

Town of Lyndeborough, NH



Hazard Mitigation Plan 2009

Prepared with the assistance of the



Nashua Regional Planning Commission

This project was funded by



Table of Contents

CERTIFICATE OF ADOPTION	iii
ACKNOWLEDGEMENTS	iv
EXECUTIVE SUMMARY	v
CHAPTER I. INTRODUCTION	1
A. Background	1
B. Hazard Mitigation Goals and Objectives of the State of New Hampshire	1
C. Town of Lyndeborough Hazard Mitigation Committee Goals	2
D. Methodology	2
CHAPTER II. COMMUNITY PROFILE.....	5
A. Town Overview	5
B. Development Trends	7
CHAPTER III. COMMUNITY HAZARDS	8
A. Hazard Descriptions.....	8
B. Past Hazard Events	8
C. Potential Hazards to Critical Facilities and Areas of Concern.....	11
CHAPTER IV. RISK ASSESSMENT	19
A. Prioritization of Critical Facilities and Areas of Concern	19
B. Vulnerability Assessment	20
C. Critical Facilities Matrix	20
D. Calculating the Potential Loss	21
E. Assessment of Future Development Losses	25
CHAPTER V. EXISTING AND PROPOSED HAZARD MITIGATION STRATEGIES.....	27
A. Existing Mitigation Strategies	27
B. Proposed Mitigation Strategies.....	29
C. Prioritization of Proposed Mitigation Strategies	31
CHAPTER VI. IMPLEMENTATION SCHEDULE.....	37
CHAPTER VII. UPDATING THE PLAN AND CONTINUED PUBLIC INVOLVEMENT	39
A. Maintenance and Update of the Hazard Mitigation Plan.....	39
B. Utilization of Existing Municipal Plans, Regulations and Programs.....	39
C. Continued Public Involvement.....	39
CHAPTER VIII. RECOMMENDATIONS	41
A. Communications/Emergency Response.....	41
B. Infrastructure and Capital Improvements	41
C. Safety	41

LIST OF MAPS

MAP 1: WATERSHED BOUNDARIES IN LYNDEBOROUGH..... 6
MAP 2: LOCATION OF CRITICAL FACILITIES AND AREAS OF CONCERN IN LYNDEBOROUGH 13
MAP 3: STRUCTURES LOCATED IN THE 100-YEAR AND 500-YEAR FLOODPLAINS 18
MAP 4: FACILITIES IN LYNDEBOROUGH IDENTIFIED IN POTENTIAL LOSS ANALYSIS..... 26

LIST OF TABLES

TABLE 1: WATERSHEDS IN LYNDEBOROUGH..... 5
TABLE 2: PAST HAZARD EVENTS IN LYNDEBOROUGH AND HILLSBOROUGH COUNTY..... 9
TABLE 3: HAZARDS TO CRITICAL FACILITIES AND AREAS OF CONCERN IN LYNDEBOROUGH 14
TABLE 4: CRITICAL FACILITIES MATRIX..... 20
TABLE 5: RISK CATEGORIZATION FOR TYPES OF HAZARD EVENTS 22
TABLE 6: EXISTING MITIGATION STRATEGIES AND PROPOSED IMPROVEMENTS 27
TABLE 7: PROPOSED MITIGATION STRATEGIES..... 29
TABLE 8: STAPLEE ANALYSIS OF PROPOSED MITIGATION STRATEGIES 32
TABLE 9: PRIORITIZED MITIGATION PROJECTS AND ACTION PLANS 37
TABLE 10: ANNUAL PLAN UPDATE AND PUBLIC INVOLVEMENT AGENDA 40

March, 2009

CERTIFICATE OF ADOPTION

Town of Lyndeborough, New Hampshire
BOARD OF SELECTMEN
A RESOLUTION ADOPTING THE TOWN OF LYNDEBOROUGH HAZARD MITIGATION PLAN
_____, 2009

WHEREAS, the Town of Lyndeborough received funding, administered by the Nashua Regional Planning Commission, from the NH Bureau of Emergency Management to prepare the Town of Lyndeborough Hazard Mitigation Plan; and

WHEREAS, several planning meetings were held on October 12th, October 26th and November 30th of 2006, regarding the development and review of the Town of Lyndeborough Hazard Mitigation Plan; and

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

WHEREAS, a duly-noticed public hearing was held by the Lyndeborough Board of Selectmen on _____ to formally approve and adopt the Town of Lyndeborough Hazard Mitigation Plan.

NOW, THEREFORE BE IT RESOLVED that the Lyndeborough Board of Selectmen adopts the Town of Lyndeborough Hazard Mitigation Plan.

ADOPTED AND SIGNED this ____ day of _____.

Lorraine A. Strube, Chairman

Arnold A. Byam III

Steven M. Brown

ATTEST

Jim Bingham, Town Administrator

Trish Schultz, Clerk

ACKNOWLEDGEMENTS

The Lyndeborough Hazard Mitigation Committee was comprised of the following individuals who met from October 2006 through June 2007 to develop this Plan:

Name	Representation
Steve Brown	Lyndeborough Emergency Planning Committee Chair
Rick McQuade	Fire Chief
Jim Basinas	Police Chief
Cynthia Geiger	Health Officer
James Button	Citizen
Kent Perry	Road Agent
Sue Tussing	Lyndeborough Combined School
Carylyn McEntee	WLT Ambulance Director
Neal Cass	Town Administrator

March, 2009

EXECUTIVE SUMMARY

The following *natural* hazards are addressed:

- Flooding
- Dam Failure
- Hurricane
- Tornado
- Downburst
- Lightning
- Wildfire
- Severe Winter Weather
- Earthquake
- Landslide
- Radon
- Drought

The following *manmade* hazards are addressed:

- Fire / Explosions
- Traffic Congestion / Accidents
- Hazardous Materials Incidents
- Vandalism

The list of *critical facilities* includes:

- Electric Power Lines / Substations
- Water Facilities
- Municipal Facilities and Emergency Operations Centers
- Schools
- Transportation Routes
- Facilities Storing Chemicals and/or Hazardous Substances

The list of *areas of concern* includes:

- School
- Emergency Operations Facilities
- Recreational Facilities
- Areas susceptible to wildfire or lightning strikes

The Lyndeborough Hazard Mitigation Plan is considered a work in progress and must be revised on a regular basis to assess whether the existing and suggested mitigation strategies are successful. Copies have been distributed to all municipal departments, and a copy will remain on file at the Nashua Regional Planning Commission.

CHAPTER I. INTRODUCTION

A. Background

The New Hampshire Bureau of Emergency Management (NH BEM) has a goal for all communities within the State of New Hampshire to establish local hazard mitigation plans as a means to reduce and mitigate future losses from natural or manmade hazard events. The NH BEM outlined a process whereby communities throughout the State may be eligible for grants and other assistance upon completion of a local hazard mitigation plan. A handbook entitled *Hazard Mitigation Planning for New Hampshire Communities* was created by NH BEM to assist communities in developing local plans. The state's Regional Planning Commissions are charged with providing assistance to selected communities to develop local plans.

The *Town of Lyndeborough Hazard Mitigation Plan* was prepared by the Town of Lyndeborough Hazard Mitigation Committee with the assistance and professional services of the Nashua Regional Planning Commission (NRPC) under contract with the BEM operating under the guidance of Section 206.405 of 44 CFR Chapter 1 (10-1-97 Edition). The *Town of Lyndeborough Hazard Mitigation Plan* serves as a strategic planning tool for use by the Town of Lyndeborough in its efforts to identify and mitigate the future impacts of natural and/or manmade hazard events. This Plan does **not** constitute any section of the **Town of Lyndeborough Master Plan, Zoning Ordinance or Emergency Operations Plan.**

B. Hazard Mitigation Goals and Objectives of the State of New Hampshire

The *State of New Hampshire Natural Hazards Mitigation Plan*, which was prepared and is maintained by the NH BEM, sets forth the following, as related to overall hazard mitigation goals and objectives for the State of New Hampshire:

1. To improve upon the protection of the general population, the citizens of the State and guests, from all natural and manmade hazards.
2. To reduce the potential impact of natural and manmade disasters on the State's Critical Support Services.
3. To reduce the potential impact of natural and manmade disasters on Critical Facilities in the State.
4. To reduce the potential impact of natural and manmade disasters on the State's infrastructure.
5. To improve Emergency Preparedness.
6. To improve the State's Disaster Response and Recovery Capability.
7. To reduce the potential impact of natural and manmade disasters on private property.
8. To reduce the potential impact of natural and manmade disasters on the State's economy.
9. To reduce the potential impact of natural and manmade disasters on the State's natural environment.
10. To reduce the State's liability with respect to natural and manmade hazards generally.
11. To reduce the potential impact of natural and manmade 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.
12. 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.

C. Town of Lyndeborough Hazard Mitigation Committee Goals

The Town of Lyndeborough Hazard Mitigation Committee declared a set of overall goals to help guide the development of the plan. These goals are derived from both the interests of the committee and derived from the New Hampshire Multi-Hazard Mitigation Plan Goals and Objectives.

The main goal of the Town of Lyndeborough Hazard Mitigation Committee is to create a Hazard Mitigation Plan that will be used to prevent future life and property losses caused by natural, human, and technological hazard events before they occur.

The Committee identified the following goals as necessary for the successful development and implementation of the Plan:

- Identify the natural hazards that may impact Lyndeborough.
Examples include landslides, earthquakes, snowstorms and wildfires.
- Identify possible risks from natural hazards.
Examples include identifying where these hazards have occurred in the past as well as what areas might be impacted if to occur again in the future.
- Identify resources, strategies, actions or plans available to Lyndeborough to help mitigate the impact of the natural hazard events.
Examples include critical facility protection and ordinance/regulation revision.
- Increase public awareness and education of emergency preparedness.
- Create a dynamic and ever-evolving Hazard Mitigation Plan.
Develop a schedule for updating the plan on a regular basis.

D. Methodology

In October 2006, the Nashua Regional Planning Commission organized the first Committee meeting with representatives from the Town of Lyndeborough to begin the initial planning stages of the *Town of Lyndeborough Hazard Mitigation Plan* (herein after, the Plan). NRPC, the Town of Lyndeborough Hazard Mitigation Committee, and participants from the Town developed the content of the Plan using the nine-step process set forth in the *Hazard Mitigation Planning for New Hampshire Communities*. The group also used other local Hazard Mitigation Plans as templates for a general outline and format. Meetings were held on October 26, November 9, November 30, and December 14, 2006. The draft plan was presented to the Lyndeborough Board of Selectmen. These meetings involved the Lyndeborough Hazard Mitigation Committee representatives from various town departments, and members of the public. The public was encouraged to serve on the committee and attend the meetings. The Town of Lyndeborough and NRPC recruited members of the public by posting flyers in the community and submitting press releases in the Nashua Telegraph and Milford Cabinet. The following is a summary of the nine-step process conducted to compile the *Town of Lyndeborough Hazard Mitigation Plan*.

Step 1 - Establish and Orient Hazard Mitigation Committee

The Town of Lyndeborough Hazard Mitigation Committee was established in the late summer of 2006 and was comprised of the Lyndeborough Emergency Planning Committee Chair, Police Chief, Fire Chief, Road Agent, Health Officer, school representative, and one private citizen. Meeting notifications were sent by the Nashua Regional Planning Commission and advertised in local papers, the NRPC website, and through the posting of flyers in the community in order to solicit public participation. Examples can be found in Appendix H.

Step 2 - Map the Hazards and Identify Critical Facilities

Participants identified areas where damage from past natural and manmade disasters have occurred and areas where critical manmade facilities and other features may be at risk in the future for loss of life, property damage, environmental pollution and other risk factors. NRPC generated a set of base maps that were used in the process of identifying past and future hazards.

Participants then identified facilities and areas that were considered to be important to the Town for emergency management purposes, for provision of utilities and community services, evacuation routes, and for recreational and social value. Using existing databases, local orthophotos, community maps, local assessing data, and floodplain maps, NRPC plotted the location of these sites on a map. The locations marked on the map represent the entrance to a building or the approximate center of open area sites.

Step 3 - Assess Vulnerability

Once the critical facilities and areas of concern were identified, NRPC discussed the potential loss of critical facilities based on the frequency and potential severity of the following hazards:

- 1) severe winter weather;
- 2) hurricanes;
- 3) dam failure;
- 4) landslides
- 5) earthquakes;
- 6) wildfires;
- 7) tornados
- 8) downbursts;
- 9) lightning,
- 10) flooding;
- 12) traffic congestion and vehicular accidents;
- 13) explosions/fires;
- 14) hazardous materials incidents;
- 15) radon;
- 16) drought; and
- 17) terrorism.

A Critical Facilities Matrix that ranks each critical facility and area of concern by the potential risk of being affected by a natural or manmade hazard was also constructed. Each hazard is ranked as having a low, medium or high risk of potentially severely affecting the facility.

Step 4 - Analyzing Development Trends

Current development trends are identified at the end of *Chapter II, in Section B, Development Trends*. Future development trends are identified at the end of *Chapter IV, in Section E, Assessment of Future Development Losses*.

Step 5 - Identify Currently Established Strategies and Gaps in Current Protection

After collecting detailed information on each critical facility in Lyndeborough, the Town participants and NRPC staff identified existing Town mitigation strategies relative to natural and manmade disasters. The existing strategies were then reviewed for coverage and effectiveness, as well as the need for improvement. The Lyndeborough *Emergency Management Plan* was also referenced to avoid replication of existing protection measures.

Step 6 - Brainstorm and Evaluate Disaster Minimization Alternatives

After developing a list of existing hazard mitigation strategies, the team was able to identify gaps in the existing mitigation measures. These gaps were taken into consideration during the development of mitigation goals and proposed mitigation measures.

Step 7 - Select Actions

The proposed hazard mitigation actions and strategies were reviewed and each strategy was rated (good, average, or poor) for its effectiveness according to seven factors (*e.g.*, technical and administrative applicability, political and social acceptability, legal authority, environmental impact, financial feasibility). Each factor was then scored and all scores were totaled for each strategy. Strategies were ranked by overall score for preliminary prioritization then reviewed again under Step 8.

The preliminary prioritization list was reviewed in order to make changes and determine a final prioritization for new hazard mitigation actions and existing protection strategy improvements identified in previous steps.

Step 8 -Develop a Strategy

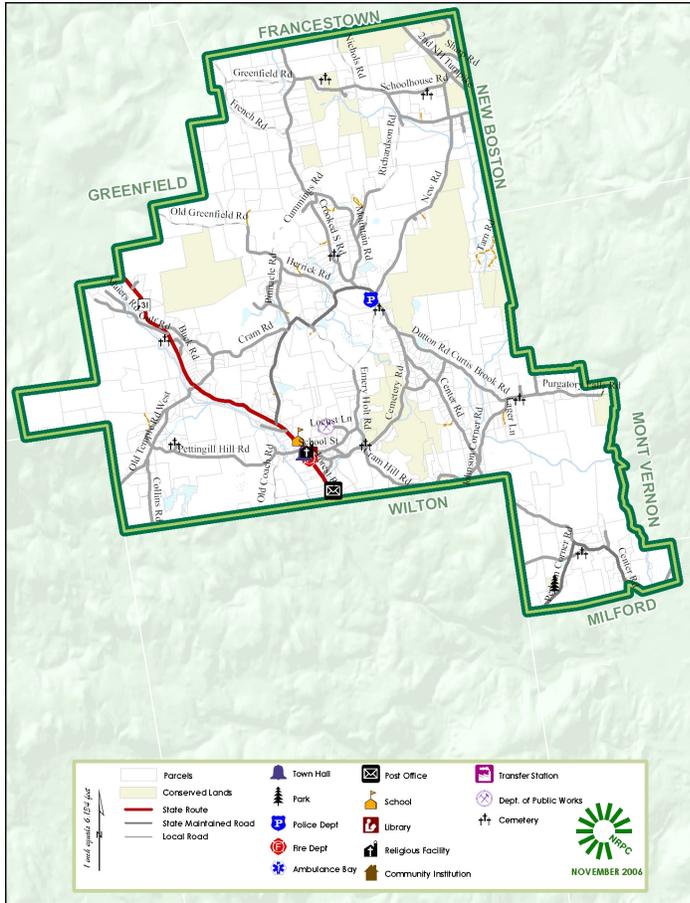
An implementation strategy was created which included person(s) responsible for implementation (who), a timeline for completion (when), and a funding source and/or technical assistance source (how) for each identified hazard mitigation action.

Step 9 - Adopt and Monitor the Plan, and Continued Public Input

The Emergency Management Director will be responsible for ensuring that the Town Departments and the public have adequate opportunity to participate in the maintenance and update of the Plan. The Town of Lyndeborough Hazard Mitigation Committee may solicit direct involvement from the Board of Selectmen and Town Departments. The Committee must advertise the process in the local paper, in town offices and via the internet. A public hearing will be held to receive public comment during the review period, and the final product adopted by the Board of Selectmen appropriately.

CHAPTER II. COMMUNITY PROFILE

A. Town Overview



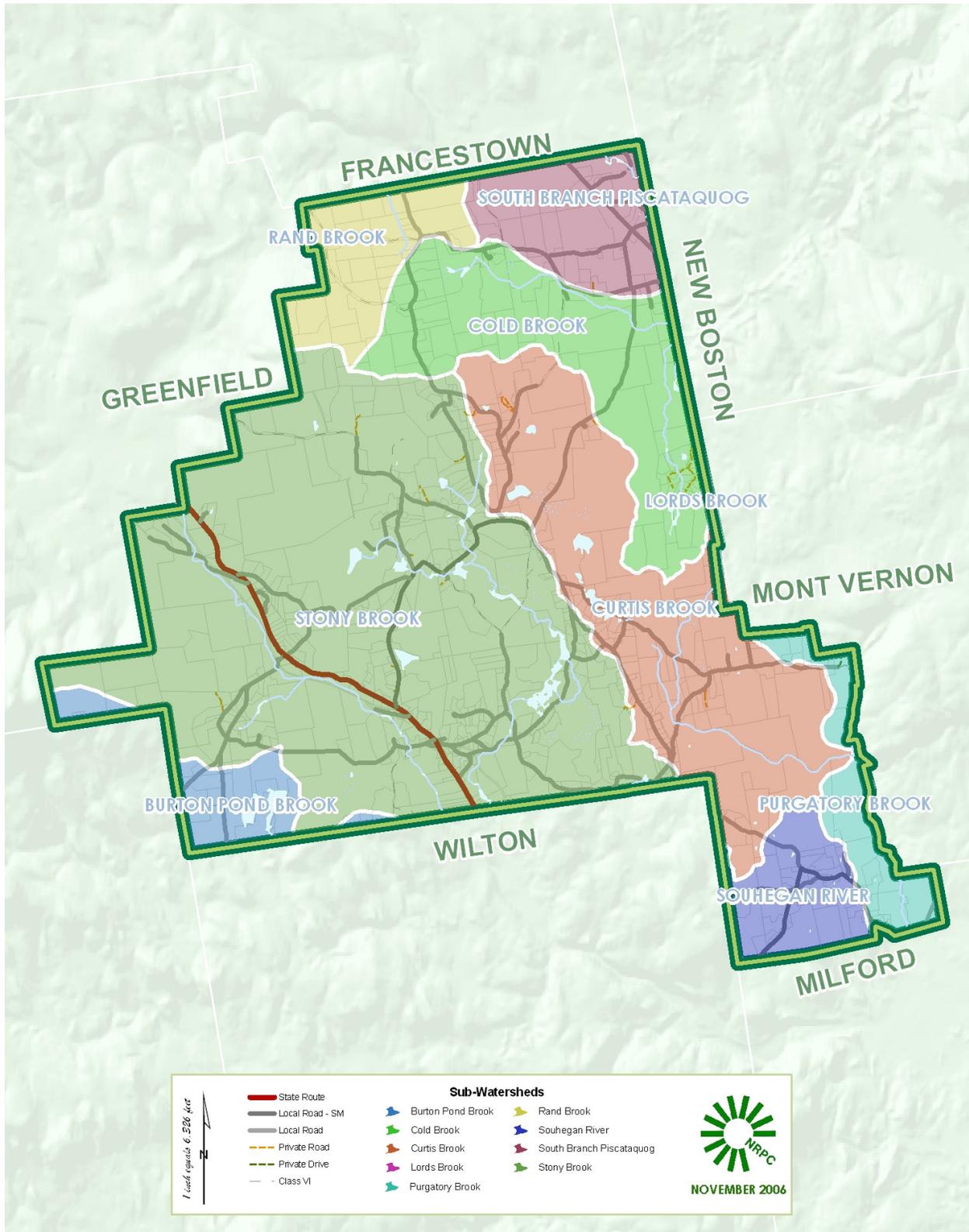
The Town of Lyndeborough is located in Hillsborough County in south central New Hampshire. Lyndeborough is bordered on the west by the Town of Greenfield and Temple, to the south by Wilton and Milford, to the east by Mont Vernon and New Boston, and by Francestown to the north.

From 1990 to 2000, population in Lyndeborough grew by 24 percent, from 1,280 to 1,591 persons, while Hillsborough County grew by only 14 percent. However, of the approximately 19,425 parcels in Lyndeborough, almost 58 percent remain undeveloped (fully 2,673 acres), and many developed parcels are not fully developed in terms of the numbers of structures, kinds of development, or scale of development that could be accommodated within local zoning regulations for allowable uses. Moreover, there are still 19 parcels in Lyndeborough that are greater than 100 acres in size yet fully undeveloped. Additionally, there are five parcels containing permanently protected open space totaling 1,513 acres. The relatively rural and undeveloped nature of Lyndeborough may be somewhat a result of

the town's topography, which is relatively diverse, containing the highest point in the region at 1,760 feet (near Lyndeborough's western border with Greenfield). The lowest point in Lyndeborough is near the southeast corner of the town (near North Purgatory Road) at 280 feet. The diverse topography also gives rise to several recognized watersheds in the town of Lyndeborough, listed in Table 1 and pictured on Map 1.

TABLE 1: WATERSHEDS IN LYNDEBOROUGH		
Watershed	Acres in Lyndeborough	Percentage of Lyndeborough
South Branch Piscataquog	3,739	19.2%
Rand Brook	750	3.9%
Cold Brook	16	0.1%
Lord's Brook	2,396	12.3%
Curtis Brook	983	5.1%
Stony Brook	1,120	5.8%
Burton Pond Brook	8,915	45.9%
Purgatory Brook	678	3.5%
Souhegan River	829	4.3%
Total Area:	19,426	100%

MAP 1: WATERSHED BOUNDARIES IN LYNDEBOROUGH



B. Development Trends

Population Growth

The 1960s marked the beginning of a two-decade long period of escalated population growth spurred on by the growth of high-technology industries in the Nashua and Manchester area, made possible by major improvements to the state and federal highway system in the surrounding region. Between 1970 and 1980, Lyndeborough grew by 36%, the fastest period of growth in the Town's entire history. In the decades following, the Town grew more moderately at a rate of just over 20%. In 1988 the Town adopted a Growth Management Ordinance in order to limit growth to its "fair share" in proportion to growth in the region. With the exception of the 1990s, Lyndeborough has historically grown at a slower rate than the surrounding region, but faster than the State. This trend is likely due to Lyndeborough's location near the larger economic centers of Nashua and Manchester, but its relative isolation from major transportation corridors. Amidst these growth levels, however, Lyndeborough continues to remain a rural town.

Landscape patterns of development

Lyndeborough's existing land use exhibits a traditional rural village growth pattern, occurring in clusters near Town and State roadway intersections, especially in South Lyndeborough. Most residential lots have direct access from existing rural roads. Residential developments are primarily single-family units and commercial development has historically been located on NH Route 31, Center Road, and the Village Store located near Citizens Hall. Some agricultural lands are located in South Lyndeborough, Johnson Corner, and Lyndeborough Center, however, few agricultural operations remain partially due to elevation, slope, and soil constraints. Approximately 50% of the total land area in Lyndeborough remains completely vacant, representing 9,765 acres. Additionally, many "developed" parcels contain only one residential dwelling located on a large piece of property.

Lyndeborough land development goals/objectives

The 2002 Master Plan Update for the Town of Lyndeborough contains seven primary goals that help to guide future growth:

- Preserve the Town's rural character and heritage
- Preserve the Town's scenic and natural beauty
- Protect the health, safety, welfare and property of Town residents.
- Provide for a wide variety of lifestyles and housing options
- Provide for economic health and enhanced tax base.
- Ensure that the rate, type, location, and density of growth does not place an unreasonable burden on the Town's financial ability to expand its public services.
- Encourage good government and active citizen participation within.

These goals were used in the plan to assist in identifying critical facilities and areas of concern as well as development and prioritization of mitigation strategies.

CHAPTER III. COMMUNITY HAZARDS

A. Hazard Descriptions

The first step in planning for natural and manmade hazards is to identify hazards that may affect the Town. Some communities are more susceptible to certain hazards (i.e., flooding near rivers, hurricanes on the seacoast, etc.). The hazards that are most applicable to the State of New Hampshire and Lyndeborough include:

- **Severe Winter Weather**, including heavy snow storms, ice storms, “Nor’-Easters,” blizzards, and hailstorms;
- **Traffic Congestion and Vehicular Accidents**, most prominent in the Village and along major thoroughfares;
- **Explosions/fires**; a violent release of energy due to a sudden increase in volume within a given space;
- **Hurricanes**; a tropical cyclone in which winds reach speeds of 74 miles per hour or more and blow in a large spiral around a relatively calm center;
- **Dam Failure**; During severe weather such as a flood, a dam’s ability to serve as a flood control mechanism may be challenged and could breach or fail;
- **Earthquakes**; geologic events related to seismic activity;
- **Landslides**; The downward or outward movement of slope forming materials reacting under the force of gravity;
- **Wildfires**, including grass fires, forest fires, drought-related fires, and issues with isolated homes and residential areas;
- **Flooding**, debris-impacted infrastructure, erosion, mudslides, rapid snow pack melt, and river ice jams;
- **Tornadoes**; a violent windstorm characterized by a twisting, funnel shaped cloud;
- **Downbursts**; a severe localized wind blasting down from a thunderstorm;
- **Drought**; a long period of abnormally low precipitation, especially one that adversely affects growing conditions;
- **Lightning**; Giant spark of electricity that occurs within the atmosphere or between the atmosphere and the ground;
- **Windstorms**; severe weather condition indicated by high winds and with little or no rain.

Appendix A includes more in-depth definitions of these hazards that have occurred or could occur in New Hampshire and identifies the potential for each hazard to occur in the Town of Lyndeborough.

B. Past Hazard Events

The next step in hazard mitigation planning is to identify where hazard events have occurred in the past and, if possible, what facilities or areas were adversely impacted. A Base Map that included all of the critical facilities and areas of concern in Lyndeborough, the 100-year floodplain, political boundaries, waterbodies and the road network was used to locate all of the past hazard events. This step in the planning process serves as a stepping stone for predicting where future hazards could potentially occur. NRPC and Lyndeborough participants identified past events in the Town of Lyndeborough and Hillsborough County, which are included in Table 2.

March, 2009

TABLE 2: PAST HAZARD EVENTS IN LYNDEBOROUGH AND HILLSBOROUGH COUNTY

Hazard	Date	Location	Critical Facility or Area Impacted	Remarks/Description
Flood	1927	Southern NH	Road Network	Caused many roads to wash out and required money for repair.
Flood	Mar 11-21, 1936	Statewide	Road Network	Flooding caused by heavy snowfall totals, heavy rains and warm weather at the same time. Run-off from melting snow with rain overflowed the rivers.
Flood	Apr 16, 1987	Cheshire, Carroll, Grafton, Hills., Merri., Rock., & Sull. Counties, NH	Low-lying fields in Lyndeborough.	Caused by snowmelt and intense rain FEMA Disaster Declaration # 789 \$4,888,889 in damage.
Flood	Aug 7-11, 1990	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan Counties, NH	Unknown	A series of storm events with moderate to heavy rains FEMA Disaster Declaration #-876, \$2,297,777 in damage.
Flood	Oct 1996	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan Counties, NH	Unknown	Heavy rains. FEMA Disaster Declaration #-1144. \$2,341,273 in damage.
Great Hurricane of 1938	Sept 21, 1938	Southern New England	Road Network; structures damaged, flooding	13 died, 494 injured throughout NH. Total storm losses of \$12,337,643 (not adjusted for inflation). Many acres of downed trees and flooding. Some barns and chicken coops collapsed with loss of livestock and poultry.
Hurricane (Carol)	Aug 31, 1954	Southern New England	Extensive tree and crop damage in NH.	SAFFIR/SIMPSON HURRICANE SCALE ¹ - Category 3, winds 111-130 mph.
Hurricane (Donna)	Sept 12, 1960	Southern / Central NH	Unknown	Category 3, heavy flooding in some parts of the State.
Hurricane (Gloria)	Sept 1985	Southern New England	Electric structures damaged; tree damages	Category 2, winds 96-110 mph.
Hurricane (Bob)	Aug 1991	Southern New England	Tree damage, possible electrical damage.	Structural damage in town from fallen trees.
Snowstorm	Mar 11-14, 1888	New England	Unknown	Snow accumulations 30-50 inches, one of the most severe winter storms ever to hit New England
Snowstorm	1922	Most of New England.	Road Network	City of Nashua called in to help plow drifts on Broad Street.
Snowstorm	Feb 14-15, 1940	New England	Paralyzed New England	Snow depths exceeded 30 inches and very high winds
Snowstorm	Feb 14-17, 1958	Southern / Central NH	Unknown	Snow accumulations to 20-33 inches
Snowstorm	Mar 18-21, 1958	Southern / Central NH	Unknown	Snow accumulations between 22-24 inches
Snowstorm	Mar 2-5, 1960	Southern / Central NH	Unknown	Snow accumulations up to 25 inches in some areas
Snowstorm	Jan 18-20, 1961	Southern / Central NH	Unknown	Snow accumulations up to 25 inches in some areas, Blizzard or near-blizzard conditions developed across the northeast
Snowstorm	Jan 11-14, 1964	Southern / Central NH	Unknown	Snow accumulations up to 12 inches
Snowstorm	Feb 22-28, 1969	Central NH	Unknown	Snow accumulations between 24-98 inches (higher totals in western NH), slow moving storm with long duration

March, 2009

TABLE 2: PAST HAZARD EVENTS IN LYNDEBOROUGH AND HILLSBOROUGH COUNTY

Hazard	Date	Location	Critical Facility or Area Impacted	Remarks/Description
Snowstorm	Dec 25-28, 1969	Statewide	Unknown	Snow accumulations 12-18 inches in most areas
Snowstorm	Jan 19-21, 1978	Southern / Central NH	Unknown	Snow accumulations up to 16 inches
Snowstorm	Feb 5-7, 1978	Statewide	Trapped commuters on roads, businesses closed	"Blizzard of '78" Snow accumulations between 25-33 inches in NH, Snow accumulations between 24-38 inches in New England
Snowstorm	Apr 5-7, 1982	Southern / Central NH	Unknown	Late-season storm with thunderstorms produced 18-22 inches of snow
Snowstorm	Mar 1983	New England	Road network, businesses closed	Winds of 30-40 mph.
Snowstorm	Mar 1993	New England	Unknown	
Snowstorm	Feb 1996	New England	Unknown	Snow, ice, bitter temperatures throughout central NH
Snowstorm	Dec 1996	Statewide	Electrical structures damaged, businesses closed	
Snowstorm	Mar 23, 1999	Statewide	Unknown	Two feet of snow accumulated on Mt. Washington and high winds were reported.
Snowstorm	Mar 2001	New England	Road network	
Ice Storm	Dec 29-30, 1942	Statewide	Unknown	Glaze storm of severe intensity.
Ice Storm	Jan 7, 1998	Statewide	Road Network. Phone and power disrupted.	FEMA Disaster Declaration-1199. Six injuries and one fatality, 20 major road closures, 67,586 without electricity, 2,310 without phone service, one communication tower failure, \$12,446,202 in damages. 52 communities in 9 counties impacted.
Severe Cold	Jan 16, 2004	Statewide	Unknown	Bitter cold and blustery winds made temperatures feel as cold as -40 degrees. Outdoor exposure in the State was deadly and lead to six deaths. Wind chills to -30 degrees.
Drought	1929-36	Statewide	Unknown	
Drought	1960-69	Statewide	Farms had minimal grass for grazing animals and poor crops	For two consecutive years in the mid 1960s, wells went dry. Longest recorded continuous spell of less than normal precipitation
Drought	1999	Statewide	Farms affected, low water levels in dug wells	Drought warning was issued by governor's office on 06/29/99
Drought	Mar 2002	Statewide	Farms affected, low water levels in dug wells	First time low-water conditions have progressed beyond the Level Two, Drought Warning stage.
Earthquake	Nov 18, 1929	Grand Banks Newfoundland	No Damage	Richter Magnitude Scale: 7.2 ²
Earthquake	Dec 20, 1940	Ossipee, NH	No Damage	Richter Magnitude Scale: 5.5 Felt over 341 miles away.
Earthquake	Dec 24, 1940	Ossipee, NH	Unknown	Richter Magnitude Scale: 5.5 Felt over 550 KM away.
Earthquake	Jun 15, 1973	Near NH-Quebec Border	Minor Damage	Richter Magnitude Scale: 4.8
Earthquake	Jan 19, 1982	West of Laconia	Little Damage	Richter Magnitude Scale: 4.5 42.62 LAT/71.39 LONG

March, 2009

TABLE 2: PAST HAZARD EVENTS IN LYNDEBOROUGH AND HILLSBOROUGH COUNTY

Hazard	Date	Location	Critical Facility or Area Impacted	Remarks/Description
Past Hazards Specific to Lyndeborough				
Snowstorm	1987	Lyndeborough	No damage	Power outage lasting five days.
Snowstorm	Apr 1, 2001	Lyndeborough	No damage	Significant accumulation of snow late in season.
Lightning	Jul 2005	Lyndeborough	5 businesses	Destroyed five businesses in the Holt Brothers Industrial Complex and took 20 hours to put out fires from oil and petroleum chemicals.
Windstorm	Feb 17, 2006	Hillsborough County	Minor Damage	Power outages with downed trees and roads blocked across southern tier of state.
The committee did not identify specific events causing damage for the following hazards: flooding, Landslides, earthquakes, dam failures, hurricanes, tornados, downbursts, wildfires, or traffic congestion.				
<p><u>Sources:</u> American Meteorological Society; Concord Monitor, September 1938; National Earthquake Information Center; New Hampshire Department of Environmental Services; New Hampshire Office of Emergency Management, 2000; Northeast States Emergency Consortium (NESEC) Website: http://www.nesec.org; Pembroke Town History, http://www.pembroke-nh.com/history.asp; US Army Corp of Engineers Ice Jam Database, http://www.crel.usace.army.mil/cgi-bin/ice/ijdb; The Bow Times, http://www.yourneighborhoodnews.com/bow-times/index.html; The Manchester Union Leader, http://www.theunionleader.com/; Tornado Project, http://www.tornadoproject.com;</p>				

C. Potential Hazards to Critical Facilities and Areas of Concern

After past events have been identified, the next step in the planning process is to determine where future hazards could potentially occur and what structures or areas could be affected. This requires determining which facilities and areas in the community are considered critical and why they are considered critical (i.e., is the facility in the floodplain? Storing hazardous materials? Is it a primary shelter?). Each critical facility and area was mapped. Table 3 presents the critical facilities and areas of concern identified by the Town of Lyndeborough. Map 2 illustrates the locations of these facilities and areas in Lyndeborough. Chapter IV will present an analysis of each of these facilities and areas in the community and their priority in case of an emergency.

- **Flooding;** Lyndeborough has very limited areas within the 100 year flood plain and no areas in the 500 year floodplain. Lyndeborough's topography is very hilly and flooding is limited to a number of isolated dams, beaver dams and locations along the Souhegan River, Curtis Brook, Cram Road, Fredette Road and Burton Pond. Map 2 on Page 19 has additional information.
- **Landslides;** Landslides are more likely to occur in the western, northern and some central locations in town where the steepest slopes are located. Other areas that may face a higher risk are recently excavated slopes, and clear cut areas.
- **Earthquakes;** The entire town is vulnerable to this hazard.
- **Dam Failure;** Dam failure is limited to dam locations in town as shown on Map 2 on Page 13, along the Souhegan River, Curtis Brook, Winn Road and Burton Pond.
- **Hurricanes;** The entire town is vulnerable to this hazard.
- **Tornadoes;** The entire town is vulnerable to this hazard.
- **Downbursts;** The entire town is vulnerable to this hazard.
- **Windstorms;** The entire town is vulnerable to this hazard, however western facing slopes and the highest peaks in town could suffer the greatest impacts, especially in northern and western Lyndeborough.

March, 2009

- **Lightning;** The entire town is vulnerable to this hazard. There is also a lightning prone area off of Putnam Corner Road.
- **Wildfires;** The town has vast sections of wooded land that could be susceptible to wildfires. However, two areas in particular (shown on Map 2 on Page 13) are prone to wildfires. They are located to the north of Old Greenfield Road and to the north of Gulf Road. There is also a lightning prone area off of Putnam Corner Road.
- **Severe Winter Weather,** The entire town is vulnerable to this hazard, however the most rural locations may have great difficulty dealing with extended power outages.
- **Terrorism;** The entire town is vulnerable to this hazard.
- **Hazardous Materials;** This is an elevated risk at industrial sites in town mainly off of NH 31 in southern Lyndeborough.
- **Explosions/Fires;** This is an elevated risk at industrial sites in town mainly off of NH 31 in southern Lyndeborough.
- **Traffic Congestion and Vehicular Accidents,** This hazard would be limited to the major corridors in town, NH 31.
- **Drought;** The entire town is vulnerable to this hazard.

March, 2009

MAP 2: LOCATION OF CRITICAL FACILITIES AND AREAS OF CONCERN IN LYNDEBOROUGH

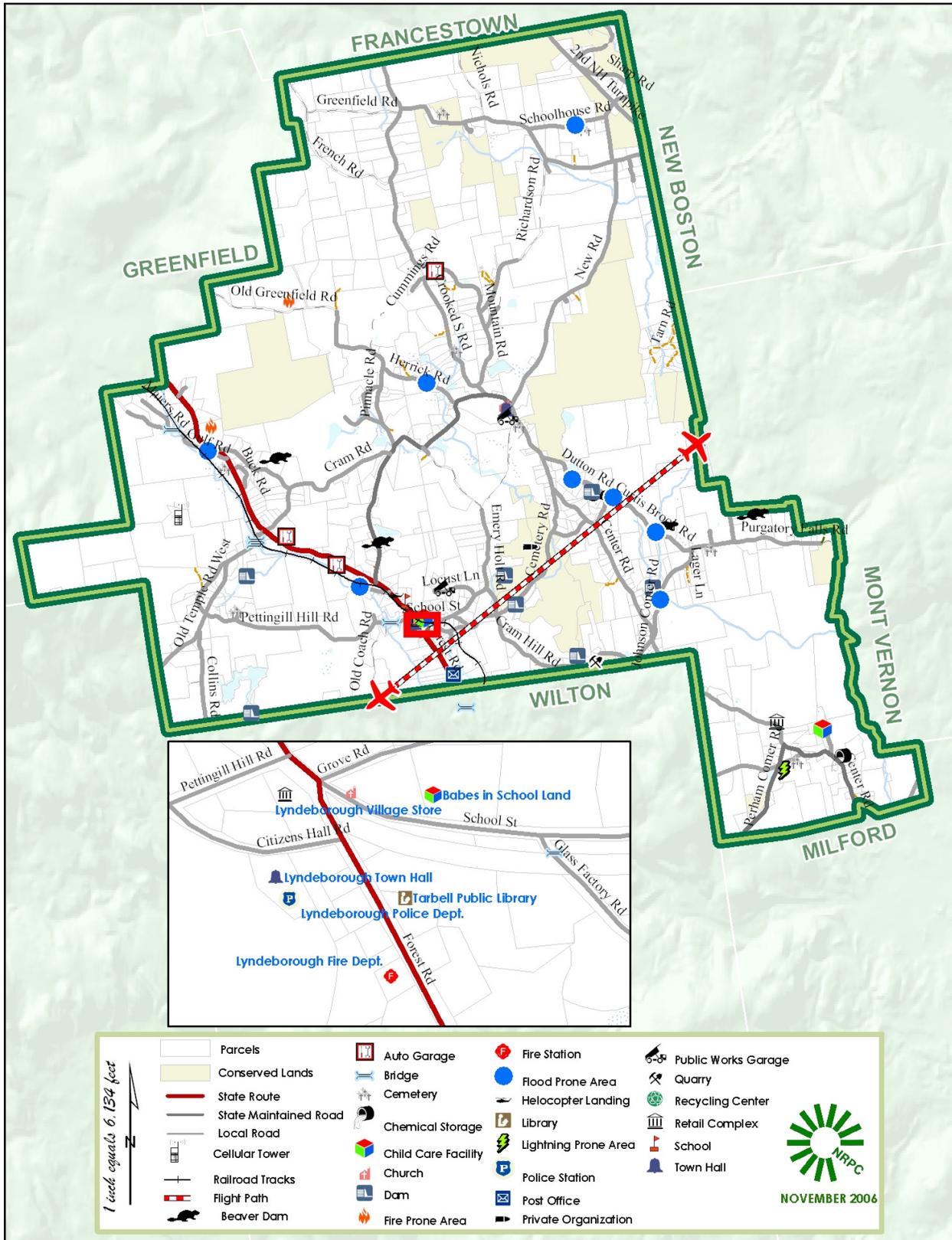


TABLE 3: HAZARDS TO CRITICAL FACILITIES AND AREAS OF CONCERN IN LYNDEBOROUGH																
Facility Name	Critical Facility or Area of Concern	Hazard Vulnerability	100-year Floodplain	500-year Floodplain	Food/Supplies	Infrastructure	Building Structure	Vulnerable Population	Gathering Placqce	Emergency Services	Medical Services	Utility	Emergency Fuel	Generator	Shelter	Historic Resources
Government or Municipal Facilities																
Citizens' Hall	Critical Facility	Terrorism, Sever Winter Weather, Fire				x	x		x	x					x	x
Tarbell Public Library	Area of Concern	Fire					x		x							
Police Station	Critical Facility	Terrorism, Sever Winter Weather, Fire					x									
Fire Station	Critical Facility	Terrorism, Sever Winter Weather, Fire					x			x	x					
Post Office	Area of Concern	Terrorism				x	x									
Old Town Garage	Critical Facility	Terrorism, Sever Winter Weather, Fire					x			x						
Highway Department	Critical Facility	Terrorism, Sever Winter Weather, Fire				x	x			x			x			
Public Works Garage	Critical Facility	Fire, Hazardous Materials				x	x			x			x			
Center Hall	Critical Facility	Terrorism, Sever Winter Weather, Fire					x		x	x					x	x

March, 2009

TABLE 3: HAZARDS TO CRITICAL FACILITIES AND AREAS OF CONCERN IN LYNDEBOROUGH																
Facility Name	Critical Facility or Area of Concern	Hazard Vulnerability	100-year Floodplain	500-year Floodplain	Food/Supplies	Infrastructure	Building Structure	Vulnerable Population	Gathering Placqe	Emergency Services	Medical Services	Utility	Emergency Fuel	Generator	Shelter	Historic Resources
Schools																
Lyndeborough Central School	Critical Facility	Terrorism, Sever Winter Weather, Fire					x	x	x						x	
Child Care Facilities																
Babes in School Land	Area of Concern	Terrorism					x	x								
Bullard Drive Daycare	Area of Concern	Terrorism					x	x								
Commercial Facilities and Hazardous Materials Storage Area																
Lyndeborough Village Store	Area of Concern	Fire, Terrorism		x		x						x				
C&W Automotive	Area of Concern	Fire, Hazardous Materials				x										
Ferra Enterprises	Area of Concern	Fire, Hazardous Materials				x										
Woodmont Orchards	Area of Concern	Fire, Hazardous Materials				x										
J&F Autobody	Area of Concern	Fire, Hazardous Materials				x										
Bridges																
Old Temple Road Bridge	Area of Concern	Flooding, Severe Winter Weather			x											
Pettingill Road Bridge	Area of Concern	Flooding, Severe Winter Weather			x											

March, 2009

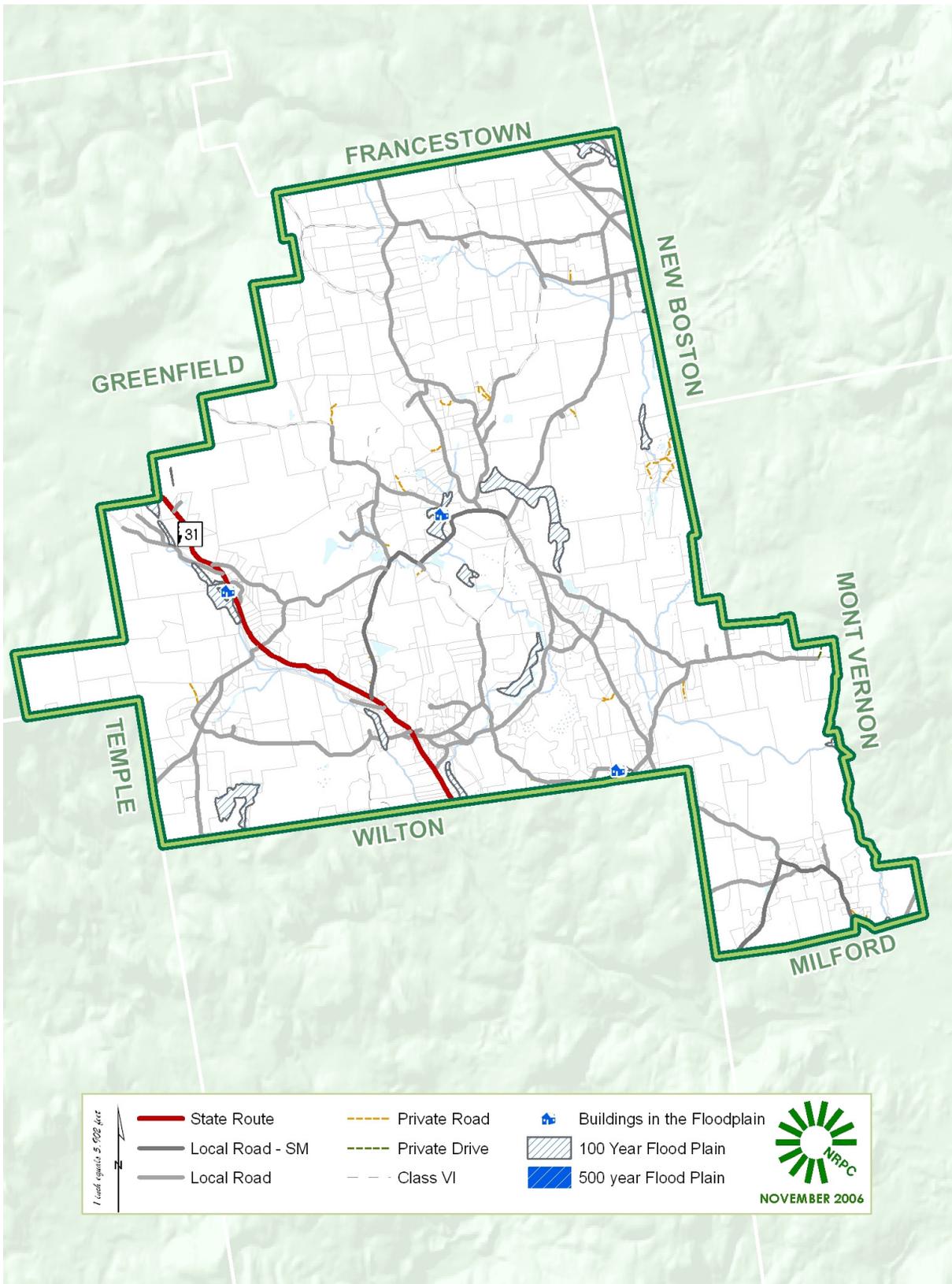
TABLE 3: HAZARDS TO CRITICAL FACILITIES AND AREAS OF CONCERN IN LYNDEBOROUGH																
Facility Name	Critical Facility or Area of Concern	Hazard Vulnerability	100-year Floodplain	500-year Floodplain	Food/Supplies	Infrastructure	Building Structure	Vulnerable Population	Gathering Placqe	Emergency Services	Medical Services	Utility	Emergency Fuel	Generator	Shelter	Historic Resources
Glass Factory Road Bridge	Critical Facility	Flooding, Severe Winter Weather			x											
Route 31 Bridge (in Wilton)	Critical Facility	Terrorism, Flooding; Severe Winter Weather			x											
Communications Facilities																
Highway Department Communications Tower	Critical Facility	Terrorism, Sever Winter Weather,									x					
Woodward Road Cell Tower	Critical Facility	Terrorism, Sever Winter Weather,									x					
LCS Helicopter Landing Area	Critical Facility	Terrorism, Sever Winter Weather,									x					
Center Road Telephone Substation	Critical Facility	Terrorism, Sever Winter Weather,									x					
Dams																
Souhegan Site 8 South Dike	Area of Concern	Flooding, Severe Winter Weather	x		x											
Souhegan Site 8 Cemetery Dike	Area of Concern	Flooding, Severe Winter Weather	x		x											
Souhegan River Site 8 Dam	Area of Concern	Flooding, Severe Winter Weather	x		x											

March, 2009

TABLE 3: HAZARDS TO CRITICAL FACILITIES AND AREAS OF CONCERN IN LYNDEBOROUGH																
Facility Name	Critical Facility or Area of Concern	Hazard Vulnerability	100-year Floodplain	500-year Floodplain	Food/Supplies	Infrastructure	Building Structure	Vulnerable Population	Gathering Placqe	Emergency Services	Medical Services	Utility	Emergency Fuel	Generator	Shelter	Historic Resources
Curtis Brook Dam #2	Area of Concern	Flooding, Severe Winter Weather	x		x											
Curtis Brook Dam	Area of Concern	Flooding, Severe Winter Weather	x		x											
Curtis Brook Beaver Dam #1	Area of Concern	Flooding, Severe Winter Weather	x		x											
Curtis Brook Beaver Dam #2	Area of Concern	Flooding, Severe Winter Weather	x		x											
Fredette Drive Beaver Dam	Area of Concern	Flooding, Severe Winter Weather	x		x											
Souhegan River Site 28 Dam	Area of Concern	Flooding, Severe Winter Weather	x		x											
Cram Road Beaver Dam	Area of Concern	Flooding, Severe Winter Weather	x		x											
Mont Vernon Town Line Beaver Dam	Area of Concern	Flooding, Severe Winter Weather	x		x											
Burton Pond Dam	Area of Concern	Flooding, Severe Winter Weather	x		x											

March, 2009

MAP 3: STRUCTURES LOCATED IN THE 100-YEAR AND 500-YEAR FLOODPLAINS



March, 2009

CHAPTER IV. RISK ASSESSMENT

The next step in the Hazard Mitigation planning process is to prioritize the facilities and areas of concern that were identified. It is important for the community to determine what resources are needed to protect each facility and area of concern in the case of a hazard event. The facilities were broken into three prioritization categories. The first category contains services needed for emergency response in the event of a hazard event. The second category lists the facilities and areas of concern that the Town wishes to protect. The third category is an inventory of potential resources for services, shelters, or supplies. The location of each of these facilities is displayed on Map 2.

A. Prioritization of Critical Facilities and Areas of Concern

The following sections discuss three primary categories of resources to consider in planning for or mitigating losses from a hazard event. Category 1 – Emergency Response services include those services and facilities that require the highest priority for protection from manmade and natural hazards due to their role in actively responding to a hazard event. Category 2 – Facilities to Protect in a Hazard Event include those areas or facilities that may require assistance due to at-risk populations or those that may be able to contribute additional supplies or services in hazard response. Category 3 – Potential Resources includes those resources that the town of Lyndeborough may be able to utilize in hazard response.

Category 1: Emergency Response

The Town has identified the following emergency response services and facilities as the highest priority for protection from natural and manmade hazards:

- 1) Citizens Hall
- 2) Lyndeborough Police Station
- 3) Lyndeborough Fire Station
- 4) Public Works / Highway Garage
- 5) Emergency Fuel Stations
 - a. Lyndeborough Highway Department Fueling Pumps
- 6) Emergency Shelters
 - a. Lyndeborough Combined School
 - b. United church of Lyndeborough
- 7) Evacuation Routes
- 8) Bridges Located on Evacuation Routes
- 9) Communications

Category 2: Facilities to Protect in a Hazard Event

- 1) Dams
- 2) Water Supply Pumps/Tanks/Wells/Reservoirs
- 3) Elderly Housing
- 4) Commercial Employers / Services
- 5) Schools
- 6) Community Events
- 7) Recreational Areas
- 8) Childcare Facilities
- 9) Areas within the 100-year Floodplain
- 10) Power Lines and Substations
- 11) Potential Flooding or Ice Jam Areas
- 12) Historic Structures



Category 3: Potential Resources

- 1) Emergency Water Supply
- 2) Emergency Supplies / Grocery Stores
- 3) Churches / Potential Shelters

B. Vulnerability Assessment

It is important to determine which critical facilities are the most vulnerable to specific types of hazard events and to estimate their potential loss. The first step is to identify the facilities most likely to be damaged in a hazard event. To do this, the locations of critical facilities illustrated on Map 2 were compared to the locations of various topographical elements, floodplains, roads, and waterbodies. Vulnerable facilities were identified by comparing their location to possible hazard events. For example, all of the facilities within the 100-year and 500-year floodplain were identified and used in conducting the potential loss analysis. Similarly, facilities near steep slopes, vulnerable to severe winter weather, hazardous materials incidents and high traffic congestion etc. were identified and included in the analysis. Map 4 displays the facilities that were identified during this analysis.

C. Critical Facilities Matrix

The following matrix identifies critical facility types and categorizes them as having a **low (L)**, **medium (M)** or **high (H)** severity potential in the event of one of the following hazards: 1) Severe Winter Weather; 2) Hazardous Materials 3) Traffic Congestion and Vehicular Accidents; 4) Explosions/Fires; 5) Hurricanes; 6) Dam Failure; 7) Vandalism; 8) Earthquakes; 9) Landslides; 10) Wildfires; 10) Flooding; 11) Tornadoes; 12) Downbursts; 13) Radon; 14) Droughts; and 14) Lightning. Each facility type was ranked based on the degree to which it could potentially be affected by the individual hazard. The high medium and low categories have been based on the frequency and damage from previous events in Lyndeborough, Hillsborough County and the State of NH.

TABLE 4: CRITICAL FACILITIES MATRIX																
Critical Facility	Severe Winter Weather	Hazardous Material Incident	Traffic Congestion and Accidents	Explosions / Fires	Hurricanes	Dam Failure	Vandalism	Earthquakes	Landslides	Wildfires	Flooding	Tornados	Downbursts	Radon	Droughts	Lightning
Police Station	H	L	L	L	H	L	H	L	L	L	L	M	M	M	L	H
Fire Station	H	L	M	L	M	L	H	L	L	M	L	M	M	M	L	L
Citizens' Hall	H	L	L	H	H	L	H	L	L	L	L	M	M	M	L	H
DPW	H	M	L	M	L	L	H	L	L	L	L	M	M	M	L	H
Schools	H	L	H	M	M	L	H	L	L	L	L	M	M	M	L	H
Child Care Facilities	H	L	L	M	M	L	L	L	L	L	L	M	M	M	L	M
Commercial Centers	H	M	M	M	M	L	M	L	L	L	L	M	M	M	L	M

March, 2009

Critical Facility	Severe Winter Weather	Hazardous Material Incident	Traffic Congestion and Accidents	Explosions / Fires	Hurricanes	Dam Failure	Vandalism	Earthquakes	Landslides	Wildfires	Flooding	Tornados	Downbursts	Radon	Droughts	Lightning
Office Buildings	H	L	L	M	M	L	M	L	L	L	L	M	M	M	L	M
Hazardous Materials Sites/Storage	H	H	M	H	M	L	L	L	L	M	L	H	H	L	L	M
Evacuation Routes	H	M	H	M	H	M	L	M	M	M	H	H	H	L	L	L
Bridges	M	M	M	L	H	M	L	M	M	L	H	M	M	L	L	L
Communications Towers / Telephone	M	L	L	L	M	L	L	M	M	H	M	H	H	L	L	H
Playgrounds and Recreational Fields	L	L	L	L	L	L	M	L	L	L	L	M	M	L	M	L
Historic Structures	H	L	L	L	H	L	L	M	M	M	L	H	H	M	L	H
Conservation Land	L	L	L	L	L	L	L	L	L	L	L	M	M	L	M	L
Churches	H	L	M	L	H	L	M	M	M	L	L	H	H	M	M	H
High-Traffic or Congestion Areas	H	H	H	M	H	L	L	L	L	L	L	L	L	L	L	L
Vehicular Accident Sites	H	M	H	L	M	L	L	L	L	L	L	L	L	L	L	L

D. Calculating the Potential Loss

The next step in completing the loss estimation involved assessing the level of damage from a hazard event as a percentage of the facility's structural value. The Federal Emergency Management Agency (FEMA) has developed a process in which replacement values for structures located in the 100-year and 500-year floodplains can be calculated according to the amount of damage suffered³. In Lyndeborough, the assessed values were determined for every structure identified in the floodplain. The potential loss was then calculated by multiplying the assessed value of the structure by the percent of damage expected from a hazard event (i.e., 100-year, 4-foot flood, etc.). The following discussion summarizes the potential loss estimates to structures (residential and non-residential) due to natural or manmade hazard events. Facilities considered to be at high or moderate risk are displayed in Map 4.

Table 5 below shows the impact of each hazard on the Town of Lyndeborough in terms of both frequency and potential severity.

³ "Understanding Your Risks, Identifying Hazards and Estimating Losses", FEMA, page 4-13.

March, 2009

TABLE 5: RISK CATEGORIZATION FOR TYPES OF HAZARD EVENTS		
Hazard Type	Frequency	Potential Severity
Severe Winter Weather	High	Moderate
Hazardous Materials Incidents	Low	Moderate
Traffic Congestion and Vehicular Accidents	Moderate	Low
Explosions / Fires	Low	Moderate
Lightning	Moderate	Moderate
Hurricanes	Low	High
Tornadoes	Low	High
Downburst	Low	High
Dam Failure	Low	Moderate
Terrorism / Vandalism	Low	Low
Earthquakes	Low	Moderate
Landslides	Low	Moderate
Wildfires	Low	Moderate
Drought	Low	Low
Radon	Moderate	Low
Flooding	Low	Low

1. Severe Winter Weather

There are three types of severe winter weather events: blizzards/nor'easters, ice storms, and extreme cold. All of these events are a threat to the community with subzero temperatures from extreme wind chill and storms causing low visibility for commuters. Snowstorms are known to collapse buildings. Ice storms disrupt power and communication services. Extreme cold affects the elderly. None of these storms affect one area of town more than another. Winter events are difficult to set a cost to repair or replace as there are numerous effects of each type of event.

2. Hazardous Material Incidents

These incidents can be separated into two categories: 1) Fixed Facilities, or 2) Transportation. Fixed facilities include companies that store hazardous waste at their facility and all hazardous waste sites. Several fixed facilities in Lyndeborough handle hazardous materials, making it a risk for the Town. Seven businesses are classified by the State as small quantity generators of hazardous waste, and store hazardous materials on site. Additionally, incidents along transportation routes could involve deliveries of hazardous materials being made along main routes (i.e. Route 31) as well as by airplane.

It is important to note that a hazardous materials spill or leak on any town road could create significant disruptions to the road network, and pose a threat to humans and the environment.

3. Traffic Congestion & Vehicular Accidents

Traffic congestion is a moderate problem in Lyndeborough. Traffic associated with the school day start and end times are the most significant traffic events. Lyndeborough residents, however, are accustomed to this type of congestion, and accidents resulting from these traffic events are infrequent.

Poor winter conditions are another cause for vehicular accidents on any road. Forrest and Center roads have been the locations for a number of accidents due to poor driving conditions from the combined hazards of topography and winter weather.

4. Explosions / Fires

Explosions and Fires can occur at utilities such as electrical substations, power lines, or gas lines, hazardous materials sites, and all structures throughout the town.

5. Lightning

Thunderstorms present the danger of lightning strikes and have the potential of starting fires and causing human harm. Lightning strikes can occur in any given location, remote areas are more vulnerable as they are less accessible to emergency vehicles. Since damages are locationally dependent, it is difficult to estimate the cost of repairs due to damage. One lightning storm in Lyndeborough in 2005 was responsible for the destruction of five businesses due to the resulting fire that took over 20 hours to completely put out.

6. Hurricanes

Lyndeborough and Hillsborough Country have experienced high winds from some hurricane events but is at a more significant risk to flooding for the associated rainfall from hurricanes. Lyndeborough is most at risk during the hurricane season of June through November. It is not uncommon for New England to be impacted by a hurricane more than once in a season.

7. Tornadoes

There are no known tornadic events that have occurred in Lyndeborough. However, Hillsborough County has a higher risk of tornadic activity compared to the rest of the State. On average, six tornadoes touch down somewhere in New England each year. There are eighteen recorded tornadic events in Hillsborough County since 1956, of which seven were F2 events and one F3 event. It is a possibility that a tornado could occur again in Hillsborough County.

8. Downbursts

There are no known downbursts that have occurred in Lyndeborough, however they can cause significant damage.

9. Dam Failure

Dam failure is a minor threat in Lyndeborough, mainly due to the topography which does not support the construction of numerous dams.

10. Terrorism

This is a relatively new threat that must be addressed through training and equipping of local emergency response personnel in cooperation with state and federal agencies. It is essential that staff identify and thoroughly understand specific procedures to follow in the event of an attack. Considering the potential effects of terrorist activities on surrounding communities, Regional Mutual Aid Agreements specifically addressing terrorism are essential.

11. Earthquakes

Earthquakes could occur and effect the entire town, however they have not caused significant damage in the past.

12. Landslides

There are two locations where slopes in Lyndeborough are significant, in the west central portion of the town and northeast corner adjacent to the Francestown. Since there are no recorded landslides to this date, it is difficult to set a cost of repair or replacement to any of the structures in Town. The abundance of granite throughout Lyndeborough also lessens the possibility of such a disaster from occurring.

13. Wildfires

No wildfires have been historically noted for the Town of Lyndeborough, although lightning strikes and isolated pocket fires have been known to occur. A majority of the sizable forested lands within Lyndeborough are not immediately adjacent to residential developments, however, some individual homesites may be at risk and would be difficult to assist due to road grades and access in the event of a fire.

14. Drought

A drought is defined as a long period of abnormally low precipitation, especially one that adversely affects growing conditions. Droughts are rare in New Hampshire and are generally not as damaging or as disruptive as floods and are more difficult to define.

15. Radon

The US EPA rates all of Hillsborough County as having a moderate risk to radon exposure (<http://www.epa.gov/radon/zonemap/newhampshire.htm>), though site conditions can vary greatly even between short distances or neighboring structures.

16. Flooding (Riverine)

High Risk

High risk floods are those considered to have greater than eight-foot flooding in 100 and/or 500-year floodplain areas and assumes that, on average, all structures receive 49% damage⁴. The costs for repairing or replacing bridges, railroads, power lines, telephone lines, natural gas pipelines, the wastewater treatment plant, contents of structures and the loss of cropland values are not included in this estimate.

Medium Risk

Considers a four-foot flood in 100-year floodplain areas and assumes that, on average, all structures receive 28% damage⁵.

Low Risk

Considers one foot flooding in 100-year floodplain areas and assumes that, on average, all structures receive 15% damage⁶.

Risk	Description	Percent Damage	Number of Structures	Averaged Assessed Value	Total Cost
High	>8-foot flood in the 100-year floodplain	49%	3	\$48,400	\$71,184

⁴ "Understanding Your Risks, Identifying Hazards and Estimating Losses", FEMA, page 4-13.

⁵ Understanding Your Risks, Identifying Hazards and Estimating Losses", FEMA, page 4-13.

⁶ Understanding Your Risks, Identifying Hazards and Estimating Losses", FEMA, page 4-13.

March, 2009

Medium	4-foot flood in the 100-year floodplain	28%	\$40,656
Low	1-foot flood in the 100-year floodplain	15%	\$21,780

Total costs are calculated by multiplying the number of structures x average assessed value x assumed percent damage

E. Assessment of Future Development Losses

The future use of land is dependent on a number of factors. First and foremost are the constraints of the land. Attempts to push against these constraints in order to develop a poorly suited parcel of land often leads to a higher potential risk of being impacted by a natural hazard. The second factor is what the local land use laws permit. The goals of a community’s master plan, economic trends, remaining developable land, redevelopment of land, adequate infrastructure and the local and regional transportation network are also important factors in determining future land use.

As mentioned previously in the Town Overview, the Town of Lyndeborough encompasses 25.6 square miles. Elevations range from 280 feet above mean sea level in the southeastern corner of the town to 1,760 feet in the western part of the town near the Temple border. (This peak actually represents the highest elevation in the Nashua region.) Steep slopes may also be found throughout the town. Approximately 40% of Lyndeborough’s soils have high limitations on septic systems. Prime agricultural soils are found primarily in the southeastern portion of the town near the Mont Vernon and New Boston borders. Agricultural soils are also scattered in smaller, isolated pockets throughout the rest of the community. This presents the town with a continuing concern of existing farmland being sold to developers for land uses not pertaining to agriculture such as residential or commercial developments.

On the other hand, Lyndeborough has 2,448 acres of actively protected conservation lands which represents approximately 13 percent of the land area in the town. This land area should be considered in addition to the additional 44.5% of the town which is currently undeveloped or vacant.

Results from Lyndeborough’s buildout analysis indicate that of the total 19,425 acres that encompass the town of Lyndeborough, 8,224 acres represent parcels with some amount of current development, while 2,448 acres are currently protected (which includes open space, recreation and parcels designated as “water”). The 2,448 acres currently protected, include 223 acres of surface waters and 351 acres located within the 100-year floodplain. Therefore, this leaves Lyndeborough a current estimate of 11,201 acres of developable land before reaching buildout.

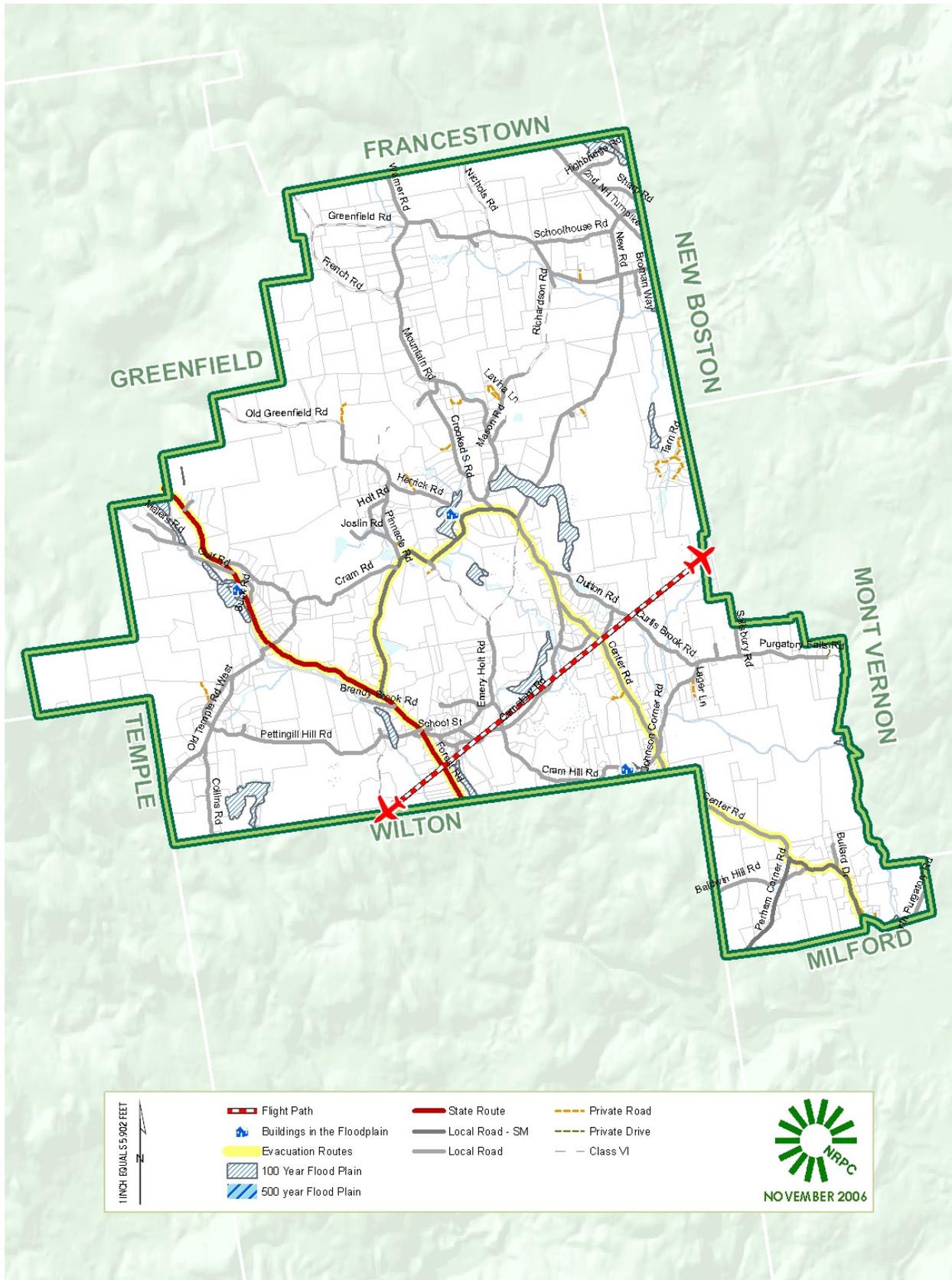
Looking at the developable land in Lyndeborough, there is a potential for a maximum of approximately 542 new single-family residential housing units in Lyndeborough before all remaining land is developed. There are an estimated 81 acres remaining in the Light Industrial District to be developed. Finally, there are no undeveloped lots remaining within the Village District for additional commercial or office uses.

As developable land becomes scarce, there is pressure to increase densities and utilize flood-prone agricultural land along the southern and central parts of Lyndeborough. Maintaining zoning standards to protect watersheds and their floodplains from development and maintaining existing controls for new construction on poor soils or steep slopes is important. To mitigate potential future hazard damage, adequate water must be maintained for fire protection and the critical facilities map must be updated as new facilities are built, relocated, or commercial centers expand beyond existing boundaries into other parts of the community.

The transportation network will also need to grow with development to allow for emergency vehicles to operate within necessary response times or if necessary, to provide for orderly evacuations. Updating flood maps will ensure accuracy that is important in locating developments on the remaining land in Lyndeborough.

March, 2009

MAP 4: FACILITIES IN LYNDEBOROUGH IDENTIFIED IN POTENTIAL LOSS ANALYSIS



CHAPTER V. EXISTING AND PROPOSED HAZARD MITIGATION STRATEGIES

The next step involves identifying existing mitigation strategies for the hazards likely to affect the town and evaluate their effectiveness. This section outlines those programs and recommends improvements and changes to these programs to ensure the highest quality emergency service possible.

Mitigation Goals:

- Minimize potential risk to animals.
- Inform the public about what to do in the event of emergency situations.
- Improve skills of emergency responders.
- Identify develop back up emergency response systems.
- Identify and improve emergency shelters or facilities.

A. Existing Mitigation Strategies

Existing hazard mitigation strategies were obtained during a brainstorming session with the Hazard Mitigation Team, as well as from the Town of Lyndeborough Emergency Management Plan and the Town of Lyndeborough Zoning Bylaw. Table 6 below provides a comprehensive list of all existing mitigation strategies currently in place.

Hazard Type	Existing Protection Program or Activity Description	Area of Town Covered	Enforcement Department	Effective-ness	Improvements or Changes Needed
All Hazards	Emergency Management Plan	Entire	Lyndeborough Emergency Planning Committee	Low	Amend to include appropriate responses to specific hazards
All Hazards	Mutual Aid Agreements	Entire	Fire Chief Road Agent	High	Update the mutual aid compacts on an as-needed basis
All Hazards	Communication system to help in the coordination of Highway Department, Fire, and Police	Entire	Road Agent Fire Chief Police Chief	High	Install repeater at Highway Dept. Cell Tower
All Hazards	Power Outage Communication System to help in coordinating the direction of elderly to shelters	Entire	Road Agent Fire Chief Police Chief	High	
All Hazards	Emergency power generator at town garage	Town Garage	Road Agent	Low	
Dam Failure	Emergency Action Plan (Jan 2005) for Putnam Pond (Site 8) and Temple Brook Tributary (Site 28)	South Lyndeborough	Emergency Management Director	High	
Fire First Response	Explorer Program to train new fire fighters and maintain existing capacity	Entire	Fire Chief	High	

March, 2009

TABLE 6: EXISTING MITIGATION STRATEGIES AND PROPOSED IMPROVEMENTS

Hazard Type	Existing Protection Program or Activity Description	Area of Town Covered	Enforcement Department	Effective-ness	Improvements or Changes Needed
Flooding	Provision of information and direction to help redirect traffic around areas of flooding	Entire	Fire Chief	Low	
Flooding	Emergency rescue and response for stranded motorists	Entire	Road Agent	Low	Maintain culverts and catch basin
Hurricanes Tornadoes Severe Winter Weather Lightning Flooding	Hazard tree and emergency tree removal	Entire	Road Agent	Medium	Yearly removal and maintenance
Medical	Blood Pressure Clinics	Elderly	Health Officer	Medium	Increased distribution and public awareness
Medical	Flu Shot Clinic	Elderly, Children	Health Officer	High	
Pandemic	Public awareness of mosquito borne diseases	Entire	Health Officer	Low	Increased public awareness in prevention
Severe Weather	Needs assessment questionnaire	Entire	Health Officer	Medium	Develop detailed database for use in emergency event
Severe Weather Events	Provide shelter to aid people who are in need of shelter protection due to extreme cold	Entire	Fire Chief Health Officer	Medium	Long-term shelter options needed
Severe Weather Events	Road salting, sanding, and plowing	Roadways	Road Agent	High	Purchase new trucks and upgrade equipment
Terrorism Vandalism	Alarm system to protect critical town infrastructure and property	Entire	Police Chief	Low	Not all facilities or locations under surveillance
Traffic Congestion and Vehicular Accidents	Traffic control for snow and tree removal operations	Entire	Fire Chief Road Agent	Medium	Need driver education for inclement weather
Traffic Congestion and Vehicular Accidents	Accident Response	Entire	Fire Chief	Medium	

B. Proposed Mitigation Strategies

In addition to the programs and activities that Lyndeborough is currently undertaking to protect its residents and property from natural and manmade disasters, a number of additional strategies were identified by the Local Hazard Mitigation Committee for consideration. The process of compiling a comprehensive list of all mitigation strategies currently in place throughout the town helped the Committee to identify gaps in the existing coverage and improvements which could be made to the existing strategies. These types of actions were considered when determining new projects, programs, and activities which the Town of Lyndeborough can develop:

- Prevention
- Property Protection
- Structural Protection
- Emergency Services
- Public Education and Involvement

Prevention measures include: planning, zoning, open space preservation, floodplain and wetland development regulations, storm water management, best management practices, communication systems with rail companies, and communication with landowners regarding hazardous materials.

Property Protection includes: utility relocation/burying or flood proofing, lightning protection for elevated structures, identifying all water sources in recreational facilities, sewer backup protection, insurance and minimization actions.

Structural Protection includes: placement of anemometers, evacuation plans for each building, enclosing hazardous facilities, detention/retention basins, larger culverts and higher flood standards for construction projects.

Emergency Services include: Regional mutual aid agreements, protection of critical facilities, health and safety maintenance, and an inventory of all assets in Town.

Public Education and Involvement measures include: providing map information, informational mailings or workshops, real estate disclosure of flood hazards, environmental education, and public announcements which provide updates on emergency situations in Town.

The brainstorming session resulted in a list of actions that could be taken to mitigate future hazards. These results are compiled in Table 7.

TABLE 7: PROPOSED MITIGATION STRATEGIES				
Assigned	Hazard Type	Potential Program or Activity	Description of Proposed Strategy	Type of Activity
EOC	All Hazards	Animal Evacuation Plan	Develop evacuation strategies that include provisions for animal rescue and evacuation, including arrangement of special transportation needs for large animals such as horses.	Emergency Services
Health Officer	All Hazards	Annual Safety Day	Designate an annual Safety Day to highlight the importance of safety education for all age groups within the community.	Public Education
Fire	All Hazards	Auxiliary Teams Training Needs Assessment	Identify and rank training needs or deficits for auxiliary response personnel and provide necessary training opportunities as needed, including hazardous materials, ice rescue techniques, and electrical hazards.	Prevention / Emergency Services

March, 2009

TABLE 7: PROPOSED MITIGATION STRATEGIES

Assigned	Hazard Type	Potential Program or Activity	Description of Proposed Strategy	Type of Activity
EOC	All Hazards	Be-Your-Own-Dispatch-Center	Create detailed phone listings for all Emergency Planning Committee members as back-up system for traditional dispatching mechanisms. Create organizational flexibility to maintain quality level of service in the planned or unplanned absence of one or more team members.	Emergency Services
EOC	All Hazards	Disaster Recovery Plan	Create a disaster recover plan which outlines back-up temporary use scenarios in the event that important municipal buildings are lost in a disaster event, including critical data recovery operations and data back-up plan.	Prevention
EOC	All Hazards	Emergency Equipment Storage	Locate, designate, and maintain a location for the storage of EOC materials and alternative transport vehicles (snowmobiles, ATVs, etc.) accessible to all EOC personnel, in a central and secure location.	Emergency Services
EOC	All Hazards	Emergency Evacuation Shelter	Obtain a formalized alternate shelter area equipped with cots and emergency supplies and plan for operation and maintenance.	Prevention / Emergency Services
EOC	All Hazards	Emergency Operations Field Outpost	Obtain an extreme weather operations portable shelter for EOC personnel.	Emergency Services
EOC	All Hazards	Municipal Emergency Evacuation Plan	Create assembly area and response protocol for use in emergency drills at municipal facilities.	Prevention
Health Officer/Road Agent	All Hazards	Needs Inventory and Resources Questionnaire	Inventory of town-wide special needs and at-risk population for preparedness planning as well as a town-wide questionnaire to identify privately maintained social and physical resources available to town officials during an emergency response.	Prevention
Health Officer	All Hazards	Public Safety Outreach Programs	Provide a comprehensive safety education program for Lyndeborough citizens, including topics such as general safety, CPR, fire, electrical, and poison control with a focus on both prevention and emergency response.	Public Education
School	All Hazards	Universal Communications	Provision school with radio and operational training to better coordinate school officials with emergency responders.	Emergency Services
Road Agent	All Hazards	Workplace Safety Training	Increased employee training in OSHA requirements	Prevention
EOC	Emergency Response	Workplace efficiency	Create a more serviceable arrangement for secretarial usage of technology and security equipment for responding efficiently to emergency situations.	Emergency Services
Fire	Hazardous Materials	Potential Incident Mapping	Use Firehouse software to generate mapped locations of potential incidents for future analysis and planning.	Prevention

March, 2009

TABLE 7: PROPOSED MITIGATION STRATEGIES

Assigned	Hazard Type	Potential Program or Activity	Description of Proposed Strategy	Type of Activity
Road Agent	Hazardous Materials	Spill Containment	Obtain additional spill-containment kits in a location closer to EOC.	Emergency Services
Fire	Hazardous Materials / Fire	Residential Pre-planning for Hazardous Substances	Extend Fire Department hazardous substances and propane tank pre-planning efforts (building layouts and hazards) to residential level.	Prevention
Road Agent	Severe Weather	Severe Weather Traffic Control	Increase alert signage and personnel training for severe weather emergency snow and tree removal operations.	Emergency Services
Road Agent	Severe Weather	Snow-loading Prevention	Incorporate updated snow-loading design standards with criteria specific to Lyndeborough in building permitting; implement yearly heat-coil inspections; and deploy trained maintenance personnel for roof snow-removal operations.	Structural Protection
Building Inspector	Severe Weather	Building Codes and Zoning Regulations	Update existing building codes and zoning regulations to maintain the structural integrity of existing and new facilities.	Structural Protection
EOC	Severe Weather	Weather Alert System	Obtain weather station equipped with basic weather forecasting equipment, including anemometer, barometer, temperature, etc.	Structural Protection
School	Terrorism	School Evacuation Plan	Identify an alternate route for students to reach a shelter facility from behind school, through wooded area. Also include provisions for public outreach to parents in the event conditions do not permit parental pick-up of students.	Emergency Services
EOC	Flooding	National Flood Insurance Program	With assistance from NH Office of Energy and Planning, the town needs to join the National Flood Insurance Program.	Prevention
Road Agent	Vandalism	Alarm Systems	Need alarm systems at Highway Dept.	Property Protection
School	Vandalism	Burglary Prevention	Install outdoor flood lighting on the south side of the school building to discourage illicit behaviors.	Property Protection

* Proposed mitigation strategies are not listed in any particular order.

C. Prioritization of Proposed Mitigation Strategies

The goal of each strategy is reduction or prevention of damage from a hazard event. In order to determine their effectiveness in accomplishing this goal, a set of criteria was applied to each proposed strategy. The STAPLEE method analyzes the Social, Technical, Administrative, Political, Legal, Economic and Environmental aspects of a project and is commonly used by public administration officials and planners for making planning decisions. The following questions were asked about the proposed mitigation strategies and discussed in Table 7:

March, 2009

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

Each proposed mitigation strategy was evaluated and assigned a score (Good = 3, Average = 2, Poor = 1) based on the above criteria. An evaluation chart with total scores for each strategy can be found in the collection of individual tables under Table 8. The LEPC determined the top eight highest priority mitigation strategies, presented in Table 8 below.

TABLE 8: STAPLEE ANALYSIS OF PROPOSED MITIGATION STRATEGIES			
Mitigation Strategy	Criteria	Evaluation	Score
Spill Containment	Socially acceptable?	Benefits everyone equally.	3
	Technically feasible and potentially successful?	Yes, spill containment kits may be purchased from numerous suppliers.	3
	Administratively workable?	Spill containment would be performed by already trained personnel. Administrative staff would not need any additional training.	3
	Politically acceptable?	Purchase of equipment requires Board of Selectmen approval.	2
	Legal authority to implement?	Yes.	2
	Economically beneficial?	Yes, frees mobile spill containment units to be used for emergency response at unidentified locations rather than known locations where spills could occur.	3
	Environmentally beneficial?	Yes, allows for faster response time and cleanup.	3
	FINAL SCORE		19

March, 2009

TABLE 8: STAPLEE ANALYSIS OF PROPOSED MITIGATION STRATEGIES

Mitigation Strategy	Criteria	Evaluation	Score
Training Needs Assessment for Auxiliary Teams	Socially acceptable?	Benefits community equally.	3
	Technically feasible and potentially successful?	Feasible to conduct needs assessment informally or through a detailed questionnaire assessment. Great potential for successfully identifying precise training needs.	3
	Administratively workable?	Time and budget commitments minor.	3
	Politically acceptable?	Yes, no formal approvals necessary.	3
	Legal authority to implement?	Yes, no formal approvals necessary.	3
	Economically beneficial?	Cost of identifying needs far outweighed by impact of addressing those needs.	2
	Environmentally beneficial?	No adverse environmental impacts identified.	2
	FINAL SCORE		19
Municipal Emergency Evacuation Plan	Socially acceptable?	While plan directly benefits municipal employees, indirectly benefits everyone through protection of information and critical staff resources.	3
	Technically feasible and potentially successful?	Yes	3
	Administratively workable?	Existing staff time could be dedicated to identifying critical information pieces that should be preserved during an emergency situation.	2
	Politically acceptable?	Dedication of staff time would require Board of Selectmen approval.	2
	Legal authority to implement?	No formal approvals required.	3
	Economically beneficial?	Costs of staff time compared to benefits of information preservation and better ability to respond to in-house emergency situations.	3
	Environmentally beneficial?	No adverse environmental impacts identified.	3
	FINAL SCORE		19

March, 2009

TABLE 8: STAPLEE ANALYSIS OF PROPOSED MITIGATION STRATEGIES

Mitigation Strategy	Criteria	Evaluation	Score
Weather Alert System	Socially acceptable?	Benefits everyone equally	3
	Technically feasible and potentially successful?	Basic weather forecasting and interpretation required.	3
	Administratively workable?	Responsible staff member would need to be identified for reporting purposes and on-call status during severe weather.	2
	Politically acceptable?	Equipment purchases would need approval from Board of Selectmen	2
	Legal authority to implement?	No formal approvals required.	3
	Economically beneficial?	Advance forecasting would help in salt distribution and staffing of weather emergencies.	3
	Environmentally beneficial?	No adverse environmental impacts identified.	2
	FINAL SCORE		18
School Evacuation Plan	Socially acceptable?	Benefits primarily school-aged children.	2
	Technically feasible and potentially successful?	Plan involves identifying and formalizing an alternate route for children to reach shelter facility in the event that main entrance not accessible and notification of parents of the alternate route policies and practices when in use.	3
	Administratively workable?	Existing knowledge of alternate routes and staff time could be used to develop plan	3
	Politically acceptable?	Yes	3
	Legal authority to implement?	Yes	3
	Economically beneficial?	No adverse economic impacts identified.	2
	Environmentally beneficial?	Trail area between school and shelter should be surveyed to determine that alternate route avoids sensitive habitats or resources.	2
	FINAL SCORE		18

March, 2009

TABLE 8: STAPLEE ANALYSIS OF PROPOSED MITIGATION STRATEGIES

Mitigation Strategy	Criteria	Evaluation	Score
Universal Communications (School)	Socially acceptable?	Principally benefits school-aged children and their parents.	2
	Technically feasible and potentially successful?	Yes. Equipment may already be available from existing supplies.	3
	Administratively workable?	Administrative personnel could be trained by existing emergency operations personnel on emergency operations procedures.	3
	Politically acceptable?	No formal approvals required.	3
	Legal authority to implement?	No formal approvals required.	3
	Economically beneficial?	No adverse economic impacts identified.	2
	Environmentally beneficial?	No adverse environmental impacts identified.	2
	FINAL SCORE		18
Emergency Evacuation Shelter	Socially acceptable?	Benefits everyone equally.	3
	Technically feasible and potentially successful?	Emergency supplies can be obtained from numerous sources. Benefits of having a dedicated and maintained shelter would be great.	3
	Administratively workable?	Dedication of space for supplies may be difficult, yet workable.	2
	Politically acceptable?	Yes, pending budget approvals.	2
	Legal authority to implement?	No formal approvals required.	2
	Economically beneficial?	Long-run costs savings of obtaining materials in non-crisis situations and ability to handle emergencies "in house."	3
	Environmentally beneficial?	No adverse environmental impacts identified.	2
	FINAL SCORE		17

March, 2009

TABLE 8: STAPLEE ANALYSIS OF PROPOSED MITIGATION STRATEGIES			
Mitigation Strategy	Criteria	Evaluation	Score
Severe Weather Traffic Control	Socially acceptable?	Benefits everyone equally.	3
	Technically feasible and potentially successful?	Efforts would involve increased level of effort from existing conditions and would not require new skills or technologies.	3
	Administratively workable?	Increased staffing time would need formal approvals.	2
	Politically acceptable?	Budget for increased staffing time would need approval by the Board of Selectmen.	2
	Legal authority to implement?	Upon approval by the Board of Selectmen.	2
	Economically beneficial?	Direct costs of increased staffing time increased, but costs of personal or property damage potentially decreased.	2
	Environmentally beneficial?	No adverse environmental impacts identified.	2
	FINAL SCORE		16

Each strategy was evaluated and prioritized according to the final score. The highest scoring strategies were determined to be of more importance, economically, socially, environmentally, and politically. Therefore these strategies were prioritized over those that were lower scoring.

March, 2009

CHAPTER VI. IMPLEMENTATION SCHEDULE

This step involves developing an action plan that outlines who is responsible for implementing each of the prioritized strategies determined in the previous step, as well as when and how the actions will be implemented. The following questions were asked to develop an implementation schedule for the identified priority mitigation strategies:

- WHO?** Who will lead the implementation efforts? Who will put together funding requests and applications?
- WHEN?** When will these actions be implemented, and in what order?
- HOW?** How will the community fund these projects? How will the community implement these projects? What resources will be needed to implement these projects?

Table 9 acts as an Action Plan. In addition to the prioritized mitigation projects, Table 9 includes the responsible party (WHO), how the project will be supported (HOW), and what the timeframe is for implementation of the project (WHEN).

TABLE 9: PRIORITIZED MITIGATION PROJECTS AND ACTION PLANS			
Project	Responsibility/ Oversight	Funding/Support*	Timeframe
Purchase a Spill Containment Kit	Emergency Operations Committee / Road Agent	Local/New Hampshire Drinking Water Source Protection Program	2 Years (2010)
Auxiliary Teams Training Needs Assessment	All Departments	Local/Emergency Management Performance Grant (EMGP)	2 Years (2010)
Municipal Emergency Evacuation Plan	Emergency Management	Local/FEMA's Hazard Mitigation Assistance Program	2 Years (2010)
Purchase a Weather Alert System	Emergency Operations Committee	Local/Project Impact/CEPP Technical Assistance Grants Program	2 Years (2010)
School Evacuation Plan	Emergency Management, School	Local/FEMA's Hazard Mitigation Assistance Program	1 Year (2009)
Universal Communications for School	Fire Department, School	Local/FEMA's Hazard Mitigation Assistance Program	1 year (2009)
Emergency Evacuation Shelter	Fire Department Road Agent Emergency Planning Committee	Local/FEMA's Hazard Mitigation Assistance Program	3 Years (2011)

March, 2009

TABLE 9: PRIORITIZED MITIGATION PROJECTS AND ACTION PLANS

Project	Responsibility/ Oversight	Funding/Support*	Timeframe
Severe Weather Traffic Control	Fire Department, Road Agent, with assistance with New Hampshire Department of Transportation	Local/FEMA's Hazard Mitigation Assistance Program, New Hampshire Department of Transportation's	Ongoing/2 Years (2010)

CHAPTER VII. UPDATING THE PLAN AND CONTINUED PUBLIC INVOLVEMENT

The completion of a planning document is merely the first step in its life as an evolving tool. The Hazard Mitigation Plan is a dynamic document which must be reviewed on a regular basis as to its relevancy and usefulness and to add new tasks as old tasks are completed. Recognizing that many mitigation projects are ongoing, and that while in the implementation stage communities may suffer budget cuts, experience staff turnover, or projects may fail altogether, a good plan needs to provide for periodic monitoring and evaluation of its successes and failures and allow for updates of the Plan where necessary.

A. Maintenance and Update of the Hazard Mitigation Plan

It is required that the Town update the Lyndeborough Hazard Mitigation Plan and have it approved by FEMA at a minimum of every five years. In order to track progress and update the Mitigation Strategies identified in the Action Plan (Table 9), it is recommended that the Town of Lyndeborough revisit the plan annually. In addition, it is especially important to incorporate updates within one year after a Presidential Disaster Declaration. The Emergency Management Director is responsible for initiating this review and needs to consult with members of the Hazard Mitigation Team and as needed with the Emergency Management Team and the community.

Changes should be made to the Plan to accommodate for projects that have failed or are not considered feasible after a review for their consistency with STAPLEE, the timeframe, the community's priorities, and funding resources. Priorities that were not ranked high, but identified as potential mitigation strategies, should be reviewed as well during the monitoring and update of this Plan to determine feasibility of future implementation. New mitigation actions or plans proposed upon adoption of the plan must follow the STAPLEE analysis method previously utilized for the Hazard Mitigation Plan. This will not only ensure consistency with the adopted plan, but more importantly will guide the members to evaluate its feasibility, public and political approval and overall potential for success.

B. Utilization of Existing Municipal Plans, Regulations and Programs

MASTER PLAN

It is important that updates of the Town's Master Plan be coordinated with updates of the Hazard Mitigation Plan. As the Development Trends section contains historical information from the current Master Plan, it is necessary for the Hazard Mitigation Committee/Implementation Team to include any new updates from the development analysis into this section.

ZONING ORDINANCE AND REGULATIONS

It is important for the Committee/Implementation Team to meet with the Planning Board and discuss the Zoning Ordinance and Regulations to ensure that any existing and proposed changes do not conflict with the proposed Mitigation Actions/Plans from this plan.

C. Continued Public Involvement

In keeping with the process of adopting the *Town of Lyndeborough Hazard Mitigation Plan*, the Emergency Management Director will be responsible for ensuring that the Town Departments and the public have adequate opportunity to participate in the maintenance and update of the Hazard Mitigation Plan. A public hearing will be held to receive public comment during the annual review period, and the final product adopted by the Board of Selectmen appropriately.

During the maintenance and update process of the Hazard Mitigation Plan, the following techniques may be used to ensure continued public involvement:

- Provide personal invitations to the Board of Selectmen;
- Provide personal invitations to the Budget and CIP Committees;
- Provide personal invitations to the Town Department heads;
- Post notices of meetings at the Town Hall, Library, and the Town website;
- Submit public service announcements and community event announcements to The Milford Cabinet and Nashua Telegraph and the Lyndeborough Views to make the general public and other interested parties aware of the process.
- Send out notices of future updates to adjacent communities.

These techniques are just examples of what the Hazard Mitigation Committee can utilize. It may be necessary for the Hazard Mitigation Committee to form a new group upon adoption of the plan dedicated to implementation, update, and education/outreach of the plan. As noted below in Table 10, this is noted as a Hazard Mitigation Implementation Team. This will also allow new members to join from other municipal departments and the public. The Emergency Management Director and committee or team members must try to adhere to the following agenda, tasks and responsibilities in order to ensure that the mitigation actions and plans are implemented.

TABLE 10: ANNUAL PLAN UPDATE AND PUBLIC INVOLVEMENT AGENDA		
Meeting Schedule	Task	Responsibility
Every 3 months upon date of plan adoption	Assess current status of funding for mitigation projects. Discuss any new projects/plans that should be obtained for Lyndeborough.	Department heads or municipal officials interested in working with the Hazard Mitigation Committee to find new sources of funding. The original Hazard Mitigation Committee may decide to form a new Hazard Mitigation Implementation Team to implement the proposed strategies and plans.
Twice a year or as needed (Dates to be determined)	Meet to discuss the Hazard Mitigation Plan content and any updates needed for the plan.	Hazard Mitigation Committee or Hazard Mitigation Implementation Team
Twice a year or as needed (Dates to be determined)	Discussion and evaluation of Training Programs and public outreach efforts. New public outreach methods discussed.	Hazard Mitigation Committee / Implementation Team and other interested municipal officials.

CHAPTER VIII. RECOMMENDATIONS

The following recommendations have been provided to assist the Town of Lyndeborough in adopting additional mitigation strategies in the community.

A. Communications/Emergency Response

1. **Communications System** - Establish a communications system, with radio operability on the same frequency, providing the school the ability to communicate with emergency personnel locally and throughout the region.
2. **Severe Weather Traffic Control** - Develop a system for recruiting and deploying additional safety personnel to handle emergency traffic situations. Increased personnel will improve the efficient direction of traffic during emergency situations throughout the town.
3. **Auxiliary Teams Training Needs Assessment** - Before training can be provided, the precise needs and skill levels of volunteer and staff positions needs to be determined, in order that the ultimate training provided meets the needs of the current response teams.

B. Infrastructure and Capital Improvements

1. **Weather Station and Alert System** - A portable weather station is valuable in monitoring the migration of hazardous materials in the air and improving the accuracy of road salt applications and notifications in the event of severe weather.
2. **Emergency Evacuation Shelter** - Provide a permanent shelter location with cots and emergency supplies.

C. Safety

1. **Municipal Emergency Evacuation Plan** - Develop a plan to address departmental responsibilities, evacuation procedures and safety precautions during severe events.
2. **School Evacuation Plan** - Develop a plan to address the current and an alternate evacuation route from the school to the shelter.
3. **NFIP** - Seek Assistance from the NH Office of Energy and Planning to Join the National Flood Insurance Program.
4. **Building Codes and Zoning Regulations** - Update the building codes and zoning regulations to ensure the structural integrity of existing and new structures.