

*Town of Moultonborough, New Hampshire
Hazard Mitigation Plan*



Entrance to Moultonborough Academy

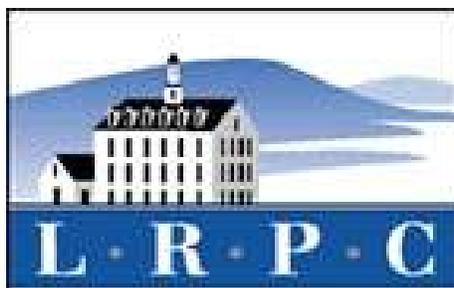
August 2007

Town of Moultonborough, New Hampshire Hazard Mitigation Plan

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August 2007

Funding for this plan was provided by the NH Department of Safety, Bureau of Emergency Management, and in part by the Lakes Region Planning Commission.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	iii
CHAPTER I: INTRODUCTION.....	1
A. BACKGROUND.....	1
B. AUTHORITY.....	1
C. FUNDING SOURCE.....	1
D. PURPOSE.....	1
E. SCOPE OF PLAN.....	1
F. METHODOLOGY.....	2
G. ACKNOWLEDGMENTS.....	4
CHAPTER II: COMMUNITY PROFILE.....	5
A. DEVELOPMENT TRENDS.....	6
CHAPTER III: RISK ASSESSMENT.....	9
A. IDENTIFYING HAZARDS.....	9
B. PROFILING HAZARD EVENTS.....	10
C. HISTORICAL HAZARD EVENTS.....	15
CHAPTER IV: VULNERABILITY ASSESSMENT.....	19
A. CLASSIFICATION OF CRITICAL INFRASTRUCTURE.....	19
B. NATURAL HAZARDS VULNERABILITY OF CRITICAL FACILITIES.....	21
C. MANMADE VULNERABILITY OF CRITICAL FACILITIES.....	21
D. ESTIMATING POTENTIAL LOSSES TO CRITICAL FACILITIES.....	21
CHAPTER V: MITIGATION STRATEGIES.....	23
A. STATE OF NEW HAMPSHIRE HAZARD MITIGATION GOALS.....	23
B. TOWN OF MOULTONBOROUGH, NEW HAMPSHIRE HAZARD MITIGATION GOALS.....	24
C. EXISTING MITIGATION STRATEGIES.....	25
D. GAPS IN EXISTING MITIGATION STRATEGIES.....	27
E. IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS.....	29
F. IMPLEMENTATION OF MITIGATION ACTIONS.....	30
CHAPTER VI: PLAN ADOPTION AND MONITORING.....	35
A. IMPLEMENTATION.....	35
B. PLAN MAINTENANCE.....	35
C. ADOPTION.....	36
APPENDIX A: TECHNICAL RESOURCES.....	37
APPENDIX B: MITIGATION FUNDING RESOURCES.....	41
APPENDIX C: PUBLIC NOTICES.....	43
APPENDIX D: CRITICAL FACILITIES & POTENTIAL HAZARDS MAP.....	45
APPENDIX E: HYDRANT LOCATIONS MAP.....	47
APPENDIX F: MANMADE HAZARD ASSESSMENT.....	49
APPENDIX G: CRITICAL FACILITIES NATURAL HAZARDS VULNERABILITY ASSESSMENT.....	51
APPENDIX H: RISK ASSESSMENT MATRIX.....	53
APPENDIX I: STAPLEE RESULTS.....	55

EXECUTIVE SUMMARY

The *Moultonborough Hazard Mitigation Plan* (the Plan) serves as a means to reduce future losses from natural or man-made hazard events before they occur. The Plan was developed by the Moultonborough Hazard Mitigation Planning Committee with assistance from the Lakes Region Planning Commission, and contains statements of policy adopted by the Board of Selectmen in Chapter VI.

Natural and human hazards for Moultonborough are summarized as follows:

High Risk	Moderate Risk
Thunderstorm	Severe Wind Event
Lightning	Winter Weather
Motor Vehicle Accident with Hazardous Materials	Flood
	Wild Land Fire

The Moultonborough Hazard Mitigation Planning Committee, as shown in Chapter IV, identified “Critical Facilities” and “Populations and Facilities to Protect” as follows:

Critical Facilities	Populations and Facilities to Protect
Moultonborough Safety Building	Moultonborough Elementary School
Highway Garage	WestWynde (age restricted housing)
Moultonborough Neck Fire Station	Imaginations Childcare Center
Electrical Power Facilities	Summer Camps
Emergency Shelters	Downtown Historic District
Evacuation Routes	Beaches
Communications	Moultonborough Academy

The Moultonborough Hazard Mitigation Planning Committee identified numerous existing hazard mitigation programs including the following:

- Emergency Operations Plan
- School Emergency Plan
- Local Regulations including: Zoning Ordinance, Floodplain Ordinance, and Wetland Ordinance, Site Plan Review, Subdivision Regulations, and Building Codes
- Police, Fire, and Public Works radio interoperability
- Police and Fire Department Mutual Aid agreements
- Equipment inspection and replacement programs
- Capital Improvement Plan
- Maintenance program for culverts and roads

The Moultonborough Hazard Mitigation Planning Committee developed a list of 21 general mitigation actions and six hazard-specific mitigation actions. These mitigation actions were prioritized based on local criteria. Discussions were held regarding how implementation might occur. The results of these discussions are summarized in Table IX: Implementation Schedule for Mitigation Actions (pages 31 and 32).

CHAPTER I: INTRODUCTION

A. BACKGROUND

The Federal Emergency Management Agency (FEMA) has mandated that all communities within the state of New Hampshire establish local hazard mitigation plans as a means to reduce and mitigate future losses from natural or human hazard events. In response to this mandate, the NH Bureau of Emergency Management (NH BEM) entered into a contract with the regional planning commissions in the state, to aid communities with plan development. The plan development process followed the steps outlined in the *Guide to Hazard Mitigation Planning for New Hampshire Communities*.

B. AUTHORITY

This Hazard Mitigation Plan was prepared in accordance with the Planning Mandate of Section 409 of Public Law 93-288 as amended by Public Law 100-707, the Robert T. Stafford Act of 1988, hereinafter referred to as the "Stafford Act." Accordingly, this Hazard Mitigation Plan will be referred to as the "Plan."

C. FUNDING SOURCE

The New Hampshire Department of Safety's Bureau of Emergency Management (NH BEM) funded the Plan with matching funds from the Lakes Region Planning Commission.

D. PURPOSE

The Moultonborough Hazard Mitigation Plan is a planning tool to be used by the town of Moultonborough, as well as other local, state and federal governments, in their efforts to reduce the effects from natural and man-made hazards. The Plan contains statements of policy as outlined in the Implementation Schedule for Mitigation Actions (pages 31 and 32). All other sections of this plan are support and documentation for informational purposes only and are not included as a statement of policy.

E. SCOPE OF PLAN

The scope of this Plan includes the identification of natural hazards affecting the town of Moultonborough, as identified by the Moultonborough Hazard Mitigation Planning Committee (Committee). The hazards were reviewed under the following categories as outlined in the New Hampshire's Natural Hazards Mitigation Plan:

- I. **Flood, Wildfire, Drought, Extreme Heat**
- II. **Geological Hazards** (Earthquake, Radon, Landslide).
- III. **Severe Wind** (Tornado, Downburst, Hurricane, Thunderstorm, Lightning, Hail).
- IV. **Winter Weather** (Blizzard/Snow Storm, Ice Storm, Nor'easter, Avalanche).
- V. **Other Hazards** (Motor Vehicle Accident involving Hazardous Materials, Oil Spill, Military Aircraft Accident, Pandemic, Rabies).

F. METHODOLOGY

The Lakes Region Planning Commission (LRPC) presented information to the Moultonborough Emergency Management Director (EMD) on the hazard mitigation plan development process on December 15, 2006 to gauge community interest in creating a hazard mitigation planning committee. In February of 2007, the Moultonborough Hazard Mitigation Planning Committee (committee) was established by the Moultonborough Board of Selectmen and EMD for the purpose of developing a long range plan for hazard mitigation. The committee consisted of department heads including Police, Fire, and Assessing.

Using the Guide to Hazard Mitigation Planning for New Hampshire Communities, the committee developed the content of the Plan by following the nine-step process set forth in the handbook. The committee held meetings starting March 8, 2007 through June 25, 2007 in order to develop and review the Plan. The following timeline shows the dates and corresponding committee actions.

Committee Meetings

December 15, 2006, 1:00 PM: Informational and organizational meeting held at the Moultonborough Public Safety Building.

Overview of Hazard Mitigation Plan process and committee organization

March 8, 2007, 10:00 AM: Working committee meeting held at the Moultonborough Public Safety Building.

Step 1: Hazard Mitigation Plan process and committee organization

Step 2: Identify Potential Hazards on base map

Identify Critical Facilities

Step 3: Risk Assessment

Vulnerability Assessment

March 27, 2007, 10:00 AM: Working committee meeting held at the Moultonborough Public Safety Building.

Step 4: Analyze Development Trends

Step 5: Identify Existing Plans or Policies

Identify Existing Gaps in Protection

May 8, 2007, 10:00 AM: Working committee meeting held at the Moultonborough Public Safety Building.

Step 6: Brainstorm & Evaluate Disaster Minimization Alternatives

May 29, 2007, 10:00 AM: Working committee meeting held at the Moultonborough Public Safety Building.

Step 7: Determine Priorities (STAPLEE)

June 25, 2007, 1:00 PM: Working committee meeting held at the Moultonborough Public Safety Building.

Step 8: Develop Implementation Strategy

Committee review of the draft plan

June 29, 2007, 4:00 PM: Submitted to NH BEM for review.

August 15, 2007: Received *Conditional Approval* from FEMA and NH BEM.

August 2007: The Moultonborough Selectboard reviewed and adopted the plan.

Step 9: Adopt & Monitor the plan

Public Involvement

Announcements and the agenda for each meeting were posted in two public places in town in advance of each meeting. Information about the Hazard Mitigation Plan and invitations for the public to attend were posted prominently on the LRPC website. Unfortunately, this did not generate additional comment on the plan or attendance at the meetings. In the future Plan revision, press releases should be sent to local and regional papers since a large part of Moultonborough residents are seasonal. Additionally, meeting announcements, agenda and meeting notes should be placed on the Moultonborough website, Town Hall, and library in order to reach a greater number of residents.

The planning process was delayed several times in order to contend with local natural hazards consisting of a nor'easter and several flooding events in March-May of 2007. The committee was not able to meet during the month of May, which delayed the ultimate completion of the Plan.

This delay did not allow for a public comment period that the committee felt necessary, since it was limited to three department heads and a BEM representative. Therefore, when the Plan is revised (see Chapter VI), the Plan shall be available for public review at the Town Hall and a public meeting seeking input shall be noticed and held. Additionally, an opportunity to review the Plan will be given to local businesses, organizations, agencies, educational and health institutions in surrounding towns, including Sandwich, Tamworth, Ossipee, Tuftonboro, Alton, Gilford, Meredith, Center Harbor, and Holderness.

G. ACKNOWLEDGMENTS

The Moultonborough Board of Selectmen extends special thanks to those that assisted in the development of this Plan:

David Bengtson	Emergency Management Director (EMD) & Chief of Fire Department
Scott Kinmond	Assistant EMD & Chief of Police Department
Brownie Jones	Town Assessor
Julia Chase	Bureau of Emergency Management Field Representative
Erica Anderson	Lakes Region Planning Commission

CHAPTER II: COMMUNITY PROFILE



Rugged, heavily wooded slopes dominate the northern portion of Moultonborough – from Red Hill to the Ossipee Range. Nearly 24 percent, or 8,798 acres, of the town’s land area is characterized by slopes of 15 percent or higher.¹ The Ossipee Mountains in the east rise to an elevation of 2,975 feet, by far the highest in town.² At 2,020 feet, Red Hill is another area with steep slopes in the northwest section of town.

The remainder of land in town is characterized by hilly to rolling terrain, divided by inter-connected wetlands, ponds, and lakes. The numerous ponds and wetlands extend from Squam Lake in the northwest, through Wakondah Pond and Kanasatka Lake, Berry, Garland, and Lees Ponds in the north, to Lake Winnepesaukee in the central and southern parts of town. Moultonborough contains the most shoreline of any town in New Hampshire at 89 lineal miles. Aquifers are found in the central section of town beneath Berry, Garland and Lees Ponds. Rivers running through Moultonborough include the Squam River, Shannon Brook, Weed Brook, Halfway Brook, and Red Hill River. The majority of town lies in the Winnepesaukee watershed.

The town of Moultonborough is located on the southwestern edge of Carroll County. It is bordered by Sandwich and Tamworth to the north, Holderness and Center Harbor to the east, Meredith, Gilford, and Alton to the south, and Tuftonboro and Ossipee to the east. The total area of Moultonborough is 75 square miles, 60 square miles of land and 15 square miles of water.³ The population density of Moultonborough is 82.5 persons per square mile of land area.

Like many New England towns, Moultonborough’s temperatures and precipitation vary a great deal. January temperatures range from an average high of 30 degrees Fahrenheit to an average low of 8 degrees Fahrenheit. July temperatures range from an average high of 81 degrees Fahrenheit to an average low of 55 degrees Fahrenheit. Annual precipitation totals average between 42 and 48 inches, where the distribution is slightly lower in the winter months when compared to summer months. Moultonborough averages about 66 inches of snow per year.⁴

¹ *Moultonborough Comprehensive Master Plan*, 1991, p. IV-1 - 6.

² *Lakes Region Conservation Trust*, <http://www.lrct.org/ossipee.html>, visited June 19, 2007.

³ *New Hampshire Community Profiles*, NH Employment and Security Office, <http://www.nhes.state.nh.us/elmi/htmlprofiles/Moultonborough.html>, visited June 19, 2007.

⁴ <http://www.city-data.com/city/Moultonborough-New-Hampshire.html>, visited June 19, 2007.

A five-member Board of Selectmen governs the town of Moultonborough. The town has a 31 member volunteer Fire Department. The full-time Fire Chief also serves as the Emergency Management Director. The Police Department consists of a full-time Police Chief, 12 full-time officers, 4 part-time officers, and 6 support staff. The Road Agent directs a staff of four who maintain 52 miles of town roads. The Lakes Region General Hospital is located in Laconia, 12 miles southwest of Moultonborough, Speare Memorial Hospital is 18 miles to the northwest, and Huggins Hospital is 16 miles to the southeast. Additional hospitals are also located in Dover, Concord, and Lebanon.

A. DEVELOPMENT TRENDS

Population, Housing Stock, and Growth Patterns

Moultonborough was ranked the ninth fastest growing community in the Lakes Region between 1980 and 1990 (34.0% population increase). Between 1990 and 2000, Moultonborough became *the* fastest growing town in the Lakes Region (51.7% population increase - 15 percentage points higher than the next ranked town).⁵ Current data show this population increase continuing into the future (Table I).⁶ Moultonborough has consistently had one of the highest median ages (46.6 years in 2000) in Carroll County and is well above the state-wide average of 37.1 years).

Table I: Moultonborough Population

Time Period	Population
2005	4,875
2004	4,830
2003	4,765
2002	4,668
2001	4,589

The estimated percentage of seasonal homes in Moultonborough in 2000 (55.7%) was more than five times the statewide average (10.3%), higher than the Lakes Region as a whole (29.8%), and Carroll (42.2%) and Grafton (36.5%) County rates for seasonal homes.⁷

⁵ *Lakes Region Demographic Profile*. Lakes Region Planning Commission, 2003, p.3.

⁶ <http://nhetwork.nhes.state.nh.us/nhetwork/default.aspx>, visited June 18, 2007.

⁷ *Lakes Region Demographic Profile*. Lakes Region Planning Commission, 2003, p.18-19.

Future Development

The New Hampshire Office of Energy & Planning (NH OEP) estimates the population of Moultonborough will be 5,270 in 2010. Evidence of recent growth can be seen by the increase of building permits issued annually (Table II).⁸ Current projections from the NH OEP show the population growth rate will continue increasing at a similar rate in Moultonborough over the next twenty years, where the year-round population in 2020 is projected to be 6,120.⁹ The projections for 2025-2030 also show a population increase, but at lesser rate, where the year-round population is projected to be 6,730.

Table II: Number of Residential Building Permits in Moultonborough

Year	Number of Permits
2005	77
2004	89
2003	88
2002	110
2001	77
2000	94

The committee identified several areas in Moultonborough where future development is expected to take place:

- North and east of the Balmoral and Swissvale Developments
- Remaining undeveloped lots on Moultonborough Neck Road
- Along the NH Route 25 corridor
- Along the NH Route 171 corridor and NH Route 109 South Corridor

⁸ <http://nhetwork.nhes.state.nh.us/nhetwork/blding.aspx?sid=2>, visited June 18, 2007.

⁹ *Municipal Population Projections 2010 to 2030*. NH Office of Energy and Planning, January 2007, <http://www.nh.gov/oep/programs/DataCenter/Population/documents/MunicipalPopulationProjections2010-2030.pdf>, visited June 18, 2007.

CHAPTER III: RISK ASSESSMENT

A. IDENTIFYING HAZARDS

The town of Moultonborough is prone to a variety of man-made and natural hazards. The committee used the Carroll County Risk Analysis document, developed by the New Hampshire Governor's Office of Emergency Management, to identify all hazards that could affect Moultonborough.¹⁰ The process also involved reviewing plans, ordinances, land use regulations, university databases, and internet sources for information about past hazard events in Moultonborough.

A matrix was created to determine an overall hazard risk assessment rating. Each criterion (probability of occurrence and vulnerability) was given a rating of severe, moderate, or minimal to show which hazards are the greatest threat to the community, based on indicators: danger/destruction, economic, environmental, social, and political planning level. These ratings were then transformed into numerical values 3, 2, and 1, respectively. The overall risk rating associated with each hazard was determined by multiplying the two factors. This resulted in risk ratings ranging from 1 to 9; 1-3 = minimal risk, 4-6 = moderate risk, 7-9 = severe risk. This Plan will focus on those events that pose at least a moderate risk to the town of Moultonborough as determined by the committee (Table III). The entire Risk Assessment Matrix can be found in Appendix H.

The extent (i.e. magnitude or severity) has been determined through research and past events in Moultonborough, and the potential degree of damage that could occur. Extent was based on potential assistance needed, as defined below:

- Minimal: local residents can handle the hazard event without help from outside sources
- Moderate: county or regional assistance is needed to survive and/or recover
- Severe: state or federal assistance is necessary to survive and/or recover

¹⁰ <http://www.nhoem.state.nh.us/mitigation/default.htm>, visited June 22, 2007.

Table III: Town of Moultonborough Risk Assessment

Hazard Type	Extent			Probability of Occurrence			Vulnerability			Risk Rating
	Severe	Moderate	Minimal	High	Moderate	Low	High	Moderate	Low	
Flood, Drought, Extreme Heat & Wildfire										
Flood	X				2			2		4
Drought			X			1			1	1
Extreme Heat		X				1	3			3
Wildfire	X				2			2		4
Geologic Hazards										
Earthquake	X				2				1	2
Landslide		X				1			1	1
Radon			X			1			1	1
Severe Wind & Related Hazards										
Thunder Storm		X		3			3			9
Hurricane	X					1			1	1
Tornado	X				2		3			6
Down Burst	X				2		3			6
Lightning		X		3			3			9
Hail			X			1		2		2
Winter Weather & Related Hazards										
Blizzard/Snow Storm		X			2			2		4
Ice Storm	X				2		3			6
Nor'easter		X			2			2		4
Avalanche		X				1			1	1
Human-Related Events										
MV Accident involving Hazardous Materials	X			3			3			9
Oil Spills	X					1		2		2
Military Aircraft Accident	X					1			1	1
Pandemic	X					1		2		2
Other										
Rabies		X				1			1	1

B. PROFILING HAZARD EVENTS

Thunderstorm and Lightning

Location: Localized

Specific Areas of Concern: WestWynde, schools, childcare, limited access areas, forests

Critical Facilities: Essential Services, Special Populations, Emergency Shelters

Extent: Moderate

Probability of Occurrence: High

Overall Risk: High

Thunderstorms and lightning pose the highest risk to Moultonborough, as determined by past events. Thunderstorms have several threats associated with them including heavy rain, high wind, and hail. In a heavy rain storm, large amounts of rain may fall in a short period of time, severely impacting roads. High winds can bring down limbs and trees, knocking out electricity and blocking roads. Hail can cause damage to crops and structural damage to vehicles. It is not particularly common; this region of New Hampshire averages less than two hailstorms per year.¹¹

All thunderstorms contain lightening, which can cause death, injury, and property damage and have great potential to cause structure and forest fires. The discharge of lightening causes an intense sudden heating of air. The air rapidly expands when heated then contracts as it cools which causes a shock wave that we hear as thunder. The concern that lightning might ignite a wildfire in Moultonborough is quite high. In June and August of 2005, four separate lightning strikes sparked fires in Moultonborough, destroying homes and causing \$430,000 in damages.

Motor Vehicle Accident involving Hazardous Materials

Location: Localized to Regional

Specific Areas of Concern: waterbodies, intersections, roads/evacuation routes, water supplies

Critical Facilities: Structures and Services, Commercial Districts, Trexlers Marina, Ambrose Cove Marina, Harilla Landing Marina, Fuel Stations, Public and Private Beaches, Moultonborough Safety Building, Highway Department, Moultonborough Neck Fire Station

Extent: Severe

Probability of Occurrence: High

Overall Risk: High

Hazardous material spill and accidental water contamination is a non-intentional event where hazardous chemicals can pollute the environment, including surface water, ground water, and air and can have a negative, potentially life threatening impact on people. The costs associated with a hazardous material spill can vary greatly dependent on the substance, quantity, and resources threatened. Costs associated with spill containment and clean up that involve water resources are certain to be higher. A greater understanding of the types and quantities of products that are transported through the community would provide information on the community's level of preparedness to respond to such an accident.

NH Route 25 and NH Route 109 intersect in downtown Moultonborough and pass much of the critical infrastructure identified in town. NH Route 171 intersects NH Route 25 northeast of downtown and across from the airport and Berry Pond. There is concern by the committee that the effects of a hazardous material spill along either of these routes could impact both the town's Essential Services and Special Populations.

¹¹ *Northeast States Emergency Consortium*, <http://www.serve.com/NESEC/>, visited June 21, 2007.

The intersection of Route 25 and Moultonborough Neck Road is also of concern since the Neck Road is the only road serving the peninsula and islands. If there is an accident at the intersection, or along the Moultonborough Neck Road at any point, the lack of available detour routes could pose a challenge to transportation and emergency access.

A hazardous spill that occurs during transport would also threaten multiple water resources including Lake Winnepesaukee, Squam Lake, Wakondah Pond, Lake Kanasatka, Berry Pond, Garland Pond and Lees Pond. Moultonborough has a number of large above ground tanks that contain hazardous material, which are located at the Highway garage, airport, gas stations throughout town, and the marinas. These tanks could pose an immediate threat to adjacent water bodies, including Lake Winnepesaukee, if they were to exceed their secondary containment safeguards.

Severe Wind Event (Tornados, Downburst)

Location: Localized

Specific Areas of Concern: loss of power; critical infrastructure, residential areas, limited access areas, forests

Critical Facilities: Essential Services, Structures and Services, Special Populations, Emergency Shelters

Extent: Severe

Probability of Occurrence: Moderate

Overall Risk: Moderate

New England is located in a 160 mile an hour wind zone, where it is recommended that building standards are implemented to withstand 160 mph wind gusts. Moultonborough is at risk of several types of natural events associated with high winds, including downbursts and tornados.

According to the National Oceanic and Atmospheric Administration (NOAA) a downburst is a strong downdraft, rotational in nature, which causes damaging winds on or near the ground. Winds can exceed 130 mph.¹² Downbursts are 10 times more likely to occur than tornados. Downbursts fall into two categories based on their size:

- microbursts, which cover an area less than 2.5 miles in diameter, and
- macrobursts, which cover an area at least 2.5 miles in diameter.

The major damage from downbursts come from falling trees, which may take down power lines, block roads, or damage structures and vehicles. New Hampshire has experienced three such events in the 1990's. One event occurred in Moultonborough on July 26, 1994 and was classified as a macroburst. It affected an area one-half mile wide by 4-6 miles in length.

¹² *Weather Glossary*. National Oceanic and Atmospheric Administration, <http://www.srh.noaa.gov/fwd/glossarymain.html>, visited June 21, 2007.

On average, six tornadoes per year touch down somewhere in New England. There is no way of knowing where or when the next damaging tornado will strike as they are among the most unpredictable weather phenomena. Tornadoes are violent storms, rotational in nature, that extend to the ground with winds that can reach 300 miles per hour. They are produced from thunderstorms and can uproot trees and buildings. Although tornadoes are locally produced, damage paths can be in excess of one mile wide and 50 miles long.¹³

The risk for an individual community in New Hampshire is relatively low compared to many other parts of the country. Though the danger that these storms present may be high, the frequency of these storms is relatively low to moderate. The last tornado to strike Carroll County was in August of 1986. It was an FI tornado but caused a reported \$2.5 million dollars in damage.

Winter Weather (Blizzard/Snow Storm, Ice Storm, Nor'easter)

Location: Regional

Specific Areas of Concern: schools, childcare, island residences, inaccessible roads from downed trees and power lines, power outages

Critical Facilities: Essential Services, Structures and Services, Special Populations, Emergency Shelters

Extent: Moderate to Severe

Probability of Occurrence: Moderate

Overall Risk: Moderate

Heavy snows can cause damage to property, disrupt services, and make for unsafe travel, including emergency response. The build up of snow on roofs, especially when combined with ice, can lead roofs to collapse; it can also down power lines. Due to poor road conditions, residents may be stranded for several days. Extra pressure is placed on road crews and emergency services under these conditions.

Snowstorms are a common occurrence throughout Carroll County. Blizzards, which may dump 12" – 36" or more of snow in a one- to three-day period are less frequent, but can have a serious impact on structures, utilities, and services. Moultonborough is in a region which receives greater than 66" of snow annually. Between 1955 and 1985, the mean annual snowfall for the Lakes Region of New Hampshire was between 6.5 and 8.0 feet.¹⁴

Heavier snow accumulations are not necessary to have a major impact on a community. During an ice storm the major threats to a community come from structural damage due to heavy loads on roofs, interruptions of services such as electricity, fuel, water, and communications, as well as hazardous road conditions.

¹³ FEMA Hazards: Tornadoes, <http://www.fema.gov/business/guide/section3e.shtm>.

¹⁴ Northeast States Emergency Consortium, <http://www.serve.com/NESEC/>, visited June 20, 2007.

Unlike the relatively infrequent hurricane, New Hampshire generally experiences at least 1 or 2 nor'easters each year, with varying degrees of severity. These storms have the potential to inflict more damage than many hurricanes because high winds can last from 12 hours to 3 days, while the duration of hurricanes ranges from 6 to 12 hours. Infrastructure, including critical facilities, may be impacted by these events, and power outages and transportation disruptions (i.e., snow and/or debris impacted roads) are often associated with the event.¹⁵

Flood

Location: Localized

Specific Areas of Concern: floodplain, shoreline areas, and roads identified as prone to flooding or washout in the Balmoral and Swissvale subdivisions and NH Route 109 South

Critical Facilities: Structures and Services, Emergency Shelters

Extent: Severe

Probability of Occurrence: Moderate

Overall Risk: Moderate

Floods are defined as a temporary overflow of water onto lands that are not normally covered by water. It results from the overflow of rivers and tributaries or inadequate drainage. Flooding has an impact on the transportation network in Moultonborough. There are numerous rivers and streams within the town and significant changes in elevation, leading to some fast-moving water. Moultonborough also has the most shoreline (89 lineal miles) of any town in the state, making it exposed to rising water levels as well. In years past, flooding has not been a significant threat to Moultonborough, despite the large amount of shoreline property. Recent rain events, however, have proven this is no longer the case. Additional development is contributing to flood hazards. As areas are covered with impervious surfaces, less water is allowed to infiltrate. This causes more likelihood of flash floods and sheet flow. Specific areas of concern include Shannon Brook within the Balmoral and Swissvale subdivisions, and drainage areas along NH Route 109 South, shown as the blue hatched area on the Critical Facilities and Potential Hazards Map in Appendix D. Moultonborough participates in the FEMA Flood Insurance program, enabling residents to purchase flood insurance policies.

Wild Land Fire

Location: Regional

Specific Areas of Concern: remote limited access forests and upland terrain, islands

Critical Facilities: Highway Department, Structures and Services, Special Populations, Castle in the Clouds

Extent: Severe

Probability of Occurrence: Moderate

Overall Risk: Moderate

¹⁵ *State of New Hampshire Natural Hazards Mitigation Plan*. NH Office of Energy and Planning, Aug. 15, 2005
<http://www.nhoem.state.nh.us/mitigation/>.

A wild land fire is defined as a fire in wooded, potentially remote areas that may endanger lives. New Hampshire has about 500 wild land fires each year; most of these burn less than half an acre. Much of Moultonborough is forested and susceptible to fire. A present concern of NH Department of Resources and Economic Development (DRED) Division of Forests & Lands is that the Ice Storm of 1998 has left a significant amount of woody debris in the forests of the region that may fuel future wildfires.¹⁶ This concern is mirrored by the community.

Although no wild land fires have occurred within the town of Moultonborough in recent years, the committee identified areas of potential concern; these are largely undeveloped, wooded tracts of land with limited access roads. The largest areas of concern are the Ossipee Range north and east of NH Route 171, and Red Hill. These areas are comprised of hilly and steep terrain; in the event of a wildfire, emergency vehicles could potentially have problems getting to the fire. Another area of potential concern is the islands, due to their limited accessibility. The committee is concerned that if a wild land fire started on Long Island, it could only be contained at the bridge, after it had burned the entire island.

C. HISTORICAL HAZARD EVENTS

A few of the most recent hazard events to impact Moultonborough area were 4 lightning strikes and resulting fires in 2005, a hail storm in 2000, high winds downing trees in 2006, and flooding in 2005, 2006, and 2007. Another recent hazard event occurred on January 7 and 8, 1998, when a devastating ice storm hit and mainly affected upstate New York, northern New Hampshire and Vermont, much of Maine, and southeast Canada. Some locations received over 3 inches of rain (as freezing rain), with radial ice thickness of one inch or more. New England reported over 500,000 customers without power and overall damages approached \$3 billion for Canada and were at least \$1.4 billion for the U.S. In New Hampshire, 140,000 people lost electricity, some for as long as eight days, 38 shelters were set up that served 700 refugees, and two storm related deaths were reported.

The following hazards, as described in this plan, have yet to occur in Moultonborough or historic records were unavailable: motor vehicle accident involving hazardous materials or wild land fire. Through committee discussion, incidents similar to a chemical spill were identified. A tanker truck spilled fuel along NH Route 25 (date unknown), and the fire department has responded to occasional small (usually <10 gallon) fuel spills at local gas stations. Table IV details additional historic events that have impacted the town of Moultonborough within the last sixty years.

¹⁶ *Summary of State Wildfire Burns*. NH Office of Emergency Management (Table of Tables), June 22, 2007, <http://www.nhoem.state.nh.us/mitigation/default.htm>.

Table IV: Past Hazard Events

Hazard	Date	Location	Description	Source
Earthquake	12/20/1940	Central NH	5.5 on Richter scale	NH OEM
Earthquake	12/24/1940	Central NH	5.5 on Richter scale	NH OEM
Flood	4/18/1997	Carroll County	Three to five inches of rain in 8 to 12 hours caused small rivers and streams to rise rapidly. Many roads were closed due to washouts and water over roadways. Some homes were evacuated.	NOAA
Flood	8/28/1997	Moultonborough	Slow moving thunderstorms dumped 3 to 5 inches of rain in central New Hampshire. Flooding occurred in Moultonborough along Route 25 and along Holderness Rd. In Tamworth. Many roads were washed out or closed due to mud and/or debris.	NOAA
Flood	3/31/1998	Carroll County	Rapid snowmelt due to record breaking high temperatures combined with rainfall to cause river flooding on tributaries of the Saco River. Many homes were flooded and schools were closed in the affected areas.	NOAA
Flood	4/1/1998	Carroll County	Three to eight inches of rain caused small rivers and streams to rise. Many roads were flooded and/or washed out. Campgrounds and some lakeside homes had to be evacuated.	NOAA
Flood	6/14/1998	Moultonborough	Losses were reported at \$550,000.	NOAA
Flood	5/13/2006	Carroll County	12 inches of rain in some locations in a 72 hour period.	NOAA
Hail	7/16/1984	Carroll County	1.75 in. diameter	NOAA
Hail	6/24/1985	Carroll County	0.75 in. diameter	NOAA
Hail	6/8/1987	Carroll County	0.75 in. diameter	NOAA
Hail	6/13/1987	Carroll County	1.00 in. and 0.75 in. diameter	NOAA
Hail	7/26/1994	Carroll County	0.75 in. hail accompanied by a very strong downburst from a thunderstorm. More than 150 other homes damaged and several cars crushed by felled trees. 140 acres of trees sustained damage. Damage estimates above \$1.5 million. Not included in those figures are the cleanup costs, utility damage and the value of the trees.	NOAA
Hail	7/18/2000	Moultonborough	0.75 inches in diameter	NOAA
Hurricane	9/21/1938	Statewide	13 Deaths, 2 Billion feet of marketable lumber blown down, flooding throughout the State, total Direct Losses - \$12,337,643 (1938 Dollars)	NH OEM
Lightning	8/2/1993	Carroll County	Lightning injured three hikers on the face of Mt. Chocorua.	NOAA
Lightning	7/30/1999	Moultonborough	Lightning struck a tree in Moultonborough and followed an underground wire to a nearby historic post and beam barn where it ignited a fire. The fire caused moderate damage to the structure.	NOAA
Lightning	6/10/2005	Moultonborough	Lightning sparked a fire that destroyed a summer cottage on Lake Winnepesaukee Badger Island. The lightning struck a nearby pine tree and ignited a ground fire as it traveled along the ground. The ground fire quickly spread to the cottage - \$30,000 damages.	NOAA

Hazard	Date	Location	Description	Source
Lightning	7/19/2005	Moultonborough	Fire destroyed a 200-year-old barn in the town of Moultonborough. Damages reported at \$200,000.	NOAA
Lightning	8/1/2005	Moultonborough	Lightning struck a two-story home that was under construction and ignited a fire that heavily damaged the structure. The lightning apparently struck a nearby 70-ft tall pine tree behind the home and traveled into the building - \$150,000 in damages.	NOAA
Lightning	8/2/2005	Moultonborough	For the second night in a row, lightning struck a two-story home in Moultonborough. Fire flared up about 4 hours after the initial strike and caused considerable damage to the kitchen and a new addition - \$50,000 in damages.	NOAA
Thunderstorm	7/28/1970	Carroll County		NOAA
Thunderstorm	7/1/1971	Carroll County		NOAA
Thunderstorm	7/15/1974	Carroll County	Winds measured at 56 knots.	NOAA
Thunderstorm	7/5/1983	Carroll County		NOAA
Thunderstorm	9/20/1984	Carroll County		NOAA
Thunderstorm	5/29/1986	Carroll County		NOAA
Thunderstorm	5/29/1986	Carroll County		NOAA
Thunderstorm	5/29/1986	Carroll County		NOAA
Thunderstorm	6/1/1986	Carroll County		NOAA
Thunderstorm	6/16/1986	Carroll County		NOAA
Thunderstorm	8/19/1987	Carroll County		NOAA
Thunderstorm	8/19/1987	Carroll County		NOAA
Thunderstorm	8/19/1987	Carroll County		NOAA
Thunderstorm	7/14/1988	Carroll County		NOAA
Thunderstorm	7/14/1988	Carroll County		NOAA
Thunderstorm	7/14/1988	Carroll County		NOAA
Thunderstorm	8/14/1988	Carroll County		NOAA
Thunderstorm	8/14/1988	Carroll County		NOAA
Thunderstorm	7/20/1990	Carroll County		NOAA
Thunderstorm	5/11/1993	Carroll County	Several trees and large limbs were downed in Wakefield	NOAA
Thunderstorm	8/2/1993	Carroll County	Public service company reported several large trees down in Wolfeboro.	NOAA
Thunderstorm	7/26/1994	Carroll County	Trees and power lines were blown down in Albany. A car was also blown out of a driveway.	NOAA
Thunderstorm	7/26/1994	Carroll County	State Police reported trees blown down in Chocorua.	NOAA
Thunderstorm	7/26/1994	Carroll County	Thunderstorm Winds gusted as high as 82 mph near Moultonborough - \$5 million in total costs	NOAA
Thunderstorm	7/6/1999	Moultonborough	Thunderstorm Winds gusted as high as 60 knots near Moultonborough	NOAA
Thunderstorm	7/22/2005	Moultonborough	A severe thunderstorm blew down numerous trees in the towns of Moultonborough and Meredith. Winds measured at 50 knots.	NOAA
Thunderstorm	6/20/2006	Moultonborough	Winds 50 knots, trees down	NOAA
Tornado	7/18/1963	Carroll County	F2 - \$25,000 in damages	NH OEM
Tornado	6/23/1965	Carroll County	F0 - \$3,000 in damages	NOAA

Hazard	Date	Location	Description	Source
Tornado	7/28/1970	Carroll County	F0 - \$25,000 in damages	NOAA
Tornado	8/9/1972	Carroll County	F1 - \$3,000 in damages	NOAA
Tornado	8/25/1972	Carroll County	F0	NOAA
Tornado	8/7/1986	Carroll County	F1 - \$2,500,000 in damages	NOAA
Snow	2/14/1958	Carroll County	More than a foot of snow	NH OEM
Snow	3/2/1960	Carroll County	Upwards of 2' of snow; high winds	NH OEM
Snow	1/18/1961	Carroll County	Up to 25"	NH OEM
Snow	2/22/1969	Carroll County	2' - 3' of snow over several days	NH OEM
Snow	2/5/1978	Carroll County	More than 2' of snow - "Blizzard of '78"	NH OEM
Snow	1/31/1993	Carroll County	Up to 13 inches of snow. Communities experienced electrical power failures.	NOAA
Snow	1/17/1994	Statewide	75,000 Residents lost power	NOAA
Ice	1/5/1979	Statewide	Power and Transportation disruptions	NH OEM
Ice	1/7/1998	Statewide	More than \$17 million in power line damage alone	NH OEM

Table Sources:

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

2 = New Hampshire Bureau of Emergency Management (NHBEM)

3 = National Oceanic and Atmospheric Administration (NOAA)

4 = National transportation Safety Board (NTSB)

5 = Federal Emergency Management Agency (FEMA)

6 = Northeast States Emergency Consortium (NESEC)

7 = National Interagency Fire Center (NIFC)

CHAPTER IV: VULNERABILITY ASSESSMENT

A. CLASSIFICATION OF CRITICAL INFRASTRUCTURE

The list of critical infrastructure for the town of Moultonborough was identified by the committee. The critical infrastructure list was broken into five categories, 1) Essential Services; 2) Structures and Services; 3) Emergency Shelters; 4) Special Populations; 5) Other. The first category contains facilities essential in a hazard event. The second category contains non-essential facilities that have been identified by the committee as services and facilities to protect. The third category is a list of the pre-defined emergency shelters within the community. The fourth category contains populations that the committee wished to protect in the event of a disaster. The fifth category contains other infrastructure that was important to the committee. The Critical Facilities and Potential Hazards Map is located in Appendix D.

Essential Services:

Facility: Moultonborough Safety Building

Location: 1035 Whittier Highway

Hazard Vulnerability: High

Facility: Town Hall

Location: 6 Holland Street

Hazard Vulnerability: High

Facility: Highway Department

Location: Highway Garage Road

Hazard Vulnerability: High

Facility: Moultonborough Neck Fire Station

Location: Moultonborough Neck Road

Hazard Vulnerability: High

Facility: Electric Substation

Location: Route 25 (behind Dunkin Donuts)

Hazard Vulnerability: High

Facility: Verizon Telephone Substation

Location: 320 Gov Wentworth High

Hazard Vulnerability: High

Moultonborough Safety Building



Moultonborough Town Hall



Structures and Services:

- Bridges and Culverts, town-wide
- NH Route 25(Whittier Highway), NH Route 171, NH Route 109, and Moultonborough Neck Road; evacuation routes
- Moultonborough Airport, intersection of NH Route 25 and NH Route 171
- Lamprey Sewage Lagoon, Route 109
- Town Landfill, Landfill Lane

Emergency Shelters:

- Moultonborough Academy, Blake Road
- Moultonborough Public Safety Building, 1035 Whittier Highway

Special Populations:

- Moultonborough Elementary School, Whittier Highway
- Moultonborough Academy, Blake Road
- WestWynde (age-restricted housing), Route 171
- Imaginations Childcare, Whittier Highway
- Seasonal Summer Camps:
 - Deer Hill Camp, Red Hill Road
 - Quinebargue, Sibley Road
 - Tecumseh, Moultonborough Neck Road
 - Robindel, Geneva Point road
 - Geneva Point, Geneva Point Road
 - Winnaukee, Winnaukee Road

Other:

- Downtown Historic District, Rte. 25
- Commercial Districts; Rte 25 East, Rte 25Central, and Village
- Trexlers Marina, Moultonborough Neck Road
- Ambrose Cove Marina, Black Point Road
- Harilla Landing Marina (private)
- Castle in the Clouds, Route 171
- Fuel Stations, throughout town
- Public and Private Beaches, throughout town

Moultonborough Neck Fire Station**Moultonborough Academy****Downtown Historic District**

B. NATURAL HAZARDS VULNERABILITY OF CRITICAL FACILITIES

The Critical Facilities and Potential Hazards Map (Appendix D) identifies the location of critical facilities in relation to mapped hazard areas. No essential service critical facilities are located within the flooding hazard area. The Critical Facilities Natural Hazards Vulnerability Assessment, Appendix G, ranks each moderate to high risk hazard discussed in Chapter III for each critical facility. They are ranked low to high, based on the potential economic, environmental and social impacts, and level of danger/damage to buildings, infrastructure and services of the hazard to the facility. The co-occurrence of greatest concern for critical facilities and identified hazards is the potential for a hazardous materials spill on or adjacent to NH Route 25 (Whittier Highway). It was established through discussion that this co-occurrence is of concern, and is the focus of several identified mitigation strategies (Table VIII, pages 29-30) including;

- Attain compliant traffic/PPE/response equipment and trailer
- Continue to provide emergency responders with additional hazardous materials training

C. MANMADE VULNERABILITY OF CRITICAL FACILITIES

All identified critical facilities were individually assessed on their vulnerability to intentional disruption. Although Moultonborough is not considered a high target area for terrorism, it is important for a community to identify and be aware of potential targets. A Federal Emergency Management Agency (FEMA) hazard vulnerability matrix was used to assess the vulnerability of all critical facilities in Moultonborough to manmade hazards. Each facility was rated based on seven criteria; visibility, target, access, mobility, hazard materials, collateral damage, and population impact. Each criteria was scored on a three point scale, one being low vulnerability and five being high vulnerability. The assessment, in Appendix F, rates the Moultonborough Safety Building, Town Hall, Highway Garage, Moultonborough Neck Fire Station, schools, marinas, and beaches as the facilities most at risk from manmade hazards. It was also noted that the Emergency Operations Plan does address a terrorist event at local schools. In future updates to the Plan, the committee may wish to conduct a formal review of each facility using a detailed vulnerability matrix.

D. ESTIMATING POTENTIAL LOSSES TO CRITICAL FACILITIES

The critical facilities identified in Moultonborough are estimated to be worth nearly \$71.3 million dollars. Table V provides an estimate of the current monetary value for each of the publicly owned critical facilities in Moultonborough. These values can also be used to determine potential loss estimates in the event a natural or manmade hazard damages a part of or the entire facility. The estimates were generated by the town assessor and are based on property tax documentation.

Table V: 2007 Value of Public Critical Facilities in Moultonborough

TYPE	NAME	CLASSIFICATION	VALUE
Educational	Moultonborough Academy	Emergency Shelter / Populations to Protect	\$7,385,100
Educational	Moultonborough Central School	Populations to Protect	\$7,633,300
Fire/Police Department	Moultonborough Safety Building	EOC & Essential Services	part of Town Hall Complex
Public Works	Highway Garages	Essential Services	\$394,600
Elderly Housing	WestWynde Community	Populations to Protect	\$700,300
Fire Department	Moultonborough Neck Station	Essential Services	\$403,200
Administration	Town Hall Complex	Essential Services	\$6,606,700
Historic Resources	Downtown Historic District	Historic Area	N/A
Sewage Lagoon	Lamprey Sewage Lagoon	Structures & Services	N/A
Landfill	Town Landfill	Structures & Services	\$472,000
Electric Services	Power Substation	Essential Services	\$113,300
Electric Services	Proposed Power Substation	Essential Services	N/A
Day-Care	Imaginations...A Child's Place	Populations to Protect	\$269,000
Commercial	Commercial District	Structures & Services	N/A
Seasonal Summer Camp	Camp Quinebarge	Populations to Protect	\$1,343,725
Seasonal Summer Camp	Camp Robindel	Populations to Protect	\$6,383,400
Seasonal Summer Camp	Camp Tecumseh	Populations to Protect	\$7,560,538
Seasonal Summer Camp	Camp Winnaukee	Populations to Protect	\$4,312,800
Seasonal Summer Camp	Deer Hill Camp	Populations to Protect	\$1,136,901
Seasonal Summer Camp	Geneva Point Center	Populations to Protect	\$15,166,200
Marina	Trexlers Marina	Structures & Services	\$1,122,900
Marina	Ambrose Cove Marina	Structures & Services	\$2,221,200
Unique Feature	Castle in the Clouds	Structures & Services	\$7,842,100
Telephone	Verizon	Essential Services	\$187,300

CHAPTER V: MITIGATION STRATEGIES

A. STATE OF NEW HAMPSHIRE HAZARD MITIGATION GOALS¹⁷

The State of New Hampshire Natural Hazard Mitigation Plan prepared and maintained by the New Hampshire Bureau of Emergency Management (NH BEM), sets forth the following overall hazard mitigation goals for the State of New Hampshire:

- I. To improve upon the protection of the general population, the citizens of the State and guests, from all natural and man-made hazards.
- II. To reduce the potential impact of natural and man-made disasters on the State's Critical Support Services.
- III. To reduce the potential impact of natural and man-made disasters on Critical Facilities in the State.
- IV. To reduce the potential impact of natural and man-made disasters on the State's infrastructure.
- V. To improve Emergency Preparedness.
- VI. Improve the State's Disaster Response and Recovery Capability.
- VII. To reduce the potential impact of natural and man-made disasters on private property.
- VIII. To reduce the potential impact of natural and man-made disasters on the State's economy.
- IX. To reduce the potential impact of natural and man-made disasters on the State's natural environment.
- X. To reduce the State's liability with respect to natural and man-made hazards generally.
- XI. To reduce the potential impact of natural and man-made disasters on the State's specific historic treasures and interests as well as other tangible and intangible characteristics which add to the quality of life of the citizens and guests of the State.
- XII. To identify, introduce and implement cost effective Hazard Mitigation measures so as to accomplish the State's Goals and Objectives and to raise the awareness of, and acceptance of Hazard Mitigation generally.

¹⁷ NH Bureau of Emergency Management website. <http://www.nhoem.state.nh.us/mitigation/>, visited June 19, 2007.

B. TOWN OF MOULTONBOROUGH, NEW HAMPSHIRE HAZARD MITIGATION GOALS

The Moultonborough Hazard Mitigation Planning Committee concurs with the State Hazard Mitigation goals and further defined goals most pertinent to the town. Based on the hazards studied, and the assessment of current and proposed mitigation strategies, the committee recommends the following hazard mitigation goals for the town of Moultonborough:

Goal I: Community and Resource Protection

Reduce the potential impact of natural and manmade disasters on the town's residents and visitors, as well as its critical facilities, property, economy, and natural resources, while improving the emergency communication, alert, and response systems.

Goal II: Outreach and Education

Improve public awareness of the impacts of potential hazards and hazard preparedness, while increasing the public's involvement in emergency response and recovery.

Goal III: Coordination and Communication

Ensure plans are in place to address various emergency situations and that regular communication occurs between various departments and with local, regional, and state officials; thereby ensuring that those involved are aware of their responsibilities.

Goal IV: Damage Prevention

Minimize the damage and public expense which might be caused to public and private buildings and infrastructure due to natural and manmade hazards.

C. EXISTING MITIGATION STRATEGIES

A review of existing mitigation strategies was conducted. The assessment included review of pertinent documents including the zoning ordinance, subdivision regulations, emergency management plan, site plan regulations, annual report, and discussion with committee members. Table VI details the mitigation strategies that currently exist or are in the process of being developed for the town of Moultonborough.

Table VI: Existing Mitigation Strategies

Existing Protection	Description	Area Covered	Enforcement
Zoning Ordinance	Floodplain Development limitations Participate in NFIP FIRM maps are developed Shoreland Protection [CSPA standards adopted] Require access for FD & emergency responders on all property Waterfront Property setbacks Telecom Towers – require access for public safety	Town	Planning Board
Subdivision Regulations	[6.2] Easements for Utility Access & Public Service [6.3] Flood Hazard Areas [6.5] Documentation of Impacts [7.1 D] Lots - Suitability [7.1 E.5] Lots – Adequacy - Fire [7.3] Public thoroughfare protection from access points [7.4 A] Drainage & provisions of Public Service [8.1 E] Divide waterfront lots – swim/boat [8.4] Protective well radius for community water	Town	Planning Board
Radio Communications	3 cell towers [Red Hill, Glidden Rd, Mlt. Neck Rd] 1 proposed for PD/FD frequency radio Lakes Region Response	Region – partial coverage due to mountains	Police Chief
Sewer/Water Service	Bayside Water & Sewer Subdivision with package plant	Village District Churchwood	Selectmen
Septic Systems	Zoning: 1 acre minimum Town allows alternative septic systems – per DES standards Subdivision Regulations: Notify town when replace/fix septic system	Town	Health Officer
Fire Department	Participate in Lakes Region Mutual Aid. The Red Hill fire tower is staffed seasonally. Both the F.D. and P.D. are in discussions to use the cell tower on Mlt. Neck Rd. for emergency radio. The F.D. reviews site plans and performs final inspections for oil burners, wood stoves, and fireplaces. There is a monthly officers meeting to discuss response, table top exercises, and to review their pre-determined response cards.	Town/Region	Fire Chief

Existing Protection	Description	Area Covered	Enforcement
	<p>The regional haz mat truck is housed at the Mlt. Safety Building and Mlt. F.D. is a member of the Central NH Haz Mat Team.</p> <p>65% of F.D. has operational certification for Haz Mat Responders [operations & decontamination]; goal is 100% certification.</p> <p>Full-time FD Chief</p> <p>9 FD officers, 31 volunteers</p> <p>Inspection/Maintenance Plan for equipment</p> <p>100% officers NIMS/ICS Certified</p> <p>2 FD Boats with equipment</p> <p>Trails mapped</p> <p>Logging roads mapped</p> <p>Capital Reserve Fund for FD [not adequate]</p> <p>Explorer Program [14-20 yr old] – 4 active in 2007</p> <p>Adequate radios for FD volunteers</p> <p>Conducts capacity evaluations, wood stoves & oil burners</p>		
Dry Hydrants	<p>Cisterns exist at major subdivisions</p> <p>FD conducts inspection & upkeep</p>	Town	Fire Chief
Police Department	<p>Full-time PD Chief</p> <p>12 full-time officers, 4 part-time, 6 support staff</p> <p>Choices program</p> <p>Capital Reserve Fund for PD</p> <p>P.D. participates in mutual aid.</p> <p>50% of P.D. is NIMS/ICS certified.</p> <p>20-30% operational certification for Haz Mat, goal is 100%.</p> <p>The P.D. is staffed 24/7 with minimum flex (2 people on duty) 18-20 hours per week. Dispatch is staffed M-F 16 hours and Saturday 10 hours. The state police fill in during the dispatch down time.</p> <p>The P.D. and F.D. have biochem suits and gas masks.</p> <p>Replacement schedule for gear, weapons, equipment, radios</p> <p>PD Explorer Program [14-20 yr old] – 8 active 2007</p> <p>1 boat with radio, emergency lighting</p> <p>Dive team for evidence recovery</p>	Town	Police Chief
Highway Department	<p>Full-time Road Agent</p> <p>6 full-time staff</p> <p>C.I.P.</p> <p>Town maintenance plan – annually cleans catchbasins in ditchlines and spillways. Have I.D. problem areas – beaver, backup, drainage issues, etc</p> <p>Goal is to have 100% certified in Haz Mat awareness, NIMS & ICS.</p>	Town	Road Agent
Emergency Operations Plan	<p>EOP – updated 2001 [due to revise to FEMA standards 12/2007]</p>	Town	Emergency Management Director
Building Codes	<p>Inspects septic systems, fire places, electrical systems</p>	Town	Code

Existing Protection	Description	Area Covered	Enforcement
and Inspector	Adopted state building codes		Enforcement Officer
Back up power	Generators	Mlt. Academy Safety Building Mlt. Neck FD Recreation Dept. Hwy Dept.	N/A
Transfer Station	5 staff Open 6 days a week	Town	Facilities Supervisor
Shelters	Moultonborough Academy Large generator Shelter Team	Town	Emergency Management Director
Emergency Event	Safety committee trained Traffic Safety committee Each Dept. responds to type of emergency event.	Region	District Safety Committee

D. GAPS IN EXISTING MITIGATION STRATEGIES

During the review of pertinent documents, the committee identified gaps in the existing strategies. Identifying these gaps fostered the brainstorming sessions that generated the ultimate list of mitigation actions. Table VII details the gaps, identified by the committee, that currently exist for the town of Moultonborough.

Table VII: Gaps in Existing Mitigation Strategies

Existing Protection	Description	Area Covered	Enforcement
Zoning	Participation in the NFIP is not well known – need education and awareness that town does participate. Steep Slopes Ordinance Need to update FIRM maps with aerial overlay [digitized flood maps]	Town	Planning Board
Subdivision Regulations	Additional road restrictions for slopes – possibly adopt driveway ordinances/regulations from state Need requirement for water availability to protect new developments/ subdivisions [sprinklers or cisterns] No requirement for <i>accessible</i> water access easements Utilities below ground would decrease power outages	Town	Planning Board
Radio Communications	Need better coverage in town and region – lose coverage when support mutual aid between towns Gain access to cell towers	Town	N/A
Fire Department	CRF not adequate to replace equipment Goal – complete 100% NIMS/ICS training for FD Goal – complete 100% Haz Mat training for FD Under SAFER Program FEMA – need at least 4 people full-time [need at least 3 more]	Town/Region	Fire Chief
Police Department	Goal – complete 100% NIMS/ICS for PD Goal – complete 100% Haz Mat Awareness Certification for PD	Town	Police Chief

Existing Protection	Description	Area Covered	Enforcement
	Would like 3-4 part-time in summer [problem is training long and expensive for short-term] Goal is 24/7 dispatch – mobile data terminal Supply trailer – stocked with traffic diversion, emergency response, hazardous material equipment Need to upgrade/replace biochem response equipment		
Highway Department	0% have taken the NIMS/ICS training [needs to be 100% compliant] Need to replace cones with compliant ones Need traffic barricades, vests, PPE Join state Mutual Aid compact Follow Maintenance schedule Dirt Roads need maintenance plan – upgrade cycle Upgrade the DPW generator	Town	Road Agent
Infrastructure	Sunshine Drive culvert inadequate Ossipee Mountain Rd – resurface & reconstruct Protect catchment areas off roads – Ossipee Mtn Rd High Haith Rd Bridge by Center Harbor Beach needs to be replaced Private roads/associations need to maintain their roads for emergency access	Town	DPW
Emergency Operations Plan	EOP – update with FEMA formatting	Town	Emergency Management Director
Building Codes and Inspector	Recommend energy efficient standards for building	Town	Code Enforcement Officer
Dry Hydrants	Create and Implement dry hydrant maintenance plan	Town	Fire Chief
Shelter	Complete training for shelter committee Stock cots, blankets, towels, Meals Ready to Eat (MREs) Need fuel pump to fuel vehicles from generator supply	Town	Emergency Management Director
Emergency Operations Center	Establish alternate EOC at Recreation Department Add Town Offices to Rec Dept. generator Upgrade/replace generator at Rec Dept. Rec Dept. lacks communication systems in event of emergency. Need phone lines, cell phones, laptops, satellite internet	Town	Emergency Management Director
Septic Systems	Allow and encourage more use of alternative septic systems Enforce septic system pollution problems Create maintenance/inspection program Enact more restrictive septic system setback from shoreline to protect water quality	Town	Health Officer
Transfer Station	Staff need to be certified and trained to operate machinery at station New building is wanted for transfer station to allow less congestion and a drive-through type system	Town	Road Agent

E. IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS

The use of the existing mitigation strategies and a brainstorming session yielded recommended mitigation strategies. These strategies can be used to reduce the effects of hazards on both new and existing buildings and infrastructure, and other aspects of the community. These strategies were then prioritized using the STAPLEE method which analyzes Social, Technical, Administrative, Political, Legal, Economic, and Environmental aspects of a project and is commonly used by public administration officials and planners to make planning decisions. The scoring guide the committee used for each mitigation action is found in Appendix I. Table VIII represents the average score given to each mitigation goal by the committee. Higher priority is placed on recommendations that received a higher STAPLEE score, with the maximum score being 3.0. The mitigation strategies listed in Table VIII were modified from those ranked during the STAPLEE prioritization activity (Appendix I) to better represent actions the town of Moultonborough can take.

Table VIII. Recommended Mitigation Strategies in Ranked Order

Goal	Recommendation	STAPLEE Score
Community & Resources Protection	1 Attain mobile data terminal for 24/7 Police Department dispatch.	3.0
	2 Create and implement dry hydrant maintenance plan.	2.8
	3 Attain compliant traffic/PPE/response equipment and trailer.	2.8
	4 Attain shelter necessities; cots, blankets, towels, toiletries, etc.	2.8
	5 Upgrade generators that are over-capacity.	2.5
	6 Increase the amount allocated to the Fire Department Capital Reserve Fund.	2.4
	7 Purchase and install local radio communication improvements; repeater, radios, etc.	2.2
	8 Establish a backup EOC in case the Public Safety Building is incapacitated (Recreation Department) and purchase equipment; generator, communications.	2.0
Outreach & Education	1 Develop and implement an education/outreach program about the NFIP Program.	3.0
	2 Develop a septic system maintenance/inspection/education program and implement it throughout town.	3.0
Coordination & Communication	1 Incorporate the 2007 Hazard Mitigation Plan in the Emergency Operations Plan	3.0
	2 Initiate and complete departmental NIMS training lead by those who are certified.	3.0
	3 Continue multiple Mutual Aid agreements including Police and Fire, and join the Public Works Mutual Aid compact.	3.0
	4 Fulfill FEMA SAFER Program requirements for Fire Department; 3 new full-time staff for Fire Department.	2.5
	5 Update FIRM maps with aerial overlays [digitized flood maps].	2.2

Goal	Recommendation		STAPLEE Score
	6	Develop a private roads agreement and maintenance plan with private associations.	1.2
	7	Work with the Department of Safety, 911 Mapping Bureau to fix known problems with GIS road data to limit confusion in emergency planning and emergency response.	**
	8	Continue to provide emergency responders with additional hazardous materials training.	**
	9	Include a recommendation in the Master Plan to maintain the Hazard Mitigation Plan.	**
Damage Prevention	1	Revise site plan regulations to require underground cables in all new subdivision developments.	2.8
	2	Replace above ground electric and communication cables serving existing structures with underground cables for protection in the downtown area, commercial centers, and residential subdivisions throughout town.	2.8
	3	Revise local ordinances to include installations of sprinkler systems and other life safety requirements.	2.7
	4	Revise subdivision regulations to include state driveway standards for steep slopes.	2.7
	5	Adopt a steep slopes overlay district in the Moultonborough zoning ordinance.	2.4
	6	Update vulnerable culverts and bridges, identified by the DPW, throughout town.	**
	7	Ensure that development projects comply with the existing mitigation strategies of the subdivision regulations, site plan review, and building codes.	**
	8	Include in the plan submission sections of both site plan and subdivision regulations a reference to the Hazard Mitigation Plan, and require the applicant to articulate how the proposal complies with the standards of the plan and achieves a “no adverse impact” status as it relates to emergency situations.	**
Recommendations with a STAPLEE score of " ** " were added later in plan development. The committee came to a consensus in formulating the strategies and decided not to specify a score but to include them as necessary mitigation strategies.			

F. IMPLEMENTATION OF MITIGATION ACTIONS

There are many factors that influence how a town chooses to spend its energy and resources in implementing recommended actions. Factors include:

- Urgency
- How quickly an action could be implemented
- Likelihood that the action will reduce future emergencies
- Regulations required to implement the action
- Administrative burdens
- Time (both paid and volunteer)

- Funding availability
- Political acceptability of the action.

In the context of these factors, the committee discussed the mitigation actions and utilized the STAPLEE method as a guide to reach consensus regarding their relative level of priority, recognizing that some actions are of greater priority to different town departments. This implementation schedule contains a matrix (Table IX) indicating the parties responsible for bringing about these actions, a time frame, and potential funding sources. To keep the plan current, the implementation schedule should be updated and re-evaluated on a regular basis as outlined in the monitoring section of this plan.

Table IX: Implementation Schedule for Mitigation Actions

POTENTIAL HAZARDS	PROPOSED MITIGATION ACTION	Responsible Party	Potential Funding	Time Frame	Status
All Hazards	Attain mobile data terminal for 24/7 Police Department dispatch.	PD	Selectboard	2007	Active
All Hazards	Create and implement dry hydrant maintenance plan.	FD	Selectboard	2007	Planning
All Hazards	Attain compliant traffic/PPE/response equipment and trailer.	PD, EMD, Road Agent	FEMA grant, Selectboard	2008	Planning
All Hazards	Attain shelter necessities; cots, blankets, towels, toiletries, etc.	EMD	FEMA grant, Selectboard	2008	Planning
All Hazards	Upgrade generators that are over-capacity.	EMD, Road Agent	Selectboard	Ongoing	Active
All Hazards	Increase the amount allocated to the Fire Department Capital Reserve Fund.	FD	Selectboard, Town Meeting	2008	Inactive
All Hazards	Purchase and install local radio communication improvements; repeater, radios, etc.	EMD, FD, PD, Road Agent	FEMA grant, Selectboard	Ongoing	Active
All Hazards	Establish a backup EOC in case the Public Safety Building is incapacitated (Recreation Department) and purchase equipment; generator, communications.	EMD	FEMA grant, Selectboard	2009	Inactive
Flood	Develop and implement an education/outreach program about the NFIP Program.	EMD	FEMA grant, Selectboard	2008	Inactive
Human-Related Event	Develop a septic system maintenance/inspection/education program and implement it throughout town.	Health Officer	DES grant, Selectboard	2009	Inactive

POTENTIAL HAZARDS	PROPOSED MITIGATION ACTION	Responsible Party	Potential Funding	Time Frame	Status
All Hazards	Incorporate the 2007 Hazard Mitigation Plan in the Emergency Operations Plan	EMD	Selectboard	Ongoing	Active
All Hazards	Initiate and complete departmental NIMS training lead by those who are certified.	EMD, PD	BEM, FEMA	Ongoing	Active
All Hazards	Continue multiple Mutual Aid agreements including Police and Fire, and join the Public Works Mutual Aid compact.	FD, PD, Road Agent	Selectboard, BEM	Ongoing	Planning
All Hazards	Fulfill FEMA SAFER Program requirements for Fire Department; 3 new full-time staff for Fire Department.	FD	FEMA grant	Ongoing	Active
Flood	Update FIRM maps with aerial overlays [digitized flood maps].	Town GIS	FEMA, GRANIT	Ongoing	Active
Winter Weather	Develop a private roads agreement and maintenance plan with private associations.	Road Agent	FEMA, BEM, Selectboard	2008	Inactive
All Hazards	Work with the Department of Safety, 911 Mapping Bureau to fix known problems with GIS road data to limit confusion in emergency planning and emergency response.	Town GIS, FD, PD, Road Agent	DOS, BEM, Selectboard	Ongoing	Active
MV Accident with Haz Mat	Continue to provide emergency responders with additional hazardous materials training.	EMD, FD, PD	FEMA, BEM, Selectboard	Ongoing	Active
All Hazards	Include a recommendation in the Master Plan to maintain the Hazard Mitigation Plan.	Planning Board	Selectboard	2008	Active
All Hazards	Revise site plan regulations to require underground cables in all new subdivision developments.	Planning Board	Selectboard	2008	Inactive
All Hazards	Replace above ground electric and communication cables serving existing structures with underground cables for protection in the downtown area, commercial centers, and residential subdivisions throughout town.	Planning Board	Selectboard	2008	Inactive
All Hazards	Revise local ordinances to include installations of sprinkler systems and other life safety requirements.	Planning Board, FD	Selectboard	Ongoing	Active

POTENTIAL HAZARDS	PROPOSED MITIGATION ACTION	Responsible Party	Potential Funding	Time Frame	Status
All Hazards	Revise subdivision regulations to include state driveway standards for steep slopes.	Planning Board	DOT, Selectboard	2009	Inactive
All Hazards	Adopt a steep slopes overlay district in the Moultonborough zoning ordinance.	Planning Board	DES, Selectboard	2009	Inactive
Flood	Update vulnerable culverts and bridges, identified by the DPW, throughout town.	Road Agent	Selectboard, FEMA grant, BEM	Ongoing	Active
All Hazards	Ensure that development projects comply with the existing mitigation strategies of the subdivision regulations, site plan review, and building codes.	Planning Board	Selectboard	Ongoing	Active
All Hazards	Include in the plan submission sections of both site plan and subdivision regulations a reference to the Hazard Mitigation Plan, and require the applicant to articulate how the proposal complies with the standards of the plan and achieves a “no adverse impact” status as it relates to emergency situations.	Planning Board	Selectboard	2008	Planning

CHAPTER VI: PLAN ADOPTION AND MONITORING

A. IMPLEMENTATION

The Hazard Mitigation Plan Evaluation Committee, established by the Selectboard and EMD, will meet annually and provide a mechanism for ensuring that an attempt is made to incorporate the actions identified in the plan into ongoing town planning activities. Essential elements of implementation require all responsible parties for the various recommendations understand what is expected of them, and that they are willing to fulfill their role in implementation. It is therefore important to have the responsible parties clearly identified when the town adopts the final plan. Where appropriate it would be helpful to have any hazard mitigation activities identified in job descriptions.

NH RSA 674:2(e) makes the recommendation that a natural hazard section may be included in the town master plan. Inclusion of this document as an addendum to the Moultonborough Master Plan provides an opportunity for issues addressed in this plan to be taken into consideration when planning for development within the community. The capital improvement planning that occurs in the future will also contribute to the goals in the Hazard Mitigation Plan. When appropriate, an effort will be made to incorporate this plan into the Moultonborough Master Plan, the Moultonborough Capital Improvements Plan, and the Emergency Operations Plan. Within a year after the town officially adopts the Hazard Mitigation Plan, an attempt will be made to have hazard mitigation strategies integrated into these existing mechanisms and into all other ongoing town planning activities.

B. PLAN MAINTENANCE

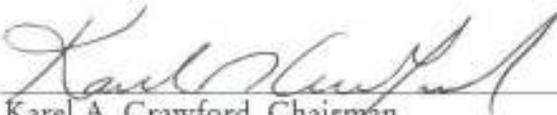
The Moultonborough Hazard Mitigation Planning Committee and the Board of Selectmen, in order to track progress and update the mitigation strategies identified in Chapter V-E, will review the Moultonborough Hazard Mitigation Plan every year or after a hazard event. The town of Moultonborough Emergency Management Director is responsible for initiating this review and needs to consult with members of the Moultonborough committee identified in this Plan. Changes will be made to the Plan to accommodate projects that have failed, or are no longer: (1) consistent with the timeframe identified, (2) the community's priority, (3) lack funding resources. Priorities that were not ranked high, but identified as potential mitigation strategies, will 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 Plan, a public hearing will be held to receive public comment on the Plan. Maintenance and updating will be held during the annual review period, best suggested time is mid-year, and the final product adopted by the Board of Selectmen. The committee will meet quarterly as part of this plan maintenance. The Emergency Management Director is also responsible for resubmitting the plan to FEMA to be re-approved every five years.

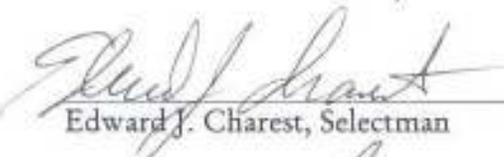
C. ADOPTION

The Moultonborough Board of Selectmen by majority vote does hereby adopt the Moultonborough Hazard Mitigation Plan, as a statement of policy. Actions for implementation under this statement of policy are set forth in priority order in the "Implementation of Mitigation Actions" and "Plan Maintenance" sections of this document. All other sections of this Plan are supporting documentation for informational purposes only and not included as the statement of policy.

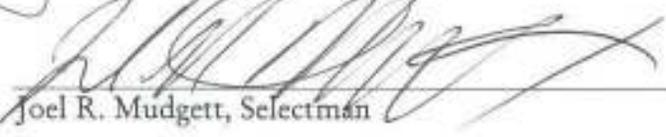
Date September 6, 2007

MOULTONBOROUGH BOARD OF SELECTMEN


Karel A. Crawford, Chairman


Edward J. Charest, Selectman


James F. Gray, Selectman


Joel R. Mudgett, Selectman


Betsey L. Patten, Selectman



APPENDIX A: TECHNICAL RESOURCES

New Hampshire Bureau of Emergency Management	271-2231
Hazard Mitigation Section.....	271-2231
Federal Emergency Management Agency	(617) 223-4175
NH Regional Planning Commissions:	
Central NH Regional Planning Commission	796-2129
Lakes Region Regional Planning Commission	279-8171
Nashua Regional Planning Commission	883-0366
North Country Council.....	444-6303
Rockingham Regional Planning Commission	778-0885
Southern New Hampshire Regional Planning Commission	669-4664
Southwest Regional Planning Commission	357-0557
Strafford Regional Planning Commission	742-2523
Upper Valley Lake Sunapee Regional Planning Commission	448-1680
NH Governor’s Office of Energy and Planning.....	271-2155
NH Department of Transportation.....	271-3734
NH Department of Cultural Affairs	271-2540
Division of Historical Resources	271-3483
NH Department of Environmental Services	271-3503
Air Resources	271-1370
Waste Management.....	271-2900
Water Division	271-3406
Pollution Prevention Division.....	271-6460
NH Municipal Association.....	224-7447
NH Fish and Game Department	271-3421
NH Department of Resources and Economic Development	271-2411
Natural Heritage Inventory.....	271-3623
Division of Forests and Lands	271-2214
Division of Parks and Recreation	271-3255
Northeast States Emergency Consortium, Inc. (NESEC).....	(781) 224-9876
US Department of Commerce:	
National Oceanic and Atmospheric Administration:	
National Weather Service, Tauton, Massachusetts	(508) 824-5116
National Weather Service, Gray, Maine	(207) 688-3216

US Department of the Interior:

US Fish and Wildlife Service 225-1411
 US Geological Survey 225-4681
 US Army Corps of Engineers..... (978) 318-8087

Public Service of New Hampshire 436-7708

Cold Region Research Laboratory646-4187

Greater Laconia/Meredith Public Health Network Coordinator:

Susan Laverack 528-2145

Websites:

Sponsor	Internet Address	Summary of Contents
Natural Hazards Center, University of Colorado	http://www.colorado.edu/hazards/	Searchable database of references and links to many disaster-related websites.
The University of Illinois	http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/hurr/home.rxml	Interact with Atlantic hurricanes from 1950 – 2003.
National Emergency Management Association	http://nemaweb.org	Association of state emergency management directors; list of mitigation projects.
NASA – Goddard Space Flight Center “Disaster Finder:	http://www.gsfc.nasa.gov/ndrd/disaster/	Searchable database of sites that encompass a wide range of natural disasters.
NASA Natural Disaster Reference Database	http://ltpwww.gsfc.nasa.gov/ndrd/main/html	Searchable database of worldwide natural disasters.
U.S. State & Local Gateway	http://www.statelocal.gov/	General information through the federal-state partnership.
National Weather Service	http://nws.noaa.gov/	Central page for National Weather Warnings, updated every 60 seconds.
USGS Real Time Hydrologic Data	http://waterdata.usgs.gov/nwis/rt	Provisional hydrological data
Dartmouth Flood Observatory	http://www.dartmouth.edu/artsci/geog/floods/	Observations of flooding situations.
FEMA, National Flood Insurance Program, Community Status Book	http://www.fema.gov/fema/csb.htm	Searchable site for access of Community Status Books
Florida State University Atlantic Hurricane Site	http://www.met.fsu.edu/explores/tropical.html	Tracking and NWS warnings for Atlantic Hurricanes and other links
National Lightning Safety Institute	http://lightningsafety.com/	Information and listing of appropriate publications regarding lightning safety.
NASA Optical Transient Detector	http://www.ghcc.msfc.nasa.gov/otd.html	Space-based sensor of lightning strikes
LLNL Hazards Mitigation Center	http://www.llnl.gov/hmc/	General hazard information developed for the Dept. of Energy.
The Tornado Project Online	http://www.tornadoproject.com/	Information on tornadoes, including details of recent impacts.
National Severe Storms Laboratory	http://www.oar.noaa.gov/atmosphere/atmos_nssl.html	Information about and tracking of severe storms.
Earth Satellite Corporation	http://www.earthsat.com/	Flood risk maps searchable by state.
USDA Forest Service Web	http://www.fs.fed.us/land	Information on forest fires and land management.
Northeast States Emergency Consortium	http://www.serve.com/NESEC/	Maps and information on local hazards, both historic and potential.

State of NH Natural Hazards Mitigation (409) Plan	http://www.nhoem.state.nh.us/mitigation/default.htm	State goals, information and mitigation plans, funding sources and applications.
NH State Parks	http://www.nhstateparks.com/rabies.html	Information on Rabies
NH Fish and Game	http://www.wildlife.state.nh.us/Wildlife/PDFs/rabies_brochure.pdf	Rabies Information Pamphlet
NH Department of Health and Human Services	http://www.dhhs.state.nh.us/DHHS/CDCS/LIBRARY/Fact+Sheet/rabies.htm	Fact sheets about rabies.
NH Department of Health and Human Services	http://www.dhhs.state.nh.us/DHHS/CDCS/LIBRARY/Fact+Sheet/PPCC-AHR-Map.htm	Pandemic regions and coordinators

APPENDIX B: MITIGATION FUNDING RESOURCES

404 Hazard Mitigation Grant Program (HMGP)	NH Bureau of Emergency Management
406 Public Assistance and Hazard Mitigation.....	NH Bureau of Emergency Management
Community Development Block Grant (CDBG)	NH BEM, NH OEP, also refer to RPC
Dam Safety Program	NH Department of Environmental Services
Disaster Preparedness Improvement Grant (DPIG)	NH Bureau of Emergency Management
Emergency Generators Program by NESEC.....	NH Bureau of Emergency Management
Emergency Watershed Protection (EWP) Program.....	USDA, Natural Resources Conservation Service
Flood Mitigation Assistance Program (FMAP)	NH Bureau of Emergency Management
Flood Plain Management Services (FPMS)	US Army Corps of Engineers
Mitigation Assistance Planning (MAP).....	NH Bureau of Emergency Management
Mutual Aid for Public Works.....	NH Municipal Association
National Flood Insurance Program (NFIP).....	NH Office of Energy & Planning
Power of Prevention Grant by NESEC	NH Bureau of Emergency Management
Project Impact	NH Bureau of 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 2098 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 & Economic Development
Wetlands Programs.....	NH Department of Environmental Services

APPENDIX C: PUBLIC NOTICES

**Moultonborough Hazard Mitigation
Planning Committee**

The first Hazard Mitigation Planning Committee meeting is scheduled to meet March 8, at 10:00 a.m. at the Moultonborough Safety Building. The Hazard Mitigation Planning Committee will begin the process to identify natural and manmade hazards and risk assessment for the town of Moultonborough. The committee will begin with an overview of the hazard mitigation planning process, identification of the committee, and goals. A schedule for future meetings will also be established. The most significant hazards of concern for Moultonborough will be determined at these committee meetings and subsequent mitigation steps will be discussed. At this first meeting, the committee will identify critical facilities and areas of critical hazards on a town topographical map. The general public is encouraged to attend. For more information please call the Moultonborough Town Hall at 476-2347.

**Moultonborough Hazard Mitigation
Planning Committee**

The second Hazard Mitigation Planning Committee meeting is scheduled to meet March 27, at 10:00 a.m. at the Moultonborough Safety Building. The committee will be discussing local natural and manmade hazards and risk assessment. The most significant areas of concern for Moultonborough will be determined at the meeting and subsequent mitigation steps will be discussed. The general public is encouraged to attend. For more information please call the Moultonborough Town Hall at 476-2347

**Moultonborough Hazard Mitigation
Planning Committee**

The third Hazard Mitigation Planning Committee meeting is scheduled to meet May 8, 2007 at 10:00 p.m. at the Moultonborough Safety Building. The committee will brainstorm mitigation measures and evaluate current zoning and regulations. This meeting will also review the vulnerability assessment and development trends for Holderness established at the last meeting. Future meetings will rank the mitigation measures to determine the priorities in the town. The general public is encouraged to attend. For more information please call the Moultonborough Town Hall at 476-2347.

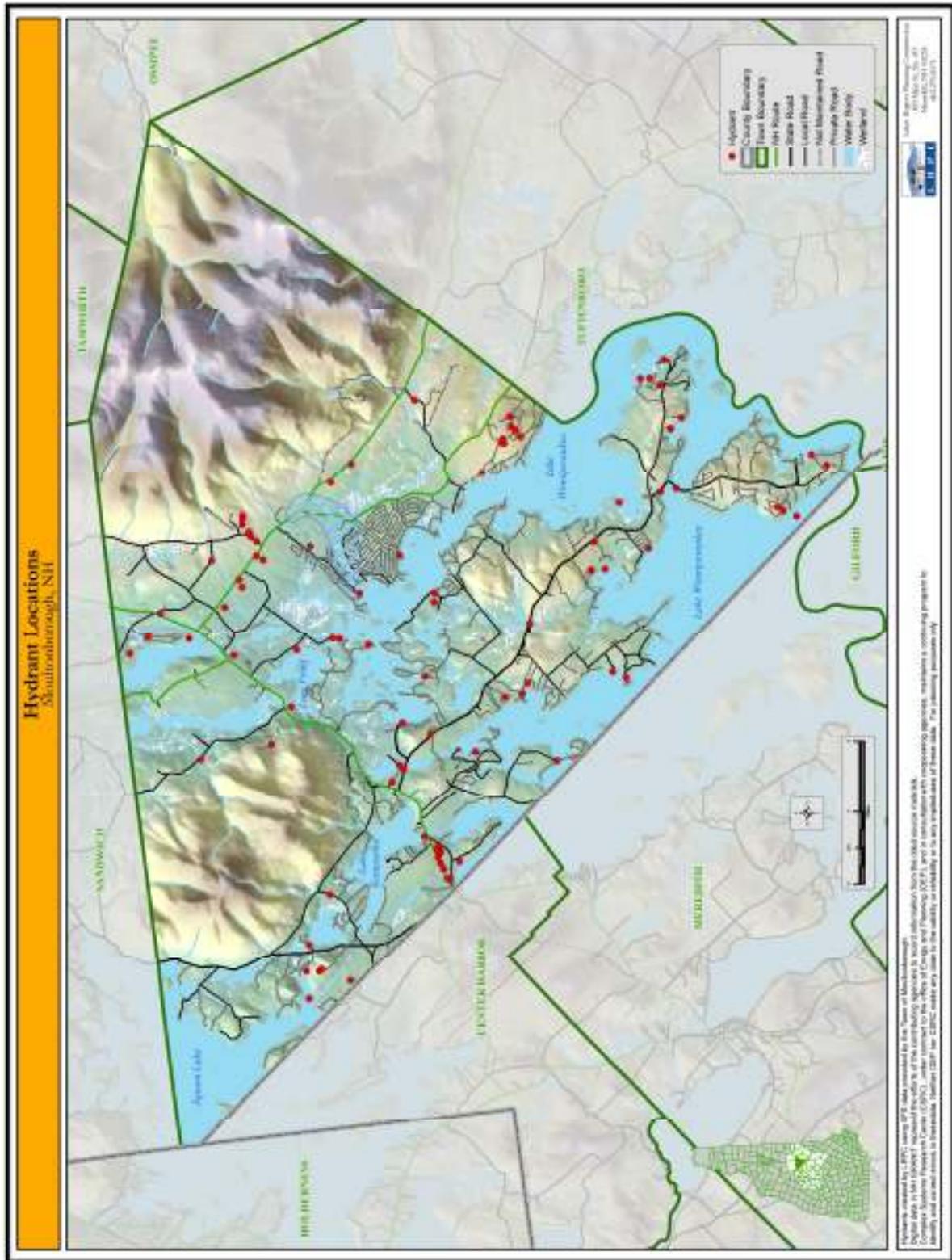
**Moultonborough Hazard Mitigation
Planning Committee**

The fourth Hazard Mitigation Planning Committee meeting is scheduled to meet May 29, at 10:00 a.m. at the Moultonborough Safety Building. The committee will be reviewing the gaps in current levels of planning and brainstorming actions determined at the last meeting. We will continue brainstorming mitigation measures for the town and begin prioritizing actions. The most significant areas of concern for Moultonborough will be determined at the meeting. The general public is encouraged to attend. For more information please call the Moultonborough Town Hall at 476-2347.

**Moultonborough Hazard Mitigation
Planning Committee**

The final Hazard Mitigation Planning Committee meeting is scheduled to meet June 25, at 2:00 p.m. at the Moultonborough Safety Building. The committee will be reviewing the draft Hazard Mitigation Plan and providing comment. Upon completion of the meeting, the Plan will be submitted to NH Bureau of Emergency Management and the US Federal Emergency Management Administration for their review. Once state and federal approval has been received, the Plan will be presented to the Moultonborough Board of Selectmen for approval and adoption. The general public is encouraged to attend and provide comment. For more information please call the Moultonborough Town Hall at 476-2347.

APPENDIX E: HYDRANT LOCATIONS MAP



APPENDIX F: MANMADE HAZARD ASSESSMENT

Critical Facilities Manmade Vulnerability Matrix: Moultonborough, NH		
TYPE	Facility/Infrastructure	Vulnerability
School	Moultonborough Elementary School	3
School	Moultonborough Academy	3
Fire/Police Department	Moultonborough Safety Building	3
Public Works	Highway Garages	3
Elderly Housing	WestWynde (Taylor Community)	1
Moultonborough Neck Fire Station	Fire Department	3
Administration	Town Hall	3
Historic Resources	Downtown Historic District	1
Sewage Lagoon	Lamprey Sewage Lagoon	2
Landfill	Town Landfill	1
Substation	power substation	3
Substation	proposed power substation	1
Daycare	Imaginations Childcare	3
Commercial	Commercial District - West (Rte 25 near Center Harbor town line)	2
Commercial	Commercial District - Central (Moultonborough Neck Road)	3
Commercial	Commercial District - East Moultonborough Village	2
Seasonal summer camp	Deer Hill Camp	1
Seasonal summer camp	Quinebarge	1
Seasonal summer camp	Tecumseh	1
Seasonal summer camp	Robindel	1
Seasonal summer camp	Geneva Point	2
Seasonal summer camp	Winnaukee	1
Marina	Trexlers Marina	3
Marina	Harilla Landing (Private)	2
Marina	Ambrose Cove Marina	3
Unique Features	Castle in the Clouds	2
Beach	Long Island	3
Beach	States Landing	3
Beach	Swissvale	3
Beach	Balmoral	3
Ground Water Well	Castle Springs (commercial water withdrawal well)	3

Classifications:
 Essential Services
 Emergency Shelters
 Populations to protect
 Structures and Services
 Other

Total based on:
 Visibility
 Target
 Access
 Mobility
 Hazard Materials
 Collateral Damage
 Population Impact

Vulnerability:
 3 = high
 2 = medium
 1 = low

APPENDIX G: CRITICAL FACILITIES NATURAL HAZARDS VULNERABILITY ASSESSMENT

Critical Facilities Natural Hazards Vulnerability Matrix: Moultonborough, NH						
Facility/Infrastructure	Natural Hazards Vulnerability					
	Thunderstorm and Lightning	Motor Vehicle Accident involving Hazardous Materials	Severe Wind Event (Tornados, Downburst)	Winter Weather (Blizzard/Snow Storm, Ice Storm, Nor'easter)	Flood	Wild Land Fire
Moultonborough Elementary School	High	High	Moderate	High	Low	Low
Moultonborough Academy	High	Low	Moderate	High	Low	Low
Moultonborough Safety Building	High	High	Moderate	Moderate	Low	Low
Highway Garages	Moderate	High	Moderate	Moderate	Low	Low
WestWynde (Taylor Community)	High	Low	Moderate	High	Moderate	Moderate
Moultonborough Neck Fire Station	Low	High	Moderate	Moderate	Low	Moderate
Town Hall	Moderate	Low	Moderate	Moderate	Low	Low
Downtown Historic District	High	High	Low	Moderate	Low	Low
Lamprey Sewage Lagoon	Low	Moderate	Low	Moderate	Low	Low
Town Landfill	Low	High	Low	Moderate	Low	Low
power substation	High	High	High	Moderate	Low	Low
proposed power substation	High	Moderate	High	Moderate	Low	Low
Imaginations Childcare	High	High	High	High	Low	Low
Commercial District - West (Rte 25 near Center Harbor town line)	High	High	High	Moderate	Low	Low
Commercial District - Central (Moultonborough Neck Road)	High	High	High	Moderate	Low	Low
Commercial District - East Moultonborough Village	High	High	High	Moderate	Low	Low
Deer Hill Camp	High	Moderate	Moderate	Moderate	Low	Moderate
Quinebarge	High	Moderate	Moderate	Moderate	Moderate	Moderate
Tecumseh	High	Moderate	Moderate	Moderate	Moderate	Moderate
Robindel	High	Moderate	Moderate	Moderate	Moderate	Moderate
Geneva Point	High	Moderate	Moderate	Moderate	Moderate	Moderate
Winnaukee	High	Moderate	Moderate	Moderate	Moderate	Moderate
Trexlers Marina	High	High	Moderate	Moderate	Moderate	Moderate
Harilla Landing (Private)	High	High	Moderate	Moderate	Moderate	Moderate
Ambrose Cove Marina	High	High	Moderate	Moderate	Moderate	Moderate
Castle in the Clouds	High	High	Moderate	High	Low	High
Long Island	High	Moderate	Moderate	High	High	High
States Landing	High	Moderate	Moderate	High	High	High
Swissvale	High	Moderate	Moderate	Moderate	High	Low
Balmoral	High	Moderate	Moderate	Moderate	High	Low
Castle Springs (commercial water withdrawal well)	Moderate	High	Moderate	Moderate	Low	High

APPENDIX H: RISK ASSESSMENT MATRIX

Moultonborough	Risk Assessment											Risk Rating				
	Geographic Area					Extent			Specific Areas of Concern	Probability of Occurrence			Vulnerability			
Hazard Type	Localized	Town-wide	Regional	State-wide	Other	Severe	Moderate	Minimal	Describe potential impact areas (critical facilities, floodplain, etc)	High = 3	Moderate = 2	Low = 1	High = 3	Moderate = 2	Low = 1	
Flood, Drought, Extreme Heat & Wildfire																
Flood	X					X					2			2		4
Drought			X					X				1			1	1
Extreme Heat			X				X					1	3			3
Wild Land Fire			X			X			Could be devastating to islands		2			2		4
Geologic Hazards																
Earthquake			X			X					2				1	2
Landslide	X						X					1			1	1
Radon			X					X				1			1	1
Severe Wind & Related Hazards																
Thunder Storm	X						X				3			3		9
Hurricane			X			X						1			1	1
Tornado	X					X					2		3			6
Down Burst	X					X					2		3			6
Lightning	X						X		3 fires recorded in 2005 alone	3			3			9
Hail	X							X				1		2		2
Winter Weather & Related Hazards																
Blizzard/Snow Storm			X				X		Power outages are concern - islands are particular threat		2			2		4
Ice Storm			X			X					2		3			
Nor'easter			X				X				2			2		4
Avalanche	X						X					1			1	1
Human-Related Events																
MV Accident involving Hazardous Materials			X				X		Rte. 25 accident would tie up region	3			3			9
Oil Spills	X						X		Home heating/boats			1		2		2
Military Aircraft Accident	X						X					1			1	1
Pandemic					X	X			Severity/type determines extent			1		2		2
Other																
Rabies		X					X					1			1	1

APPENDIX I: STAPLEE RESULTS

This section contains a summary of STAPLEE rankings for each of the proposed Mitigation Actions by the Moultonborough Hazard Mitigation Committee. The highest possible rank in each of the seven categories is 3.0, the lowest is 1.0. The scores for each of the criteria have been averaged and then totaled

Mitigation Action: Local radio communications improvements - repeaters, radio communication.		Mitigation Action: Attain shelter necessities. [cots, blankets, towels, etc.]	
Criteria	Score	Criteria	Score
Is it socially acceptable?	3	Is it socially acceptable?	3
Is it Technically feasible and potentially successful?	3	Is it Technically feasible and potentially successful?	3
Is it administratively workable?	3	Is it administratively workable?	3
Is it politically acceptable?	2	Is it politically acceptable?	3
Is there legal authority to implement?	1	Is there legal authority to implement?	3
Is it economically beneficial?	3	Is it economically beneficial?	2
Are other environmental approvals required?	1	Are other environmental approvals required?	3
Total Score	2.2	Total Score	2.8
Comments: Would include putting a repeater on cell towers, radio communication in region is spotty.		Comments: The newly designated shelter does not have any supplies at hand in the event they are needed.	

Mitigation Action: Adopt a Steep Slopes Overlay District.		Mitigation Action: Implement an Education Program about NFIP Program.	
Criteria	Score	Criteria	Score
Is it socially acceptable?	3	Is it socially acceptable?	3
Is it Technically feasible and potentially successful?	3	Is it Technically feasible and potentially successful?	3
Is it administratively workable?	1	Is it administratively workable?	3
Is it politically acceptable?	2	Is it politically acceptable?	3
Is there legal authority to implement?	3	Is there legal authority to implement?	3
Is it economically beneficial?	3	Is it economically beneficial?	3
Are other environmental approvals required?	2	Are other environmental approvals required?	3
Total Score	2.4	Total Score	3.0
Comments: Requires revising the zoning ordinance as warrant article.		Comments: During HMP process it was determined Moultonborough is part of NFIP - most people in state and town are not aware of this.	

Mitigation Action: Explore fulfilling FEMA SAFER Program requirements for FD [3 new hires FT].		Mitigation Action: Revise regulations to require below ground utilities.	
Criteria	Score	Criteria	Score
Is it socially acceptable?	3	Is it socially acceptable?	3
Is it Technically feasible and potentially successful?	3	Is it Technically feasible and potentially successful?	3
Is it administratively workable?	3	Is it administratively workable?	3
Is it politically acceptable?	2	Is it politically acceptable?	3
Is there legal authority to implement?	3	Is there legal authority to implement?	3
Is it economically beneficial?	3	Is it economically beneficial?	3
Are other environmental approvals required?	1	Are other environmental approvals required?	2
Total Score	2.5	Total Score	2.8
Comments:		Comments: Majority of calls during storms are for power outages. Burying utilities would decrease these calls, making responders available for life-threatening emergencies.	

Mitigation Action: Revise local ordinances to include sprinkler and life safety requirements.		Mitigation Action: Update FIRM maps with aerial overlays [digitized flood maps].	
Criteria	Score	Criteria	Score
Is it socially acceptable?	3	Is it socially acceptable?	3
Is it Technically feasible and potentially successful?	3	Is it Technically feasible and potentially successful?	1
Is it administratively workable?	3	Is it administratively workable?	1
Is it politically acceptable?	2	Is it politically acceptable?	3
Is there legal authority to implement?	3	Is there legal authority to implement?	3
Is it economically beneficial?	3	Is it economically beneficial?	3
Are other environmental approvals required?	2	Are other environmental approvals required?	2
Total Score	2.7	Total Score:	2.2
Comments:		Comments: Town does not currently have this ability. Assistance from the state would be necessary.	

Mitigation Action: Complete FEMA required training for PD, FD & DPW.		Mitigation Action: Revise CRF for FD so it is adequate.	
Criteria	Score	Criteria	Score
Is it socially acceptable?	3	Is it socially acceptable?	2
Is it Technically feasible and potentially successful?	3	Is it Technically feasible and potentially successful?	3
Is it administratively workable?	3	Is it administratively workable?	3
Is it politically acceptable?	3	Is it politically acceptable?	1
Is there legal authority to implement?	3	Is there legal authority to implement?	3
Is it economically beneficial?	3	Is it economically beneficial?	2
Are other environmental approvals required?	3	Are other environmental approvals required?	3
Total Score	3.0	Total Score	2.4
Comments:		Comments: FD does not currently have enough to cover replacement costs for equipment and vehicles.	

Mitigation Action: Attain compliant traffic/PPE/response equipment & trailer.		Mitigation Action: Revise subdivision regulations to include state driveway standards for steep slopes.	
Criteria	Score	Criteria	Score
Is it socially acceptable?	3	Is it socially acceptable?	3
Is it Technically feasible and potentially successful?	3	Is it Technically feasible and potentially successful?	3
Is it administratively workable?	3	Is it administratively workable?	3
Is it politically acceptable?	3	Is it politically acceptable?	2
Is there legal authority to implement?	3	Is there legal authority to implement?	3
Is it economically beneficial?	2	Is it economically beneficial?	3
Are other environmental approvals required?	3	Are other environmental approvals required?	2
Total Score	2.8	Total Score	2.7
Comments: Majority of traffic/PPE equipment is outdated and should be replaced - trailer would help with response times, readiness.		Comments: Would assist with accessibility for emergency response crews and safety in icy conditions.	

Mitigation Action: Attain mobile data terminal for 24/7 PD dispatch.		Mitigation Action: Upgrade over-capacity generators.	
Criteria	Score	Criteria	Score
Is it socially acceptable?	3	Is it socially acceptable?	3
Is it Technically feasible and potentially successful?	3	Is it Technically feasible and potentially successful?	3
Is it administratively workable?	3	Is it administratively workable?	3
Is it politically acceptable?	3	Is it politically acceptable?	2
Is there legal authority to implement?	3	Is there legal authority to implement?	3
Is it economically beneficial?	3	Is it economically beneficial?	2
Are other environmental approvals required?	3	Are other environmental approvals required?	2
Total Score	3.0	Total Score	2.5
Comments:		Comments:	

Mitigation Action: Join DPW Mutual Aid Compact.		Mitigation Action: Develop septic system maintenance/inspection program & education plan.	
Criteria	Score	Criteria	Score
Is it socially acceptable?	3	Is it socially acceptable?	3
Is it Technically feasible and potentially successful?	3	Is it Technically feasible and potentially successful?	3
Is it administratively workable?	3	Is it administratively workable?	3
Is it politically acceptable?	3	Is it politically acceptable?	3
Is there legal authority to implement?	3	Is there legal authority to implement?	3
Is it economically beneficial?	3	Is it economically beneficial?	3
Are other environmental approvals required?	3	Are other environmental approvals required?	3
Total Score	3.0	Total Score	3.0
Comments:		Comments:	

Mitigation Action: Develop private roads agreement and maintenance plan with associations.		Mitigation Action: Include Hazard Mitigation Plan in Emergency Operations Plan.	
Criteria	Score	Criteria	Score
Is it socially acceptable?	1	Is it socially acceptable?	3
Is it Technically feasible and potentially successful?	1	Is it Technically feasible and potentially successful?	3
Is it administratively workable?	1	Is it administratively workable?	3
Is it politically acceptable?	1	Is it politically acceptable?	3
Is there legal authority to implement?	1	Is there legal authority to implement?	3
Is it economically beneficial?	2	Is it economically beneficial?	3
Are other environmental approvals required?	2	Are other environmental approvals required?	3
Total Score	1.2	Total Score	3.0
Comments: Town should not maintain private roads [RSA 231] but need to for emergency ways since homeowners on these roads are not maintaining them.		Comments:	

Mitigation Action: Purchase equipment for Rec. Dept. (alt. EOC) [generator, communications]		Mitigation Action: Create and implement dry hydrant maintenance plan.	
Criteria	Score	Criteria	Score
Is it socially acceptable?	1	Is it socially acceptable?	3
Is it Technically feasible and potentially successful?	2	Is it Technically feasible and potentially successful?	3
Is it administratively workable?	3	Is it administratively workable?	3
Is it politically acceptable?	1	Is it politically acceptable?	3
Is there legal authority to implement?	3	Is there legal authority to implement?	3
Is it economically beneficial?	1	Is it economically beneficial?	3
Are other environmental approvals required?	3	Are other environmental approvals required?	2
Total Score	2.0	Total Score	2.8
Comments:		Comments:	