HAZARD MITIGATION PLAN

Town of Allenstown
New Hampshire

Tire pile fire impacting nearby vegetation, 1979

Adopted by the Allenstown Board of Selectmen
February 23, 2004

HAZARD MITIGATION PLAN

Town of Allenstown, New Hampshire

Adopted February 23, 2004

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CERTIFICATE OF ADOPTION

Town of Allenstown, New Hampshire
Board of Selectmen
A Resolution Adopting the Allenstown Hazard Mitigation Plan
February 23, 2004

WHEREAS, the Town of Allenstown received funding, administered by the Central NH Regional Planning Commission, from the NH Office of Emergency Management to prepare the Allenstown Hazard Mitigation Plan; and

WHEREAS, several public planning meetings were held between August and October 2002 and one meeting was held in December 2003 regarding the development and review of the Allenstown Hazard Mitigation Plan; and

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

WHEREAS, the Federal Emergency Management Agency (FEMA) has rendered its approval of the Allenstown Hazard Mitigation Plan on January 15, 2004 contingent upon local adoption; and

WHEREAS, a duly-noticed public hearing was held by the Allenstown Board of Selectmen on February 23, 2004 to formally approve and adopt the revised Allenstown Hazard Mitigation Plan.

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

ADOPTED AND SIGNED this 23rd day of February 2004.

Sandra McKenney, Chair
Allenstown Board of Selectmen

ATTEST

Benjamin Fontaine

Edward Cyr, Town Clerk

Arthur Houle

ACKNOWLEDGEMENTS

The Allenstown Hazard Mitigation Committee was comprised of the following individuals who met from August to October, 2002:

- Robert Martin, Deputy Chief, Fire Department
- James McGonigle, Chief, Police Department
- James Boisvert, Highway Department
- James Rodger, Chair, Planning Board / Sewer Commissioner

The following Central NH Regional Planning Commission staff contributed to the development of the Hazard Mitigation Plan:

- Stephanie Alexander, Principal Planner
- Catherine Coletti, Planning Assistant
- Joshua Carter, UNH Intern
- John Vaillancourt, Regional Planner

Additional participants:

- Gabriel Daneault, State Representative/local historian
- Albert Dionne
- Keith Lambert, Fire Department
- Chris Clark, Police Department

Fall 2003 participants for revisions:

- Arthur Houle, Board of Selectmen
- James Boisvert, Highway Department
- Robert Martin, Fire Department
- Chris Clark, Police Department

CHAPTER 1. INTRODUCTION

Background
The Hazard Mitigation Plan for Allenstown is intended to provide information in the event of a natural disaster, to raise awareness of the vulnerability of facilities and structures of Allenstown to such disasters, and to provide measures to help offset the damages of a future disaster.

In 2000, the President enacted the Disaster Mitigation Act which requires states and municipalities to have local natural hazard mitigation plans in place in order to be eligible for disaster funding programs such as Community Development Block Grant, Hazard Mitigation Grant Program, Flood Mitigation Assistance Program, Mitigation Assistance Program, and Project Impact. New Hampshire is awarded funds based upon the completeness of its State Plan and upon the number of local plans in place.

As a result of the DMA, funding is being provided to state offices of emergency management to produce local hazard mitigation plans. The NH Office of Emergency Management provided funding to the nine regional planning commissions in New Hampshire in 2001 to work with two municipalities in their respective regions to produce such a plan. The Central New Hampshire Regional Planning Commission approached the Town of Allenstown in summer, 2002, and both parties agreed to jointly complete a Natural Hazard Mitigation Plan in fall, 2002. Fully federally funded, there is no cost to the Town to produce this Plan.

A Local Hazard Advisory Committee was established which guided the development of the Plan. The Town Fire Department, Police Department, Building Inspector, Planning Board, Road Agent, and Town Administrator were invited to participate. Other interested residents were also invited.

Goals
The overall goal of this Plan is to reduce future life and property losses caused by natural hazard events before they occur.

The general goals of the Hazard Mitigation Plan for Allenstown are:

- To identify natural hazards that may impact the Town;
  (such as floods, hurricanes, nor'easters, earthquakes, wildfire, and drought)

- To identify risks from these hazards; and
  (such as where the events are likely to occur and what the damage might be)

- To identify resources or techniques available to help lessen the impact of hazard events.
  (such as critical facilities protection and ordinance / regulation revision)

A number of objectives have been stated, similar to the State of New Hampshire's hazard mitigation goals, which further specify the aims of Allenstown's Hazard Mitigation Plan.

Methodology

The Hazard Mitigation Committee met on August 13, August 29, September 17, September 26, and October 10 in 2003 to produce this Hazard Mitigation Plan. On August 13, CNHRPC staff introduced the concept of the Plan and participants identified critical facilities on a map. On August 29, participants identified the locations of past hazards and evacuation route, and established broad goals for the Plan. On September 17, the first draft of the Plan was reviewed, and new and existing mitigation strategies were identified. On September 26, participants added additional mitigation strategies and prioritized them all. On October 10, participants created an implementation strategy, reviewed the final draft of the Plan, and revised the broad goals established earlier in the process. For each meeting, CNHRPC staff created agendas and meeting summaries for the Hazard Mitigation Committee. The agendas, attendance sheets, and meeting summaries are included in the **APPENDIX** of the Plan.

A news article about the Hazard Mitigation Plan and its process was published in The Banner on August 29, 2002. Attempts were made to get a short press release published in the Union Leader. Colorful flyers were posted at the Town Offices and the Fire Department on September 17. Copies of publicity for the Plan are included as in the **APPENDIX**.

In between meetings, CNHRPC staff interviewed the local historians about what hazard events occurred in Town and conducted research on the web and at the Concord Monitor, Banner, and Union Leader offices for information on hazards specific to Allenstown. CNHRPC staff collected information on the critical and at-risk facilities in Town, most of which were located by GPS, and produced the four maps for this Plan. CNHRPC staff researched structures within the floodplain through Town Office and FEMA sources and wrote this Plan.

On October 30, 2002, the Committee held a public input meeting. The purpose of the meeting was to obtain review and comment from the public for the Plan. The Concord Monitor, Union Leader, and The Banner received press releases of the meeting and flyers were posted in the Town Offices and Fire Department. Copies of this Plan were made available for review at the Town Office, Library, and Fire Department on October 24.

On October 25, 2002, the Committee made a final draft of this Plan available to Town Departments for review and comment. Included with the draft was a sign-off sheet, which was signed by Department heads to acknowledge that they have read and understood the document. The document was also provided to the NH Office of Emergency Management for their review and comment. The sign-off sheets are included as in the **APPENDIX.**

On November 25, 2002, the Allenstown Board of Selectmen held a duly-noticed public hearing to adopt the Hazard Mitigation Plan for Allenstown. Copies were made available at the Town Offices and Fire Department for public review on November 15.

In April 2003, the CNHRPC was informed by FEMA that the Allenstown Plan was not approved. No plan submitted by any of the nine regional planning commissions (RPCs) in NH was approved. Funding was provided in summer 2003 by the NH OEM for all RPCs to revise their 2002 Plans.

In October-November 2003, CNHRPC revised the Plan based upon comments from FEMA. On December 1, 2003, CNHRPC met informally with members of the 2002 Hazard Mitigation Committee and Selectmen to discuss the revisions and make updates. After receiving their support, CNHRPC submitted the revised Plan to FEMA.

On January 15, 2004, Allenstown received a letter of approval from FEMA for the Allenstown Hazard Mitigation Plan contingent upon local Plan adoption. On February 23, the Board of Selectmen held a duly-noticed public hearing to adopt the revised Hazard Mitigation Plan. Copies were made available at the Town Offices for public review on February 9.

CHAPTER 2. HAZARD IDENTIFICATION

The State of New Hampshire's Natural Hazard Mitigation Plan recommends that municipalities examine the following natural hazards. The Allenstown Hazard Mitigation Plan incorporates the majority of the natural hazards listed within the State Plan; hazards such as tsunamis and phragmites australis were not deemed applicable to Allenstown.

Definitions of Hazards
The following are definitions used within the State of New Hampshire Natural Hazard Mitigation Plan.

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

Inland floods are most likely to occur in the spring due to the increase in rainfall and melting of snow; however floods can occur at any time of year. A sudden thaw in the winter or a major downpour in the summer can cause flooding because there is suddenly a lot of water in one place with nowhere to go.

Hurricanes
A hurricane is a tropical cyclone in which winds reach speeds of 74 miles per hour or more and blow in a large spiral around a relatively calm center. Flooding is often caused from the coastal storm surge of the ocean and torrential rains, both of which accompany the storm. These floods can result in loss of lives and property.

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

Erosion and Mudslides
Erosion is the process of wind and water wearing away soil. Typically in New Hampshire, the land along rivers is relatively heavily developed. Mudslides may be formed when a layer of soil atop a slope becomes saturated by significant precipitation and slides along a more cohesive layer of soil or rock.

Erosion and mudslides become significant threats to development during floods. Floods speed up the process of erosion and increase the risk of mudslides.

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

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

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

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

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

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

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

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

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

Nor'easters
A Nor'easter is defined as a large weather system traveling from south to north, passing along or near the seacoast. As the storm approaches New England, and its intensity becomes increasingly apparent, the resulting counterclockwise cyclonic winds impact the coast and inland areas from a northeasterly direction. The sustained winds may meet or exceed hurricane force, with larger bursts, and may exceed hurricane events by many hours (even days) in terms of duration.

Downbursts
A downburst is a severe localized wind blasting down from a thunderstorm. These "straight line" winds are distinguishable from tornadic activity by the pattern of destruction and debris. Downbursts fall into two categories: microburst, which covers an area less than 2.5 miles in diameter and macroburst, which covers an area at least 2.5 miles in diameter.

Severe Thunderstorms
All thunderstorms contain lightning. During a lightning discharge, the sudden heating of the air causes it to expand rapidly. After the discharge, the air contracts quickly as it cools back to ambient temperatures. This rapid expansion and contraction of the air causes a shock wave that we hear as thunder, a shock wave that can damage building walls and break glass.

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

Hail
Hailstones are balls of ice that grow as they are held up by winds, known as updrafts, that blow upwards in thunderstorms. The updrafts carry droplets of supercooled water - water at a below freezing temperature - but not yet ice. The supercooled water droplets hit the balls of ice and freeze instantly, making the hailstones grow. The faster the updraft, the bigger the stones can grow. Most hailstones are smaller in diameter than a dime, but stones weighing more than a pound have been recorded. Details of how hailstones grow are complicated, but the results are irregular balls of ice that can be as large as baseballs, sometimes even bigger. While crops are the major victims, hail is also a hazard to vehicles and windows.

Wildfire
Wildfire is defined as an uncontrolled and rapidly spreading fire.

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

Ice & Snow Events

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

Heavy Snow Storms

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

Ice Storms

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

Nor'easters

A Nor'easter is defined as a large weather system traveling from south to north, passing along or near the seacoast. As the storm approaches New England and its intensity becomes increasingly apparent, the resulting counterclockwise cyclonic winds impact the coast and inland areas from a northeasterly direction. In the winter months, oftentimes blizzard conditions accompany these events. The added impact of the masses of snow and/or ice upon infrastructure often affects transportation and the delivery of goods and services for extended periods.

Earthquakes/Landslides

Geologic events are often associated with California, but New England is considered a moderate risk earthquake zone.

Earthquake

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

Landslide

A landslide is the downward or outward movement of slope-forming materials reacting under the force of gravity including: mudflows, mudslides, debris flows, rockslides, debris avalanches, debris slides, and earth flows. Landslides have damaged or destroyed roads, railroads, pipelines, electrical and telephone lines, mines, oil wells buildings, canals, sewers, bridges, dams, seaports, airports, forests, parks, and farms.

Drought

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

Radon

Radon is a naturally occurring radioactive gas with carcinogenic properties. The gas is a common problem in many states, including New Hampshire. Data collected by the NH Office of Community and Public Health's Bureau of Radiological Health indicates that one third of the houses in New Hampshire have indoor radon levels that exceed the US Environmental Protection Agency's "action level" of four picocuries per liter for at least some portion of the year.

Radon may also enter homes dissolved in drinking water from drilled wells. High levels of radon in water from individual drilled wells is a common occurrence in New Hampshire.

Map 1: Potential Hazards

The first map in this four-part series depicts where hazards are likely to occur in Allenstown. Areas where flooding regularly occurs and the floodplain itself are shown with wetlands and the town's water features. Areas identified as susceptible to ice, hurricane, and fire damage are noted in addition to Allenstown's steep slopes (>15%). Areas where lightning strikes, areas of power outages, the low-and high-pressure gas lines, and proposed evacuation routes are also shown. The intent of this map is to portray a picture of which areas of Town may be more vulnerable to certain types of hazards.

CHAPTER 3. PROFILE OF HAZARD EVENTS IN ALLENSTOWN

This Chapter seeks to identify hazard events that have occurred within Allenstown. Narrative descriptions are provided, and additional research has uncovered historical data and data which may indirectly refer to Allenstown from a county- or state-wide context; all of the findings are then summarized in tabular form.

Past and Potential Hazard Events in Allenstown

Hazard events were researched using a wide variety of sources. Sources and techniques included interviewing local historians; researching back issues and microfilms of the Concord Monitor, Union Leader, and various local paper; and collecting information from the State of NH Hazard Mitigation Plan and from governmental or non-profit websites.

A compilation of hazards that have impacted Allenstown in the past appears in **Table 1** form at the end of this Chapter. Within Allenstown, the risk of each main hazard has been identified as a high (H), medium (M), or low (L) possibility for future occurrence based on past and potential events as indicated in the following Chapters and as mapped *on Map 1: Potential Hazards* and *Map 2: Past Hazards*.

Flooding

Second only to winter storms, riverine flooding is the most common natural disaster to impact New Hampshire. Floods are a common and costly hazard. They are most likely to occur in the spring due to the increase in rainfall and the melting of snow. However, they can occur anytime of the year as a result of heavy rains, hurricane, or a Nor'easter.

Allenstown has several areas particularly susceptible to flooding. Riverside Park (on Pine Acre Road) has flooded repeatedly in the past (Town historian). Every time a major flood has occurred in the last approximately 40 years, Brookside Trailer Park (Route 28) has been flooded (Town Historian).

The likelihood of another flood in Allenstown seems high. The Town is susceptible to flooding because of two major rivers that border it: the Merrimack River and the Suncook River. Homes near the Merrimack and Suncook River, especially in low-lying areas, are at risk. Mobile home parks are especially at risk. Many manufactured housing parks reside in the floodplain.

Hurricanes (Flooding)

Hurricane season begins on June 1 and continues through the end of November. August and September are the most active hurricane months. It is not uncommon for New England to be impacted by a hurricane more than once in a season. River flooding due to heavy rains are risks to Allenstown during hurricanes.

Hurricane of 1938
The hurricane of September, 1938 was one of the worst natural disasters to impact Allenstown, due to both severe flooding and winds (Town Historian). The town experienced heavy flooding. Thirteen people died in New Hampshire; no deaths occurred in Allenstown. This was also the worst hurricane to ever strike New England, resulting in 564 deaths and over 1700 injuries.

Other Hurricanes
Several other hurricanes have impacted Allenstown, including Hurricanes Carol (September, 1954), Donna (September, 1960), Gloria (September, 1985), and Bob (August, 1991), but their impact was not severe. Heavy rains were especially noticeable during Hurricane Bob (Town Historian).

100-Year Floodplain Events
Currently, there are 56 homes located within the 100-year floodplain in Allenstown, and an additional 16 structures. While living in a 100-year floodplain, there is a 26% chance of flood loss (Northeast States Emergency Consortium).

Erosion and Mudslides
No records of mudslides have been found to occur in Allenstown. However, development in close proximity to the Suncook and Merrimack Rivers is at risk for these events.

Rapid Snow Pack Melt (Flooding)
Historically, hundreds of ice jams have occurred in New Hampshire. Warm temperatures and heavy rains cause rapid snowmelt. Rising water breaks ice into chunks, floats downstream and piles up, causing floods. Due to Allenstown's close proximity to the Suncook River, the probability of ice-jams occurring during winter break-up is high.

Flood of 1936
In March, 1936, heavy snowfall totals, heavy rains, and warm weather all at the same time combined to devastate not only Allenstown, but all of New England. These floods killed 24 people, caused $113,000,000 in damage, and made 77,000 people homeless throughout New England.

The New Hampshire State Board of Health requested health officers throughout New Hampshire to issue warnings that all water from wells that had been flooded by rising surface waters should be boiled before it was used (The Union Leader, March 16, 1936). Many private wells throughout the state were flooded; potentially some residents of Allenstown had to boil their water before use.

In central New Hampshire, the flood of 1936 overflowed the Suncook River and Merrimack River. The Merrimack River flooded homes near the Sewer Plant on Ferry Street and also flooded homes on Main Street in Allenstown (Town Historian).

Floods of 1976
In Spring 1976, the Suncook River flooded in Allenstown, causing flooding on Albin Avenue, Canal Street, and Ferry Street (Hazard Mitigation Committee). People living on Albin Avenue were evacuated (Town Historian). Brookside Trailer Park was also flooded (Town Historian).

Floods of 1987
Caused by snowmelt and intense rain, flooding on April 16, 1987, impacted seven counties in New Hampshire, including Merrimack County, and resulted in a disaster declaration. Damage totaled $4,888,889 for all counties.

River Ice Jams (Flooding)
Historically, hundreds of ice jams have occurred in New Hampshire. Warm temperatures and heavy rains cause rapid snowmelt. Rising water breaks ice into chunks, floats downstream and piles up, causing floods. Due to the close proximity of the Suncook and Merrimack Rivers, the probability of ice-jams occurring during winter break-up is high in Allenstown.

February 12, 1970
On February 12, 1970 the Suncook River in Allenstown flooded as a result of ice break-up (Army Corps of Engineers Ice Jam Database). Flooding and evacuations were damages inflicted on the Town (Army Corps of Engineers Ice Jam Database). Also, there was severe flooding throughout town. Brookside Trailer Park was flooded (Town Historian).

During the February 12, 1970 ice jam event there were actually three separate jam sites on the Suncook River in Allenstown. One was an abandoned dam located in close proximity to the Route 28 bridge. This site caused the evacuation of 5 homes and 50 trailers. The second jam, near the Route 3 bridge, flooded roads, and 40 families were forced to evacuate. The last ice jam was located at the Webster Dam and resulted in eight flooded basements.

Allenstown was impacted by the three ice jams by flooding. Brookside Trailer Park was flooded. Residents of Riverside Park were evacuated and the Civil Defense was called out to sandbag the home of Mr. and Mrs. Lloyd Carter at Pine Acres. The Carter home was normally 100 feet from the stream's edge, but water reached the home's foundation during the flood. In addition, gates on the Suncook River Dam in Allenstown were raised to alleviate backpressure (Union Leader, February 12, 1970).

March, 1977
In March of 1977, ice break-up caused a major jam in the Suncook River, causing flooding both in Allenstown and Pembroke. Homes and roads were flooded. More than 100 buildings were evacuated in Allenstown and Pembroke combined (Army Corps of Engineers).

Dam Breach and Failure (Flooding)

No records of flooding caused by dam breach or failure have been recorded in Allenstown. According to the NH Department of Environmental Services, there are 16 dams within Allenstown. Eight are classified as AA, which means the failure of which would not threaten life or property, and two are classified as B, which means dams have a significant hazard potential. The remaining six dams are not classified, according to NH DES' records. The two dams with significant hazard potential are named the Crystal Lake Dam and the Sunset Lake (Places Pond) Dam by NH DES. The names do not correlate with those dams depicted on the maps.

Severe Storms (Flooding and Wind)

The likelihood of severe storms impacting Allenstown with flooding seems high. Again, the close proximity to the Suncook and Merrimack Rivers and areas that are particularly susceptible to flooding put Allenstown at risk during severe storms.

July/August 1986

Severe summer storms with heavy rains, tornadoes, flash flood and severe winds occurred in July/August 1986. These storms were a detriment to the road network statewide.

August 7-11, 1990

A series of storm events with moderate to heavy rains on August 7-11, caused flooding in eight counties, including Merrimack County, and resulted in a disaster declaration. Damage totaled $2,297,777 for all counties.

October, 1996

In October, 1996, heavy rains caused flooding in six counties, including Merrimack County. A disaster was declared and damage totaled $2,341,273 for all counties.

July 1998

Severe storms in July 1998 caused heavy flooding in six counties, including Merrimack County. In Allenstown, Brookside Trailer Park was flooded. $3,420,120 in damage was incurred for all counties.

Wind 

Numerous recorded wind events have occurred within Allenstown over the last 250 years. The likelihood of future wind events in Town seems high.

Hurricanes (Wind)

Hurricane season begins on June 1 and continues through the end of November. August and September are the most active hurricane months. It is not uncommon for New England to be impacted by a hurricane more than once in a season. It seems probable that Allenstown will be impacted by heavy winds as a result of a hurricane again in the future.

Hurricane of October 18-19, 1778

Portions of New Hampshire experienced 40-75 mph winds. It is unknown if Allenstown was one of those areas.

Hurricane of October 9, 1804
Portions of New Hampshire experienced winds over 50 mph. It is unknown if Allenstown was among those areas.

Hurricane of September 21, 1938
High winds and heavy flooding made this hurricane the worst natural disaster to impact the Town (Town Historian). Wind had a devastating impact in Allenstown. Many roofs and chimneys were torn off by high winds in Town. As reported in the Concord Monitor in September, 1938, the hurricane was "the sharpest setback the state has ever experienced."

Thirteen deaths and 1,363 families received assistance as a result of the hurricane. Other loses included smashed homes, crippled communications lines, blocked roads, and a total direct loses of $12,337,643 (1938 dollars). The timber industry was hit hard with the loss of trees. Damage to trees in New Hampshire was between $2,000,000 and $3,000,000. This was also the worst hurricane to ever strike New England, resulting in 564 deaths and over 1700 injuries.

Other Hurricanes
Allenstown has been impacted by several other hurricanes, including Hurricanes Carol (September 31, 1954), Donna (September 12, 1960), Gloria (September 27, 1985), and Bob (August 19, 1991). During Hurricane Carol, Donna, and Gloria, Allenstown experienced heavy winds, but not much damage (Town Historian).

Tornadoes (Wind)
No tornadoes have been documented in Allenstown. However, between 1791 and 1821, four tornadoes rated F2 or higher on the Fujita Tornado Damage Scale (winds between 113-157 mph causing considerable damage) have occurred in Merrimack County (Office of Emergency Management). In addition, the worst tornado ever to strike New England was the Worcester Tornado of July 9, 1953. Within one minute 90 people were killed and over 1,300 injured. Damage was estimated to exceed $52 million.

Tornadoes can occur at anytime of the year, although they are rare outside of the warm season. The peak moths of tornado occurrence in the Northeast are June through August, with August being the most frequent month. Thunderstorms have been responsible for spawning tornadoes in many parts of New England. On average six tornadoes per year touchdown somewhere in New England. Damage from tornadoes is caused as a result of high wind velocity and wind blown debris.

Nor'easters (Wind)
Unlike the relatively infrequent hurricane, New Hampshire generally experiences at least 1 or 2 of Nor'easters each year with varying degrees of severity. These storms have the potential to inflict more damage than many hurricanes because the high storm surge and high winds can last from 12 hours to 3 days, while the duration of hurricanes ranges from 6 to 12 hours.

Damage caused by high winds during a Nor'easter is a likely future event to occur in Allenstown due to the commonality of these types of storms.

Downbursts (Wind)
No record of this event has been documented in Allenstown. However on July 6, 1999, a downburst impacted three counties in New Hampshire, including Merrimack County. It resulted in 2 deaths. Also, two roofs were blown off and widespread power outages occurred. The downburst was designated a macroburst (at least 2.5 miles in diameter).

Severe Thunderstorms 
Although few records or accounts of thunderstorms are provided, they are generally common occurrences. The likelihood of future thunderstorms in Allenstown is high.

August 1998
In August of 1998, lightning struck the antenna on the roof of the Allenstown Town Hall, started a fire, and blew out several computers inside. In addition, the fire station at the time (since then a new station has been built) was hit by lightning. This lightning strike knocked out computers and the municipal fire system.

Wildfire 
Bear Brook State Park encompasses over 50% of the land area of Allenstown. Access to and into the heavily wooded Park is limited. An uncontrolled fire in the Park could be devastating. The likelihood of wildfire, primarily in Bear Brook State Park, seems high.

Summer, Early 90s
During a dry summer in the early 1990s, 30 acres were burned by wildfire in Bear Brook State Park.

Summer, 2000
During the summer of 2000, an illegal campfire caused a wildfire to burn 25 acres near Gilbert Road.

May 2001
In May 2001, a fire on Wing Road, Allenstown burned a barn, house, and 5 buildings. The fire spread and eventually burnt 10 acres of land.

Ice & Snow Events 
Winter snow events are as common in Allenstown as they are in the entire southern half of New Hampshire. Allenstown's highly concentrated population, and limited number of travel ways suggest a high potential for damage, power outages, and impassibility when ice and storm events hit.

Heavy Snow Storms
There are numerous heavy snowstorms that have impacted the central New Hampshire region in the past. Many of these do not include detailed information on the impacts, however usually infrastructure, including critical facilities, are impacted by heavy snow. The added impact of the masses of snow and/or ice upon infrastructure often affects transportation and the delivery of goods and services for extended periods. Power outages are also a common impact during snowstorms. For a complete list of heavy snows and snowfall accumulations, see the table at the end of this chapter. The following descriptions are of heavy snowstorms that have additional detail.

February 5-7, 1978
Referred to as the Blizzard of '78, this storm affected all of New England by immobilizing infrastructure and blocking all major interstates in New England. Cars were abandoned on roadways throughout New England, including in the central New Hampshire region.

March, 1993
Allenstown experienced power outages throughout town during this storm (Town Historian).

Snowstorms are a commonality for people living in New England during the winter. New England usually experiences at least one or two Nor'easters with varying degrees of severity each year. Severe winter storms, including Nor'easters, typically occur during January and February. However, winter storms can occur from late September through late May.

All winter storms make walking and driving extremely dangerous. The elderly and very young are at high risk during winter storms and may be effected by hypothermia and isolation. During winter storms, there is an increased risk of fire because people may lose electricity and use candles, portable gas stoves, and other flammable sources of heat and light (Northeast States Emergency Consortium).

The likelihood of Allenstown experiencing another severe winter storm is high due to weather conditions in New England during the winter.

Ice Storms
It seems likely that Allenstown could be impacted by an ice storm in the future. Powerlines in Town would be susceptible to damage during ice storms.

December 17-20, 1929
On December 17-20, 1929, an ice storm caused unprecedented disruption and damage to telephone, telegraph and power systems throughout the State. It is unknown how severe the storm was in Allenstown.

December 29-30, 1942
On December 29-30, 1942, a severe ice storm impacted the entire State. It is unknown what impacts this storm had on Allenstown.

Late 1950s
During mid-April in the late 1950s, an ice storm impacted Allenstown by disrupting the road network. Bulldozers were required to open the road to get to the Town Hall (Town Historian).

December 22, 1969-January 17, 1970
Many communities experienced power disruption during this span of time; it is unknown if Allenstown was among them.

January 8-25, 1979
Impacts from this ice storm were felt throughout the state of New Hampshire. There were major disruptions to power and transportation in many communities. It is unknown what effects were felt in Allenstown.

March 3-6, 1991
This storm impacted the entire state of New Hampshire. Numerous outages from ice-laden power lines in southern New Hampshire occurred. Allenstown was hit hard by this storm (Town Historian).

January 7, 1998
This ice storm had severe impacts throughout most of the state. Six injuries and one death resulted. Damage totaled $12,446,202. In addition, there were 20 major road closures, 67,586 people left without electricity, and 2,310 people without phone service.

In Allenstown, tree damage, especially in Bear Brook State Park, was particularly severe (Hazard Mitigation Committee).

Earthquakes 

No earthquakes have been documented in Allenstown. However, between 1728-1989, there have been 270 earthquakes in New Hampshire (Northeast Emergency Consortium). Four of these earthquakes were of a Richter Magnitude scale of 4.2 or more (Northeast Emergency Consortium). Two of these occurred in Ossipee, one west of Laconia, and one near the Quebec border.

Historically, New England has experienced some earthquakes. For instance, an earthquake on November 18, 1755 caused damage to the New England coastline. New England experiences an average of 30-40 earthquakes per year, but most are not felt.

In Allenstown, old buildings would be particularly susceptible to earthquake damage. Also, underground lines would be highly susceptible (Hazard Mitigation Committee). The likelihood of an earthquake disaster in Town is of a medium probability.

Drought 

Periods of drought have occurred historically in New Hampshire. The longest recorded continuous spell of less than normal precipitation occurred between 1960-69. In 1999, a drought warning was issued by the Governor's Office. In March 2002, all counties in New Hampshire with the exception of Coos County, were declared in Drought Emergency. This was the first time that low-water conditions had progressed beyond the Level Two, Drought Warning, stage.

Past Hazard Events That Have Impacted Allenstown

Within the past 270 years, a number of moderate and severe natural disasters have impacted Allenstown and the surrounding region. While most of the data within the following table has been recorded within the 20th century, a handful of natural disasters that were recorded occurred between 1635 and 1888.

Table 1

Allenstown Hazard Events 1635-Present

Hazard	Date	Location	Critical Facility or Impacted Area	Remarks	Source
Flood	March 11-21, 1936	Throughout state of New Hampshire	Merrimack River flooded homes on Ferry Street and Main Street, Allenstown	Caused by heavy snowfall totals, heavy rains and warm weather at the same time, Run-off from melting snow with rain overflowed the rivers	Northeast States Emergency Consortium, Office of Emergency Management, Goffstown News-Banner-Bulletin, March 15, 1978, Town Historian
Flood	September 21, 1938	New Hampshire and Southern New England	Heavy flooding throughout Allenstown	Associated with Hurricane	Concord Monitor September 22, 1938, Town Historian
Flood	Spring, 1976	Central New Hampshire Region	In Allenstown, the Suncook River flooded, & people living on Albin Avenue were evacuated. Flooding occurred at the end of Canal Street and Ferry Street. Brookside Trailer Park was also flooded in Allenstown.	Unknown	Town Historian, Hazard Mitigation Committee
Flood	July, 1986-August 10, 1986	Throughout state of New Hampshire	Road network impacted statewide	Severe summer storms with heavy rains, tornadoes, flash flood and severe winds	Office of Emergency Management
Flood	April 16, 1987	Cheshire, Carroll, Grafton, Hillsborough, Merrimack, Rockingham & Sullivan Counties, NH	FEMA Disaster Declaration # 789 $4,888,889 in damage	Caused by snowmelt and intense rain	Office of Emergency Management
Flood	August 7-11, 1990	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan Counties, NH	FEMA Disaster Declaration #-876, $2,297,777 in damage	A series of storm events with moderate to heavy rains	Office of Emergency Management

Continued

Hazard	Date	Location	Critical Facility or Impacted Area	Remarks	Source
Flood	October 1996	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan Counties, NH	FEMA Disaster Declaration #-1144. $2,341,273 in damage	Heavy rains	Office of Emergency Management
Flood	July 1998	Belknap, Carroll, Grafton, Merrimack, Rockingham, & Sullivan Counties, NH	FEMA Disaster Declaration #-1231, $3,420,120 in damage, Brookside Trailer Park was flooded in Allenstown	Severe storms	Office of Emergency Management
Hurricane	August, 1635	Unknown	Unknown		Office of Emergency Management
Hurricane	October 18-19, 1778	Portions of New Hampshire	Unknown	40-75 mph winds	Office of Emergency Management
Hurricane	October 9, 1804	Portions of New Hampshire	Unknown		Office of Emergency Management
Hurricane	September 8, 1869	Portions of New Hampshire	Unknown	>50 mph winds	Office of Emergency Management
Hurricane	September 21, 1938	All of Southern New England	13 people died of 494 injured in NH (none in Allenstown), $12,337,643 total storm losses (1938 dollars). In the State, damage to trees was between $2,000,000 and $3,000,000, electric and telephone disrupted, structures damaged, and heavy flooding. Allenstown experienced heavy wind and flooding damage	Worst natural disaster to impact Allenstown	Office of Emergency Management, Concord Monitor September 1938, Town Historian
Hurricane (Carol)	August 31, 1954	Southern New England	Extensive tree and crop damage in New Hampshire, Heavy winds were experienced in Allenstown, but not much damage		Office of Emergency Management
Hurricane (Donna)	September 12, 1960	Southern and Central New Hampshire	Heavy flooding in some parts of the state, Allenstown experienced heavy winds but not much damage		Office of Emergency Management, Town Historian

Continued

Hazard	Date	Location	Critical Facility or Impacted Area	Remarks	Source
Hurricane (Gloria)	September 27, 1985	Southern New England	Allenstown experienced heavy winds, but not much damage		Office of Emergency Management, Town Historian
Hurricane (Bob)	August 19, 1991	Southern New England	Allenstown experienced heavy rains, but not much damage		Office of Emergency Management, Town Historian
Ice Jam	February 12, 1970	Allenstown, New Hampshire	Flooding and evacuations: residents of Riverside Park were evacuated, Carter home at Pine Acres had water reaching its foundation and the Civil Defense had to sandbag the home, Brookside Trailer Park was flooded	3 separate jam sites in Suncook River	U.S. Army Corps of Engineers Ice jam database, Union Leader, February 12, 1970, Town Historian
Ice Jam	March, 1977	Allenstown and Pembroke, New Hampshire	More than 100 buildings were evacuated, homes and roads flooded, Brookside Trailer Park in Allenstown flooded	Ice break-up caused ice jam in Suncook River	U.S. Army Corps of Engineers Ice jam database, Town Historian
Tornado	July 14, 1791	Merrimack County, New Hampshire	Unknown		Office of Emergency Management
Tornado	September 5, 1792	Merrimack County, New Hampshire	Unknown		Office of Emergency Management
Tornado	July, 1793	Merrimack County, New Hampshire	Unknown		Office of Emergency Management
Tornado	September 9, 1821	Merrimack County, New Hampshire	Unknown		Office of Emergency Management
Downburst	July 6, 1999	Merrimack, Grafton and Hillsborough Counties, New Hampshire	Two fatalities and two roof blown off with widespread power outages throughout these counties	Macroburst (areas at least 2.5 miles in diameter)	Office of Emergency Management
Severe Thunder-storm	August 1998	Allenstown, NH	Lightning struck the police antenna on the roof of the Town Hall, started a fire and blew out computers in the Town Hall, Old fire station was struck by lightning, knocked out computers and the municipal fire system		Town Historian, Hazard Mitigation Committee

Continued

Hazard	Date	Location	Critical Facility or Impacted Area	Remarks	Source
Wildfire	Early 1990s	Allenstown, NH	During this dry summer 30 acres were burned by wildfire in Bear Brook State Park		Deputy Fire Chief
Wildfire	2000	Allenstown, NH	During this dry summer an illegal campfire spread to burn 25 acres near Gilbert Road		Deputy Fire Chief
Wildfire	May 2001	Allenstown, NH	Fire on Wing Road burned barn, house, 5 buildings, and 10 acres of land		Hazard Mitigation Committee
Snowstorm	March 11-14, 1888	All of New England	Unknown	Snow accumulations 30-50 inches, one of the most severe winter storms ever to hit New England	Northeast States Emergency Consortium
Snowstorm	February 14-15, 1940	All of New England	Paralyzed New England	Snow depths exceeded 30 cm and very high winds	American Meteorological Society
Snowstorm	February 14-17, 1958	Southeastern, western, and central New Hampshire	Unknown	Snow accumulations to 20-33 inches	American Meteorological Society
Snowstorm	March 18-21, 1958	South central and west central NH	Unknown	Snow accumulations between 22-24 inches	American Meteorological Society
Snowstorm	March 2-5, 1960	South central and southeastern NH	Unknown	Snow accumulations up to 25 inches in some areas	American Meteorological Society
Snowstorm	January 18-20, 1961	Southeastern and south central New Hampshire	Unknown	Snow accumulations up to 25 inches in some areas, Blizzard or near-blizzard conditions developed across the northeast	American Meteorological Society
Snowstorm	January 11-14, 1964	Southern and central New Hampshire	Unknown	Snow accumulations up to 12 inches	American Meteorological Society
Snowstorm	January 29-31, 1966	Central New Hampshire	Unknown	Snow accumulations up to 10 inches	American Meteorological Society

Continued

Hazard	Date	Location	Critical Facility or Impacted Area	Remarks	Source
Snowstorm	February 22-28, 1969	State of New Hampshire	Unknown	Snow accumulations between 24-98 inches (higher totals in western New Hampshire), slow moving storm with long duration	American Meteorological Society
Snowstorm	December 25-28, 1969	State of New Hampshire	Unknown	Snow accumulations 12-18 inches in most areas	American Meteorological Society
Snowstorm	January 19-21, 1978	Southern and Central New Hampshire	Unknown	Snow accumulations up to 16 inches	American Meteorological Society
Snowstorm	February 5-7 1978	All of New England	Abandoned cars on roads throughout New England and central New Hampshire, immobilized infrastructure and blocked major interstates in New England	Snow accumulations between 25-33 inches in New Hampshire, Snow accumulations between 24-38 inches in New England	American Meteorological Society, Northeast States Emergency Consortium, Town Historian
Snowstorm	April 5-7, 1982	Southern and central New Hampshire	Unknown	Late-season storm with thunderstorms produced 18-22 inches of snow	American Meteorological Society
Snowstorm	March, 1993	New England	Power outages throughout Allenstown		Northeast States Emergency Consortium, Town Historian
Snowstorm	February, 1996	New England	Unknown	Snow, ice, bitter temperatures throughout central New Hampshire	Suncook-Hooksett Banner, March 7, 1996, Northeast States Emergency Consortium
Snowstorm	March, 2001	New England	Unknown		Northeast States Emergency Consortium
Ice storm	December 17-20, 1929	State of New Hampshire	Disruption to telephone, telegraph, and power systems		U.S. Army Corps of Engineers New Hampshire Ice Storms
Ice storm	December 29-30, 1942	State of New Hampshire	Unknown	Glaze storm of severe intensity	U.S. Army Corps of Engineers New Hampshire Ice Storms

Continued

Hazard	Date	Location	Critical Facility or Impacted Area	Remarks	Source
Ice storm	Mid-April, late 1950s	Allenstown	Road network was impacted, Bulldozers were required to open the road to get to the Town Hall		Town Historian
Ice storm	December 22, 1969-January 17,1970	State of New Hampshire	Power disruption to many communities		U.S. Army Corps of Engineers New Hampshire Ice Storms
Ice storm	January 8-25, 1979	State of New Hampshire	Major disruptions to power and transportation		U.S. Army Corps of Engineers New Hampshire Ice Storms
Ice storm	March 3-6, 1991	State of New Hampshire	Numerous outages from ice-laden power lines in southern New Hampshire, Allenstown experienced severe impacts		U.S. Army Corps of Engineers New Hampshire Ice Storms, Town Historian
Ice storm	January 7, 1998	State of New Hampshire, 52 communities in nine counties impacted	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, In Allenstown there was extensive tree damage, especially in Bear Brook State Park		U.S. Army Corps of Engineers New Hampshire Ice Storms, Office of Emergency Management, Hazard Mitigation Committee
Earthquake	October 29, 1727	New England	Damage throughout New England		Northeast States Emergency Consortium
Earthquake	November 18, 1755	New England	Damage to New England Coast		Northeast States Emergency Consortium
Earthquake	November 18, 1929	Grand Banks Newfoundland	All of New Hampshire felt minor effects	Richter Magnitude Scale: 7.2	National Earthquake Information Center
Earthquake	December 20, 1940	Ossipee, New Hampshire	Ground cracks in the region in two towns and damage over a broad area	Richter Magnitude Scale: 5.5	National Earthquake Information Center, Northeast States Emergency Consortium

Continued

Hazard	Date	Location	Critical Facility or Impacted Area	Remarks	Source
Earthquake	December 24, 1940	Ossipee, New Hampshire	Ground cracks in the region in two towns and damage over a broad area	Richter Magnitude Scale: 5.5	National Earthquake Information Center, Northeast States Emergency Consortium
Earthquake	June 15, 1973	Near New Hampshire Quebec Border, New Hampshire	Unknown	Richter Magnitude Scale: 4.8	Northeast States Emergency Consortium
Earthquake	January 19,1982	West of Laconia	Unknown	Richter Magnitude Scale: 4.5	Northeast States Emergency Consortium
Drought	1929-36	State of New Hampshire	Unknown	Regional	Office of Emergency Management
Drought	1939-44	State of New Hampshire	Unknown	Severe in southeast and moderate elsewhere	Office of Emergency Management
Drought	1947-50	State of New Hampshire	Unknown	Moderate	Office of Emergency Management
Drought	1960-69	State of New Hampshire	Unknown	Longest recorded continuous spell of less than normal precipitation	Office of Emergency Management
Drought Warning	1999	State of New Hampshire	Unknown	Drought warning was issued by governor's office on 06/29/99	Office of Emergency Management
Drought Emergency	March, 2002	All counties in the State of New Hampshire except Coos County	Unknown	This is the first time low-water conditions have progressed beyond the Level Two, Drought Warning, stage.	New Hampshire Department of Environmental Services

Map 2: Past Hazards

The Past Hazards Map identifies the locations where known natural disasters have occurred in town. In Allenstown, areas of fire damage, floods, frequent accident locations, and lightning strikes were noted on the map. The past hazard locations were primarily identified by the Hazard Mitigation Committee or through research into the hazards listed within **Table 1**.

CHAPTER 4. ASSET IDENTIFICATION

The identification of assets within a community is integral to determining what may be at risk from a natural disaster. This Chapter examines the assets in five categories: Critical Facilities, Vulnerable Populations, Economic Assets, Special Considerations, and Historic/Other Considerations.

Not only are the address and phone number, where applicable, supplied for each identified asset, the hazards to which the asset is most susceptible are listed. In Allenstown, each asset can be damaged by all of the hazards listed in the **PROFILE OF HAZARD EVENTS** Chapter. However, specific possible natural dangers or secondary disasters are noted. The majority of the assets appear on *Map 3: Critical Facilities* at the end of this section. They include numerous flooding hazards throughout Town along rivers, streams and wetlands, the hazards of a break in the gas lines, power outages, and vehicular accidents along several stretches of highway. Also, fire, ice and lightning events were identified as having particular significance in certain areas of Allenstown based on past events or potential events.

Critical Facilities

Critical facilities are categorized as those town or state buildings or services that are first-responders in a disaster. Fire Departments, Police Departments, and Highway Departments as well as the Town Office are crucial in providing and coordinating the emergency services. Other critical facilities would include hospitals and shelters. Utilities or utility features are also included because of communication and power/water service.

The first-responders are located in the downtown area of Allenstown, within a one-mile radius of each other, and accessible by Route 3. The Police Department is located along School Street and joins the Town Hall. The Fire Department is located in a brand new facility on Ferry Street. These facilities are within a quarter-mile of the Suncook River and within a half-mile of the Merrimack River; however, they are not within the 100-year or 500-year floodplain. The Highway Department is located on Granite Street and is accessible from Route 3 in the opposite direction from the Fire and Police Departments.

Table 2
Essential Facilities

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
Town Hall	16 School St	485-4276	Lightning, Gas Leak, Power Outages
Police Department	16 School St	485-9500	Lightning, Gas Leak, Power Outages
Fire Department	1 Ferry St	485-9202	Lightning, Gas Leak, Power Outages
Highway Dept/Transfer Station	165 Granite St	485-5460	Gas Leak, Power Outages
Casella Transfer Station	104 River Road	Not available	Gas Leak, Power Outages
DOT Equipment Shed	Rt 28 (1.5m North of River Rd)	485-9526	All

Six cisterns are situated north of Bear Brook State Forest and generally along Deerfield Road. The public water supplies of the Merrimack and Suncook Rivers travel along the entire western edge of Allenstown. The sewage treatment plant and pump station are located on Ferry Street just before the Suncook enters the Merrimack. Bridges are dotted throughout Allenstown along Main Street, School Street, Route 28, Deerfield Road, and other local roadways. Active dams, most of which are privately owned or in state ownership, are located on Boat Meadow Brook, Bear Hill Pond, Catamount Brook, Pease Brook, Catamount Pond, and the Suncook River.

Table 3
Utilities

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
Wet Cistern	Clearview Road	Not applicable	Power Outages, Ice
Wet Cistern	Birchwood Road	Not applicable	Power Outages, Ice, Fire
Wet Cistern	Dowst Road	Not applicable	Power Outages, Ice, Fire
Wet Cistern	Mount Delight Road	Not applicable	Power Outages, Ice, Fire
Dry Cistern	Podunk Road	Not applicable	Power Outages, Ice
Dry Cistern	Deerfield Road (by swimming pond)	Not applicable	Power Outages, Ice, Fire
Suncook WWTP	Ferry St	485-2027	Flooding, Lightning, Power Outages, Gas Leak
Sewer Plant	35 Canal St	Not applicable	Flooding, Lightning, Power Outages, Gas Leak
Canal	Canal St (next to mill)	Not applicable	Flooding, Lightning, Power Outages, Gas Leak
Sewage Pump Station	River/Pinewood Rd	485-2027	Flooding, Ice, Power Outage
Bear Brook SP Pump Station (2)	Deerfield Road	485-7257	Flooding, Ice, Fire, Power Outage

Table 4
Dams

Facility Type	Location	Phone	Hazard the Site is Most Susceptible to
Buck St Dam East	Suncook River	271-3503	Flooding, Ice
Bear Hill Pond Dam	Boat Meadow Brook	271-2214	Flooding, Ice
Catamount Pond Dam	Bear Brook	271-2214	Flooding, Ice
Hall Mountain Marsh Dam	Bear Brook	271-2501	Flooding, Ice
Hayes Marsh Dam	Catamount Brook	271-2501	Flooding, Ice

Table 5
Bridges

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
Suncook River Bridge (Allenstown/Pembroke town line)	Rt 28	Not applicable	Flooding
Merrimack River Bridge	Ferry St	Not applicable	Flooding
Boat Meadow Brook Bridge	River Rd	Not applicable	Flooding, Ice

The Allenstown Elementary School is located on Main Street, near the Fire Station, and the Armand Dupont Middle School is located on School Street, near the Police Department. A private school is located off River Road. The only hospital facility is an animal hospital off of Route 28.

Table 6
Schools and Medical Facilities

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
Pinehaven Boys Center	River Rd	485-7141	All
Allenstown Elementary School	30 South Main St	485-9574	Lightning, Gas Leak, Power Outages
Armand R. Dupont School	10 School St	485-4474	Lightning, Gas Leak, Power Outages
Allenstown Animal Hospital	9 River Rd	485-7133	Gas Leak, Power Outages

Vulnerable Populations
Areas or neighborhoods that are densely populated, buildings that house people who may not be self-sufficient in a disaster, or areas that include homes which are not very resistant to natural disasters are considered vulnerable. Vulnerable populations include manufactured home parks, elderly housing developments or care facilities, and day care operations.

Elderly housing facilities are located in the downtown area one-quarter mile away from Fire and Police responders, and similarly from the Suncook River. Two daycare facilities were identified, one on School Street and the other on Chester Turnpike. Both are located in the downtown area. Seven manufactured housing parks were identified in Allenstown. Two are located in the downtown area, one on Granite Street (near the Highway Department), two off of Route 28, and two additional parks within Bear Brook State Park on Deerfield Road.

Table 7
Vulnerable Populations

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
We Care Retirement Home	12 Cross St	485-4149	Lightning, Gas Leak, Power Outages
School St Kindergarten/Daycare	33 School St	485-8595	Lightning, Gas Leak, Power Outages
Tender Years Child Care Center	3 Chester Turnpike	485-8932	Power Outages, Gas Leak
Bear Brook Gardens Two	238 Deerfield Rd	Not available	Fire, Power Outages, Ice
Brookside Terrace	Rt 28	Not available	Flooding, Power Outages
Holiday Acres	1A Parkwood Dr	485-5447	Power Outages, Gas Leak
Bear Brook Villa	Rt 28	485-3458	Fire, Power Outages
Bear Brook Gardens One	213 Deerfield Rd	485-5550	Fire, Power Outages, Ice
Chroniak's	48 Main St	485-8851	Lightning, Gas Leak, Power Outages
St Germain's	50 Main St	485-4096	Lightning, Gas Leak, Power Outages

Economic Assets

Although a town normally contains dozens of small businesses, typically several businesses stand out prominently in town. These businesses employ the most people in a town (both from Allenstown and from outside) and are places where large numbers of people are located and may need to evacuate from in the event of a disaster. In other cases, some large businesses can provide critical services or products to residents in need or may be able to sustain their employees for a long duration.

Few large employers were identified as economic assets. One is located near the 100-year floodplain in the downtown and the others are located just outside the 500-year floodplain on Route 28.

Table 8
Economic Assets

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
Allenstown Business Park	Rt 28	485-5239	Flooding, Power Outages, Gas Leak, Route 28 Accidents
Allenstown Business Park	65 Pinewood Rd	268-0538	Flooding, Power Outages, Gas Leak, Route 28 Accidents
Heritage Trimming	32 Library St	485-7800	Flooding, Lightning, Power Outages, Gas Leak

Special Considerations

Churches and cemeteries are special considerations for their unique contributions to society. Churches are often natural gathering places for people in disasters and can temporarily provide shelter and accommodation. Cemeteries, both public and small privately owned lots, are recognized for their historical and logistical importance. In addition, businesses that potentially store or use hazardous materials are listed as special considerations due to the potential for leaking or combustion in the event of a disaster.

Cemeteries and churches are special considerations. Numerous private cemeteries were identified, many of which are located on or by Deerfield Road. One church is located downtown, and one is on Route 28.

Table 9

Cemeteries & Churches

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
Burgin Family Cemetery	Deerfield Road	Not applicable	Flooding
Cate-Batchelder Cemetery	Deerfield Road	Not applicable	Unknown
Batchelder-Hayes Cemetery	Deerfield Road	Not applicable	Flooding
Batchelder-Blaisdell Cemetery	Mount Delight Road	Not applicable	Flooding
Clark Burial Ground Cemetery	Bear Brook State Park	Not applicable	Power Outages
Dowst-Allen Cemetery	Wing Road	Not applicable	Unknown
Evans-Batchelder Cemetery	Deerfield Road	Not applicable	Fire, Steep Slopes
Philbrick Cemetery	Philbrick Road	Not applicable	Unknown
St. Jean Baptiste (new) Cemetery	River Road	Not applicable	Flooding
St. Jean Baptiste (old) Cemetery	Granite Street Ext	Not applicable	Flooding
Kenison Corner – west Cemetery	Deerfield Road	Not applicable	Unknown
Kenison Corner – east Cemetery	Deerfield Road	Not applicable	Unknown
Leavitt Cemetery	Podunk Road	Not applicable	Unknown
Lane-Lear Cemetery	New Rye Road	Not applicable	Flooding, Steep Slopes
St. Jean Baptiste Church	School Street	Not available	Lightning, Power Outages, Gas Leak
Sunrise Baptist Church	Rt 28	485-8133	Lightning, Power Outages, Gas Leak

Nine hazardous materials facilities were identified. They included gas stations and auto repair shops. Four are located along Route 3 at the Hooksett border, one in the downtown, one on Granite Street, and two on Route 28. The inactive landfill is at the back of the Transfer Station.

Table 10
Hazardous Materials Facilities

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
GMS Hydraulics Inc	200 Daniel Webster Hwy	485-3344	Power Outages, Gas Leak
Thomas Hodgson & Son	25 Canal St	485-9795	
John's Truck Service & Welding	1 Allenstown Rd	485-7652	Power Outages, Gas Leak
JR's Cycle & Auto Repair	27 Valley St	485-5207	
Keith's Truck Service	124 Granite St	485-3532	Power Outages, Gas Leak
Riggs Unlimited	Rt 3	485-3400	Power Outages, Gas Leak
Suncook River Convenience Str	270 Pinewood (Rt 28)	485-2242	Route 28 Accidents
Temple Tool & Dye	32 Library St	485-8464	Lightning, Power Outages, Gas Leak
Landfill (inactive)	Granite St	Not applicable	Lightning, Power Outages, Gas Leak

Historic/Other Considerations

Historic resources and structures provide that link to the cultural history of a town. They may also be more vulnerable to certain hazards since they often have fewer safety devices installed or have limited access. Recreational facilities are places where large groups of people gather. Campgrounds in particular may be more vulnerable to natural disasters because the shelters are light and temporary.

Five historic resources were identified within Town. Two of them are located in the downtown near the 100-year floodplain, a third is located in the downtown, and two are located in Bear Brook State Park.

Table 11
Historic Sites & Buildings

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
Bear Brook State Park Civilian Conservation Corps	Deerfield Road	Not applicable	Fire, Power Outages
Old Meeting House	Deerfield Road	Not applicable	Fire, Power Outages
China Mills	Downtown	Not available	Lightning, Flooding, Gas Leaks, Power Outages
Oldest House in Allenstown	Downtown	Not applicable	Lightning, Gas Leaks, Power Outages
Pembroke Mill	Downtown	Not available	Lightning, Flooding, Gas Leaks, Power Outages

Eight recreational fields, parks, or centers were identified as places where large numbers of people could be gathered. Seven are located in the downtown area, one on Granite Street, and one on Deerfield Road.

Table 12
Recreational or Gathering Sites

Facility Type	Address	Phone	Hazard the Site is Most Susceptible to
Library	59 Main St	485-7651	Lightning, Gas Leaks, Power Outages
Suncook Senior Center	10 School St	485-4254	Lightning, Gas Leaks, Power Outages
Allenstown Elem Sports Field	Downtown	Not applicable	Lightning, Gas Leaks, Power Outages
Allenstown Park Sports Field	Downtown	Not available	Lightning, Gas Leaks, Power Outages
Upper Elem Sports Field	Downtown	Not applicable	Lightning, Gas Leaks, Power Outages
Cheer Center Sports Field	St. John Baptist Church	Not available	Lightning, Gas Leaks, Power Outages
Pine Haven Boys Ctr Sports Fld	Off River Road	Not available	All
Bear Brook State Park	Deerfield Road	Not applicable	Fire, Power Outages

Homes within the Floodplain
Fifty-six (56) residential homes were counted within the 100-year and 500-year floodplain. In Allenstown, the floodplain runs along Route 28 north-southwest. With an average of 2.5 persons per household in 2000 (US Census 2000), 140 people could be affected by flooding in and around their homes during a particularly bad storm event.

Evacuation Routes
The primary evacuation routes were identified as Route 3 north-south into Pembroke and Hooksett, Route 28 north into Pembroke, and Main Street north-south into Pembroke and Hooksett. These routes service the majority of the population, which is concentrated in the downtown area and those living within the Bear Brook State Park borders. The recommended evacuation routes are illustrated on *Map 1: Potential Hazards*.

Map 3: Critical Facilities
The Critical Facilities map illustrates the sites inventoried within this section. They are categorized into Emergency Response and Town Facilities, Schools, Water Supplies, Bridges, Dams, Cemeteries, Churches, Communications Towers, Daycare Facilities, Elderly Housing, Entertainment and Recreation, Hazardous Material Facilities, Large Employers, Manufactured Housing Parks, and Unique/Historic Resources. Each facility is referenced by a keyed and numbered legend.

CHAPTER 5. POTENTIAL LOSSES

The Town of Allenstown has been impacted in the past by natural disasters, including flooding, river ice jams, severe winter storms, and hurricanes. This Chapter identifies areas in Town that are most vulnerable to these events and estimates their potential loss. It is difficult to ascertain the amount of damage caused by a natural hazard because the damage will depend on the hazard's extent and severity, making each hazard event somewhat unique. In addition, human loss of life was not included in the potential loss estimates, but could be expected to occur, depending on the severity of the hazard.

Flooding

Flooding is often associated with hurricanes, ice-jams, rapid snow melt in the spring, and heavy rains.

The average replacement value was calculated by adding up the assessed values of all structures in the 100- and 500- year floodplains and then dividing by the number of structures. The Federal Emergency Management Agency (FEMA) has developed a process to calculate potential loss for structures during flooding. The potential loss was calculated by multiplying the average replacement value by the percent of damage expected from the hazard event, and then by multiplying that figure by the number of structures. Residential and non-residential structures were separated. The costs for repairing or replacing bridges, railroads, power lines, telephone lines, natural gas pipelines, and contents of structures are not included in this estimate. In addition, the figures used were based on buildings which are one or two stories high with basements. Percentage of damage to mobile homes during floods is higher. The estimates are somewhat conservative when taking into account that some of the residential structures in the floodplain are mobile homes.

The following calculation is based on eight-foot flooding and assumes that, on average, one or two story buildings with basements receive 49% damage (Understanding Your Risks, Identifying Hazards and Estimating Losses, FEMA page 4-13):

Residential Damage:
56 structures x (56,713 avg. replacement value x 0.49) =
$1,556,204

Non-Residential Damage:
16 structures x (576,099 avg. replacement value x .0.49) =
$4,516,616

The following calculation is based on four-foot flooding and assumes that, on average, one or two story buildings with basements receive 28% damage (Understanding Your Risks, Identifying Hazards and Estimating Losses, FEMA page 4-13):

Residential Damage:
56 structures x (56,713 avg. replacement value x 0.28) =
$889,259

Non-residential Damage:
16 structures x (576,099 avg. replacement value x 0.28) =
$2,580,923

The following calculation is based on two-foot flooding and assumes that, on average, one or two story buildings with basements receive 20% damage (Understanding Your Risks, Identifying Hazards and Estimating Losses, FEMA page 4-13).

Residential Damage:
56 structures x (56,713 avg. replacement value x 0.20) =
$635,185

Non-residential Damage:
16 structures x (56,713 avg. replacement value x 0.20) =
$181,481

The following areas have flooded in the past and are likely to flood in the future:

Ferry Street/Canal Street
Both Ferry Street and Canal Street are located in close proximity to the Merrimack River. During the floods of 1936, homes on Ferry Street were flooded. In addition, during the floods of 1976 there was flooding at the end of both Canal and Ferry Streets.

Main Street
Main Street is also located in close proximity to the Merrimack River. During the floods of 1936, homes were flooded on Main Street.

Albin Avenue
Albin Avenue is vulnerable to flooding because it is located near the Suncook River. During the floods of 1976, people were evacuated living on Albin Avenue.

Brookside Trailer Park
Brookside Trailer Park, located on Route 28, is especially vulnerable to flooding. Every time a major flood has occurred in the last approximately 40 years, this mobile home park has been flooded.

Riverside Trailer Park
Riverside Trailer Park, located on Pine Acre Road, has flooded several times in the past. During the February 12, 1970 ice jam on the Suncook River, residents of Riverside Park were evacuated.

Dam Breach and Failure
Dam breach and failure could impact Allenstown through flooding. Potential losses will depend on the extent of the breach and could include both residential and non-residential damage, including town owned facilities. The Webster Mill Dam, privately owned and active, and Suncook River Dam, state owned and active, are located in close proximity to the downtown area. Critical facilities, such as the Casco Food Service, a large employer, and Pembroke Mill, a historic site, are in especially close proximity to the dams. In addition, Buck Street Dam, a state operated and active dam, is located near the Brookside Terrace Mobile Home Park, putting this mobile home park especially at risk for flooding associated with the dam.

Hurricane
The high winds and flooding associated with hurricanes can cause major damage to a community. The assessed value of all residential and commercial structures in Allenstown, including exempt structures such as schools and churches, is $137,528,100 (Allenstown Assessor). Assuming 1% to 5% town-wide damage, a hurricane could result in $1,375,281 to $6,876,405 of structure damage.

Tornado
Tornadoes are relatively uncommon natural hazards in New Hampshire. On average, about six touch down each year. Damage largely depends on where the tornado strikes. If it strikes an inhabited area, the impacts could be severe. In the state of New Hampshire, the total cost of tornadoes between 1950 and 1995 was $9,071,389 (The Disaster Center). The assessed value of all residential and commercial structures in Allenstown, including exempt structures such as schools and churches, is $137,528,100 (Allenstown Assessor). Assuming 1% to 5% town-wide damage, a tornado could result in $1,375,281 to $6,876,405 of structure damage.

Wildfire
The risk of fire is difficult to predict based on location. Forest fires are more likely to occur during years of drought. Bear Brook Park and homes within the park are locations at risk for wildfire. Dodge Road and Holiday Acres were also identified by the Hazard Mitigation Committee as particularly susceptible to fires. The total assessed value for all buildings located in Bear Brook State Park is $2,066,700. Assuming 1% to 5% damage to all of the buildings in the park, a wildfire could result in $20,667 to $103,335 of structure damage.

Nor'easter and Heavy Snow Storms
Heavy snowstorms typically occur during January and February. New England usually experiences at least one or two Nor'easters with varying degrees of severity each year. Power outages, extreme cold, and impacts to infrastructure are all effects of winter storms that have been felt in Allenstown in the past. All of these impacts are a risk to the community, including isolation, especially of the elderly, and increased traffic accidents. Damage caused as a result of this type of hazard varies according to wind velocity, snow accumulation, and duration. The assessed value of all residential and commercial structures in Allenstown, including exempt structures such as schools and churches, is $137,528,100 (Allenstown Assessor). Assuming 1% to 5% town-wide damage, a Nor'easter or heavy snow storm could result in $1,375,281 to $6,876,405 of structure damage.

Ice Storms
Ice storms often cause widespread power outages by downing power lines, making power lines at risk in Allenstown. They can also cause severe damage to trees. Bear Brook State Park is especially susceptible to tree damage. In 1998, an ice storm inflicted $12,446,202 worth of damage to New Hampshire as a whole. Ice storms in Allenstown could be expected to cause damage ranging from a few thousand dollars to several million, depending on the severity of the storm. The assessed value of all residential and commercial structures in Allenstown, including exempt structures such as schools and churches, is $137,528,100 (Allenstown Assessor). Assuming 1% to 5% town-wide damage, an ice storm could result in $1,375,281 to $6,876,405 of structure damage.

Earthquake
Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric, and phone lines and are often associated with landslides and flash floods. Four earthquakes in New Hampshire between 1924-1989 had a magnitude of 4.2 or more. Two of these occurred in Ossippee, one west of Laconia, and one near the Quebec border. If an earthquake were to impact Allenstown, underground lines would be susceptible. In addition, buildings that are not built to a high seismic design level would be susceptible to structural damage. The assessed value of all residential and commercial structures in Allenstown, including exempt structures such as schools and churches, is $137,528,100 (Allenstown Assessor). Assuming 1% to 5% town-wide damage, an earthquake could result in $1,375,281 to $6,876,405 of structure damage.

Severe Lightning
In the past, severe lightning has caused damage to individual properties in Allenstown. In August 1998, lightning struck the police antenna on the roof of the Town Hall, started a fire and blew out computers in the Town Hall. In addition, lightning knocked out the municipal fire system in the old fire station. In the future, the amount of damage caused by lightning will vary according to the type of structure hit and the type of contents inside.

Downbursts, Hailstorms, Landslides, Radon, Drought
No major hazard events have occurred related to these events in Allenstown.

Map 4: Potential Hazards and Losses

The Potential Hazards and Losses Map illustrates where the community facilities and vulnerable populations are located as well as the locations of potential and future hazards. The map shows those areas where the buildings are most susceptible to flooding, icy roads, landslides, and lightning strikes as well as the locations of bridges, dams, wetlands, the municipal water lines and the recommended evacuation routes.

CHAPTER 6. DEVELOPMENT TRENDS

A brief description of how the Town has grown in terms of both population and housing within the last three decades follows. In terms of the development of land, land use in acres for 2001 was excerpted from the Allenstown 2003 Master Plan that the Town is currently working on. Examination of this information will allow the Town better understand the trends within its borders and how emergency and preventative services can best serve the growing and changing population and landscape.

Population and Housing Growth

Allenstown has been growing at a slow but steady rate over the last thirty years. The current population from the 2000 US Census shows Allenstown has 4,843 people and 2,093 housing units. This is an increase of 4.2% in population and a 12.1% increase in housing units from 1990.

Table 13

Overall Population and Housing Growth Trends in Allenstown, 1970-2000

Growth	Population	Net Change		Housing Units	Net Change	
		#	%		#	%
1970 (US Census)	2,731	NA	NA	831	NA	NA
1980 (US Census)	4,398	1,167	61%	1,591	760	91.5%
1990 (US Census)	4,649	251	5.7%	1,868	277	17.4%
2000 (US Census)	4,843	194	4.2%	2,093	225	12.1%
Total Change from 1970 – 2000	–	1,612	77.3%	–	1,262	151.8%

Sources: 1970-1990 US Census CPH-2-31 Table 9 Population and Housing Unit Counts; US Census 2000 Data

In 2000, there was an average of 2.31 people in each housing unit. The population density has increased dramatically in terms of persons per square mile, from 132.8 in 1970 to 236 in 2000. If Bear Brook were taken out of the buildable area, only 10.0 square miles would be able to be built upon and the persons per square mile would swell to 273.1 people per square mile in 1970 and **484.3 people per square mile in 2000**, respectively. These startling figures give a more accurate portrayal of the population density that exists in Allenstown today and depicts a high concentration of people.

Table 14

Population Density in Allenstown, 1970-2000

Community	2000 Population	Area in Square Miles (excluding water)	Persons per square mile			
			1970	1980	1990	2000
Allenstown	4,843	20.5	132.8	214	226	236

Sources: 1970-1990 US Census CPH-2-31 Table 9 Population and Housing Unit Counts; US Census 2000 Data

There are seven manufactured housing parks in Allenstown. There are more building permits issued for new or replacement manufactured homes than for single family homes on a yearly basis. In recent years, two and four times the number of permits have been issued for manufactured homes than single family. Most of the manufactured home permits are for replacement housing.

Table 15
Residential Building Permits Issued by Housing Type, 1990 – 2001

Housing Type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	12-Year Total
Single Family Homes	3	4	4	17	6	5	2	2	10	9	3	8	73
Multi Family Homes	1	0	0	0	0	0	0	0	7	1	0	0	9
Mobile Homes	0	0	0	2	11	18	40	15	38	30	24	17	195
Yearly Totals	4	4	4	19	17	23	42	17	55	40	27	25	277

Source: CNHRPC Development Trends Report, Residential Building Permits 1990-2000; 2001 Allenstown Town Report

Land Use

Bear Brook State Park covers 51% of the Town's acreage. This resource has proven to be both an asset and a hindrance in terms of development and opportunity.

Allenstown is currently working on a new Master Plan. Chapters include detailed information and maps on Existing and Future Land Use, Housing, Population and Economics, Community Facilities, Transportation, Natural Features, and History and Culture.

In terms of land use, 13.8% of the Town, according to the tax map, is in residential use.

Table 16
Land Use in Allenstown, 2001

Land Use	Acres	% of Town
Residential	1,797.1	13.8%
Commercial	179.4	1.4%
Mixed	14.9	0.1%
Industrial	151.2	1.2%
Institutional	352.2	2.7%
Bear Brook State Park	6,683.3	51.4%
Undeveloped	3,819.1	29.4%
Total	12,997.2	100.0%

Source: Allenstown 2003 Master Plan Existing and Future Land Use Chapter (from 2001 Tax Assessor's Digital Maps and Database)

Relation to Natural Hazards
The population of Allenstown is concentrated in the downtown area, and in manufactured housing parks off of Granite Street, Route 28, and Deerfield Road. The downtown population is primarily susceptible to lightning, gas leak, and power outage hazards. The Granite Street manufactured housing park is mostly vulnerable to gas leaks and power outages. The Route 28 manufactured parks are susceptible to flooding, power outages, and vehicular accidents. The Deerfield Road manufactured housing parks are most susceptible to fire, power outages, and ice storms. The regulations state that permits for 15 replacement manufactured homes may be granted in any year; new placement of manufactured homes is currently not allowed.

As the buildable land in Allenstown is primarily located along Deerfield Road within Bear Brook State Park, the majority of new homes will be susceptible to power outage and wildfire. Flooding of Catamount Pond and Bear Brook may effect the ability of residents to utilize the evacuation routes along Route 3 and Route 28.

CHAPTER 7. FLOODPLAIN MANAGEMENT

Second only to winter storms, flooding is the most common natural disaster to impact New Hampshire. Floods are most likely to occur in the spring due to the increase in rainfall and melting of snow. However, they can occur anytime of year as a result of heavy rains, hurricane, or Nor'easter.

Flood mitigation is an essential step in preventing flood damage. This section provides an overview of past and potential flooding risks in Allenstown and also discusses Allenstown's participation in the National Flood Insurance Program (NFIP).

Flooding in Allenstown

The following areas have been known to flood in the past and have a high probability of flooding again in the future.

Ferry Street/Canal Street

Both Ferry Street and Canal Street are located in close proximity to the Merrimack River. During the floods of 1936, homes on Ferry Street were flooded. In addition, during the floods of 1976 there was flooding at the end of both Canal and Ferry Streets.

Main Street

Main Street is also located in close proximity to the Merrimack River. During the floods of 1936, homes were flooded on Main Street.

Albin Avenue

Albin Avenue is vulnerable to flooding because it is located near the Suncook River. During the floods of 1976, people were evacuated living on Albin Avenue. Some residences on Albin Avenue are located in the floodplain.

Brookside Trailer Park

Brookside Trailer Park, located on Route 28, is especially vulnerable to flooding. Every time a major flood has occurred in the last approximately 40 years, this mobile home park has been flooded, making it a repetitive loss property.

Riverside Trailer Park

Riverside Trailer Park, located on Pine Acre Road, has flooded several times in the past. During the February 12, 1970 ice jam on the Suncook River, residents of Riverside Park were evacuated. Riverside Trailer Park is a repetitive loss property.

There are approximately 56 residential structures and approximately 16 non-residential structures currently located in the floodplain in Allenstown. Many of the residences in the floodplain are located on Riverside Park Drive and River Road. In addition, Suncook Wastewater (Sewage Treatment Plant), Allenstown Elementary School, and Community Center are among the non-residential structures located in the floodplain.

National Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The Federal Insurance and Mitigation Administration (FIMA) a component of the Federal Emergency Management Agency (FEMA) manages the NFIP, and oversees the floodplain management and mapping components of the Program.

Communities participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes Federally subsidized flood insurance available to homeowners, renters, and business owners in these communities. Flood insurance, Federal grants and loans, Federal disaster assistance, and Federal mortgage insurance is unavailable for the acquisition or construction of structures located in the floodplain shown on the NFIP maps for those communities that do not participate in the program.

Flood damage is reduced by nearly $1 billion a year through partnerships with communities, the insurance industry, and the lending industry. Further, buildings constructed in compliance with NFIP building standards suffer approximately 80 percent less damage annually than those not built in compliance. Additionally, every $3 paid in flood insurance claims saves $1 in disaster assistance payments.

The NFIP is self-supporting for the average historical loss year, which means that operating expenses and flood insurance claims are not paid for by the taxpayer, but through premiums collected for flood insurance policies. The Program has borrowing authority from the U.S. Treasury for times when losses are heavy, however, these loans are paid back with interest.

To get secured financing to buy, build, or improve structures in Special Flood Hazard Areas, it is legally required by federal law to purchase flood insurance. Lending institutions that are federally regulated or federally insured must determine if the structure is located in a SFHA and must provide written notice requiring flood insurance. Federally subsidized flood insurance is available to any property owner located in a community participating in the NFIP.

Allenstown has been a participating member of the NFIP since 1979. The Town was suspended from the program on 05/03/1990 and was reinstated on 10/18/1990. The last record of a biennial report was filed in 1997. According to the report, there were no changes to the base data on the flood maps or new material to be incorporated into the Flood Insurance Maps. Also, there were no changes to the Floodplain Management Ordinance. There were significant man-made changes affecting the Flood Hazard Area, but the Town did not request assistance in improving local floodplain management.

Table 17
Flood Insurance Policy and Loss Statistics, December 2002

Policies in Force	Insurance in Force	Number of Paid Losses	Total Losses Paid
22	$ 3,197,700	31	$79,688

Source: FEMA Policy Statistics and Claim Statistics databases, December 2002

Repetitive Loss Properties

A specific target group of repetitive loss properties is identified and serviced separately from other NFIP policies by the Special Direct Facility (SDF). The target group includes every NFIP-insured property that, since 1978 and regardless of any change(s) of ownership during that period, has experienced four or more paid flood losses, two paid flood losses within a 10-year period that equal or exceed the current value of the insured property, or three or more paid losses that equal or exceed the current value of the insured property. The loss history includes all flood claims paid on an insured property, regardless of any changes of ownership, since the building's construction or back to 1978. Target group policies are afforded coverage, whether new or renewal, only through the SDF.

The regional FEMA office provides information about repetitive loss properties to state and local floodplain management officials. The FEMA Regional Office may also offer the property owner a building inspection and financial incentives for undertaking measures to mitigate future flood losses. These measures include elevating buildings above the level of the base flood, demolishing buildings, removing buildings from the flood area, and in some cases drainage improvement projects. If the property owner agrees to mitigation measures, the property may be removed from the target list and is no longer serviced by the SDF.

As of March 2002, there are four repetitive loss properties that have been identified in Allenstown. A long-term flood management goal would be to encourage property owners of these repetitive loss properties to undertake FEMA's recommended mitigation measures. This would reduce flood loss to these properties and to Allenstown as a whole.

Floodplain Management Goals/Reducing Flood Risks

An objective for floodplain management is to continue participation in the National Flood Insurance Program. Under federal law, any structure located in the floodplain is required to have flood insurance. Federally subsidized flood insurance is available to any property owner located in a community participating in the NFIP. Communities that fail to comply with NFIP will be put on probation and/or suspended. Probation is a first warning where all policyholders receive a letter notifying them of a $50 increase in their insurance. In the event of suspension, the policyholders lose their NFIP insurance and are left to purchase insurance in the private sector, which is of significantly higher cost. If a community is having difficulty complying with NFIP policies, FEMA is available to meet with staff and volunteers to work through the difficulties and clear up any confusion before placing the community on probation or suspension. Allenstown was briefly suspended from the NFIP on 05/03/1990 and was reinstated on 10/18/1990.

Communities that agree to manage Special Flood Hazard Areas shown on NFIP maps participate in the NFIP by adopting minimum standards. The minimum requirements are the adoption of the Floodplain Ordinance and Subdivision/Site Plan Review requirements for land designated as Special Flood Hazard Areas. Allenstown has a Floodplain Ordinance that was adopted as part of the Zoning Ordinance. The ordinance is considered a type D ordinance by the NFIP because maps are available for both the floodplain and the floodway. A floodway is the channel of a river or other watercourse that must be reserved in order to discharge the base flood. According to NFIP, a type D Ordinance must restrict all activities, including filling, mining, improvements, and new construction in the floodway unless a hydrological study is completed. Allenstown's ordinance currently meets this requirement.

On September 15, 1998 Allenstown was the recipient of a Community Assistance Visit (CAV) held for review and education on NFIP policies. At this time, it was reported that there were minor problems with the floodplain management regulations. Upon review in spring of 2002, the Floodplain Ordinance was in compliance with NFIP policies. However, during the 1998 CAV, it was also reported that the required regulations within the Site Plan Review/Subdivision Regulations did not meet the standards of NFIP requirements. It is unknown if these regulations have been changed or reviewed since the CAV. The Planning Board should request review of the Subdivision Regulations to ensure that they meet NFIP standards currently.

Currently, Allenstown's Flooding Ordinance states that all proposed developments in any Special Flood Hazard Areas shall require a building permit. According to NFIP policies, when an applicant files a request for a building permit in the floodplain, the applicant must include an elevation certificate in order to be in compliance with NFIP. In addition, if an applicant intends to fill onsite, a letter of map of revision must be submitted along with the application. According to the Floodplain Ordinance, the building inspector must review all building permit applications for new construction or substantial improvements to determine whether proposed building sites will be reasonably safe from flooding. Buildings in Special Flood Hazard Areas must be adequately anchored to prevent flotation, collapse, or movement of the structure and must also be constructed with flood resistant materials.

In order to reduce flood risks and ensure compliance with the NFIP, the Building Inspector should be familiar with the Floodplain Ordinance and the NFIP. A good understanding of what the Floodplain Ordinance entails is an important part of complying with NFIP. While Allenstown does have a Floodplain Ordinance incorporated as part of the Zoning Ordinance, the administration and enforcement of the policies need to be improved in order to ensure compliance with NFIP. In addition, the Planning Board should be familiar with NFIP policies, especially those regulations that were required to be incorporated into the Subdivision/Site Plan Review Regulations. The required NFIP policies have been incorporated into the Site Plan Review Regulations; however they should be consistently addressed during the site plan review process in order to ensure compliance with NFIP. Another workshop sponsored by NH Office of Emergency Management or the NH Office or State Planning would be appropriate to educate current staff and volunteers.

An essential step in mitigating flood damage is participation in the NFIP. Allenstown should work to consistently enforce NFIP compliant polices to continue its participation in this important program.

CHAPTER 8. LOCAL HAZARD MITIGATION OBJECTIVES

The following objectives were adopted by the Local Hazard Mitigation Committee to represent Allenstown's commitment to reduce the damages caused by natural hazards. The objectives were excerpted from the State Hazard Mitigation Plan and amended as needed to reflect Allenstown's small community needs.

Actions have been developed to suit these Objectives. They are depicted in **Table 20** in the forthcoming **EVALUATION AND IMPLEMENTATION OF ACTIONS** Chapter.

Objectives

1. To improve upon the protection of the general population, the citizens of Allenstown and guests, from all natural and man-made hazards.

2. To reduce the potential impact of natural and man-made disasters on Allenstown's critical facilities and support services.

3. To reduce the potential impact of natural and man-made disasters on Allenstown's infrastructure.

4. To improve Emergency Preparedness, disaster response, and recovery capability.

5. To reduce the potential impact of natural and man-made disasters on private property.

6. To reduce the potential impact of natural and man-made disasters on Allenstown's natural environment.

7. To reduce Allenstown's liability with respect to natural and man-made hazards generally.

8. To identify and provide resources for citizens.

CHAPTER 9. EXISTING MITIGATION STRATEGIES

The Local Hazard Mitigation Committee identified a number of pro-active protection mechanisms that are currently place in Allenstown which could reduce the damages and losses in the event of a natural disaster or secondary disaster.

Description of Existing Programs and Activities
Each program or activity was identified by the Hazard Mitigation Committee. The Committee discussed the effectiveness of each strategy and recommended changes or improvements to their existing programs.

Table 18
Existing Mitigation Strategies

Existing Program or Activity	Description	Area of Town Covered	Enforcement	Effective-ness	Improvements or Changes
Emergency Action Plan (1992)	Describes who's responsible for what actions during an emergency, includes evacuation plan. Includes general warning systems, including word-of-mouth, church bells, chain of command of Emergency Management people, and local radio stations.	Town-wide	Emergency Management Director	High	Update plan, make sure plan for evacuation is adequately addressed
Fire Department Mutual Aid Program	Task force can be sent to the Town if the event of large fires.	Town-wide	Fire Department	High	None
Garvin Falls Dam Plan	Describes what to do in case of dam failure at Garvins Falls. Drills done once a year. Plan updated in 2003.	Merrimack River / downtown	Public Service of NH	High	None
Bear Brook State Park Management Plan (1994)	State management Plan for use of the Park.	Bear Brook State Park	NH Department of Resources and Economic Development	Low	The Town's first-responders should be familiar with this Plan. State officials should be contacted for partnership opportunities.
Firefighting Grant from FEMA	Funding source tapped for safety and communications equipment.	Town-wide	Fire Department	High	None

Continued

Existing Program or Activity	Description	Area of Town Covered	Enforcement	Effective-ness	Improvements or Changes
Lavalley Oil Generators	Emergency generators for the Sewer Plant, Fire Department, and Highway Department. Sewer Plant tests on a schedule; Police tests monthly and Fire tests weekly.	Downtown	Sewer Commission / Fire Department / Highway Department	High	Need a generator for Municipal Building (Town Hall & Police) – have received and will hook up this fall. Need a generator for elementary school.
Martial Law on Gasoline	Gasoline stations can be taken over by Town if equipment required gas and none is available at Highway Dept. Gas can be purchased if needed.	Town-wide	Board of Selectmen	Unknown (not yet utilized)	Need a written policy or agreement
Forestry Grant from NH DRED	Funding source tapped for equipment.	Town-wide	Fire Department	High	None
Town Shelter at Armand Dupont School Gym	The gymnasium will provide shelter in a disaster. Used once for a mobile home park water failure in 1990s.	Downtown	Emergency Management Director	Unknown (not yet fully utilized)	Notify residents of existence of shelter and its accommodations
Warning System	The Emergency Action Plan states that church bells will be sounded in the event of an emergency. Only works in downtown; people may not know what bells mean.	Downtown	Emergency Management Director / Board of Selectmen	Unknown (not yet fully utilized)	Upgrade to NAWAS radio
Fire Department Water Equipment	Boat and sandbags available in case of flood. Must coordinate with Fish and Game. Last used in the 1980s.	Town-wide	Fire Department	Medium	Need to include availability of this equipment in the Emergency Action Plan.
Floodplain Development Regulations in Zoning	Includes separate standards for new or improved manufactured homes, residential homes, or non-residential development in floodplain.	Floodplain	Planning Board / Building Inspector	High	Should consistently enforce to ensure compliance with National Flood Insurance Policy
NFIP Participant	Enrolled in program since 1979.	Floodplain	Planning Board / Building Inspector / Town Administrative Assistant	High	Need workshop for NFIP Program familiarity by Planning Board and Building Inspector

Continued

Existing Program or Activity	Description	Area of Town Covered	Enforcement	Effective-ness	Improvements or Changes
Manufactured Housing Regulations in Zoning	Contains a ratio of 1 new manufactured permit issued for every 15 new traditional residential permits issued. Works well by encouraging replacement of older manufactured homes.	Town-wide	Planning Board / Building Inspector;	High	None
Fire Protection in Subdivision Regulations	Must satisfy improvement criteria (cisterns, road access) if deemed "scattered and premature."	Outskirts	Planning Board	High	None

CHAPTER 10. NEWLY IDENTIFIED MITIGATION STRATEGIES

In addition to the programs and activities that Allenstown is currently undertaking to protect its residents and property from a natural disaster, a number of future strategies were identified by the Hazard Mitigation Committee for consideration. Many of these newly identified mitigation strategies will be considered for further action in the mitigation action plan in the **EVALUATION AND IMPLEMENTATION OF ACTIONS** Chapter. Some of them are the result of improvements to the existing strategies identified in **Table 18**.

These types of activities were considered when determining new programs and activities which Allenstown can develop:

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

Table 19
Potential Mitigation Strategies

Hazard Type	Potential Program or Activity	Description of Potential Strategy(ies)	Affected Location	Type of Activity
All Hazards	Educational Pamphlet Series	Create a pamphlet series to distribute emergency information to residents, including shelter info, what warning bells mean, what to do, etc. Contact OEM for materials and suggestions.	Town-wide	Public Information
All Hazards	Library of Publications	Create a library of plans, studies, and documents that can be referenced at the Town Hall.	Town-wide	Emergency Services, Public Information
All Hazards	Neighborhood "Buddy System" Alert	Encourage residents to get to know their neighbors and check in on each other in an emergency.	Town-wide	Prevention
All Hazards	Evacuation Plan	Create evacuation plans so first responders know how and where to direct traffic, specifically out of Bear Brook on Deerfield Road/Route 28, Sewer Plant, & Bow Power Plant.	Town-wide	Emergency Services
All Hazards	Contractor and Equipment Operator List	Develop a list of local people who could assist in disasters by operating their own or the Town's equipment.	Town-wide	Emergency Services
All Hazards	Upgrade the Emergency Management radio system to NAWAS	The current radio system should to be upgraded to the national warning system (NAWAS) to enable better emergency communication.	Fire Department (Ferry St / Main St)	Emergency Services

Continued

Hazard Type	Potential Program or Activity	Description of Potential Strategy(ies)	Affected Location	Type of Activity
All Hazards	Volunteer Equipment Operators	Create agreements with town residents/volunteers to use their personal equipment and/or services during a disaster. Needs to include adding people and equipment to Town's insurance policy. Includes boats, ski-doos, and heavy equipment.	Town-wide	Emergency Service
Flooding	Add Restrictions for Development in Wetlands Areas	Wetland areas should be identified and restrictions established, such as setbacks, minimum lot sizes, etc.	Town-wide	Prevention
Flooding	Prohibit Development in the Floodplain	The Floodplain Development Regulations in the Zoning Ordinance need to be revised to prohibit development. Building permits are now issued for new construction of manufactured or residential homes and outbuildings.	Floodplain	Structural Protection, Property Protection
Flooding	NFIP Program Workshop for Planning Board and Building Inspector	The Building Inspector and Planning Board should be familiar with the NFIP. In order to continue participation in the program, the Town must administer its restrictions. A workshop sponsored by NH Office of Emergency Management or the NH Office or State Planning is appropriate.	Floodplain	Prevention, Property Protection
Fire	Fire Safety Education	"Learn Not to Burn" program to teach to school children. The Fire Department does similar lectures for Fire Safety week.	Town-wide	Public Information
Fire, Ice, Wind	Familiarity with Bear Brook State Park Management Plan	Firefighters, police officers, and the highway employees should be familiar with the Plan to learn how to manage emergencies that may arise in the area (51% of the town).	Western half of Allenstown	Prevention, Emergency Services
Rain, Landslide, Earthquake	Add Steep Slope Development Limitation	Steep slopes in excess of 15% should be identified and an placed in the Regulations.	Town-wide	Prevention
Ice, Wind	Tree Examination and Trimming	Highway, Police, and Fire should cruise the Town during to find trees in the right-of-way that are in danger of becoming a menace and come up with a system to notify Public Service of NH, NH Co-op, and Unitil. Companies currently do this over electrical lines on a periodic basis.	Town-wide	Prevention
Power Outage due to several kinds of disasters	Electrical Backup for Highway Garage Fuel Pump	Purchase a generator specifically for pumping fuel from the Highway Garage tanks.	Highway Garage (Granite Street)	Emergency Services

Continued

Hazard Type	Potential Program or Activity	Description of Potential Strategy(ies)	Affected Location	Type of Activity
Dam Breach	Share Information With Dam Owners	Exchange contact information with dam owners so that they would know who to contact in case of disaster, make sure that the dam owners know everyone that they would need to contact, such as the Sewer Plant.	Town-wide	Prevention
Dam Breaches, Flooding	Dam Maintenance	Ensure that NH Department of Environmental Services cleans and maintains their dams on a regular basis. Includes the Route 28 bridge at the Allenstown/Pembroke town line.	Over Water Bodies	Prevention, Structural Protection

CHAPTER 11. EVALUATION AND IMPLEMENTATION OF ACTIONS

The Hazard Mitigation Committee ranked each of the new or improved mitigation strategies by utilizing the following criteria. The Committee asked and then answered such questions as "Does the action reduce damage?", "Does the action contribute to Town objectives?", "Is the action socially acceptable", and "Does the action offer reasonable benefits compared to its cost in implementing?"

The following list documents the questions (criteria) that were posed to the Committee. The Committee responded to these and other questions, with a numeric score of "1" (indicating poor), a "2" (indicating average), and a "3" (indicating good).

- Does the action reduce damage?
- Does the action contribute to community objectives>
- Does the action meet existing regulations?
- Does the action protect historic structures?
- Can the action be implemented quickly?
- Is the action socially acceptable?
- Is the action technically feasible?
- Is the action administratively possible?
- Is the action politically acceptable?
- Is the action legal?
- Does the action offer reasonable benefits compared to its cost in implementing?
- Is the action environmentally sound?

The numeric answers were totaled to give a final score for each of the criteria. Those answers which totaled higher were given the higher priority. A score of 36 would indicate that the mitigation strategy, or action, received the highest possible score. The scores ranged from a high of 36 to a low of 30. The full scoring matrix is located in the **APPENDIX**. The rankings are indicated in the *Priority Score* column on the Mitigation Action Plan table on the following page.

Allenstown's Mitigation Action Plan

The ranking in the *Priority Score* column on the following table is merely a guideline for when the Town should begin acting on the identified strategies, or Actions. The Committee then determined who would be responsible for ensuring that each action would be completed, the recommended completion date, the approximate cost for completing the action, and how the action would be funded. The Mitigation Action Plan is a comprehensive strategy designed to help the Town of Allenstown prepare in advance for the impacts of natural disasters. Combined with the maps of this Hazard Mitigation Plan, the Action Plan should guide future hazard mitigation efforts.

A total of 19 Actions that Allenstown can undertake were identified and prioritized. Those Actions which are listed first were given the highest priority by the Hazard Mitigation Committee:

Table 20
Allenstown's Mitigation Action Plan 2002-2003

Priority Score	Action	Who is Responsible	Completed By Date	Approx Cost*	How Funded
36 (#1)	Update Emergency Action Plan	Emergency Management Dir	December 2004	$1,500	NH Office of Emergency Mgt Grant
Project Rationale: Plan was last updated in 1992. Updates will include evacuation plans, warning systems, personnel lists, radio stations, and medical facilities to reflect current conditions.					
Cost Rationale: Costs include approximately $500 for copies and legal review and approximately $1,000 for clerical and Chief staff time.					
36 (#2)	Steep Slope Development Limitation	Planning Board	Completed March 2003	$500	Not applicable
Project Rationale: Property and lives will be protected by not permitting building upon or near areas of 15% slopes. The regulations will be revised accordingly.					
Cost Rationale: Cost was for legal review of ordinance change.					
36 (#2.5)	Restrictions for Development in Wetlands Areas	Planning Board	Completed March 2003	$500	Not applicable
Project Rationale: The current regulations offer no protection of wetlands or structures. By stipulating setbacks for structures and septic systems, flooding damages will be minimized.					
Cost Rationale: Cost was for legal review of ordinance change.					
36 (#3)	Familiarity with Bear Brook State Park Management Plan	Fire Chief	June 2004	$0	Not applicable
Project Rationale: Bear Brook State Park encompasses 51% of the land area of Allenstown, and access routes into the park are via Class VI roads or trails. A fire in the Park could potentially be devastating. By familiarizing himself with the Plan, the Chief can minimize the response time by planning routes and options ahead of a disaster.					
Cost Rationale: The zero cost reflects the Town's desire to use in-kind staff support to the project as part of their normal duties.					
36 (#4)	Upgrade the Emergency Management radio system to NAWAS	Emergency Management Dir	In progress, 60% complete by Feb 2004	$14,000	Capital Reserve Funds and prior FEMA grant
Project Rationale: The current radio system is analog and should be upgraded to the national warning system (NAWAS) to better enable emergency communication between Departments, other Towns, and the State.					
Cost Rationale: Costs are equipment costs.					
36 (#5)	Electrical Backup for Highway Garage Fuel Pump	Highway, Fire, and Police Depts	March 2005	$4,000	Warrant article
Project Rationale: In the event of a power outage during a disaster, the gas pumps at the Highway Department will be inoperable without an electrical backup to allow fueling of emergency vehicles.					
Cost Rationale: Cost is for the price and installation of an electrical backup.					

Continued

Priority Score	Action	Who is Responsible	Completed By Date	Approx Cost*	How Funded
36 (#6)	Purchase a generator for the Allenstown Elementary School	Emergency Management Dir	March 2006	$21,000	Warrant article
Project Rationale: The Elementary School will be one of the primary shelters for residents in the event of a disaster. Without a generator for electricity, the ability of the shelter to function during a power outage is minimized.					
Cost Rationale: Costs includes the purchase and installation of a generator.					
36 (#7)	Share Information With Dam Owners	Emergency Management Dir	March 2004	$0	Not applicable
Project Rationale: By sharing emergency contact information (Fire Department, Sewer Department, NH DES, etc) with dam owners, they would know who to call in the event of a disaster which affects the structure of their dam.					
Cost Rationale: The zero cost reflects the Town's desire to use in-kind staff support to the project as part of their normal duties. The zero cost also reflects in-kind materials costs for copying and distribution with no anticipated expenditures for new supplies.					
36 (#8)	NFIP Program Workshop for Planning Board and Building Inspector	Planning Board	Ongoing	$0	Not applicable
Project Rationale: The Planning Board and Building Inspector should be familiar with the NFIP Program, how floodplains management affects their work, and how the Town regulations factor in. A workshop by NH OEM / NH OSP should accommodate that need. The Building Inspector has recently met with NFIP representatives.					
Cost Rationale: The zero cost reflects the Town's desire to use in-kind staff support to the project as part of their normal duties. The zero cost also reflects the volunteer time given by Planning Board members, with no expected cost from the State for a training workshop.					
36 (#9)	Fire Safety Education	Fire Department	Yearly in October	$3,000	Operating Budget
Project Rationale: The Fire Department annually holds a Fire Safety Education week with school children. By continuing the program and incorporating adult residents into the process, the citizenry should become more educated about fire safety.					
Cost Rationale: Costs include the salaries for the paid Fire Department personnel and educational and promotional materials.					
35 (#1)	Library of Publications	Emergency Management Dir	Ongoing	$0	Not applicable
Project Rationale: A mini-library of emergency-related publications should be established at the Emergency Management Center as a handy resource for Town Department personnel when disasters arise. Publications can include emergency plans, evacuation plans, management plans, mitigation plans, etc. The library can also be made available to citizens who have an interest in emergency planning.					
Cost Rationale: The zero cost reflects the Town's desire to use in-kind staff support to the project as part of their normal duties.					

Continued

Priority Score	Action	Who is Responsible	Completed By Date	Approx Cost*	How Funded
35 (#2)	Contractor and Equipment Operator List	Highway Department	In progress, complete by March 2004	$0	Not applicable
Project Rationale: By producing a list of private contractors and the equipment they own, they can be tapped as a resource during disasters and emergencies to fill in where labor and equipment is necessary but is in short supply. This list can also be placed in the Emergency Management Plan and in the Library of Publications.					
Cost Rationale: The zero cost reflects the Town's desire to use in-kind staff support to the project as part of their normal duties.					
35 (#3)	Volunteer Equipment Operators List	Highway Department	March 2004	$0	Not applicable
Project Rationale: By producing a list of local volunteers who own pieces of equipment which may prove valuable in a disaster, the Town is able to obtain the semi-skilled services in a timely manner instead of waiting for reinforcement from another town or the State.					
Cost Rationale: The zero cost reflects the Town's desire to use in-kind staff support to the project as part of their normal duties.					
35 (#4)	Neighborhood "Buddy System" Alert	Administrative Assistant	March 2004	$2,000	Operating Budget
Project Rationale: By encouraging residents to get to know their neighbors, they will be more apt to check in on them during a disaster particularly if they have special needs (elderly, disabled, infant, medical needs etc). The "Buddy System" is envisioned as the human equivalent of a "phone tree" system, where people are alerted to disasters and are accounted for by their neighbors. Distribution of information will be at Town Meeting and/or via hand delivery by volunteers.					
Cost Rationale: Costs include promotional materials, mailing, and distribution. It is anticipated that in-kind staff support will be obtained as part of their normal duties and volunteers will be recruited.					
34 (#1)	Tree Examination and Trimming	Police, Fire, and Highway Depts	Ongoing	$0	Public Service New Hampshire
Project Rationale: By proactively responding to trees or limbs which pose a danger to powerlines or passing motorists, the likelihood of injury to people or property is reduced during a snowstorm, icestorm, or during wind events. During routine Police patrols around the Town, they will notify the Highway or Fire Department of any trees or branches requiring removal.					
Cost Rationale: The zero cost reflects the fact the Public Service New Hampshire does this work as part of their regular duties.					
34 (#2)	Evacuation Plans for Bear Brook State Park, Sewer Plant, and Bow Power Plant	Emergency Management Dir	December 2005	$4,500	Operating Budget
Project Rationale: Because of the three major industrial or natural sites which are prone to be affected by disasters, plans to evacuate residents from those areas must be established. By doing so, injuries will be minimized.					
Cost Rationale: Costs include staff time, legal review, copying, distribution at $1,500 per Plan.					

Continued

Priority Score	Action	Who is Responsible	Completed By Date	Approx Cost*	How Funded
34 (#3)	Maintenance of State Dams	Emergency Management Dir	Ongoing	$0	Not applicable
Project Rationale: By ensuring that the NH DES cleans and maintains their dams on a regular basis, the likelihood of injuries and property damage will be lessened, particularly during a disaster. Regular communication between the Town and the State will also foster a better relationship for future maintenance or emergency issues.					
Cost Rationale: The zero cost reflects the Town's desire to use in-kind staff support to the project as part of their normal duties. The NH DES staff would be the primary cost involved for the State.					
33	Educational Pamphlet Series	Emergency Management Dir	December 2004	$1,000	Operating Budget
Project Rationale: The development of pamphlets educating residents about shelters, how to protect themselves in a disaster, where to go, how to evacuate Town, etc will enable the residents.					
Cost Rationale: Costs include paper, reproduction, and distribution to residents. It is anticipated that in-kind staff support will be obtained as part of their normal duties.					
30	Inhibit Development in the Floodplain through Stronger Language and Enforcement	Planning Board	March 2004	$500	Operating Budget
Project Rationale: The existing Zoning Ordinance language relating to Floodplains should be revised to prohibit development in the floodplain or at least to stipulate stronger protective provisions. Currently, new construction of manufactured or residential homes and outbuildings are permitted. By rewriting the regulations, the likelihood of injury or property damage will lessen during a flood event.					
Cost Rationale: Costs include the legal review of the revised ordinance. It is anticipated that in-kind staff support will be obtained as part of their normal duties.					

** The Approximate Cost for each project was a rough estimate agreed upon by the Hazard Mitigation Committee utilizing their various fields of expertise. The costs are total approximate costs for the entire project. In-kind staff time is not considered as part of out-of-pocket expense.*

Because numerous projects shared the same ranked priority, an additional importance number was often assigned in the *Priority Score* column in **Table 20**. For instance, there were 10 projects scoring 36; therefore, the Committee assigned an importance number, from 1 to 9, to further prioritize the projects in terms of importance. For example, 36 (1) means that this is the most important project within the project series ranked 36, while 36 (9) means that project is the least important within the 36 series.

The prioritization exercise helped the Committee seriously evaluate the new hazard mitigation strategies that they had brainstormed throughout the Hazard Mitigation Planning process. While the actions would all help improve the Town's disaster responsiveness capability, funding availability will be a driving factor in determining what and when new mitigation strategies are implemented.

Cost to Benefit Analysis

There are 19 Actions within the Mitigation Action Plan. As indicated in **Table 20**, those Actions which will require extended staff time or funding may not be the first Actions to be completed. At least one Action (fire safety education) is being worked on independently of the Hazard Mitigation Plan and thus has not impacted the prioritization of those Actions in the Mitigation Action Plan. In addition, some Actions that can provide a relatively high benefit compared to its lower cost were given a lower priority (state dam maintenance, tree examination, equipment lists) because they are considered less important than several of the other Actions.

Less than $500

Eleven (11) of the 19 Actions cost less than $500. Costs do not include the in-kind staff time or volunteer time required to accomplish the Actions. Those that cost less than $500 will be funded through the individual Town Department or Board budgets or by tapping into outside sources. As volunteer boards have a limited amount of time to accomplish a large number of tasks, these priorities (such as a Planning Board NFIP workshop and zoning/regulation changes) determine the Action schedule for completion. On the Town Department side, budget constraints and department priorities determine the action schedule for completion (equipment lists). Where possible, the Department or Board will take advantage of outside assistance to work on the priority (sharing information with dam owners, maintenance of State dams).

The highest benefit gained for each Action is dependent on the chances of a hazard event, the type of hazard, and its severity. However, the following may provide the best cost to benefit relation:

- Contractor, Equipment, and Operators Lists [March 2004]
- Inhibit Development in the Floodplain through Stronger Language and Enforcement [March 2004]
- Share Information with Dam Owners [March 2004]

$501 to $10,000

Six (6) of the 19 Actions are anticipated to cost between $501 and $10,000. In 2004, money will be sought for the Neighborhood "Buddy System" Alert ($2,000) and for updating the Emergency Management Plan ($1,500), two important projects. All projects in this cost range are spearheaded by Town staff, and in at least two cases (electrical backup and evacuation plans), voters must decide which will be the most important to undertake through a warrant article.

The highest cost to benefit gained for each Action is again dependent on the chances of a hazard event, the type of hazard, and its severity. Potential loss of life and property are extremely difficult to predict or place a dollar figure on. However, the following may provide the best cost to benefit ratio within this monetary category based on their capability to positively affect a large number of people:

- Update Emergency Action Plan [December 2004]
- Neighborhood "Buddy System" Alert [March 2004]
- Educational Pamphlet Series [December 2004]

Over $10,000

The remaining two (2) Actions will cost $14,000 (radios) and $21,000 (generator for school), respectively. Sixty percent of the new radios have already been purchased through Capital Reserve Funds and a FEMA grant as of December 2003 with the remainder to be purchased by February 2004. The purchase of a generator for the Allenstown Elementary School is anticipated to occur in March 2006. Depending on the chances of a hazard event, the severity, and the type of hazard, these purchase should have a high cost to benefit ratio with respect to emergency preparedness.

CHAPTER 12. PLAN MONITORING, EVALUATING, AND UPDATING

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 should be reviewed on a regular basis as to its relevancy and usefulness and to add new tasks as old tasks are completed. This Chapter will discuss the methods by which the Town of Allenstown will review, monitor, and update its 2002 Hazard Mitigation Plan.

Maintenance and Update Schedule of the Hazard Mitigation Plan

The Board of Selectmen intends to formulate a permanent Local Hazard Mitigation Committee with assistance from the Emergency Management Director. Existing Hazard Mitigation Committee members may have an interest to join the new permanent Committee. This Committee will meet quarterly according to the following schedule:

Table 21
Hazard Mitigation Committee Annual Future Meeting Schedule

Month	Preliminary Agenda
January	Department reports on Action Items status, Finalize warrant articles and budget requests for first Implementation Action items
April	Department reports on Action Items status, Evaluation of Existing Hazard Mitigation Plan
July	Begin to update the Hazard Mitigation Plan, Status of Implementation Action items
October	Update the Hazard Mitigation Plan, Begin writing warrant articles and budget requests for Implementation Action Items

The Board of Selectmen will oversee the implementation progress. The permanent Hazard Mitigation Committee will assist them with the administration and coordination.

The Hazard Mitigation Plan will be updated annually according to the schedule in **Table 21**. The process for updating the Hazard Mitigation Plan will be directed by the Emergency Management/Civil Defense Director, beginning in July of each year.

For each of these meetings, the Emergency Management Director, with assistance and support from the Board of Selectmen, will invite Department Heads, Board Chairs, and administrative staff to participate in the meetings as well as coordinating with the permanent Hazard Mitigation Committee. Public notice will be given as press releases in local papers, will be posted in the public places in Allenstown, will be posted on the Town of Allenstown website, and will run on the local cable television channel.

Grants and in-kind volunteer or staffing support will be required for the updating the Plan and for word processing. Actual costs incurred will include map generation (if changes are warranted) and printing costs for updated Plans.

Implementation Through Existing Programs

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

Master Plan

The Town of Allenstown completed their new Master Plan in March 2003. The Planning Board intends to adopt this Hazard Mitigation Plan as an element of the Master Plan. Any implementation strategy items within the Hazard Mitigation Plan will become part of the Master Plan's objectives and actions. The Local Hazard Mitigation Committee will oversee the process to begin working with the Planning Board to ensure that the Hazard Mitigation Plan is adopted as a Chapter of the Master Plan.

Capital Improvements Program

In fall 2003, the Planning Board is beginning work on the first Town-wide Capital Improvements Program (CIP). At this time, each Town Department has their own internal Capital Improvements Program which spans 10 years and anticipates yearly expenditures of capital funds. Capital reserve funds are allocated each year to every Town Department, although to spend the money, voters need to approve the proposed expenditures at Town Meeting. The Departments update their own CIPs annually between the months of September and October. Action items identified within the Hazard Mitigation Plan will be incorporated into the appropriate years' capital improvement budgets. If warranted, Capital Reserve Funds may be established to assist with some of the more expensive projects. The Local Hazard Mitigation Committee will oversee the process to begin working with the Planning Board to incorporate the various projects into the yearly CIP.

Zoning Ordinance and Regulations

Several of the implementation strategies proposed involve revisions to the Subdivision Regulations and/or the Site Plan Review Regulations. The Local Hazard Mitigation Committee will oversee the process to begin working with the Planning Board to develop appropriate language for the modifications. Some changes from the Implementation Action Plan in **Table 20** have already been implemented.

Continued Public Involvement
On behalf of the Hazard Mitigation Committee, the Emergency Management Director/Civil Defense Director (EMD), under direction of the Board of Selectmen, will be responsible for ensuring that Town Departments and the public have adequate opportunity to participate in the planning process. Administrative staff may be utilized to assist the EMD.

For each quarterly meeting (see **Table 21**) and for the yearly update process, techniques that will be utilized for public involvement include:

- Provide personal invitations to Budget Committee members;
- Provide personal invitations to Town Department heads;
- Post notices of meetings at the Town Office, Fire Department, Library, and local businesses;
- Post flyers of the project at the Town Office, Fire Department, Library, and local businesses; and
- Submit newspaper articles for publication to the Concord Monitor, Union Leader, and The Banner.

The Local Hazard Mitigation Committee will ensure that the Town website is updated with the Hazard Mitigation meeting notices.

These outreach activities will be undertaken during the Plan's annual review and during any Hazard Mitigation Committee meetings the Board of Selectmen calls to order.

CHAPTER 13. APPENDIX

The Appendix contains supplemental information to this Hazard Mitigation Plan. The intent of this Plan is to provide information about potential disasters, assets at risk, and a means of implementing the actions to help minimize loss to life and property. In addition, the process by which grant and relief money can be obtained and what programs are available to assist the Town and its residents are equally important. When the Hazard Mitigation Plan process is repeated in 2003 and subsequent years, materials used for publicity and meetings are exhibited to lay out the process for future Hazard Mitigation Committees.

Process for Disaster Declaration in Allenstown

There are two phases to a disaster – first response and recovery. The recovery phase, or clean-up efforts, is where the majority of grant funds could be applied for. Having a Hazard Mitigation Plan in place before a disaster occurs, according to the US Disaster Mitigation Act of 2000 and its amendments, is required after November 2004 in order to be eligible to apply for these recovery funds. These grant programs are briefly explained later in this chapter under the **Grant Programs for Disaster Relief** section.

FEMA Information

The Federal Emergency Management Agency (FEMA) has extensive resources related to disaster prevention and disaster recovery on its website at www.fema.gov. The following is an excerpt from their on-line library:

The first response to a disaster is the job of local government's emergency services with help from nearby municipalities, the state and volunteer agencies. In a catastrophic disaster, and if the governor requests, federal resources can be mobilized through the Federal Emergency Management Agency (FEMA) for search and rescue, electrical power, food, water, shelter and other basic human needs.

It is the long-term recovery phase of disaster which places the most severe financial strain on a local or state government. Damage to public facilities and infrastructure, often not insured, can overwhelm even a large city.

A governor's request for a major disaster declaration could mean an infusion of federal funds, but the governor must also commit significant state funds and resources for recovery efforts. A Major Disaster could result from a hurricane, earthquake, flood, tornado or major fire which the President determines warrants supplemental federal aid. The event must be clearly more than state or local governments can handle alone. If declared, funding comes from the President's Disaster Relief Fund, which is managed by FEMA, and disaster aid programs of other participating federal agencies.

A Presidential Major Disaster Declaration puts into motion long-term federal recovery programs, some of which are matched by state programs, and designed to help disaster victims, businesses and public entities.

An Emergency Declaration is more limited in scope and without the long-term federal recovery programs of a Major Disaster Declaration. Generally, federal assistance and funding are provided to meet a specific emergency need or to help prevent a major disaster from occurring.

The Major Disaster Process

A Major Disaster Declaration usually follows these steps:

- The Local government responds, supplemented by neighboring communities and volunteer agencies. If overwhelmed, turn to the state for assistance;
- The State responds with state resources, such as the National Guard and state agencies;
- Damage assessment by local, state, federal, and volunteer organizations determines losses and recovery needs;
- A Major Disaster Declaration is requested by the governor, based on the damage assessment, and an agreement to commit state funds and resources to the long-term recovery;
- FEMA evaluates the request and recommends action to the White House based on the disaster, the local community and the state's ability to recover;
- The President approves the request or FEMA informs the governor it has been denied. This decision process could take a few hours or several weeks depending on the nature of the disaster.

Disaster Aid Programs

There are two major categories of disaster aid: Individual Assistance is for damage to residences and businesses or personal property losses, and Public Assistance is for repair of infrastructure, public facilities and debris removal.

Individual Assistance

Immediately after the declaration, disaster workers arrive and set up a central field office to coordinate the recovery effort. A toll-free telephone number is published for use by affected residents and business owners in registering for assistance. Disaster Recovery Centers also are opened where disaster victims can meet with program representatives and obtain information about available aid and the recovery process.

Disaster aid to individuals generally falls into the following categories:

Disaster Housing may be available for up to 18 months, using local resources, for displaced persons whose residences were heavily damaged or destroyed. Funding also can be provided for housing repairs and replacement of damaged items to make homes habitable.

Disaster Grants, are available to help meet other serious disaster related needs and necessary expenses not covered by insurance and other aid programs. These may include replacement of personal property, and transportation, medical, dental and funeral expenses.

Low-Interest Disaster Loans are available after a disaster for homeowners and renters from the U.S. Small Business Administration (SBA) to cover uninsured property losses. Loans may be for repair or replacement of homes, automobiles, clothing or other damaged personal property. Loans are also available to businesses for property loss and economic injury.

Other Disaster Aid Programs include crisis counseling, disaster-related unemployment assistance, legal aid and assistance with income tax, Social Security and Veteran's benefits. Other state or local help may also be available.

Assistance Process -- After the application is taken, the damaged property is inspected to verify the loss. If approved, an applicant will soon receive a check for rental assistance or a grant. Loan applications require more information and approval may take several weeks after application. The deadline for most individual assistance programs is 60 days following the President's major disaster declaration.

Audits are done later to ensure that aid went to only those who were eligible and that disaster aid funds were used only for their intended purposes. These federal program funds cannot duplicate assistance provided by other sources such as insurance.

After a major disaster, FEMA tries to notify all disaster victims about the available aid programs and urge them to apply. The news media are encouraged to visit a Disaster Recovery Center, meet with disaster officials, and help publicize the disaster aid programs and the toll-free teleregistration number.

Public Assistance
Public Assistance is aid to state or local governments to pay part of the costs of rebuilding a community's damaged infrastructure. Generally, public assistance programs pay for 75 per cent of the approved project costs. Public Assistance may include debris removal, emergency protective measures and public services, repair of damaged public property, loans needed by communities for essential government functions and grants for public schools.

Hazard Mitigation
Disaster victims and public entities are encouraged to avoid the life and property risks of future disasters. Examples include the elevation or relocation of chronically flood-damaged homes away from flood hazard areas, retrofitting buildings to make them resistant to earthquakes or strong winds, and adoption and enforcement of adequate codes and standards by local, state and federal government. FEMA encourages and helps fund damage mitigation measures when repairing disaster damaged structures.

For more information, FEMA should be contacted at (617) 223-9540 or at www.fema.gov, or contact the NH Office of Emergency Management at (800) 852-3792 or at www.nhoem.state.nh.us.

Grant Programs for Disaster Relief

Through the NH Office of Emergency Management (NH OEM), the Federal Emergency Management Agency provides funds for assistance to municipalities in the event of a disaster. The programs are described briefly here. For more details about these funding sources, contact the NH OEM.

Emergency Management Assistance (EMA)

This proactive funding program requires a 50% match from communities. It supports projects that will improve local emergency management preparedness and response in the following areas: planning, training, drills and exercise, and administration. It is designed to fund projects such as Hazard Mitigation Plans, Emergency Management/Action Plans, and other administrative projects.

Mitigation Assistance Program (MAP)

This program requires a 25% match (in-kind or cash) and supports planning and implementation activities that reduce long-term hazard vulnerability and risk under the following categories: public awareness and education; mitigation planning and implementation; and preparedness and response planning.

Flood Mitigation Assistance Program (FMAP)

This program requires a 25% match (half in-kind and half local cash) and awards funds for Planning Grants, Technical Assistance Grants, and Project Grants. A Flood Mitigation Plan must be in place before funds can be sought for Technical Assistance or Projects. This program awards funding for Flood Mitigation Plans, structural enhancements, acquisition of buildings or land, and relocation projects.

Project Impact

This program seeks to build disaster-resistant communities by forming public/private partnerships with seed grants. Awards are granted for projects involving the mitigation for existing structures, adoption of policies and practices to mitigate effects of hazards, and activities that build and sustain public/private hazard mitigation partnerships.

Community Development Block Grant (CDBG)

A disaster must be declared to take advantage of this program, which awards emergency funds to cover unmet needs in a community. At least one of three national objectives must be met: the funds must have a direct benefit to low and moderate income persons; or must prevent or eliminate slums and blight in neighborhoods; or must eliminate conditions which threaten the public health and welfare. The NH Office of State Planning administers this program.

Hazard Mitigation Grant Program (HMGP)
A disaster must be declared to take advantage of this program, which is designed to protect public and private property from future disasters. This program typically awards funding for projects that are structural in nature or for the acquisition of buildings or land.

For more information, for a listing of criteria, or to request an application to these or any other grant programs, please contact the NH Office of Emergency Management at (800) 852-3792 or at www.nhoem.state.nh.us.

Action Evaluation and Prioritization Matrix of the Hazard Mitigation Committee

Hazard Mitigation Plan: Action Evaluation and Prioritization

As a group, rank each of the following Actions according to the following criteria:

3 = Good 2 = Average 1 = Poor

Action	Reduce damage	Contribute to community objectives	Meet Regulations	Protect historic structures	Implemented quickly	Socially Acceptable	Technically Feasible	Administrat-ively Possible	Politically Acceptable	Legal	Economic-ally Sound	Environ-mentally Sound	Total Score
Educational Pamphlet Series	3	3	2	3	3	3	3	3	3	3	1	3	33
Library of Publications	3	3	2	3	3	3	3	3	3	3	3	3	35
Neighborhood “Buddy System” Alert	3	3	2	3	3	3	3	3	3	3	3	3	35
Update misc Evacuation Plans	3	3	2	2	3	3	3	3	3	3	3	3	34
Electrical Backup for Highway Garage Fuel Pump	3	3	3	3	3	3	3	3	3	3	3	3	36
Contractor and Equipment Operator List	3	3	2	3	3	3	3	3	3	3	3	3	35
Add steep slope development limitation	3	3	3	3	3	3	3	3	3	3	3	3	36
Share Information With Dam Owners	3	3	3	3	3	3	3	3	3	3	3	3	36
Add restrictions for development in wetland areas	3	3	3	3	3	3	3	3	3	3	3	3	36
Familiarity with Bear Brook State Park Management Plan	3	3	3	3	3	3	3	3	3	3	3	3	36
Update Emergency Mgt/Action Plan	3	3	3	3	3	3	3	3	3	3	3	3	36
Purchase a generator for the Elementary School	3	3	3	3	3	3	3	3	3	3	3	3	36
Upgrade the Emergency radio system to NAWAS	3	3	3	3	3	3	3	3	3	3	3	3	36
Prohibit development in the floodplain	3	3	3	2	2	2	3	3	2	1	3	3	30
NFIP Program Familiarity by PB and Building Inspector	3	3	3	3	3	3	3	3	3	3	3	3	36
Fire Safety Education	3	3	3	3	3	3	3	3	3	3	3	3	36
Volunteer Equipment List	3	3	2	3	3	3	3	3	3	3	3	3	35
Dam Maintenance	3	3	3	3	1	3	3	3	3	3	3	3	34
Tree Examination and Trimming	3	3	3	3	2	3	3	3	3	3	2	3	34

Publicity and Meeting Information for 2002-2003 Hazard Mitigation Plan

To better assist future Hazard Mitigation Committee updates of this Plan, exhibited are the Agendas from each of the five 2002 Committee meetings, one from the 2003 review meeting, and one public information meeting, their attendance sheets, and their meeting summaries. Also included are press releases, published public notices, and flyers which were posted around the Town to encourage all interested people to attend the meetings.