

WINCHESTER HAZARD MITIGATION PLAN UPDATE 2017

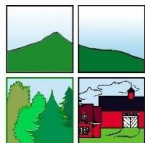


WINCHESTER, NH TOWN HALL

FEMA Final Approval – (add date)

Prepared by the:

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EXECUTIVE SUMMARY

The Winchester Hazard Mitigation Plan serves as a means to reduce future losses from natural or man-made hazard events before they occur. The Winchester Hazard Mitigation Committee identified the following potential hazards that have or could occur in Winchester:

- Flooding
- Wildfires
- Earthquakes
- Erosion
- Drought/Extreme Heat
- Hurricanes/Tropical Storms
- Severe Wind/Downburst/Tornadoes
- Lightning
- Severe Winter Weather
- Radon
- Hazardous Materials Spills
- Dams

The Winchester Hazard Mitigation Committee, as shown per Section 6, identified “Critical Facilities” and “Areas at Risk” as follows:

Critical Facilities

- Emergency Operations Center (EOC)
- Emergency services facilities
- Water-based facilities and utilities
- Evacuation routes
- Town generators
- Power stations, sub-stations, transmission lines
- Telephone facilities and transmission lines
- Helicopter landing sites
- Medical facilities
- Transfer station
- School/shelters
- Problem culverts/ditches
- Other (fuel storage)

Areas at Risk

- Special needs population
- Nursing homes/ adult living facilities
- Schools & day care centers
- Historical/cultural facilities
- Religious facilities
- Mobile homes/manufactured homes
- Large employers
- Recreational facilities, parks, beaches, camping
- Isolated and/or at-risk residential areas/units
- Hazardous materials storage/risk areas
- Dam structures
- Bridge/Road improvements needed

The Winchester Hazard Mitigation Committee identified existing hazard mitigation programs as follows:

- Floodplain District Zoning Ordinance
- Town Emergency Operations Plan
- USACE Flood Emergency Plan
- Wellhead Protection Program
- Aquifer Protection District
- Storm Drain Maintenance
- Wetlands Protective Measures
- Fire & Rescue, Ambulance, Emergency Management, and Police Departments
- School Evacuation Plan
- Mobile/Manufactured Homes regulations
- Town-adopted Building Code
- Zoning Ordinances
- Flood Warning System
- Emergency Back-up Power Program.
- River Stewardship
- Eversource of NH Tree Trimming Program for Power Lines
- Lifeline Assistance Program
- Emergency Snow Removal Program
- Hazardous Material Procedures
- National Flood Insurance Program
- Water Rescue Task Force

The Winchester Hazard Mitigation Committee prioritized newly identified hazard mitigation strategies as follows:

Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.
Prepare, distribute or make available NFIP, insurance and building codes explanatory pamphlets or booklets.
Obtain updated FIRM maps.
Improve maintenance on the culvert on Manning Hill.
Provide information to residents on water conservation/ drought resistant landscaping and/or rain gardens.
Provide outreach and education for radon testing of air and water.
Install a flood gauge in Myrie Brook.
Add this plan as a chapter or appendix to the Winchester Master Plan.
Obtain updated copies of Flood Emergency Plans of Surry Dam and Otter Brook Dam from USACE.
Upsize the culverts on Forest Lake Road.
Inspect the road embankments for signs of erosion and undermining of the road and address the needs at: Burt Hill Rd., Manning Hill Rd., NH 10 at Swanzey town line, Forest Lake Rd./Rabbit Hollow Rd.
Obtain additional generators.
Dredge drainage between Mechanic Street and NH 10.
Dredge drainage between Michigan Street to Winchester Police Department.
Identify problems and potential solutions for problem culverts, prioritize the list, and identify funding sources.
Upsize or replace culvert at Westport Road.
Upsize culvert on Back Ashuelot Road.
Upsize culvert at Watson Road (near beaver dam).

SECTION 1

INTRODUCTION

Purpose

The Winchester Hazard Mitigation Plan Update 2017 is a planning tool to be used by the Town of Winchester, as well as other local, state and federal governments, in their efforts to reduce the effects from natural and man-made hazards. By maintaining an updated Hazard Mitigation Plan, the town is eligible to receive grant funding for mitigation projects.

Authority

This Multi-Hazard Mitigation Plan was prepared pursuant to Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Act), herein enacted by Section 104 of the Disaster Mitigation Act of 2000 (DMA) (P.L. 106-390). This Act provides new and revitalized approaches to mitigation planning. Section 322 of DMA 2000 emphasizes the need for State, local and tribal entities to closely coordinate mitigation planning and implementation efforts. The development and periodic update of this plan satisfies the planning requirements of the Disaster Mitigation Act (DMA) of 2000 which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act).

Funding Source

This Plan was funded by the NH Homeland Security and Emergency Management, with grants from FEMA's Pre-disaster Mitigation Program.

Scope of the Plan

The scope of this Plan includes the identification of past and potential natural and manmade hazards affecting the Town of Winchester, the determination of vulnerability of existing and future structures to the identified potential hazards, and the identification and discussion of new strategies aimed at mitigating the likely effects of potential hazards before they occur.

Methodology

Using the Local Hazard Mitigation Planning Handbook- March 2013, the Winchester Hazard Mitigation Committee developed the content of the Winchester Hazard Mitigation Plan by following tasks set forth in the handbook. The Committee held monthly meetings, open to the public, starting September 29, 2016 to January 5, 2017 in order to develop the Plan.

Task 1: Determine the Planning Area & Resources: This task was conducted by town staff and the Regional Planning Commission. The results of this research were shared with the Committee and can be found in Section 2, "Community Profile".

Task 2: Building the Planning Team: The Emergency Management Director contacted town officials, department heads, and residents who might wish to volunteer their time and serve on a committee. The Winchester Board of Selectmen appointed the committee members.

Task 3: Create an Outreach Program: This task was used throughout the plan and is a vital part of the plan's success. Many of the proposed actions involve a community outreach component for individuals to use as a means to reduce the risk of loss of life and property from future natural and man-made hazards.

Task 4: Review Community Capabilities: The Committee brainstormed on the type of hazards and locations that have sustained or could be susceptible to each hazard within the town. The results can be found in the Past and Potential Hazards Map at the end of the Plan.

The Committee then identified and catalogued all of the critical facilities within the town. The result is found in Section 6, "Critical Facilities Analysis," with a location map at the end of the Plan.

Task 5: Conduct a Risk Assessment: The Committee conducted several assessments to help determine the gaps in coverage. These include Vulnerability Assessments and Assessing Probability, Severity, and Risk. In addition to the assessments, the existing mitigation strategies were reviewed to determine where gaps in coverage exist and areas that need improvement.

Task 6: Develop a Mitigation Strategy: The Committee identified plans and policies that are already in place to reduce the effects of man-made and natural hazards. Then the Committee evaluated the effectiveness of the existing measures to identify where they can be improved. The results are found in Section 8, "Mitigation Strategies." The Committee then developed the Mitigation Action Plan (Section 9), which is a clear strategy that outlines who is responsible for implementing each project, as well as when and how the actions will be implemented and the funding source.

Task 7: Keep the Plan Current: It is important to the Town of Winchester that this plan be monitored and updated annually or after a presidentially declared disaster. Section 10 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 and Approval Pending Adoption. At a public meeting, the Board of Selectmen formally adopted the plan on (date). The plan was then granted formal approval by HSEM (date) and the Formal Approval letter from the Federal Emergency Management Agency (FEMA) was received on (date).

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. Implementation of the actions prior to a hazardous event can be funded through a variety of resources found at the end of this plan in Appendix D.

Public Committee Meetings

Working committee meetings held at Winchester Town Hall on the following dates:
September 29, October 27, November 17, 2016, and January 5, 2017.

An email was sent to each committee member, prior to each meeting that contained information from the previous meeting, an agenda (Appendix E), and information to be covered. Agendas were posted at the Town Hall to encourage public participation.

Public Participation:

In addition, an article was printed in the Southwest Region Planning Commission Newsletter prior to the first meeting to inform the members of the community as well as surrounding communities and other interested stakeholders in participating in this plan update. Copies of the newsletter were sent to the 34 towns within the region, the Cheshire County Office, businesses, and other interested parties. It is also available on the Southwest Region Planning Commission website. In addition to the SWRPC newsletter and website, an email of the SWRPC Happenings was sent to approximately 430 addresses, including neighboring communities, county, businesses, and academia. The email contains notices of public meetings and events. A copy of this mailing is included in Appendix E.

A copy of the draft plan was made available for public review and input at the Town Hall from February 1 to February 13, 2017. In addition, the draft plan was also available for public viewing on the Town website to reach a broad range of interested parties. A copy of the public notice for the public viewing period is in Appendix E. There were no comments from the public received during the drafting stage of the plan as well as following the public viewing period.

Resources Used in Plan Preparation

In addition to the Handbook that was used as a framework for this plan, additional resources used included the Winchester Hazard Mitigation Plan (2012), Town Master Plan, Town Report (2015), the FEMA Community Information System website (to obtain data about the town's National Flood Insurance Program status), the State of New Hampshire Multi-Hazard Mitigation Plan Update 2013, and a number of resources identified in **Appendix C**.

Resource List for the Hazard Mitigation Committee

Winchester's Emergency Management Director (EMD), or designee, reviewed and coordinated with the following agencies in order to determine if any conflicts existed or if there were any potential areas for cooperation. Training support has been offered by some of those on this resource list.

New Hampshire Homeland Security and Emergency Management: 1-800-852-3792
110 Smokey Bear Boulevard
Concord, NH 03305

State Hazard Mitigation Planner: Whitney Welch
Field Representative: Julia Chase

New Hampshire Department of Transportation:

John Kallfelz (District 4) Winchester, NH 352-2302

Eversource Utility:
Laurel Boivin Keene, NH 357-7309 Ext. 5115
1-800-662-7764

Winchester School Information:

Jim Lewis, Principal/Superintendent
Winchester Elementary School (K-8) 85 Parker Street, Winchester, NH (603) 239-4381

James Logan
Keene High School 43 Arch Street, Keene, NH (603) 352-0640

Plan Updates

During the planning process, the Committee reviewed relevant portions of the previous hazard mitigation plan and updated those portions accordingly. Unchanged sections were incorporated into the plan while other sections were amended to reflect changes. Particular attention was given to the previous mitigation strategies that have been completed and to give a status update on those that remain on the list. The previous plan was used as a base to begin the update. Amendments were made in each section to reflect changes that have occurred during the five year period. Included in the changes were:

Sec. I Introduction- updated Methodology, Acknowledgements, etc., and added Plan Updates;
Sec. II Community Profile - NFIP policies updated, added population and housing information;
Sec. III Hazard Identification- updated hazards and their location, updated the Hazards Map;
Sec. IV Assessing Probability, Severity, and Risk - updated the risk assessment;
Sec. V Vulnerability Assessment- estimated potential losses for each hazard;
Sec. VI Critical Facilities - updated locations;

Sec. VII Existing Mitigation Strategies and Proposed Improvements - updated chart and other data, updated chart for Status of Previous Mitigation Action Items;
Sec. VIII Proposed Mitigation Strategies - updated the STAPLEE chart;
Sec. IX Prioritized Implementation Schedule – updated the Action Plan;
Sec. X Adoption, Implementation, Monitoring and Updates - Adoption certificate, updated information;
Appendices – added agendas, resources, updated information.

This update was prepared with assistance from planners at Southwest Region Planning Commission trained in Hazard Mitigation Planning. Data and maps used to prepare this plan are available at their office and should be used in preparing future updates.

HSEM/FEMA Final Approval: (add date).

ACKNOWLEDGEMENTS

The Winchester Board of Selectmen extends special thanks to the Winchester Hazard Mitigation Team as follows:

Richard LaPoint, *Winchester EMD*
James Ammann, *Winchester Emergency Management*
Leroy Austin, *Winchester Building Inspector/Health Officer*
John Gomarlo, *Winchester Landfill Superintendent*
Dale Gray, *Winchester Highway Superintendent*
Barry Kellom, *Winchester Fire Chief*
Ben Kilanski, *Winchester Board of Selectman*
Rick Meleski, *Winchester Water/Wastewater Superintendent*
Karey Miner, *Winchester Town Administrator*
Gary Phillips, *Winchester Police Chief*
Mike Tollett, *Winchester Police Lieutenant*
Raymond Williams, *Winchester Board of Selectman*

The Winchester Board of Selectmen offers thanks to the NH Division of Homeland Security and Emergency Management, for developing the State of New Hampshire Multi-Hazard Mitigation Plan Update 2013 (<http://www.nh.gov/safety/divisions/hsem/>) which served as a model for this Plan. In addition, special thanks are extended to the staff of the Southwest Region Planning Commission for professional services, process facilitation and preparation of this document.

Hazard Mitigation Goals

The Winchester Hazard Mitigation Committee reviewed the goals set forth in the State of New Hampshire Multi-Hazard Mitigation Plan Update 2013. The committee generally concurs with those goals and has amended them to better meet the goals of the town.

Town of Winchester, NH

The overall Goals of the Town of Winchester with respect to Hazard Mitigation are stipulated here:

1. To improve upon the protection of the general population, the citizens of the Town of Winchester and guests, from all natural and man-made hazards.
2. To reduce the potential impact of natural and man-made disasters on the Town of Winchester's Emergency Response Services, Critical Facilities, and infrastructure.
3. To reduce the potential impact of natural and man-made disasters on the Town of Winchester's economy, natural resources, historic/cultural treasures, and private property.
4. To improve the Town of Winchester's Emergency Preparedness and Disaster Response and Recovery Capability.
5. To reduce the Town of Winchester's risk with respect to natural and man-made hazards through outreach and education.
6. To identify, introduce and implement cost-effective Hazard Mitigation measures so as to accomplish the Town's Goals and Objectives and to raise the awareness of and acceptance of Hazard Mitigation opportunities generally.
7. To address the challenges posed by climate change as they pertain to increasing risks in Winchester's infrastructure and natural environment.
8. To work in conjunction and cooperation with the State of New Hampshire's Hazard Mitigation Goals and with FEMA.

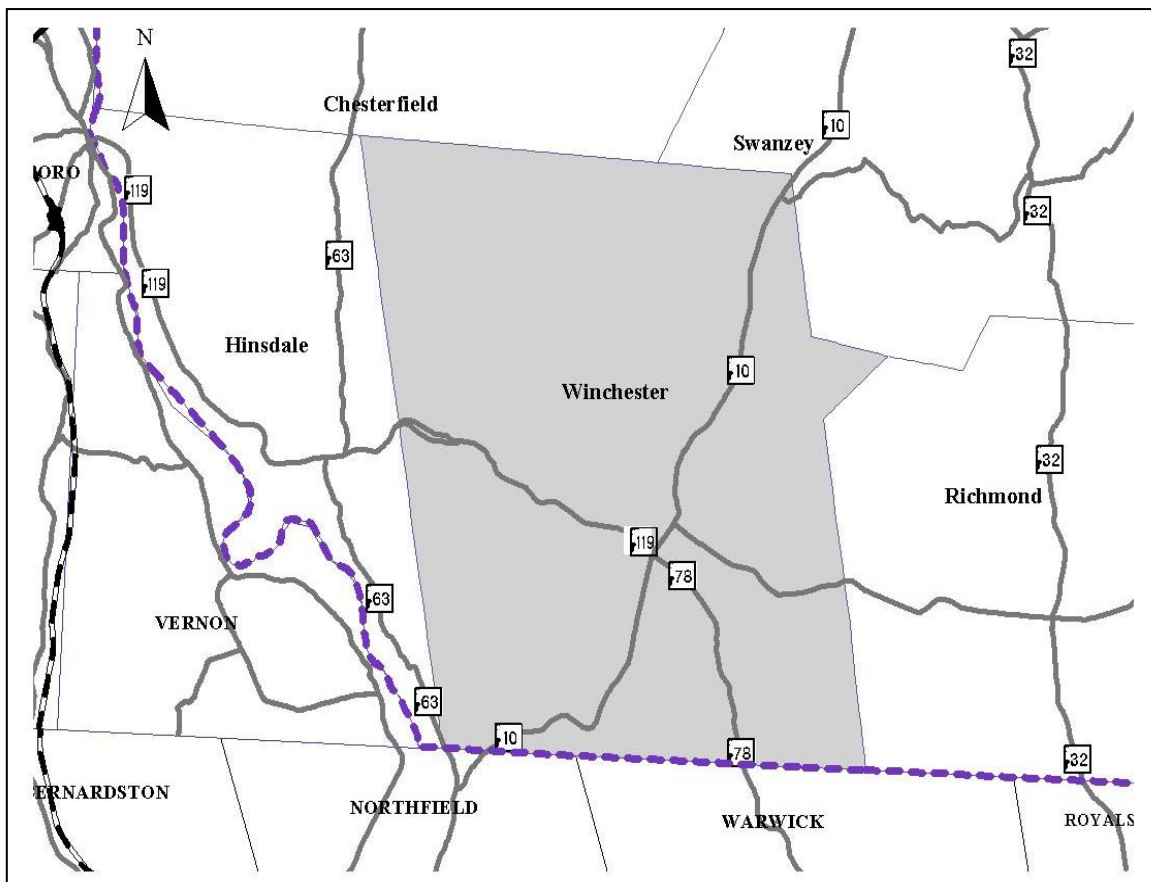
SECTION 2 COMMUNITY PROFILE

LOCATION, TOPOGRAPHY AND WEATHER CONDITIONS

The Town of Winchester, New Hampshire is located in Cheshire County in the Southwest Region of the State of New Hampshire. Winchester is bordered by the Town of Chesterfield on the north, Town of Swanzey on the north and east, Town of Hinsdale on the west, Town of Richmond on the east, and the Towns of Northfield and Warwick, Massachusetts on the south.

Winchester has a total land area of 35,556 acres. The topography of Winchester is dominated by the highlands of Mount Pisgah and the Ashuelot River Valley, which flows through the middle of town in a south-westerly direction. Elevations in town range from 1,427 feet above mean sea level at the summit of Mount Pisgah to 242 feet above mean sea level where the Ashuelot River flows into Hinsdale on the west-side of Winchester. According to U.S. Climate Data, the average high temperature in 2015 was 31°F in January and 83°F in July. The annual precipitation in 2015 was 43.6 inches of rainfall and 55 inches of snowfall.

Location Map of Winchester, NH



Existing Development Patterns

Examination of the Town's existing land use indicates that there is a considerable amount of undeveloped land, primarily of wooded and brush-covered areas, many of which have substantial development constraints.

Residential and agricultural uses comprise the most significant amount of developed land, roughly 76% of all the developed land. The residential pattern consists of the Town Center and Ashuelot Village, as well as the Scotland Road area, Forest Lake and the Barber District. More recent development has been occurring in the form of new subdivisions along the outlying Class V roads and the three State Roads.

Commercial and industrial development is located for the most part around the center of town, as well as along Routes 10, 119 and 78. In the late 1970's and early 80's Kulick's Mall, a small shopping center with professional office space was developed on Route 78 close to the intersection of Route's 78, 10 and 119. This area has primarily been where the majority of the commercial development has taken place over the last 20+ years.

Consideration for Development

Several factors have played, and will continue to play, an important role in the development of Winchester. These include: the existing development pattern and availability of land for future development; the present road network; physical factors such as steep slopes, poor soil conditions, the Ashuelot River its tributaries and floodplains; and the availability of utilities such as public water and sanitary sewers. These factors have an important impact, both individually and cumulatively, on where and how new development occurs.

Current Development Trends

Winchester remains a rural community with three distinct population/village centers: the Town Center, Ashuelot Village, and the Barber District. There has been increased residential development outside these centers and additional commercial activity has developed along Routes 10 north and 78 east. New residential growth includes a substantial amount of single family homes dispersed throughout town and in the Barber District., around Forest Lake, Old Rixford Road, Fullam Pond Road, Gunn Mountain Road, Clark Road, Old Westport Road, and Back Ashuelot Road.

Industrial activity continues to be concentrated west of the Town Center on Route 119, Snow Road and off of Route 78, although the largest industrial facility is located on Pump Road off of Route 119.

The commercial activity consists of a continuation of convenience-oriented facilities that serve the day-to-day retail and personal needs of the local residents, as well as activity along Routes 10 and 78 that is geared to attract and accommodate the traveling public.

Several notable improvement projects have occurred in town which may have an impact on future development potential. These include a \$250,000 water main extension along Maple and Michigan Streets in 2000, a \$750,000 sewer/water expansion and road improvement project for the Plumpak plant, a \$250,000 water/sewer project at the Elm Street Coop in 2000, and a water main extension along back Ashuelot Road in 2001. More recently in 2010 there was \$4.4 million in renovations to the sewer plant, a Transportation Enhancement grant for \$300,000 for the renovation and expansion of sidewalks, and a \$500,000 Wheelock Brook bridge replacement.

It is expected that future development will gravitate towards areas within close proximity to the three existing centers, since this is where the available infrastructure is located. There is also a considerable amount of landlocked area which could be developed, given the availability of new access roads and infrastructure.

The chart below shows the number of housing units in Winchester from 1970 to 2010 according to the US Census. The trend is showing a decline in the rate of new construction of housing units.

Housing Units 1970-2010

Year	1970	1980	1990	2000	2010
# Units	921	1342	1673	1741	1932
% Change	---	46%	25%	4%	11%

Source: US Census Bureau

Population Trends

The table below shows population in Winchester for each decennial from 1970 to 2010 according to the US Census. There was a population increase in each of the decades from 1970 to 2000, however the rate of increase has declined.

Winchester Population 1970-2010

	1970	1980	1990	2000	2010
Population	2869	3465	4038	4144	4341
% Change	---	21%	17%	3%	5%

Source: US Census Bureau

Population Projections

Population projections are an important component in planning for the future. Projections are beneficial to help communities begin to plan and budget for Capital Improvement Projects. Since population projections are based on a set of assumptions, changes can be significant if the assumptions used in the calculations are not met. For example, a tropical storm that destroys a large employer or causes infrastructure damages to that facility, can cause a significant economic hardship to the business that may ultimately result in its closure and loss of jobs. This can then result in an outward migration of residents from the community. Therefore, population projections should only be used as a basis to begin planning for the future.

The New Hampshire Office of Energy and Planning (NH OEP) prepares population projections every five years for each community in New Hampshire. The projections for Winchester are presented below in five-year intervals up to the year 2040. Using these projections, Winchester is expected to experience a slow growth of 1.4% between 2015 and 2040 similar to Cheshire County (2%) and below the New Hampshire population projection of 8%.

Winchester Population Projections

2015	2020	2025	2030	2035	2040	Change 2015-2040
4334	4345	4357	4375	4388	4396	1.4%

Source: NH Office of Energy and Planning (OEP)- September 2016

Development in Hazard Areas

Hazards identified in this plan are regional risks and, as such, all new development falls into the hazard area. The exception to this is flooding. Currently, there are 196 structures located within the Special Flood Hazard Area (SFHA) in Winchester. According to the Community Information System (CIS) of FEMA, there have been 18 development permits and no variances granted within the SFHA since 1987, the earliest records kept in the CIS for the Town of Winchester. Most of these permits were issued prior to 1991. The trend in Winchester has been less development in the SFHA over time, and this trend is expected to continue.

National Flood Insurance Program (NFIP)

Winchester is a participating member of the National Flood Insurance Program (NFIP). Flood Insurance Rate Maps (FIRM) bearing the initial effective date of April 15, 1981 were used in the original plan and Digital Flood Insurance Rate Maps (DFIRMS) dated May 23, 2006 are currently used for flood insurance purposes. The most recent flood insurance study was done on August 2, 2007. As of September 27, 2016, there are 39 NFIP Policies totaling \$5,518,900. There have been 9 paid losses totaling \$37,689, however, there are currently no “Repetitive Loss Properties” insured under the NFIP within the Town of Winchester.

Continued Compliance with NFIP Requirements

The Town of Winchester acknowledges the importance of maintaining the requirements set forth in the National Flood Insurance Program. As such, the town took several steps related to continued compliance with the program that will help to reduce or eliminate the potential for loss of life and property due to flooding.

The Status of Previous Priority Mitigation Actions in Section 7 shows measures that have already been taken including an ongoing flood education program, river stewardship, erosion and sedimentation control measures, anchoring manufactured housing, maintenance to culverts around town, and a hydrological study for Myrie Brook. These measures have made Winchester less vulnerable to flooding hazards since many of the culverts have been upsized to handle an increase in flow.

The Town of Winchester proposes a number of mitigation strategies in this Plan Update that support continued compliance with the National Flood Insurance Program. These include participating in NFIP training offered by the State and/or FEMA or in other training that addresses flood hazard planning and management; distribute information about NFIP; and to identify problems, potential solutions, and mitigate culvert issues in town.

SECTION 3 HAZARD IDENTIFICATION & PAST OCCURRENCES

Identifying Hazards

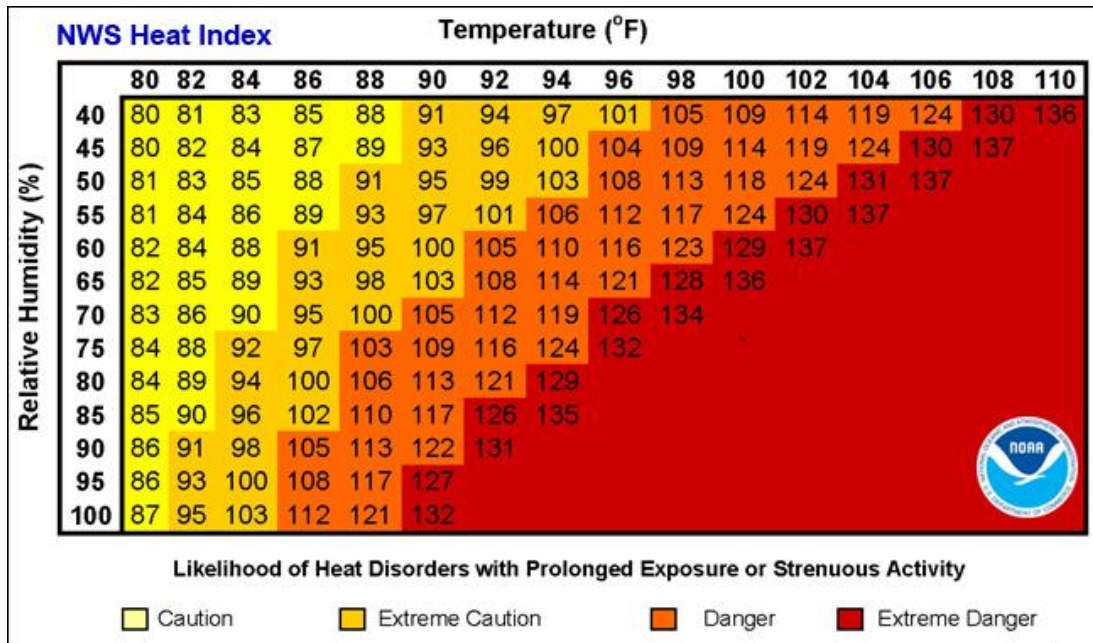
Hazard events were researched using a wide variety of sources. Sources and techniques included interviewing long-time residents of Winchester; gathering information from the State of New Hampshire Hazard Mitigation Plan; and gathering information from governmental and non-profit web sites. The following is a list of natural and manmade disasters, and the areas affected by them, that have or could affect the Town of Winchester. After careful review of the historical natural disasters in and near the Town of Winchester, the committee determined that the risk of landslide and snow avalanche do not pose enough of a risk to the Town of Winchester to include in this plan.

The Past and Potential Hazards Map at the end of this Plan reflects the contents of this list.

- Flooding
- Wildfires
- Earthquakes
- Erosion
- Drought/Extreme Heat
- Hurricanes/Tropical Storms
- Severe Wind/Downburst/Tornadoes
- Lightning
- Severe Winter Weather
- Radon
- Hazardous Materials Spills
- Dams

Hazard	Date	Location	Description of Areas Impacted
Flooding- Disaster Declarations			
Below is a listing of Disaster Declarations for flooding events within the State of New Hampshire. Several severe events have caused significant damage to structures and roadways within the Southwest Region. Some flooding that is not listed here may be listed under Hurricane/Tropical storms.			
Flood	1927	Southern NH	Damage to Road Network. Caused many roads to wash out.
Flood	March 11-21, 1936	NH State	Damage to Road Network. Flooding caused by simultaneous heavy snowfall totals, heavy rains and warm weather. Run-off from melting snow with rain overflowed the rivers
Flood/ Severe Storm	August 27, 1986	Cheshire, Hillsborough Counties, NH	FEMA Disaster # 771-DR (Presidentially Declared Disaster) \$1,005,000 in damage
Flood / Severe Storm	April 16, 1987	Cheshire, Carroll, Grafton, Hillsborough, Merrimack, Rockingham, & Sullivan Counties, NH	FEMA Disaster Declaration # 789- DR (Presidentially Declared Disaster). Flooding of low-lying areas along river caused by snowmelt and intense rain. \$4,888,889 in damage.
Flood	August 7-11, 1990	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan Counties, NH	FEMA Disaster Declaration # 876. Flooding caused by a series of storm events with moderate to heavy rains. \$2,297,777 in damage.
Flood	October 29, 1996	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan Counties, NH	FEMA Disaster Declaration # 1144- DR. Flooding caused by heavy rains. \$2,341,273 in damage.
Flood	July 2, 1998	Southern NH	FEMA Disaster Declaration # 1231. Severe storms and flooding
Flood	October 26th 2005	Cheshire, Grafton, Merrimack, Sullivan, and Hillsborough Counties, NH	FEMA Disaster Declaration # 1610. Severe storms and flooding.

Hazard	Date	Location	Hazard
Flooding- Disaster Declarations- cont.			
Flood	October-November 2005	Cheshire, Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan counties	FEMA Disaster Declaration # DR-1144-NH DR-1610
Flood	May 25th, 2006	Belknap, Carroll, Hillsborough, Merrimack, Rockingham, and Strafford Counties, NH	FEMA Disaster Declaration # 1643. Severe storms and flooding.
Flood	April 16, 2007	All counties, NH	FEMA Disaster Declaration # 1695. Severe storms and flooding.
Flood	May 26-30, 2011	Coos and Grafton County	FEMA Disaster Declaration # DR-4006; May flood event. No significant local impact.
Flood	May 29-31, 2012	Cheshire County	FEMA Disaster Declaration # 4065; No significant local impact.
Flood	June 26-July 3, 2013	Cheshire, Sullivan, and Grafton Counties	FEMA Disaster Declaration #4139; No significant local impact. The river rose to a dangerous level along Westport Road, but no damage occurred.
Flooding- Localized- Very High Risk			
Flood	April 2014	Ashuelot River- Ashuelot Library	Approximately 5-6 feet of water flooded the library basement and approximately 20 homes were affected. The damage to the road took several months to repair and traffic flow on NH Rte. 119 was interrupted for one day.
<p>It has been noted by the Winchester Hazard Mitigation Committee that flooding in town has historically been the result of beavers. There are multiple locations where beaver dams have created potential hazards causing water to back up and sometimes clog culverts. This can result in road washouts and flooding of properties.</p>			
Extreme Heat/Drought – Medium Risk			
<p>Extreme heat is characterized by abnormally high temperatures and/or longer than average time periods of high temperatures. These event conditions are typically infrequent. When they do occur, however, they are usually in late July and August. The severity of extreme heat can be dangerous to those residents with medical conditions and the elderly. It is important to have cooling areas and a good supply of water available. Extreme heat can add to the potential for wildfires and depletion of the water supply for firefighting. No record of local impact. Drought will increase the risk of wildfire, especially in areas of high recreational use and as more timberland is set aside as non-harvested timberland, the potential for the risk of wildfire will increase. Winchester has had limited experience with severe drought conditions, however, the drought in the summer of 2016 caused some private wells to run dry. No documentation on the number of wells affected. A greater emphasis is placed on responding to these hazards rather than mitigating for them. Outreach and education on methods of dealing with drought are important. Extreme heat and drought are town-wide events, therefore, no specific locations are identified. The severity of droughts can be found by referring to the Palmer Drought Severity Index used by the Climate Prediction Center and can be viewed at: http://www.cpc.ncep.noaa.gov/products/monitoring_and_data/drought.shtml</p>			



Source: National Weather Service

Wildfires- High Risk

As timber harvesting is reduced, wood roads close, debris builds up on the ground, the potential for wildfire increases town-wide. The entire town is at risk with minimal forest fire protection. Wildfires can impact the town by causing injury or death, structural damage, road closures, and interruption of service. Areas that are more vulnerable are identified in Chapter V. Wildfire are classified according to size: Class A - one-fourth acre or less; Class B - more than one-fourth 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.

Wildfire	2015	Scotland Road	3 acres burned, 5-6 towns were called in for mutual aid. No injuries or structural damage.
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Earthquake (above 5.0 on Richter scale) – Very Low Risk

Modified Mercalli Scale vs. Richter Scale		
Mercalli Intensity	Mercalli Observations	Richter Magnitude
I	Not felt by people	1-2
II	Felt by only a few people, especially on upper floors of buildings	3
III	Felt by people lying down, seated on hard surface, or in tall buildings	3.5
IV	Felt indoors by many, dishes and windows rattle	4
V	Generally felt by everyone; may wake from sleep	4.5
VI	Trees sway, objects fall from walls & tables	5
VII	Walls crack, some structural damage	5.5
VIII	Building damage noticeable	6
IX	Some buildings collapse	6.5
X	Ground cracks and landslides	7
XI	Few buildings survive, bridge damage, severe landslide	7.5
XII	Total Destruction, objects thrown into the air	8

Past Hazard- There have been no reported injuries or structural damage from earthquakes in Winchester. Potential hazard- The table above is used to categorize earthquakes using two different scales: Mercalli Scale and Richter Scale. The Richter Scale is more scientific and is based on the magnitude (amplitude of the largest seismic wave). The Mercalli Scale is based on observations by people who experienced the earthquake to describe its intensity.

Source: USGS Hazards Program

Hazard	Date	Location	Description of Areas Impacted
Earthquake	1638	Central New Hampshire	6.5-7
Earthquake	October 29, 1727	Off NH/MA coast	Widespread damage Massachusetts to Maine
Earthquake	December 29, 1727	Off NH/MA coast	Widespread damage Massachusetts to Maine
Earthquake	November 18, 1755	Cape Ann, MA	6.0, much damage
Earthquake	1800s	Statewide New Hampshire	83 felt earthquakes in New Hampshire
Earthquake	1900s	Statewide New Hampshire	200 felt earthquakes in New Hampshire
Earthquake	March 18, 1926	Manchester, NH	Felt in Hillsborough County
Earthquake	December 20 & 24, 1940	Near Ossipee, NH	Both earthquakes of magnitude 5.5, both felt for 400,000 sq miles, structural damage to homes, damage in Boston, MA, water main rupture.
Earthquake	December 28, 1947	Dover-Foxcroft, ME	4.5
Earthquake	June 10, 1951	Kingston, RI	4.6
Earthquake	April 26, 1957	Portland, ME	4.7
Earthquake	April 10, 1962	Middlebury, VT	4.2
Earthquake	June 15, 1973	Near NH Quebec Border, NH	4.8
Earthquake	January 19, 1982	Gaza (west of Laconia), NH	4.5, walls and chimneys cracked, damage up to 15 miles away in Concord
Earthquake	October 20, 1988	Near Berlin, NH	4
Earthquake	January 3, 2011	Northwest of Laconia	2.5. No damage locally.
Earthquake	August 23, 2011	Travelled up the east coast from Virginia to New Hampshire	5.8. No damage locally.
Earthquake	September 18, 2012	Southern New Hampshire	1.2. No damage locally.
Earthquake	October 16, 2012	Felt throughout most of the New England states; centered in Maine	4.0. No damage locally.
Earthquake	October 11, 2013	Concord	2.3. No damage locally.
Earthquake	2014	New Hampshire	7 small earthquakes ranging from 1.5 - 2.3. No damage or impact locally.
Earthquake	Jan.-July 2015	New Hampshire	5 small earthquakes ranging from 1.6 - 2.3. No damage or impact locally.

Tornados, Downbursts, and Severe Wind - Low Risk

Tornadoes rarely occur in this part of the country; therefore, assessing damages is difficult. Buildings have not been built to Zone 2, Design Wind Speed Codes.

The **Enhanced Fujita Scale** is used to rate the intensity of a tornado by examining the damage caused by the tornado once it has passed. (see scale below).

EF-Scale Number, Wind Speed, Frequency, and Type of damage

EF-0

Wind Speed: 65-85 mph; Frequency: 53.5%

Minor or no damage. Some damage to gutters, siding and roofs; breaks branches off trees; pushes over shallow-rooted trees.

EF-1

Wind Speed: 86-110 mph; Frequency: 31.6%

Moderate damage. Roofs severely stripped; mobile homes damaged or overturned; windows and glass broken, loss of exterior doors.

EF-2

Wind Speed: 111-135 mph; Frequency: 10.7%

Considerable damage. Roofs torn off well constructed homes; foundations of framed homes shifted; mobile homes demolished; large trees snapped or uprooted; light object missiles generated; cars lifted off of ground.

EF-3

Wind Speed: 136-165 mph; Frequency: 3.4%

Severe Damage. Entire stories of well-constructed houses destroyed; severe damage to large building and malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown.

EF-4

Wind Speed: 166-200 mph; Frequency: 0.7%

Extreme Damage. Well-constructed houses completely leveled; cars thrown and large missiles generated.

EF-5

Wind Speed: >200 mph; Frequency <0.1%

Total Destruction. Strong frame houses lifted off foundations and carried considerable distances to disintegrate; steel reinforced concrete structures are critically damaged; tall buildings collapse.

Source: <http://www.tornadoproject.com/fscale/fscale.htm>

Hazard	Date	Location	Description of Areas Impacted
Tornado	September 15, 1922	Cheshire County	F2
Tornado	September 13, 1928	Cheshire County	F2
Tornado	August 13, 1963	Cheshire County	F2
Tornado	June 6, 1963	Cheshire County	F2
Tornado	July 3, 1997	Cheshire County	An F1 tornado caused severe tree loss in Cheshire County, destroying a building and damaged the stables at the Cheshire Fairgrounds.
Tornado	July 3, 1997	Greenfield, NH	An F2 Tornado caused damage to a summer camp, the recycling center and completely destroyed a lumber facility.
Tornado	May 23, 1998	Hillsborough County	F2
Tornado	July 24, 2008	Deerfield/Northwood	EF2

There have been no recorded events of downbursts in or near Winchester.

Hurricanes (Category given if known) and Tropical Storms - Very High Risk

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

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

Saffir-Simpson Hurricane Wind Scale Category, Sustained Winds, and Types of Damage

Category 1

Wind Speed: 74-95 mph, 64-82 kts

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

Category 2

Wind Speed: 96-110 mph, 83-95 kts

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

Category 3

Wind Speed: 111-129 mph, 96-112 kts

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

Category 4

Wind Speed: 130-156 mph, 113-136 kts

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

Category 5

Wind Speed: 157 mph or higher, 137 kts or higher

Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months

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

Hazard	Date	Location	Description of Areas Impacted
Hurricane	September 21, 1938	Southern New England	Flooding caused damage to road network and structures. 13 deaths, 494 injured throughout NH. Disruption of electric and telephone services for weeks. 2 Billion feet of marketable lumber blown down. Total storm losses of \$12,337,643 (1938 dollars). 186 mph maximum winds.
Hurricane (Carol)	August 31, 1954	Southern New England	Category 3, winds 111-130 mph. Tree and crop damage in NH, localized flooding.
Hurricane (Edna)	September 11, 1954	Southern New England	Category 3 in Massachusetts. This Hurricane moved off shore but still cost 21 lives and \$40.5 million in damages throughout New England. Following so close to Carol it made recovery difficult for some areas. Heavy rain in NH
Hurricane (Donna)	September 12, 1960	Southern and Central NH	Category 3 (Category 1 in NH). Heavy flooding in some parts of the State.
Tropical Storm	October 7, 1962	Coastal NH	Heavy swell and flooding along the coast
Tropical Storm	August 28, 1971	New Hampshire	Center passed over NH resulting in heavy rain and damaging winds

Hurricanes (Category given if known) and Tropical Storms - Very High Risk			
Hazard	Date	Location	Description of Areas Impacted
Hurricane (Belle)	August 10, 1976	Southern New England	Primarily rain with resulting flooding in New Hampshire. Category 1
Hurricane (Gloria)	September, 1985	Southern New England	Category 2, winds 96-110 mph. Electric structures damaged; tree damages. This Hurricane fell apart upon striking Long Island with heavy rains, localized flooding, and minor wind damage in NH
Hurricane (Bob)	August 19, 1991	Southern New England	Structural and electrical damage in region from fallen trees. 3 persons were killed and \$2.5 million in damages were suffered along coastal New Hampshire. Federal Disaster FEMA-917-DR.
Hurricane (Edouard)	September 1, 1996	Southern New England	Winds in NH up to 38 mph and 1 inch of rain along the coast. Roads and electrical lines damaged.
Tropical Storm (Floyd)	September 16-18, 1999	Southern New England	FEMA DR-1305-NH. Heavy Rains.
Hurricane (Katrina)	2005	Gulf Region- Southern US	Caused an estimated \$100 billion in damages.
Tropical Storm (Tammy)	October 5-13, 2005	East Coast of US	Remnants of Tammy contributed to the October 2005 floods which dropped 20 inches of rain in some places in NH.
Tropical Storm (Irene)	2011	New England states	FEMA Disaster Declaration #DR-4026 and EM- 3333. No injuries or serious damage recorded locally and no significant impact to the Town. Some minor flooding occurred and damaged a portion of Watson Road causing residents of 3 homes to seek alternate routes to access their properties.
Tropical Storm (Sandy)	October 26-November 8, 2012	Eastern United States	FEMA Disaster Declaration # DR-4095; NH Counties that received the most damage were Belknap, Carroll, Coos, Grafton, Rockingham, and Sullivan. No injuries or serious damage recorded locally and no significant impact to the Town.

Lightning – Low Risk

Past Hazard: No specific history of lightning strikes noted by the committee. No local damage or personal injury recorded. Potential hazard- Lightning is an unpredictable hazard. It could strike anywhere in Winchester and potentially start a forest fire especially in periods of drought. Lightning could also strike a person or home causing loss of life and property. High elevations and areas around waterbodies may be more susceptible to lightning strike incidents.

The Table below categorizes lightning hazards according to the Lightning Activity Level (LAL) using cloud conditions and precipitation, and an estimate of lightning strikes per every 15 minutes.

LAL	Cloud & Storm Development	Lightning Strikes/15 min
1	No thunderstorms.	-
2	Cumulus clouds are common but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	1-8
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two to three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common and lightning is frequent.	16-25
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rain is moderate to heavy and lightning is frequent and intense.	>25
6	Similar to LAL 3 except thunderstorms are dry.	

Severe Winter Weather – Very High Risk

Three types of winter events are heavy snow, ice storms and extreme cold. Occasionally heavy snow will collapse buildings. Ice storms have disrupted power and communication services. Extreme cold affects the elderly. These random events make it difficult to set a cost to repair or replace any of the structures or utilities affected.

The chart below is an indicator of the severity of ice storms and can assist emergency management officials in predicting the length of power outages based on wind speed and amount of ice accumulation during the storm. This index is similar to those that are used to predict the severity of tornados and hurricanes. Planning ahead will mitigate the damage and prepare communities for severe ice events days in advance.

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

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

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

Hazard	Date	Location	Description of Areas Impacted
Ice Storm	December 17-20, 1929	New Hampshire	Unprecedented disruption and damage to telephone, telegraph and power system. Comparable to 1998 Ice Storm
Blizzard	February 14-17, 1958	New Hampshire	20-30 inches of snow in parts of New Hampshire
Snow Storm	March 18-21, 1958	New Hampshire	Up to 22 inches of snow in south central NH
Snow Storm	January 18-20, 1961	New Hampshire	Up to 25 inches of snow in southern NH
Snow Storm	February 2-5, 1961	New Hampshire	Up to 18 inches of snow in southern NH
Snow Storm	January 11-16, 1964	New Hampshire	Up to 12 inches of snow in southern NH
Blizzard	January 29-31, 1966	New Hampshire	Third and most severe storm of 3 that occurred over a 10-day period. Up to 10 inches of snow across central NH
Snow Storm	December 26-28, 1969	New Hampshire	Up to 41 inches of snow in west central NH
Snow Storm	February 18-20, 1972	New Hampshire	Up to 19 inches of snow in southern NH
Snow Storm	January 19-21, 1978	New Hampshire	Up to 16 inches of snow in southern NH
Blizzard	February 5-7, 1978	New Hampshire	New England-wide. Up to 25 inches of snow in central NH
Snow Storm	February, 1979	New Hampshire	President's Day storm
Ice Storm	January 8-25, 1979	New Hampshire	Major disruptions to power and transportation
Snow Storm	April 5-7, 1982	New Hampshire	Up to 18 inches of snow in southern NH

Severe Winter Weather (cont.)			
Hazard	Date	Location	Description of Areas Impacted
Ice Storm	February 14, 1986	New Hampshire	Fiercest ice storm in 30 yrs in the higher elevations in the Monadnock region. It covered a swath about 10 miles wide from the MA border to New London NH.
Extreme Cold	Nov-Dec, 1988	New Hampshire	Temperature was below 0 degrees F for a month.
Ice Storm	March 3-6, 1991	New Hampshire	Numerous outages from ice-laden power lines in southern NH.
Snow Storm	1997	New Hampshire	Power outages throughout New Hampshire due to heavy snowfall
Ice Storm	January 15, 1998	New Hampshire	Federal disaster declaration DR-1199-NH, 20 major road closures, 67,586 without electricity, 2,310 without phone service, \$17+ million in damages to Public Service of NH alone.
Snow Storm	February 2006	New Hampshire	Trees down and power outages throughout town due to heavy snowfall.
Ice Storm	December 8, 2008	New Hampshire	FEMA Disaster Declaration # DR-1812. Statewide-Downed trees and power lines, power outages up to 1 Month; Locally-No injuries or structural damage recorded. Some residents were without power for 2-3 weeks.
Severe Winter Weather	Feb. 23-March 3, 2010	New Hampshire	FEMA Disaster Declaration # DR-1892. High winds and heavy rain throughout the State. Locally-No injuries or structural damage recorded.
Severe Winter Weather	March 10-31, 2010	New Hampshire	FEMA Disaster Declaration # DR-1913. Severe storms and flooding in Hillsborough and Rockingham Counties. Locally-No injuries or structural damage recorded.
Snow Storm	October 29-30, 2011	New Hampshire	FEMA Disaster Declaration # DR-4049 (Hillsborough and Rockingham Counties). Severe snowstorm event. Snowfall 34" in a 24 hour period. Locally-No injuries or structural damage recorded, and no interruption of service.
Snow Storm	February 8-10, 2013	New Hampshire	February Blizzard "Nemo", exceeded previous snow fall amounts; Declaration # DR4105. Locally-No injuries or structural damage recorded; no interruption of service.
Snow Storm	November 2014	New Hampshire	"Thanksgiving Storm". Many communities received over 12" of snow. Locally-No injuries or structural damage recorded. Some residents lost power for 2-3 days.
Snow Storm	January 2015	New Hampshire	FEMA Disaster Declaration # DR-4209. Several successive snow storms that dumped in excess of 10" each. Locally-No injuries or structural damage recorded, and no interruption of service.
Erosion - Very Low Risk			
Some steep slopes exist that have the potential for erosion. Maintaining vegetation on slopes and avoiding clearcutting of trees on steep grades will reduce the severity of erosion during heavy rain events. The extent of erosion occurs over time and is exacerbated by heavy rains. Road embankments may experience erosion during heavy rain events which could undermine the road and cause damage to the surface leaving the road to be impassable.			
Erosion	2013, 2014, 2015	Burt Hill	Ledge has fallen. No injuries or structural damage.

Hazardous Materials Spills - Medium Risk

Transportation of chemicals and bio-hazardous materials through town by truck is a concern. The severity of such an event greatly varies depending on the type of hazardous material, location, and response time, as well as other contributing factors such as wind and rain. Hazardous spills can contaminate the air, land, and water and cause serious health hazards or death.

HazMat Spills	2015	Scotland Road, Michigan Street, and Forest Lake Road.	Leaking fuel oil tanks. Clean Harbours did the clean-up. No estimate of cost known by the committee. No injuries or impact to Town.
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Radon- Very Low Risk

Potential hazard- No known records of illness can be attributed to radon. However, residents should be aware that radon is present in water and air. Houses with granite and dirt cellars are at increased risk. Radon poisoning can cause death or injury. Below is a table showing the radon levels in each county of New Hampshire. The data indicates that all of the New Hampshire Counties have a higher average than the national average.

State of New Hampshire 2011** Average Radon Levels (per county)			
County	County Average	National Average	Difference
Belknap	2.6 pCi/L	1.3 pCi/L	1.3 pCi/L
Carroll	8.8 pCi/L	1.3 pCi/L	7.2 pCi/L
Cheshire	3.3 pCi/L	1.3 pCi/L	2.0 pCi/L
Coös	8.8 pCi/L	1.3 pCi/L	7.2 pCi/L
Grafton	4.5 pCi/L	1.3 pCi/L	3.2 pCi/L
Hillsborough	5.3 pCi/L	1.3 pCi/L	4.0 pCi/L
Merrimack	5.1 pCi/L	1.3 pCi/L	3.8 pCi/L
Rockingham	5.6 pCi/L	1.3 pCi/L	4.3 pCi/L
Strafford	6.2 pCi/L	1.3 pCi/L	4.9 pCi/L
Sullivan	2.2 pCi/L	1.3 pCi/L	.9 pCi/L

Source: Table and information from the NH State Hazard Mitigation Update 2013.

Picocuries Per Liter pCi/L): A unit of measure for levels of [radon gas](#)

**In 2011 NH State Legislature cut the NH Radon Program; this is the last updated information available.

There has been no known history of radon problems in Winchester.

Dam Failure - Very High Risk

The town has not experienced any dam failures.

Potential hazard- The Table below shows the dams in Winchester that are registered with the State of New Hampshire.

The State of New Hampshire classifies dams into the following four categories:

NM – Non-menace S – Significant hazard Blank- Non-Active
 L – Low hazard H – High Hazard

Detailed description of classification terms:

Non-Menace structure means a dam that is not a menace because it is in a location and of a size that failure or misoperation of the dam would not result in probable loss of life or loss to property, 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 structure means a dam that has a low hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in 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 structure means a dam that has a significant hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in 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 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 147-A:2 VII.
- Any other circumstance that would more likely than not cause one or more deaths.

Generally, all Class H dams need to have Emergency Action Plans, and most Class S dams also require them. There is one Class H dams within the Town of Winchester and one Class S dam according to the Department Of Environmental Services Dam Bureau.

DAM #	HAZCL	STATUS	NAME	RIVER	HEIGHT	IMPND	OWNER
D255001	L	ACTIVE	ASHUELOT PAPER MILL DAM	ASHUELOT RIVER	18	2.5	ASHUELOT RIVER HYDRO INC
D255002	L	ACTIVE	LOWER ROBERTSON DAM	ASHUELOT RIVER	19.8	8.6	ASHUELOT RIVER HYDRO INC
D255003	---	NOT BUILT	UPPER ROBERTSON HYDRO	ASHUELOT RIVER	16	---	MR PAUL V NOLAN
D255004	---	REMOVED	ASHUELOT RIVER DAM	ASHUELOT RIVER	10	---	MR A L FAUST
D255005	---	RUINS	MIREY BROOK DAM	MIREY BROOK	---	---	UNKNOWN
D255006	---	RUINS	ROARING BROOK DAM	ROARING BROOK	---	---	MR GEORGE HOLTON
D255007	L	ACTIVE	FOREST LAKE DAM	TR ASHUELOT RIVER	8	93	FOREST LAKE IMPROVEMENT ASSOC
D255008	---	RUINS	BROAD BROOK DAM	BROAD BROOK	---	---	DICKINSON REAL ESTATE CO
D255009	L	ACTIVE	KILBURN POND DAM	KILBURN BROOK	15	37	TOWN OF HINSDALE WATER DEPT
D255010	---	REMOVED	WINCHESTER TOWN DAM	ASHUELOT RIVER	5	25	TOWN OF WINCHESTER
D255011	H	ACTIVE	PISGAH RESERVOIR DAM	TUFTS BROOK	33	110	DRED
D255012	NM	ACTIVE	CONSERVATION POND DAM	UNNAMED BROOK	10	0.16	STONE MOUNTAIN LLC
D255013	---	NOT BUILT	TUFTS BROOK DAM	TUFTS BROOK	10	---	ASHUELOT PAPER COMPANY INC
D255014	NM	ACTIVE	RECREATION POND DAM	UNNAMED STREAM	6	0.03	MR RICHARD LAWSON

DAM #	HAZCL	STATUS	NAME	RIVER	HEIGHT	IMPND	OWNER
D255015	---	BREACHED	FISH POND DAM	UNNAMED BROOK	---	---	DAVIS & SYMONDS LUMBER CO
D255016	NM	ACTIVE	FARM POND DAM	UNNAMED STREAM	10	0.33	MR HERBERT MEADOW
D255017	NM	ACTIVE	WILDLIFE POND DAM	UNNAMED STREAM	16	0.14	MR KENNETH H SMITH
D255018	---	EXEMPT	RECREATION POND DAM	UNNAMED STREAM	3.8	0.25	MR MICHAEL V GALASYN
D255019	NM	ACTIVE	SNOWBROOK DAM	TR SNOW BROOK	23	0.7	MR JOHN DOUGHERTY
D255020	NM	ACTIVE	WILDLIFE POND DAM	UNNAMED STREAM	12	0.25	STONE MOUNTAIN LLC
D255021	S	ACTIVE	HOLDING POND DAM	UNNAMED STREAM	20	3	M&M CONSULTING & CONTRACTING INC
D255022	---	BREACHED	TUFTS POND DAM	TUFTS BROOK	6	5	DRED

Source: Department of Environmental Services Dam Bureau- 2016

The Winchester Hazard Mitigation Committee expressed concerns that some of the flooding that has occurred in town has been the result of beavers. Since these dams are not regulated by the state, there is added concern for a breach and subsequent flooding. A dam breach, man-made or other, could potentially cause death, injury, or structural damage.

SECTION 4 RISK ASSESSMENT

Vulnerability and Risk Assessment

The vulnerability and risk assessment provides information to enable the town to identify and prioritize appropriate mitigation actions to reduce losses from the identified hazards. For each hazard type shown in the table below, the committee assigned a value (1-5) to reflect the Human, Property and Business impact of each hazard to determine the vulnerability. Then, the committee assigned a probability value (1-5) reflecting the likelihood that this hazard will occur in the next 25 years. The severity and risk was calculated from the inputted values. The final column indicates the risk of each hazard, allowing the committee to see which hazards pose the greatest risk to the community. Very Low to Very High risk was assigned as shown below.

Human Impact, Property Impact, Business Impact and Probability rating scale:



	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 Average of human, property, business impacts	Risk Severity x Probability	Risk Level
Flooding	5	5	5	5	5	25	Very High
Drought/ Extreme Heat	2	3	2	5	2.3	12	Medium
Wild Fire	2	4	4	5	3.3	17	High
Earthquake (5.0 or above)	2	2	2	2	2	4	Very Low
Tornado/downburst/wind	2	2	2	5	2	10	Low
Hurricane/tropical storm	4	5	5	5	4.7	24	Very High
Lightning	5	5	5	2	5	10	Low
Severe Winter Weather	5	5	5	5	5	25	Very High
Erosion	2	3	2	2	2.3	5	Very Low
HazMat Spills	2	3	3	4	2.7	11	Medium
Radon	3	1	1	2	1.7	3	Very Low
Dam Failure	5	5	5	5	5	25	Very High

Risk Level: 1-5 Very Low 6-10 Low 11-15 Medium 16-20 High 21-25 Very High

SECTION 5

VULNERABILITY ASSESSMENT/ESTIMATING POTENTIAL LOSSES

Potential Losses

In order to determine estimated losses due to natural and man made hazards in Winchester, each hazard area was analyzed with results shown below. Human losses are not calculated as part of this assessment, but could be expected to occur depending on the type and severity of the hazard. Most of the monetary figures provided in this assessment exclude both the land value and contents of the structure. According to the Town assessing records of 2016, the value of all structures, including exempt structures such as schools and churches and extra features values (sheds, barns, garages, pools, lean-tos, fireplaces, paving, canopies, etc.) is \$262,693,173 and the median value of a home is \$135,400. The data below was calculated using FEMA's Understanding Your Risks: Identifying Hazards and Estimating Losses. Since hazard vulnerability assessment is dependent on such a range of variables, such as the type, magnitude and precise location of a future hazard, such assessments are far from an exact science. Therefore, it is understood that the monetary values arrived at through this assessment represent gross estimates. Individual home values can vary above and below the median value used in this vulnerability assessment. At the time of this update, no future development activities were planned for the hazard areas.

Hazard Vulnerability Assessment- Estimating Potential Losses

Potential losses were calculated for each hazard area by multiplying the type and number of potentially at risk structures by the appropriate calculated average valuation.

Flooding – Very High Risk - Estimated cost- \$26,534,400: The Town of Winchester has approximately 196 residential structures located in the floodplain, with an average town-wide 2016 sales price of \$135,400. The vast majority of these structures are residential single family homes with basements. Assuming 100% damage to 100% of the structures, the estimated cost of repairing or replacing is approximately \$26,534,400. The cost for repairing or replacing the bridges, power lines, telephone lines, road and contents of structures are not included. These figures make it clear that Winchester would benefit greatly from any flood mitigation measures that help to reduce losses that typically occur during a major flood event.

- Damage/repair to the road surface. Occasional road repair is required due to spring storm patterns, plugged culverts during spring runoff and mud season.
- Potential for annual repair and upkeep to bridges and culvert.
- Beaver dams pose potential hazards.
- There is a potential for interruption of service, and damage to structures, roads and bridges;
- There is a potential for injury or death.

Drought/Extreme Heat–Medium Risk- No Estimate of Cost: Drought – Low Risk - No Record of Cost: Drought will increase the risk of wildfire, especially in areas of high recreational use and as more timberland is set aside as non-harvested timberland, the potential for the risk of wildfire will increase. It can also cause well to run dry, leaving homes without any source for water. Extreme heat for extended periods of time can cause brown-outs due to the increased usage of air conditioners. Loss of electricity during periods of extreme heat can be dangerous for the elderly and people with health issues.

- Forested areas with high fuel content have more potential to burn
- This could occur Townwide,

Wildfire - High Risk - Approximately \$1,000/acre: As timber harvesting is reduced, wood roads close, and debris builds up on the ground, the potential for wildfire increases town-wide. Large forested areas in Winchester are the

highest concern (Pisgah State Park, Wheeler Mountain, Stone Mountain, Schofield Mountain, Gun Mountain, and Manning Hill Road area).

- Entire town - minimal forest fire protection (dependent on on-call firefighters and problems with accessibility)
- Wildfire risk rises with the increase of tree debris due to severe weather such as ice and wind events
- Wildfires pose a risk of life and property loss as well as disruption of utility service.
- The estimated cost of wildfires is not included because of the unpredictable path of a wildfire.

Severe Wind/Tornado/Downbursts – Low Risk - Estimate of Cost - \$5,253,863: The entire town is at risk from severe localized blasting winds. Such events can cause small blocks of downed timber. Old trees along roads are at risk of falling across roads. There is potential damage to structures during severe wind events which may also include the loss of electricity. Downbursts are sometimes mistaken for tornados and can cause similar damage. These events are unpredictable, therefore, assessing damages is difficult. Buildings in Winchester have not been built to Zone 2, Design Wind Speed Codes. Estimated damages to 10% to structures with 20% damages \$5,253,863.

- This could occur Townwide, however, river corridors and hill tops are most susceptible.
- There is a potential for interruption of service, and damage to structures, roads and bridges;
- There is a potential for injury or death.

Hurricane/Tropical Storm – Very High Risk - Estimate of Cost - \$6,567,330: A major hurricane or tropical storm can cause significant damage to a community. Winchester's location in southwestern New Hampshire reduces the risk of extremely high winds that are associated with hurricanes. Hurricanes can and do create flooding. Estimated wind damage to 5% of the structures with 10% damage \$1,313,466. Estimated flood damage 10% of the structures with 20% damage \$5,253,863.

- This could occur Townwide, however, river corridors and hill tops are most susceptible.
- There is a potential for interruption of service, and damage to structures, roads and bridges;
- There is a potential for injury or death.

Lightning Strikes - Low Risk- No Estimate of Cost: Lightning can strike at any time in any place, and has the potential to cause significant amounts of damage in the Town of Winchester. The damage caused by lightning can range from a single structure to multiple structures if it results in a wildfire event. Presuming a small to medium size event that destroys a small number of homes or structures, damage from this hazard could be expected to range from \$150,000 to \$3,000,000. Damages to other items such as utilities, etc. are not included in this estimate.

- This could occur Townwide, however, waterbodies and hill tops are most susceptible.
- There is a potential for interruption of service, and damage to structures;
- There is a potential for injury or death.

Earthquake - Very Low Risk - Estimate of Cost - \$52,583,635: Very low risk potential for a serious earthquake to occur and cause damage in Winchester. However, structures are mostly of wood frame construction. An estimated loss of 20% of Town assessed structural valuation is \$52,583,635. There is a potential for disruption of utilities;

- There is a potential for collapse of structures, roads and bridges;
- There is a potential for injury or death;
- This could occur Townwide.

Erosion – Very Low Risk – No Estimate of Cost: Erosion is primarily along roadsides due to improperly maintained roadside drainage systems as well as undersized culverts. The damage due to erosion is mainly in the form of undercut roadways. Assessing damages of future erosion that could occur is difficult because damages from erosion could vary significantly depending upon the location and the existing condition of the roadway and drainage infrastructure. Unpredictable areas of erosion could also occur along old river channels, quarries or old landfills. Physical injuries, damage to homes or interruption of service is unlikely. Damages from this hazard could be expected to range from a few thousand dollars to a few million dollars, depending on the severity of the event and infrastructure impacted.

- There is a potential for mud and debris to enter the streams;
- There is a potential for mud and debris onto roads.

Radon Air/Water – Low-Medium Risk - No Estimate of Cost: No known records of illness can be attributed to radon. However, Winchester residents should be aware that radon is present. Many granite and dirt cellars are at risk

- There is a potential for injury or death;
- This could occur Townwide.

Extreme Winter Weather - High Risk - No Estimate of Cost: Three types of winter events are heavy snow, ice storms and extreme cold which cause concern. Heavy snow may collapse buildings. Ice storms may disrupt power and communication services. Timberland has been severely damaged. Extreme cold affects the elderly. Winchester's recent history has not recorded any loss of life due to the extreme winter weather. These random events are difficult to set a cost to repair or replace any of the structures or utilities affected. The ice storms of 1998 and 2008 caused much damage to power lines and structures in northern New England. These types of storms in Winchester could be expected to cause damage ranging from \$10,000 to \$5,000,000, depending on the severity of the storm.

- This could occur Townwide;
- There is a potential for interruption of service, and damage to structures;
- There is a potential for injury or death.

Man-Made Hazards - Hazardous Materials - Medium Risk - No Estimate of Cost: Chemicals are found everywhere. They purify drinking water, increase crop production, and simplify household chores. But chemicals also can be hazardous to humans or the environment if used or released improperly. Hazards can occur during production, storage, transportation, use, or disposal.

- ♦ Public transportation of chemicals, bio-hazardous and radiological materials through town on NH 119 and NH 10 by truck is a concern.
- ♦ A spill could cause water contamination or airborne pollutants to residents which may cause illness or death.

Man-Made Hazards - Dams –Very High Risk - Estimate of Cost - \$26,534,400:

Dam and/or breach failure could have catastrophic results in Winchester, including loss of human life. Assuming all 196 residential structures in the floodplain were destroyed, along with major losses to utilities and public properties, the total damage could exceed \$26,534,400. This includes beaver dams.

Critical Facilities Within Hazard Areas

Hazards identified in this plan are regional risks and, as such, all critical facilities fall into the hazard area. The exception to this is flooding. Twenty-four identified critical facilities fall within the 100-year floodplain. The facilities are identified in the following table:

FACILITY NAME	FACILITY TYPE	BUILDING TYPE	ADDRESS
Dams (2)	Dam	Dam	Two dams on the Ashuelot River in and around Ashuelot Village
Bridge	Bridge	Bridge	NH Route 10 bridge south of Parker Street
Bridge	Bridge	Bridge	Bridge to Paper Service Ltd. on Recycle Way in Ashuelot
Covered Bridge	Covered Bridge	Covered Bridge	Gunn Mountain Rd.
Covered Bridge	Covered Bridge	Covered Bridge	Coombs Bridge Rd.
Bridge	Bridge	Bridge	NH Route 10 just north of Westport Village Rd.

FACILITY NAME	FACILITY TYPE	BUILDING TYPE	ADDRESS
Bridge	Bridge	Bridge	Bridge St. (Closed due to condition)
Bridge	Bridge	Bridge	Elm St.
Bridge	Bridge	Bridge	Hinsdale Rd/NH Route 119 west of intersection
Sunrise Village	Senior Apartments	Senior Apartments	NH Route 10 north of town center
E.L.M.M.	Private Recreation Facility	Private Recreation Facility	NH Route 10 just south of Parker St.
Dartmouth-Hitchcock Clinic	Medical Facility	Office	NH Route 78 just north of Warwick Rd.
Natural Gas Storage	Fuel Storage	Fuel Storage Tanks	NH Route 78 at Kulick's Mall
Kulick's Mall	Commercial Center	Commercial	NH Route 78
Four Corners Shopping Center	Commercial Center	Commercial	15 Warewick Rd
Winchester Senior Housing	Senior Apartments	Senior Apartments	NH Route 78
Snow Brook Meadow Village	Apartment Complex	Apartment Complex	NH Route 78
Rite Aid	Pharmacy, food & sundries	Commercial	Route 10
Town Hall	Vital records and services	Municipal Building	1 Richmond Road
Emergency Services Building	EOC, Fire, rescue, ambulance, police	Municipal Building	6 Parker Street
Plumpak	Large Employer	Industrial	Pump Rd.
Public Water Supply	Public Water Supply	Municipal Well	Pump Rd./Keene Rd
Wastewater Treatment Facility	Wastewater Treatment Facility	Municipal WWTP	64 Duso Rd

SECTION 6 CRITICAL FACILITIES

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 community
- Would create a secondary disaster if a hazard were to impact it

Critical Facilities Within Hazard Areas

Hazards identified in this plan are regional risks and, as such, all critical facilities fall into the hazard area. The exception to this is flooding. There are no identified critical facilities that fall within the 100-year floodplain.

Winchester's Hazard Mitigation Committee has divided the critical facilities into four categories. The first category contains facilities needed for Emergency Response in the event of a disaster. 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 Winchester. The third category contains Facilities/Populations that the Committee wishes to protect in the event of a disaster. The fourth category contains Potential Resources, which can provide services or supplies in the event of a disaster. The Critical Facilities Map at the end of this Plan identifies these facilities. A table at the end of this section identifies critical facilities located in potential hazard areas.

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. Town Emergency Operations Center – 6 Parker Street
2. Fire & Rescue Facilities- Winchester Fire Station and Ashuelot Fire Station
3. Police Station- 6 Parker Street
4. Shelters
 - School - Parker Street
 - Plumpak Plant - Pump Road
 - E.L.M.M. Center - Route 10
 - Town Hall - Main Street
5. Emergency Generators- emergency services building, school, town wells, sewage treatment facility
6. Dry Hydrants, Fire Ponds & Water Sources (see map for locations)
7. Primary Evacuation Routes
 - Main Street - State Route 10
 - State Route 119
 - State Route 78
8. Town Garage- Forest Lake Road
9. Power stations, sub-stations, transmission lines
 - Cross-town transmission lines
 - Hydro-power facilities located on Ashuelot
 - Underground fiber optic lines
10. Telephone facilities and transmission lines
 - Building in town Michigan Street
 - Switching stations in South Parrish and Forest Lake area

11. Helicopter Landing Sites (see map)
12. Hospitals
 - Dartmouth-Hitchcock Clinic Regional Facility - Route 78
 - Dartmouth Hitchcock on Court Street in Keene

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 Winchester.

1. Water-based facilities and utilities
 - Dry hydrants (see map)
 - Wellheads
 - Land north of Forest Lake – water recharge area
 - Water Supply & Distribution Systems
 - Waste Water Treatment Facility – 68 Duso Road
 - Pump Road – Water recharge area
2. Winchester School – 85 Parker Street
3. Problem Culverts/Ditches
 - Manning Hill Road (culverts)
 - Westport Road (multiple culverts)
 - Forest Lake Road (culverts)
 - Ditch between Mechanic Street and NH 10
 - Ditch on Michigan Street to Police Department
 - Back Ashuelot Street (culverts)
 - Forest Lake Road/Naramore Brook (culvert)
 - Watson Road (culvert)
4. Transfer Station -105 Forest Lake Road

Category 3 - Facilities/Populations to Protect:

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

1. Special Needs Populations
 - List available at the Emergency Operations Center. List may include:
 - Oxygen-dependent people
 - People on a lifeline
 - People assisted by Home Health
 - Shut-ins and disabled
 - Mentally challenged
 - Elderly
 - Hearing impaired
 - Sight impaired
2. Nursing Homes
 - Harborside Health Care - Snow Road
3. Adult congregate living facilities
 - Sunrise Village - Route 10
 - Winchester Senior Housing - Route 78
4. Schools
 - Winchester School – 85 Parker Street

5. Day care centers
 - The Learning Center – Keene Road
6. Historical facilities
 - Historic district - downtown Winchester & Ashuelot
 - Town Library - Main Street
 - Ashuelot Library- Main Street
 - Town Hall - Main Street
 - Covered Bridges; Ashuelot and Coombs
7. Commercial economic impact areas
 - Kulick's Mall - Route 78
 - Industrial Facilities - Snow Road
 - Rite Aid – Intersection of Route 10 and 119
 - Goodnow's Trucking - Route 78
 - Plumpak – Plumpak Drive
8. Religious Facilities
 - St. Stanislaus - Richmond Road
 - United Church of Winchester - Main Street
 - Grace Christian Fellowship – Ashuelot Street
 - Center Church- Michigan Street
9. Mobile/Manufactured Home Parks
 - Green Valley - North Route 10
 - New Beginnings - Close to town Route 10
 - Elm Street - Willow Ct. and Elm Ct.
 - South Parrish Park - South Parrish Road
10. Large Employers
 - Applewood Healthcare - Snow Road
 - Plumpak - Plumpak Drive
 - Kulick's Mall - Route 78
 - Winchester Precision Technology - Hildreth Street
11. Recreational Facilities
 - E.L.M.M. Center - Route 10
 - Veterans of Foreign Wars (VFW)
 - Monadnock Speedway - Route 10
 - Speed Park (2) - Route 10
12. Parks
 - Pisgah State Park
 - School Ball Fields
 - Musterfield Park
13. Beaches
 - Forest Lake Beach Town Park
 - Forest Lake Campground Beach
14. Camping Areas
 - Forest Lake Camp Ground
15. Isolated and/or at-risk residential units/areas
 - Snow Road (development on one-end road)
16. Hazardous materials storage / risk areas
 - Recycling center/transfer station
 - Bob's Fuel - Forest Lake Road

- Sewage treatment plant and lagoons
- Plumpak - Plumpak Drive
- Aubuchon's Hardware - Route 78
- Applewood Healthcare - Snow Road
- 17. Low Hazard Dam Structures (ownership) Dam #
 - Ashuelot Paper Mill Dam (Ashuelot River Hydro, Inc.) 255.01
 - Lower Robertson Dam (Ashuelot River Hydro, Inc.) 255.02
 - Forest Lake Dam (Forest Lake Improvement Assoc.) 255.07
 - Kilburn Pond Dam (Hinsdale Water Works) 255.09
- 18. Significant Hazard Dam Structures (ownership) Dam#
 - Atlantic Paper Holding Pond (Atlantic Paper) 255.21
- 19. High Hazard Dam Structures (ownership) Dam#
 - Pisgah Reservoir Dam (DRED) 255.11
 - Fuller Pond Dam (DRED)
- 20. Bridge/Road improvements needed (potential washouts and isolation)
 - Bridge over Ashuelot River (closed due to condition/needs replacing) - Bridge Street
 - Private Bridge over Ashuelot River - Atlantic Paper
 - Bridge over Ashuelot River - Route 10
 - Box Culvert Old Westport Road - Old Westport Road
 - Very Brook Road - Washout problems

Category 4 - Potential Resources:

Contains facilities that provide potential resources for services or supplies.

1. Food/water

- Kulick's Market- 30 Warwick Road
- Mr. Mikes- Keene Road
- Rite Aid- 10 Main Street
- Main Street market- 104 Main Street

2. Water (for firefighting)

- Numerous locations - see Critical Facilities Map at back of Plan

3. Hospitals/Medical Supplies

- Cheshire Medical Center (Court Street in Keene)
- Dartmouth-Hitchcock Clinic – NH 78 near Warwick Road
- Rite Aid – NH 119/NH 10

4. Gravel Pits

- Mitchel's Sand & Gravel- NH 10
- SUR- Old Swanzey Road
- Timer Lawrence- Old Swanzey Road
- Cooks- Manning Hill Road
- Lawrence Sand & Gravel- Fairgrounds Road
- Town of Winchester- Pump Road

5. Gas/ diesel

- Highway Garage- Forest Lake Road
- Mr. Mikes- Keene Road

- J&G's Service- Back Ashuelot Street
- Kulick's Sunoco- Warwick Road

6. Heating Fuel

- Bob's Fuel- Forest Lake Road

7. Building Material and Heavy Equipment Suppliers

- Local contractors available

8. Miscellaneous Resources

Emergency Broadcast & Television: Television station- WMUR ch. 9

Radio: 92.7, 98.7, 103.7, 104.9

Transportation:

Buses – First Student in Keene

Trucks – Local Contractors, National
Guard, Keene

Emergency transportation available by Town Highway
and Fire Departments to relocate residents to safe area.

Beds, Cots, Blankets:

- National Guard
- Red Cross
- Coordination with EMD's

SECTION 7

EXISTING MITIGATION STRATEGIES & PROPOSED IMPROVEMENTS

Review of Existing Programs

The Winchester Hazard Mitigation Team identified the following existing mitigation strategies related to:

A. Flooding

- Fire & Rescue Training
- Floodplain District Zoning Ordinance
- Town Emergency Operations Plan
- USACE Flood Emergency Plan (Surry and Otter Brook)
- Wellhead Protection Program
- Aquifer Protection District
- Storm Drain Maintenance
- Wetlands Protective Measures
- School Evacuation Plan
- Mobile/Manufactured Homes Regulations
- Building Codes and Officer
- Zoning Ordinances
- Flood Warning System
- Emergency Back-up Power Program
- Lifeline Existence Program
- National Flood Insurance Program
- Hazardous Materials Procedure
- River Stewardship
- Water Rescue Task Force
- Town Master Plan

B. Wind

- Fire & Rescue Training
- Town Emergency Operations Plan
- School Evacuation Plan
- Mobile/Manufactured Homes Regulations
- Building Codes and Officer
- Emergency Back-up Power Program
- Lifeline Existence Program
- Emergency Snow Removal Plan
- Eversource of NH Tree Trimming Program for Power Lines
- Hazardous Materials Procedures
- Town Master Plan

C. Wildfire

- Fire & Rescue Department Training
- Mutual Aid

- Town Emergency Operations Plan
- School Evacuation Plan
- Mobile/Manufactured Homes Regulations
- Building Codes and Officer
- Emergency Back-up Power Program
- Lifeline Existence Program
- Eversource of NH Tree Trimming Program for Power Lines
- Hazardous Materials Procedures
- Town Master Plan

D. Ice & Snow Events

- Fire & Rescue Training
- Town Emergency Operations Plan
- School Evacuation Plan
- Mobile/Manufactured Homes Regulations
- Building Codes and Officer
- Emergency Back-up Power Program
- Lifeline Existence Program
- Emergency Snow Removal Plan
- Eversource of NH Tree Trimming Program for Power Lines
- Hazardous Materials Procedures
- Town Master Plan

E. Earthquake

- Fire & Rescue Training
- Town Emergency Operations Plan
- School Evacuation Plan
- Mobile/Manufactured Homes Regulations
- Building Codes and Officer
- Emergency Back-up Power Program
- Lifeline Existence Program
- Eversource of NH Tree Trimming Program for Power Lines
- Hazardous Materials Procedures
- Town Master Plan

DESCRIPTION OF EXISTING PROGRAMS

- **Floodplain District Zoning Ordinance** has been adopted as part of the Zoning Ordinance. Overlay of the floodplain map indicates 221 properties in the floodplain area.
- **Town Emergency Operations Plan** - The purpose of the EOP is to have a set structure for carrying out necessary functions in order to provide for the common defense and to preserve the lives and property of the people of Winchester from the threat of harm in the event of any natural or man-made disaster. (Winchester Town EOP, Emergency Management Ordinance)
- **USACE Flood Emergency Plan** (Otter Brook Dam and Surry Mountain Dam) outlines the procedures to be used as a guide in the event that critical conditions develop which may lead to failure of the facility resulting in an uncontrolled release of water resulting in downstream damage. (USACE Flood Emergency Plan)
- **Wellhead Protection Program** as designed by DES has been instituted by the Town's Board of Selectmen.
- **Aquifer Protection District** - A zoning ordinance designed to protect Winchester's Stratified Drift Aquifer as delineated by the USGS.
- **Storm Drain Maintenance** - Informal program conducted every spring to clean out storm drains and the town's storm-water conveyance system.
- **Wetlands Protective Measures** - Winchester maintains a wetlands ordinance as part of their land use plan which is coordinated with current state regulations. Two buffer measurements are in effect; one of 100 feet for poorly drained soils and one of 75 feet for regular soils. Citizen knowledge of local and state wetland regulations needs to be increased through educational outreach programs.
- **Fire & Rescue, Ambulance, Emergency Management, and Police Departments** - Winchester's public safety and emergency services departments. The Town is actively seeking grants for upgrades of apparatus, equipment, and training.
- **School Evacuation Plan** - Designated plan to evacuate town schools in the event of an emergency or disaster addressing bussing, transportation routes (primary and alternative), traffic & crowd control, end destination and parental notification. The Town is working with the State to update the Plan.
- **Mobile/Manufactured Homes regulations** have been adopted as part of the Land Use Plan and are restricted to being located in all areas.
- **Town-adopted Building Code** - Winchester maintains a building inspector and has adopted provision of the NH Life Safety Code and BOCCA. Current program is working.
- **Zoning Ordinances** - Winchester has twelve zoning districts to govern the development and growth of the town in a sustainable manner. The following directly apply to the Hazard Mitigation Plan: Floodplain, Aquifer Protection, Shoreland Protection, and Wetlands Districts.
- **Flood Warning System** - Gauges on water bodies strategically placed to monitor the rising and falling of river levels to provide an advance warning of a potential flood hazard.

- **Emergency Back-up Power Program** - Town supplied generators for public Critical Facilities; Portable or fixed. Generators currently exist at the Emergency Operation Center, school, wastewater treatment plant, and at all 3 wells for the town's public water supply.
- **River Stewardship** - Winchester serves on the Ashuelot River Local Advisory Committee.
- **Eversource of NH Tree Trimming Program for Power Lines** - Tree trimming program for power line maintenance administered by Public Service of NH.
- **Lifeline Existence Program** - List of residents that are either elderly or disabled maintained by the Director of Emergency Management in the event that there is a situation that they might need help for any given situation including a natural disaster. (Mutual Aid is primary contact)
- **Emergency Snow Removal Program** - An informal plan in place to contract assistance in the event of an excessive snowfall in Winchester.
- **Hazardous Material Procedures** - State Regulations, Town Enforced.
- **National Flood Insurance Program** - A federally backed program that encourages communities to enact and enforce floodplain regulations. Winchester has 29 current policies out of approximately 196 structures located within the 100 year floodplain.
- **Water rescue Task Force**- Winchester recently joined the task force that partners with other local towns for water rescue missions.
- **Town Master Plan** A guidance document to ensure that overall development in town is sustainable; meeting the needs of the citizens by setting forth steps and guidelines for a sound living environment through intelligent growth.
- **Mutual Aid**- Provides assistance to all aspects of Winchester Emergency Management Services/ Highway Department/whole town. This program facilitates cooperation between towns to be able to respond most effectively in the event of an emergency.
- **Fire and Rescue Training**- training for paid staff and volunteer in all aspects of emergency services.

EXISTING PROTECTION MATRIX

A summary matrix of existing hazard mitigation strategies is presented on the following pages. This matrix includes the type of existing protection (Column 1), a description of the existing protection or the area of town affected (Column 2), responsible local agent (Column 3), the effectiveness of the strategy (Column 4), and recommended changes (Column 5). Effectiveness of the existing program is rated Fair, Average, Good, or Unknown: Fair- needs improvements; Average- meets general expectations; Good- meets and sometimes exceeds expectations; Unknown- not yet used or unable to quantify.

EXISTING MITIGATION STRATEGIES & PROPOSED IMPROVEMENTS

Type of Existing Protection	Description/ Area of Town Covered	Responsible Local Agent	Effectiveness (Fair, Average, Good)	Improvements or Changes Needed
Floodplain District Zoning Ordinance	Allowed to build in floodplain by permit only. Designated by FIRM maps.	Code Officer	Good	Expand education with brochures; Better enrolment in NFIP
Town Emergency Operations Plan	Plan designed to address the needs of Winchester in the event of a hazard event. Whole town.	Town Emergency Management Director	Good	Currently updating the Emergency Operations Plan.
USACE Dams (Surry and Otter Brook) Flood Emergency Plan	Notification and evacuation plans for dam emergencies. Dam inundation areas.	USACE/EMD	Unknown	Town needs copies of plans and an update from USACE.
Wellhead Protection Program	State well-head protection program Town well sites.	State Enforced	Good	No changes needed at this time.
Aquifer Protection District	A zoning ordinance designed to protect Winchester's Stratified Drift Aquifer as delineated by the USGS/Aquifer District.	Code Officer	Good	No changes needed at this time.
Storm Drain Maintenance	Stormwater management for the entire town.	Highway Dept.	Good	No changes needed at this time.
Wetlands Protective Measures	State Shoreland Regulations and Floodplain Ordinance. Covers all wetlands.	Code Officer; PB; Conservation Commission	Good	No changes needed at this time.
Fire & Rescue, Ambulance, Emergency Management, and Police Departments	Public safety and emergency services. Whole town.	Police & Fire Chiefs, Emergency Management Director	Good	The Town is actively seeking grants for upgrades of apparatus, equipment, and training.
Mobile Homes and/or Manufactured Homes Regs.	Tie-down requirement on all mobile and manufactured homes. Whole town.	Code Officer	Good	No changes needed at this time.
Building Codes/Code Officer	Life Safety: all residential/commercial; BOCA: all commercial some 1- & 2-family Whole town.	Code Officer	Good	No changes needed at this time.

Winchester Hazard Mitigation Plan Update 2017

Type of Existing Protection	Description/ Area of Town Covered	Responsible Local Agent	Effectiveness (Fair, Average, Good)	Improvements or Changes Needed
Zoning Ordinances	12 districts. Whole Town	Code Officer	Good	No changes needed at this time.
Flood Warning System	Two gauges in town. Major waterways.	Emergency Management Director	Good	No changes needed at this time.
Emergency back-up power program	Emergency generators at the Emergency Operations Center, sewer plant, school, and at all three wells.	Emergency Management Director	Fair	One portable for general use.
River Stewardship (preventative program)	River stewardship activities; Areas adjacent to the Ashuelot River, and related tributaries	Ashuelot River Local Advisory Committee	Good	No changes needed at this time.
Eversource of NH Tree Trimming Program for power lines.	Eversource proactively trims trees near power lines. Whole town.	Eversource	Good	No changes needed at this time.
Lifeline Existence Program	In place through Brattleboro Hospital Whole town.	Emergency Management Director	Good	No changes needed at this time.
Emergency Snow Removal Plan	Covered by Highway Dept. Whole town.	Highway Superintendent	Good	No changes needed at this time.
Hazardous Material Procedures	State Regulations. Whole town.	Code Officer	Good	Follows protocol. No changes needed at this time.
School Evacuation Plan	In the process of updating the Plan with the State. Local schools.	Winchester School District	Good	Currently working with the State
National Flood Insurance Program	45 active policies in Town. 100 year floodplain on as shown on FIRM maps	Emergency Management Director	Good	Needs to be promoted better to get better participation.
Water Rescue Task Force	Coordinates with nearby towns on water rescue missions. Whole town.	Fire Chief	Unknown- just recently joined.	No changes at this time.
Town Master Plan	A guidance document for overall development. Whole town.	Planning Board	Average	Currently being updated.
Mutual Aid	Provides assistance to all aspects of Winchester Emergency Management Services/ Highway Department. Whole town.	Fire Chief, Police Chief, EMD, and Road Agent	Good	Southwestern NH Mutual Aid and Tri-State Mutual Aid
Fire and Rescue Training	Ongoing training for paid staff and volunteer in all aspects of emergency services. Whole town.	Fire Chief, Police Chief, EMD, and Road Agent	Good	No changes needed at this time.

STATUS OF PREVIOUS PRIORITY MITIGATION ACTIONS

The following table provides a status update for the Priority Mitigation Actions identified in the 2012 Winchester Hazard Mitigation Plan. Previously identified mitigation actions are noted as completed, deleted, and/or deferred to the updated Plan's new strategies list. A detailed explanation of the status is also provided.

Mitigation Action	Status	Explanation of Status
Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.	Completed*	This is an ongoing action and will continue as a new action.
Revise/adopt subdivision regulations, erosion control regulations, board of health regulations, etc. to improve floodplain management in the community.	Completed	The Planning Board adopted erosion control regulations and continues to be trained as changes occur.
Prepare, distribute or make available NFIP, insurance and building codes explanatory pamphlets or booklets.	Completed*	This is an ongoing action and will continue as a new action.
Continue to enforce Town-Adopted Building Codes	Completed	Enforce as needed.
Continue to enforce the Tie-down requirement on all mobile and manufactured homes in town	Completed	Enforce as needed.
Identify problems, potential solutions, and mitigate high priority culvert issues (see list in Summary of New Strategies)	Completed*	This is an ongoing action and will continue as a new action.
Identify problems, potential solutions, and mitigate medium priority culvert issues (see list in Summary of New Strategies)	Completed*	This is an ongoing action and will continue as a new action.
Identify problems, potential solutions, and mitigate low priority culvert issues (see list in Summary of New Strategies)	Completed*	This is an ongoing action and will continue as a new action.
Identify and become knowledgeable of non-compliant structures in the community.	Completed	This is done through building permits.

*These actions are ongoing and will be carried into the Action Plan within this plan.

SECTION 8
POTENTIAL AND PROPOSED MITIGATION STRATEGIES

SUMMARY OF NEW STRATEGIES

POTENTIAL MITIGATION STRATEGIES -IDENTIFYING GAPS IN COVERAGE

In addition to the programs and activities that Winchester is currently undertaking to protect its residents and property from natural and manmade disasters, a number of additional strategies were identified by the Local Hazard Mitigation Committee for consideration. The process of compiling a comprehensive list of all mitigation strategies currently in place throughout the Town helped the Committee to identify gaps in the existing coverage and improvements which could be made to the existing strategies. Existing and potential strategies were identified for each general hazard type using the following categories: Prevention (programs and policies), Property Protection, Structural Projects, Emergency Services, and Public Information.

In addition to the mitigation strategies proposed generally for each hazard type as indicated above, the Committee brainstormed actions for specific potential hazard areas identified in Chapter III. The section below shows proposed mitigation actions for both general hazard types and specific potential hazard areas. Each strategy was discussed to determine realistic strategies to be included in the STAPLEE chart.

Hazard Type	Prevention	Property Protection	Emergency Services	Public Information
Flooding	Perform a culvert inventory and assessment.	Upsize culverts on: Manning Hill Road, Westport Road, Back Ashuelot Road, Watson Road, and Narmore Brook.	Continue to participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.	Continue to provide information to the public about NFIP.
	Dredge drainage area between Mechanic Street and NH 10; and area between Michigan Street and Police Dept.	Add a river gauge on Myrie Brook.		
Extreme Heat/ Drought	Contact the elderly and special needs populations.		Provide a cooling center.	Provide information to residents on water conservation/ drought resistant landscaping and/or rain gardens.
	Consider adding water conservation regulation & voluntary water ban if necessary.			
Wild Fires	Continue to enforce Town-Adopted Building Codes	Continue to provide increased access to, and upkeep of water sources for fire protection.	Continue the Fire Prevention Program including carbon monoxide, fire and evacuation information.	Provide residents with information on fire safety & prevention (such as Fire Wise).
Lightning	Continue to enforce Town-Adopted Building Codes	Install grounding equipment on public & historic buildings.		Provide outreach material on safety during lightning and storm events. Include a link of FEMA's website on the town website.

Hazard Type	Prevention	Property Protection/ Structural Projects	Emergency Services	Public Information
Tornados/ Severe Wind/ Downbursts	Prepare and implement a written Tree Inventory.	Continue to enforce the Tie-down requirement on all mobile & manufactured homes.		Provide information for residents to understand ways to mitigate potential damage during a tornado/ severe wind/downbursts..
Hurricanes/ Tropical Storms	Prepare and implement a written Tree Inventory.	Consider requirement for new construction to withstand severe wind speeds.		Continue to provide information to the public about NFIP.
	Identify and become knowledgeable of non-compliant structures in the community.	Continue to enforce the Tie-down requirement on all mobile & manufactured homes.		Continue to provide information to the public about NFIP.
Severe Winter Weather	Update the Emergency Snow Removal Plan.	Coordinate with Eversource to trim tree branches near power lines.	Review current and future needs for emergency backup power.	Disseminate information to residents about proper use of generators and the importance of maintaining the heating system to prevent carbon monoxide poisoning and fires.
		Trim tree branches near critical facilities, town structures, and roadways.		
Earthquakes		Retrofit public buildings with earthquake standards.		Provide information to the public about reducing damage due to earthquakes.
Erosion	Inspect road embankments for signs of erosion and undermining of roadway.	Enforce building codes and ordinances.	Stabilize with plantings, retaining walls, and rip rap.	
Hazardous Materials	Improve access efficiency of hazardous material location information.		Require better signage from businesses that store hazardous materials.	Disseminate outreach material on proper disposal of hazardous household materials and medicines.
Dams	GPS/GIS mapping of beaver dams.		Obtain updated plans and digital maps of Surry Dam and Otter Brook Dam.	
Radon				Make information available as the State provides it.

PRIORITIZING PROPOSED MITIGATION ACTIONS

Each proposed mitigation strategy identified should be ranked in order to determine a prioritized list of strategies to implement.

STAPLEE is an acronym for a general set of criteria common to public administration officials and planners. It stands for the Social, Technical, Administrative, Political, Legal, Economic and Environmental criteria for making planning decisions. Questions to ask about suggested actions include:

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

Each mitigation strategy was evaluated and assigned a score (Good = 3, Average = 2, Poor = 1) based on the STAPLEE criteria in the table on the following page to reach a total score. Each strategy was prioritized according to the total score. The highest scoring strategies are determined to be of most importance, economically, socially, technically, administratively, politically, legally, economically and environmentally.

STAPLEE Feasibility Ranking Matrix

Mitigation Strategy	Is it Socially acceptable?	Is it Technically feasible & potentially successful?	Is it Administratively workable?	Is it Politically acceptable?	Is there Legal authority to implement?	Is it Economically beneficial?	Is it Environ-mentally beneficial?	Total Score
Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.	3	3	3	3	3	3	3	21
Prepare, distribute or make available NFIP, insurance and building codes explanatory pamphlets or booklets.	3	3	3	3	3	3	3	21
Obtain updated FIRM maps.	3	3	3	3	3	3	3	21
Improve maintenance on the culvert on Manning Hill.	3	3	3	3	3	3	3	21
Provide information to residents on water conservation/ drought resistant landscaping and/or rain gardens.	3	3	3	3	3	3	3	21
Provide outreach and education for radon testing of air and water.	3	3	3	3	3	3	3	21
Install a flood gauge in Myrie Brook.	3	3	3	3	3	3	3	21
Add this plan as a chapter or appendix to the Winchester Master Plan.	3	3	3	3	3	3	3	21
Obtain updated copies of Flood Emergency Plans of Surry Dam and Otter Brook Dam from USACE (US Army Corps of Engineers).	3	1	3	3	3	3	3	20
Upsize the culverts on Forest Lake Road.	3	3	3	3	3	1	3	19
Inspect the road embankments for signs of erosion and undermining of the road and address the needs at: Burt Hill Rd., Manning Hill Rd., NH 10 at Swanzy town line, Forest Lake Rd./Rabbit Hollow Rd.	3	3	3	3	3	1	3	19
Obtain additional generators. Potential locations include the Town Hall and school, however, there may be other locations also.	3	3	3	3	3	1	3	19
Dredge drainage between Mechanic Street and NH 10.	3	3	3	3	2	1	3	18
Dredge drainage between Michigan Street to Winchester Police Department.	3	3	3	3	2	1	3	18
Identify problems and potential solutions for problem culverts, prioritize the list, and identify funding sources.	3	1	1	1	3	1	3	13
Upsize or replace culvert at Westport Road.	1	1	3	1	1	1	3	11
Upsize culvert on Back Ashuelot Road.	1	1	3	1	1	1	3	11
Upsize culvert at Watson Road (near beaver dam).	1	1	3	1	1	1	3	11

SECTION 9

PRIORITIZED IMPLEMENTATION SCHEDULE

The following questions were asked to develop an implementation schedule for the identified priority mitigation strategies:

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

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

How? How will the community fund these projects? How will the community implement these projects? What resources will be needed to implement these projects?

As additional information becomes available regarding project leadership, timeline, funding sources, and/or cost estimates, the Plan will be reviewed and amended accordingly.

The Committee created a prioritized schedule for implementation of the plan. The following terms are used to provide a general timeframe to complete the actions: Short term: 1-2 years; Mid-term: 3-4 years; Long term: 4-5 years. Some actions do not have a completion date and are considered to be ongoing actions that will continue through the duration of the plan.

IMPLEMENTATION STRATEGY FOR PRIORITY MITIGATION ACTIONS

MITIGATION ACTION	WHO (LEADERSHIP)	WHEN (DEADLINE)	HOW (COST AND FUNDING SOURCE)
Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.	Emergency Management Director/ Town Administrator	Mid-term	Town budget/ grants Under \$100
Prepare, distribute or make available NFIP, insurance and building codes explanatory pamphlets or booklets.	Town Administrator	Short-term & ongoing	Town budget/ grants Under \$100
Obtain updated FIRM maps.	Emergency Management Director	Short-term	Town budget Under \$100
Improve maintenance on the culvert on Manning Hill.	Highway Superintendent	Short-term	State budget Cost to be determined
Provide information to residents on water conservation/ drought resistant landscaping and/or rain gardens.	Emergency Management Director	Short-term & ongoing	Town budget Under \$1000
Provide outreach and education for radon testing of air and water.	Code Enforcer	Short-term & ongoing	Town budget Under \$100
Install a flood gauge in Myrie Brook	Emergency Management Director	Mid-term	Town budget \$1000

PRIORITIZED IMPLEMENTATION SCHEDULE, CONT.

MITIGATION ACTION	WHO (LEADERSHIP)	WHEN (DEADLINE)	HOW (COST AND FUNDING SOURCE)
Add this plan as a chapter or appendix to the Winchester Master Plan.	Emergency Management Director/Planning Board	Mid-term	Town budget Under \$100
Obtain updated copies of Flood Emergency Plans of Surry Dam and Otter Brook Dam from USACE.	Emergency Management Director	Short-term	Town budget Under \$100
Upsize culverts on Forest Lake Road.	Highway Superintendent	Long-term	Town budget \$50,000
Inspect the road embankments for signs of erosion and undermining of the road and address the needs at: Burt Hill Rd., Manning Hill Rd., NH 10 at Swanzey town line, Forest Lake Rd./Rabbit Hollow Rd.	Highway Superintendent	Short-term & ongoing	Town budget \$5000- \$100,000
Obtain additional generators. Potential locations include the Town Hall and school, however, there may be other locations also.	Emergency Management Director	Mid-term	Town budget/grants \$100,000
Dredge drainage between Mechanic Street and NH 10.	Highway Superintendent	Short-term	Town budget \$500,000
Dredge drainage between Michigan Street to Winchester Police Department.	Highway Superintendent	Short-term	Town budget \$500,000
Identify problems and potential solutions for problem culverts, prioritize the list, and identify funding sources.	Highway Superintendent	Short-term & ongoing	Town budget/ grants \$5000
Upsize or replace culvert at Westport Road.	Highway Superintendent	Short-term	Town budget/grants \$5000- \$100,000
Upsize culvert on Back Ashuelot Road.	Highway Superintendent	Short-term	Town budget/grants \$350,000
Upsize culvert at Watson Road (near beaver dam).	Highway Superintendent	Short-term	Town budget/grants \$100,000

SECTION 10
ADOPTION, IMPLEMENTATION, MONITORING & UPDATE

ADOPTION

The Winchester Board of Selectmen adopted the Winchester Hazard Mitigation Plan Update 2017 on (add date). A copy of the resolution can be found at the end of this section. Adopted policy addresses the actions for implementation set forth in the prioritized implementation schedule (action plan) in Section 9 and in the “Monitoring & Updates” sub-section contained in this section. All other sections of this Plan are supporting documentation for information purposes only and are not included as the statement of policy.

A copy of the public hearing notice for the Board of Selectmen meeting at which the plan was adopted is included in **Appendix E**. The plan was available to the public via a hard copy at the Town Halls prior to the Selectmen meeting. Any comments were considered and addressed prior to adoption of the plan.

MONITORING & UPDATES

Recognizing that many mitigation projects are ongoing, and that while in the implementation stage communities may suffer budget cuts, experience staff turnover, or projects may fail altogether, a good plan needs to provide for periodic monitoring and evaluation of its successes and failures and allow for updates of the Plan where necessary.

In order to track progress and update the mitigation strategies identified in the Action Plan (Chapter 9), it is recommended that the Town revisit the Winchester Hazard Mitigation Plan Update 2017 annually, or after a hazard event. The Emergency Management Director is responsible for initiating this review and should consult with the Board of Selectmen and other key local officials. Changes should be made to the Plan to accommodate for projects that have failed or are not considered feasible after a review for their consistency with the timeframe, the community’s priorities, and funding resources. Priorities that did not make the implementation list, 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. In keeping with the process of adopting the Winchester Hazard Mitigation Plan Update 2017, a public hearing to receive public comment on Plan maintenance and updating will be held during the annual review period and the final product adopted by the Board of Selectmen appropriately.

The Town of Winchester, NH Hazard Mitigation Plan must be reviewed, revised as appropriate, and resubmitted to FEMA for approval every five years in order to maintain eligibility for Pre-Disaster Mitigation Competitive (PDM-C) and Hazard Mitigation Grant Program project grants.

IMPLEMENTATION OF THE PLAN THROUGH EXISTING PROGRAMS

In addition to work by the Hazard Mitigation Committee and town departments, several other mechanisms exist which will ensure that the Winchester Hazard Mitigation Plan receives the attention it requires for satisfactory use.

Master Plan

Implementation of the Master Plan has been ongoing since its most recent adoption in 2008 and is currently being updated. Recommendations from the Winchester Hazard Mitigation Plan Update 2017 will be considered for insertion into future updates of the Master Plan. The Planning Board will consider this updated Hazard Mitigation Plan as a chapter or appendix to its Master Plan. The Emergency Management Director will assist the Planning Board with the process.

Capital Improvements Program (CIP)

The CIP is reviewed and scheduled to be updated annually by the Planning Board. Each town department will refer to the CIP when developing its annual budget. Strategies or purchases requiring capital improvements

Winchester Hazard Mitigation Plan Update 2017

from the Winchester Hazard Mitigation Plan Update 2017 will be inserted into the Capital Improvements Program. A capital reserve fund for hazard mitigation projects will be established to set aside funding for the projects identified in the Winchester Hazard Mitigation Plan Update 2017. The Local Hazard Mitigation Committee will oversee the process to begin working with the Planning Board to incorporate the various projects into the yearly CIP.

Local Emergency Operations Plan

The Board of Selectmen adopted the current Town of Winchester Emergency Operations Plan (EOP) in 2010 and it is currently being updated. The EOP provides a framework for a coordinated emergency response to a disaster. The Town recognizes the importance of mitigation to the emergency response framework, and as such has included the Winchester Hazard Mitigation Plan as Appendix D in their 2010 Local Emergency Operations Plan.

Continued Public Involvement

On behalf of the Hazard Mitigation Committee, the Emergency Management Director (EMD), under direction of the Board of Selectmen, will be responsible for ensuring that town departments and the public have adequate opportunity to participate in the planning process. Administrative staff may be utilized to assist with the public involvement process. For the yearly update process, techniques that may be utilized for public involvement include:

- Provide personal invitations to town department heads;
- Post notices of meetings at the Town Hall and website, library, and local businesses;
- Post flyers of the project at the Town Hall, library, and local businesses; and
- Submit newspaper articles for publication to the Keene Sentinel and the Monadnock Ledger.

A number of Implementation Action items which will be undertaken relate to public education and involvement. Additionally, members of the public including area business owners, schools, communities, and organizations will be invited to participate in the yearly process of updating the Winchester Hazard Mitigation Plan. These outreach activities will be undertaken during the Plan's annual review and during any Hazard Mitigation Committee meetings the Board of Selectmen calls to order.

The Winchester Hazard Mitigation Plan Update must be reviewed, revised as appropriate, and resubmitted to FEMA for approval every **five years** in order to maintain eligibility for all Hazard Mitigation Assistance (HMA) funding. Approval of this plan was granted by NH HSEM and FEMA on **(add date of FEMA approval)**

CERTIFICATE OF ADOPTION
WINCHESTER, NEW HAMPSHIRE
BOARD OF SELECTMEN
A RESOLUTION ADOPTING THE
WINCHESTER HAZARD MITIGATION PLAN UPDATE 2017

WHEREAS, the Town of Winchester has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for the Winchester Hazard Mitigation Plan Update 2017 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held between September 29, 2016 and January 5, 2017 regarding the development and review of the Winchester Hazard Mitigation Plan Update 2017; and

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

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

WHEREAS, adoption of this Plan will make the Town of Winchester eligible for funding to alleviate the impacts of future hazards; now therefore be it RESOLVED by the Board of Selectmen:

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

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of Winchester this ---th day of _____, 2017

Winchester Board of Selectmen Chairman

Winchester Board of Selectmen

Winchester Board of Selectmen

ATTEST _____

APPENDICES

Appendix A: Hazard Descriptions

The following list describes hazards that have occurred or have the potential to occur in the Town of Winchester. The descriptions provided are those used in the State of NH Hazard Mitigation Plan.

Flooding

Floods are defined as a temporary overflow of water onto lands that are not normally covered by water. Flooding results from the overflow of major rivers and tributaries, storm surges, and/or inadequate local drainage. Floods can cause loss of life, property damage, crop/livestock damage, and water supply contamination. Floods can also disrupt travel on roads and bridges. Inland floods are most likely to occur in the spring due to the increase in rainfall and melting of snow; however, floods can occur at any time of the year. A sudden thaw in the winter or a major downpour in the summer can cause flooding because there is suddenly a lot of water in one place with nowhere to go.

100-year Floodplain Events

- Floodplains are usually located in lowlands near rivers, and flood on a regular basis. The term 100- year flood does not mean that a flood will occur once every 100 years. Rather, it is a statement of probability that scientists and engineers use to describe how one flood compares to others that are likely to occur. It is more accurate to use the phrase “1% annual chance of flood.” What this means is that there is a 1% chance of a flood of that size happening in a year.

Rapid Snow Pack Melt

- Warm temperatures and heavy rains cause rapid snowmelt. Quickly melting snow coupled with moderate to heavy rains are prime conditions for flooding.

River Ice Jams

- Rising waters in early spring breaks ice into chunks, which float downstream and often pile up, causing flooding. Small rivers and streams pose special flooding risks because they are easily blocked by jams. Ice collecting in river bends and against structures presents significant flooding threats to bridges, roads, and the surrounding lands.

Severe Storms

- Flooding associated with severe storms can inflict heavy damage to property. Heavy rains during severe storms are a common cause of inland flooding.

Beaver Dams and Lodging

- Flooding associated with beaver dams and lodging can cause road flooding or flooding damage to property.

Drought

A drought is defined as a long period of abnormally low precipitation, especially one that adversely affects growing or living conditions. Droughts are rare in New Hampshire. They generally are not as damaging and disruptive as floods and are more difficult to define. The effect of droughts is indicated through measurements of soil moisture, groundwater levels, and stream-flow. However, not all of these indicators will be minimal during a drought. For example, frequent minor rainstorms can replenish the soil moisture without raising ground-water levels or increasing stream-flow. Low stream-flow correlates with low ground-water levels because ground-water discharge to streams and rivers maintains stream flow during extended dry periods. Low stream-flow and low ground-water levels commonly cause diminished water supply.

Extreme Heat

Extreme heat is characterized by abnormally high temperatures and/or longer than average time periods of high temperatures. These event conditions may impact the health of both humans and livestock.

Erosion

Erosion is the process in which soil is carried from one area to another, usually along slopes, by rain, river flow, stormwater runoff, or other means. Without stabilization, erosion can cause severe damage to roads, reduce water quality, and reduce property area at the top of embankments.

Wildfire

Wildfire is defined as an uncontrolled and rapidly spreading fire. A forest fire is an uncontrolled fire in a woody area. They often occur during drought and when woody debris on the forest floor is readily available to fuel the fire. Grass fires are uncontrolled fires in grassy areas.

Earthquake

New England is considered a moderate risk earthquake zone. An earthquake is a rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric, water and phone lines, and often cause landslides, flash floods, fires, and avalanches. Larger earthquakes usually begin with slight tremors but rapidly take the form of one or more violent shocks, and end in vibrations of gradually diminishing force called aftershocks. The underground point of origin of an earthquake is called its focus; the point on the surface directly above the focus is the epicenter. The magnitude and intensity of an earthquake is determined by the use of scales such as the Richter scale and Mercalli scale.

Tornado

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

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

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

Hurricane

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

Severe Wind

Significantly high winds occur especially during tornadoes, hurricanes, winter storms and thunderstorms. Falling objects and downed power lines are dangerous risks associated with high winds. In addition, property damage and downed trees are common during severe wind occurrences.

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. 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.

Lightning

Lightning is a giant spark of electricity that occurs within the atmosphere or between the atmosphere and the ground. As lightning passes through the air, it heats the air to a temperature of about 50,000 degrees Fahrenheit, considerably hotter than the surface of the sun. Fires are a likely result of lightning strikes, and lightning strikes can cause death, injury, and property damage.

Extreme Winter Weather

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

Heavy Snow Storms

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

Ice Storms

- An ice storm involves rain, which freezes on impact. Ice coating at least one-fourth inch of thickness is heavy enough to damage trees, overhead wires and similar objects. Ice storms often produce widespread power outages.

Nor'easter

- 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 impact the coast and inland areas from a Northeasterly direction. The sustained winds may meet or exceed hurricane force, with larger bursts, and may exceed hurricane events by many hours (or days) in terms of duration.

Man-Made Hazards

Hazardous Materials

- Hazardous materials spills or releases can cause damage or loss to life and property. Short or long-term evacuation of local residents and businesses may be required, depending on the nature and extent of the incident.

Dam Breach and Failure

- Dam failure results in rapid loss of water that is normally held by the dam. These kinds of floods are extremely dangerous and pose a significant threat to both life and property.

Appendix B: Risk Assessment

The following terms are used to analyze the hazards considered. *Very Low*, *Low*, *Medium*, *High*, or *Very High* are synonymous with 1, 2, 3, 4 and 5, respectively.

VULNERABILITY- An adjective description (Very Low, Low, Medium, High, and Very High) of the potential impact a hazard could have on the town relating to human, business and property impacts. It is the ratio of population, property, commerce, infrastructure and services at risk relative to the entire town. Vulnerability is an estimate generally based on a hazard's characteristics, information obtained by the various town departments.

VERY LOW (1): Little or no area or segment of population, property, commerce, infrastructure or service is exposed to the effects of a hazard. In a worst case scenario there could be a disaster of minor proportions.

LOW (2): A limited area or segment of population, property, commerce, infrastructure or service is exposed to the effects of a hazard. In a worst case scenario there could be a disaster of minor to moderate proportions.

MEDIUM (3): (1) The total population, property, commerce, infrastructure and services of the town are exposed to the effects of a hazard of moderate influence; or (2) the total population, property, commerce, infrastructure and services of the town are exposed to the effects of a hazard, but not all to the same degree; or (3) an important segment of population, property, commerce, infrastructure or service is exposed to the effects of a hazard. In a worst case scenario there could be a disaster of moderate proportions.

HIGH (4): The total population, property, commerce, infrastructure and services of the town are exposed to some effects of a hazard of potentially moderate to great magnitude. In a worst case scenario there could be a disaster of major proportions.

VERY HIGH (5): The total population, property, commerce, infrastructure and services of the town are exposed to the effects of a hazard of potentially great magnitude. In a worst case scenario there could be a disaster of major to catastrophic proportions.

PROBABILITY OF OCCURRENCE - An adjective description (Very Low, Low, Medium, High, and Very High) of the probability of a hazard impacting the town within the next 25 years. Probability is based on a limited objective appraisal of a hazard's frequency using information provided by relevant sources, observations and trends.

VERY LOW (1): There is very little likelihood that a hazardous event will occur within the next 25 years (1 event in 25 years), however, the potential still exists.

LOW (2): There is little likelihood that a hazardous event will occur within the next 25 years (1 event in 25 years).

MEDIUM (3): There is moderate likelihood that a hazardous event will occur within the next 25 years (1-2 events each 5-10 years).

HIGH (4): There is good likelihood that a hazardous event will occur within the next 25 years (1-2 events within 5 years).

VERY HIGH (5): It is highly likely that a hazardous event will occur within the next 25 years (1-2 events each year).

SEVERITY - Calculated by taking the average of the vulnerability for human, business and property impacts of each hazard type.

RISK LEVEL- An adjective description (Very Low, Low, Medium, High, or Very High) of the overall threat posed by a hazard over the next 25 years. It is calculated by multiplying the probability of occurrence and vulnerability. The result is then compared to a scale from 1-25 to determine the level of risk for each hazard.

VERY LOW (1-5): There is very little potential for a disaster during the next 25 years. The threat is so minor that it warrants no special effort to prepare for, respond to, recover from, or mitigate against this hazard. This hazard need not be specifically addressed in the town's emergency management training and exercise program except as generally dealt with during hazard awareness training.

LOW (6-10): There is little potential for a disaster during the next 25 years. The threat is such as to warrant no special effort to prepare for, respond to, recover from, or mitigate against this hazard. This hazard need not be specifically addressed in the town's emergency management training and exercise program except as generally dealt with during hazard awareness training.

MEDIUM (11-15): There is moderate potential for a disaster of less than major proportions during the next 25 years. The threat is great enough to warrant modest effort to prepare for, respond to, recover from, and mitigate against this hazard. This hazard should be included in the town's emergency management training and exercise program.

HIGH (16-20): (1) There is moderate to strong potential for a disaster of major proportions during the next 25 years; or (2) history suggests the occurrence of multiple disasters of moderate proportions during the next 25 years. The threat is significant enough to warrant major program effort to prepare for, respond to, recover from, and mitigate against this hazard. This hazard should be a major focus of the town's emergency management training and exercise program.

VERY HIGH (21-25): (1) There is strong potential for a disaster of major proportions during the next 25 years; or (2) history suggests the occurrence of multiple disasters of moderate to severe proportions during the next 25 years. The threat is significant enough to warrant serious program effort to prepare for, respond to, recover from, and mitigate against this hazard. This hazard should be a priority focus of the town's emergency management training and exercise program.

Appendix C: Resources

Resources Used in the Preparation of this Plan

NH HSEM's *State of New Hampshire Multi-Hazard Mitigation Plan* (2013)
 FEMA's *Understanding Your Risks: Identifying Hazards and Estimating Losses*
 FEMA's *Local Multi-Hazard Mitigation Planning Guidance*
 Winchester Hazard Mitigation Plan Update 2012
 Winchester Annual Report 2015
 Winchester Zoning Ordinance
 Winchester Master Plan

Agencies

New Hampshire Homeland Security and Emergency Management (HSEM)	271-2231
Field Representative Hillsborough County	271-2231
Field Representative Cheshire County	271-2231
Preparedness Planner:	271-2231
Federal Emergency Management Agency (FEMA)	877-336-2734
NH Regional Planning Commissions:	
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	994-3500
Upper Valley Lake Sunapee Regional Planning Commission	448-1680
NH Executive Department:	
Governor's Office of Energy and Community Services	271-2611
NH Department of Cultural Resources:	271-2540
Division of Historical Resources	271-3483
NH Department of Environmental Services:	271-3503
Air Resources	271-1370
Air Toxins Control Program.....	271-0901
Asbestos Program	271-1373
Childhood Lead Poisoning Prevention Program.....	271-5733
Environmental Health Tracking Program.....	271-4072
Environmental Toxicology Program	271-3994
Health Risk Assessment Program.....	271-6909
Indoor Air Quality Program.....	271-3911
Occupational Health and Safety Program.....	271-2024
Radon Program	271-4764
Geology Unit	271-3503
Pollution Preventive Program.....	271-6460
Waste Management	271-2900
Water Supply and Pollution Control	271-3414
Rivers Management and Protection Program	271-8801
NH Office of Energy & Planning (OEP)	271-2155
Jennifer Gilbert, State Coordinator, Floodplain Management.....	271-1762
NH Municipal Association	224-7447
NH Fish and Game Department	271-3421
Region 1, Lancaster	788-3164
Region 2, New Hampton	744-5470
Region 3, Durham	868-1095
Region 4, Keene	352-9669

NH Department of Resources and Economic Development:	271-2411
Economic Development	271-2629
Travel and Tourism	271-6870
Division of Forests and Lands	271-2214
Division of Parks and Recreation	271-3556
Design, Development, and Maintenance	271-2411
NH Department of Transportation	271-3734
Northeast States Emergency Consortium, Inc. (NESEC)	(781) 224-9876
US Department of Commerce:	(202) 482-2000
NOAA: National Weather Service; Taunton, Massachusetts	(508) 824-5116
US Department of the Interior:	202-208-3100
US Fish and Wildlife Service	225-1411
US Geological Survey	225-4681
US Army Corps of Engineers	(978) 318-8087
US Department of Agriculture:	
Natural Resource Conservation Service	868-7581
Cheshire County, Walpole	756-2988
Sullivan County, Newport	863-4297
Hillsborough County, Milford	673-2409 Ext. #4

Mitigation Funding Resources

404 Hazard Mitigation Grant Program (HMGP)	NH Homeland Security and Emergency Management
406 Public Assistance and Hazard Mitigation	NH Homeland Security and Emergency Management
Community Development Block Grant (CDBG)	NH HSEM, NH OEP, also refer to RPC
Dam Safety Program	NH Department of Environmental Services
Emergency Generators Program by NESEC [‡]	NH Homeland Security and Emergency Management
Emergency Watershed Protection (EWP) Program	USDA, Natural Resources Conservation Service
Flood Mitigation Assistance Program (FMAP)	NH HSEM, NH OEP
Flood Plain Management Services (FPMS)	US Army Corps of Engineers
Mitigation Assistance Planning (MAP)	NH Homeland Security and Emergency Management
Mutual Aid for Public Works	NH Municipal Association
National Flood Insurance Program (NFIP) [†]	NH OEP, NH HSEM
Power of Prevention Grant by NESEC [‡]	NH Homeland Security and Emergency Management
Project Impact	NH Homeland Security and Emergency Management
Roadway Repair & Maintenance Program(s)	NH Department of Transportation
Section 14 Emergency Stream Bank Erosion & Shoreline Protection	US Army Corps of Engineers
Section 103 Beach Erosion	US Army Corps of Engineers
Section 205 Flood Damage Reduction	US Army Corps of Engineers
Section 208 Snagging and Clearing	US Army Corps of Engineers
Shoreline Protection Program	NH Department of Environmental Services
Various Forest and Lands Program(s)	NH Department of Resources and Economic Development
Wetlands Programs	NH Department of Environmental Services

[‡]NESEC - Northeast States Emergency Consortium, Inc. is a 501(c)(3), not-for-profit natural disaster, multi-hazard mitigation and emergency management organization located in Wakefield, Massachusetts. Please, contact NH HSEM for more information or visit the Consortium's website at <http://www.nesec.org/index.cfm>.

[†] Note regarding **National Flood Insurance Program (NFIP)** and **Community Rating System (CRS)**:

The National Flood Insurance Program has developed suggested floodplain management activities for those communities who wish to more thoroughly manage or reduce the impact of flooding in their jurisdiction. Through use of a rating system (CRS rating), a community's floodplain management efforts can be evaluated for effectiveness. The rating, which indicates an above average floodplain management effort, is then factored into the premium cost for flood insurance policies sold in the community. The higher the rating achieved in that community, the greater the reduction in flood insurance premium costs for local property owners. The NH Office of Energy & Planning can provide additional information regarding participation in the NFIP-CRS Program.

FEMA REGION I MITIGATION PLANNING WEBLIOGRAPHY

Hazard Mitigation is sustained action taken to reduce or eliminate risk to people and their property from natural hazards over the longest possible term.

REGULATORY INFORMATION

Final Rule

44 CFR 201.6

<http://www.fema.gov/pdf/help/fr02-4321.pdf>

Disaster Mitigation Act of 2000 (DMA 2K)

<http://www.fema.gov/library/viewRecord.do?id=1935>

DISASTERS AND NATURAL HAZARDS INFORMATION

FEMA-How to deal with specific hazards

<http://www.ready.gov/natural-disasters>

Natural Hazards Center at the University of Colorado

<http://www.colorado.edu/hazards>

National Oceanic and Atmospheric Administration (NOAA): Information on various projects and research on climate and weather.

<http://www.websites.noaa.gov>

National Climatic Data Center active archive of weather data.

<http://lwf.ncdc.noaa.gov/oa/ncdc.html>

Northeast Snowfall Impact Scale

<http://www.erh.noaa.gov/rnk/Newsletter/Fall%202007/NESIS.htm>

Weekend Snowstorm Strikes The Northeast Corridor Classified As A Category 3 "Major" Storm

<http://www.publicaffairs.noaa.gov/releases2006/feb06/noaa06-023.html>

FLOOD RELATED HAZARDS

FEMA Coastal Flood Hazard Analysis & Mapping

<http://www.fema.gov/national-flood-insurance-program-0/fema-coastal-flood-hazard-analyses-and-mapping-1>

Floodsmart

<http://www.floodsmart.gov/floodsmart/>

National Flood Insurance Program (NFIP)

<http://www.fema.gov/nfip>

Digital quality Level 3 Flood Maps

<http://msc.fema.gov/MS/statemap.htm>

Flood Map Modernization

<http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/map-modernization>
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Reducing Damage from Localized Flooding: A Guide for Communities, 2005 FEMA 511

<http://www.fema.gov/library/viewRecord.do?id=1448>

FIRE RELATED HAZARDS

Firewise

<http://www.firewise.org>

NOAA Fire Event Satellite Photos

<http://www.osei.noaa.gov/Events/Fires>

U.S. Forest Service, USDA

<http://www.fs.fed.us/land/wfas/welcome.htm>

Wildfire Hazards - A National Threat

<http://pubs.usgs.gov/fs/2006/3015/2006-3015.pdf>

GEOLOGIC RELATED HAZARDS

USGS Topographic Maps

<http://topomaps.usgs.gov/>

Building Seismic Safety Council

<http://www.nibs.org/?page=bssc>

Earthquake hazard history by state

<http://earthquake.usgs.gov/earthquakes/states/>

USGS data on earthquakes

<http://earthquake.usgs.gov/monitoring/deformation/data/download/>

USGS Earthquake homepage

<http://quake.wr.usgs.gov>

National Cooperative Geologic Mapping Program (NCGMP)

<http://ncgmp.usgs.gov/>

Landslide Overview Map of the Conterminous United States

<http://landslides.usgs.gov/learning/nationalmap/>

Kafka, Alan L. 2008. Why Does the Earth Quake in New England? Boston College, Weston

Observatory, Department of Geology and Geophysics

http://www2.bc.edu/~kafka/Why_Quakes/why_quakes.html

Map and Geographic Information Center, 2010, "Connecticut GIS Data", University of Connecticut

http://magic.lib.uconn.edu/connecticut_data.html

2012 Maine earthquake

http://www.huffingtonpost.com/2012/10/17/maine-earthquake-2012-new-england_n_1972555.html

WIND-RELATED HAZARDS

ATC Wind Speed Web Site

<http://www.atcouncil.org/windspeed/index.php>

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U.S. Wind Zone Maps

<http://www.fema.gov/safe-rooms/wind-zones-united-states>

Tornado Project Online

<http://www.tornadoproject.com/>

National Hurricane Center

<http://www.nhc.noaa.gov>

Community Hurricane Preparedness Tutorial

<http://meted.ucar.edu/hurricane/chp/hp.htm>

National Severe Storms Laboratory, 2009, "Tornado Basics",

http://www.nssl.noaa.gov/primer/tornado/tor_basics.html

DETERMINING RISK AND VULNERABILITY

HAZUS

<http://www.hazus.org>

FEMA Hazus Average Annualized Loss Viewer

<http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cb8228309e9d405ca6b4db6027df36d9&extent=-139.0898,7.6266,-48.2109,62.6754>

Vulnerability Assessment Tutorial: On-line tutorial for local risk and vulnerability assessment

<http://www.csc.noaa.gov/products/nchaz/htm/mitigate.htm>

Case Study: an example of a completed risk and vulnerability assessment

<http://www.csc.noaa.gov/products/nchaz/htm/case.htm>

GEOGRAPHIC INFORMATION SYSTEMS (GIS) AND MAPPING

The National Spatial Data Infrastructure & Clearinghouse (NSDI) and Federal Geographic Data

Committee (FGDC) Source for information on producing and sharing geographic data

<http://www.fgdc.gov>

The OpenGIS Consortium Industry source for developing standards and specifications for GIS data

<http://www.opengis.org>

Northeast States Emergency Consortium (NESEC): Provides information on various hazards, funding resources, and other information

<http://www.nesec.org>

US Dept of the Interior Geospatial Emergency Management System (IGEMS) provides the public with both an overview and more specific information on current natural hazard events. It is supported by the Department of the Interior Homeland Security and Emergency Management.

<http://igems.doi.gov/>

FEMA GeoPlatform: Geospatial data and analytics in support of emergency management

<http://fema.maps.arcgis.com/home/index.html>

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DATA GATHERING

National Information Sharing Consortium (NISC): brings together data owners, custodians, and users in the fields of homeland security, public safety, and emergency management and response. Members leverage efforts related to the governance, development, and sharing of situational awareness and incident management resources, tools, and best practices

<http://nisconsortium.org/>

The Hydrologic Engineering Center (HEC), an organization within the Institute for Water Resources, is the designated Center of Expertise for the US Army Corps of Engineers

<http://www.hec.usace.army.mil/>

National Water & Climate Center

<http://www.wcc.nrcs.usda.gov/>

WinTR-55 Watershed Hydrology

<http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/water/?&cid=stelprdb1042901>

USACE Hydrologic Engineering Center (HEC)

<http://www.hec.usace.army.mil/software/>

Stormwater Manager's Resource Center SMRC

<http://www.stormwatercenter.net>

USGS Current Water Data for the Nation

<http://waterdata.usgs.gov/nwis/rt>

USGS Water Data for the Nation

<http://waterdata.usgs.gov/nwis/>

Topography Maps and Aerial photos

<http://www.terraser.com/view.asp?tid=142>

National Register of Historic Places

<http://www.nps.gov/nr/about.htm>

National Wetlands Inventory

<http://www.fws.gov/wetlands/> ICLUS Data for Northeast Region

http://www.epa.gov/ncea/global/iclus/inclus_nca_northeast.htm

PLANNING

American Planning Association

<http://www.planning.org>

PlannersWeb - Provides city and regional planning resources

<http://www.plannersweb.com>

FEMA RESOURCES

Federal Emergency Management Agency (FEMA)

www.fema.gov

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National Mitigation Framework

<http://www.fema.gov/national-mitigation-framework>

Federal Insurance and Mitigation Administration (FIMA)

<http://www.fema.gov/fima>

Community Rating System (CRS)

<http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-rating-system>

FEMA Building Science

<http://www.fema.gov/building-science>

National Flood Insurance Program (NFIP)

<http://www.fema.gov/national-flood-insurance-program>

Floodplain Management & Community Assistance Program

<http://www.fema.gov/floodplain-management>

Increased Cost of Compliance (ICC): ICC coverage allows homeowners whose structures have been repeatedly or substantially damaged to cover the cost of elevation and design requirements for rebuilding with their flood insurance claim up to a maximum of \$30,000.

<http://www.fema.gov/national-flood-insurance-program-2/increased-cost-compliance-coverage>

National Disaster Recovery Framework

<http://www.fema.gov/national-disaster-recovery-framework>

Computer Sciences Corporation: contracted by FIMA as the NFIP Statistical Agent, CSC provides information and assistance on flood insurance to lenders, insurance agents and communities

www.csc.com

Integrating the Local Natural Hazard Mitigation Plan into a Community's Comprehensive Plan: A Guidebook for Local Governments

<https://www.fema.gov/ar/media-library/assets/documents/89725>

Mitigation Best Practices Portfolio

<http://www.fema.gov/mitigation-best-practices-portfolio>

FEMA Multi-Hazard Mitigation Planning Website <http://www.fema.gov/multi-hazard-mitigation-planning>

FEMA Resources Page <http://www.fema.gov/plan/mitplanning/resources.shtm>

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Local Mitigation Plan Review Guide <http://www.fema.gov/library/viewRecord.do?id=4859>

Local Mitigation Planning Handbook complements and liberally references the Local Mitigation Plan Review Guide above

<http://www.fema.gov/library/viewRecord.do?id=7209>

[HAZUS](#)

<http://www.fema.gov/protecting-our-communities/hazus>

Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards

<http://www.fema.gov/library/viewRecord.do?id=6938>

Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials

<http://www.fema.gov/library/viewRecord.do?id=7130>

Mitigation Planning for Local and Tribal Communities

Independent Study Course

<http://training.fema.gov/EMIWeb/IS/is318.asp>

[REGION I MITIGATION PLANNING CONTACTS](#)

Melissa A. Surette

FEMA Region I - Senior Planner

Phone: 617-956-7559 desk / 617-794-0292 cell

Email: melissa.surette@fema.dhs.gov

Josiah (Jay) Neiderbach

FEMA Region I – Mitigation Division

Phone: 617-832-4926 desk / 202-285-7769 cell

Email: josiah.neiderbach@fema.dhs.gov

[OTHER FEDERAL RESOURCES](#)

U.S. Army Corps of Engineers: Provides funding for floodplain management planning and technical assistance and other water resources issues.

www.nae.usace.army.mil

Natural Resources Conservation Service: Technical assistance to individual land owners, groups of landowners, communities, and soil and water conservation districts.

www.nrcs.usda.gov

NOAA Coastal Services Center

<http://www.csc.noaa.gov/>

Rural Economic and Community Development: Technical assistance to rural areas and smaller communities in rural areas on financing public works projects.

www.rurdev.usda.gov

Farm Service Agency: Manages the Wetlands Reserve Program (useful in open space or acquisition projects by purchasing easements on wetlands properties) and farmland set aside programs

www.fsa.usda.gov

National Weather Service: Prepares and issues flood, severe weather and coastal storm warnings. Staff hydrologists can work with communities on flood warning issues; can give technical assistance in preparing flood-warning plans.

www.weather.gov

Economic Development Administration (EDA): Assists communities with technical assistance for economic development planning

www.osec.doc.gov/eda/default.htm

National Park Service: Technical assistance with open space preservation planning; can help facilitate meetings and identify non-structural options for floodplain redevelopment.

www.nps.gov

Fish and Wildlife Services: Can provide technical and financial assistance to restore wetlands and riparian habitats.

www.fws.gov

Department of Housing & Urban Development

www.hud.gov

Small Business Administration: SBA can provide additional low-interest funds (up to 20% above what an eligible applicant would qualify for) to install mitigation measures. They can also loan the cost of bringing a damaged property up to state or local code requirements.

www.sba.gov/disaster

Environmental Protection Agency

www.epa.gov

[SUSTAINABILITY/ADAPTATION/CLIMATE CHANGE](#)

Why the Emergency Management Community Should be Concerned about Climate Change: A discussion of the impact of climate change on selected natural hazards

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<http://www.cna.org/sites/default/files/research/WEB%2007%2029%2010.1%20Climate%20Change%20and%20the%20Emergency%20Management%20Community.pdf>

Resilient Sustainable Communities: Integrating Hazard Mitigation& Sustainability into Land Use

<http://www.earth.columbia.edu/sitefiles/file/education/documents/2013/Resilient-Sustainable-Communities-Report.pdf>

U.S. EPA

<http://www.epa.gov/climatechange/>

NOAA National Ocean Service (NOS)

<http://oceanservice.noaa.gov/>

The Northeast Climate Research Center (NRCC) folks were heavily involved in climate data in the NCA, below. They have a wealth of historic climate data and weather information, trends, etc.

<http://www.nrcc.cornell.edu/>

NOAA RISA for the Northeast (Regional Integrated Sciences and Assessments)

<http://ccrun.org/home>

Community and Regional Resilience: Perspectives from hazards, disasters, and emergency

management

http://www.resilientus.org/library/FINAL_CUTTER_9-25-08_1223482309.pdf

National Fish, Wildlife and Plants Climate Adaptation Strategy www.wildlifeadaptationstrategy.gov

ICLEI Local Governments for Sustainability

<http://www.icleiusa.org/>

Kresge Foundation Survey

<http://www.kresge.org/news/survey-finds-communities-northeast-are-trying-plan-for-changes-climate-need-help-0>

New England's Sustainable Knowledge Corridor

<http://www.sustainableknowledgecorridor.org/site/>

The Strategic Foresight Initiative (SFI)

http://www.fema.gov/pdf/about/programs/oppa/findings_051111.pdf

Northeast Climate Choices

http://www.climatechoices.org/ne/resources_ne/nereport.html

Northeast Climate Impacts Assessment

<http://www.northeastclimateimpacts.org/>

Draft National Climate Assessment Northeast Chapter released early 2013

<http://ncadac.globalchange.gov/>

Northeast Chapter of the National Climate Assessment of 2009:

<http://www.globalchange.gov/images/cir/pdf/northeast.pdf>

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NEclimateUS.org

ClimateNE

www.climatenortheast.com

Scenarios for Climate Assessment and Adaptation

<http://scenarios.globalchange.gov/>

Northeast Climate Science Center

<http://necsc.umass.edu/>

FEMA Climate Change Adaptation and Emergency Management

<https://www.ilis.dhs.gov/content/climate-change-adaptation-and-emergency-management-0>

Climate Central

<http://www.climatecentral.org>

OTHER RESOURCES

New England States Emergency Consortium (NESEC): NESEC conducts public awareness and education programs on natural disaster and emergency management activities throughout New England. Resources are available on earthquake preparedness, mitigation, and hurricane safety.

www.nesec.org

Association of State Floodplain Managers (ASFPM): ASFPM has developed a series of technical and topical research papers, and a series of Proceedings from their annual conferences.

www.floods.org

National Voluntary Organizations Active in Disaster (VOAD) is a non-profit, nonpartisan membership organization that serves as the forum where organizations share knowledge and resources throughout the disaster cycle—preparation, response, recovery and mitigation.

<http://www.nvoad.org/>

Appendix D: Hazard Mitigation Resource Profiles

The following are resources that can be used in Hazard Mitigation projects:

U.S. Army Corps of Engineers

Contacts:

John Kennelly, Chief, Special Studies Section (for Flood Plain Management Services activities), Phone: (978) 318-8505, Fax: (978) 318-8080, E-mail: John.R.Kennelly@usace.army.mil

Mike Keegan, Chief, Project Planning Section (for Section 14, 103, and 205 authorities), Phone: (978) 318-8087, Fax: (978) 318-8080, E-mail: Michael.F.Keegan@usace.army.mil

Address: US Army Corps of Engineers
New England District
696 Virginia Road
Concord, Massachusetts 01742-2751

Description and Mission:

The Corps of Engineers is a multi-disciplinary engineering and environmental organization that has been identifying and meeting the water resources needs of the nation. These needs have been in the areas of flood damage reduction, flood plain information and management, navigation, shore protection, environmental restoration, water supply, streambank protection, recreation, and fish and wildlife resources conservation, as well as technical assistance in other water resources areas.

The New England District (NAE) of the Corps of Engineers is responsible for managing the Corps' civil responsibilities in a 66,000 square-mile region encompassing the [six New England states](#) east of the Lake Champlain drainage basin. The District and its [leadership](#) are headquartered in Concord, Massachusetts. The missions of the New England District are many and varied. They include:

- * flood damage reduction
- * navigation improvements and maintenance
- * natural resource management
- * streambank and shoreline protection
- * disaster assistance
- * environmental remediation and engineering
- * engineering and construction management support to other agencies

Flood Mitigation Involvement:

As a result of the catastrophic floods in 1936, 1938 and 1955, the Corps was called upon to undertake a comprehensive flood damage reduction program. Since then the Corps has built many flood control structures throughout New England. These include 35 dams and reservoirs, five hurricane protection barriers (two are operated by the Corps) and approximately 60 local flood protection projects. The New England District has also completed two nonstructural projects involving the relocation of flood prone property and the acquisition of natural flood storage areas. The Corps also provides technical assistance to states and municipalities in locally constructed flood damage mitigation projects and to promote wise and informed use of floodplain and natural retention areas in order to minimize potential future flood damages.

Mitigation Goals and Objectives:

The New England District has two primary mitigation objectives with respect to flood damage reduction. The first objective is the operation and maintenance of the 35 flood control reservoirs and two hurricane barriers that provide protection to the Connecticut, Merrimack, Thames, Naugatuck, and Blackstone River Basins. The second objective is to continue to work with the states and communities in New England to address flooding problems affecting the region.

Projects Desired: The Corps of Engineers has several programs available under its Civil Works authorities to address flooding problems. These programs provide assistance either through the construction of structural and nonstructural projects to mitigate the flooding problem or by providing technical information to assist mitigation performed at the state or local level. Flood damage reduction projects constructed by the Corps of Engineers must demonstrate, based on current Federal guidelines, that the flood damages prevented by the project's construction exceed its total cost. The Corps must also demonstrate that the 10-year frequency flood discharge at the point of concern is equal to or greater than 800 cubic-feet per second (cfs). Technical assistance provided by the Corps does not need to meet the above criteria.

COE Resources with Respect to Hazard Mitigation:

The New England Division assists in meeting national, regional and local needs through a variety of means. Congressionally authorized water resources investigations have resulted in the planning, design and implementation of many flood control and flood damage reduction projects. Work conducted under a Congressional authorization can be extensive and there is currently no monetary limit of funding. Typically there is a 1-2 year minimum delay in the identification of a proposed investigation and the funding of that work. The first phase of study, the Reconnaissance investigation, is 100 percent Federally funded and must be completed within twelve months. The second phase, the Feasibility investigations, must be cost-shared with a local sponsor where the sponsor provides 50 percent of the cost of the feasibility study. Congress in a Water Resources Development Act must specifically authorize construction of any project resulting from a General Investigation study. The cost of implementation for flood damage reduction projects is generally 65 percent Federal and 35 percent non-Federal.

Through the Continuing Authorities Programs of the Corps many structural and non-structural local protection project reducing or eliminating damages from flooding have been constructed. Investigations initiated under the Corps Continuing Authorities do not require specific congressional authorization are initiated simply with a request from the State or community to the New England District. The following is a list of Continuing Authorities applicable to flood mitigation:

Section 14 - Emergency Stream Bank & Shoreline Protection: This work consists of evaluating alternatives to provide emergency protection to public facilities, such as highways and bridges that are threatened due to erosion. The current Federal limit on Section 14 projects is \$500,000. The local sponsor is required to provide 25 percent of the cost of developing plans and specifications and of construction.

Section 103 - Beach Erosion: Investigations conducted under this authority are to determine methods of protecting public facilities that have been threatened by beach erosion. Currently there is a Federal limit of \$2,000,000 and the local sponsor is required to contribute 35 percent of plans, specifications and construction. The local sponsor is also required to cost-share equally the cost of the feasibility investigation that exceeds \$100,000. The first \$100,000 is at full Federal expense.

Section 205 - Flood Damage Reduction: Investigations are conducted under this program to assist local communities to identify flooding problems and to formulate and construct alternatives for flood damage reduction. The local sponsor is required to cost-share equally in the cost of the feasibility investigation that exceeds \$100,000 and the Federal limit is \$5,000,000. The local sponsor is required to contribute 25 percent of the cost of plans, specifications and construction.

Section 208 - Snagging and Clearing: This emergency program is designed to reduce flood damage potential by identifying and removing obstructions that contribute to flooding by causing higher flood stages in the floodways. The Federal limit under this program is \$500,000 and the local sponsor is required to contribute 25 percent of the cost of plans, specifications and construction.

The New England Division also has two Planning Assistance Programs, which provide opportunities for the States to obtain assistance in addressing water resource issues. These programs are the Section 22, Planning Assistance to the States (PAS) program and the Section 206, Flood Plain Management Services (FPMS) program.

Planning Assistance to States Program (PAS): The Planning Assistance to States Program is designed to assist the States in developing comprehensive plans to meet State planning goals. The program is extremely flexible in the type and the methodology of investigations. Studies conducted under the PAS program require a 50/50 cost share with a local sponsor. The existing funding limits are \$300,000 per state and a national budget not to exceed \$5,000,000.

Flood Plain Management Services (FPMS): The FPMS Program is designed for the Corps to assist States and local communities improve management of flood plains by performing technical assistance and conducting special investigations. Cost recovery has been implemented in this program effective in FY 1991. Under cost recovery, assistance provided to Federal agencies and private interests must be fully reimbursed by those customers. States and local communities are still provided technical assistance at 100 percent Federal cost. One of the major efforts being conducted under the FPMS program at this time is the preparation of Hurricane Evacuation Studies. These studies are jointly funded with the Federal Emergency Management Agency.

Ice Engineering Research Division U.S. Army Cold Regions Research and Engineering Laboratory

Contact:

Dr. J-C Tatinclaux, Chief, Ice Engineering Research Division

Phone: (603) 646-4187 Fax: (603) 646-4477

E-mail: Jean-Claude.Tatinclaux@cr102.usace.army.mil

Website: <http://www.crrel.usace.army.mil/ierd/>

Address: US Army Cold Regions Research and Engineering Laboratory
Ice Engineering Research Division
72 Lyme Road
Hanover, NH 03755-1290

Description and Mission:

The US Army Cold Regions Research and Engineering Laboratory (CRREL) is a Corps of Engineers' research laboratory that is dedicated to multi-disciplinary engineering and research that addresses the problems and opportunities unique to the world's cold regions. CRREL exists largely to solve the technical problems that develop in cold regions, especially those related to construction, transport, and military operations. Most of these problems are caused by falling and blowing snow, snow on the ground, ice in the air and in the ground, river ice, ice on seas and lakes, and ice effects on manmade materials. CRREL serves the Corps of Engineers and its clients in three main areas:

- * Traditional military engineering, which deals with problems that arise during conflict;

- * Military construction and operations technology, i.e., the building and maintenance of military bases, airfields, roads, ports, and other facilities; and
- * Civil works, which involves the Corps in such things as flood protection, navigation on inland waterways and coastal engineering.

CRREL also deals with cold regions problems for the other defense services, for civilian agencies of the federal government, and to some extent for state agencies, municipalities, and private industry.

CRREL's Ice Engineering Research Division (IERD) was created to research, analyze and solve ice problems in and around water bodies, including ice jam flooding and ice accumulation in lock chambers, to ice buildup at water intakes and the destructive forces that moving ice exerts on riverine or coastal structures. In cooperation with the New England District (NAE) of the Corps of Engineers (located in Concord, MA), IERD personnel provide technical assistance before, during, and after ice jam flood emergencies. IERD research has resulted in the design and construction of a number of low-cost ice control structures as well as nonstructural mitigation measures. IERD also provides instruction on dealing with river ice problems to local emergency management agencies.

Flood Mitigation Involvement:

IERD is frequently called upon by the various Corps Districts to provide technical assistance to states and municipalities in the form of emergency mitigation. IERD is also involved with Corps and local agencies in developing locally constructed flood damage mitigation projects and promoting wise and informed use of floodplain areas in order to minimize potential future flood damages.

Mitigation Goals and Objectives:

The IERD has two primary mitigation objectives with respect to flood damage reduction. The first objective is to work with the Corps and other federal, state, and local agencies to design and implement ice control methods to reduce ice-related flood potential. The second is to work with the states and communities in nationwide as well as in New England to address ice-related emergency flooding problems affecting the region.

Projects Desired: CRREL and IERD are a national resource ready to apply our unique facilities and capabilities to solve problems and conduct innovative, state-of-the-art research and technical support. There are a number of mechanisms that enable IERD and the rest of CRREL to partner with various Federal, non-DoD and private sector entities. The Federal Technology Transfer Act of 1986 (15 USC 3710a) allows CRREL to collaborate with any non-Federal partner on research and technical support consistent with the mission of the laboratory. The Intergovernmental Cooperation Act (31 USC 6505) lets CRREL work with state and local governments on a broad range of reimbursable projects. Under the "Authority to Sell" (10 USC 2539b), CRREL can provide test and evaluation services to the states and the private sector. This includes the testing and evaluation of materials, equipment, models, computer software, and other items. The laboratory can also provide support to other Federal agencies via the Economy in Government Act (31 USC 1535) through MOUs/MOAs that establish a framework for the partnership and provide a concise description of the planned work. CRREL's 35 active Cooperative Research and Development Agreements (CRADAs) with industry and academia and 17 Intergovernmental Cooperation Agreements with states and local governments in 1998 demonstrate a robust program in this area and the relevance of CRREL's research to many segments of American society beyond DoD.

The Corps of Engineers has several programs available under its Civil Works authorities to address flooding problems. These programs provide assistance either through the construction of structural and nonstructural projects to mitigate the flooding problem or by providing technical information to assist mitigation performed at the state or local level. Flood damage reduction projects constructed by the Corps of Engineers must demonstrate, based on current Federal guidelines, that the flood damages prevented by the project's construction exceed its total cost. The Corps must also demonstrate that the 10-year

frequency flood discharge at the point of concern is equal to or greater than 800 cubic-feet per second (cfs). Technical assistance provided by the Corps does not need to meet the above criteria. Through the Corps, IERD has been involved in Section 205 Flood Damage Reduction program, Section 22 Planning Assistance to States Program (PAS)) projects, the Section 206 Flood Plain Management Services (FPMS) program funded jointly with FEMA, and numerous instances of technical assistance.

CRREL IERD Resources with Respect to Hazard Mitigation:

Corps: CRREL works jointly with the Corps' New England Division to address regional and local ice-related hazard mitigation needs through a variety of means. Congressionally authorized water resources investigations have resulted in the planning, design and implementation of many flood control and flood damage reduction projects. Work conducted under a Congressional authorization can be extensive and there is currently no monetary limit of funding. Typically there is a 1-2 year minimum delay in the identification of a proposed investigation and the funding of that work. The first phase of study, the Reconnaissance investigation, is 100 percent Federally funded and must be completed within twelve months. The second phase, the Feasibility investigations, must be cost-shared with a local sponsor where the sponsor provides 50 percent of the cost of the feasibility study. Congress in a Water Resources Development Act must specifically authorize construction of any project resulting from a General Investigation study. The cost of implementation for flood damage reduction projects is generally 65 percent Federal and 35 percent non-Federal.

Through the Continuing Authorities Programs of the Corps many structural and non-structural local protection project reducing or eliminating damages from flooding have been constructed. Investigations initiated under the Corps Continuing Authorities do not require specific congressional authorization are initiated simply with a request from the State or community to the New England District. The following is a list of Continuing Authorities applicable to flood mitigation:

Section 205 - Flood Damage Reduction: Investigations are conducted under this program to assist local communities to identify flooding problems and to formulate and construct alternatives for flood damage reduction. The local sponsor is required to cost-share equally in the cost of the feasibility investigation that exceeds \$100,000 and the Federal limit is \$5,000,000. The local sponsor is required to contribute 25 percent of the cost of plans, specifications and construction.

Section 22 - Planning Assistance to States Program (PAS): The Planning Assistance to States Program is designed to assist the States in developing comprehensive plans to meet State planning goals. The program is extremely flexible in the type and the methodology of investigations. Studies conducted under the PAS program require a 50/50 cost share with a local sponsor. The existing funding limits are \$300,000 per state and a national budget not to exceed \$5,000,000.

Section 206 - Flood Plain Management Services (FPMS): The FPMS Program is designed for the Corps to assist States and local communities improve management of flood plains by performing technical assistance and conducting special investigations. Cost recovery has been implemented in this program effective in FY 1991. Under cost recovery, assistance provided to Federal agencies and private interests must be fully reimbursed by those customers. States and local communities are still provided technical assistance at 100 percent Federal cost. One of the major efforts being conducted under the FPMS program at this time is the preparation of Hurricane Evacuation Studies. These studies are jointly funded with the Federal Emergency Management Agency.

Personnel:

IERD was created to research, analyze and solve ice problems in and around water bodies. The technical experience of the staff and their in-depth research and field capabilities combine with CRREL's unique Ice Engineering Facility to form one of the premier ice engineering organizations in the world. IERD has a staff of 15 engineers and technicians experienced in technical analyses, methods, and engineering solutions to ice problems -- that is, any situation where the effects of ice cause flooding, increase operational and

maintenance requirements of water control projects, impede navigation, or adversely impact the environment in cold regions.

Equipment and Facilities:

The Ice Engineering Facility was built to increase the research capabilities of the U.S. Army Cold Regions Research and Engineering Laboratory. It is a two-story building approximately 160 by 210 feet containing three primary cold spaces: the test Basin, Flume, and Research Area. We have recently designed and built a new Wind Tunnel Facility. In addition there is a machine room in the basement, an instrumentation corridor separating the flume and test basin spaces, a shop/storage area, and one sample-storage cold room.

The Test Basin was designed primarily for large-scale work on ice forces on structures, such as drill platforms and bridge piers, and for tests using model icebreakers. The Basin is 30 feet wide, 8 feet deep and 120 feet long. The room is designed to operate at any temperatures between +65° and -10°F with very even temperature distribution, which results in uniform ice thickness. Other studies conducted in the Test Basin concern the formation of ice pressure ridges, ice problems in and around navigation locks, and vertical uplift forces.

The Flume is situated in a room where the temperature can be regulated between +65° and -20° F. The Flume is 2 by 4 feet in cross section and 120 feet long. It can tilt from +2° to -1° slope, have a flow capacity of nearly 14 cubic feet per second and have a refrigerated bottom. Some other studies conducted in the Flume are the formation of ice covers and frazil ice, the hydraulics of ice-covered rivers, the formation of ice jams, and the effect of ice covers on sediment transport and scour.

Possibly the most versatile portion of the Ice Engineering Facility is the Research Area. This room is 80 by 160 feet clear span and has a temperature range of +65° to -10°F. Piping capable of providing a flow of 1, 2, 4 or 8 cubic feet per second is located on one side of the room, and a large drain trough is on the other. The floor is designed for loads up to 400 pounds per square foot. Models of reaches can be constructed in this area to test ways to alleviate ice jams through channel modification. Tests of the bearing capacity of large ice sheets and cold-testing of vehicles and structures are a few of the other potential uses of this space. Tests conducted in this room will help to alleviate much of the flooding caused by ice jams.

USDA, Natural Resources Conservation Service

Contacts:

Gerald J. Lang, Technology Leader; Phone: (603) 868-7581, Fax: (603) 868-5301
E-mail: gerald.lang@nh.usda.gov

Edward Hansalik, Civil Engineer; Phone: (603) 868-7581, Fax: (603) 868-5301
E-mail: ehansalik@nh.usda.gov

Address: Federal Building
2 Madbury Road
Durham, NH 03824

Description and Mission:

The Natural Resources Conservation Service (NRCS) is a Federal agency within the US Department of Agriculture. The mission of the NRCS is to help people conserve, improve and sustain our natural resources and environment. NRCS, formerly the Soil Conservation Service, is the lead federal agency for conservation on private land. NRCS provides conservation technical assistance through local conservation districts and Resource Conservation and Development (RC&D) Councils to individuals, communities, watershed groups, tribal governments, federal, state, and local agencies, and others. NRCS has an interdisciplinary staff of professional engineers, planners, biologists, foresters, agronomists, and soil scientists working together to

provide the necessary technical assistance to solve resource or environmental problems. NRCS products typically include conservation plans, study reports, engineering designs, and resource maps.

Authorities and Funding:

NRCS state and field offices derive funding from two possible sources, direct Federal appropriations and reimbursable agreements with agencies and units of government. NRCS manages several programs; Environmental Quality Incentive Program (EQIP), Wildlife Habitat Incentives Program (WHIP), Wetland Reserve Program (WRP), Forestry Incentives Program (FIP), and Farmland Protection Program (FPP) which provide cost-share assistance to landowners and users (primarily agricultural or forestry land) to install conservation practices to restore and protect natural resources. NRCS can also provide technical assistance ranging from preliminary reviews to complete detail designs to landowners/users solving resource problems even if financial assistance is not being provided for the installation of conservation practices. This assistance is dependent on staff availability and priorities.

NRCS also manages the Emergency Watershed Protection (EWP) program, which can provide financial and technical assistance to units of government and groups to repair damages sustained from a natural disaster (flood, fire, hurricane, tornado) creating an imminent hazard to life and property. The restoration efforts must be environmentally and economically cost effective and typically includes clearing debris from clogged stream channels, stabilizing eroded stream banks and restoring vegetation for stabilization purposes. NRCS can also provide technical assistance to watershed associations or groups to develop comprehensive plans for improving or protecting the watershed environment (water quality, flood reduction, wildlife habitat).

Mitigation Involvement:

The NRCS can provide technical assistance to conduct inventories, to complete watershed or site-specific plans, or to develop detail engineering and construction designs for conservation applications that will help reduce future damages from natural disasters. Some examples of past mitigation efforts include: floodplain management studies for towns, site assessments of stream flow impairments, stabilization designs to protect structures which could sustain severe damages from another storm event, and small watershed plans addressing flooding problems. Some of these products can be provided through other conservation assistance efforts. However, the major jobs would require a reimbursable agreement with the state or towns to complete the work.

Mitigation Goals and Objectives:

With respect to hazard mitigation, the goal of the NRCS in New Hampshire is to meet the needs of the State and local governments by providing timely technical assistance to support recovery and restoration efforts. NRCS can contribute this technical assistance by interacting directly with NHHSEM at the state level and having our field staff working directly with Town Emergency Management officials at the local level. Short-term goals are to establish contacts with local officials and the conservation districts at the field office level to facilitate quicker response times. Intermediate and long-term objectives are to improve the cooperative efforts of working with NHHSEM and establish additional contacts for providing timely technical assistance at the local level.

Projects/Planning Desired:

NRCS would like to work with local watershed associations to develop comprehensive plans addressing resource and environmental needs and opportunities in the priority watersheds as identified in the Unified Watershed Assessment. These plans can provide the basis for targeting and requesting special funding to meet the needs of the local watershed association. Technical assistance for planning and designing along with public information dissemination are the typical activities our agency can provide in this effort.

NRCS Resources with respect to Hazard Mitigation

Personnel:

NRCS in New Hampshire has a workforce of 45 staff members along with 5 multi-state staff members. Approximately 22 staff members consisting of engineers, biologists, foresters, conservation planners, and technicians are available to provide some assistance in mitigation efforts. Support staff of a GIS specialist, computer specialist, and public information specialist could assist in providing information for public outreach. This staff is available to provide limited assistance under our present program funding authorities. However, larger projects would require reimbursement for planning and design assistance.

Equipment, Physical Facilities and Other Capabilities:

All of our field offices and State office have computers and access to the internet. All of the field offices have survey equipment and all engineers have the use of CADD software. All field offices have access to small meeting rooms and access to the Federal Telecommunications System. Government vehicles are located at all field offices for use by government employees and could be made available in emergencies.

Northeast States Emergency Consortium (NESEC)

Contacts:

Edward S. Fratto, Executive Director: Phone: (781) 224-9876, Fax: (781) 224-4350
E-Mail: www.nesec.org

Address: Northeast States Emergency Consortium
1 West Water Street, Suite 205
Wakefield, MA 01880

Organization Description:

The Northeast States Emergency Consortium, Inc. (NESEC) is a 501(c)(3) not-for-profit natural disaster mitigation and emergency management organization, located in Wakefield, Massachusetts. NESEC is the only multi-hazard consortium of its kind in the country and is supported and funded by the Federal Emergency Management Agency (FEMA). The eight Northeast States of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont form the consortium. NESEC has a full-time Executive Director, and Assistant. It is governed by a Board of Directors. The Board is comprised of the Directors of the State Emergency Management Agencies from each of the six New England States and the States of New York and New Jersey.

Organization Mission:

NESEC works in partnership with government and private organizations to reduce losses of life and property from natural disasters in the Northeast United States. The Northeast States are vulnerable to most of the natural hazards, including hurricanes, earthquakes, coastal and inland flooding, tornadoes and micro-bursts, forest fires, drought, lightning, blizzards and other forms of severe weather. Our developed urban areas and the desire to build and live on waterfront property have increased our degree of risk from natural hazards.

Mitigation Programs:

Grants: NESEC raises funds from government and private sources to support local mitigation projects. These funds are awarded on a competitive basis in the form of grants in the range of \$500-5,000. The name of this program is called the ***Power of Prevention***. This program was funded at about \$50,000 in 1998 and \$35,000 in 1997. NESEC is pursuing 1999 funding. The program is presently unfunded. All grant programs are administered in cooperation with the New Hampshire Homeland Security and Emergency Management (NHHSEM). Communities interested in participating should contact NHHSEM.

HAZUS: NESEC assists FEMA PROJECT IMPACT Communities in the use of HAZUS as a planning platform for incorporating multi-hazard disaster prevention initiatives. NESEC can produce a HAZUS report using default data for each of the initial PROJECT IMPACT Communities. Priority is given to PROJECT IMPACT communities, however assistance may be provided to other communities as resources allow. This report provides an excellent starting point for communities wishing to utilize HAZUS to identify potential hazards. The NESEC HAZUS Report is multi-hazard and usually contains information on earthquakes, tornadoes, flood and wind.

There is no fee or charge for producing the default HAZUS Report and meeting with the community to discuss the results. All HAZUS support is arranged in cooperation with the New Hampshire Homeland Security and Emergency Management (NHHSEM). Communities interested in participating should contact NHHSEM.

Emergency Generators: NESEC assists communities to establish a partnership with their electric utilities and service companies. The partnership would conduct an energy efficiency audit of the community, recommend cost saving measures, and implement a cost saving plan. Monthly savings could be used to fund emergency generator(s) for local critical facilities. The utility or energy service company could then lease, install, and maintain generator(s) in a community.

The community would pay a monthly charge for the lease agreement. This charge would not exceed the savings derived through energy efficiency measures, so there would be no capital outlay or additional cost to the community. In fact, some communities may be able to reduce their monthly electric bills in an amount that exceeds the cost of the generator(s) lease agreement.

Monthly savings and utility participation will vary from state to state and community-to-community depending on present electric power usage and efficiency measures and deregulation. There is no fee or charge for assisting communities in establishing partnerships with electric utilities. NESEC assistance will be provided as resources allow. All emergency generator support is arranged in cooperation with the New Hampshire Homeland Security and Emergency Management (NHHSEM). Communities interested in participating should contact NHHSEM.

Federal Mitigation Grant Programs

I. Pre-Disaster Mitigation Grant Program

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

Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds. <http://www.fema.gov/government/grant/pdm/index.shtm>

II. Hazard Mitigation Grant Program

The Hazard Mitigation Grant Program (HMGP) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

<http://www.fema.gov/government/grant/hmgrp/index.shtm>

III. Flood Mitigation Assistance (FMA) Program

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

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

<http://www.fema.gov/government/grant/fma/index.shtm>

APPENDIX E

PLANNING PROCESS

Winchester Hazard Mitigation Plan Update

Meeting #1

AGENDA

September 29, 2016

8:30 a.m.

Winchester Town Hall

1 Richmond Road

Winchester, NH 03470

- 1. Description of the Process**
- 2. Status of Previous Hazard Mitigation Actions**
 - a. Review the Action Plan from the existing Hazard Mitigation Plan to determine what has been completed, deleted, or deferred to the updated plan.
- 3. Identify Past and Potential Hazards**
 - a. Review each hazard type on the “Identifying Hazards” chart
 - b. Add any new hazards that have occurred since the existing plan was adopted
 - c. Add any “potential hazard” concerns
- 4. Critical Facilities**
 - a. Review/update the Critical Facilities listed in the existing plan
- 5. Assessing Probability, Severity and Risk**
 - a. Estimate probability, severity, and risk for each potential hazard
- 6. Potential dates for upcoming meetings:**

Meeting 2- October 20 or 27

Meeting 3- November 17

**WINCHESTER HAZARD MITIGATION
MEETING # 1
September 29, 2016**

SIGN – IN SHEET

NAME	AFFILIATION or DEPARTMENT	CONTACT INFORMATION
Leroy E. Austin	Building/Health Inspector	laustin@winchester.nh.gov
John Gomarlo	Landfill Superintendent	
Dick LaPoint	Emergency Management Director	
Rick Meleski	Water/waste water Superintendent	sewerdepart@winchester.nh.gov
Karey Miner	Town Administrator	kminer@winchester.nh.gov
Mike Tollett	Police Lieutenant	Mtollett@winchester.nh.gov
Gary A. Phillips	Police Chief	gaphillips@winchester.nh.gov
Dale Gray	Highway Superintendent	dgray@winchester.nh.gov
Ben Kilanski	Board of Selectmen	bkilanski@winchester.nh.gov

Winchester Hazard Mitigation Plan Update

Meeting #2

AGENDA

October 27, 2016

9:00 a.m.

Winchester Town Hall

1 Richmond Road

Winchester, NH 03470

- 1. Existing Mitigation Strategies and Proposed Improvements**
 - a. Review the list of existing strategies and programs. Determine any needed improvements.
- 2. Hazard Mitigation Goals**
 - a. Determine the goals for the updated hazard mitigation plan.
- 3. Review Hazard Mitigation Map for Changes Needed**
- 4. Identify Gaps in Coverage**
 - a. Review the existing coverage for mitigation strategies and determine if there are any gaps.
- 5. Potential dates for upcoming meetings: Meeting 3- November 17 at 9:00 a.m.**

**WINCHESTER HAZARD MITIGATION
MEETING # 2
October 27, 2016**

SIGN – IN SHEET

NAME	AFFILIATION or DEPARTMENT	CONTACT INFORMATION
Ben Kilanski	Board of Selectmen	bkilanski@winchester.nh.gov
Rick Meleski	Water/waste water Superintendent	sewerdepart@winchester.nh.gov
Karey Miner	Town Administrator	kminer@winchester.nh.gov
Leroy E. Austin	Building/Health Inspector	laustin@winchester.nh.gov
Gary A. Phillips	Police Chief	gaphillips@winchester.nh.gov
Dale Gray	Highway Superintendent	dgray@winchester.nh.gov
Dick LaPoint	Emergency Management Director	
Mike Tollett	Police Dept.	

AGENDA

November 17, 2016

9:00 a.m.

Winchester Town Hall

1 Richmond Road

Winchester, NH 03470

- 1. Identify and Prioritize Mitigation Actions for Each Hazard**
 - a. Identify specific locations that should be added to the Action Plan.
 - b. Use the STAPLEE Chart to identify and rank actions for each hazard.
- 2. Prepare an Action Plan**
 - a. Determine the Who, When, and Funding Source for each action identified in the STAPLEE Chart.
- 3. Next Meeting:** Potential Date- December 29 or January 5

WINCHESTER HAZARD MITIGATION

MEETING # 3

November 17, 2016

SIGN – IN SHEET

NAME	AFFILIATION or DEPARTMENT	CONTACT INFORMATION
Ben Kilanski	Board of Selectmen	bkilanski@winchester.nh.gov
Dale Gray	Highway Superintendent	dgray@winchester.nh.gov
John E. Gomarlo	Landfill Superintendent	jgomarlo@winchester.nh.gov
James F. Ammann	Emergency Management	jfsammann@aol.com
Gary A. Phillips	Police Chief	gaphillips@winchester.nh.gov
Rick Meleski	Water/waste water Superintendent	sewerdepart@winchester.nh.gov
Leroy Austin	Health Inspector	laustin@winchester.nh.gov
Danielle Morse	NH HSEM	Danielle.morse@dos.nh.gov

Winchester Hazard Mitigation Plan Update

Meeting #4

AGENDA

January 5, 2017

9:00 a.m.

Winchester Town Hall

1 Richmond Road

Winchester, NH 03470

1. Review the Draft Plan
 - a. Discuss any needed changes.
2. Next Steps
 - a. Discuss the FEMA review process and timeline.

WINCHESTER HAZARD MITIGATION

MEETING #4

January 5, 2017

SIGN – IN SHEET

NAME	AFFILIATION or DEPARTMENT	CONTACT INFORMATION
Ben Kilanski	Board of Selectmen	bkilanski@winchester.nh.gov
Rick Meleski	Water/waste water Superintendent	sewerdepart@winchester.nh.gov
Karey Miner	Town Administrator	kminer@winchester.nh.gov
Leroy E. Austin	Building/Health Inspector	laustin@winchester.nh.gov
Gary A. Phillips	Police Chief	gaphillips@winchester.nh.gov
Dale Gray	Highway Superintendent	dgray@winchester.nh.gov
Dick LaPoint	Emergency Management Director	
<i>Reviewed the plan and provided comments but did not attend the meeting.</i>		
Barry Kollum	Fire Chief	
John E. Gomarolo	Landfill Superintendent	jgomarolo@winchester.nh.gov
James F. Ammann	Emergency Management	jfsammann@aol.com

Below is a portion of the SWRPC Happenings that announces upcoming events. It is an email that goes out to more than 350 addresses to 35 towns within the Southwest Region of New Hampshire as well as NH State departments, academia, public utilities, and organizations. The Harrisville Hazard Mitigation Committee meetings we included in this newsletter on September 2, October 14, November 4, and December 9, 2016.

Sustainable Transportation (MAST) will meet at 4:00 p.m. at 37 Ashuelot Street in Keene, NH. For more information contact [Henry Underwood](#).

October 27

The Winchester Hazard Mitigation Committee will hold its second meeting at 9:00 a.m. at the Winchester Town Hall. Winchester residents, neighboring towns, and other interested parties are encouraged to attend. For more information contact [Lisa Murphy](#).

Quick Links

[Commission Highlights](#)

[SWRPC Web Site](#)

Share This Newsletter



Send to a Colleague

contact Michele Holt-Shannon of NH Listens at Michele.Holt-Shannon@unh.edu.

Economic Development Asset Mapping Session

On **October 26, 2016**, SWRPC Economic Development Advisory Committee will host an asset-mapping session to be facilitated by the Brattleboro Development Credit Corporation. The event will take place at 3:30 p.m. at the Cheshire County Delegation Meeting Room, 12 Court Street, second floor, in Keene. For additional information, please contact [Raul Gonzalez](#).

CONNECT2016: Heart of the Start; an Annual Event Presented by the Hannah Grimes Center and the Keene Sentinel

CONNECT2016 is the Hannah Grimes Center's annual event celebrating the vital connections between business, the local economy, and our community. This event is an opportunity for business owners, community members, local professionals, and entrepreneurs to meet, share, and learn and to spark the curious entrepreneurial community in the Monadnock Region. This year, 5 businesses will be recognized for their innovation and outstanding work. Join in for an evening filled with good company, delicious local food & drink, and exceptional networking. This event will take place on **November 2, 2016** at 5:30 p.m. to 8:00 pm at The Colony Mill on West Street in Keene, NH. To register, please visit

October 11

The **SWRPC Fall Meeting and Brownfields Forum** will be held at 4:45 p.m. at the Community Center at 25 Elm Street, Peterborough, N.H.

October 17

The **SWRPC Transportation Advisory Committee (TAC)** will meet at 2:00 p.m. at 37 Ashuelot Street in Keene, NH. For more information contact

[J. B. Mack](#).

October 17

The **Harrisville Hazard Mitigation Committee** will hold its second meeting at 2:00 p.m. at the Harrisville Town Offices. Harrisville residents, neighboring towns, and other interested parties are encouraged to attend to provide input identifying natural hazards that may occur in Harrisville and develop strategies to reduce the impact if a disaster does occur. For more information contact [Lisa Murphy](#) of SWRPC staff.

Quick Links

[Commission Highlights](#)

On Saturday, October 1, 2010 from 1:00 p.m. to 6:00 p.m. the Monadnock Conservancy and Harris Center for Conservation Education will be hosting a Sunset Paddle at Mountain Brook Reservoir. Tom Warren, local birding expert, will lead the group pointing out birds and other wildlife along the way. Paddlers will also be treated to a stop at the Monadnock Conservancy's newest preserve on the south shore of the reservoir, generously gifted to us by the Gramm family.

Please bring your own kayak or canoe, life vests, headlamps or flashlights, water and snacks. Binoculars are recommended. Meet at and depart from the reservoir boat landing, west side of River Street (Route 202) in Jaffrey, N.H. Please arrive promptly at 4:30 p.m. to allow ample time to explore before sunset.

The event will be canceled in the event of inclement weather. If in doubt, check the Conservancy's [Facebook page](#). For more information please contact [Stacy Gambrel](#) or call 357-0600, ext. 106.

New Hampshire Statewide Coordinated Transportation Services Plan Public Meetings

Recognizing that transportation can be the major obstacle for people with disabilities, older adults, children, low income individuals, and other populations that need various social and health services the New Hampshire Statewide Coordinating Council (SCC) and the NH Department of Transportation have elected to initiate a statewide transportation planning effort to update the Coordinated Transportation Services Plan developed in 2006. Several public meetings will be conducted to collect community opinion on unmet transit needs, service gaps, existing transportation coordinating efforts, transportation coordination challenges, and strategies for improving mobility. Nearby meetings will be held at the following times and locations:

**CANDIDATES FOR TOWN OFFICE'S
MARCH 14, 2017 Election**

[CANDIDATES FOR OFFICE.doc](#)

Hazard Mitigation Plan Update Review

A copy of the draft Hazard Mitigation Plan Update is available for public review and comment from Wednesday February 1st 2017 to Monday 13th 2017 at the Town Hall during regular business hours. Written comments may be addressed to Richard Lapoint, Emergency Management Director or Karey Miner, Town Administrator and mailed to: Town of Winchester, 1 Richmond Road, Winchester, NH 03470 or by email to Karey Miner, kminer@winchester.nh.gov or Lisa Murphy, lmurphy@swrpc.org.

[Winchester Hazard Mitigation draft.pdf](#)

Town of Winchester has placed winter sand piles for icy conditions at the
Ashuelot Fire Station
Coombs Bridge Road "Fields Properly"
& S. Parrish Cemetery off of Bolton Road
Winchester Residents only.
(Home use only not for commercial use)

Appendix F: Project Status Sheet

The following form can be used to keep track of projects identified in the hazard mitigation plan that are in progress or that have been completed.

HAZARD MITIGATION PLAN- PROJECT STATUS

Project Title	Page # in Plan	Date of Project Completion	Comments