. The Seattle-Tacoma area did not suffer significant losses [following the February 28, 2001, earthquake] because 20 to 30 years ago local leaders invested in its future by passing building codes and issuing municipal bonds that implemented solid protective measures."*

—Joe Allbaugh, Director of FEMA  
Congressional testimony, May 16, 2001

## **Hazard Mitigation Goals of the Town of Weare**

The *Town of Weare Hazard Mitigation Plan*, which was prepared by the Southern New Hampshire Planning Commission and the Weare Hazard Mitigation Committee and is maintained by the Weare Emergency Management Director, sets forth the following hazard mitigation goals:

1. To improve upon the protection of the general population, citizens and guests of the Town of Weare, from all natural and Human-caused hazards.
2. To reduce the potential impact of natural and Human-caused disasters on the Town's Critical Support Services, Critical Facilities and Infrastructure.
3. To improve the Town's Emergency Preparedness, Disaster Response and Recovery Capability.
4. To reduce the potential impact of natural and Human-caused disasters on the Town's Economy, Environment, Historical & Cultural Treasures and Private Property.
5. To identify, introduce and implement cost effective Hazard Mitigation measures in order to accomplish the Town's Goals.
6. To reduce the Town's liability with respect to natural and Human-caused hazards generally.
7. To address the challenges posed by climate change as they pertain to increasing risks in the Town's infrastructure and natural environment.

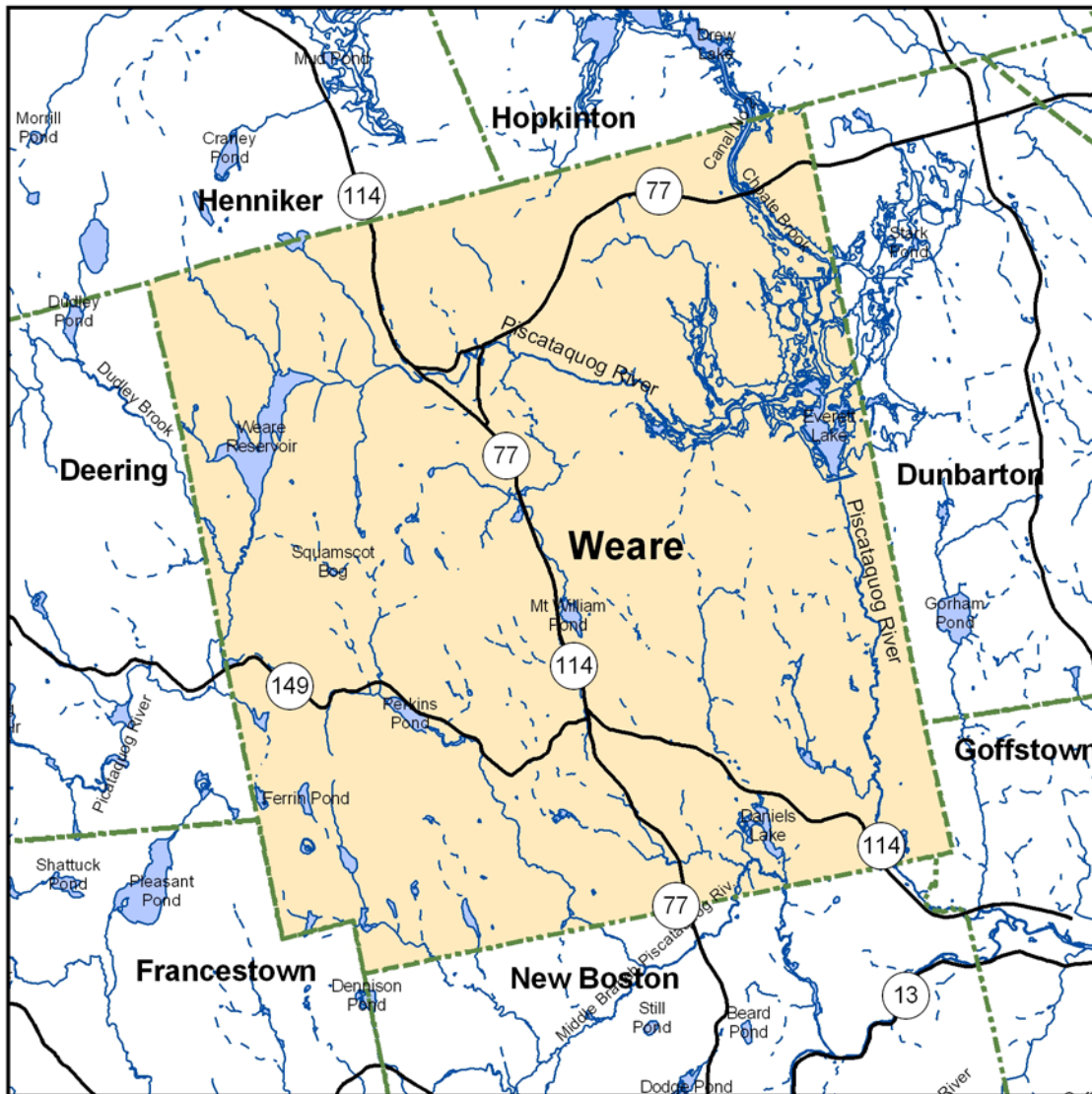
The Weare Hazard Mitigation Committee adopted the above goals, derived from the State of New Hampshire Hazard Mitigation Plan, for the Town of Weare, New Hampshire, at the May 18, 2011 committee meeting. The WHMC utilized these goals for the 2018 update.

More specific objectives, established after the Committee's analysis of past and potential hazards and review of existing mitigation strategies, may be found at the beginning of Section V: Newly Identified Mitigation Strategies and Critical Evaluation.

## SECTION II COMMUNITY PROFILE

### Location, Population, Topography, and Climate

The Town of Weare is located in the south-central portion of the State of New Hampshire in Hillsborough County. Weare is bordered by the Town of Henniker and Hopkinton to the north; the Town of Dunbarton and Goffstown to the east; the Town of New Boston to the south; and the Town of Francestown and Deering to the west. It is located approximately 20 miles northwest of the City of Manchester and about 15 miles southeast of the City of Concord. New Hampshire Routes 77, 114, and 149 provide primary highway access to the Town.



*Location Map of Weare, New Hampshire*

Weare encompasses a total of approximately 60.1 square miles, of which 59.06 square miles is land area. The 2010 U.S. Census population of Weare was 8,785. This is approximately 146 persons per square mile. The 2000 U.S. Census population of Weare was 7,827. From 2000 – 2010 there was an increase of 958 or approximately 16 people per square mile.

Weare has retained over time its natural and rural quality. Weare's predominant land use is residential while commercial and industrial uses comprise a small amount of the Town's area (Town of Weare 2005 Master Plan, 11).

There are two major water bodies in Weare. Everett Lake (Hopkinton – Everett Reservoir) is part of the Hopkinton-Everett Flood Control System and is located in Clough State Park. Lake Horace (Weare Reservoir), on the western side of town, is the other major water body in Weare. The total water area in Weare covers 665 acres. Additional watercourses in Weare include Choate, Center, Otter, Huse, Meadow, Hillside, Peacock, Ferrin, Breed, Buxton, and Peaslee Brooks and the North Branch Piscataquog River.

The climate of Weare is typical of southern New Hampshire, with warm summers and cool winters. Temperatures during the month of July range from an average high of 80.5 degrees Fahrenheit to an average low of 57.0 degrees. January temperatures range from an average high of 30.8 degrees to an average low of 10.0 degrees. Prolonged periods of severe cold are rare. Annual average precipitation is 47.29 inches. (Golden Gate Weather Services)

### **Current Land Use Development Trends in Weare**

Weare's land use development patterns have remained constant since 1900, with residential, and in the 1950s industrial and commercial development following the primary highway system and the Merrimack and Piscataquog River Valleys. In both residential and industrial and commercial, development has increased rapidly in recent years. The Town's 1994 Master Plan observed that the distinction between town and country had become blurred by highway strip development connecting residential areas. Weare has largely developed into a "bedroom community" for Manchester according to the most recent Master Plan (2005). Still, the land use pattern of Weare today is not much different from that of 1994. Some village areas are connected by strip development, although the remainder of the town is still predominantly rural (Town of Weare 2005 Master Plan 11).

Weare is the largest community in the region with 38,464.3 land area acres. Of that area, 12,008.5 acres, or about 31.2 percent, is developed. At 26,455.8 acres, Weare accommodates the most vacant land in the region, representing 68.8 percent of its total land area. Of Weare's developed acreage, 52.6 percent, or

6,318.6 acres, is in residential use. The next largest share of developed acreage includes public and semi-public lands, comprising 4,131.4 acres and representing 34.4 percent of all developed land. Most of this land is part of the Hopkinton Everett Flood Control Area. Other significant acreage includes: 1,036.3 acres of utilities and streets, or 8.6 percent of all developed land; 442.2 acres of commercial uses, or about 3.7 percent of all developed land; and 80 acres of industrial space, representing less than one percent of all developed land. (SNHPC 2011 Land Use Report). The town's development has had no impact on the degree to which it is vulnerable to hazards, and the vulnerability to hazards has largely remained the same.

The lack of extensive public water and sewer systems will likely constrain Weare's growth in the future, ensuring that low and high density residential development is the primary type of growth. Additionally, the land area currently zoned commercial or industrial is nearly 100 percent developed, with the undeveloped parcels unsuitable for development due to steep slopes, wetlands, floodplains or other environmental constraints.

Weare's Master Plan identifies four goals for future development opportunities. Future land use will be expressed as:

- Expanding and connecting the villages;
- Protecting the rural character and natural environment of the community;
- Enhancing opportunities for planned future commercial and industrial development;
- Implementing the principles of smart growth

The villages of Weare are strung out in a path from the northwest corner to the southeast corner of town following Routes 77 and 114. Future development designed to both strengthen the ties between villages and promote commercial and industrial growth will impact this swath. Since most industrial and commercially zoned parcels are developed, the Master Plan identifies a portion of the Mt. William property, currently zoned Rural Agricultural with a Conservation Overlay, as potential future industrial development. The Mt. William property abuts the area that is currently zoned and developed industrial and re-zoning a small portion of this parcel could be accomplished with little detriment.

However, the potential for riverine flooding, while generally low since the construction of the Hopkinton Everett Flood Control System and the Weare Reservoir Dam, is highest along this northwest to southeast swath of land because most streams and rivers flow southward through town.

The Master Plan sets objectives for future growth and land use development to channel development away from natural constraints and promote environmental protection. The following are many of the recommendations outlined in the Master Plan:

- Protect and maintain Weare's natural features, including surface water resources and shorelines, aquifers, drinking water supplies, wetlands, floodplains, hillsides and steep slopes, forested lands, open space, agricultural lands, prime farmland soils, wildlife corridors and conservation lands;
  - Minimize the negative impacts of over development on sensitive open space, wildlife corridors, working forests and farms, aquifers, rivers, watersheds, steep slopes, and viewsheds;
  - Continue to adopt land use regulations that further safeguard the town's natural resources;
  - Evaluate the effectiveness of the town's existing Rural Conservation Overlay District, Wetlands Zone Land Planning Ordinance, Aquifer Protection Ordinance and Floodplain Ordinance in protecting these resources;
  - Identify and develop protection strategies for Weare's Prime Wetlands;
  - Evaluate the feasibility of establishing a transfer of development rights program to aid in protecting the town's natural resource protection priority areas;
  - Continue to support the Piscataquog Watershed Association and the Local River Advisory Committee's efforts in Weare; and
  - Encourage economic development and expansion that conforms to the natural features of the land and the Town's rural character.
- (Town of Weare 2005 Master Plan)

Since the Plan was last updated in 2011, Weare has experienced some growth in residential development. The Town provided the Hazard Mitigation Plan Update Committee with the following development information.

Corresponding Map Location	<u>Development Name</u>	<u>Location</u>	<u>Map &amp; Lot</u>	<u>No. of Units</u>
	Rolling Hills Drive	Colby Road	412-186	49 lots
	High Rock Development (Hillbren)	Off Twin Bridge Road	110-007	16 lots
	Fessenden Development	Off River Road	412-101	14 lots
	Brookshire Development	Off South Stark Hwy (Route 114)	412-197	29 Lots

The Town of Weare's existing Zoning Ordinance, Floodplain Development Regulations, and Subdivision and Site Plan Regulations all work to minimize the

impacts, if not eliminate any development in the flood hazard areas. Within the floodplain district, no new development is allowed without a variance, which would increase flood levels during the occurrence of a 100-year flood event. These programs are further outlined in Section IV "Existing Mitigation Strategies and Proposed Improvements."

The land outside of the special flood hazard areas and areas of steep slopes remain the preferred location of development in Weare by the town and developers and extensive acreage of vacant developable land still exists outside these areas. Future development, beyond current rates of growth, may increase pressure to utilize these hazard areas, despite their inherent risks. Nonetheless, any proposed new developments or significant improvements in these zones would require variances from the Zoning Board of Adjustment and the Planning Board. The Town may assure low risk and low impact future development in the hazard zones given these review opportunities.

### **National Flood Insurance Program**

Weare has been participating in the National Flood Insurance Program (NFIP) since 1993. Digital Flood Insurance Rate Maps (DFIRMs), bearing the effective date of September 25, 2009, are used for flood insurance purposes and are on file with the Weare Planning and Building Departments. In addition the town has implemented the following actions related to continued compliance with NFIP:

- Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.
- Establish mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.
- Address NFIP monitoring and compliance activities
- Revise/adopt subdivision regulations, erosion control regulations, board of health regulations, etc. to improve floodplain management in the community
- Identify and become knowledgeable of non-compliant structures in the community.
- Inspect foundations at time of completion before framing to determine if lowest floor is at or above Base Flood Elevation (BFE), if they are in the floodplain
- Require the use of elevation certificates
- Enhance local officials, builders, developers, local citizens and other stakeholders' knowledge of how to read and interpret the FIRM
- Work with elected officials, the state and FEMA to correct existing compliance issues and prevent any future NFIP compliance issues through continuous communications, training and education



Actions associated with continued compliance with NFIP are prioritized with other newly identified mitigation actions in Section V and VI. According to the most recent FEMA Biennial Report, there were an unknown number of residential structures located in the FEMA designated special flood hazard areas (100 year floodplain).

The Town currently has 37 NFIP policies. Seven claims have been filed with NFIP since 1993 totaling \$109,690.83. There is currently one residential repetitive loss property insured under the NFIP within the Town of Weare.

In September 2017, the State's Floodplain Coordinator reviewed the Town of Weare's floodplain regulations and found that the Town's floodplain ordinance is still compliant. However, the subdivision and site plan review regulations will need amending.

## Hazard Identification

### Hazard Identification

The Weare Hazard Mitigation Committee identified past hazard events, which include flooding, wind, wildfire, ice, snow, and seismic events. Other hazards include geomagnetism, radon, drought, and extreme heat or cold. These hazards were identified in a brainstorming session with the Committee. The State of New Hampshire Hazard Mitigation Plan was consulted.. The Identified Hazard Zones Map at the end of this section reflects the impact areas for each hazard. The Committee reviewed background information, areas at risk, and the potential for each hazard to occur, pose a risk to, or cause damage to structures, infrastructure or human life.

1. Assigning Low, Medium, or High values (numerically 1, 2 or 3) to each hazard type for its possible impact to Human, Property, and Business factors (vulnerability). (A score of zero is given if the hazard is considered non-applicable).
2. The same process is used to assign Low, Medium, or High, values (numerically 1, 2, or 3) to each hazard type with respect to the probability that the hazard would occur in the next 25 years
3. The Severity is calculated by determining the average of the Human, Property, and Business impacts.
4. Risk is calculated by multiplying severity by probability.
5. Relative Threat Results: Low, Medium, High risk is assigned as follows:

(0-3.3 – Low) (3.4-6.6 Med) (6.7-10 High)

### Hazard Vulnerability Assessment

0-N/A 1-Low 2-Moderate 3-High	Human Impact  Probability of death or injury	Property Impact  Physical losses and damages	Business Impact  Interruption of Service	Probability  Likelihood this will occur in 25 years	Severity  Avg. of humans/property business	Relative Threat  Severity-x-Probability
Event						
Flooding						
Flooding (100-YR)	1	3	1	2	1.67	3.333333333
Riverine Flooding	1	3	2	1	2	2

Hurricanes	1	1	1	1	1	1
Debris Impacted Infrastructure	1	2	1	3	1.33	4
Erosion/Mudslides	1	1	1	1	1	1
Rapid Snow Pack Melt	1	2	2	3	1.67	5
Dam Breach/Failure	2	3	3	2	2.67	5.333333333
Road Wash Out/Culvert Crossings	1	2	1	3	1.33	4
Wind						
Hurricanes	1	1	1	1	1	1
Tornadoes	1	1	1	1	1	1
Nor'easter	3	3	3	3	3	9
Downbursts	2	2	2	2	2	4
Lighting	1	1	1	3	1	3
Fires						
Wild Land Fires	1	1	1	1	1	1
Isolated Homes	1	1	1	1	1	1
Ice and Snow Events						
Heavy Snowstorms	2	2	2	3	2	6
Ice Storms	2	2	2	2	2	4
Hailstorms	1	1	1	1	1	1
Seismic Events						
Earthquakes	1	1	1	1	1	1
Landslides	1	1	1	1	1	1
Other Hazards						
Drought	0	2	2	2	1.33	2.666666667
Extreme Heat	1	0	0	3	0.33	1
Extreme Cold	1	2	1	3	1.33	4
Critical Infrastructure	1	1	1	1	1	1
Arsenic in Wells	0	0	0	0	0	0
Large Trees Down Blocking Roads	0	0	0	0	0	0

Civil Disorder	1	1	1	1	1	1
Terrorism	1	1	1	1	1	1

### **A. Flooding**

The Weare Hazard Mitigation Committee reviewed the following kinds of hazards related to flooding:

#### **1. Riverine flood events**

Inland flooding is generally defined as a high flow, overflow, or inundation by water, which causes or threatens damage. Flooding results from the overflow of rivers, their tributaries, and streams throughout the State, primarily from high precipitation events. Flash flooding is defined as a flow with a rapid rise in water level and extreme velocities in a river or stream, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). Riverine flooding is the most common disaster event in the State of New Hampshire. In recent years some areas in the State have experienced multiple disastrous flood events at recurrence intervals of less than ten years. New Hampshire usually has a climate of abundant precipitation. Weather ranges from moderate coastal to severe continental, with annual precipitation ranging from about 35 inches in the Connecticut and Merrimack River valleys, to about 90 inches on top of Mount Washington. (2013 State Multi-Hazard Mitigation Plan)

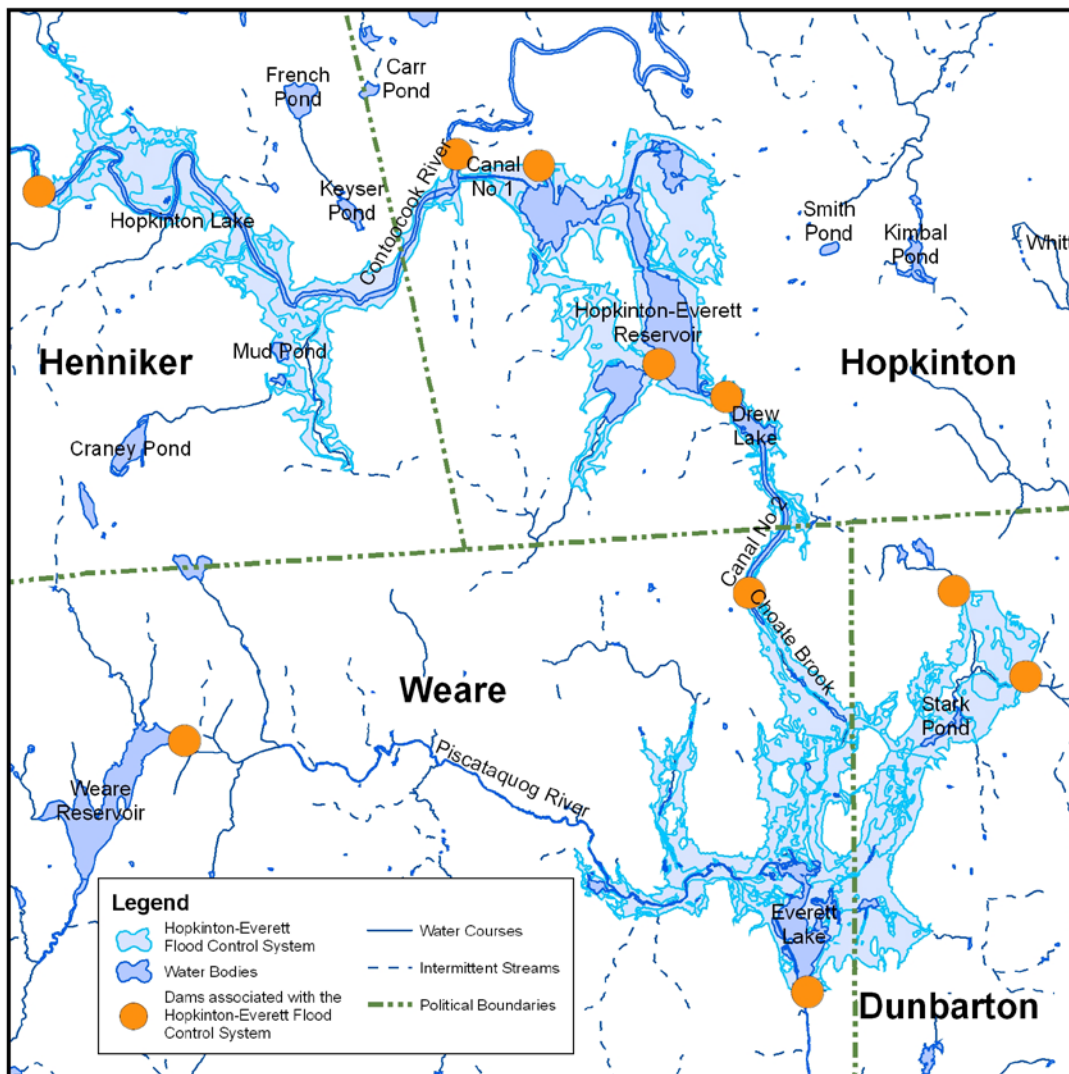
The most significant water features in the Town of Weare are the North Branch Piscataquog River and the Hopkinton Everett Reservoir (Everett Lake) Flood Control System. Other water bodies in town include Lake Horace (Weare Reservoir), Duck Pond, Mt. William Pond, Daniels Lake, and Perkins Pond Marsh. The numerous other watercourses include Breed, Center, Peaslee, Meadow, Choate, Buxton, Ferrin, Peacock, Hillside, Otter, and Huse Brooks. (FEMA FIS 2)

The North Branch Piscataquog River source is the Deering Reservoir, just west of northern Weare. The river flows for eight miles to the Weare Reservoir (274 acres) where it passes through a dam at the eastern end of the Reservoir and continues eastward for another 5.3 miles to the Hopkinton Everett Reservoir. The Piscataquog River flows southerly for 5.4 miles from its Everett Lake outlet to the Town of New Boston boundary. (FEMA FIS 3)

The Hopkinton Everett Flood Control System, built by the U.S. Army Corps of Engineers, was begun in 1959 and completed in 1963. The entire system is a complex of three reservoirs, two dams, and two canals in the towns of Henniker, Hopkinton, Weare, and Dunbarton. During minor flooding events the three reservoirs work independently and during moderate and severe events as a

single reservoir to provide additional storage capacity. The system is designed to minimize flood impacts in the Merrimack River Basin, as well as to communities downstream on the Contoocook River. (USACE NAE website)

Under normal circumstances, Everett Lake maintains an elevation of 340 feet and is 130 acres. Were floodwaters to reach the emergency spillway crest, the elevation would rise to 418 feet; the lake would cover 2,900 acres. During heavy floods, water from Hopkinton Lake and the Contoocook River is diverted to Everett Lake, which allows for 91,500 acre-feet of flood control storage. Additionally, the Army Corps of Engineers hold flowage easements for a maximum discharge of 1,500 cubic feet per second during extreme floods from the Everett Lake Dam into the Piscataquog River to relieve flood storage demands on Everett Lake. (FEMA FIS 3-4 and USACE NAE website)



*Hopkinton-Everett Flood Control System*

The HOPKINTON-EVERETT LAKES flood risk management project is a two-dam system of flood protection for the Merrimack Valley. Hopkinton Dam, on

the Contoocook River in Hopkinton, is 790 feet long and 76 feet high and can impound a 3,700-acre lake. Nearby Everett Dam, on the Piscataquog River in Weare, is 2,000 feet long and 115 feet high and can impound a 2,900-acre lake. The lakes have Update Report for New Hampshire Page 7 a combined storage capacity of 51 billion gallons of water and are linked by a canal, which allows water to be diverted between the two pools. Construction of the dual facility was completed in 1962 at a cost of \$21.5 million. During the 1987 flood this combined project utilized 95 percent of its storage capacity and prevented \$24.5 million in flood damages. Since the construction in 1962, the two dams are credited with preventing more than \$217.1 million in damages. In addition, excellent recreational opportunities are available on project lands, including picnicking, swimming, boating, fishing, hunting and snowmobiling. An estimated 450,000 visitors come to the Hopkinton-Everett project annually.

(<http://www.nae.usace.army.mil/Portals/74/docs/Media/State%20Updates/NHMay2016.pdf?ver=2016-06-15-112512-977>)

The June 1993 Flood Insurance Study for the Town of Weare identified the stillwater elevation during a 100 year flood event at Everett Lake to be 415.8 feet, at Weare Reservoir 657.4 feet, and 376.9 feet at Daniels Lake (FEMA FIS 7). Additionally, the FIS listed the following flood source locations and characteristics of each (FEMA FIS 6):

<b>Flooding Source and Location</b>	<b>Drainage Area (square miles)</b>	<b>100 Year Peak Discharge (cfs)</b>
Piscataquog River at the Riverdale Dam	69.0	2,200
Piscataquog River at the outlet of Everett Lake and USGE gage no. 01090800	63.1	2,200
Piscataquog River at the inlet to Everett Lake	41.0	3,860
Piscataquog River upstream from the confluence of Center Brook	34.2	3,380
Piscataquog River at the outlet of Weare Reservoir	27.5	2,880
Daniels Lake at the outlet	5.12	680

"Riverine flooding is the most common disaster event in the State of New Hampshire. Significant riverine flooding impacts upon some areas in the State in less than ten year intervals. (NHBEM 1999 III-3)" Heavy floods in Weare typically occur during the spring as a result of significant runoff generated from heavy rainfall and rapid snowpack melt. However, Weare is prone to flooding at all points in the year from heavy thunderstorms or hurricanes, causing rapid runoff and flooding. (FEMA FIS 3)

One of the greatest floods in Weare was during 1936 where flood water discharges as measured from the Piscataquog River near the Town of Goffstown reached 19,900 cubic feet per second, exceeding a 100-year recurrence interval (FEMA FIS 4). On record there are 18 flood-related FEMA-declared disasters in New Hampshire. Seven of these events have taken place since 2005. (FEMA, "Federally Declared Disasters by Calendar Year")

During an April 1987 event about six to eight inches of rain fell resulting in floods with between 20 and 50-year recurrence intervals and Everett Lake rose to 415.8 feet, the highest recorded height since construction of the flood control system. Previously, the highest water levels had been 405.5 feet in 1984. Additionally, the Weare Reservoir reached a flood elevation of 656.9 feet, surpassing the main spillway by 1.5 feet. (FEMA FIS 3-4)

The Town received grant funding from FEMA for several culvert replacements as a result of the flooding damages sustained during 1996. The Hazard Mitigation Committee members believe that the many repairs and mitigation efforts made following past flood events, especially after 1996, have reduced the Town's flood risk. During the October 2005 flood that wreaked havoc in southwestern New Hampshire and was a Federally Declared Disaster in five New Hampshire Counties including Hillsborough, the Town of Weare sustained virtually no damages.

However, during the May 13 to 16, 2006 floods the town, like many New Hampshire communities was greatly impacted by the nearly nine inches of rain that fell over a course of four days. This event, estimated to be a 100-year storm, was a clear example of how during heavy rainstorms, the most frequent cause of riverine flooding, damages are not limited to those from actual riverine flooding but also from high velocity water run-off.

The greatest damages occurred at the Lull Road Bridge, Old Francistown Road Bridge, Peacock Hill, and the landfill which partially lost its cap. Each of these locations incurred \$150,000 to \$250,000 in damages. While these larger damages were due to streams over topping the roads and ultimately causing several culverts to fail, much of the remaining damages were due to runoff. A total of 95 roads out of 129 roads or segments required repairs ranging from regrading to complete replacement. Total damages to the town, excluding that to private property, were estimated at just over \$1,253,000. Damage to the land fill cap was in a different location than when there was a landslide at the old dump causing the cap to be displaced in 1996 flood event.

Two families had to be evacuated from Newman Wilson Road near Daniels Lake and power was cut to both homes to prevent further problems. One of the

families stayed with family or friends and the other was accommodated by the American Red Cross. Of the two homes only one will be habitable with repairs.

Large flood events happened in 2007, 2008 and also in 2010 in New Hampshire. This event is becoming increasingly more frequent and is one of the greatest concerns for New Hampshire communities. Since 2012, Weare has not been severely impacted by flooding, and has upgraded culverts and bridges to mitigate future impacts.

The following areas in the Town of Weare, as identified by the Weare Hazard Mitigation Committee have had past recurring flood problems, including erosion and problem culverts:

<b>Area</b>	<b>Type of Damage and Description</b>	<b>Severity</b>
Fields south of Everett Dam	Fields become inundated during heavy rainfall and snow melt periods.	Low
John Connor Bridge	Frequently the water levels reach the bridge decking, significant flooding problems during the 1996 flood.	Low
	2017 - No issues since the 1996 flood	
Chipmunk Falls Brook	Frequent flooding due to regular beaver dam activity.	Low
	2017 - No issues since 2006	
Lull Road Bridge	A large culvert traversing Peacock Brook that is failing, rusted through, and structurally unsound; on the State's red list for repair; the original arch pipe culvert was severely damaged during the May 2006 flood event and needs complete replacement with a larger box culvert.	High
	2011 - Still needs replacement. Approved for funding in 2012 pending state budget issues. 2017 - The replacement of an inadequate culvert on Lull Road was diverted in order to repair the River Road Bridge.	



Area	Type of Damage and Description	Severity
Old Francestown Road Bridge	A large culvert traversing Peacock Brook, just south of Lull Road, that was severely damaged during the May 2006 floods and will need to be replaced. The original structure was an 11 foot arch and is proposed to be replaced with a box culvert.	High
	2011 – Still needs replacement. Approved for funding in 2012 pending state budget issues	
Riverdale Bridge and Dam at the Piscataquog River	Debris obstructions from fallen trees near the dam have caused past flood problems and approached several homes on River Road	Low
Dunlop Pond/Shady Hill Farm	A beaver dam washed out and took out the road in two places.	Low
Peacock Hill Road and Culvert	Flooding exacerbated due to debris obstruction in the culvert crossing Peacock Brook during the 1996 flooding event. The same culvert and road were severely damaged and needed replacement after the May 2006 floods.	Low
Oak Hill Road	A beaver dam obstructed the culvert and when the obstruction was cleared the adjacent swamp filled with water.	Low
Colby Rd, Etta Ln, Shady Hill Rd and Buckley, Boyce Rd, East Rd	Beaver Dams are creating minor flooding issues in these areas	Low
Abijah Bridge	Stone placed to hold water back on the left	Low

**All Special Flood Hazard Areas (SFHAs) in the Town of Weare** are potentially at risk in the event of riverine flooding. The SFHAs are located on the Identified Hazard Zones Map at the end of this section.

*Low probability for riverine flooding to occur and cause significant damage in Weare.*

## 2. Hurricanes

Hurricane: Once a tropical cyclone's maximum sustained winds reach 64 knots (74 MPH), the storm becomes a hurricane (in the North Atlantic and Northeast Pacific Ocean basins). The primary threats associated with hurricanes come from flooding due to a coastal storm surge, inland flooding due to heavy precipitation and severe winds. Hurricanes are known for their high winds and the damage

they can cause, but about 80 percent of deaths during hurricanes are due to drowning.

The largest recorded hurricane to strike New Hampshire was the Great New England Hurricane of 1938, which caused \$22 million (in 1938 dollars) in direct damage and killed 13 people. A repeat of this event today would be devastating. The state's population has more than doubled since 1938 and much of that population growth has been in areas near the coast or inland waterways. There are many more people in harm's way today. New Hampshire also lacks a statewide building code to enforce wind-resistant construction standards.

Hurricane Bob dealt New Hampshire a glancing blow in 1991 yet still was responsible for \$2.5 million in damage and three deaths. It is important to note that tropical storms below hurricane intensity have been responsible for some of the worst inland flooding experienced in the Northeast. Moving slowly and carrying lots of moisture, tropical storms can produce rain of several inches per hour. Even though hurricanes tend to lose intensity and their winds diminish as they move north, the heavy rain they bring can still be dangerous. (2013 State Multi-Hazard Mitigation Plan)

Potential effects of a hurricane include flooding, runoff not handled adequately, and disrupted travel.

The September 1938 hurricane was the most notable flooding event to strike Weare and other municipalities in southern New Hampshire. Piscataquog river flood water discharges were measured near the Town of Goffstown at 21,900 cubic feet per second, exceeding a 100-year storm. Additionally, during the 1938 storm the earthen washed out when the Deering reservoir failed. The 1938 flood is estimated to have been the greatest flood since 1733. (FEMA FIS 4) Hurricanes Carol and Edna caused some damage in August and September 1954.

Potential effects of a hurricane include flooding, runoff not handled adequately, and disrupted travel. The most recent hurricanes were: September 1985 – Gloria, August 1991 – Bob, September 1999 – Floyd and August 2011 – Irene, October 2012 – Sandy, and October 2016 – Matthew. During these events trees and power lines came down, and there was minimal structural damage.

**All areas of the Town of Weare** are potentially at risk if a hurricane reaches Hillsborough County, New Hampshire.

*Low probability for hurricanes to occur and cause significant flood damage in Weare.*

### 3. Debris-impacted infrastructure and river ice jams

Debris carried by floodwaters can significantly compromise the effectiveness of otherwise adequately designed bridges, dams, culverts, diverting structures, etc. Storm debris carried by floodwaters may exacerbate a given flooding hazard by becoming obstructions to normal storm water flow. Culverts and bridge crossings that are undersized in relation to the river or stream in which they are contained can lead to sedimentation and debris accumulation, potentially causing structural failures and major flooding downstream. (2013 State Multi-Hazard Mitigation Plan)

The potential effects of flooding are increased when infrastructure (culverts) are obstructed either by debris or ice formations. These obstructions compromise the normal stormwater flow, creating an artificial dam causing a backup of water upstream and forcing water levels higher. Debris obstructions can be caused from vegetative debris (including and typically beaver activity), silt, and soils, that have developed in infrastructure such as roadway culverts.

Historically, floods in Weare have been due to snowmelt and heavy rains in conjunction with debris-impacted infrastructure. If flooding occurs in the Town of Weare, there is the potential for debris-impacted infrastructure and ice jams to cause damage at the Piscataquog River at Riverdale Road, Peacock Brook Culvert, and Oak Hill Road Culvert. Occasionally, beaver dams obstruct culverts and watercourses and have caused significant flooding.

**All Special Flood Hazard Areas in the Town of Weare** are potentially at risk if there is an ice jam or debris-impacted infrastructure. Particular concern should be given to bridges and culverts across the many brooks in Weare including Meadow, Choate, Peacock, Hillside, Otter, and Dudley Brooks, as well as, Canal Number 2, Weare Reservoir, and the Piscataquog River. Since the Town's watercourses flow southward, the southern end of Town would be at greater risk than the northern half.

***Moderate probability for debris-impacted infrastructure or ice jams to occur and cause moderate damage in Weare.***

### 4. Erosion and mudslides

The New Hampshire Department of Environmental Services (NHDES) defines erosion as "the process in which a material is worn away by a stream of liquid (water) or air, often due to the presence of abrasive particles in the stream (NHDES Watershed Management Bureau)." As it relates to this *Plan*, erosion is the gradual or rapid wearing away of stream banks or shores, due to prevailing winds, natural water movement, and more catastrophic events. Additional causes of erosion are removal of vegetation and soil disturbance. Riparian

construction sites are one non-natural contributor (NHDES Shoreland Protection). Stream bank erosion may eventually result in mudslides.

Land in Weare which has at least a 15 percent slope, a vertical rise of 15 feet over a horizontal run of 100 feet, is scattered throughout the Town, usually occurring around hills and stream banks. Areas of steep slopes in Weare are shown on the Identified Hazard Zones GIS map at the end of this section.

The landfill cap slid in the mother's day flood of 2006. It was repaired but the potential for it to happen again is still there.

**All areas of steep slopes**, as mapped in this *Plan*, are potentially at risk in the case of erosion and mudslide events.

*Low probability for erosion and mudslides to occur and cause moderate damage in Weare.*

#### 5. Rapid snowpack melt

The State's climate, mountainous terrain increases the susceptibility to flooding which may be accelerated by the seasonal rapid melting of the snowpack, coupled with moderate temperatures and heavy rains. The upland areas may be exposed to associated erosion and deposition issues in or near streambeds. The lower-lying areas of the State may experience either flash-flooding or inundation events accelerated by the rapid melting of the snowpack. (2013 State Multi-Hazard Mitigation Plan)

Structures and improvements located on, along, or at the base of steep slopes are most vulnerable to rapid snowpack melt. These areas can be seen on the Identified Hazard Zones GIS map's depiction of steep slopes. In the Town of Weare the fields to the south of Everett Lake, and within a small valley, are susceptible to flooding from rapid snowmelt in addition to potential flooding from the Piscataquog River.

**All areas of steep slopes**, as mapped in this *Plan*, are potentially at risk in the event of rapid snowpack melt.

*Moderate probability for rapid snowpack melt to occur and cause minimal to moderate damage in Weare.*

#### 6. Dam breach or failure

Dam Failure is defined as the sudden, rapid, and uncontrolled release of impounded water. Dams can sustain damage during an unusually heavy rain event or a rain event that occurs in conjunction with runoff produced during the

spring thaw, which can stress a dam beyond its design capabilities. An example would be if a storm event produced more runoff than a dam's outlet works (spillways and gates, etc.) could pass. (2013 State Multi-Hazard Mitigation Plan)

The State of New Hampshire uses a hazard potential classification based on the impact of dam breach or failure. All Class H and S dams have the potential to cause damage if they breach or fail. Weare has 11 Class NM dams (non-menace hazard potential), five Class L dams (low hazard potential), and two Class H dams (high hazard potential). The dam classes are defined in Appendix B. (NHDES Dam Bureau, "Dams")

"The Department of Environmental Services (DES), through its Dam Bureau, is responsible for the regulation of the state's dams to ensure that they are constructed, maintained and operated in a manner to promote public safety (NHBEM 1999 III-9)." Per RSA 482:2, RSA 482:12 and RSA 482:11a, all owners of Class H and S dams are required to submit an Emergency Action Plan to NHDES as well as other applicable agencies in the State. (NHDES Dam Bureau, Environmental Fact Sheet DB-11)

The first of Weare's Class H dams is owned by the U.S. Army Corps of Engineers and is located at the southern end of Everett Lake and the Hopkinton-Everett Flood Control System. The dam is constructed of rolled earth fill with rock slope protection and is about 2,000 feet long and 115 feet high. The reservoir has never reached capacity and thus the dam has never failed. In 1987 the reservoir was the closest ever to exceeding its capacity at 95%. (USACE NAE website)

Replicating the 1936 flood event, the most severe anticipated occurrence, the inundation area spans from the dam itself at the northern limits along the Piscataquog River to its confluence with the Merrimack River, impacting the shores of that river as well in Manchester and Bedford. The inundation area includes four additional dams downstream with a hazard class rating of L or higher; 21 river crossings including four highway crossings; the villages of Riverdale, Parker, Goffstown, Grasmere and Pinardville; and Manchester. (USACE Dam-Break Analysis 2-7)

Within the Town of Weare there are thirteen bridges over the Piscataquog; Kuncanowet Hills Mobile Home Park; Riverdale Dam (class A); three historic homes including the Nancy Wilson House, and the Phineas Stone House; more than 15 occupied homes; two general contractors; two public water suppliers; and two industrial businesses on North Riverdale Road in or adjacent to the dam's inundation area. The two industrial businesses include New England Sheet Metal's warehouses and a variety of lessees utilizing the Riverdale Construction Company's facilities. Within the Riverdale Construction Company,

one business is registered as a hazardous waste generator with the New Hampshire Department of Environmental Services. However, the Hazard Mitigation Committee suspects there may be additional sources of pollutants or contaminants on the 8 North Riverdale Road site.

During a storm event surpassing the 1936 event, floodwaters would take an hour from the start of dam failure to reach a peak stage at the dam. Floodwaters could take just over 1.1 hours to reach the Goffstown town line and as little as 1.6 hours after initial dam failure to reach Goffstown's center with peak floods occurring at the town line two hours after the start of dam-break and three hours at Goffstown's center. Floodwaters at both points would be about 50 feet above normal river levels.

The leading edge of the floodwaters would reach Manchester 2.2 hours after the break and reach peak flood levels 4.5 hours after the initial dam break. At the confluence with the Merrimack River, the floodwaters could rise to 55 feet above normal river levels. At a point nine miles downstream from the confluence of the Piscataquog and Merrimack Rivers the flood waters would still be about 50 feet above normal river levels due to the relatively flat profile of the Merrimack River.

The 1983 Everett Lake Dam-Break Flood Analysis and 1985 Flood Emergency Plan for Everett Lake, as produced by the U.S. Army Corps of Engineers should be consulted for further detailed information.

The second of Weare's Class H dams is owned by the New Hampshire Department of Environmental Services and is the Weare Reservoir (or Horace Lake) dam at the eastern edge of the lake. The reservoir area covers 279 acres when the water level is at the spillway and has a maximum storage capacity of 4,439 acre-feet. The concrete gravity dam is 34 feet high and 340 feet long, with a 157-foot long ogee spillway. The drainage area stretches over 28.44 square miles, traveling five miles from the dam along the Piscataquog River into the Hopkinton-Everett Reservoir, then southeastward along the Piscataquog an additional 18 miles to the Merrimack River confluence in Manchester.

The dam breach analysis included in the Weare Reservoir Emergency Action Plan, developed by the NH Department of Environmental Services, assumes that a portion of the concrete spillway will fail during a 100-year flood event. The storm would reach a peak 100-year inflow of 6,778 CFS into the reservoir raising the lake elevation to 659.32 feet. The resulting breach width would be 70 feet and the peak discharge would be approximately 39,700 CFS immediately downstream.

The dam breach inundation area is limited to the land adjacent to the Piscataquog River between the Weare Reservoir Dam and the Hopkinton-Everett Reservoir, since it is assumed that the Everett Lake Dam and Reservoir will contain additional flood capacity and prevent further downstream flooding. It is estimated that during a 100-year event flood waters would take only 48 minutes from the initial break to reach the Barnard Hill Road Bridge in the Hopkinton-Everett Reservoir (4.8 miles downstream) and a total of 1.8 hours for the peak flood waters to reach the same point after the initial break. The inundation area includes numerous homes, State Routes 77 and 114, eight bridges, the North Weare and Chases' village centers, and two historic sites.

The Hazard Mitigation Committee was unaware of any past dam breaches or failures in the Town of Weare other than the Weare Reservoir failure during the 1938 flood and decided not to include any new mitigation actions addressing the hazard.

**The SFHAs in proximity to Weare's dams** as well as their designated floodways would be impacted by a dam breach.

*Moderate probability for dam breach or failure to occur and cause significant damage in Weare.*

### **B. Wind**

The most frequent problem and risk associated with all types of wind storms in the Town of Weare is downed trees and the secondary impacts of their falling, including downed power lines. There have been two Presidentially Declared Disasters for severe wind storms in Hillsborough County since 1982. The August 1990 windstorm caused approximately \$2.3 million in damages across all counties in the state except Belknap. The February 2010 windstorm caused more than \$2 million in damages across six counties in the state. The violent storm system left more than 330,000 without power in the state and 1 million across the Northeast after high winds and rain lashed the region. On March 29, the president declared a major disaster in six counties providing federal support to assist in the cleanup (FEMA, "Federally Declared Disasters by Calendar Year").

Since 1995 there have been 20 storms with high winds recorded in Hillsborough County that have not been associated with one of the specific wind event types as identified below. These 20 storms had winds of up to 615 knots and totaled \$1.595 million in damages across the county. (NOAA National Climatic Data Center)

There are two areas in Weare with an increased susceptibility of downed trees, some with greater associated risks as well. These areas include:

1. **Colby Road** – A large clearing with a 10 foot strip of trees between the road and clearing, trees frequently fall on power lines during wind storms;
2. **Merrill Road** – This is the only access to the Town’s fuel pumps. If a tree falls across the road, as happened during a 2003 snowstorm, the Town’s vehicles, including plows, cannot resume emergency operations or snow clearing until the obstruction is removed.

Both of these locations should be considered risk areas for the following kinds of hazards related to wind, reviewed by the Weare Hazard Mitigation Committee. Since the 2010 windstorm the utilities have been doing major clearing in these areas and the risk has been lowered from this mitigation effort. Since 2011, the Town has conducted tree thinning on Merrill Road to mitigate any potential obstruction.

#### 1. Hurricanes

Severe hurricanes reaching south-central New Hampshire in the late summer and early fall are the most dangerous of the coastal storms that pass through New England from the south. Tropical depressions are considered to be of hurricane force when winds reach 74 miles per hour (see the following table for hurricane categorization according to the Saffir-Simpson Scale). Substantial damage may result from winds of this force, especially considering the duration of the event, which may last for many hours. Potential effects of hurricane force winds include fallen trees, telephone poles, and power lines.

Saffir-Simpson Hurricane Scale		
Category	Winds (mph)	Potential Damage
1	74-95	Minimal
2	96-110	Moderate
3	111-130	Extensive
4	131-155	Extreme
5	>155	Catastrophic

Winds from the Hurricane of 1938, previously mentioned, reached a high of 186 miles per hour, a category 5 on the Saffir-Simpson Scale. (NHBEM 1999 III-22)

**All areas of Weare** are at risk if a hurricane reaches Hillsborough County, New Hampshire.

*Low probability for hurricane force winds to occur and cause significant damage in Weare.*



## 2. Tornadoes

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. These events are spawned by thunderstorms and occasionally by hurricanes. They may also occur singularly or in multiples. Tornadoes develop when cool air overrides a layer of warm air, causing the warm air to rise rapidly. Most vortices remain suspended in the atmosphere. Should they touch down, they become a force of destruction. (NH 2013 State Multi-Hazard Mitigation Plan)

Tornadoes are measured using the Enhanced Fujita Tornado Damage Scale, as seen in the following table (National Oceanic and Atmospheric Administration).

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

Since 1950, there have been 19 known tornadoes in Hillsborough County. Two of these were not rated, one was F0, 10 were F1, five were F2, and one was a F3 (August 1968). (Tornado Project Online) These storms totaled approximately \$1.5 million in damages across the county (NOAA National Climatic Data Center). There have been no records of notable damage from this hazard since the last Plan update.

**All areas of Weare** are potentially at risk if a tornado reaches the Town.

*Low probability for tornadoes to occur and cause moderate damage in Weare.*

### 3. Nor'easters

A Nor'easter is a large weather system traveling from South to North, passing along or near the seacoast. As the storm approaches New England and its intensity becomes increasingly apparent, the resulting counterclockwise cyclonic winds strike the coast and inland areas from a Northeasterly direction. In the winter months, oftentimes heavy snow conditions accompany these events. It can form over land or over the coastal waters. These winter weather events are notorious for producing heavy snow, rain, and tremendous waves that crash onto Atlantic beaches, often causing beach erosion and structural damage. Wind gusts associated with these storms can exceed hurricane force in intensity. A nor'easter gets its name from the continuously strong northeasterly winds blowing in from the ocean ahead of the storm and over the coastal areas.<sup>1</sup> Hazards from nor'easters include icing and heavy snows which cause downed trees and power lines to go down.

Nor'easters are measured on the Dolan- Davis Scale, as seen in the following table.

<b>Dolan-Davis Nor'easter Classification Scale</b>				
<b>Storm Class</b>	<b>% of Nor'easters</b>	<b>Avg. Return Interval</b>	<b>Avg. Duration (hours)</b>	<b>Impact</b>
<b>1- WEAK</b>	49.7	3 days	8	No property damage
<b>2- MODERATE</b>	25.2	1 month	18	Modest property damage
<b>3- SIGNIFICANT</b>	22.1	9 months	34	Local-scale damage and structural loss
<b>4- SEVERE</b>	2.4	11 years	63	Community scale damage and structural loss
<b>5- EXTREME</b>	0.1	100 years	95	Extensive regional-scale damage and structural loss

Source: State of NH 1999 Natural Hazards Mitigation Plan and NC Division of Emergency Management

During a 2003 snowstorm, 50 miles-per-hour winds were responsible for a tree falling onto a vehicle and killing its two passengers. Also during another 2003 storm a tree fell across Merrill Road blocking access to the Town's fuel pumps. The Town's plows were not able to resume road clearing operations until the tree was removed.

**All areas of Weare** are potentially at risk for property damage and loss of life due to nor'easters.

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<sup>1</sup> NOAA. National Weather Service. Glossary. <http://w1.weather.gov/glossary/index.php?letter=n>. 02-06-14.

*High probability for nor'easters to occur and cause significant wind damage in Weare.*

#### 4. Downburst

A downburst is a severe, localized wind blasting down from a thunderstorm. These “straight line” winds are distinguishable from tornadic activity by the pattern of destruction and debris. Depending on the size and location of these events, the destruction to property can be devastating. Downbursts fall into two categories: Microburst which covers an area less than 2.5 miles in diameter; and Macrobust which covers an area at least 2.5 miles in diameter.

The following table is from the 2013 State Multi-Hazard Mitigation Plan.

<b>State of New Hampshire Micro/Macrobust Historic Events</b>			
<b>Location(Town or Counties)</b>	<b>Date</b>	<b>Type</b>	<b>Damages</b>
Town of Stratham	08/18/1991	Microburst	11 Injured, 5 fatalities and \$2,498,974 in damages
Town of Moultonborough	07/26/1994	Microburst	Downed trees, utility poles and wires, 1800 homes without power, and 50 - 60 houses damaged
Merrimack, Grafton, Hillsborough	07/06/1999	Macrobust	2 fatalities, 2 roofs blown off structures, downed trees, widespread power outages, and damaged utility poles and wires
Town of Bow	09/06/2011	Microburst	City Auto in Bow had 15 campers damaged and estimated \$200,000 in damage
Lake Winnisquam, Tilton	07/04/2012	Microburst	Several large trees came down, many landing on homes or parked vehicles. No one was hurt, but there was a lot of damage. Thirty homes were damaged and 12 people spent the night sheltered at a local hotel.
City of Franklin, Webster Lake	10/30/2012	Microburst	Several large trees came down, landing on two summer homes, completely demolishing one. No injuries were reported.

The Hazard Mitigation Committee was not aware of any past known downburst events in the Town of Weare.

**All locations in Weare** are at risk for property damage and loss of life due to downbursts.

*Moderate probability for downbursts to occur and cause minimal to moderate damage in Weare.*

### 5. Lightning

Lightning is a giant spark of electricity that occurs within the atmosphere, or between the atmosphere and the ground. As lightning passes through the air, it heats the air to a temperature of 50,000 degrees Fahrenheit, considerably hotter than the surface of the Sun. During a lightning discharge, the sudden heating of the air causes it to expand rapidly. After the discharge, the air contracts quickly as it cools back to ambient temperatures. This rapid expansion and contraction of the air causes a shock wave that we hear as thunder, a shock wave that can damage building walls and break glass. In the United States, it is reported that an average of 54 people are killed by lightning annually. (2013 State Multi-Hazard Mitigation Plan)

Lightning can be measured to determine how likely it may be for starting fires. Using a Level system of 1 to 6 corresponding with storm development and the number of lightning strikes, the Lightning Activity level (LAL) measures the magnitude of lightning strikes as displayed in the below table.

**Lightning Activity Level (LAL)**

Level	LAL Cloud and Storm Development	Cloud to Ground Strikes per 5 Minutes	Cloud to Ground Strikes per 15 Minutes
LAL 1	No thunderstorms	n/a	n/a
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five minute period.	1 to 5	1 to 8
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5 minute period.	6 to 10	9 to 15
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a 5 minute period.	11 to 15	16 to 25
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.	>15	>25
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.	6 to 10	9 to 15

There was one recorded lightning strike in the Town of Weare on May 24, 2004. This storm struck two homes in Weare and Hollis, causing significant damages to both residences. Damages were estimated at \$350,000. (NOAA National Climatic Data Center). There was a reported lightning strike in south Weare in 2017.

**All areas of Weare** are potentially at risk for property damage and loss of life due to lightning.

*Low probability for lightning to occur and cause minimal damage in Weare.*

### **C. Fires**

The Weare Hazard Mitigation Committee reviewed the following kinds of hazards related to fires:

#### **1. Wild Land Fires**

Wildfire is defined as any unwanted and unplanned fire burning in forest, shrub or grass and is frequently referred to as forest fires, shrub fires or grass fires, depending on their location. They often occur during drought and when woody debris on the forest floor is readily available to fuel the fire. The threat of wildfires is greatest where vegetation patterns have been altered by past land-use practices, fire suppression and fire exclusion.

New Hampshire is a heavily forested state and is therefore vulnerable to this hazard, particularly during periods of drought and/or large-scale natural disturbances causing unusual fuel buildup. The proximity of many populated areas to the State's forested lands exposes these areas and their populations to the potential impact of wildfire. The Granite State is the second most forested state in the United States (trailing Maine). Forests occupy 84 percent, or 4.8 million acres. The southern portion of the State has seen rapid commercial and residential development which has extended into previously forested areas. Although this development has slowed, this sprawl has created its own concerns regarding the increased risk of damage in the wildland-urban interface. In a study conducted by the United States Forest Service in 2006, New Hampshire was ranked as having the highest percentage of homes in the wildland-urban interface of any state in the nation. Present concerns are that the Ice Storm of 2008 has also left a significant amount of woody debris in the forests of the region and may fuel future wildfires. (2013 State Multi-Hazard Mitigation Plan)

The potential magnitude of a hazard event, also referred to as the extent, scale or strength of a disaster, provides a measurement of how large and significant a hazard can become. The Table below shows the National Wildfire Coordinating Group (NWCG) Size Fire Classification.

<b>National Wildfire Coordinating Group (NWCG) Size Fire Classification</b>	
Class A	1/4 acre or less
Class B	More than 1/4 acre, but less than 10 acres
Class C	10 acres or more, but less than 100 acres
Class D	100 acres or more, but less than 300 acres
Class E	300 acres or more, but less than 1,000 acres
Class F	1,000 acres or more, but less than 5,000 acres
Class G	5,000 acres or more

The Town of Weare has a safety complex and two additional fire stations serving approximately 60 square miles. The Safety Complex also serves as the Emergency Operations Center and the Police Department.

Data pertaining to fires can be found in the Weare Town and School Annual Reports. There were a total of 217 fires from 2011-2016, including tree, brush, and grass fires, structure fires, vehicle fires, and other fire types including controlled burns, cooking, trash, or refuse fires, and other unauthorized burns. There were a total of 81 wildfires from 2011-2016. A summary of wildfire data from 2011-2016 is provided as follows.

<b>Fire Type</b>	<b>Number of Fires</b>
Brush or brush-and-grass	73
Forest, woods or wildland	5
Natural vegetation fire,	2
Grass fire	1

**Fires occurring more than once on a road are highlighted in the table below:**

<b>Road</b>	<b>#</b>
Concord Stage Road	7
DEERING CENTER ROAD	6
SOUTH STARK HIGHWAY	6

EAST WEARE ROAD	5
Clough Park Rd	4
RIVER ROAD	3
WILDWOOD ROAD	3
Cram rd	2
GETTINGS ROAD	2
ROLLING HILLS DRIVE	2
SOUTH SUGAR HILL ROAD	2

Past wild land fire events in the Town of Weare have occurred at:

- Hopkinton-Everett Flood Control Reservoir area – frequent forest and wild land fires with anticipated future events; lack of access or fire roads make firefighting difficult in this area;
- Clough State Park Road – an area of past events and anticipated future events, lack of access or fire roads make firefighting difficult in this area;
- Ferrin Pond on the back side of Boars Head – past events, lack of access or fire roads make firefighting difficult in this area; and
- Back side of Mount William Pond – a fire occurred here during 1953.

**In the Town of Weare, the following areas are susceptible to wild land fires:**

- All new developments – when trees are cut the soil dries leaving dead grass and creates a new urban-wild land interface;
- Trails – Weare has an extensive network of trails that are used year round for hiking, biking, and snowmobiling, the area to 250 feet on either side of all trails is at risk; and
- Campgrounds – unattended fires at the Town’s three campgrounds (Cold Springs, Autumn Hills, and All Season’s) pose an additional risk.

These areas have been identified on the Identified Hazard Zones GIS map.

*Low probability for wild land fires to occur and cause minimal damage in Weare.*

## 2. Isolated Homes

Isolated homes are more susceptible to the impacts of wildfire due to the challenges of reaching them with fire-fighting capabilities. Isolated homes are a concern for New Hampshire, as it is heavily forested and there has been an increase in the urban-wildlife interface as towns develop and grow.

There are many dead end, single access roads in Weare with residential development along them. The largest and most significant area with isolated homes is Mountain Road that branches off to multiple other roads and

subdivisions. The quality of Mountain Road and the large number of homes makes this the greatest area of isolated homes at risk. New developments in Weare with a single access point are required to place all utilities, including power, underground to prevent a disruption in supply during a hazard event. They are also required to provide other assurances that emergency vehicles will be able to reach the homes.

**In the Town of Weare, Mountain Road has several large isolated residential developments branched off on the following eight roads that are at risk:**

- Bartlett Drive;
- Lawrence Road;
- Etta Lane;
- Mountain School Road;
- Abbie Drive;
- Lorden Lane;
- Cram Road; and
- Bogue Road.

Other areas with isolated homes include (2011):

- Elanor Way
- Fessenden Ln
- Hilbren Rd
- Rolling Hills Dr
- Eastman Way
- Elm Dr
- Meadow Dr
- Jewett Rd

(2016) – Fieldstone Cr, Pheasant Rd, Gettings Rd, and Sawyer Rd

These areas have been identified on the Identified Hazard Zones GIS map.

*Low probability for isolated homes to receive minimal damage in Weare.*

#### **D. Ice and Snow Events**

The Weare Hazard Mitigation Committee reviewed the following kinds of hazards related to ice and snow events:

##### **1. Heavy snowstorms**

A heavy snowstorm is generally considered to be one that deposits four or more inches of snow (or 10 cm) in a twelve-hour period. A blizzard is a violent snowstorm with winds blowing at a minimum speed of 35 miles (56 kilometers) per hour and visibility of less than one-quarter mile (400 meters) for three hours.



A Nor'easter is a large weather system traveling from south to north, passing along the coast. As the storm's intensity increases, the resulting counterclockwise winds which impact the coast and inland areas in a Northeasterly direction. Winds from a Nor'easter can meet or exceed hurricane force winds. (2013 State Multi-Hazard Mitigation Plan)

For the intents of this *Plan*, heavy snowstorms include all storms with four or more inches of snow in a 12-hour period, including all blizzards and nor'easters (as defined under wind events) with large snow accumulation.

In the past 23 years, the Federal Emergency Management Agency declared six snowstorm-related Emergency Declarations for Hillsborough County. The first was declared by FEMA in March of 1993 for statewide heavy snow. (FEMA, "Federally Declared Disasters by Calendar Year")

The second was for snowstorms during March of 2001 covering seven of the state's 10 counties. Southern and central New Hampshire received approximately two feet of snow, on top of an existing base of about a foot, and many residents lost power. Wind speeds reached 24 miles per hour. (NOAA National Climatic Data Center and National Weather Service, Gray, Maine)

The third declared emergency was for a snowstorm on February 17-18, 2003. This storm accumulated approximately nine inches of snow, as reported in Henniker, added to an existing base of snow to create an approximate snow depth of 19 inches. Wind speeds reached a maximum of 14 miles per hour. (NOAA National Climatic Data Center and National Weather Service, Gray, Maine)

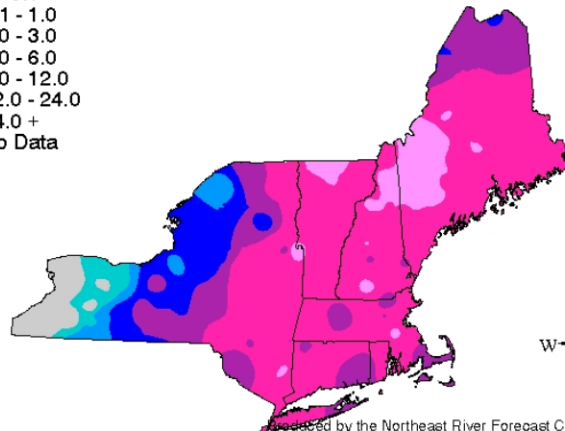
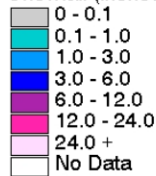
The fourth declared emergency was on December 6-7, 2003. This emergency was declared for eight of 10 New Hampshire counties. The storm accumulated approximately 23 inches of snow, as reported in Henniker, and winds were measured at up to 25 miles per hour. There was three inches or less of existing snow depth before the storm. (NOAA National Climatic Data Center and National Weather Service, Gray, Maine) Following is a map depicting snowfall during this storm.



### Storm Total Snowfall 8 am 12/05/2003 thru 8 am 12/08/2003



Snowfall (inches)



Source: National Weather Service Forecast Office, [http://www.erh.noaa.gov/er/gyx/storm\\_map\\_120503\\_120803.jpg](http://www.erh.noaa.gov/er/gyx/storm_map_120503_120803.jpg)

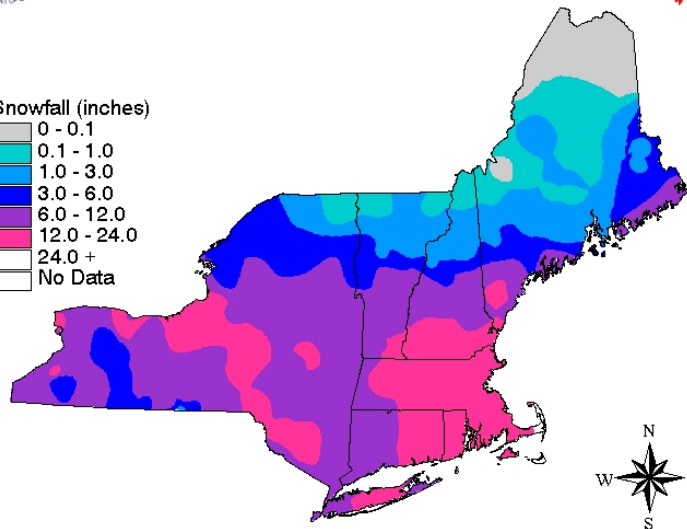
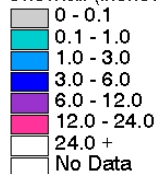
The fifth declared emergency was for January 22-23, 2005 and was declared for all New Hampshire counties, except Coos. The storm accumulated approximately 11 inches of snow, as recorded in Concord, on top of an existing nine-inch approximate snow depth. Maximum wind speeds were measured at 26 miles per hour. (NOAA National Climatic Data Center and National Weather Service, Gray, Maine)



### Storm Total Snowfall 8 am 01/22/2005 thru 8 am 01/24/2005



Snowfall (inches)



Source: National Weather Service Forecast Office, [http://www.erh.noaa.gov/er/gyx/storm\\_map\\_012405.jpg](http://www.erh.noaa.gov/er/gyx/storm_map_012405.jpg)

Recent State Declared Emergencies include DR-1812 in January 2009, and DR-1892 February-March 2010. The most recent declared emergency that impacted Weare was the Severe Winter Storm and Snowstorm (DR-4209) was for January 26, 2015 and was declared for four of New Hampshire's nine counties. The storm accumulated approximately six inches of snow, as recorded in Concord, on top of an existing 17-inch snow depth. Highest recorded winds were 15 miles per hour. (NOAA National Climatic Data Center and National Weather Service, Gray, Maine)

Recent heavy snowstorms affecting Weare and the region include:

- October 29-31, 2011 – known as the Halloween Storm (DR-4049)
- February 8-9, 2013, a Nor'easter, known as the Winter Storm NEMO (DR-4105)
- November 25-30, 2014, known as the Thanksgiving Day Snowstorm
- January 26 – February 16, 2015, a series of frequent and heavy snowstorms (DR-4209)

Department of Public Works provides ongoing maintenance of roads including clearing and paving during storm events.

**All areas of Weare** are potentially at risk for property damage and loss of life due to heavy snows.

*Moderate probability for heavy snowstorms, blizzards, and nor'easters to occur and cause significant damage in Weare.*

## 2. Ice Storms

Ice Storms occur when a mass of warm, moist air collides with a mass of cold, arctic air. The less dense warm air will rise and the moisture may precipitate out in the form of rain. When this rain falls through the colder, denser air and comes in contact with cold surfaces, ice will form and may continue to form until the ice is as thick as several inches.

Despite the beauty of ice events, the extreme weight of ice build-up may strain tree branches, power lines and even transmission towers to the breaking point, resulting in a loss of power, telephone service, or other services. Fallen trees, limbs, or utility poles may obstruct roads and restrict emergency vehicle passage. Additionally, ice creates treacherous conditions for highway travel and aviation.

The 1998 ice storm was a Federally Declared Disaster by FEMA for nine of the State's 10 counties, including Hillsborough County. The January 1998 ice storm was very similar in both its impact area and severity to a 1929 ice storm that

caused unprecedented damage to the telephone, telegraph and power system. The 1998 storm significantly damaged the utility network, causing all of Weare to lose power for four days. Across the State's impacted areas there were six related injuries, one fatality and 20 major road closures. Other ice storms in southern New Hampshire with impacts in Weare occurred in March of 1991 and January of 1979.

Weare, including the rest of New Hampshire and much of the Northeast, experienced an intense ice storm from December 11-12, 2008. A major disaster declaration was declared for 10 counties in New Hampshire, including Rockingham. The damage was widespread and approximately 400,000 residents of New Hampshire lost power from the storm. Restoring power to a majority of the State took approximately 14 days and in some extreme cases it took 17 days.

"It was absolutely unprecedented in devastation. Take the largest number of outages in any past storm, multiply that figure by three, and it still won't equal the outages in the 2008 ice storm." PSNH spokesman, Matt Chagnon, went on to say that, "the response was as unprecedented as the storm itself. PSNH put 2,400 linemen to work. On average, they restored power to 28,000 customers a day."<sup>2</sup> The 2008 ice storm is believed to be the worst ice storm ever recorded in New Hampshire.

**All areas of Weare** are potentially at risk for property damage and loss of life due to ice storms.

*Moderate probability for ice storms to occur and cause moderate damage in Weare.*

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<sup>2</sup> Sullivan, Margo. *State, power companies explore ice storm response*. 12/29/08.  
[http://www.eagletribune.com/punews/local\\_story\\_364030134.html](http://www.eagletribune.com/punews/local_story_364030134.html)

### 3. Hailstorms

Hailstorms are characterized by showery precipitation in the form of irregular pellets or balls of ice more than five mm in diameter, falling from a cumulonimbus cloud.<sup>3</sup>

Most hailstones are smaller in diameter than a dime, but, stones weighing more than a pound have been recorded. Details of how hailstones grow are complicated but, the results are irregular balls of ice that can be as large as baseballs, sometimes even bigger. While crops are the major victims, hail is also a hazard to vehicles and windows. Hail damage events can be severe to persons, property, livestock and agriculture.

The Hail Size Description Chart developed by the National Oceanic and Atmospheric Administration (NOAA) and enhanced by other National Weather Service local sites depicts the potential size of hail during a hurricane or severe storm event. Some examples from the Hail Size Description chart include “1/2 inch=Pea Size” and “2 inches=Hen Egg Size.”

**Hail Size Description**

<b>Hailstone Diameter in Inches</b>	<b>Size Description</b>
<1/4	Bb
1/4	Pea Size
1/2	Mothball Size
3/4	Penny Size
7/8	Nickel Size
Severe Criteria 1	Quarter Size
1 1/4	Half Dollar Size
1 1/2	Walnut or Ping Pong Ball Size
1 3/4	Golf Ball Size
2	Hen Egg Size
2 1/2	Tennis Ball Size
2 3/4	Baseball Size
3	Teacup Size
3 4/5	Softball Size
4	Grapefruit Size
4 3/4	CD/DVD
Note: Hail size refers to the diameter of the hailstone.	

**Sources: National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS)**

<sup>3</sup> NOAA. National Weather Service. Glossary.  
<http://w1.weather.gov/glossary/index.php?letter=n>. 02-06-14.

The National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center (NCDC) online database has recorded 55 hail storms in Hillsborough County since 1950. Hailstone diameters recorded ranged from .75 to two inches. The database notes two events specifically occurring in Weare on June 20, 2001 with one-inch hailstones and on September 13, 2010 with 0.75 inch hailstones. No damages were recorded for any of the events.

**All areas of Weare** are potentially at risk from this hazard.

*Low probability for hailstorms to occur and cause minimal damage in Weare.*

### **E. Seismic Events**

The Weare Hazard Mitigation Committee reviewed the following kinds of hazards related to seismic events:

#### **1. Earthquakes**

An earthquake is defined as a series of vibrations induced in the Earth's crust by the abrupt rupture and rebound of rocks in which elastic strain has been slowly accumulating. New Hampshire is considered to lie in an area of moderate seismic hazard with respect to other areas within the United States. New Hampshire has had and will continue to experience large damaging earthquakes; however, the intervals between such events are greater in New Hampshire than in high hazard areas.

Earthquakes in the New Hampshire cannot be associated with specific, known faults. Though there are no identified active faults in New Hampshire, no doubt that there are active faults located beneath the surface. With that said, there is a "zone" that extends from north of the Lakes Region south along the Merrimack River into Massachusetts where most New Hampshire earthquakes have occurred. New Hampshire is in the low attenuation of seismic waves in the eastern United States. Attenuation is a term in physics that means the slow loss of intensity of flow through any kind of medium. Seismic waves can cover an area 4 to 40 times greater in the east than they do in the west because of the cold hard rock geology of New Hampshire. The importance of this to emergency planning and response is that damages can be expected to be spread over a much greater area, and an earthquake's location does not have to be close to a particular point to cause damage. (2013 State Multi-Hazard Mitigation Plan)

There are two scales that measure earthquakes, the Modified Mercalli (MM) and the Richter scales. On the Richter Scale, magnitude is expressed in whole numbers and decimal fractions. For example, a magnitude 5.3 might be computed for a moderate earthquake, and a strong earthquake might be rated as magnitude 6.3. Because of the logarithmic basis of the scale, each whole number

increase in magnitude represents a tenfold increase in measured amplitude; as an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.<sup>4</sup> The Modified Mercalli scale denotes the intensity of an earthquake, as it is perceived by humans, their reactions and damage created. It is not a mathematically based scale but a ranking of perception. (USGS)

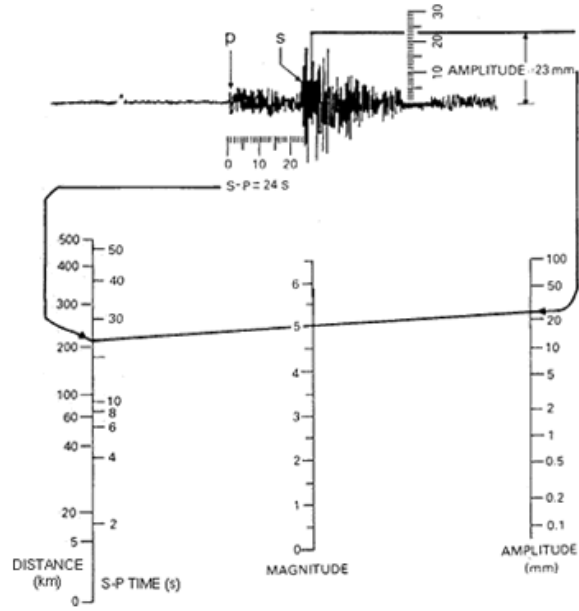
### Modified Mercalli Scale

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

Source: United States Geological Survey

<sup>4</sup> USGS Earthquake Glossary: Richter Scale. Retrieved from <https://earthquake.usgs.gov/learn/glossary/?term=Richter%20scale>

## Richter Scale



Source: USGS



For the figure to the right:

Depth is in kilometers.

Purple Triangles: Cities

Purple Star: Capital City

Circles: Earthquakes (color represents depth range)

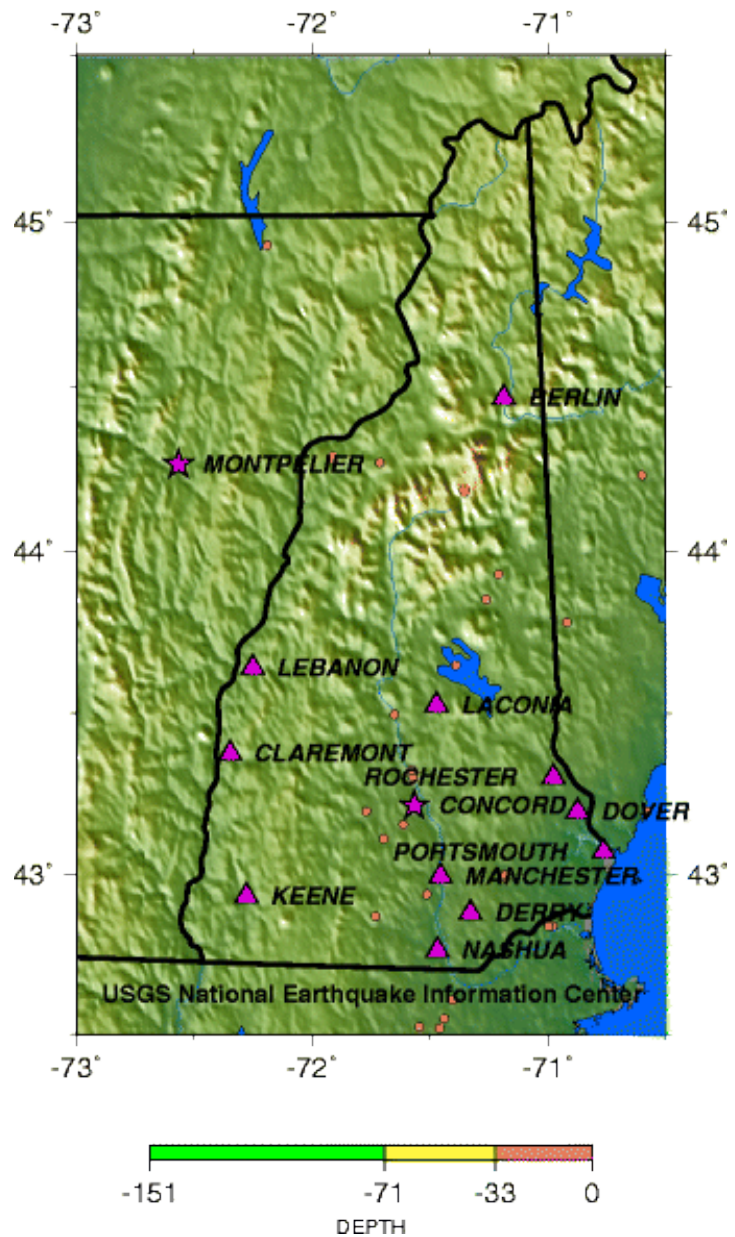
Earthquake locations are from the USGS/NEIC PDE catalog.

From 1728-1989, there were 270 earthquakes in New Hampshire. This averages to approximately one quake every year. There have been six quakes over 4.0 on the Richter scale during the 1900s (Ibid 39-42). The most recent quake occurred on June 9, 2010, near Berlin, New Hampshire, with a magnitude of 1.8 on the Richter scale (USGS Earthquake Hazards Program).

From 1728 to 1989, there were 270 earthquakes in New Hampshire. This averages to approximately one quake per year. There were six quakes over 4.0 on the Richter scale during the 1900s. (Ibid 39-42) The most recent earthquake was recorded in March of 2018 in Contoocook, NH, however had no impact on the Town of Weare.

## Seismicity of New Hampshire

1990 - 2006



**All areas of Weare** are potentially at risk for property damage and loss of life due to earthquakes. Additionally, all Class H and S dam's inundation areas in Weare would be at risk to dam failure as a secondary impact to a major earthquake.

*Low probability for earthquakes to occur and cause moderate damage in Weare.*

## 2. Landslides

A Landslide is the downward or outward movement of slope forming materials reacting under the force of gravity. These include mudflows, mudslides, debris flows, rockslides, debris avalanches, debris slides and earth flows. Landslides may be formed when a layer of soil atop a slope becomes saturated by significant precipitation and slides along a more cohesive layer of soil or rock. (2013 State Multi-Hazard Mitigation Plan)

During the 1996 flooding event, mentioned earlier under Riverine Flooding, rapid run-off caused the Town's landfill cap to be washed off, causing a landslide. Weare received a \$66,000 grant from FEMA to repair the landfill cap and install a new under-drain system that can adequately handle future high water flow capacity and prevent future erosion or landslides.

This same event happened again in 2006 and again the Town was awarded grant assistance to repair it. There has been no instance of a landslide impacting the Town since the last plan update.

**All areas of steep slopes** in Weare, as shown on the Identified Hazard Zones Map, are at risk for landslides.

*Low probability for landslides to occur and cause moderate damage in Weare.*

## F. Other Hazards

The Weare Hazard Mitigation Committee reviewed the following other kinds of hazards:

### 1. Utility pipe failure

Failure of utility pipe systems, including water, gas, and sewer, can be caused by joint leakage, contamination, pipe fracture or tuberculation. Pipe fractures are the most costly and potentially damaging of the failure modes. (Makar 2) Fractures can be caused by blunt force (e.g. construction digging) or ground shifting caused by the natural expansion and contraction of freezing and thawing soil during the winter months or from earthquakes. Pipe blocks in sewer systems can cause a buildup of harmful gasses and lead to explosions. (Suffolk County Water Authority)

Potential effects of water main failures can include immediate loss of water supply in the surrounding area, flooding, and road collapse. Sewer main failures can cause sewage backups, effluent leakage, and exposure to harmful bacteria.

Leaks in gas mains can lead to fires or explosions if there is either an ignition source or pressure built up in the pipe. Explosions occurring in underground pipes can create craters, and possibly result in death, injuries, and property damage. (National Transportation Safety Board, "Pipeline Accidents")

There are approximately 790 linear feet of water lines and one-half mile of sewer lines in Weare. Weare's water mains are two inches in diameter and sewer mains are eight inches. The two systems are maintained by the Weare Public Works Department and service five municipal buildings. The Town is increasing sewer capacity to include the new school building.

During May 2006 the end cap of the water main broke. The end cap is located in the basement of the historic town hall. Subsequently the basement of the historic structure was flooded. Municipal staff believes the end cap failed due to age and a recent increase in water flow capacity from the new town well.

**The developed area surrounding the intersection of Route 114, Flanders Memorial Road and East Road** should be considered at risk for utility system failures.

*Low probability for utility system failures to occur and cause minimal damage in Weare.*

## 2. Drought

A drought is essentially the absence of water in a region that occurs slowly due to below-average precipitation over an extended period, resulting in low stream flows, low surface water, and low groundwater levels" (State Multi-Hazard Mitigation Plan Update 2018). 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. Fortunately droughts are rare in New Hampshire. The severity of the drought is gauged by the degree of moisture deficiency, its duration and the size of the area affected. The effect of droughts, or decreased precipitation, is indicated through measurements of soil moisture, groundwater levels, lake levels, stream flow and increased fire danger. Not all of these indicators will be minimal during a particular drought. For example, frequent minor rainstorms can replenish the soil moisture without raising ground water levels or increasing stream flow for a sustained period of time.

Low stream flow correlates with low ground water level because it is ground water that discharges to streams and rivers that maintain stream flow during extended dry periods. Low stream flow and low ground water levels commonly cause diminished water supply.

New Hampshire breaks the State into five Drought Management Areas: one in the north; one across the central region; and three along the southern portion of the State. Federal agencies have coordinated to develop the National Drought Monitor which classifies the duration and severity of the drought using precipitation, stream flow, and soil moisture data coupled with information provided on a weekly basis from local officials. The New Hampshire Drought Management Team, whose efforts are coordinated by the NH DES, utilizes these maps to help determine which areas are hit the hardest. NH DES also maintains a "Situation Summary" where precipitation, stream flow, groundwater level, lake level and fire danger data from all over the state can be accessed to assess if areas in New Hampshire are being impacted by drought.

There are five magnitudes of drought outlined in the New Hampshire State Drought Management Plan. The highest magnitude is Exceptional, followed by Extreme, Severe, Moderate and Abnormally Dry. Each level has varying responses. (2013 State Multi-Hazard Mitigation Plan)

In the past five years, New Hampshire has experienced a significant drought periods. In spring of 2012, New Hampshire experienced a statewide drought. In 2016, southern New Hampshire and Hillsborough County experienced a severe to moderate drought.

During the drought in 2016, the NH DES had issued a series of statements and tips for homeowner water conservation. As of September 2016, residents and municipalities are requested to voluntarily conserve water.

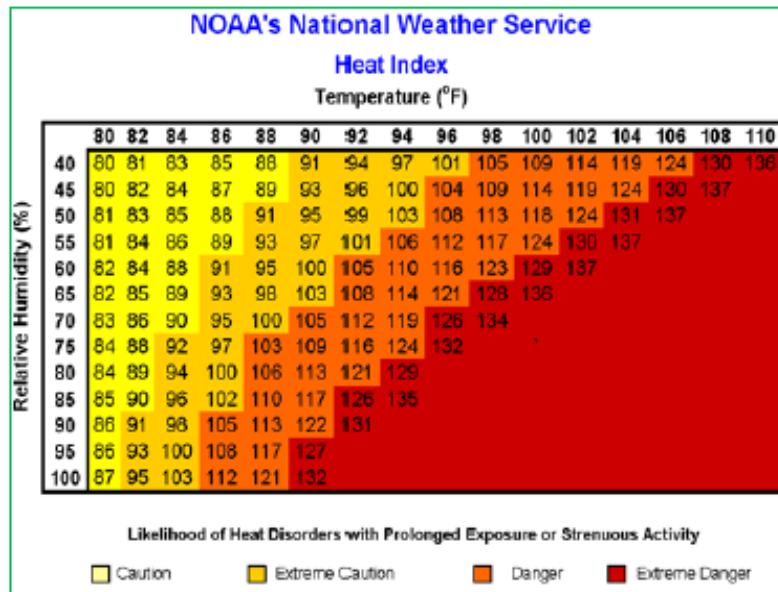
**All areas of Weare** would be affected by a drought.

*Low probability for drought to occur and cause damage in Weare.*

### 3. Extreme Heat

A Heat Wave is defined as 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 as the “urban heat island effect.”<sup>5</sup> NOAA’s National Weather Service has prepared the following Heat Index identifying likelihood of heat disorders under prolonged exposure or strenuous activity.



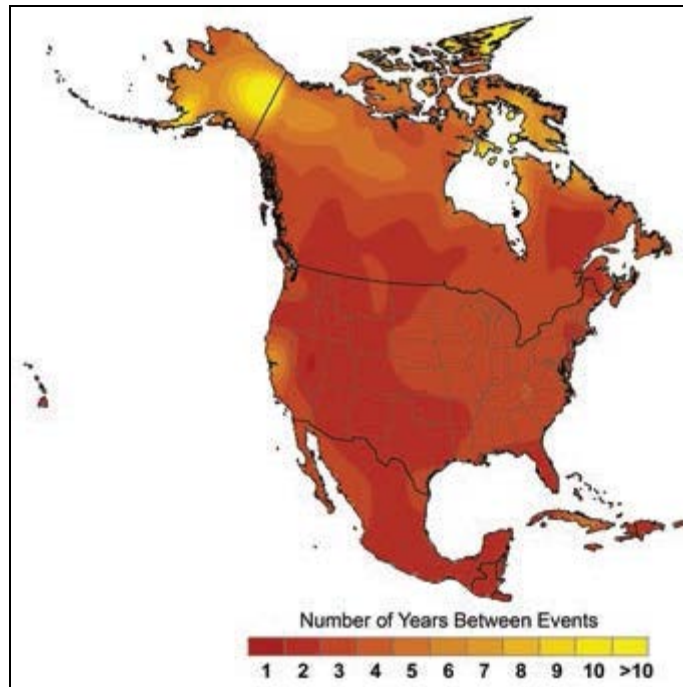
Extreme heat is an occasional and short-lived event in Southern New Hampshire. While there have been no extended periods of extreme heat in Weare, the state has seen a significant increase in mean annual temperature over the past 50 years.<sup>6</sup> By the end of this century, an extreme heat event that currently occurs once every 20 years could occur every two to four years in most parts of the country. This example is based on how the climate is expected to change under a high greenhouse gas emissions scenario.<sup>7</sup>

*Projected Number of Years Between Extreme Heat Events in the U.S.*

<sup>5</sup> NOAA, Index/Heat Disorders: <http://www.srh.noaa.gov/ssd/html/heatww.htm>  
Climate Change in Southern New Hampshire. Climate Solutions of New England, 2014.

<sup>6</sup> Hubbard Brook Ecosystem Study. November 2006.  
<http://www.hubbardbrook.org/research/climate/vadeboncoeur06.htm>

<sup>7</sup> Karl, T.R., J.M. Melillo, and T.C. Peterson (eds.). 2009. *Global Climate Change Impacts in the United States*. Cambridge University Press, New York.



Source: Karl, T.R., J.M. Melillo, and T.C. Peterson (eds.). 2009.  
*Global Climate Change Impacts in the United States*

**All areas of Weare** would be affected by extreme heat, in its event. Particular areas and populations at a greater risk are:

- elderly populations and day care centers;
- the power system that may become overburdened; and
- communication infrastructure negatively affected by power burden.

*Low probability for extreme heat to occur and cause minimal damage in Weare.*

#### 4. Extreme Cold

While most New Hampshire residents are rather habituated to the extreme cold situations in the State, and this is not a section identified by the State of New Hampshire Natural Hazards Mitigation Plan, it was decided to include a statement in this *Plan*. For the purposes of this *Plan* extreme cold will be referred to in a general manner, without a scientific definition. Periods of extreme cold pose a life-threatening situation for Weare's low-income populations. With the rising costs of heating fuel and electric heat, many low-income citizens are not able to adequately heat their homes, exposing themselves to cold related medical emergencies or death.

The following graphic is the average low and high temperatures in the Town of Weare in 2016:

Climate Weare - New Hampshire							°C   °F
	Jan	Feb	Mar	Apr	May	Jun	
Average high in °F:	31	35	44	55	68	76	
Average low in °F:	10	12	22	32	43	52	
Av. precipitation in inch:	3.94	3.23	3.94	3.94	3.94	3.78	
Days with precipitation:	-	-	-	-	-	-	
Hours of sunshine:	-	-	-	-	-	-	
	Jul	Aug	Sep	Oct	Nov	Dec	
Average high in °F:	80	78	70	59	47	35	
Average low in °F:	57	55	47	36	28	17	
Av. precipitation in inch:	3.9	3.9	3.98	4.37	4.41	4.06	
Days with precipitation:	-	-	-	-	-	-	
Hours of sunshine:	-	-	-	-	-	-	

(US Climate Data)

**All areas of Weare** would be affected by extreme cold, in its event. Particular areas and populations at a greater risk are:

- elderly populations and day care centers;
- power system that may become overburdened; and
- low-income populations.

***Moderate probability for extreme cold to occur and cause minimal damage in Weare.***

A GIS-generated map, following this page, was prepared to illustrate the Identified Hazard Zones.

## 5. Avalanche

Although avalanches affect other communities in NH, the Town of Weare has no experiences of avalanches recorded due to no steep slopes of concern near infrastructure or other uses.



# Critical Facilities

## Town of Weare

Critical Facilities

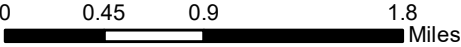
- Cell Tower
- Emergency Operations Center
- Emergency Shelter
- Fire Station
- Fuel Facilities
- Post Office
- Public Water System
- Public Works Garage
- Safety Complex
- Sewer Pump
- Town Offices
- Town Boundary
- Parcels

Waterbodies

- Lake/Pond
- Swamp/Marsh
- Rivers and Streams
- Utility Lines

Roads

- State Roads
- Local Roads
- Private Roads

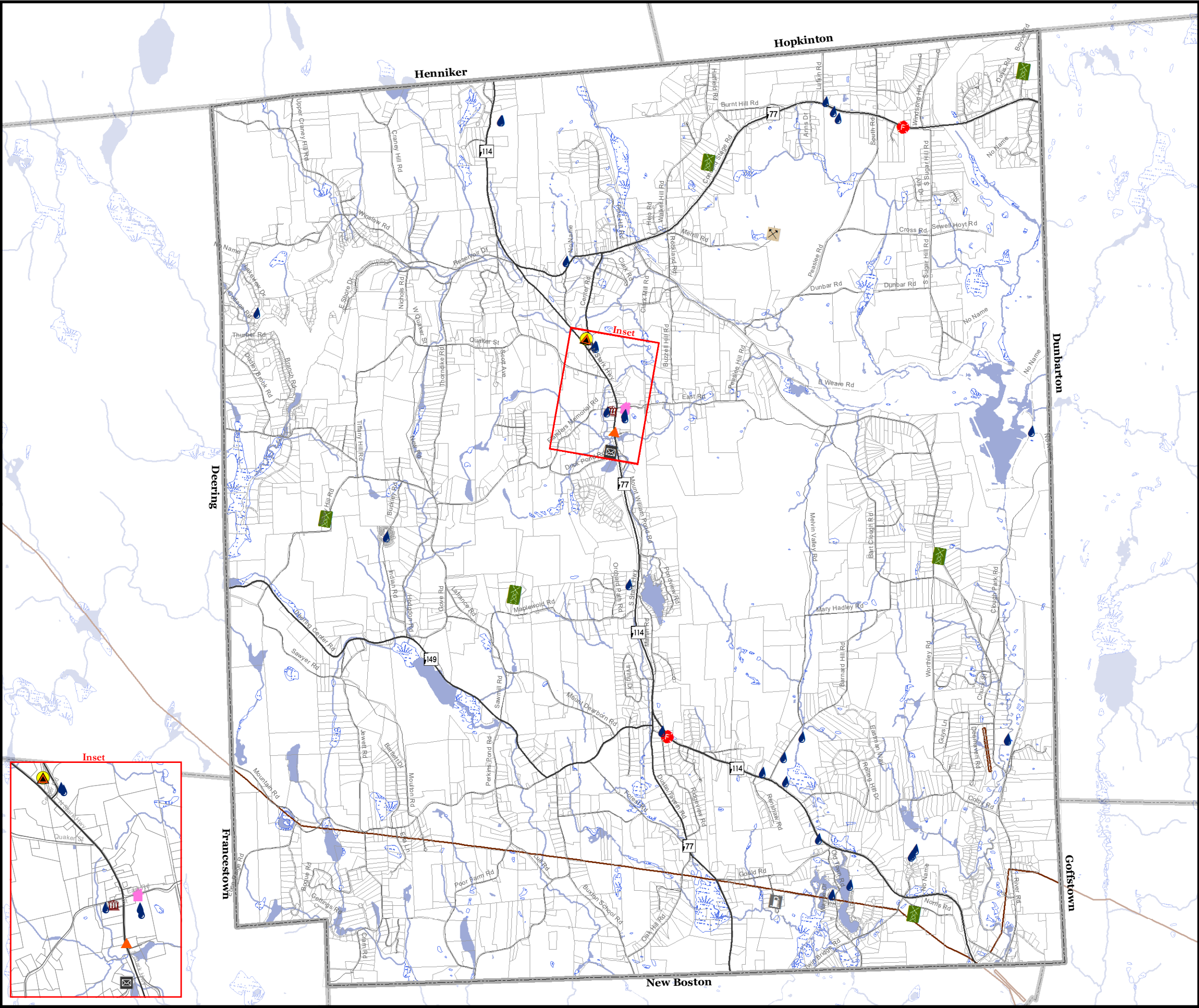


Data Sources:  
Granit Digital Data (1:24,000)  
NH Department of Transportation  
Town of Weare  
SNHPC

The Town of Weare and the SNHPC make no representations or guarantees to the accuracy of the features and designations of this map.

Map produced by SNHPC July 2017.

This map is designed as part of the Towns Hazard Mitigation Plan and is for planning purposes only. It is not to be used for legal boundary determinations or for regulatory purposes.





Identified Hazards

Town of Weare

Past and Potential Hazards

- Wild Fire
- Target Hazards
- Erosion
- Isolated Homes
- Flooding
- Wind/Snow
- Repetitive Loss
- 100 Year Floodplain

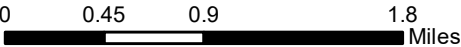
Steep Slopes

- with a maximum 25% gradient
- with a maximum 35% gradient
- with a maximum 60% gradient

- Town Boundary
- Parcels
- Lake/Pond
- Rivers and Streams
- Utility Lines

Roads

- State Roads
- Local Roads
- Private Roads

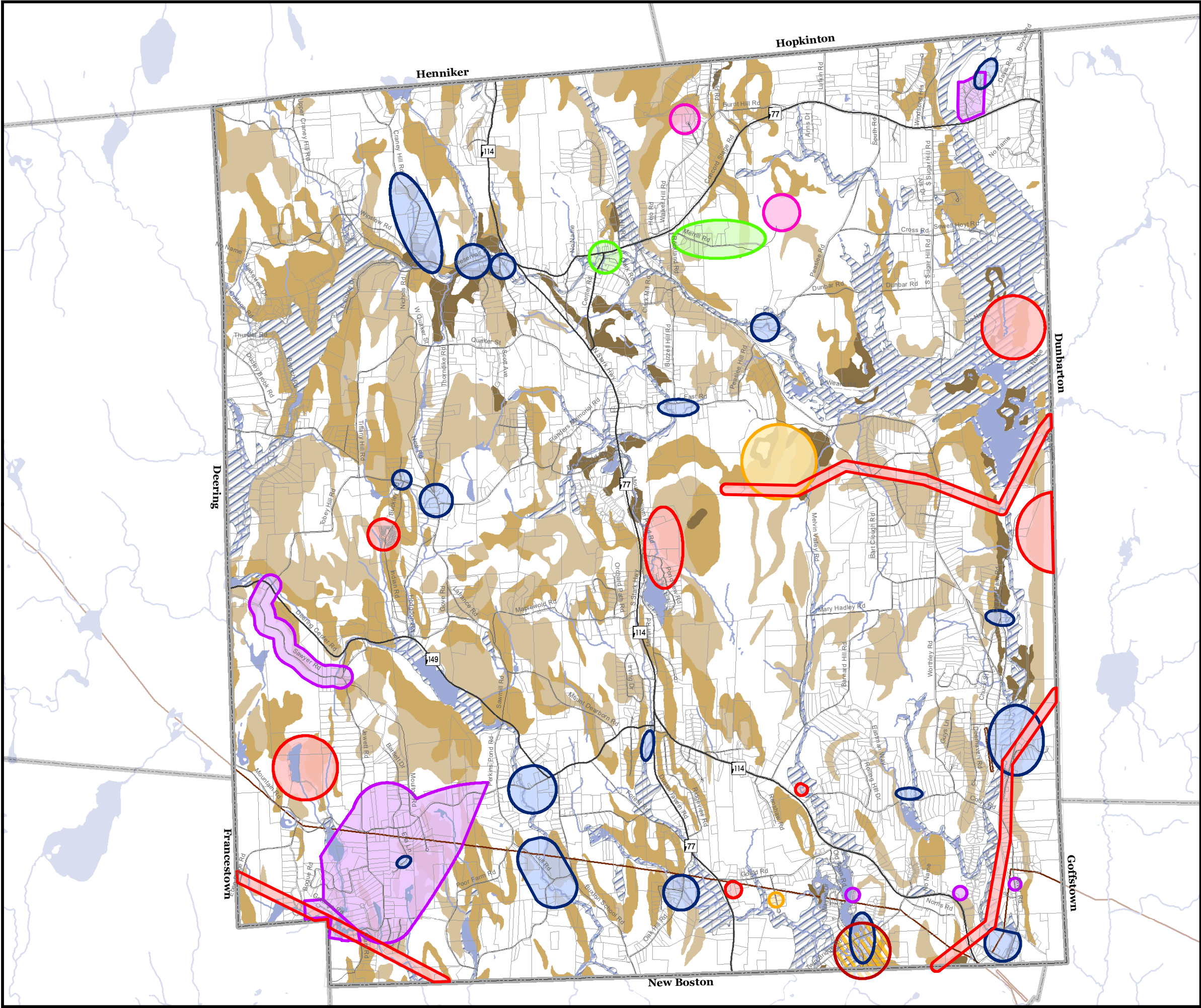


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# Areas at Risk

## Town of Weare

- Commercial Economic Impact Area

Bridge

Child Care

Commercial Resources

Communication

Community Center

Dam

Historic

Library

Recreation - Indoor

Recreation - Outdoor

Religious Facility

School

Solid Waste

Transfer Station

Transportation

Town Boundary

Parcels

Utility Lines

Roads

State Roads

Local Roads

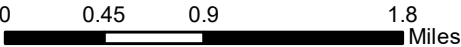
Private Roads

Waterbodies

Lake/Pond

Swamp/Marsh

Rivers and Streams

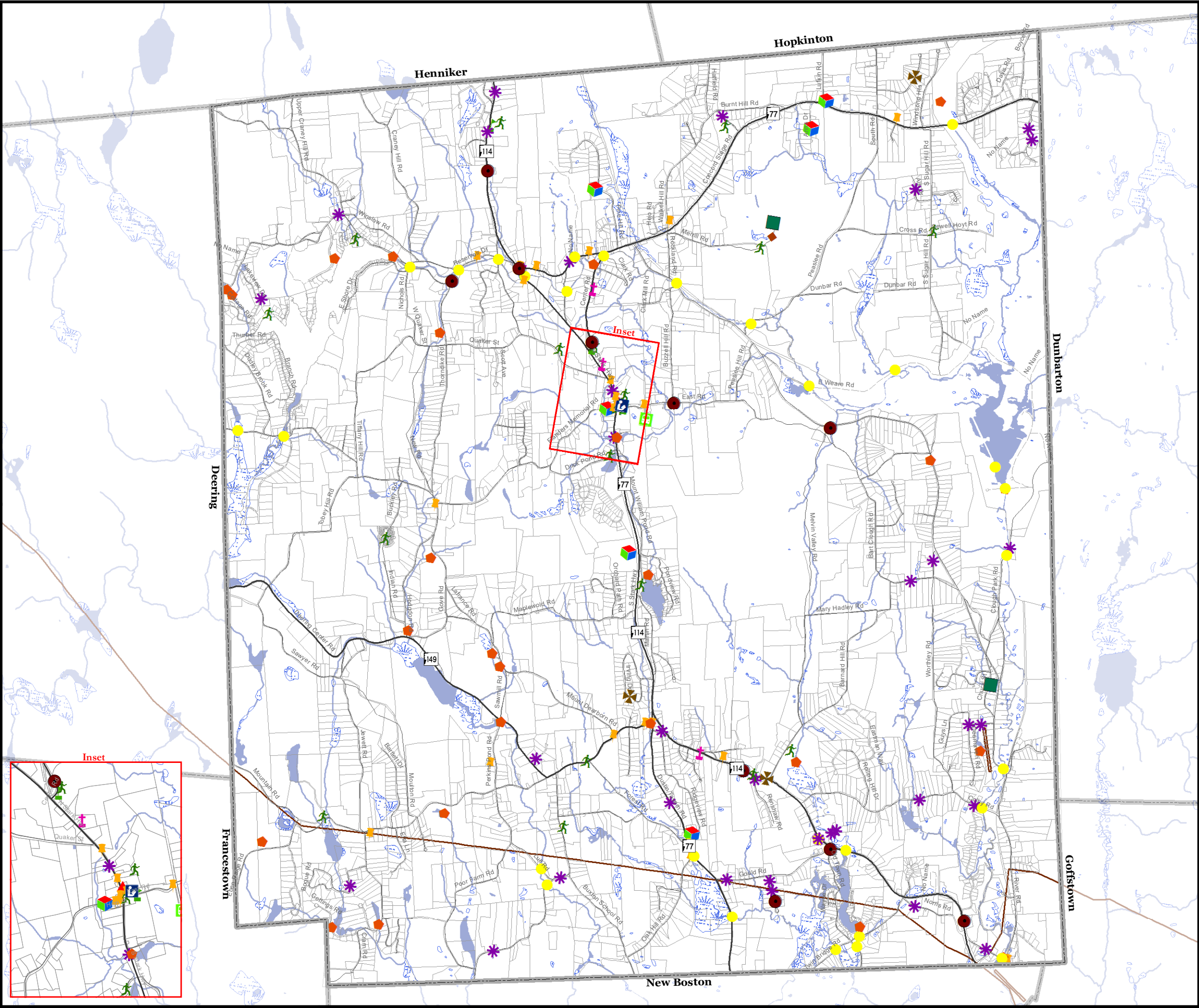


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### SECTION III VULNERABILITY ASSESSMENT

#### Disaster Risk and Vulnerability Assessment

Based on the hazards outlined in Section II, the following is an estimate of damage, in dollars, that may result if a natural hazard occurs in the Town. These estimates were calculated using FEMA's *Understanding Your Risks: Identifying Hazards and Estimating Losses*, August 2001. The publication's methodology was modified for this *Plan* based on the data available. The vulnerability estimates utilize available NFIP data, 2016 town valuation, and identified essential facilities. The following calculations used available current or historical data and "Worksheet 4" in the Estimating Losses section of *Understanding Your Risks: Identifying Hazards and Estimating Losses*. Background, historical information, associated risks, and summary of assets considered in the estimation process are described in the following estimates.

Human losses were not calculated during this exercise, but could be expected to occur depending on the type and severity of the hazard. The estimates typically represent only structural loss, unless sufficient data was available to incorporate contents, structure use, or function loss. The most current town valuation is:<sup>9</sup>

Land Use Classification	2016 Assessed Valuation		
	Land	Buildings	Total
Current Use	\$ 1,465,421	-	\$ 1,465,421
Residential	\$ 276,944,300	\$ 475,263,603	\$ 752,207,903
Manufactured Housing	-	\$ 17,379,000	\$ 17,379,000
Commercial/Industrial	\$ 13,335,900	\$ 35,341,400	\$ 48,677,300
Utilities	-	-	\$ 37,000,800
Disc Preservation Easement	\$ 7,600	\$ 63,297	\$ 70,897

**Total Assessed Valuation      \$      856,801,321**

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<sup>9</sup> NH Dept of Revenue, 2010 PROPERTY TAX TABLES BY COUNTY VALUATIONS, TAXES AND TAX RATES

**Flooding<sup>10</sup>****\$0.5 – 2.0 million**

As part of the update, SNHPC's GIS specialist, conducted a thorough analysis of the area in and near the floodplain. The Town of Weare has 36 residential structures located in the floodplain, with an estimated population of 107 persons. The 2010 median residential house sale price is \$220,250 (NHHFA). Two scenarios were considered with a low estimate assuming damage to 25 percent of the structures with a one-foot flood depth and a high estimate assuming damage to 50 percent of the structures with a four-foot flood depth. These estimates also assume the residential structures are one- or two-story homes with basements. Standard values for percent damage, functional downtime and displacement time were used from FEMA's *Understanding Your Risks: Identifying Hazards and Estimating Losses* and its "Worksheet 4- Estimate Losses" was used to determine the actual estimates.

The low estimate was \$297,300 in structural damages, \$223,000 in contents loss, and \$21,100 in structure use and function loss. The total low estimate loss was \$541,400. The high estimate was \$1,110,100 in structural damages, \$832,500 in contents loss, and \$52,500 in structure use and function loss. The total high estimate loss was \$1,995,100.

Infrastructure damage could also be extensive, including roads, bridges, utilities, towers, etc. If a devastating flood were to occur, the damage to properties located within the floodplain could exceed this estimated amount. It is clear that Weare could benefit greatly from any flood mitigation measures that would help reduce typical losses that occur during a major flood event.

**Hurricanes****up to \$9.5 million**

Most of the damage from hurricanes is caused by high water and strong winds. While Weare is less vulnerable to hurricanes than coastal areas, significant damage could be expected, particularly in areas with manufactured homes. Assuming a community-wide assessed structural valuation of approximately \$946 million, damaging 1 percent of these structures could result in losses of up to \$9.5 million. This does not include other damages expected to occur on public property within the community.

**Debris-Impacted Infrastructure and River Ice Jams****\$10,000 to \$1 million**

Damage from these two hazards could be expected to occur not only to privately owned structures, but also to infrastructure such as roads, bridges, and culverts. An estimate of damage, in dollars, from this type of hazard can range widely, depending on the nature and severity of the hazard. Past debris-impacted infrastructure, in Weare, has been minimal. Therefore, it is difficult to separate

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<sup>10</sup> See Appendix E for estimation details and the completed "Worksheet 4."

actual damages to represent this type of hazard. A small-to-medium-sized event could be expected to produce a loss from \$10,000 to \$1 million.

**Erosion, Mudslides and Rapid Snowpack Melt<sup>11</sup> \$41,700 to \$208,400**

Erosion, mudslide, and rapid snowpack melt damage usually affects infrastructure such as roads and bridges, but can also affect individual structures and businesses. The inventory of essential facilities located in the areas of steep slopes was used to prepare an estimate of this type of damage, since a complete inventory was not available. For a moderate event, assuming from 1 percent to 5 percent structural damages, and from 0.5 percent to 3 percent content loss, damages could be expected between \$41,700 and \$208,400. Since this hazard has not been widespread in Weare, damages from this hazard should be minimal.

**Dam Breach or Failure \$135,000 to \$1.5 million**

Weare has two Class H dams that could cause serious failure damage and five Class L dams that have low hazard potential. The eleven Class NM dams have a very low potential for causing damage in the surrounding areas. Damage estimates could be expected to be about 25-75 percent of the flooding estimate, or \$135,000 to \$1.5 million.

**Tornadoes \$500,000 to \$15 million**

The Enhanced Fujita Scale is used to determine the intensity of tornadoes. Most tornadoes are in the F0 to F2 Class, in a range that extends to F5 Class. Building to modern wind standards provides significant property protection from tornadoes. The design wind speed in Weare is 95 miles per hour, Exposure Category B, in accordance with the 2009 International Building Code. While it is difficult to assess the monetary impact a tornado may have on a community, as there are no existing standard loss estimation models, the dollar range shown above indicates an approximation of what might be expected. Tornadoes rarely occur in this part of the country, so damage from this hazard would be uncommon.

**Heavy Snowstorms, Nor'easters, Ice Storms \$10,000 to \$3 million**

Damage from heavy snowstorms, nor'easters and ice storms vary greatly depending on the amount of snow and ice that accumulates during the storm. The ice storms of 1998 and 2008 caused much damage to power lines, structures, and the agricultural economy in northern New England and southeastern Canada. These types of storms in Weare could be expected to cause damage ranging from several thousand dollars to several million, depending on the severity of the storm.

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<sup>11</sup> See Appendix E for estimation details and the completed "Worksheet 4."

**Lightning****\$1,000 - \$350,000**

Damage from lightning is typically minimal and occurs in isolated events without record of actual costs incurred. Within the Town of Weare there has been one recorded lightning strike with a damage estimate of \$350,000 to two homes, one in Weare and the other outside the community. Other incidences throughout the region, occurring to municipal facilities in Manchester, have incurred damages ranging between \$1,000 and \$15,000.

**Wild Land Fires<sup>12</sup>****\$330,000 to \$6.7 million**

A fire can strike at any time, but may be expected to occur during years of drought and particularly in the spring and fall months. From 2005 through 2010 there were 290 fires encompassing small isolated events, car fires, building and structural fires, and wild land fires.

Grass or wild land fires can spread more rapidly between structures due to the increased intensity and size of the fire. Presuming a small-to-medium-sized fire that destroys from one to 20 homes, damage from this hazard could be expected to range from \$330,000 to \$6.7 million. Other damage potential, such as to utilities, was not included in this estimate.

**Earthquakes<sup>13</sup>****up to \$1.6 - \$4.5 million**

Assuming a moderate earthquake occurs in Weare, where structures are not built to a high seismic design level and are mostly of wood frame construction, there could be both partial and total substantial damage to the community's structures.

This estimate used "Worksheet 4" and the town-wide assessed valuation of residential, commercial, and industrial structures. Weare's actual peak ground acceleration (PGA) is .061g. This represents the average strength of an earthquake with a 10 percent probability of recurring in 50 years. FEMA's *Understanding Your Risks: Identifying Hazards and Estimating Losses* provides data to conduct damage estimates for PGAs of .05g or .07g. The following estimate uses these two PGA levels, assumes low seismic design for all structures, and estimates the upper limits of expected damages if an earthquake were to impact Weare. The first calculation (.05 PGA) yields \$748,600 in structural damages, \$202,900 in content damages, and \$613,100 in structure use loss for a total estimate of \$1,564,600 in damages. The second calculation (.07 PGA) yields \$2,383,800 in structural damages, \$637,300 in content damages, and \$1,430,300 in structure use loss for a total estimate of \$4,451,400 in damages.

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<sup>12</sup> See Appendix E for estimation details and the completed "Worksheet 4."

<sup>13</sup> See Appendix E for estimation details and the completed "Worksheet 4."

**Utility Pipe Failure****\$200 to \$40,000**

No information on water or gas main failures is available for specific properties in Weare. Other communities in the SNHPC region have incurred damages of \$200 to \$40,000 from water and sewer main leaks or breaks.

**Downbursts, Hailstorms, Landslides, Drought, Extreme Heat/Cold**

No major damage is known to have occurred in the Town of Weare related to these types of events. Therefore, no potential loss estimates have been prepared for these categories.

*Note: The aforementioned figures are estimates only. The amount of damage from any hazard will vary from these figures depending on the time of occurrence, severity of impact, weather conditions, population density, building construction at the exact event local, and the triggering of secondary events.*

## Critical Facilities

The following are summary tables of the critical facilities located in each of the five identified hazard zones within the Town. For the purposes of this *Plan* a critical facility is defined as a building, structure or location which:

- is vital to the hazard response effort;
- maintains an existing level of protection from hazards for the Town; and
- would create a secondary disaster if a hazard were to impact it.

These summaries were queried from a database of all essential facilities created for this *Plan*.<sup>14</sup> The Hazard Mitigation Committee, based on its knowledge of the Town and the SNHPC, using various directories, were the primary sources for the Critical Facilities listing. The assessed values presented are the total building value and do not include the cost of land or building contents.

The six identified hazard zones are:

- **Town Wide Hazards** - includes hurricanes, tornadoes, nor'easters, downbursts, lightning, heavy snow, ice storms, hailstorms, earthquakes, geomagnetism, utility pipe failure, drought, or extreme heat/cold.
- **Special Flood Hazard Areas** - includes riverine flooding, hurricanes, debris-impacted infrastructure, ice jams, rapid snowpack melt, or dam breach.
- **Steep Slopes** - includes erosion, mudslides, or landslides.
- **Wild Land Fires** - includes wild land fire hazards.
- **Wind Hazards**- includes wind hazards.

Summary of Critical Facilities by Hazard Zones		
Hazard Zone	No. of Facilities	Total Assessed Building Value
Town Wide	47	\$18,346,100
Special Flood Hazard Areas (100 Year Flood)	2	\$0
Special Flood Hazard Areas (500 Year Flood)	0	N/A
Steep Slopes	18	\$3,296,700
Wild Land Fires	1	\$0
Target Hazards	2	\$215,800
Wind	0	N/A

<sup>14</sup>All facilities' proximity to the various hazard zones was identified using GIS as follows:

- Special Flood Hazard Areas and Steep Slopes - intersecting or within the mapped area
- Wild Land Fires and Target Hazards - intersecting or within the mapped area



Town Wide Hazards (Summary of all Critical Facilities)		
Hazard Zone	No. of Facilities	Total Assessed Building Value
Government Facilities		
Town Offices	1	\$504,800
Post Office	1	\$511,500
Emergency Response Facilities		
Safety Complex*	1	\$83,900
Fire Stations	2	\$164,600
Emergency Shelters	1	\$13,722,500
Emergency and Other Fuel Facilities	2	\$215,800
Utility Systems		
Cell Towers	7	\$334,300
Public Works Garages	1	\$1,400,000
Public Water Systems	28	\$229,500
Sewer Pumps	1	\$0

\* Includes the Police Station, Fire Station, and Emergency Operations Center.

Special Flood Hazard Areas		
Hazard Zone	No. of Facilities	Total Assessed Building Value
Public Water System	5	\$0

Steep Slopes		
Hazard Zone	No. of Facilities	Total Assessed Building Value
Government Facilities		
Post Office	1	\$511,500
Emergency Response Facilities		
Safety Complex*	1	\$83,900
Fire Stations	1	\$120,800
Utility Systems		
Cell Towers	3	\$147,400
Public Water Systems	10	N/A

\* Includes the Police Station, Fire Station, and Emergency Operations Center.

Wild Land Fires		
Hazard Zone	No. of Facilities	Total Assessed Building Value
Public Water Systems	1	N/A
Target Hazard Zones		
Hazard Zone	No. of Facilities	Total Assessed Building Value
Emergency and Other Fuel Facilities	2	\$215,800

## **Areas at Risk**

Weare's Hazard Mitigation Committee has divided Critical Facilities List for the Town of Weare this list of facilities into four categories.

1. The first category contains facilities needed for Emergency Response in the event of a disaster.
2. The second category contains Non-Emergency Response Facilities that have been identified by the Committee as non-essential. These are not required in an emergency response event, but are considered essential for the everyday operation of Weare.
3. The third category contains Facilities/Populations that the Committee wishes to protect in the event of a disaster.
4. The fourth category contains Potential Resources, which can provide services or supplies in the event of a disaster.

### **Category 1 - Emergency Response Services:**

The Town has identified the Emergency Response Facilities and Services as the highest priority in regards to protection from natural and man-made hazards.

- 1. Emergency Operations Center / Fire Station**  
Safety Complex
- 2. Police Station**  
Safety Complex
- 3. Red Cross Approved Emergency Shelters**  
Middle School
- 4. Primary Evacuation Routes**  
NH 114, NH 77, River Road (except in a flood scenario)
- 5. Bridges Located on Primary Evacuation Routes**  
(State Roads)
- 6. Power stations, sub-stations, transmission lines**  
Norris Road substation  
**Telephone facilities, transmission lines and cell towers**
- 7. Hospitals**  
N/A

## **8. Schools**

John Stark Regional High School, Center Woods Elementary, Weare Middle School

### **Category 2 - Non Emergency Response Facilities:**

The town has identified these facilities as non-emergency facilities; however, they are considered essential for the everyday operation of Weare.

#### **1. Facilities**

a) Town Office – 15 Flanders Memorial Lane

b) Public Works (DPW Garage) – 223 Merrill Road

c) John Stark Regional High School, Center Woods Elementary, Weare Middle School

d) Country Three Corners (only hardware store/lumber yard/grocery store/sells gas & propane – 883 South Stark Highway

e) Blackbird Market (Has a generator) – 119 Concord Stage Road

f) JMC Land Co. – B and B Lane

### **Category 3 - Facilities/Populations to Protect:**

The third category contains people and facilities that need to be protected in event of a disaster.

#### **1. Annual Events**

John Stark Regional High School Football Games, Old Home Days in late August, Patriotic Celebration (post July 4)

#### **2. School/Daycare**

John Stark Regional High School, Center Woods Elementary, Weare Middle School, Sugar & Spice Daycare, Little Buttercups Daycare, Pine Hill

#### **3. Gathering Places**

Bolton Field, Clough Park (State Park), Chase Park (State Park), Mt William Inc. (Sand & Gravel pit which hosts a dirt biking event)

**4. Historic Buildings/Sites**

Old Town Hall (has lightning rod), American Legion, Clinton Grove Academy, Osborne Hall

**5. Religious Facilities**

Weare Christian Church, Weare Bible Baptist Church, Holy Cross Episcopal Church, Christ Community Church

**6. Major Employers**

JMC Land Co., Stone Memorial

**7. Natural Assets**

Eastman Conservation Area, Horace Lake

**Category 4 - Potential Resources:**

Contains facilities that provide potential resources for services or supplies.

**1. Medical Supplies**

Weare Food Pantry, JMC

**Commercial Economic Impact Areas**

(Locations where an event would cause extraordinary impacts specifically to this land use category.)

Industrial Park, Bolton's Pit

**Hazardous Materials Facilities**

(Location, what is stored, hazard waste days, who inspects oil and propane tanks, etc.)

Austin Powder, Putnum Fuel

**Commercial Economic Impact Areas**

The following is a summary table of the commercial-economic impact areas located in each of the five identified hazard zones within the Town. For the

purposes of this *Plan*, a commercial economic impact area includes organizations and businesses with more than 25 employees. These are facilities that are vital to the community's economic well-being.

This summary was queried from a database of all essential facilities created for this *Plan*.<sup>15</sup> The 10 facilities included were taken from a GIS data layer maintained by Southern New Hampshire Planning Commission for a statewide grant program funded by the Community Development Finance Authority and were updated by the Hazard Mitigation Committee.

The five identified hazard zones are:

- **Town Wide Hazards-** includes hurricanes, tornadoes, nor'easters, downbursts, lightning, heavy snow, ice storms, hailstorms, earthquakes, geomagnetism, utility pipe failure, drought, or extreme heat/cold.
- **Special flood hazard areas-** include riverine flooding, hurricanes, debris-impacted infrastructure, ice jams, rapid snowpack melt, or dam breach.
- **Steep Slopes-** includes erosion, mudslides, or landslides.
- **Wild Land Fires-** includes wild land fire hazards.
- **Target Hazards-** includes target hazards.
- **Wind Hazards-** includes wind hazards.

Commercial Economic Impact Areas		
Hazard Zone	Number of Employers	Number of Employees
Town Wide	10	487
Special Flood Hazard Areas (100 Year Flood)	0	0
Special Flood Hazard Areas (500 Year Flood)	0	0
Steep Slopes	3	150
Wild Land Fires	0	0
Target Hazards	1	52
Wind	0	0

<sup>15</sup> All facilities' proximity to the various hazard zones was identified using GIS as follows:

- Special Flood Hazard Areas and Steep Slopes - intersecting or within the mapped area
- Wild Land Fires and Target Hazards - intersecting or within the mapped area.

## Hazardous Materials Facilities

The following is a summary table of the hazardous materials facilities located in each of the five identified hazard zones within the Town. For the purposes of this *Plan*, hazardous materials facilities include active hazardous waste generators, underground storage tanks, and above-ground storage tanks. As defined by the NH Department of Environmental Services, active hazardous waste generators may include businesses that produce household hazardous waste, or treat, store or dispose of hazardous waste, or are a waste handler or used oil marketer.

This summary was queried from a database of all essential facilities created for this *Plan*.<sup>16</sup> The listing of Hazardous Materials Facilities was created from the NH Department of Environmental Services GIS data layers for hazardous waste generators, above ground, and underground storage tanks.

The five identified hazard zones are:

- **Town Wide Hazards-** includes hurricanes, tornadoes, nor'easters, downbursts, lightning, heavy snow, ice storms, hailstorms, earthquakes, geomagnetism, utility pipe failure, drought, or extreme heat/cold.
- **Special flood hazard areas-** include riverine flooding, hurricanes, debris-impacted infrastructure, ice jams, rapid snowpack melt, or dam breach.
- **Steep Slopes-** includes erosion, mudslides, or landslides.
- **Wild Land Fires-** includes wild land fire hazards.
- **Target Hazards-** includes target hazards.
- **Wind Hazards-** includes wind hazards.

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<sup>16</sup>All facilities' proximity to the various hazard zones was identified using GIS as follows:

- Special Flood Hazard Areas and Steep Slopes - intersecting or within the mapped area
- Wild Land Fires and Target Hazards - intersecting or within the mapped area

Number of Hazardous Material Facilities within the Hazard Zones			
Hazard Zone	Hazardous Waste Generators	Above Ground Storage Tank Sites	Underground Storage Tank Sites
Town Wide	4	2	14
Special Flood Hazard Areas (100 Year Flood)	0	1	0
Special Flood Hazard Areas (500 Year Flood)	0	0	0
Steep Slopes	0	0	1
Wild Land Fires	0	0	0
Target Hazards	1	1	0
Wind	0	0	0



## **SECTION IV**

### **EXISTING MITIGATION STRATEGIES AND PROPOSED IMPROVEMENTS**

#### **Description of Existing Programs**

The Town of Weare has adopted several programs and ordinances for hazard mitigation. Below are brief descriptions of these programs and how they aid in hazard mitigation.

#### **Emergency Operations Plan**

Weare maintains an Emergency Operations Plan, last updated in 2006. The plan coordinates the town departments' actions and responses before, during, and after a disaster. Events planned for range from multiple vehicle accidents and hazardous materials incidents to flooding and snowstorms. The plan was prepared to conform to guidelines by the Federal Emergency Management Agency, US Nuclear Regulatory Commission, Federal Energy Regulatory Commission, the New Hampshire Emergency Management Agency and the NH Emergency Operations Plan. The plan establishes the Emergency Operations Center (at the Safety Complex). The Emergency Operations Plan identifies or addresses shelters, evacuation procedures, emergency notification, and health and medical services.

#### **Floodplain Development Regulations (Zoning Ordinance)**

Floodplain district regulations apply to all lands designated as special flood hazard areas by FEMA in the "Flood Insurance Study for the Town of Weare, NH" together with the Flood Insurance Rate Maps (DFIRMs), dated September 25, 2009. Encroachments, including fill, new construction, substantial improvements to existing structures, and other development, are prohibited unless certification by a registered professional engineer is provided by the applicant demonstrating that such encroachment will not result in any increase in flood levels during the occurrence of the 100-year base flood. Additionally, the Zoning Ordinance specifies that there shall be no development permitted in the floodway. The building inspector shall review all building permit applications for new construction or substantial improvements to determine whether proposed building sites will be reasonably safe from flooding.

#### **Elevation Certificates**

An Elevation Certificate is required when a structure is built or substantially improved within a known flood zone, or if the flood map shows a part of the lot within the flood zone and the certified foundation plan shows the house is located within the flood zone. The land surveyor must supply the footing elevation.

#### **Wetlands Zone Land Planning Ordinance (Zoning Ordinance)**

The Wetlands Zone Land Planning Ordinance, contained within the Zoning Ordinance, regulates the area within 50 feet from the edge of bodies of water, brooks, streams, and wetlands. The primary objectives of this ordinance are to mitigate any development that may negatively interfere with these water systems' natural functions and reduce any potential financial impacts that may be caused by the inappropriate use of these lands.

#### **Aquifer Protection Ordinance (Zoning Ordinance)**

Regulations are established to protect, preserve and maintain the existing and potential groundwater supplies from adverse development or unwise land use practices. The ordinance is designed to encourage uses that can appropriately and safely be located within the direct and indirect recharge areas of aquifers. The Aquifer Protection Ordinance minimizes potential hazards related to the disposal of solid and hazardous waste, underground storage tanks, storage and dumping of road salt or other de-icing chemicals, including snow containing such chemicals, discharge of industrial processed waters and junk and salvage yards by prohibiting such activities in the aquifer protection zone. Further provisions provide standards for safeguards, location of potential pollution sources, drainage and inspection for all built structures with the exception of single and two-family dwellings within the zone.

#### **Residential Manufactured Housing District (Zoning Ordinance)**

Regulations are established to provide suitable and affordable living environments on individual lots in the Rural Agricultural district (17.3.9) and in Article 23 of the Zoning Ordinance for manufactured housing parks. Minimum standards are set regulating construction and safety standards in order to protect the occupants and reduce the homes' vulnerability to natural disasters.

#### **Excavation and Soil Removal Regulations**

Earth removal regulations minimize safety hazards created by open excavations, safeguard the public health and welfare, preserve the natural assets of soil, water, forests and wildlife, maintain aesthetic features of the environment, prevent land and water pollution, and promote soil stabilization.

#### **Erosion and Sediment Control Regulations (Subdivision Regulations)**

The Town of Weare has extensive erosion and sediment control regulations in place to address runoff, soil erosion, and sedimentation from development sites. Efforts must be taken to minimize any impacts from stormwater runoff and erosion. Additionally, the post-development peak runoff rate must not exceed pre-development rates for the 2-year 24-hour storm event.

#### **Drainage Requirements (Subdivision and Site Plan Regulations)**

Weare's Subdivision Regulations set engineering design standards to minimize any adverse impacts from stormwater drainage.

### **Road Design Standards (Subdivision Regulations)**

Weare maintains road design regulations as part of the Town's Subdivision Regulations that are currently being updated. The Subdivision Regulations establish construction standards to ensure the safe flow of travel on all new roads and improvements to existing roads.

### **Fire Protection Cistern Specifications (Subdivision Regulations)**

The Town of Weare maintains extensive regulations governing the use, construction, and maintenance of all cisterns in the Town. These regulations are critical for safety and the mitigation of fire hazards.

### **Weare Building Codes**

The Weare Building Department enforces the *International Building Code* 2009 edition and the *International Residential Code* 2009 edition as in the State Building Code with certain additions, insertions, deletions and changes. Building codes set minimum safety standards for occupants utilizing structural, fire and life safety provisions, wind loads and design, seismic design, flood proofing, and egress design.

### **Fire Department Regulations**

The Town of Weare Fire Department Regulations include sections of the 2009 *International Building Code*, the 2009 *International Residential Code* and the NFPA (2003) to protect residents from fire hazards in residential and non-residential facilities. The regulations establish protection requirements for fire alarm systems and smoke detectors for single family residential, multi-family residential, commercial and industrial facilities and occupants.

### **Hazardous Materials Regulations**

The Town of Weare enforces state regulations regarding hazardous materials.

### **Town Radio System**

The Fire, Police, and Public Works Departments maintain separate, but interoperable, radio networks for day-to-day operations. The systems can also interface with regional mutual aid and State agencies. Additionally, the Town of Goffstown Police Department provides fire, 911, and ambulance dispatch service for the Town of Weare and the Town of Bow provides police dispatch service to the Town of Weare.

**Police**

The Chief of Police is charged with preserving public peace, preventing riots and disorder, and receiving and issuing emergency warnings. During fires the police are to prevent theft and further unwarranted destruction of property.

**Winter Maintenance Ordinance**

The Winter Maintenance Ordinance allows the Town to enforce parking bans to expedite the flow of traffic and snow removal. Additionally, the ordinance prohibits placing snow into roads.

**Comprehensive Emergency Management Planning for Schools (CEMPS)**

Comprehensive Emergency Management Planning for Schools is available from the NH Bureau of Emergency Management. CEMPS outlines training for school teachers, administrators, and students on actions to be taken during an emergency at school. All three schools in Weare have participated in this program. School staff has received Level 1 FEMA training and the Emergency Management team has received Level 2 & 3 FEMA training.

**State Dam Program**

Weare has 11 Class NM dams (non-menace hazard potential), five Class L dams (low hazard potential), and two Class H dams (high hazard potential) which are maintained in compliance with the State Dam Program. There is one Town owned dam (Center Brooke Dam, Class NM). It is assumed that private dam owners conduct examinations or inspections as required by NHDES. Inspections look for seepage, erosion, animal burrows, spalling, cracking, vegetation growth, and security issues. Preventive maintenance is conducted as needed.

**New Hampshire Shoreland Protection Act**

The Shoreland Protection Act, adopted during 1994 and last updated in 2008, establishes minimum standards for the future subdivision, use, and development of all shore lands within 250 feet of the ordinary high water mark. When repairs, improvements, or expansions are proposed to existing development, the law requires these alterations to be consistent with the intent of the Act. The NH Department of Environmental Services is responsible for enforcing the standards within the protected shoreland, unless a community adopts an ordinance or shoreland provisions that are equal to or more stringent than the Act.

**Best Management Practices**

The State has established Best Management Practices (BMPs) for erosion and sediment control. These BMPs are methods, measures or practices to prevent or reduce water pollution, including, but not limited to, structural and nonstructural controls, operation and maintenance procedures, and other requirements and scheduling and distribution of activities. Usually, BMPs are

applied as a system of practices rather than a single practice. BMPs are selected because of site-specific conditions that reflect natural background conditions.

### **Existing Protection Matrix**

The Weare Hazard Mitigation Committee has developed a summary matrix of existing strategies that support hazard mitigation efforts, which is presented on the following pages. This matrix, a summary of the preceding information, includes the existing protection program (column 1), a description of the existing protection (column 2), the area of town affected (column 3), the enforcing department or agency (column 4), and the identified improvements or changes needed and funding sources (column 5).

## REVIEW OF EFFECTIVENESS

<u>COLUMN 1:</u> TYPE OF EXISTING PROTECTION	<u>COLUMN 2:</u> RESPONSIBLE AGENT/DESCRIPTI ON	<u>COLUMN 3:</u> HAZARD/AREA OF TOWN COVERED	<u>COLUMN 4:</u> EFFECTIVENESS	<u>COLUMN 5:</u> IMPROVEMENTS OR CHANGES NEEDED
Emergency Operations Plan (2006)	Emergency Management	Entire Town	Good	Due for an Update
Floodplain Development Regulations (Zoning Ordinance)	Land Use Coordinator	Entire Town	Good	No changes planned.
Elevation Certificates	Land Use Coordinator	Entire Town	Good	No changes planned.
Wetlands Zone Land Planning Ordinance (Zoning Ordinance)	Land Use Coordinator	Entire Town	Good	No changes planned.
Aquifer Protection Ordinance (Zoning Ordinance)	Land Use Coordinator	Entire Town	Good	No changes planned.
Residential Manufactured Housing District (Zoning Ordinance)	Land Use Coordinator	Entire Town	Good	No changes planned.
Excavation and Soil Removal Regulations	Board of Selectmen	Entire Town	Good	No changes planned.
Erosion and Sediment Control Regulations (Subdivision Regulations)	Land Use Coordinator	Entire Town	Good	No changes planned.
Drainage Requirements (Subdivision Regulations)	Land Use Coordinator	Entire Town	Good	No changes planned.
Road Design Standards (Subdivision Regulations)	Land Use Coordinator/Pla nning Board	Entire Town	Average	Needs to be Updated
Fire Protection Cistern Specifications (Subdivision Regulations)	Fire Department	Entire Town	Poor	Needs to be revisited – WHMC discussed the need to require cisterns
Weare Building Codes	Land Use Coordinator	Entire Town	Good/Average	WHMC discussed the need for the State to update the State Building Codes

Weare Fire Department Regulations	Fire Department	Entire Town	Good	Review and update where required.
Hazardous Materials Regulations	Fire Department	Entire Town	Good	Review and update where required.
Town Radio System	Fire/Police Department	Entire Town	Average/Poor	Developing coordination between Schools, Fire, and Police.
Police	Police Department	Entire Town	Good	
Snow Removal and Ice Control	Public Works	Entire Town	Good	Updated 2016
Comprehensive Emergency Management Planning for Schools	School District	Entire Town	Good	Review and update where required.
NH State Dam Program	State	Inundation Areas	Good	Ongoing dam inspection
NH Shoreland Protection Act	State	Entire town	Good	No changes planned.
Best Management Practices (BMPs)	State/Building Inspector Planning Board	Entire town	Good	Education outreach.

## SECTION V

### NEWLY IDENTIFIED MITIGATION STRATEGIES AND CRITICAL EVALUATION

#### Summary of Existing and New Strategies

Initial selection of mitigation projects was based on filling in perceived gaps in hazard protection within the Town. The Weare Hazard Mitigation Committee then brainstormed additional actions of benefit to the Town and its residents with the potential to reduce future damages. Projects were reviewed for their ability to reduce hazard impacts to both existing and future buildings and infrastructure; as well as the Town's ability to respond to disasters. The Weare Hazard Mitigation Committee reviewed all mitigation actions from the 2011 plan, identified whether they were completed, completed and ongoing, or deferred. The committee identified attentional steps to be taken and considered changes in priorities due to political will or budget issues. The Committee also identified new potential mitigation strategies:

#### Existing and New Mitigation Strategies:

Priorities and Programs Outlined in 2011 Plan	Update	Next Steps
<b>All Completed Tasks</b>		
Purchase a portable generator	Completed	
Complete the replacement of the culverts along Craney Hill Road, increasing their capacity, and add gravel to the roadway surface, increasing the road depth and accommodating larger culverts.	Completed	
Replace Peaslee Bridge over the Piscataquog River, raising the bridge height to allow greater clearances during high water periods per the State Transportation Improvement Program.	Completed	
Maintain the most current wind load and seismic engineering design standards within the Town's Building Codes.	Completed	The town has updated it's building codes to the most recent State standards. The town will continue to maintain the most recent engineering and design standards within the Town's Building Codes.
Inform residents of the importance of fire and other emergency personnel communication including the need in Weare to place short communication towers throughout the town.	Completed	The Town provides information on the importance of Fire and other Emergency personnel communication on their website, and has listed Communication Towers as a project in the region's Comprehensive Economic Development Strategy and therefore is not carrying this action item forward.
Move hazardous waste day warrant funds to budget	Completed	Town voted to move hazardous waste day funds to town budget
<b>Completed and Ongoing Efforts or Needing Action</b>		
Address flood and other mitigation strategies	Completed	The Committee merged this item with



during pre-construction meetings, to review road designs, with project applicants, a representative of the Planning Board and the Public Works Department.	and ongoing	the previously identified action item (including the Building Inspector in technical review of development applications prior to construction).
Establish a committed community network to check on elderly populations during hazard or extreme weather events.	Ongoing, Provided on request	
Establish a program to remove snow off of municipal building roofs including the town offices, fire and police stations and the schools, among many others	Ongoing	
Develop a communications plan/outreach campaign for getting emergency info out before and during emergencies and disasters.	Ongoing	School District is working with Weare Police and Fire Departments to develop a communication plan. Currently, the School Administration (SAU 24) uses Blackboard Connect 5, which is a mass notification system which sends emergency, outreach, attendance, and survey messages.
Update the Emergency Operations Plan	Ongoing	
Develop a hazardous tree removal program to identify & remove diseased or damaged trees.	Ongoing	Ongoing maintenance
Provide NFIP information/brochures at Town Hall and links on the town website	Ongoing	Website was under development. NFIP information will be provided on website.
Upgrade electrical at Weare Middle School Emergency Shelter to increase capacity/capability for sheltering and supply	Completed/Ongoing	Weare Middle School Emergency Shelter increased electrical capacity to bathroom facilities.
Provide a link to FEMA's Map Service Center website on the building department, planning department and emergency management websites.	Completed and Ongoing	
<b>Deferred Mitigation Strategies from 2011 HMP</b>		
Implement Nixle or a similar public outreach system	deferred	Lack of resources; Committee still interested
Purchase an emergency generator for the transfer station	deferred	Lack of resources; Board of Selectmen have not made this strategy a funding priority
Provide alternate access road to Route 77 from the highway department	deferred	Tree thinning and forest management removed potential threats to accessing the Highway Department
Replace and upgrade the inadequate culvert at Lull Road per specifications of the State Transportation Improvement Program.	Deferred	The replacement of an inadequate culvert on Lull Road was diverted in order to repair the River Road Bridge.
Post a notice in local publications during heavy winters reminding residents to clear their roofs and alerting them to the associated roof collapse risk of snow build-up.	Deleted	WHMC does not see this as a responsibility of the town.

Require "hurricane clips" on trusses in addition to existing building code requirements to improve seismic and wind load strength.	Deleted	WHMC discussed this item and decided to remove it from the mitigation strategy list.
<b>2016 New Proposed Strategies</b>		
Upgrade River Road		River Road is a major evacuation route and is in poor condition. Upgrading the road could mitigate any future flooding or erosion.
Upgrade road including Culvert on John Stark School Emergency Access Road		Currently, the Emergency Access Road isn't wide enough for vehicles at its entrance.
Purchase 2-4 portable electronic signs		Signs would be used for emergencies only.
Support CIP to upgrade town vehicles		Supporting CIP to upgrade vehicles is ongoing.
Obtain emergency generators for Town Office		Generators to be used for emergencies only – in the case of power outages from storm events.

## Mitigation Strategy Evaluation Process

Using a similar methodology as the previous plan, the HMP Committee identified new actions based on the updated risk assessment and capability assessment. The new actions were prioritized in combination with the actions carried forward from the previous plan. The STAPLEE method analyzes the Social, Technical, Administrative, 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 strategies identified in the table below:

- **Social:** Is the proposed strategy socially acceptable to the community? Are there equity issues involved that would mean that one segment of the community is treated unfairly?
- **Technical:** Will the proposed strategy work? Will it create more problems than it solves?
- **Administrative:** Can the community implement the strategy? Is there someone to coordinate and lead the effort?
- **Political:** Is the strategy politically acceptable? Is there public support both to implement and to maintain the project?
- **Legal:** Is the community authorized to implement the proposed strategy? Is there a clear legal basis or precedent for this activity?
- **Economic:** What are the costs and benefits of this strategy? Does the cost seem reasonable for the size of the problem and the likely benefits?
- **Environmental:** How will the strategy impact the environment? Will the strategy need environmental regulatory approvals?

Each mitigation strategy was evaluated and assigned a score (Good = 3, Average = 2, Poor = 1) based on the above criteria by the Committee. An evaluation chart with total scores for each strategy can be found in the table below. Each strategy was evaluated and prioritized according to the final score. The highest scoring strategies were determined to be of most importance, economically, socially, environmentally, and politically.

## STAPLEE CHART

### Mitigation Strategy

	Is it <b>Socially</b> acceptable?	Is it <b>Technically</b> feasible & potentially successful?	Is it <b>Administratively</b> workable?	Is it <b>Politically</b> acceptable?	Is there <b>Legal</b> authority to implement?	Is it <b>Economically</b> beneficial?	Is it <b>Environ-mentally</b> beneficial?	Total Score
A. Address flood and other mitigation strategies during pre-construction meetings, to review road designs, with project applicants, a representative of the Planning Board and the public works department	3	3	3	2	3	3	3	20
B. Establish a committed community network to check on elderly populations during hazard or extreme weather events.	3	1	1	3	3	2	2	15
C. Establish a program to remove snow off of municipal building roofs including the town offices, fire and police stations and the schools, among many others	3	3	3	3	3	3	3	21
D. Implement Nixle or a similar public outreach system	3	3	3	3	3	3	3	21
E. Purchase an emergency generator for the transfer station	3	3	3	3	3	3	3	21
F. Provide alternate access road to Route 77 from the highway department	3	3	3	3	3	3	3	21
G. Update the Emergency Operations Plan	3	3	3	3	3	3	3	21
H. Develop a communications plan/outreach campaign for getting emergency info out before and during emergencies and disasters	3	3	3	3	3	3	3	21
I. Develop a hazardous tree removal program to identify & remove diseased or damaged trees.	3	3	3	3	3	3	3	21
J. Provide a link to FEMA's Map Service Center website on the building department, planning department and emergency management websites	3	3	3	3	3	3	3	21
K. Upgrade electrical at Weare Middle School Emergency Shelter to increase	3	3	3	3	3	3	3	21

capacity/capability for sheltering and supply								
L. Upgrade road including Culvert on John Stark School Emergency Access Road	3	3	3	3	3	3	3	21
M. Purchase 2-4 portable electronic signs	3	3	3	3	3	3	3	21
N. Support CIP to upgrade town vehicles	3	3	3	3	3	3	3	21
O. Obtain emergency generators for Town Office	3	3	3	3	3	3	3	21
P. Upgrade River Road	3	3	3	3	3	3	3	21
Q. Upgrade Culvert on Lull Road	3	3	3	3	3	3	3	21
R. Provide NFIP information at Town Hall and links on the town website	3	3	3	3	3	3	3	21

## SECTION VI PRIORITIZED IMPLEMENTATION SCHEDULE AND FUNDING SOURCES

### Implementation Strategy for Priority Mitigation Actions

The Weare Hazard Mitigation Committee reviewed all ongoing, deferred and new strategies. Each mitigation action was ranked by considering its STAPLEE scores, costs, political will, relative necessity, whether previous work had been completed, and past voting of town residents for capital projects.

### Overview of Prioritized Mitigation Strategies and Related Cost Estimate

Rank / ID	STAPLEE Score *	Problem Statement	Mitigation Action	Hazard Addressed	Responsible Party	Anticipated Cost	Potential Funding Source	Time-frame
1	21	Updates to the existing plan will be relatively inexpensive and the direct benefit is the ensured safety of Weare's residents, structures, and infrastructure in an emergency.	Update the Emergency Operations Plan	All Hazards	Emergency Management Director, Fire Department, Police Department	< \$5,000	Town Operating Budget, NH HSEM, EMPG	Short Term
2	21	Project costs would be less than cost of mitigated damages to homes and infrastructure, particularly reduced power and telephone outages if trees or limbs were to fall during a hazard event	Develop a hazardous tree removal program to identify & remove diseased or damaged trees.	All Hazards	Public Works Department	\$5,000-\$10,000	Public Works Department	Ongoing
3	21	River Road is one of the few evacuation routes in Weare. The Road has culverts that will need replacement in the near future.	Upgrade River Road	Flooding and other hazards	Public Works	>\$2,000,000	State and Federal Grants, Town Operating Budget, CIP	Mid-Long Term
4	21	The replacement of an inadequate culvert on Lull Road was diverted in order to repair the River Road Bridge. An upgraded culvert is needed.	Upgrade Culvert on Lull Road	Flooding	Public Works	>\$500,000	State DOT, CIP, State and Federal Grants	Short-Mid Term

5	21	Address flood and other mitigation strategies during pre-construction meetings, to review road designs, with project applicants, a representative of the Planning Board and the Public Works Department.	Ensure pre-construction meetings with town staff and applicants.	All Hazards	Building Department	\$5,000-\$10,000	Town Operating Budget	Ongoing
6	21	Town vehicles (Public Works) are in need of replacement and/or upgrades	Support CIP to upgrade Town vehicles	All Hazards	Town Administration , Public Works	\$100,000-\$500,000	CIP	Ongoing
7	21	Transfer Station needs additional power source in the event of an emergency.	Purchase an emergency generator for the transfer station	All Hazards	Public Works	>\$100,000	CIP, Town Operating Budget	Short-Mid Term
8	21	Town Office serves as a non-emergency response facility, but needs to be open in the event of an emergency.	Obtain emergency generators for Town Office	All Hazards	Public Works, Town Administration	>\$100,000	CIP, Town Operating Budget	Short Term
9	21	Access road to John Stark School is at inadequate width for emergency vehicle passage in the event of an emergency.	Upgrade road including Culvert on John Stark School Emergency Access Road	All Hazards	Public Works	>\$100,000	Town Operating Budget	Short-Mid Term
10	21	Some municipal buildings, including the high school have flat roofs which can burden the structure. Establishing a snow removal program would ensure proper maintenance.	Establish a program to remove snow off of municipal building roofs including the town offices, fire and police stations, public works garage, and the schools, among many others	Ice and Heavy Snow	Public Works	<\$100,000	Town Operating Budget	Ongoing
11	21	Develop a communications plan/outreach campaign for getting emergency info out before and during emergencies and disasters	Establish Communication Plan for Emergencies	All Hazards	Public Works	\$5,000 - \$50,000	Town Operating Budget	Ongoing

12	15	Elderly residents are one of the most at-risk populations in the event of a hazard.	Establish a committed community network to check on elderly populations during hazard or extreme weather events.	All Hazards	Town Administration	\$5,000-\$10,000	Town Operating Budget	Ongoing
13	21	The Town Radio system is outdated and needs to be upgraded to provide better interoperability between the Fire, Police and Public Works Departments and also create an emergency management communications hub.	Implement Nixle or a similar public outreach system	All Hazards	Town Administration , Police, Fire, School Board	\$5,000-\$10,000	Town Operating Budget	Short-Mid Term
14	21	Middle School acts as an emergency shelter during storm events. Some electrical capacity as been upgraded, but more capacity is needed.	Upgrade electrical at Weare Middle School Emergency Shelter to increase capacity/capability for sheltering and supply	All Hazards	Town Administration , School Board	\$100,000 - \$500,000	Town Operating Budget	Mid-Long Term
15	21	Initial cost may be expensive, but the long term benefit of having access to supplies for emergencies outweighs the cost	Provide alternate access road to Route 77 from the highway department	All Hazards	Public Works	>\$500,000	Town Operating Budget	Mid-Long Term
16		Ensure homeowners and potential applicants have easy access to FEMA's resources through town's website.	Provide a link to FEMA's Map Service Center website on the building department, planning department and emergency management websites	All Hazards	Town Administration	\$0-\$1,000	Town Operating Budget	Short Term, Ongoing
17		Ensure homeowners are aware and have access to NFIP information	Provide NFIP information/brochures at Town Hall and links on the town website	Flooding	Town Administration	\$0-\$1,000	Town Operating Budget	Short Term, Ongoing
18		Signs would be used in the north and south areas of Weare on evacuation routes in the event of an emergency.	Purchase 2-4 portable electronic signs	All Hazards	Police, Fire Departments	>\$100,000	Town Operating Budget	Mid-Long Term



<b>Time frame</b>	
<b>Short Term</b>	1 year or less
<b>Mid Term</b>	2 to 3 years
<b>Long Term</b>	4-5 years
<b>Ongoing</b>	This action will be completed on an ongoing basis throughout the life of the plan

## SECTION VII

### ADMINISTRATIVE PROCEDURES REGARDING ADOPTION, EVALUATION AND MONITORING OF THE PLAN

*"Incorporating hazard mitigation considerations into the thought processes and decision making that comprise local planning reinforces community sustainability and strengthens community planning programs. It ensures that the community survives natural disasters so that it can grow and develop as it was envisioned."*

– Michael J. Armstrong, Associate Director for Mitigation, FEMA

#### **Adoption**

Upon notification that HSEM has conditionally approved this *Plan*, a public hearing will be held and the Weare Board of Selectmen will formally adopt the ***Weare Hazard Mitigation Plan*** as an official statement of town policy. In the future, this *Plan* may constitute a new section of the Weare Master Plan, in accordance with RSA 674:2. The public hearing shall be properly posted and advertised by the Town in accordance with New Hampshire state law. Documentation that the Weare Board of Selectmen has formally adopted the *Plan* will be included in the Appendix F.

Adoption of the ***Weare Hazard Mitigation Plan*** demonstrates the Town's commitment to hazard mitigation. It also qualifies the municipality for federal, state, and local funding and prepares the public for what the community can be expected to do both before and after a natural hazard disaster occurs.

Following adoption, the Hazard Mitigation Committee and the Board of Selectmen shall seek to incorporate the mitigation actions identified in the Prioritized Implementation Schedule of Section VI of the *Plan* into other planning mechanisms as appropriate, including the Town's Master Plan and the Town's Emergency Operations Plan.

The Hazard Mitigation Plan, its goals, objectives and mitigation actions will be reviewed during future plan updates for the Master Plan and Emergency Operations Plan and incorporated as appropriate for the Town. The Hazard Mitigation Plan mitigation actions shall also be reviewed by the Capital Improvement Program (CIP) Subcommittee and the Finance Committee during budget and CIP updates for inclusion of the mitigation actions as appropriate.

#### **Monitoring, Evaluating and Updates**

The ***Weare Hazard Mitigation Plan*** shall be monitored and evaluated annually to track progress in implementing the mitigation strategies and actions as well as updating the

goals and objectives of the *Plan*. The Weare Emergency Management Director shall be responsible for initiating this review and scheduling an annual meeting of the Hazard Mitigation Committee. In addition to reviewing Hazard Mitigation Committee members' progress on projects, the strategy for the following year will be reviewed and new projects will be selected for implementation at the annual meeting.

The Weare Emergency Management Director will conduct updates in coordination with the Hazard Mitigation Committee and Weare Board of Selectmen. Updates should be made to the *Plan* every three to five years<sup>17</sup> to accommodate actions that have failed or are not considered feasible after a review for their consistency with STAPLEE, the timeframe, the community's priorities, and funding resources. Priorities that were not ranked high, but identified as potential mitigation strategies, should be reviewed as well during the monitoring and update of this *Plan* to determine feasibility of future implementation. Also, at that time any other items identified during the annual meetings will be updated in the *Plan*, including, but not limited to, goals, objectives, identification of past hazard events, and the inventory of town assets vulnerable to hazards.

Keeping with the process of adopting the *Weare Hazard Mitigation Plan*, a public hearing to receive comment on the *Plan* maintenance and updating shall be held during the review period, and the Board of Selectmen will adopt the final product.

### **Continued Public Involvement**

The public will continue to be invited and encouraged to be involved during this process at monitoring, evaluation and update meetings. All meetings involving implementation or updates of the *Plan* shall be open to the public as is required by RSA 91-A and notices of the meetings will be posted at least 24 hours in advance in a minimum of two locations, such as the town offices and library. The meetings may also be publicized in the local newspaper (Union Leader). To gain additional public involvement, draft copies of the amended *Hazard Mitigation Plan* will be made available at two public locations, such as the town offices and library, for review and comment. The document should be left for a minimum of two weeks and then all comments will be considered in drafting final revisions.

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<sup>17</sup> FEMA Disaster Mitigation Act of 2000 44 CFR Part 201.6(d)(3) mandates "Plans must be reviewed, revised if appropriate, and resubmitted for approval within five years to continue to be eligible for HMGP project grant funding." (Federal Register Vol. 36, No. 38, Feb 26, 2002, Rules and Regulations, p8852)

## APPENDICES

## APPENDIX A

### DEFINITIONS

**Areas at Risk:** Emergency equipment or areas not needed to respond at the time of a natural disaster, but which could still be threatened if a natural disaster were to occur. These include critical facilities not utilized for emergency response, people and facilities to be protected in the event of a disaster, and/or potential resources for services or supplies in the event of a disaster. Examples include schools, parks, commercial resources, day care facilities, and senior housing.

**Critical Facilities:** Any building, structure or location that is vital to the hazard response effort, maintains an existing level of protection from hazards for the Town, and would create a secondary disaster if a hazard were to impact it. Examples include emergency medical services, law enforcement, electric generators, and emergency shelters.

**Commercial Economic Impact Areas:** These areas include organizations and businesses with more than 25 employees. These are facilities that are vital to the community's economic well-being.

**Emergency Operations Plan:** A jurisdiction's emergency operations plan is typically designed to establish the procedures that will take place during an emergency and designate who will be responsible to perform those procedures.

**Essential Facilities:** All critical facilities, areas at risk, commercial economic impact areas and hazardous material locations.

**GIS:** Geographic Information Systems includes a form of mapping that enables users to easily locate physical attributes of a community such as dams, bridges, wetlands, steep slopes, etc. Much of the data for these maps is maintained by Complex Systems Research Center in Durham, N.H.

**Hazard Mitigation:** The practice of reducing risks to people and property from natural hazards. FEMA defines hazard mitigation as "any action taken to reduce or eliminate the long-term risk to human life and property from hazards."

**Hazardous Materials Facilities:** These facilities include active hazardous waste generators, underground storage tanks, and aboveground storage tanks.

**Hazardous Waste Generators:** Defined by the N.H. Department of Environmental Services. These businesses produce household hazardous waste, or treat and store or dispose of hazardous waste, or are a waste handler or used oil marketer.

## APPENDIX B

### NEW HAMPSHIRE DAM CLASSIFICATION SCHEDULE

N.H. Department of Environmental Services Dam Classification, listed from highest to lowest damage class:

**Non Menace (NM)** structure means a dam that is not a menace because it is in a location and of a size that failure or mis-operation of the dam would not result in probable loss of life or loss to property, provided the dam is:

- Less than six feet in height if it has a storage capacity greater than 50 acre-feet; or
- Less than 25 feet in height if it has a storage capacity of 15 to 50 acre-feet.

**Low Hazard (L)** structure means a dam that has a low hazard potential because it is in a location and of a size that failure or mis-operation of the dam would result in any of the following:

- No possible loss of life.
- Low economic loss to structures or property.
- Structural damage to a town or city road or private road accessing property other than the dam owner's that could render the road impassable or otherwise interrupt public safety services.
- The release of liquid industrial, agricultural, or commercial wastes, septage, Or contaminated sediment if the storage capacity is less than two-acre-feet and is located more than 250 feet from a water body or water course.
- Reversible environmental losses to environmentally-sensitive sites.

**Significant Hazard (S)** structure means a dam that has a significant hazard potential because it is in a location and of a size that failure or mis-operation of the dam would result in any of the following:

- No probable loss of lives.
- 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:
- Damage to a public water system, as defined by 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.
- Damage to an environmentally-sensitive site that does not meet the

definition of reversible environmental losses.

**High Hazard (H)** means 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 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 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 471-A:2 VI.
- Any other circumstance that would more likely than not cause one or more deaths.

## APPENDIX C - PUBLICATIONS, AGENCIES, WEBSITES

### I. PUBLICATIONS

1. Community-Based Hazard Mitigation Planning: Lowering the Risks and Costs of Disasters; New England Training Workshop, 27 August 1998; sponsored by the Federal Emergency Management Agency/Region I, Massachusetts Department of Environmental Management, Massachusetts Emergency Management Agency, and the Massachusetts Chapter of the American Planning Association.
2. Community Flood Mitigation Planning Guidebook; Wisconsin Department of Natural Resources.
3. Federal Programs Offering Non-Structural Flood Recovery and Floodplain Management Alternatives; the Office of Management and Budget; June 1998
4. Flood Hazard Mitigation Planning: A Community Guide; The Commonwealth of Massachusetts, Department of Environmental Management, Flood Hazard Management Program; June 1997
5. Hazard Mitigation Plan; Charlestown, Rhode Island; January 1997.
6. Hubbard Brook Ecosystem Study. November 2006.  
<http://www.hubbardbrook.org/research/climate/vadeboncoeur06.htm>
7. Kafka, Alan. *Why Does the Earth Quake in New England?* August 24, 2011.  
[https://www2.bc.edu/~kafka/Why\\_Quakes/why\\_quakes.html](https://www2.bc.edu/~kafka/Why_Quakes/why_quakes.html). 02-06-14.
8. Karl, T.R., J.M. Melillo, and T.C. Peterson (eds.). 2009. *Global Climate Change Impacts in the United States*. Cambridge University Press, New York.
9. Known Water Use Restrictions and Bans 2016. Retrieved from [http://des.nh.gov/organization/divisions/water/dwgb/water\\_conservation/documents/waterban.pdf](http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/documents/waterban.pdf)
10. Local Multi-Hazard Mitigation Planning Guidance; Federal Emergency Management Agency; 2008.
11. Local Mitigation Plan Review Guide; Federal Emergency Management Agency; 2013.



12. State of New Hampshire Multi-Hazard Plan. 2013. New Hampshire Department of Homeland Security and Emergency Management.
13. *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards*. Federal Emergency Management Agency. January 2013
14. Montpelier Flood Hazard Mitigation Plan; City of Montpelier Department of Planning and Development; May 1998.
15. National Mitigation Strategy: Partnerships for Building Safer Communities; Federal Emergency Management Agency; December 6, 1995.
16. NH Drought Management Team: Drought Status in New Hampshire 9/1/2016. Retrieved from <http://des.nh.gov/organization/divisions/water/dam/drought/documents/droughtstatus.pdf>
17. NOAA, Index/Heat Disorders: <http://www.srh.noaa.gov/ssd/html/heatww.htm> Climate Change in Southern New Hampshire. Climate Solutions of New England, 2014.
18. NOAA. National Weather Service. Glossary. <http://w1.weather.gov/glossary/index.php?letter=n>. 02-06-14.
19. NOAA. National Weather Service. Glossary. <http://w1.weather.gov/glossary/index.php?letter=n>. 02-06-14.
20. Post-Disaster Hazard Mitigation Planning Guidance for State and Local Governments; Federal Emergency Management Agency, September 1990.
21. Protecting Business Operations: Second Report on Costs and Benefits of Natural Hazard Mitigation; Federal Emergency Management Agency; August 1998.
22. Pulli, Jay. *Seismicity, Earthquakes Mechanisms, and Seismic Wave Attenuation in the Northeastern United States*, PhD Dissertation Abstract. MIT, June 10, 1983. <http://erl.mit.edu/assets/Pulli-abstract.pdf>. 02-06-14.
23. Reducing Losses in High Risk Flood Hazard Areas: A Guidebook for Local Officials; Federal Emergency Management Agency; February 1987.
24. *State of New Hampshire Natural 2010 Hazards Mitigation Plan*. New Hampshire Homeland Security and Emergency Management (NHHSEM). Concord, NH: New Hampshire Homeland Security and Emergency Management, October 2010

25. State of New Hampshire 2007 Natural Hazard Mitigation Plan; New Hampshire Homeland Security and Emergency Management (NH HSEM). Concord, NH: NH Homeland Security and Emergency Management, October 2007.
26. State of New Hampshire 2004 Natural Hazard Mitigation Plan; New Hampshire Homeland Security and Emergency Management (NH HSEM). Concord, NH: NH Homeland Security and Emergency Management, October 2004.
27. State of New Hampshire 1999 Natural Hazard Mitigation Plan; New Hampshire Homeland Security and Emergency Management (NH HSEM). Concord, NH: NH Homeland Security and Emergency Management, October 1999.
28. Texas Community Officials Primer on Floodplain Planning Strategies and Tools; Texas Natural Resource Conservation Commission; June 1994.
29. The Local Mitigation Strategy: A Guidebook for Florida Cities and Counties; Florida Depart. of Community Affairs; April 1998.
30. USGS Earthquake Glossary: Richter Scale. Retrieved from <https://earthquake.usgs.gov/learn/glossary/?term=Richter%20scale>

## II. AGENCIES

<b>New Hampshire Homeland Security and Emergency Management</b>		(603) 271-2231
<b>Federal Emergency Management Agency</b>		1-877-336-2734
<b>NH Regional Planning Commissions:</b>		
	Central NH Regional Planning Commission	226-6020
	Lakes Region Planning Commission	279-8171
	Nashua Regional Planning Commission	424-2240
	North Country Council	444-6303
	Rockingham Planning Commission	778-0885
	Southern New Hampshire Planning Commission	669-4664
	Southwest Region Planning Commission	357-0557
	Strafford Regional Planning Commission	742-2523
	Upper Valley Lake Sunapee Regional Planning Commission	448-1680
<b>NH Executive Department:</b>		
	New Hampshire Office of Strategic Initiatives	(603) 271-2155
<b>NH Department of Cultural Resources</b>		(603) 271-2392
	Division of Historical Resources	603-271-3483
<b>NH Department of Environmental Services</b>		(603) 271-3503
	Air Resources	271-1386
	Waste Management	271-2925
	Water Conservation	271-0659
	Dam Safety & Maintenance	271-3406
<b>NH Fish and Game Department</b>		(603) 271-3421
<b>NH NH Department of Natural and Cultural Resources (DNCR) and Department of Business and Economic Affairs (BEA)</b>		(603) 271-2411
	Division of Economic Development	(603) 271-2591
	Division of Forests and Lands	(603) 271-2214
	Division of Parks and Recreation	(603) 271-3556
<b>NH Department of Transportation</b>		(603) 271-3734
<b>U.S. Department of Commerce</b>		(202) 482-2000
	National Oceanic and Atmospheric Administration	1-301-713-1208
	National Weather Service; Gray, Maine	207-688-3216
<b>U.S. Department of the Interior</b>		
	U.S. Fish and Wildlife Service	1-800-344-9453
	U.S. Geological Survey	1-888-275-8747
<b>U.S. Department of Agriculture</b>		
	Natural Resource Conservation Service	888-526-3227

### III. WEBSITES

<i>Sponsor</i>	<i>Internet Address</i>	<i>Summary of Contents</i>
<i>Natural Hazards Research Center, U. of Colorado</i>	<a href="http://www.colorado.edu/hazards/">http://www.colorado.edu/hazards/</a>	<i>Searchable database of references and links to many disaster-related web sites.</i>
<i>Atlantic Hurricane Tracking Data by Year</i>	<a href="http://weather.unisys.com/hurricane/">http://weather.unisys.com/hurricane/</a>	<i>Hurricane track maps for each year, 1886 – 1996</i>
<i>National Emergency Management Association</i>	<a href="http://nemaweb.org">http://nemaweb.org</a>	<i>Association of state emergency management directors; list of mitigation projects.</i>
<i>NASA Natural Disaster Reference Database</i>	<a href="http://gcmd.nasa.gov/Resources/pointers/hazards.html">http://gcmd.nasa.gov/Resources/pointers/hazards.html</a>	<i>Searchable database of worldwide natural disasters.</i>
<i>U.S. State and Local Gateway</i>	<a href="http://www.fedgate.org/fg_statelocal.htm">http://www.fedgate.org/fg_statelocal.htm</a>	<i>General information through the federal-state partnership.</i>
<i>National Weather Service</i>	<a href="http://nws.noaa.gov/">http://nws.noaa.gov/</a>	<i>Central page for National Weather Warnings, updated every 60 seconds.</i>
<i>USGS Real Time Water Data</i>	<a href="http://waterdata.usgs.gov/nwis/rt">http://waterdata.usgs.gov/nwis/rt</a>	<i>Provisional hydrological data</i>
<i>Dartmouth Flood Observatory</i>	<a href="http://www.dartmouth.edu/~floods/">http://www.dartmouth.edu/~floods/</a>	<i>Observations of flooding situations.</i>
<i>FEMA, National Flood Insurance Program, Community Status Book</i>	<a href="https://www.fema.gov/national-flood-insurance-program-community-status-book">https://www.fema.gov/national-flood-insurance-program-community-status-book</a>	<i>Searchable site for access of Community Status Books</i>
<i>Florida State University Atlantic Hurricane Site</i>	<a href="http://www.met.fsu.edu/explores/tropical.html">http://www.met.fsu.edu/explores/tropical.html</a>	<i>Tracking and NWS warnings for Atlantic Hurricanes and other links</i>
<i>National Lightning Safety Institute</i>	<a href="http://lightningsafety.com/">http://lightningsafety.com/</a>	<i>Information and listing of appropriate publications regarding lightning safety.</i>
<i>NASA Optical Transient Detector</i>	<a href="http://www.nasa.gov/centers/marshall/news/background/facts/otd.html">http://www.nasa.gov/centers/marshall/news/background/facts/otd.html</a>	<i>Space-based sensor of lightning strikes</i>
<i>LLNL Geologic and Atmospheric Hazards</i>	<a href="https://www.llnl.gov/">https://www.llnl.gov/</a>	<i>General hazard information developed for the Deptment of Energy.</i>
<i>The Tornado Project Online</i>	<a href="http://www.tornadoproject.com/">http://www.tornadoproject.com/</a>	<i>Information on Tornadoes, including details of recent impacts.</i>
<i>National Severe Storms Laboratory</i>	<a href="http://www.nssl.noaa.gov/">http://www.nssl.noaa.gov/</a>	<i>Information about and tracking of severe storms.</i>
<i>Earth Satellite Corporation</i>	<a href="http://www.earthsat.com/HTML/naturalvue/">http://www.earthsat.com/HTML/naturalvue/</a>	<i>Flood risk maps searchable by state.</i>
<i>USDA Forest Service Web</i>	<a href="http://www.fs.fed.us/fire/management/">http://www.fs.fed.us/fire/management/</a>	<i>Information on forest fires and land management.</i>
<i>Sponsor</i>	<i>Internet Address</i>	<i>Summary of Contents</i>

## APPENDIX D

### TECHNICAL AND FINANCIAL ASSISTANCE FOR HAZARD MITIGATION

This matrix provides information about key all-hazards grant programs from the Departments of Homeland Security, Justice, Transportation, Health and Human Services, and Education under which state, local, and tribal governments, first responders, and the public are eligible to receive preparedness, response, recovery, mitigation, and prevention assistance.

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
<b>Programs to prepare the Nation to address the consequences of natural and man-made disasters and emergencies.</b>				
<b>Department of Homeland Security</b>	<i>Border and Transportation Security Directorate</i>	State Homeland Security Grant Program (SHSP) www.fema.gov	SHSP supports the implementation of state Homeland Security Strategies to address the identified planning, organization, equipment, training, and exercise needs to prevent, protect against, mitigate, respond to, and recover from acts of terrorism and other catastrophic events. SHSP also provides funding to implement initiatives in the State Preparedness Report	State governments
	<i>Emergency Preparedness and Response Directorate</i>	Emergency Management Performance Grants (EMPG) www.fema.gov	To assist State and local governments in enhancing and sustaining all-hazards emergency management capabilities.	States with pass through to local emergency management organizations
	<i>Emergency Preparedness and Response Directorate</i>	Assistance to Firefighters Grant Program (AFG) www.usfa.fema.gov/grants	The primary goal of the Assistance to Firefighters Grants is to meet the firefighting and emergency response needs of fire departments and nonaffiliated emergency medical services organizations.	Local, State, and Regional Fire Departments and agencies.
	<i>Emergency Preparedness and Response Directorate</i>	Citizen Corps www.citizencorps.gov	To bring community and government leaders together to coordinate community involvement in emergency preparedness, planning, mitigation, response and recovery.	States with a pass through to local governments

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	<i>Emergency Preparedness and Response Directorate</i>	Emergency Management Institute Training Assistance www.fema.gov	To defray travel and per diem expenses of State, local and tribal emergency management personnel who attend training courses conducted by the Emergency Management Institute, at the Emmitsburg, Maryland facility; Bluemont, Virginia facility; and selected off-site locations. Its purpose is to improve emergency management practices among State, local and tribal government managers, in response to emergencies and disasters. Programs embody the Comprehensive Emergency Management System by unifying the elements of management common to all emergencies: planning, preparedness, mitigation, response, and recovery.	State, local, and tribal emergency managers
	<i>Health Resources and Services Administration</i>	State Rural Hospital Flexibility Program www.ruralhealth.hrsa.gov	To help States work with rural communities and hospitals to develop and implement a rural health plan, designate critical access hospitals (CAHs), develop integrated networks of care, improve emergency medical services and improve quality, service and organizational performance.	States with at least one hospital in a non-metropolitan region
<b>Department of Health and Human Services</b>	<i>Health Resources and Services Administration</i>	EMS for Children www.hrsa.gov	To support demonstration projects for the expansion and improvement of emergency medical services for children who need treatment for trauma or critical care. It is expected that maximum distribution of projects among the States will be made and that priority will be given to projects targeted toward populations with special needs, including Native Americans, minorities, and the disabled.	State governments and schools of medicine

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	<i>National Institute of Health</i>	Superfund Hazardous Substances Basic Research and Education <a href="http://www.niehs.nih.gov/research/supported/dert/programs/srp/">www.niehs.nih.gov/research/supported/dert/programs/srp/</a>	To establish and support an innovative program of basic research and training consisting of multi-project, interdisciplinary efforts that may include each of the following: (1) Methods and technologies to detect hazardous substances in the environment; (2) advance techniques for the detection, assessment, and evaluation of the effects of hazardous substances on humans; (3) methods to assess the risks to human health presented by hazardous substances; and (4) and basic biological, chemical, and physical methods to reduce the amount and toxicity of hazardous substances.	Any public or private entity involved in the detection, assessment, evaluation, and treatment of hazardous substances; and State and local governments
	<i>Centers for Disease Control</i>	Immunization Research, Demonstration, Public Information and Education Training and Clinical Skills Improvement Projects <a href="http://www.cdc.gov">www.cdc.gov</a>	To assist States, political subdivisions of States, and other public and private nonprofit entities to conduct research, demonstrations, projects, and provide public information on vaccine-preventable diseases and conditions.	States and nonprofits organizations
<b>Department of Transportation</b>	<i>Pipeline and Hazardous Materials Safety Administration (PHMSA)</i>	Hazardous Materials Emergency Preparedness Training and Planning Grants <a href="http://phmsa.dot.gov/hazmat/grants">http://phmsa.dot.gov/hazmat/grants</a>	Increase state, local, territorial, and Native American tribal effectiveness to safely and efficiently handle HazMat accidents and incidents; enhance implementation of the Emergency Planning and Community Right-to-Know Act of 1986; and encourage a comprehensive approach to emergency planning and training by incorporating response to transportation standards.	States, local, territorial, tribal governments.
<b>Programs to coordinate Federal response efforts and to assist states, localities, and tribes in responding to disasters and emergencies.</b>				
<b>Department of Homeland Security</b>	<i>Emergency Preparedness and Response Directorate</i>	Urban Search and Rescue <a href="http://www.fema.gov">www.fema.gov</a>	To expand the capabilities of existing Urban Search and Rescue Task Forces.	28 existing US&R Task Forces
<b>Programs to provide assistance to States, localities, tribes, and the public to alleviate suffering and hardship resulting from Presidentially declared disasters and emergencies caused by all types of hazards.</b>				

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
<b>Department of Homeland Security</b>	<i>Emergency Preparedness and Response Directorate</i>	Individuals and Households Program (IHP) <a href="http://www.fema.gov/assistance/process/guide.shtm">www.fema.gov/assistance/process/guide.shtm</a>	To provide assistance to individuals and families who have been affected by natural or man-made Presidentially declared disasters. Funding provided from the Disaster Relief Fund.	Individuals and Families
	<i>Emergency Preparedness and Response Directorate</i>	Public Assistance (PA) <a href="http://www.fema.gov/government/grant/pa/index.shtm">www.fema.gov/government/grant/pa/index.shtm</a>	To provide assistance to states, localities, tribes, and certain non-profit organizations affected by natural or man-made Presidentially declared disasters. Funding provided from the Disaster Relief Fund	State, local and tribal governments; private non-profit organizations
	<i>Emergency Preparedness and Response Directorate</i>	Fire Management Assistance Grant Program <a href="http://www.fema.gov/government/grant/fmagp/index.shtm">www.fema.gov/government/grant/fmagp/index.shtm</a>	Provide funds to States, local, and tribal governments for the mitigation, management, and control of wildland fires posing serious threats to improved property.	State, local and tribal governments
<b>Small Business Administration</b>	<i>Office of Disaster Assistance</i>	Disaster Loan Program <a href="http://www.sba.gov/services/disasterassistance/">www.sba.gov/services/disasterassistance/</a>	To offer financial assistance to those who are trying to rebuild their homes and businesses in the aftermath of a disaster.	Individuals, families, private sector
<b>Department of Justice</b>	<i>Office for Victims of Crime</i>	Antiterrorism and Emergency Assistance Program <a href="http://www.ojp.usdoj.gov/ovc/publications/infores/terrorism/">www.ojp.usdoj.gov/ovc/publications/infores/terrorism/</a>	To provide assistance programs for victims of mass violence and terrorism occurring within and outside the United States and a compensation program for victims of international terrorism.	Public and private nonprofit victim assistance agencies
<b>Programs to reduce or eliminate future risk to lives and property from disasters.</b>				
<b>Department of Homeland Security</b>	<i>Emergency Preparedness and Response Directorate</i>	Hazard Mitigation Grant Program (HMGP) <a href="http://www.fema.gov/government/grant/hmgp/index.shtm">www.fema.gov/government/grant/hmgp/index.shtm</a>	To provide assistance to states, localities, and tribes to fund projects that will reduce the loss of lives and property in future disasters. Funding is provided from the Disaster Relief Fund and administered by the states according to their own priorities.	State, local, and tribal governments
	<i>Emergency Preparedness and Response Directorate</i>	Pre-Disaster Mitigation Program (PDM) <a href="http://www.fema.gov/government/grant/pdm/index.shtm">www.fema.gov/government/grant/pdm/index.shtm</a>	This program provides funding for mitigation activities before disaster strikes. In recent years it has provided assistance for mitigation planning. In FY03, Congress passes a competitive pre-disaster mitigation grant program that will include project funding.	State, local, and tribal governments



Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
<b>Department of Homeland Security</b>	<i>Emergency Preparedness and Response Directorate</i>	Flood Mitigation Assistance Program (FMA) <a href="http://www.fema.gov/government/grant/fma/index.shtm">www.fema.gov/government/grant/fma/index.shtm</a>	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 <u>National Flood Insurance Program</u> (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.	State, local and tribal governments
<b>Other</b>				
<b>Department of Housing and Urban Development</b>	<i>NH Office of Strategic Initiatives</i>	Community Development Block Grant Program (CDBG) Disaster Recovery Assistance <a href="http://www.hud.gov/offices/cpd/communitydevelopment/programs/">www.hud.gov/offices/cpd/communitydevelopment/programs/</a>	HUD provides flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations.	State, local and tribal governments
Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
<b>Programs to prepare the Nation to address the consequences of natural and man-made disasters and emergencies.</b>				
<b>NH Homeland Security and Emergency Management</b>	<i>Border and Transportation Security Directorate</i>	State Homeland Security Grant Program <a href="http://www.ojp.usdoj.gov">www.ojp.usdoj.gov</a>	This core assistance program provides funds to build capabilities at the state and local levels and to implement the goals and objectives included in state homeland security strategies and initiatives in the State Preparedness Report.	State governments
	<i>Emergency Preparedness and Response Directorate</i>	Emergency Management Performance Grants <a href="http://www.fema.gov">www.fema.gov</a> <a href="http://www.fema.gov/government/grant/index.shtm">http://www.fema.gov/government/grant/index.shtm</a>	To assist State and local governments in enhancing and sustaining all-hazards emergency management capabilities.	States with pass through to local emergency management organizations
	<i>Emergency Preparedness and Response Directorate</i>	Assistance to Firefighters Grant Program <a href="http://www.usfa.fema.gov/grants">www.usfa.fema.gov/grants</a> <a href="http://www.firegrantsupport.com/afg/">http://www.firegrantsupport.com/afg/</a>	The primary goal of the Assistance to Firefighters Grants (AFG) is to meet the firefighting and emergency response needs of fire departments and nonaffiliated emergency medical services organizations.	Local, State, and Regional Fire Departments and agencies.

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	<i>Emergency Preparedness and Response Directorate</i>	State and Local Emergency Operation Centers (EOCs) www.fema.gov <a href="http://www.fema.gov/government/grant/index.shtm">http://www.fema.gov/government/grant/index.shtm</a>	To improve emergency management and preparedness capabilities by supporting flexible, sustainable, secure, and interoperable Emergency Operations Centers (EOCs) with a focus on addressing identified deficiencies and needs.	States; local governments may be sub-grantees of the State
	<i>Emergency Preparedness and Response Directorate</i>	Citizen Corps www.citizencorps.gov	To bring community and government leaders together to coordinate community involvement in emergency preparedness, planning, mitigation, response and recovery.	States with a pass through to local governments
<b>NH Homeland Security and Emergency Management</b>	<i>Emergency Preparedness and Response Directorate</i>	National Fire Academy Training Grants www.fema.gov	To provide financial assistance to State Fire Training Systems for the delivery of a variety of National Fire Academy courses/programs.	State fire training organizations
	<i>Emergency Preparedness and Response Directorate</i>	Emergency Management Institute Training Assistance www.fema.gov	To defray travel and per diem expenses of State, local and tribal emergency management personnel who attend training courses conducted by the Emergency Management Institute, at the Emmitsburg, Maryland facility; Bluemont, Virginia facility; and selected off-site locations. Its purpose is to improve emergency management practices among State, local and tribal government managers, in response to emergencies and disasters. Programs embody the Comprehensive Emergency Management System by unifying the elements of management common to all emergencies: planning, preparedness, mitigation, response, and recovery.	State, local, and tribal emergency managers
	<i>Emergency Preparedness and Response Directorate</i>	Hazardous Materials Assistance Program (CERCLA Implementation)	Provide technical and financial assistance through the States to support State, local and tribal governments in oil and hazardous materials emergency planning and exercising. To support the Comprehensive Hazardous Materials (HAZMAT) Emergency Response – Capability Assessment Program (CHER-CAP) activities.	State, local, and tribal governments, state emergency response committees, local emergency planning commissions

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	<i>Emergency Preparedness and Response Directorate</i>	Interoperable Communications Equipment Grant <a href="http://www.fema.gov/government/grant/index.shtm">http://www.fema.gov/government/grant/index.shtm</a>	To provide governance, planning, training and exercise, and equipment funding to States, Territories, and local and tribal governments to carry out initiatives to improve interoperable emergency communications, including communications in collective response to natural disasters, acts of terrorism, and other man-made disasters.	N/A
<b>NH Homeland Security and Emergency Management</b>	<i>Emergency Preparedness and Response Directorate</i>	Chemical Stockpile Emergency Preparedness Program <a href="http://www.fema.gov">www.fema.gov</a>	A cooperative agreement to enhance emergency preparedness capabilities of the States and local communities at each of the eight chemical agent stockpile storage facilities. The purpose of the program is to assist States and local communities in efforts to improve their capacity to plan for and respond to accidents associated with the storage of chemical warfare materials.	State and local governments and the general public in the vicinity of the eight chemical agent stockpile storage facilities.
	<i>National Preparedness Directorate</i>	Metropolitan Medical Response System <a href="http://www.fema.gov/mmrs">http://www.fema.gov/mmrs</a>	To provide contractual funding to the 124 largest metropolitan jurisdictions to sustain and enhance the integrated medical response plans to a WMD terrorist attack.	Local governments
<b>Department of Justice</b>	<i>Office of Domestic Preparedness</i>	State Domestic Preparedness Equipment Support Program <a href="http://www.ojp.usdoj.gov/odp/equipment.htm">http://www.ojp.usdoj.gov/odp/equipment.htm</a>	Funding will be provided to enhance first responder capabilities, and to provide for equipment purchases and exercise planning activities for response to Weapons of Mass Destruction (WMD) domestic terrorist incidents.	State and local governments
	<i>Office of Community Oriented Police Services (COPS)</i>	COPS Interoperable Communications Technology Program <a href="http://www.cops.usdoj.gov">www.cops.usdoj.gov</a>	To facilitate communications interoperability public safety responders at the state and local level.	Tribal, State, and local law enforcement agencies

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
<b>Department of Health and Human Services</b>		Public Health and Social Services Emergency Fund www.hhs.gov	To continue to prepare our nation's public health system and hospitals for possible mass casualty events, and to accelerate research into new treatments and diagnostic tools to cope with possible bioterrorism incidents.	Individuals, families, Federal, State, and local government agencies and emergency health care providers
	<i>Health Resources and Services Administration</i>	State Rural Hospital Flexibility Program www.ruralhealth.hrsa.gov	To help States work with rural communities and hospitals to develop and implement a rural health plan, designate critical access hospitals (CAHs), develop integrated networks of care, improve emergency medical services and improve quality, service and organizational performance.	States with at least one hospital in a non-metropolitan region
<b>Department of Health and Human Services</b>	<i>Health Resources and Services Administration</i>	EMS for Children www.hrsa.gov	To support demonstration projects for the expansion and improvement of emergency medical services for children who need treatment for trauma or critical care. It is expected that maximum distribution of projects among the States will be made and that priority will be given to projects targeted toward populations with special needs, including Native Americans, minorities, and the disabled.	State governments and schools of medicine
	<i>National Institute of Health</i>	Superfund Hazardous Substances Basic Research and Education www.nih.gov	To establish and support an innovative program of basic research and training consisting of multi-project, interdisciplinary efforts that may include each of the following: (1) Methods and technologies to detect hazardous substances in the environment; (2) advance techniques for the detection, assessment, and evaluation of the effects of hazardous substances on humans; (3) methods to assess the risks to human health presented by hazardous substances; and (4) and basic biological, chemical, and physical methods to reduce the amount and toxicity of hazardous substances.	Any public or private entity involved in the detection, assessment, evaluation, and treatment of hazardous substances; and State and local governments

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	<i>Centers for Disease Control</i>	Immunization Research, Demonstration, Public Information and Education <a href="http://www.cdc.gov">www.cdc.gov</a>	To assist States, political subdivisions of States, and other public and private nonprofit entities to conduct research, demonstrations, projects, and provide public information on vaccine-preventable diseases and conditions.	States and nonprofits organizations
	<i>Centers for Disease Control</i>	Surveillance of Hazardous Substance Emergency Events <a href="http://www.atsdr.cdc.gov">www.atsdr.cdc.gov</a>	To assist State health departments in developing a State-based surveillance system for monitoring hazardous substance emergency events. This surveillance system will allow the State health department to better understand the public health impact of hazardous substance emergencies by developing, implementing, and evaluating a State-based surveillance system.	State, local, territorial, and tribal public health departments
<b>Department of Health and Human Services</b>	<i>Centers for Disease Control</i>	Human Health Studies, Applied Research and Development <a href="http://www.atsdr.cdc.gov">www.atsdr.cdc.gov</a>	To solicit scientific proposals designed to answer public health questions arising from situations commonly encountered at hazardous waste sites. The objective of this research program is to fill gaps in knowledge regarding human health effects of hazardous substances identified during the conduct of ATSDR's health assessments, consultations, toxicological profiles, and health studies, including but not limited to those health conditions prioritized by ATSDR.	State health departments
<b>Department of Education</b>	Office of Safe and Drug free Schools (OSDFS)	Readiness and Emergency Management for Schools <a href="http://www.ed.gov/programs/dvpemergencyresponse/index.html/">http://www.ed.gov/programs/dvpemergencyresponse/index.html/</a>	This grant program supports efforts by LEAs to improve and strengthen their school emergency operations plan, including training school personnel and students in emergency management procedures; communicating with parents about emergency plans and procedures; and coordinating with local law enforcement, public safety, public health, and mental health agencies.	School Districts

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
<b>Department of Transportation</b>	<i>Pipeline and Hazardous Materials Safety Administration (PHMSA)</i>	Hazardous Materials Emergency Preparedness Training and Planning Grants <a href="http://phmsa.dot.gov/hazmat/grants">http://phmsa.dot.gov/hazmat/grants</a>	Increase state, local, territorial, and Native American tribal effectiveness to safely and efficiently handle HazMat accidents and incidents; enhance implementation of the Emergency Planning and Community Right-to-Know Act of 1986; and encourage a comprehensive approach to emergency planning and training by incorporating response to transportation standards.	States, local, territorial, tribal governments.
<b>Programs to coordinate Federal response efforts and to assist states, localities, and tribes in responding to disasters and emergencies.</b>				
<b>NH Homeland Security and Emergency Management</b>	<i>Emergency Preparedness and Response Directorate</i>	Urban Search and Rescue <a href="http://www.fema.gov">www.fema.gov</a>	To expand the capabilities of existing Urban Search and Rescue Task Forces.	28 existing US&R Task Forces
<b>Programs to provide assistance to States, localities, tribes, and the public to alleviate suffering and hardship resulting from Presidentially declared disasters and emergencies caused by all types of hazards.</b>				
<b>NH Homeland Security and Emergency Management</b>	<i>Emergency Preparedness and Response Directorate</i>	Individuals and Households Program <a href="http://www.fema.gov/assistance/process/guide.shtm">http://www.fema.gov/assistance/process/guide.shtm</a>	<b>To provide assistance to individuals and families who have been affected by natural or man-made Presidentially declared disasters. Funding provided from the Disaster Relief Fund.</b>	Individuals and Families
	<i>Emergency Preparedness and Response Directorate</i>	Public Assistance <a href="http://www.fema.gov/government/grant/pa/index.shtm">http://www.fema.gov/government/grant/pa/index.shtm</a>	<b>To provide assistance to states, localities, tribes, and certain non-profit organizations affected by natural or man-made Presidentially declared disasters. Funding provided from the Disaster Relief Fund</b>	State, local and tribal governments; private non-profit organizations
	<i>Emergency Preparedness and Response Directorate</i>	Fire Management Assistance Grant Program <a href="http://www.fema.gov/government/grant/fmagp/index.shtm">http://www.fema.gov/government/grant/fmagp/index.shtm</a>	<b>Provide funds to States, local, and tribal governments for the mitigation, management, and control of wildland fires posing serious threats to improved property.</b>	State, local and tribal governments

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
<b>Small Business Administration</b>	<i>Office of Disaster Assistance</i>	Disaster Loan Program <a href="http://www.sba.gov/services/disasterassistance/">http://www.sba.gov/services/disasterassistance/</a>	<b>To offer financial assistance to those who are trying to rebuild their homes and businesses in the aftermath of a disaster.</b>	Individuals, families, private sector
<b>Department of Justice</b>	<i>Office for Victims of Crime</i>	Antiterrorism and Emergency Assistance Program <a href="http://www.ojp.usdoj.gov/ovc/publications/infores/terrorism/">http://www.ojp.usdoj.gov/ovc/publications/infores/terrorism/</a>	<b>To provide assistance programs for victims of mass violence and terrorism occurring within and outside the United States and a compensation program for victims of international terrorism.</b>	Public and private nonprofit victim assistance agencies
<b>Programs to reduce or eliminate future risk to lives and property from disasters.</b>				
<b>NH Homeland Security and Emergency Management</b>	<i>Emergency Preparedness and Response Directorate</i>	Hazard Mitigation Grant Program <a href="http://www.fema.gov/government/grant/hmgrp/index.shtm">http://www.fema.gov/government/grant/hmgrp/index.shtm</a>	<b>To provide assistance to states, localities, and tribes to fund projects that will reduce the loss of lives and property in future disasters. Funding is provided from the Disaster Relief Fund and administered by the states according to their own priorities.</b>	State, local, and tribal governments
	<i>Emergency Preparedness and Response Directorate</i>	Pre-Disaster Mitigation Program <a href="http://www.fema.gov/government/grant/pdm/index.shtm">http://www.fema.gov/government/grant/pdm/index.shtm</a>	<b>This program provides funding for mitigation activities before disaster strikes. In recent years it has provided assistance for mitigation planning. In FY03, Congress passes a competitive pre-disaster mitigation grant program that will include project funding.</b>	State, local, and tribal governments
<b>NH Homeland Security and Emergency Management</b>	<i>Emergency Preparedness and Response Directorate</i>	Flood Mitigation Assistance Program (FMA) <a href="http://www.fema.gov/government/grant/fma/index.shtm">http://www.fema.gov/government/grant/fma/index.shtm</a>	<b>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 <u>National Flood Insurance Program (NFIP)</u>. 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.</b>	State, local and tribal governments

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	<i>Emergency Preparedness and Response Directorate</i>	Map Modernization <a href="http://www.fema.gov/plan/prevent/fhm/mm_main.shtm">http://www.fema.gov/plan/prevent/fhm/mm_main.shtm</a>	<b>This funding provides assistance to develop digital flood maps, support flood-mapping activities and expand the Cooperating Technical Partners Program to communities and regional entities.</b>	State, local and tribal governments
<b>Programs to interdict potentially hazardous events from occurring</b>				
<b>Department of Health and Human Services</b>	<i>Centers for Disease Control</i>	Immunization Grants <a href="http://www.cdc.gov">www.cdc.gov</a>	To assist States and communities in establishing and maintaining preventive health service programs to immunize individuals against vaccine-preventable diseases.	States
<b>Other</b>				
<b>Department of Housing and Urban Development</b>	<i>NH Office of Strategic Initiatives</i>	Community Development Block Grant (CDBG) Program <a href="http://www.hud.gov/offices/cpd/communitydevelopment/programs/">http://www.hud.gov/offices/cpd/communitydevelopment/programs/</a>	HUD provides flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations.	State, local and tribal governments

### Mitigation Programs of Other NH State Agencies

The following agencies of the state of New Hampshire are directly or indirectly involved in activities that include Hazard Mitigation Planning and/or program implementation:



- *NH Department of Transportation Bureau of Repair and Maintenance*
- *NH OSP/NFIP Program*
- *NH OSP Coastal Program*
- *NH DNCR Division of Forests and Lands*
- *NH DES Water Resources Division – Dam Safety Program*
- *NH DES Wetlands Program*
- *NH DES Shoreline Protection*





## **APPENDIX E**

### **WHMC MEETING AGENDAS, MINUTES AND ATTENDANCE SHEETS**

# **Weare Hazard Mitigation Committee Meeting**

**Meeting Number 1**  
Aug. 23<sup>rd</sup> Tues 9:00AM

Weare Safety Center  
144 N Stark Highway  
Weare, NH 03281

## **AGENDA**

### **1. Introductions**

- a. Elect Chair
- b. Minute Taker
- c. Ground Rules (Plan requirements, Time Match, Who's Missing?)

### **2. Overview of the Hazard Mitigation Planning Process**

- a. Public involvement
- b. Purpose and benefits of Hazard Mitigation Plans
- c. Scope of work to be completed
- d. Posting requirements
- e. Review of materials
- f. Plan development steps (Page 9-10)
- g. Review HMP Goals (page 11)
- h. Development Trends
- i. Review of Hazard Map

### **3. Identify/Update Past and Potential Hazards (HMP Section II)**

- a. Identify past hazard events in Weare  
Natural hazards are addressed as follows:
  - i. Flooding
  - ii. Wind
  - iii. Wildfire
  - iv. Ice and Snow Events
  - v. Earthquakes
  - vi. Other Hazards
- b. Discuss maps
- c. Hazard Vulnerability Assessment

### **4. Agree on Next Committee Meeting Date, Time, Location**

### **5. Homework**

- a. Hazard Identification and Probability
- b. Hazard Vulnerability Assessment
- c. Costs
- d. Photos

### **6. Next Meeting Schedule and Adjournment**

# **Weare Hazard Mitigation Committee Meeting**

## **Meeting Minutes**

### **Meeting # 1**

August 23, 2016

Weare Safety Center, 144 N Stark Highway, Weare, NH 03281

#### **PRESENT:**

Naomi Bolton, Town Administrator;  
Sean Kelly, Chief of Police;  
Robert Vezina, Fire Chief;  
Tom Clow, Board of Selectmen;  
Benji Knapp, Public Works Director;  
Chip Meany, Building Inspector;

Marjorie Burke, School Board Representative;  
Apyrille Desrosiers, Associate Principal;  
Sylvia von Aulock, SNHPC Deputy Executive  
Director;  
Cameron Prolman, SNHPC Assistant Planner

**RECORDING SECRETARY:** Emily Dauphinais, Administrative Secretary, Police Department.

On August 23, 2016 at 9:00AM the Weare Hazard Mitigation Committee had their first meeting. The meeting began by discussing the committee and emergency management contacts. All confirmed up to date and accurate. The committee reviewed the mitigation plan starting with the table of contents. The committee discussed the importance of making this a public process and came up with a few ideas of how to make the public aware:

-Article in the local paper. Tom is willing to write an article for the next issue coming out in October.

-Marjory suggested having a table at upcoming open houses at the middle and elementary schools. Weare Middle School is having an open house on 9/8/16 at 6PM and Center Woods is on 9/13/16 at 5:30PM.

-The Police Department could have info at their table for Old Home Day on 8/27/16.

-Could discuss plan at recorded Board of Selectmen meeting.

The purpose and benefits were discussed as well as posting requirements. All meetings must be posted and reported to the Southern New Hampshire Planning Commission. The plan development steps were reviewed as well as the Hazard Mitigation Plan's goals. All agreed with all seven goals. A question was posed as to where recent development was happening. Chip reported that there are no specific areas but that it's very sporadic throughout town.

All members reviewed the map of identified hazards from 2006 – 2011. SNHPC requested updated information for the last 5 years. Hazards were then broken down and discussed individually. There were a few changes and are as follows:

- The Peaslee Bridge has been replaced and no longer presents a risk. Naomi will put together a statement on what occurred and what it cost. Benji will review the list of roads where beavers are creating minor flooding issues and will create a list of beaver obstructed culverts.
- Hurricane Sandy caused some damage since last report. Naomi will get specific financial information.
- Will need to remove Peaslee Bridge from the debris section
- Will need to remove North Weare Bridge Area from wind section.
- Need to add the storm that occurred 3/25/15. Naomi will get associated costs.

SNHPC requested a few more items for the next meeting. They are as follows:

- Updated fire statistics and cost of new snow plow.
- Information on how house number ordinance is enforced and the process of naming roads.

There was discussion of the possibility of a second access to the town fuel pumps. Robert reported he will have the tablets in the ambulances updated with new 911 maps. Homework was given out (Hazard Vulnerability Assessment) by SNHPC and completed before meeting concluded at 11:30am.

The next meeting is scheduled for September 27, 2016 at 8:30am.

# **Weare Hazard Mitigation Committee Meeting**

**Meeting Number 2**  
September 27, 2016  
8:30AM

Weare Safety Center  
144 N Stark Highway  
Weare, NH 03281

## **AGENDA**

- 1. Call to Order**
- 2. Approve the Minutes of August 23, 2016 meeting**
- 3. Review Past and Potential Hazards Draft**
  - a. Insert homework information
  - b. Costs and Actions Related to Hazards
  - c. Questions, comments, suggested revisions
  - d. Discuss Town response to hazards, i.e. 2016 Drought, Snowstorms, etc.
- 4. Discuss Recent Development Trends**
  - a. How have development trends changed the overall vulnerability to hazards in Weare (e.g. development in areas prone to floods or other hazards)
- 5. Discuss Goals and Related Actions**
  - a. Revise Goals and Objectives as needed for plan update
- 6. Mitigation Strategy**
  - a. Review Existing Mitigation Strategies, Matrix and summary
  - b. Identify New Mitigation Strategies
- 7. Upcoming Homework**
  - a. Gather 2016 Property Values
  - b. Next meeting: discuss Town's Critical Facilities
- 8. Set next meeting date**
- 9. Adjournment**



## **Weare Hazard Mitigation Committee Meeting**

### **Meeting Minutes**

### **Meeting Number 2**

September 27, 2016

Weare Safety Center, 144 N Stark Highway, Weare, NH 03281

#### **PRESENT:**

Naomi Bolton, Town Administrator;

Sean Kelly, Chief of Police;

Tom Clow, Board of Selectmen;

Benji Knapp, Public Works Director;

Chip Meany, Building Inspector;

Sue Tuthill, Secretary, Fire Department;

Marjorie Burke, School Board Representative;

Aprylle Desrosiers, Associate Principal;

Sylvia von Aulock, SNHPC Deputy Executive Director;

Cameron Prolman, SNHPC Assistant Planner

Derek Shooster, SNHPC Assistant Planner

**RECORDING SECRETARY:** Emily Dauphinais, Administrative Secretary, Police Department.

On September 27, 2016 at 8:30AM the Weare Hazard Mitigation Committee had their second meeting. The meeting began by reviewing the minutes from the last meeting. All reviewed and agreed to approve.

Next, the committee reviewed the Past and Potential Hazards Draft. The following was discussed:

- The importance of considering each individual storm.
- Currently Public Works responds to storms with twelve plow trucks and one grader. The transfer station has own personnel for snow removal.
- The schools have building and grounds personnel to remove snow from flat roofs.
- The emergency entrance/exit to John Stark Regional High School is in very poor condition and floods occasionally. To consider upgrading road.
- Discussed highly unlikeliness of a secondary access to transfer station. Improving the current road would be a better more feasible solution.
- Culverts generally get repaired/replaced when the road is repaired. Cameron will get Benji a form to fill out that will state the culverts needing repair along with associated costs.
- If any "big event" were to be impending, Chief Kelly, Chief Vezina and Benji will get together to form a plan as has been done in the past.
- Discussed portable electric DOT signs for school and town use for emergencies and traffic control only. The majority believes the town would need four signs to cover all of the state highways.

- Consideration was given to getting a generator for the town offices and the transfer station.
- Sue will provide SNHPC with a photo of the reader board outside the fire department.

Next, the committee reviewed the status of Existing Mitigation Strategies and the following was addressed:

- Naomi will research when the Emergency Operations Plan was last updated.
- There have been no new roads since 2011 so there has been no need to address flood and other mitigation strategies prior to road designs, but the practice is in place for potential future roads.
- Chip participates in the technical review of development applications and provides a report to the planning board assessing the applicant's proposal and its treatment of flood, wind, snow and earthquake design related standards.
- Sue will contact Chief Browne of Goffstown to discuss their Nixle implementation. Currently the schools use this for snow days and emergencies.
- The replacement of the culverts along Craney Hill Road has been completed.
- Cam will provide Naomi with a link to NFIP information to post on the town website.
- Currently there is no formally established committee to check on elderly populations during hazard or extreme weather events; however the community has a good network for such purposes. Welfare checks are provided upon request.
- Much discussion went into the development of a hazardous tree removal program. Some suggestions were to have an arborist evaluate trees around town, bring in Eversource for analysis, and/or create an educational program for citizens. Ultimately the committee decided to revise the wording to read that an "educational outreach program" will be developed rather than a "tree removal program".
- The replacement of an inadequate culvert on Lull Road was diverted in order to repair the River Road Bridge. SNHPC requested photos of the damage to this bridge.
- The repair to Peaslee Bridge has been completed.
- Chief Kelly mentioned Eversource will be upgrading lines and he will provide SNHPC with the information he received.
- The committee moved to remove line #19: "Post a notice in local publications during heavy winters reminding residents to clear their roofs and alerting them to the associated roof collapse risk of snow build up." All in favor as most feel this is common sense.
- Naomi will write a short paragraph explaining the need to place short communication towers throughout town.
- Need to have the table on page 45 of the Hazard Mitigation Plan updated.

The meeting concluded at 10:30am.

The next meeting is scheduled for November 3, 2016 at 8:30am.

# **Weare Hazard Mitigation Committee Meeting**

## **Meeting Number 3**

November 3, 2016

8:30AM

Weare Safety Center  
144 N Stark Highway  
Weare, NH 03281

## **AGENDA**

- 1. Call to Order**
- 2. Approve the Minutes of September 27, 2016 meeting**
- 3. Review Public Outreach Efforts**
- 4. Identify/Update Critical Facilities**
  - a. Definition of Critical Facilities, Areas at Risk, Commercial Economic Impact Areas and Hazardous Waste Sites
  - b. Review Critical Facilities in current plan and identify those that are not listed or those that have changed
- 5. Review Recent Development Trends**
  - a. How have development trends changed the overall vulnerability to hazards in Weare (e.g. development in areas prone to floods or other hazards)
- 6. Mitigation Programs**
  - a. Review Existing Mitigation Strategies & Programs, Matrix and summary
  - b. Identify New Mitigation Strategies
- 7. Upcoming Homework**
  - a. NFIP
  - b. STAPLEE
- 8. Set next meeting date**
- 9. Adjournment**

## **Weare Hazard Mitigation Committee Meeting**

### **Meeting Minutes**

### **Meeting Number 3**

November 3, 2016

Weare Safety Center, 144 N Stark Highway, Weare, NH 03281

#### **PRESENT:**

Sean Kelly, Chief of Police;	Robert Vezina, WFD Chief;
Marjorie Burke, School Board Representative;	Aprylle Desrosiers, JSRHS;
Tom Clow, Board of Selectmen;	Sylvia von Aulock, SNHPC Deputy Executive Director;
Gerard Turco, DPW Foreman;	Cameron Prolman, SNHPC Assistant Planner
Chip Meany, Building Inspector;	

**RECORDING SECRETARY:** Emily Dauphinais, Administrative Secretary, Police Department.

On November 3, 2016 at 8:30AM the Weare Hazard Mitigation Committee had their third meeting. The meeting began by reviewing the minutes from the last meeting. All reviewed, a few changes were made and all agreed to approve amended minutes.

Next, the committee reviewed public outreach efforts.

- Tom wrote an article for the most recent edition of the Community News.
- The Police Department had information set out on their table at Old Home Day. Emily will email Cameron the details and photos from that event.
- Patti Osgood was recommended as a person to reach out to for advertisement.

Next, the committee discussed the vulnerability assessment and the following was addressed:

- DPW has more problems with frozen culverts during low snow winters. They use steam or calcium chloride to melt before it becomes a problem.
- The schools all have flat roofs making snow buildup a problem. They all have their own grounds crew to shovel/ snow blow roof.
- Wind seems to be a major problem as it takes down a lot of pine trees.
- Rob will get numbers of properties damaged by the 2015 summer microbursts.

The committee then completed worksheet one regarding Critical Facilities. The following were identified:

- The Weare Safety Complex is the emergency operations center.
- The Weare Middle School is a Red Cross approved emergency shelter.
- Route 114, Route 77 and River Road are primary evacuation routes.
- There is a large bridge located on the Route 77 evacuation route.
- Concord and Manchester are the most frequently used hospitals.
- Rob will get a list of helicopter landing sites.

- The following non-emergency facilities were found to be essential to everyday operations:
  - JMC
  - Town Offices
  - Public Works
  - All Schools
  - Country 3 Corners
  - Blackbird Market
- The following facilities/populations would need to be protected in the event of a disaster:
  - All Schools
  - All daycares to include Sugar and Spice, Little Buttercups, Weare Village Kidz, etc.
  - Bolton Field
  - Clough Park
  - Chase Park
  - Old Town Hall
  - American Legion
  - Clinton Road Academy
  - Osborne Hall
  - All Churches including Weare Bible Baptist Church, Weare Christian Church, Holy Cross Episcopal Church, Christ Community Church, Village Chapel Baptist Church, etc.
  - JMC Industrial Park
  - Goffstown Bus Company
  - Horace Lake
  - Eastman Conservation area
  - Old Home Day
  - Patriotic Celebration
  - Football games at JSRHS
  - Mt. Williams Sand and Gravel Dirt Bike Event
- The following facilities would provide resources for services or supplies:
  - JMC
  - Goffstown Bus Company
  - Country 3 Corners
  - Blackbird Market
  - American Legion
  - Weare Food Pantry
  - Putnam Fuel
- Mt. Williams Sand and Gravel and JMC Industrial Park were identified as Commercial Economic Impact Areas.
- Austin Powder and Putnam Fuel were identified as Hazardous Materials Facilities.

The committee began working on worksheet two which was a review of existing protection mitigation program effectiveness. Most programs were found to be in good working order except for the Fire Protection Cistern Specifications and the Town Radio System which were both found to be fairly poor.

The meeting concluded at 10:45am.

The next meeting is scheduled for January 11, 2017 at 8:30am.

# **Weare Hazard Mitigation Committee Meeting**

**Meeting Number 4**  
January 11, 2016  
8:30AM

Weare Safety Center  
144 N Stark Highway  
Weare, NH 03281

## **AGENDA**

- 1. Call to Order**
- 2. Approve the Minutes of November 3, 2016 meeting**
- 3. Identify Gaps in Hazard Mitigation (New Mitigation Strategies) and Set Objectives for Future Mitigation Efforts**
  - Fill in gaps & verify mitigation strategies
  - Identify ongoing efforts
  - Confirm reasons for deferred mitigation strategies
  - Identify next steps
- 4. STAPLEE Process (group activity, see worksheet)**
- 5. Prioritize Implementation Schedule**
  - Rank mitigation actions, consider STAPLEE scores, costs, political will, relative necessity, timeliness, etc.
- 6. Assess Community's Participation in National Flood Insurance Program**
  - Review of NFIP and Weare's involvement
  - Identify, analyze and prioritize actions related to continued compliance with NFIP
  - Flood Ordinance Update
- 7. Set next meeting date**
- 8. Adjournment**

## **Weare Hazard Mitigation Committee Meeting**

### **Meeting Minutes**

### **Meeting Number 4**

January 11, 2017

Weare Safety Center, 144 N Stark Highway, Weare, NH 03281

#### **PRESENT:**

Sean Kelly, Chief of Police;	Sue Tuthill, Secretary, Fire Department;
Marjorie Burke, School Board Representative;	Aprylle Desrosiers, JSRHS;
Tom Clow, Board of Selectmen;	Sylvia von Aulock, SNHPC Deputy Executive Director;
Benji Knapp, DPW Director;	Cameron Prolman, SNHPC Assistant Planner

**RECORDING SECRETARY:** Emily Dauphinais, Administrative Secretary, Police Department.

On January 11, 2017 at 8:30AM the Weare Hazard Mitigation Committee had their fourth meeting. The meeting began by reviewing the minutes from the last meeting. All reviewed and approved.

Next, the committee worked on filling gaps and verifying mitigation strategies. The following was noted and discussed:

- Naomi will put a NFIP link on the town website.
- FEMA maps are available at the town offices.
- The emergency operations plan update is ongoing. The last update was in 2011.
- Aprylle will collect emails and phone numbers from police and fire departments to add to the schools "Blackboard" communications plan. Aprylle will send Sylvia an email describing this program.
- The tree removal program is ongoing.
- A link to FEMA will also be put on the town website.
- The generator capacity at the middle school has been increased.
- "Post a notice in local publications during heavy winters reminding residents to clear their roofs... etc." will be removed as the committee feels that is not their responsibility.

Next, the committee discussed new proposed strategies:

- Moving the hazardous waste day warrant funds to the budget is in process and awaiting town vote.
- Aprylle does not believe that upgrading the culvert and access road to JSRHS is in the budget.

- The committee agrees that purchasing portable electronic signs for large events/emergencies would be beneficial.
- Supporting CIP to upgrade vehicles is ongoing.
- The town offices are hoping to get the current generator from the DPW when the garage gets their new one.

The committee then completed the STAPLEE chart as a group and agreed that Chip's opinion was needed on several points. The committee members will look into some of the costs for the various things discussed at this meeting. Cameron will create a survey to email to members so they may rank the mitigation strategies then the committee will meet to review a draft plan.

The meeting adjourned at 9:45am. The next meeting is scheduled for March 22, 2017 at 8:30am.



# **Weare Hazard Mitigation Committee Meeting**

**Meeting Number 5**

May 17, 2017

8:30AM

Weare Safety Center

144 N Stark Highway

Weare, NH 03281

## **AGENDA**

- 1. Call to Order**
- 2. Approve the Minutes of January 11, 2017 meeting**
- 3. Prioritize Implementation Schedule**
  - Rank mitigation actions, consider STAPLEE scores, costs, political will, relative necessity, timeliness, etc.
- 4. Photos**
- 5. Next Steps**
- 6. Adjournment**

## **Weare Hazard Mitigation Committee Meeting**

### **Meeting Minutes**

### **Meeting Number 5**

May 17, 2017

Weare Safety Center, 144 N Stark Highway, Weare, NH 03281

#### **PRESENT:**

Cameron Prolman, SNHPC Assistant Planner;	Aprylle Desrosiers, JSRHS;
Robert Vezina, Fire Chief;	Benji Knapp, DPW Director;
Tom Clow, Board of Selectmen;	Naomi Bolton, Town Administrator;
Chip Meany, Building Inspector	

**RECORDING SECRETARY:** Emily Dauphinais, Administrative Secretary, Police Department.

On May 17, 2017 at 8:30AM the Weare Hazard Mitigation Committee had their fifth meeting. The meeting began by reviewing the minutes from the last meeting. All reviewed and approved.

Next, the committee went over the "Overview of Prioritized Mitigation Strategies and Related Cost Estimate". All items were prioritized and the results are as follows:

1. Update the Emergency Operations Plan
2. Develop a hazardous tree removal program to identify and remove diseased or damaged trees.
3. Upgrade River Road.
4. Replace culvert on Lull Road.
5. Address flood and other mitigation strategies during pre-construction meetings, to review road designs, with project applicants, a representative of the Planning Board and the Public Works Department.
6. Support CIP to upgrade vehicles.
7. Purchase an emergency generator for the transfer station.
8. Obtain emergency generators for the Town Office.
9. Upgrade road, including culvert, on John Stark School emergency access road.
10. Establish a program to remove snow off of municipal building roofs including the town offices, fire and police stations and the schools, among many others.
11. Develop a communications plan/outreach campaign for getting emergency info out before and during emergencies and disasters.
12. Establish a committed community network to check on elderly populations during hazard or extreme weather events.
13. Implement Nixle or a similar public outreach system.

14. Upgrade electrical at Weare Middle School emergency shelter to increase capacity/capability for sheltering and supply for the town.
15. Provide alternate access road to Route 77 from the highway department.
16. Provide a link to FEMA's Map Service Center website on the building department, planning department and emergency management website.
17. Provide NFIP information/brochures at Town Hall and links on the town website.
18. Purchase 2 – 4 portable electronic signs.

Next step will be Cameron finalizing the plan. He will send a draft to members of the committee for approval then send to Homeland Security for approval. Homeland Security will send plan to FEMA then will be returned to town for adoption.

The meeting adjourned at 10.00. This was the final meeting.

## **APPENDIX F**

### **DOCUMENTATION OF PLAN ADOPTION**

Town of Weare, New Hampshire  
Weare Board of Selectmen

A Resolution Approving the Weare Hazard Mitigation Plan Update  
2018

**WHEREAS**, the Southern New Hampshire Planning Commission received funding from the New Hampshire Department of Safety - Homeland Security and Emergency Management under a Pre-Disaster Mitigation Grant to assist the Town of Weare in the preparation of the Weare Hazard Mitigation Plan Update; and

**WHEREAS**, several public planning meetings/hearings were held between January 2016 and May of 2017 regarding the development and review of the Weare Hazard Mitigation Plan Update; and

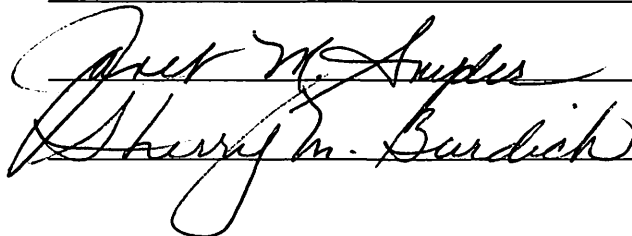
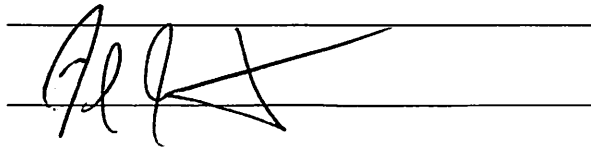
**WHEREAS**, the Weare Hazard Mitigation Plan Update contains several potential future projects to mitigate hazard damage in the Town of Weare; and

**WHEREAS**, a public hearing was held by the Weare Board of Selectmen on November 5, 2018 to formally approve and adopt the Weare Hazard Mitigation Plan Update.

**NOW, THEREFORE BE IT RESOLVED** that the Weare Board of Selectmen approve the Weare Hazard Mitigation Plan Update.

**APPROVED and SIGNED** this 5<sup>th</sup> day of November, 2018.

**Board of Selectmen**



**ATTEST**





**FEMA**

JAN 07 2019

Whitney Welch  
State Hazard Mitigation Officer  
NH Department of Safety  
Homeland Security and Emergency Management  
33 Hazen Drive  
Concord, NH 03303

Dear Ms. Welch:

We would like to acknowledge the Town of Weare and the State of New Hampshire for their dedication and commitment to mitigation planning.

As outlined in the FEMA-State Agreement for FEMA-DR-4316 your office has been delegated the authority to review and approve local mitigation plans under the Program Administration by States Pilot Program. On **November 8, 2018** our Agency was notified that your office completed its review of the Town of Weare, New Hampshire Hazard Mitigation Plan Update 2018 and determined it meets the requirements of 44 C.F.R. Pt. 201.

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

Approved mitigation plans are eligible for points under the National Flood Insurance Program's Community Rating System (CRS). Complete information regarding the CRS can be found at <http://www.fema.gov/national-flood-insurance-program-community-rating-system>, or through your local floodplain administrator.

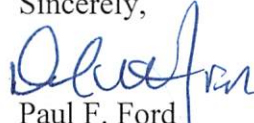
The Town of Weare, New Hampshire Hazard Mitigation Plan Update 2018 must be reviewed, revised as appropriate, and resubmitted to New Hampshire Homeland Security and Emergency Management for approval within **five years of the plan approval date of November 8, 2018** in order to maintain eligibility for mitigation grant funding. We encourage the Town to continually update the plan's assessment of vulnerability, adhere to its maintenance schedule, and implement, when possible, the mitigation actions proposed in the plan.

JAN 07 2019

Whitney Welch  
Page 2

Once again, thank you for your continued dedication to public service demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please do not hesitate to contact Melissa Surette at (617) 956-7559 or [Melissa.Surette@fema.dhs.gov](mailto:Melissa.Surette@fema.dhs.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Paul F. Ford".

Paul F. Ford  
Acting Regional Administrator

PFF: ms

cc: Fallon Reed, Chief of Planning, New Hampshire  
Kayla Henderson, Hazard Mitigation Planner, New Hampshire  
Jennifer Gilbert, New Hampshire State NFIP Coordinator

