

# **Town of Springfield, New Hampshire**

## **Hazard Mitigation Plan Update 2013**

**Town of Springfield  
Hazard Mitigation  
Committee**



**Upper Valley  
Lake Sunapee Regional  
Planning Commission**





Golf Course Road before and after Tropical Storm Irene, August 2011







Town Farm Road, before and after Tropical Storm Irene, August 2011







stone bridge on Kidder Brook at Twin Lake Villa before and after Tropical Storm Irene, August 2011







Twin Lake Villa Golf course before and after Tropical Storm Irene, August 2011



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## I. INTRODUCTION

### A. BACKGROUND

The New Hampshire Homeland Security & Emergency Management (NH HSEM) has a goal for all communities within the State of New Hampshire to establish local hazard mitigation plans as a means to reduce future losses from natural or man-made hazard events before they occur. The NH HSEM has provided funding to the Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC), to prepare local Hazard Mitigation Plans with several of its communities. UVLSRPC assisted the Town of Springfield in preparation of their first plan which was approved by FEMA on August 7, 2008. UVLSRPC began preparing the five-year updated plan for the Town of Springfield in September 2012. The *Springfield Hazard Mitigation Plan* serves as a strategic planning tool for use by the Town of Springfield in its efforts to reduce future losses from natural and/or man-made hazard events before they occur.

The Springfield Hazard Mitigation Committee prepared the *Springfield Hazard Mitigation Plan* with the assistance and professional services of the UVLSRPC under contract with the NH Homeland Security and Emergency Management operating under the guidance of the Federal Emergency Management Agency (FEMA). After a public hearing held in the Springfield Town Offices, the Springfield Board of Selectmen adopted the plan. A copy of the adoption and FEMA approvals are provided in Appendix F.

### B. PURPOSE

The Springfield Hazard Mitigation Plan is a planning tool for use by the Town of Springfield in its efforts to reduce future losses from natural and/or man-made hazards. This plan does not constitute a section of the Town Master Plan, nor is it adopted as part of the Zoning Ordinance. However, this plan will be referenced within the Town Master Plan as a resource, and the Hazard Mitigation Plan will be used when developing and amending town regulations and ordinances to restrict development in hazard-prone areas.

### C. HISTORY

On October 30, 2000, President Clinton signed into law the Disaster Mitigation Act of 2000 (DMA 2000). The ultimate purpose of DMA 2000 is to:

- Establish a national disaster mitigation program that will reduce loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from disasters, and

- Provide a source of pre-disaster mitigation funding that will assist States and local governments in accomplishing that purpose.

DMA 2000 amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by, among other things, adding a new section: 322 – Mitigation Planning. This places new emphasis on local mitigation planning. It requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans as a condition to receiving Hazard Mitigation Grant Program (HMGP) project grants. Local governments must review and if necessary, update the mitigation plan annually to continue program eligibility.

#### *Why develop a Mitigation Plan?*

Planning ahead to lessen or prevent a disaster will reduce the human, economic, and environmental costs. The State of NH is vulnerable to many types of hazards, including floods, hurricanes, winter storms, wildfires, wind events, and earthquakes. All of these types of events can have significant economic, environmental, and social impacts. The full cost of the damage resulting from the impact of natural hazards – personal suffering, loss of lives, disruption of the economy, and loss of tax base – is difficult to quantify and measure.

### **D. SCOPE OF THE PLAN**

The scope of the *Springfield Hazard Mitigation Plan* includes the identification of natural hazards affecting the Town, as identified by the Springfield Hazard Mitigation Committee. The hazards were reviewed under the following categories as outlined in the State of New Hampshire Multi-Hazard Mitigation Plan (October 2010 Edition). The Committee decided that expansive soils, land subsidence and snow avalanches are not risks in Springfield.

- |                                |                         |                                    |
|--------------------------------|-------------------------|------------------------------------|
| • Dam Failure                  | • Severe Winter Weather | • Erosion                          |
| • Flooding                     | • Earthquake            | • Wildfire                         |
| • Hurricane                    | • Landslide             | • Natural Air & Water Contaminants |
| • Tornado & Downburst          | • Drought               | • Hazardous Materials Spill        |
| • Thunderstorm/Lightening/Hail | • Extreme Heat          | • Public Health/Biohazard          |
|                                |                         | • Terrorism                        |

### **E. METHODOLOGY**

Using the *Guide to Hazard Mitigation Planning for New Hampshire Communities* (2002), as developed by the Southwest Regional Planning Commission (SWRPC), the Springfield Hazard Mitigation Committee, in conjunction with the UVLSRPC, developed the

content of the *Springfield Hazard Mitigation Plan* by tailoring the nine-step process set forth in the guidebook appropriate for the Town of Springfield. Many FEMA resources and multiple State and Federal websites were also used as well as the Springfield Master Plan and Emergency Management Plan. The Committee held a total of four posted meetings beginning in September 2012 and ending in November 2012. All meetings were posted at the Town Office and post office inviting the general public. Notices were sent to the Town Offices of neighboring towns to invite town officials. The Town of Grantham's Emergency Management Director, David Beckley attended two meetings, and the former Springfield Emergency Management Director, Frank Anderson attended a meeting. No other public attended. For the meeting agendas, see Appendix C: Meeting Documentation. **The comments of the members and the attendees were incorporated into the plan.**

The public will continue to have the opportunity to be involved in future revisions as meetings will be posted publicly. The Springfield Board of Selectmen adopted the Plan, contingent upon FEMA final approval. Prior to the Town of Springfield approving the Plan, a public meeting was held to gain additional input from the citizens of Springfield and to raise awareness of the ongoing hazard mitigation planning process. Appendix F provides a copy of the Town adoption and FEMA approvals.

There is an opportunity for partnerships between local boards, most notably the Board of Selectmen and the Planning Board, to implement the recommendations in this Plan.

The following hazard mitigation meetings were vital to the development of this Plan:

September 27, 2012  
October 11, 2012  
October 25, 2012  
November 8, 2012

To complete the update of this Plan, the Hazard Mitigation Committee revisited the following planning steps. The format of the plan was changed slightly to accommodate the most recent requirements since the original plan was completed. Each section was reviewed and revised during Committee meetings and by research by the various relevant Town departments.



**Step 1: Identify and Map the Hazards (September 2012)**

Committee members identified areas where damage from natural disasters had previously occurred, areas of potential damage, and human-made facilities and infrastructure that were at risk for property damage and other risk factors. A GIS-generated base map provided by the UVLSRPC was used in the process.

**Step 2: Determine Potential Damage (September 2012)**

Committee members identified facilities that were considered to be of value to the Town for emergency management purposes, for provision of utilities and services, and for historic, cultural and social value. A GIS-generated map was prepared to show critical facilities identified by the Springfield Hazard Mitigation Committee. A summary listing of “Critical Facilities” is presented in Chapter IV. Costs were determined for losses for each type of hazard.

**Step 3: Identify Mitigation Plans/Policies Already in Place (September 2012)**

Using information and activities in the handbook, the Committee and UVLSRPC staff identified existing mitigation strategies which are already implemented in the Town related to relevant hazards. A summary chart and the results of this activity are presented in Chapter VI.

**Step 4: Identify the Gaps in Protection/Mitigation (October 2012)**

Existing strategies were then reviewed for coverage, effectiveness and implementation, as well as need for improvement. Some strategies are contained in the Emergency Action Plan and were reviewed as part of this step. The result of these activities is presented in Chapter VI.

**Step 5: Determine Actions to be Taken (October 2012)**

During an open brainstorming session, the Hazard Mitigation Committee developed a list of other possible hazard mitigation actions and strategies for the Town of Springfield. Ideas proposed included policies, planning, and public information. A list of potential mitigation strategies can be found in Chapter VII.

**Step 6: Evaluate Feasible Options (October 2012)**

The Hazard Mitigation Committee evaluated the proposed actions based on eight criteria derived from the criteria listed in the evaluation chart found on page 27 of the *Guide to Hazard Mitigation Planning for New Hampshire Communities*. The eight criteria used for evaluation of potential mitigation strategies are listed in Chapter VII. Each strategy was rated high (3), average (2), or low (1) for its effectiveness in meeting each of the eight criteria (e.g., Does the mitigation strategy reduce disaster damage?). Strategies were ranked by overall score for preliminary prioritization then reviewed again under step eight. The ratings of the potential mitigation strategies can be found in Chapter VII.

**Step 7: Coordinate with other Agencies/Entities (Ongoing)**

UVLSRPC staff reviewed the Springfield Master Plan. This was done in order to determine if any conflicts existed or if there were any potential areas for cooperation. Town staff that was involved in preparing the Emergency Operations Plan participated in the hazard mitigation meetings, to avoid duplication and to share information.

**Step 8: Determine Priorities (October 2012)**

The Committee reviewed the preliminary prioritization list in order to make changes and determine a final prioritization for new hazard mitigation actions and existing protection strategy improvements identified in previous steps. UVLSRPC also presented recommendations for the Committee to review and prioritize. These are provided in Chapter VIII.

**Step 9: Develop Implementation Strategy (October 2012)**

Using the chart provided under step nine of the *Guide to Hazard Mitigation Planning for New Hampshire Communities*, the Committee created an implementation strategy which included person(s) responsible for implementation (who), a schedule for completion (when), and a funding source and/or technical assistance source (how) for each identified hazard mitigation actions. The prioritized implementation schedule can be found in Chapter VIII.

**Step 10: Adopt and Monitor the Plan**

UVLSRPC staff compiled the results of steps one through nine in a draft document, as well as helpful and informative materials from the *State of New Hampshire Multi-Hazard Mitigation Plan* (October 2010 Edition), which served as a resource for the *Springfield Hazard Mitigation Plan*. The process for monitoring and updating the Plan can be found in Chapter IX.

**F. HAZARD MITIGATION GOALS**

The Town of Springfield Hazard Mitigation Committee reviewed the hazard mitigation goals for the State of New Hampshire, and revised them for Springfield.

They are as follows:

1. To protect the general population, the citizens of the town and guests, from all natural and man-made hazards.
2. To reduce the potential impact of natural and man-made disasters on the town's critical support services, critical facilities, and infrastructure.

3. To reduce the potential impact of natural and man-made disasters on the town's economy.
4. To reduce the potential impact of natural and man-made disasters on the town's natural environment.
5. To reduce the potential impact of natural and man-made disasters on the town's specific historic treasures and interests as well as other tangible and intangible characteristics which add to the quality of life of the citizens and guests of the town.
6. To identify, introduce and implement cost effective hazard mitigation measures so as to accomplish the town's goals (above) and to raise the awareness and acceptance of hazard mitigation.

## **G. ACKNOWLEDGEMENTS**

The following people participated in the development of this plan as the Hazard Mitigation Committee:

- Peter Abair, *Town of Springfield Road Agent*
- Frank Anderson, *Town of Springfield former Emergency Management Director*
- Leigh Callaway, *Town of Springfield Selectman*
- Keith Cutting, *Town of Springfield Emergency Management Director*
- Tom Duling, *Town of Springfield Health Officer*
- Gene Hayes, *Town of Springfield ZBA*
- Ken Jacques, *Town of Springfield Planning Board & Twin Lake Villa Representative*
- Tim Julian, *Town of Springfield Chief of Police*
- Peter Lacaille, *Town of Springfield Fire Department Chief*
- Dallas Patten, *Town of Springfield former Fire Department Chief*
- Janet Roberts, *Town of Springfield Administrative Assistant*
- Kevin Roberts, *Town of Springfield Deputy Fire Chief*
- John Trachy, *Town of Springfield citizen*
- Danielle Morse, *NH Homeland Security & Emergency Management Field Representative*
- Victoria Davis, *Upper Valley Lake Sunapee Regional Planning Commission*



The Hazard Mitigation Committee was composed of local officials, representatives from state agencies (NH HSEM), citizens of Springfield and staff representatives of the UVLSRPC for meeting facilitation and plan development. Neighboring communities, agencies, businesses, academia, non-profits and other interested parties were invited to participate through the public posting of meeting times and agendas or through invitation. Historical information, relevant data and potential future mitigation strategies were contributed by all parties involved in the planning process. For a record of all meeting topics see Appendix C: Meeting Documentation. The staff representative of the UVLSRPC gathered all information from local officials, agency representatives and public input and compiled the information to develop the updated Plan.

## II. COMMUNITY PROFILE

### A. INTRODUCTION<sup>1</sup>

The Town of Springfield is located in Sullivan County, north of the Towns of New London and Sunapee off I-89 between Concord and Lebanon. The Town encompasses approximately 28,479 acres or 44.5 square miles in area including close to 1,000 acres of surface water. Springfield has one of the largest land areas in the Region. The Town can be generally characterized as high, hilly, wooded, and rural with several water bodies and large acreages of forest cover mixed with occasional individual homes and groups of houses along the road system. Approximately 29% of the Town is conserved land.

Most of Springfield is in the Sugar River Watershed. The northeastern portion of the Town is within the Blackwater River Watershed and the Smith River Watershed. A very small area in the northwestern portion of Town is within the Mascoma River Watershed. There are no rivers in Springfield. Major brooks are Gove, Bog, Carter, Sanders, Kidder, and Colcord Brooks; however, none of these are fourth order or greater. Several lakes and ponds are scattered throughout the town: Kolelemook Lake (98 acres, 1,387' el.), Baptist Pond (99 acres, 1,266' el.), Bog Brook Reservoir (94 acres, 990' el.), Star Lake (67 acres, 1,286' el.), Morgan Pond (34 acres, 1,682' el.), Dutchman Pond (28 acres, 1,543' el.), and, and several lesser ponds such as Little Stocker Pond (18 acres, 1,190' el.), Palazzi Pond (16 acres, 1,037' el.), McAlvin Pond (10 acres, 1,335' el.) and other unnamed ponds. There are also the McDaniels Waterfowl Marsh Wildlife Management Area around the Bog Brook Reservoir and a small portion of Little Sunapee Lake which is primarily located in New London.

High elevations and steep slopes have encouraged the preservation of forest tracts particularly in the eastern portion of town. Although there is little “virgin” timber in Town, older reforestation has left substantial stands in the area in and around Gile Memorial Forest and to the southwest between I-89 and New London Road. Approximately 85% of the town is covered with forests (1998 Orthophotos). Lumbering is a major industry in Springfield.

Town facilities include the Town Office Building which houses the town offices, the library, police department, and emergency operations center. The fire station and highway garage are housed in the same building. The Town/Meeting Hall was moved to its current site in 1851. A church is located on its second floor. The Historical Society's collection is housed in a small building formerly a one-room schoolhouse. The old concrete highway garage building is used as storage for both the Highway and Cemetery Departments.

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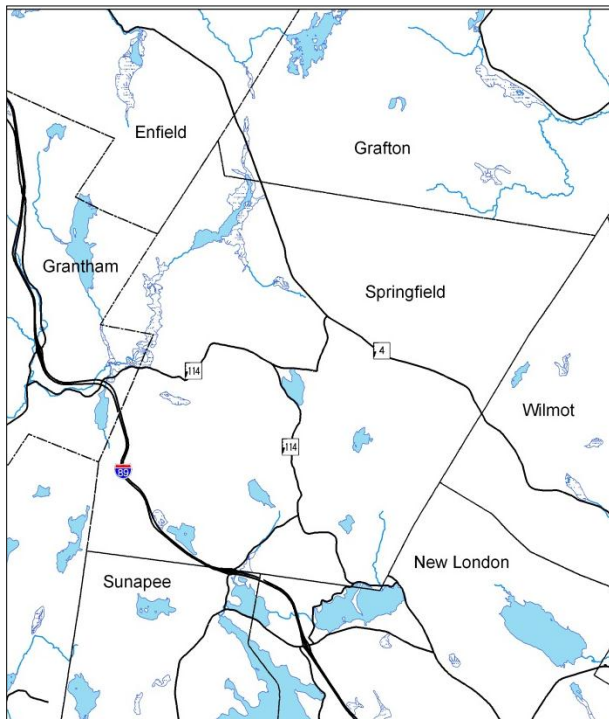
<sup>1</sup> Springfield Town Master Plan 2005 and Springfield Hazard Mitigation Committee

The Town of Springfield does not operate a public municipal water or sewer system for the entire town. However, the New London-Springfield Water System Precinct provides water to the Twin Lake Villa area in the southeast corner of Springfield which currently services several private seasonal and year-round homes in Springfield as well as a summer hotel and several rental houses. Some of the rental houses are winterized and rented out in the winter for skiing as well as in the warmer months. This water system extends into New London where the water system also serves five rental homes belonging to Twin Lake Villa as well as New London's commercial area including private residences, the New London Hospital, and Colby Sawyer College. The well field for the system is located on a peninsula in Springfield extending into Little Sunapee Lake. These wells feed the main pump station and a million gallon water tank located in Springfield and the auxiliary pump station and a one-half million gallon water tank located in New London.

There is a back-up generator at each pump station. The Springfield water tank could supply two to three days' worth of water for residential use.

The Village District of Eastman provides a water system serving approximately 1,300 units—most of the units are located in the Town of Grantham though several units are located in the Town of Springfield and some units are located in the Town of Enfield. The well field and treatment facility are located in Springfield.

The publicly maintained roads total about 68 miles. The Town maintains 37 of those miles. Several roads are part of the State system: Route 4A, Route 114, Georges Mills Road, and Four Corners Road.



**Figure II-1: Locus Map of Springfield**

## **B. DEVELOPMENT TRENDS**

Examination of the U.S. Census Data indicates that population grew by 48% from 1980 to 1990 going from a population of 532 to 788. From 1990-2000, population increased by 20%. Using NH Office of Energy and Planning 2005 population estimate of 1,060 for the Town, population grew by approximately 12% between 2000 and 2005. Springfield had the highest growth of any town in the State for 2010.

The predominant land use in Springfield is residential. Most of this development is in year-round single family homes although there are substantial seasonal homes. The greatest density of development occurs along Route 114 in the southern portion of town. The remaining development occurs along other road frontage in the western portion of town. The Eastman development is predominantly located in the neighboring Town of Grantham. However, this development spills over into a western section of Springfield with several lots (developed and undeveloped) on private roads. A development approved a couple years ago has a 20-30 home potential between Town Farm Road, Four Corners Road, and Route 114. The Twin Lake Villa, Incorporated owns a 150 acre parcel behind its hotel which could potentially be developed in the future. These parcels are not within the flood zone.

Several factors have played, and will continue to play, an important role in the development of Springfield. These include the existing development pattern and availability of land for future development; the present road network; physical factors such as steep slopes, soil conditions, wetlands, and aquifers; land set aside for conservation; and the effectiveness of the zoning ordinance to control growth in areas less desirable to development such as on steep slopes. These factors have an impact, both individually and cumulatively, on where and how development occurs.

Most of the hillsides have steep slopes and shallow soils not suitable for development, but the current zoning ordinance does not address this issue and allows development in these areas. Due to growth pressures in the region, the recreational lakes in Springfield, a nearby ski area, and Springfield's proximity to I-89, the Town is a desirable location for future development. Review and amendment of land use regulations will help the Town determine the density and location of future development taking into account many factors including steep slopes.

The following tables provide the current population and number of housing units in Springfield as well as projections.



**Table II-1: AREA POPULATION TRENDS**

Area	1980	1990	2000	2010
<b>Springfield</b>	<b>532</b>	<b>788</b>	<b>945</b>	<b>1,311</b>
Croydon	457	627	661	764
Enfield	3175	3979	4618	4,582
Grafton	739	923	1138	1,340
Grantham	704	1,247	2,167	2,985
New London	2935	3,180	4,116	4,397
Sunapee	2,312	2,559	3,055	3,365
Wilmot	725	935	1144	1,358
<i>Sullivan County</i>	<i>36,063</i>	<i>38,592</i>	<i>40,458</i>	<i>43,742</i>
<i>New Hampshire</i>	<i>920,610</i>	<i>1,109,252</i>	<i>1,235,786</i>	<i>1,316,472</i>

*Source: US Census*

**Table II-2: POPULATION PROJECTIONS FOR SPRINGFIELD**

	1980	1990	2000	2010	2020	2030
Population	532	788	945	1311	1320	1430
Decade Change in Population	73%	48%	20%	24%	13%	8%

*Source: 1970 – 2010 US Census; 2010 – 2030 projections from NH Office of Energy and Planning*

### **III. HAZARD IDENTIFICATION**

The Springfield Hazard Mitigation Committee reviewed the list of hazards provided in the *State of New Hampshire Hazard Mitigation Plan*, and some hazard history for the State of New Hampshire and Sullivan County in particular. A list of past hazard events in Springfield, Sullivan County, and the State of New Hampshire can be found in the following discussion and tables. After reviewing this information and the Emergency Operations Plan, the Committee conducted a Risk Assessment. The resulting risk designations are provided in the heading of each hazard table below as well as a more detailed discussion further into this chapter.

#### **A. WHAT ARE THE HAZARDS IN SPRINGFIELD?**

Springfield is prone to a variety of natural and human-made hazards. The hazards that Springfield is most vulnerable to were determined through gathering historical knowledge of long-time residents and town officials; research into the CRREL Ice Jam Database, FEMA and NOAA documented disasters, and local land use restrictions; and from the input of representatives from state agencies (NH HSEM). The hazards affecting the Town of Springfield are dam failure, flooding, hurricane, tornado, thunderstorm (including lightening and hail), severe wind, extreme winter weather (including extreme cold and ice storms), snow avalanche, earthquake, landslide, erosion, drought, extreme heat, wildfire, natural water & air contaminants, and hazardous materials spills. Each of these hazards and the past occurrences of these hazards are described in the following sections. Hazards that were eliminated from assessment are those that have not had a direct impact on the Town of Springfield and are not anticipated to have an impact as determined by the Hazard Mitigation Planning Committee, representatives from state agencies and citizens of the Town of Springfield. Eliminated hazards include Land Subsidence, Expansive Soils, and Snow Avalanches due to soils and topography not conducive to these hazards as well as relative location of existing and proposed development. Terrorism was also not considered to be a risk in Springfield.

#### **B. DESCRIPTIONS OF HAZARDS**

An assessment of each hazard relevant to Springfield is provided below. An inventory of previous and potential hazards is provided. Past events are shown in the following tables and the potential for future events is then discussed. The “risk” designation for each hazard was determined after evaluations discussed later in this chapter.

- Dam Failure
- Flooding
- Hurricane
- Tornado & Downburst
- Thunderstorm/Lightening/Hail
- Severe Winter Weather
- Earthquake
- Landslide
- Drought
- Extreme Heat
- Erosion
- Wildfire
- Natural Air & Water Contaminants
- Hazardous Materials Spill
- Public Health/Biohazard
- Terrorism

## Dam Failure

Dam failure results in rapid loss of water that is normally held by the dam. These kinds of floods pose a significant threat to both life and property. Appendices G and H provide maps with the location of dams in Springfield.

### *Past Dam Failure Events*

There have been no dam failures in Springfield or any surrounding towns which impacted Springfield. Three dams were designated by the State as “low hazard potential” which means because of its location and size, a dam failure would result in no possible loss of life, low economic loss to structures or property; possible structural damage to public roads; the release of liquid industrial, agricultural, or commercial wastes under certain conditions; and reversible losses to environmentally-sensitive areas. Three dams were designated as “non-menace” which means because of its location and size, a dam failure would not result in probable loss of life or loss to property.

**Table III-1: DAMS – LOW RISK**

<b>DAMS (DAM FAILURE – LOW RISK)</b>									
<b>Dam #</b>	<b>Class</b>	<b>Dam Name</b>	<b>Water Body</b>	<b>Owner (now or formerly)</b>	<b>Status</b>	<b>Type</b>	<b>Impoundment Area in Acres</b>	<b>Height of Dam (Ft)</b>	<b>Drainage Area in Acres</b>
220.01	NM	Branch Bog Brook	Branch Bog Brook	Heath	Active	S/Earth	6.0	12	4.69
220.02		Branch Bog Brook	Branch Bog Brook	Heath	Breached	S/Earth	NA	4	3.75
220.03		Carter Brook	Morgan Brook	Unknown	Ruins	S/Earth	NA	8	NA
220.04	NM	Lake Kolelemook	Lake Kolelemook	Town	Active	Concrete	99	4.5	1.13
220.05	NM	Gove Brook	Gove Brook	Town	Active	S/Earth	1.3	6	1.19
220.06		Gove Brook	Gove Brook	Moskalenko	Breached	Earth	NA	8	1.38
220.07		Gove Brook	Gove Brook	Moskalenko	Ruins	Earth	3.5	7	NA
220.08		Morgan Pond Brook	Morgan Pond Brook		Ruins	S/Earth	NA	10	2.3

<b>DAMS (DAM FAILURE – LOW RISK)</b>									
220.09	L	Morgan Pond	Kidder Brook	NL/S Water Dist	Active	Concrete	52	12	0.87
220.10	NM	Morgan Pond Brook	Morgan Pond Brook	NL/S Water Dist.	Active	Concrete	0.25	16	2.05
220.11	L	Star Lake	Otter Brook	Star Lk Properties	Active	Concrete	65.7	6.5	1.6
220.12	L	Washburn Cor/Bog Br	Bog Brook	NH F&G	Active	E/C	202	13.5	12.1
220.13	NM	Fire Pond	Unnamed Stream	Hayes	Active	Earth	0.2	6	NA
220.14	NM	Wildlife Pond	Unnamed Stream	Heath	Active	Earth	0.33	10.5	NA
220.15	NM	Wildlife Pond	Unnamed Stream	Lawson	Active	Earth	0.16	6	NA
220.16	L	Bog Brook Pond	Bog Brook	Palazzi Pond Assoc.	Active	Concrete	17	18	0.89
220.17	NM	Fire Pond	Unnamed Stream	Putney	Active	Earth	0.06	13	NA
220.18	NM	Kidder Brook	Kidder Brook	NL/S Water Dist.	Active	Concrete	1	19	2.1
220.19		Bernhardy	Gove Brook	Hayward	Exempt	Earth	2	5	1.7
<i>Source: Dam information provided by the NH Dam Bureau in 2007; Significant &amp; High Hazard dams must have an emergency action plan.  The State of New Hampshire classifies dams into the following four categories: Blank- Non-Active; NM – Non-menace; L – Low hazard; S – Significant hazard;  H – High Hazard    Type: S=stone; C=concrete; E=earth</i>									

### *Potential Future Dam Failure Damage*

Although there are 19 dams in Springfield, there are no “high” or “significant” hazard dams in Springfield. No emergency action plans are required for any of these dams to delineate inundation areas. The neighboring Town of Grantham has a dam at the southern end of Eastman Pond ranked as “high hazard potential.” Appendix E is a map of the inundation area of the Eastman Dam from the Emergency Action Plan. This shows if the dam were to fail, a very small, undeveloped portion of Springfield would be impacted.

Although the remainder of Springfield’s dams are not considered “high” or “significant” hazards, the Committee is concerned about the Morgan Pond Dam and the Star Lake Dam which are rated as “low” hazard. If the Morgan Pond Dam were to fail, it would travel primarily through the Gile State Forest. However, waters from the failed dam could exit the forest along the Kidder Brook to where there is substantial development on the Twin Lake Villa Road, Golf Course Road, and Route 114 to Little Sunapee Lake in the Town of New London. If the Star Lake Dam were to fail, the waters could travel downstream along Georges Mill Road to a low lying area including the Springfield Power Plan at I-89 and the town line toward Otter Pond in the Town of Sunapee. Since the perceived potential impact could be great, the Committee chose to include mention of these dams. The Committee determined that dam failure is a low risk for Springfield.



## **Flooding**

Flooding is the 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 inadequate local drainage. Floods can cause loss of life, property damage, crop/livestock damage, and water supply contamination, and can disrupt travel routes on roads and bridges.

Floods in the Springfield area are most likely to occur in the spring due to the increase in rainfall and snowmelt; however, floods can occur at any time of the year. A sudden winter thaw or a major summer downpour can cause flooding. Floodplains indicate areas potentially affected by flooding. There are several types of flooding.

100-Year Floods The term “100-year flood” does not mean that flooding will occur once every 100 years, but is a statement of probability to describe how one flood compares to others that are likely to occur. What it actually means is that there is a one percent chance of a flood in any given year. These areas were mapped for all towns in New Hampshire by FEMA. Appendix D displays the “Special Flood Hazards Areas.”

River Ice Jams Ice forming in riverbeds and against structures presents significant hazardous conditions when storm waters encounter these ice formations which may create temporary dams. These dams may create flooding conditions where none previously existed (i.e., as a consequence of elevation in relation to normal floodplains). Additionally, there is the impact of the ice itself on structures such as highway and railroad bridges. Large masses of ice may push on structures laterally and/or may lift structures not designed for such impacts. A search on the Cold Regions Research and Environmental Laboratory (CRREL) and discussion with the Springfield Committee revealed that there is no history of ice jam related events in the Town.

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.

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

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

Bank Erosion and Failure As development increases, changes occur that increase the rate and volume of runoff, and accelerate the natural geologic erosion process. Erosion typically occurs at the outside of river bends and sediment deposits in low velocity areas at

the insides of bends. Resistance to erosion is dependent on the riverbank's protective cover, such as vegetation or rock riprap, or its soils and stability. Roads and bridges are also susceptible to erosion.

Springfield is a participating member of the National Flood Insurance Program as of August 31, 2010. As part of the National Flood Insurance Program (NFIP), Flood Hazard Boundary Maps were prepared for the Town on November 8, 1977. Updated maps for all towns within Sullivan County were finalized in 2006. These maps identified those areas in town that fall within Zone A, which are Special Flood Hazard Areas inundated by the 100-year flood, with base flood elevations *not* determined. Examination of the floodplain maps indicates that there are relatively few areas that would be inundated by a 100-year flood. However, the Springfield Hazard Mitigation Committee identified several other areas which have been flooded. The Special Flood Hazard Areas and the Committee identified flood areas are shown in Appendix D.

There is currently only one flood insurance policy in force within the Town of Springfield at a value of \$350,000. There have been no losses paid out and thus no repetitive losses.

#### *Past Flooding Events*

In the spring of 2007 several roads which are not designated areas of 100-year flood were washed out. The Committee delineated all areas where flooding has occurred in recent years. Appendix D is a map which shows the locally identified flood areas and the flood Insurance Rate Map of Special Flood Hazard Areas determined by FEMA to be potential hazard zones in a 100-year flood. The following tables provide a list of floods in the State, County, and Springfield.

**Table III-2: FLOODING – FEMA DISASTER DECLARATIONS & CRREL ICE JAM INFORMATION**

<b>Hazard</b>	<b>Date</b>	<b>Location</b>	<b>Description of Areas Impacted</b>	<b>Damages</b>
Flood	November 3-4, 1927	Statewide	NA	Unknown
Flood	March 11-21, 1936	NH State; Along Connecticut River	Damage to roads. Flooding caused by simultaneous heavy snowfall totals, heavy rains and warm weather. River overflow.	Unknown
Flood/Hurricane	September 21, 1938	Statewide	Flooding in several locations	Unknown
Flooding	June 15-16, 1943	Upper CT River	Intense rain exceeding four inches	
Flooding	August 1955	CT River Basin	Heavy rains caused extensive damage throughout basin	
Flooding	July – Aug 1986	Statewide	Severe summer storms: heavy rains, tornados flash flood, and severe winds (FEMA DR-771-NH)	
Flood / Severe Storm	April 16, 1987	Cheshire, Carroll, Grafton, Hillsborough, Merrimack, Rockingham, & Sullivan Counties, NH	FEMA Disaster Declaration # 789-DR (Presidentially Declared Disaster). Flooding of low-lying areas along river caused by snowmelt and intense rain.	\$4,888,889 in damage.
Flood	August 7-11, 1990	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan Counties, NH	FEMA Disaster Declaration #876-DR. Flooding caused by a series of storm events with moderate to heavy rains.	\$2,297,777 in damage.
Flooding	August 19, 1991	Statewide	Hurricane Bob - effects felt statewide	
Flooding	October - Nov. 1995	North/West NH	Grafton County Declared: FEMA DR-1144-NH	
Flood	October 29, 1996	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan Counties, NH	FEMA Disaster Declaration # 1077- DR. Flooding caused by heavy rains; related to Hurricane Lily	\$2,341,273 in damage.
Flood	December 17, 2000	New London to Andover	NOAA recorded heavy rains and snow melt causing river overflows	
Flood	October 26th 2005	Cheshire, Grafton, Merrimack, Sullivan, and Hillsborough Counties	FEMA Disaster Declaration #1610-DR. Severe storms and flooding.	\$30,000,000 in damages.
Flood	May 13 -17, 2006	Belknap, Carroll, Grafton, Hillsborough, Rockingham, Strafford Counties	FEMA Disaster Declaration #1643-DR	Unknown

Hazard	Date	Location	Description of Areas Impacted	Damages
Flood	April 16, 2007	Statewide	FEMA Disaster Declaration #1695. Severe storms and flooding; Counties Declared: all; several road washouts in Springfield; Springfield received funds from FEMA	\$27,000,000 in damages; 2,005 home owners and renters applied for assistance in NH.
Flood	July 24, 2008	Central and Southern NH; Counties Declared: Belknap, Carroll, Merrimack, Rockingham, and Strafford	FEMA DR 1782	Severe storms, tornado, and flooding
Flood	August 14, 2008	Central Northern NH; Counties Declared: Belknap, Carroll, Coos, and Grafton	FEMA Disaster Declaration #1787	\$3 million in public assistance; primary damage to roads
Flood	March 14-31, 2010	Statewide	FEMA DR-1913; severe storms & flooding; Declared Counties: Hillsborough and Rockingham Counties	75% federal match
Flood	May 26-30, 2011	Coos and Grafton Counties	FEMA-4006-DR Federal assistance for Coos and Grafton Counties and hazard mitigation statewide	\$1.8 million in public assistance; primary impact to roads and bridges
Flood	May 29-31, 2012	Cheshire County	FEMA DR-4065: severe storm and flood event	
Flood	Frequent to Annual	New London	Elkins Lake area; Forest Acres Road; Bog Road; Stoneybrook Road; King Hill Road (state); Little Sunapee Road (State); Columbus Avenue, Lamson Lane, Otter Pond	

**Table III-3: FEMA FLOOD INSURANCE RATE MAP SPECIAL FLOOD HAZARD AREAS**

Location	Description of Area	Comments
Stoney Brook Road	Four houses	See Locally Defined Flooding table
Colcord and Bog Brooks/Eastman Development/Eastman Access Rd	Three houses, one mobile home, and potential for new homes in Eastman development w/private rds	Eastman Access Road has had water to edge of road; no known flooding in area
McDaniels Marsh Wildlife Management Area	No structures	Conserved area with no development
Town Farm Road/Route 4A/Old Grafton Road	11 houses and seven mobile homes	See Locally Defined Flooding table
Wetland in NE corner of town	No structures	Area with no road access

**Table III-4: LOCALLY DEFINED FLOODING – MEDIUM RISK**

<b>LOCALLY DEFINED FLOODING – MEDIUM RISK</b>			
<b>Date</b>	<b>Location</b>	<b>Description of Areas Impacted</b>	<b>Damages</b>
Occasional depending on dam control and weather	Golf Course Road & State Route 114	Flooding; no way to mitigate flooding due to level of lake	Road only
Springs of 2006 & 2007	Messer Hill Road	Flooding; Will replace a couple culverts	Road only
	Oak Hill Road West	Washed; Working on deepening ditches	
	Cemetery Road	Some road wash; replaced a culvert	
	George's Mill Road (State road) just south of Route 114	Shoulders and part of pavement washed; took out some private driveways; ditches & culvert filled w/debris	
Spring 2007	Striker & Fisher Corner Roads at intersection	Flooded road; State removed debris from culverts on Georges Mill Road—rectified problem	<p>Town road wash total cost around \$120,000; no damage to homes</p> <p>In the early spring of 2007, there were two wet snow storms followed by rain. Water coming down the hillsides and snow and ice in the culverts and ditches caused an unusual amount of water in the roads which caused substantial damage.</p>
	Eastman Access Road	Water up to edge of road; minor shoulder wash	
	Stoney Brook Road (Special Flood Hazard Area)	Road flooding; only floods after major storm event	
	Route 4A (State road) west of Sugar House Road	Washed shoulder on Sugar House Road and some pavement loss on Rt. 4A; only an issue in severe weather though Rt. 4A impacted by lack debris removal from culvert/ditch	
	Town Farm Road just south of Howard Road	Big swamp nearby; water from Gile Forest; culvert has filled; lost ½ road width; ditch washed out and culvert couldn't handle water; replaced two culverts on Town Farm Road	
	Phillbrook Hill Road just south of George Hill Rd	Portion of road wash out	
	Deer Hill Road	Portion of road wash out	
	Nichols Hill Road	Road wash out	
	Town Farm Road/Route 4A/Old Grafton Road (Special Flood Hazard Area)	Minor shoulder wash; could back up due to nearby beaver activity	
	Deep Snow Drive	Subject to heavy run-off due to lay of land	
	Hazzard Road North	Portion of road washed out; rebuilt road w/ new culverts in 2007	
	George Hill Road	Road shoulder washed out; heavy run-off due to nearby logging and tree damage by wind	
	Lorent Drive	Some road wash; private pond overflow	



### *Potential Future Flooding Events*

Future flooding is likely as noted in the above table based upon local knowledge of past flood events. The total structures in potential flood areas which are low and vulnerable to flooding include 19 houses and eight mobile homes although flooding has not damaged any of these homes as yet. Two homes are located in the Eastman development on private roads. These houses appear to be located in a FIRM special flood hazard area and are included in the FEMA list. However, they are not listed in the locally defined flooding table as the Town is not aware of flooding in this area as the Town is not responsible for maintaining the roads in Eastman. According to the State's Mitigation Plan, Sullivan County has a high hazard risk for flooding. The Committee determined flooding is a medium risk in Springfield.

### **Hurricane**

A hurricane is an intense tropical weather system with a well-defined circulation and maximum sustained winds of 74 mph (64 knots) or higher. Hurricane winds blow in a large spiral around a relative calm center known as the "eye." The "eye" is generally 20 to 30 miles wide, and the storm may extend outward 400 miles. As a hurricane nears land, it can bring torrential rains, high winds, and storm surges. A single hurricane can last for more than 2 weeks over open waters and can run a path across the entire length of the eastern seaboard. August and September are peak months during the hurricane season that lasts from June 1 through November 30. Damage resulting from winds of this force can be substantial, especially considering the duration of the event, which may last for many hours (*NH Hazard Mitigation Plan*; FEMA website).

### *Past Hurricane Events*

There have been several hurricanes over the years which have impacted New England and New Hampshire. These are listed below. The 1938 hurricane directly impacted Springfield according to the Committee member recollections.

**Table III-5: HURRICANES & TROPICAL STORMS**

<b>HURRICANES AND TROPICAL STORMS</b>				
<b>Hazard</b>	<b>Date</b>	<b>Location</b>	<b>Description of Areas Impacted</b>	<b>Damages</b>
Hurricane	August, 1635	n/a		Unknown
Hurricane	October 18-19, 1778	n/a	Winds 40-75 mph	Unknown
Hurricane	October 9, 1804	n/a		Unknown
Gale	September 23, 1815	n/a	Winds > 50mph	Unknown
Hurricane	September 8, 1869	n/a		Unknown
Hurricane	September 21, 1938	Southern New England	Flooding caused damage to road network and structures. 13 deaths, 494 injured throughout NH. Disruption of electric and telephone services for weeks. 2 Billion feet of marketable lumber blown down. Total storm losses of \$12,337,643 (1938 dollars). 186 mph maximum winds.	Unknown
Hurricane (Carol)	August 31, 1954	Southern New England	Category 3, winds 111-130 mph. Extensive tree and crop damage in NH, localized flooding	Unknown
Hurricane (Edna)	September 11, 1954	Southern New England	Category 3 in Massachusetts. This Hurricane moved off shore but still cost 21 lives and \$40.5 million in damages throughout New England. Following so close to Carol it made recovery difficult for some areas. Heavy rain in NH	Unknown
Hurricane (Donna)	September 12, 1960	Southern and Central NH	Category 3 (Category 1 in NH). Heavy flooding in some parts of the State.	Unknown
Tropical Storm (Daisy)	October 7, 1962	Coastal NH	Heavy swell and flooding along the coast	Unknown
Tropical Storm (Doria)	August 28, 1971	New Hampshire	Center passed over NH resulting in heavy rain and damaging winds	Unknown
Hurricane (Belle)	August 10, 1976	Southern New England	Primarily rain with resulting flooding in New Hampshire. Category 1	Unknown

<b>HURRICANES AND TROPICAL STORMS</b>				
<b>Hazard</b>	<b>Date</b>	<b>Location</b>	<b>Description of Areas Impacted</b>	<b>Damages</b>
Hurricane (Gloria)	September, 1985	Southern New England	Category 2, winds 96-110 mph. Electric structures damaged; tree damages. This Hurricane fell apart upon striking Long Island with heavy rains, localized flooding, and minor wind damage in NH	Unknown
Hurricane (Bob)	August 19, 1991	Southern New England; caused flooding in Springfield	Structural and electrical damage in region from fallen trees. 3 persons were killed and \$2.5 million in damages were suffered along coastal New Hampshire. Federal Disaster FEMA-917-DR	Unknown
Hurricane (Edouard)	September 1, 1996	Southern New England	Winds in NH up to 38 mph and 1 inch of rain along the coast. Roads and electrical lines damaged	Unknown
Tropical Storm (Floyd)	September 16-18, 1999	Southern New England	FEMA DR-1305-NH. Heavy Rains	Unknown
Hurricane (Katrina)	August 29, 2005 & continuing	East Coast of US and more	FEMA-3258-EM. Heavy rains and flooding devastating SE US	Unknown
Tropical Storm (Tammy)	October 5-13, 2005	East Coast of US	Remnants of Tammy contributed to the October 2005 floods which dropped 20 inches of rain in some places in NH.	Unknown
Tropical Storm (Irene)	August 26 – September 6, 2011	East Coast of US	FEMA-4026-DR for Coos, Carroll, Grafton, Strafford, Belknap, Merrimack, and Sullivan Counties; EM-3333; Springfield received FEMA assistance	\$2million primarily for roads and bridges
Sandy	October 29, 2012	East Coast of US	EM-3360; some power outages and tree and limb cleanup in Springfield.	Estimated \$20 billion; Springfield applied for FEMA assistance funding and is awaiting decision

### *Potential Future Hurricane Damage*

Hurricane events will affect the entire town. It is impossible to predict into the future what damage will occur in the town. According to the State's mitigation plan, Sullivan County has a medium risk for hurricanes. The Committee determined the hurricane risk to be low/medium in Springfield.

## Tornado & Downburst

“A tornado is a violent windstorm characterized by a twisting, funnel shaped cloud. These events are spawned by thunderstorms and, occasionally by hurricanes, and may occur singularly or in multiples. They develop when cool air overrides a layer of warm air, causing the warm air to rise rapidly. Most vortices remain suspended in the atmosphere. Should they touch down, they become a force of destruction.” (*NH Multi-Hazard Mitigation Plan*). The Fujita Scale is the standard scale for rating the severity of a tornado as measured by the damage it causes. Most tornadoes are in the F0 to F2 Class. Building to modern wind standards provides significant property protection from these hazard events. New Hampshire is located within Zone 2 for Design Wind Speed for Community Shelters, which suggests that buildings should be built to withstand 160 mph winds.

Significantly high winds occur especially during tornadoes, hurricanes, winter storms, and thunderstorms. Falling objects and downed power lines are dangerous risks associated with high winds. In addition, property damage and downed trees are common during severe wind occurrences. A downburst is a severe, localized wind blasting down from a thunderstorm. These “straight line” winds are distinguishable from tornadic activity by the pattern of destruction and debris. Downbursts fall into two categories: 1. Microburst, which covers an area less than 2.5 miles in diameter, and 2. Macroburst, which covers an area at least 2.5 miles in diameter. Most downbursts occur with thunderstorms, but they can be associated with showers too weak to produce thunder.

### *Past Tornado & Downburst Events*

The following table displays tornadoes occurring in Sullivan County between 1950 and 1995 as provided by the “Tornado Project” ([www.tornadoproject.com](http://www.tornadoproject.com)) and the *NH Multi-Hazard Mitigation Plan*. In 2008/2009 a microburst came down along the Sanborn Hill Road. In 2007, a severe microburst knocked down stands of trees and damaged a house and car in Springfield. Around 1990 a microburst sounded like a train going over the town offices. The Committee remembers a microburst about 20 years ago around McDaniel’s Marsh.

**Table III-6: TORNADOES IN OR NEAR SULLIVAN COUNTY**

<b>TORNADOES &amp; DOWNBURSTS</b>			
	<b>Date</b>	<b>Fujita Scale</b>	<b>Damages</b>
Tornado	September 9, 1821	Intense in NH	Killed 6 people; crossed Lake Sunapee
Tornado	October 24, 1955	F0	No deaths or injuries; costs unknown (Sullivan County)
Tornado	July 9, 1962	F0	No deaths or injuries; costs unknown (Sullivan County)
Tornado	July 9, 1962	F2	No deaths or injuries; costs unknown (Sullivan County)
Tornado	July 14, 1963	F1	No deaths or injuries; costs unknown (Sullivan County)
Tornado	June 27, 1964	F0	No deaths or injuries; costs unknown

TORNADOES & DOWNBURSTS			
	Date	Fujita Scale	Damages
Tornado	August 11, 1966	F2	No deaths or injuries; costs unknown
Tornado	August 25, 1969	F1	No deaths or injuries; costs unknown
Tornado	May 31, 1972	F1	No deaths or injuries; costs unknown
Tornado	July 21, 1972	F1	No deaths or injuries; costs unknown
Tornado	May 11, 1973	F2	No deaths or injuries; costs unknown
Tornado	June 11, 1973	F0	No deaths or injuries; costs unknown
Tornado	August 15, 1976	F1	No deaths; 5 injuries; costs unknown
Tornado	August 13, 1999	F1	No deaths or injuries; costs unknown (Grafton & Sullivan Counties)
Tornado	July 6, 1999	F2	No deaths or injuries; costs unknown
Tornado	Summer 2006	NA	Began in Barnet, VT and moved to Monroe, NH
Tornado	April 15, 2007	NA	Numerous trees were knocked down in Enfield, NH
Tornado	July 24, 2008	F2	Numerous trees and utility poles down and tearing down houses near Concord; 1 fatality and 2 injuries

Source: *The Tornado Project* web site (Sept 2012) and the *State of NH Multi-Hazard Plan* (October 2010 Edition); [http://www.tornadohistoryproject.com/tornado/New\\_Hampshire](http://www.tornadohistoryproject.com/tornado/New_Hampshire) (Sept 2012)

### *Potential Future Tornado Damage*

It is impossible to predict where a tornado or downburst will occur or what damage it will inflict. The Springfield Committee does not recall tornadoes in Springfield. The FEMA website places the State of NH in the Zone II Wind Zone which provides that a community shelter should be built to a 160 mph “design wind speed.” According to the State’s mitigation plan, Sullivan County has a medium risk for tornadoes. The Committee determined there is a low/medium risk for tornadoes and downbursts in Springfield.

### **Thunderstorms**

A thunderstorm is a rain shower during which you hear thunder. Since thunder comes from lightning, all thunderstorms have lightning. A thunderstorm is classified as "severe" when it contains one or more of the following: hail three-quarter inch or greater, winds gusting in excess of 50 knots (57.5 mph), tornado. Hail is a form of precipitation that occurs when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere where they freeze into ice. When the hail particle becomes heavy enough to resist the updraft, it falls to the ground. The resulting wind and hail can cause death, injury, and property damage.

An average thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Winter thunderstorms are rare because the air is more stable, strong updrafts cannot form because the surface temperatures during the winter are colder.

Lightning is a giant spark of electricity that occurs within the atmosphere or between the atmosphere and the ground. As lightning passes through the air, it heats the air to a temperature of about 50,000 degrees Fahrenheit, considerably hotter than the surface of the sun. Fires are a likely result of lightning strikes, and lightning strikes can cause death, injury, and property damage. It is impossible to predict where lightning will strike. There have probably been lightning strikes in Springfield, but there is no record of damage.

#### *Past Thunderstorm Events*

There have probably been lightning strikes in Springfield, but there is no record of damage. A thunderstorm with lightning or hail could impact the entire town. There have been no recalled serious hailstorms or lightning strikes in Springfield.

#### *Potential Future Thunderstorm Damage*

It is inevitable that thunderstorms will occur in Springfield's future. Lightning, hail, or wind from a thunderstorm could impact the entire town. It is not possible to estimate possible damage. According to the State's mitigation plan, Sullivan County has a medium risk of a lightning hazard. The risk for future thunderstorm damage was determined by the Committee to be low/medium risk in Springfield.

### **Severe Winter Weather**

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

Heavy Snow Storms A heavy snowstorm is generally considered to be one which deposits four or more inches of snow in a twelve-hour period... A blizzard is a winter storm characterized by high winds, low temperatures, and driving snow- according to the official definition given in 1958 by the U.S. Weather Bureau, the winds must exceed 35 miles per hour and the temperatures must drop to 20°F (-7°C) or lower. Therefore, intense Nor'easters, which occur in the winter months, are often referred to as blizzards. The definition includes the conditions under which dry snow, which has previously fallen, is whipped into the air and diminishes visual range. Such conditions, when extreme enough, are called "white outs."

Ice Storms Freezing rain occurs when snowflakes descend into a warmer layer of air and melt completely. When these liquid water drops fall through another thin layer of freezing air just above the surface, they don't have enough time to refreeze before reaching the



ground. Because they are "supercooled," they instantly refreeze upon contact with anything that is at or below 0 degrees C, creating a glaze of ice on the ground, trees, power lines, or other objects. A significant accumulation of freezing rain lasting several hours or more is called an ice storm. This condition may strain branches of trees, power lines and even transmission towers to the breaking point and often creates treacherous conditions for highway travel and aviation. Debris impacted roads make emergency access, repair and cleanup extremely difficult.

“Nor’easters” Nor'easters can occur in the eastern United States any time between October and April, when moisture and cold air are plentiful. They are known for dumping heavy amounts of rain and snow, producing hurricane-force winds, and creating high surfs that cause severe beach erosion and coastal flooding. A Nor'easter is named for the winds that blow in from the northeast and drive the storm up the east coast along the Gulf Stream, a band of warm water that lies off the Atlantic coast.

There are two main components to a Nor'easter: Gulf Stream low-pressure system (counter-clockwise winds) generate off the coast of Florida. The air above the Gulf Stream warms and spawns a low-pressure system. This low circulates off the southeastern U.S. coast, gathering warm air and moisture from the Atlantic. Strong northeasterly winds at the leading edge of the storm pull it up the east coast. As the strong northeasterly winds pull the storm up the east coast, it meets with cold Arctic high-pressure system (clockwise winds) blowing down from Canada. When the two systems collide, the moisture and cold air produce a mix of precipitation.

Winter conditions make Nor'easters a normal occurrence, but only a handful actually gather the force and power to cause problems inland. The resulting precipitation depends on how close you are to the converging point of the two storms. Nor'easter events which occur toward the end of a winter season may exacerbate the spring flooding conditions by depositing significant snow pack at a time of the season when spring rains are poised to initiate rapid snow pack melting.

#### *Past Extreme Winter Weather Events*

The following table provides a list of past extreme winter weather events in New Hampshire and Springfield.

**Table III-7: EXTREME WINTER WEATHER**

<b>EXTREME WINTER WEATHER – MEDIUM/HIGH RISK</b>				
<b>Hazard</b>	<b>Date</b>	<b>Location</b>	<b>Description of Areas Impacted</b>	<b>Damages</b>
Ice Storm	December 17-20, 1929	New Hampshire	Unprecedented disruption and damage to telephone, telegraph and power system. Comparable to 1998 Ice Storm (see below)	Unknown
Ice Storm	Dec. 29-30, 1942	New Hampshire	Glaze storm; severe intensity	Unknown

<b>EXTREME WINTER WEATHER – MEDIUM/HIGH RISK</b>				
<b>Hazard</b>	<b>Date</b>	<b>Location</b>	<b>Description of Areas Impacted</b>	<b>Damages</b>
Blizzard	February 14-17, 1958	New Hampshire	20-30 inches of snow in parts of New Hampshire	Unknown
Snow Storm	March 18-21, 1958	New Hampshire	Up to 22 inches of snow in south central NH	Unknown
Snow Storm	December 10-13, 1960	New Hampshire	Up to 17 inches of snow in southern NH	Unknown
Snow Storm	January 18-20, 1961	New Hampshire	Up to 25 inches of snow in southern NH	Unknown
Snow Storm	February 2-5, 1961	New Hampshire	Up to 18 inches of snow in southern NH	Unknown
Snow Storm	January 11-16, 1964	New Hampshire	Up to 12 inches of snow in southern NH	Unknown
Blizzard	January 29-31, 1966	New Hampshire	Third and most severe storm of 3 that occurred over a 10-day period. Up to 10 inches of snow across central NH	Unknown
Snow Storm	December 26-28, 1969	New Hampshire	Up to 41 inches of snow in west central NH; ice storm took out power for a week in nearby towns.	Unknown
Snow Storm	February 18-20, 1972	New Hampshire	Up to 19 inches of snow in southern NH	Unknown
Snow Storm	January 19-21, 1978	New Hampshire	Up to 16 inches of snow in southern NH	Unknown
Blizzard	February 5-7, 1978	New Hampshire	New England-wide. Up to 25 inches of snow in mid-NH	Unknown
Ice Storm	January 8-25, 1979	New Hampshire	Major disruptions to power and transportation	Unknown
Snow Storm	February, 1979	New Hampshire	President's Day storm	Unknown
Ice Storm	February 14, 1986	New Hampshire	Fiercest ice storm in 30 yrs in the higher elevations in the Monadnock region. It covered a swath about 10 miles wide from the MA border to New London NH	Unknown
Extreme Cold	November-December, 1988	New Hampshire	Temperature was below 0 degrees F for a month	Unknown
Ice Storm	March 3-6, 1991	New Hampshire	Numerous outages from ice-laden power lines in southern NH	Unknown
Snow Storm	March 13-17, 1993	Northeast/Mid Atlantic	EM-3101	\$5 million in NH

<b>EXTREME WINTER WEATHER – MEDIUM/HIGH RISK</b>				
<b>Hazard</b>	<b>Date</b>	<b>Location</b>	<b>Description of Areas Impacted</b>	<b>Damages</b>
Snow Storm	1997	New Hampshire	Power outages due to heavy snowfall	Unknown
Ice Storm	January 15, 1998	New Hampshire; heavily impacted in New London	Federal disaster declaration DR-1199-NH; in New London it hit everywhere except Pleasant Lake; no power for about a week; boundaries to town closed off; one-lane roadway; tree cleanup with large crews made up of NH HSEM, other towns, local contractors, etc.	20 major road closures, 67,586 without electricity, 2,310 without phone service, \$17+ million in damages to Public Service of NH alone
Snow Storm	March 5-7, 2001	New Hampshire	Heavy snow. Federal Emergency Declaration 3166 in Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, and Strafford Counties	Unknown
Snow Storm	February 17-18, 2003	New England	Heavy Snow. Federal Disaster Declaration EM-3177	\$1.6 million in snow removal
Snow Storm	December 6-7, 2003	New Hampshire	Heavy snow. Federal Disaster Declaration FEMA-3193-NH; Springfield received FEMA assistance	Unknown
Snow Storm	January 22-23, 2005	New Hampshire	Heavy snow. Federal Disaster Declaration EM-3207	\$6.5 million in NH
Snow Storm	February 10-12, 2005	New Hampshire	Heavy snow. Federal Disaster Declaration FEMA-3208-NH	
Snow Storm	March 11-12, 2005	New Hampshire	Heavy snow. Federal Disaster Declaration FEMA-3211-NH; Springfield received FEMA assistance	
Ice Storm	December 11-23, 2008	New Hampshire	Debris removal. FEMA 1812; struck much of northeast; power outages in Springfield; Springfield received FEMA assistance	\$15 Million
Winter Storm	February 23 – March 3, 2010	New Hampshire	FEMA DR-1892; Federal funding to Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan Counties; power loss	\$2 Million
Snow Storm	March 6-7, 2011	New Hampshire	Heavy snow; Springfield applied for FEMA assistance but did not receive any	Unknown
Snow Storm	October 29-30, 2011	Statewide	EM-3344; FEMA-4049 Hillsborough & Rockingham Counties; no power outages in Springfield	Unknown
Ice Storm	January 27, 2012	Region	Power outages in area	Unknown

*FEMA web site for NH Winter Storms, viewed September 2012 and other sources*

*Potential Future Severe Winter Damage:*

There is the potential for severe winter damage every year. The event would affect the entire town. According to the State's mitigation plan, Sullivan County has a high risk for severe winter weather. The Committee determined severe winter weather to be a medium risk in Springfield.

**Earthquake**

The following is a list of earthquakes which have impacted New England, New Hampshire, and Springfield.

**Table III-8: EARTHQUAKES**

<b>EARTHQUAKES</b>			
	<b>Location</b>	<b>Magnitude</b>	<b>Damage/Notes</b>
February 5, 1663	St. Lawrence River area	NA	Eastern Canada and New England
October 29, 1727	New London, MA	NA	Widespread damage Massachusetts to Maine; aftershocks for several months
September 16, 1732	St. Lawrence Valley	NA	Felt at Piscataqua; centered near Montreal with much damage
November 18, 1755	Cape Ann, MA	NA	Much damage to Boston; felt from Chesapeake Bay to Halifax, NS
November 9, 1810	Exeter, NH	Intensity VI	Felt in Kennebunkport and Portland
November 18, 1872	Concord, NH	"Moderate"	Felt in adjacent towns and Laconia
December 19, 1882	Concord, NH	"Moderate"	Buildings shook in Dover and Pittsfield.
January 18, 1884	Contoocook	"Moderate"	NA
November 23, 1884	Concord, NH	"Heavy"	Felt in MA, CT, and NY
May 1, 1891	Concord, NH	"Mild Tremor"	Felt in Cambridge and Melrose, MA
October 9, 1925	SE NH and ME	NA	Moderate damage
March 18, 1926	Manchester, NH	Intensity V	Buildings rocked in New Ipswich
March 8, 1927	Concord, NH	"Small, localized"	Felt lightly in Cheshire and Hillsborough Counties
April 25, 1928	Northern NH	"Violent" in some places	Extended in to Maine and Vermont
November 18, 1929	Grand Banks, NL	7.2	All of NH felt minor effects
November 1, 1935	Timiskaming, Canada	6.25 (Intensity V)	Many places in NH reported the shock
December 20, 1940	Ossipee, NH	Both earthquakes 5.5	Damage to homes, water main rupture; impacted CT, ME, MA, NH, RI,

EARTHQUAKES			
	Location	Magnitude	Damage/Notes
December 24, 1940	Ossipee, NH	(Intensity VII)	VT & NJ; many aftershocks
June 26, 1964	Meriden, NH	Reached intensity VI	Slight damage in Bradford, NH and Springfield, VT
June 15, 1973	NH/Quebec border	4.8	NA
January 19, 1982	West of Laconia, NH	4.5	NA
Late 1980s	New London	NA	Residents remember an event; no structural damage
September 26, 2010	New Hampshire	3.4	Centered in Boscawen, NH
August 23, 2011	Central Virginia, East Coast	5.8	Felt in New London
October 16, 2012	Northern New England	4.6 (center in Hollis Center, Maine)	Felt around Sullivan County; phones out of service; no major damage reported. (Eagle Times, October 17, 2012)

Source: [earthquake.usgs.gov/earthquakes/states/new\\_hampshire/history.php](http://earthquake.usgs.gov/earthquakes/states/new_hampshire/history.php) for earthquakes through 1964. NH Multi-Hazard Mitigation Plan, 2010 for 1973-1982; [earthquake.usgs.gov/earthquakes](http://earthquake.usgs.gov/earthquakes) (12/13/11)

### *Potential Future Earthquake Damage:*

A United States Geographic Survey mapping tool on the web ([geohazards.cr.usgs.gov/projects](http://geohazards.cr.usgs.gov/projects)) projects a 5 – 6 peak ground acceleration (pga) with 10% probability of exceedance in 50 years for the Town of Springfield. This pga rating is equivalent to a Modified Mercalli Intensity of “V” with moderate perceived shaking and very light potential damage. An earthquake event would impact the entire town. According to the State’s mitigation plan, Grafton County has a medium risk for earthquakes. The Committee determined the risk to be low/medium in Springfield.

### **Landslide**

A landslide is the downward or outward movement of slope-forming materials reacting under the force of gravity, including mudslides, debris flows, and rockslides. Formations of sedimentary deposits along the Connecticut River also create potential landslide conditions. Landslides can damage or destroy roads, railroads, electrical and phone lines, and other structures.

### *Past Landslide Events:*

There have been no known landslides in Springfield.

*Potential Future Landslide Events:*

The best predictor of future landslides is past landslides. If any landslide events were to occur, they would be most likely in areas of very steep slope. There is little development in these areas, so no future structural damage cost due to this natural hazard is anticipated although there could be road or utility pole damage. The Committee delineated an area where a landslide could potentially occur along Route 114 next to Kolelemook Lake which includes four cottages. Another potential landslide area is at the State rest area along I-89, but this is a State concern. Another potential area is off Nichols Hill Road which would not involve any structures though utility poles could be impacted. The Committee determined there is a low risk for landslide damage.

**Drought**

A drought is defined as a long period of abnormally low precipitation. The effects of drought are indicated through measurements of soil moisture, groundwater levels and stream flow; however, not all of these indicators will be low during a drought. Costs can include loss of agricultural crops and livestock.

**Table III-9: DROUGHT**

<b>Date</b>	<b>Location</b>	<b>Description</b>	<b>Damages</b>
1929-1936	Statewide	Regional. Recurrence Interval 10 to > 25 years	Unknown
1939-1944	Statewide	Severe in southeast and moderate elsewhere. Recurrence Interval 10 to > 25 years	Unknown
1947-1950	Statewide	Moderate. Recurrence Interval 10 to > 25 years	Unknown
1960-1969	Statewide	Regional longest recorded continuous spell of less than normal precipitation. Encompassed most of the Northeastern US. Recurrence Interval > 25 years	Unknown
2001-2002	Statewide	Affected residential wells and agricultural water sources; third worst drought on record, exceeded only by the drought of 1956-1966 and 1941-1942; recurrence level not determined yet	Unknown
2010	Mostly southern counties	Affected dug wells and those in hillsides; affected Springfield and surrounding towns.	Unknown
2012	Regional	Affected dug wells in Springfield in most of New Hampshire according to Committee members; Springfield water bodies very low	Unknown

Source: NH DES through 2002; Concord Monitor August 22, 2010

*Potential Future Drought Damage*

Drought will affect the entire town. The damage will depend upon the crops being grown at the time of the drought. No cost has been assigned to residential wells going dry though new wells may have to be dug or drilled. According to the State's mitigation plan, Sullivan County has a low/medium risk for drought.

**Extreme Heat**

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

*Past Extreme Heat Events*

The following table lists the extreme heat events in the past which included the Northeast and New Hampshire.

**Table III-10: EXTREME HEAT**

<b>Date</b>	<b>Location</b>	<b>Description</b>	<b>Damage</b>
July, 1911	New England	11-day heat wave in New Hampshire	Unknown
Late June to September, 1936	North America	Temps to mid 90s in the northeast	Unknown
Late July, 1999	Northeast	13+ days of 90+ degree heat	Unknown
Early August, 2001	New Hampshire	Mid 90s and high humidity	Unknown
August 2-4, 2006	New Hampshire	Regional heat wave and severe storms	Unknown
July 2010	Northeast	Regional heat wave	Unknown
June - August 2012	North America	Record-breaking highs; third warmest summer on record per <a href="http://www.ncdc.noaa.gov">www.ncdc.noaa.gov</a>	Unknown



### *Potential Future Extreme Heat Events*

Extreme heat would impact the entire town though those with air conditioning in their homes would have less impact. The costs of extreme heat are most likely to be in human life. The elderly are especially susceptible to extreme heat. The State did not develop a county risk factor for extreme heat in its *NH Hazard Mitigation Plan*. The Committee determined extreme heat to be a low/medium risk in Springfield.

### **Erosion**

Soil erosion, although a natural process, can be greatly accelerated by improper construction practices. Because of the climate in New Hampshire and the general nature of our topography, eroded soils can be quickly transported to a wetland, stream, or lake. The New Hampshire Department of Environmental Services (DES) regulates major construction activities to minimize impacts upon these resources. A properly conducted construction project should not cause significant soil erosion.

Soil becomes vulnerable to erosion when construction activity removes or disturbs the vegetative cover. Vegetative cover and its root system play an extremely important role in preventing erosion by: (1) Shielding the soil surface from the impact of falling rain drops; (2) Reducing the velocity of runoff; (3) Maintaining the soil's capacity to absorb water, and (4) Holding soil particles in place.

Because of the vegetation's ability to minimize erosion, limiting its removal can significantly reduce soil erosion. In addition, decreasing the area and duration of exposure of disturbed soils is also effective in limiting soil erosion. The development and building designer must give special consideration to the phasing of a project so that only those areas actively under construction have exposed soils. Other factors influencing soil erosion are: (1) Soil types, (2) Land slope, (3) Amount of water flowing onto the site from up-slope, and (4) Time of year of disturbance.

### *Past Erosion Events*

A housing development on Oak Hill has caused substantial erosion in the area due to housing constructed on steep slopes. This has impacted the adjacent roads in the area by making them more susceptible to erosion and wash out. Run-off from steep slopes with little vegetation moves more quickly and can cause more damage.

### *Potential Future Erosion Events*

Since the zoning ordinance does not restrict development in steep slopes, it is anticipated that similar situations could arise in other areas of the town unless the ordinance is amended to prevent this type of development. The committee determined that erosion is a low/medium risk in Springfield.

### **Wildfire**

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

Increased severity over recent years has decreased capability to extinguish wildfires. Wildfires are unpredictable and usually destructive, causing both personal property damage and damage to community infrastructure, cultural and economic resources. Negative short term effects of wildfires include destruction of timber, forage, wildlife habitats, scenic vistas and watersheds. Some long term effects include erosion and lowered water quality.

There are many types and causes of fires. Wildfires, arson, accidental fires and others all pose a unique danger to communities and individuals. Since 1985, approximately 9,000 homes have been lost to urban/wild land interface fires across the United States (Northeast States Emergency Consortium: [www.nesec.org](http://www.nesec.org)). The majority of wildfires usually occur in April and May, when home owners are cleaning up from the winter months, and when the majority of vegetation is void of any appreciable moisture making them highly flammable.

The threat of wildland fires for people living near wildland areas or using recreational facilities in wilderness areas is real. Dry conditions at various times of the year and in various parts of the United States greatly increase the potential for wildland fires. Advance planning and knowing how to protect buildings in these areas can lessen the devastation of a wildland fire. To reduce the risk to wildfire, it is necessary to consider the fire resistance of structures, the topography of property and the nature of the vegetation in the area.

### *Past Wildfire Events*

Springfield experienced a wildfire in 2004 on the Eastman Access Road and 2005 in the Gile State Forest. The 2004 fire was from an unattended campfire which burned one-half an acre. The 2005 forest fire only burned five acres due to the containment by the firefighters.

### *Potential Future Wildfire Events*

There are many large, contiguous forest tracts in Springfield. Where development interfaces with the forested areas is called the “urban interface.” These are the areas where structures could be impacted by a wildfire. The Committee considers all structures within Springfield to be in an urban interface, and wildfire could affect the entire town in structural and timber loss. According to the State’s mitigation plan, Sullivan County has substantial debris to fuel a wildfire remaining from the ice storm of 1998 and heavy forest cover. The plan gives the county a high risk of wildfire. The Committee determined that the risk of wildfire in Springfield is low/medium.

## **Natural Water & Air Contaminants**

Radium, radon and uranium are grouped together because they are radionuclides, unstable elements that emit ionizing radiation. These three particular substances are a health risk only if taken into the body by ingestion or inhalation. They occur naturally in the environment, uranium and radium as solids in rock while radon exists as a gas. Radionuclides are undetectable by taste, odor, or color, so only analytical testing can determine if they are present in water. Because they are associated with rock, wells drilled into bedrock are more likely to contain elevated levels of radionuclides than shallow or dug wells.

Radon gas can also be found in the soil. Openings between the soil and buildings, such as foundation cracks and where pipes enter, provide conduits for radon to move into structures. The difference in air pressure, caused by heated indoor air moving up and out of buildings, results in a flow of soil gas toward the indoors, allowing radon to potentially accumulate in structures. Air quality in a home can also be tested for radon.

There are many other natural contaminants which can render drinking water unsafe such as arsenic. The Drinking Water and Groundwater Bureau of the NH Department of Environmental Services has information available to address these natural materials and suggests which materials to be included in testing. See their list of hot topics, publications, resources and web links at <http://des.nh.gov/organization/divisions/water/dwgb/index.htm>.

*Past Natural Water & Air Contaminant Events*

There have been no known events related to natural water and air contamination in Springfield although uranium is a known water contaminant in neighboring towns. Concentrated amounts of uranium were also found during the construction of I-89.

**Table III-11: RADON**

<b>RADON</b>					
<b>Summary Table of Short-term Indoor Radon Test Results in NH's Radon Database 11/04/2003)</b>					
<b>County</b>	<b># Tests</b>	<b>G. Mean</b>	<b>Maximum</b>	<b>% &gt; 4.0 pCi/l</b>	<b>% &gt; 12.0 pCi/l</b>
Belknap	744	1.3	22.3	14.4	1.3
Carroll	1042	3.5	478.9	45.4	18
Cheshire	964	1.3	131.2	15.6	2.3
Coos	1072	3.2	261.5	41	17
Grafton	1286	2.0	174.3	23.2	5.2
Hillsborough	2741	2.1	202.3	29.6	6.8
Merrimack	1961	2.0	152.8	25.2	6
Rockingham	3909	3.0	155.3	40	9.5
Strafford	1645	3.4	122.8	44	13
<b>Sullivan</b>	<b>466</b>	<b>1.4</b>	<b>29.4</b>	<b>15.7</b>	<b>2.1</b>
<b>STATEWIDE</b>	<b>15860</b>	<b>2.4 pCi/L</b>	<b>478.9 pCi/L</b>	<b>32.4</b>	<b>8.6</b>

*Potential Future Natural Air & Water Contaminant Damage:*

Although there are no known records of illness that can be attributed to radium, radon, or uranium or other contaminants in Springfield, residents should be aware that they are present. Houses with granite and dirt cellars are at increased risk to radon gas infiltration. According to the table above, Sullivan County radon levels are below average for the State. According to the State's mitigation plan, Sullivan County has a medium probability of a radon related hazard.

In addition radium, radon, and uranium as well as other natural materials can be present in drinking water. Residents, especially with bedrock wells, should be aware of the possibility of water contamination and the availability of testing and remediation. The Committee determined that the risk of natural contaminants is low.

## Hazardous Materials Spills

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

### *Past Hazardous Waste Spill Events*

No known significant spills have occurred in Springfield though they are possible in transportation as there is substantial through traffic on Routes 4A, 114, and I-89. In addition, heating fuel is delivered to homes on many of the town's roads. Below is a list of active hazardous waste generators where potential on-site spills could occur.

**Table III-12: HAZARDOUS WASTE GENERATORS & TANKS**

<b>HAZARDOUS WASTE GENERATORS &amp; STORAGE TANKS (Active)</b>			
<b>Name</b>	<b>Location</b>	<b>Hazardous Waste</b>	<b>Storage Tanks</b>
Durgin & Crowell Lumber	231 Fisher Corner Road	Active but no generator size on NH DES One-Stop	Several above ground tanks with gasoline, lubrication oil, diesel, and "other"
GH Evarts & Co.	2377 Route 4A	NA	Gasoline - 300 gallons (above ground) Diesel - 300 gallons (above ground) #2 Heating Fuel - 10,000 gallon (below ground)
Springfield Power	54 Fisher Corner Road	Small Quantity Generator	Above ground: 3-300 gallon steel: diesel; 1,000 gallon transformer oil; 300 gallon kerosene Below ground: 10,000 gallon diesel; 1,000 gallon diesel
<i>Source: NH Department of Environmental Services One-Stop Website, 09/27/12</i>			

### *Potential Future Hazardous Waste Spill Damage*

There conceivably could be spills near any home in Springfield due to home heating fuel delivery and septic tank service. The property owner is responsible for clean-up. The State oversees these reported spills. Larger spills are possible from non-residential tanks and hazardous waste generation as shown above. There are also other small businesses which are anticipated to generate some hazardous waste products.

There is a potential for hazardous materials spills on all roads, especially the highly traveled NH Routes 4A, 114, and I-89. The cost for clean-up would be assigned to the transporter. However, there should be an emergency plan to immediately respond to the site to

minimize water, air, and ground contamination. The State did not determine county risk for hazardous waste spills in the *NH Hazard Mitigation Plan*. The Committee determined a hazardous waste spill is a low risk.

## **Terrorism**

Terrorism has been defined in many ways. The word terrorism is derived from the Latin term “terrere” which means to frighten. Under current United States law, set forth in the US Patriot Act, acts of domestic terrorism are those which: "(A) involve acts dangerous to human life that are a violation of the criminal laws of the United States or of any State; (B) appear to be intended— (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping; and (C) occur primarily within the territorial jurisdiction of the United States."

### *Past Terrorism Events*

There have been no terrorism events within Springfield in the past.

### *Future Terrorism Events*

Although not considered a major risk, it is conceivable that a terrorist act could occur at the town offices or at the town hall.

The Committee determined that the risk of terrorism is a low/medium risk in Springfield.

## **Public Health and Biohazard**

Public Health concerns include contamination to drinking water, infectious diseases like meningitis, and insect-borne diseases such as West Nile virus and Eastern Equine Encephalitis virus (Triple E).

### *Past Public Health & Infectious Disease Events*

There have been no known major public health or infectious disease issues in Springfield. However, children leaving town for school or workers leaving town for places of employment may have exposures that they bring back into town.

### *Future Public Health & Infectious Disease Events*

There is always the potential for public health issues such as infectious disease. New strains of diseases are found, and the Town will always need to be prepared for new and known infectious diseases. The Committee determined that the risk for public health is medium in Springfield.

### **C. HAZARD RISK RATINGS**

The Town of Springfield Hazard Mitigation Committee reviewed each potential hazard and rated the probability of occurrence and vulnerability (cost if the hazard actually occurs) to come up with an overall risk rating. The ratings were based on past occurrences of hazards affecting the State of New Hampshire, Sullivan County, and the Town of Springfield. Flooding, Severe Winter, and Public Health and Biohazard were ranked as the highest risks in Springfield with a risk rating of “medium.”

#### **Assessing Probability**

The process involved assigning a number to each hazard type based on its potential of occurring determined using the committee’s knowledge of past events:

- 1 – Unlikely: may occur after 25 years
- 2 – Possible: may occur within 10-25 years
- 3 – Likely: may occur within 10 years

An n/a score was given if there was insufficient evidence to make a decision. To ensure some balance with a more scientific measurement, the plan also identifies the probability of occurrence from the State Hazard Plan as shown in Table III-10. For comparative purposes the Low rating was given a designation of “1,” the Medium rating a designation of “2,” and the High rating a designation of “3.” Finally, the Committee determined probability and the State determined probability were averaged for the final probability ranking. These figures are shown in Table III-11 and III-12.

**Table III-13: PROBABILITY OF HAZARD**

<b>Probability of Hazard Occurring in Sullivan County from State Plan</b>											
<b>Flood</b>	<b>Dam Failure</b>	<b>Drought</b>	<b>Wildfire</b>	<b>Earth-quake</b>	<b>Land-slide</b>	<b>Radon</b>	<b>Tornado</b>	<b>Hurricane</b>	<b>Lightning</b>	<b>Severe Winter</b>	<b>Avalanche</b>
H	L	M	H	M	M	M	M	M	M	H	L



## Assessing Vulnerability

A relative scale of 1 to 3 was used to determine the impact and cost for human death and injury, property losses and damages, and business/agricultural impact: 1 – limited damage and cost; 2 - moderate amount of damage and cost, and 3 – high damage and cost. The Committee determined vulnerabilities were then averaged with the “low” vulnerability determined for Sullivan County in the *NH Natural Hazard Mitigation Plan*.

**Table III-14: VULNERABILITY OF EXISTING DEVELOPED AREAS**

Committee Assessment of Vulnerability	Human Impact	Property Impact	Economic Impact	Vulnerability
	Probability of death or injury	Physical losses and damages	Cottage businesses & agriculture	Avg. of human/ property/ business impact
Dam Failure	2	2	2	2.00
Flooding	1	3	2	2.00
Hurricane	1	2	2	1.67
Tornado & Downburst	1	2	1	1.33
Thunderstorm/Lightening/Hail	1	2	2	1.67
Severe Winter/Ice Storms	1	3	2	2.00
Earthquake	1	1	1	1.00
Landslide	1	1	1	1.00
Drought	1	1	1	1.00
Extreme Heat	1	1	1	1.00
Erosion	1	2	2	1.67
Wildfire	1	1	1	1.00
Natural Air & Water Contaminants	1	0	0	0.33
HazMat Spills	1	1	1	1.00
Public Health & Biohazard	3	0	2	1.67
Terrorism	3	2	2	2.33

## **Assessing Risk**

The averages of each vulnerability and probability were multiplied to arrive at the overall risk the hazard has on the community. The overall risk or threat posed by a hazard over the next 25 years was determined to be high, medium, or low. Table III-12 provides the result of this evaluation.

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

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

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

**Table III-15: RISK ASSESSMENT**

<b>Risk Assessment</b> 0-1.9 Low    2-3.9 Low/Med    4-5.9 Med    6-7.9 Med-High    8-9 High				
<b>Hazards</b>	<b>Probability based on Committee Review</b>	<b>Vulnerability based on Committee Review</b>	<b>Risk Rating (Probability x Vulnerability)</b>	<b>Risk</b>
Dam Failure	1	2.00	1.5	Low
Flooding	3	2.00	4.5	Medium
Hurricane	3	1.67	3.3	Low/Medium
Tornado & Downburst	2	1.33	2.66	Low/Medium
Thunderstorm/Lightning/Hail	3	1.67	3.3	Low/Medium
Severe Winter	3	2.00	4.5	Medium
Earthquake	2	1.00	2	Low/Medium
Landslide	1	1.00	1.5	Low
Drought	2	1.00	2	Low/Medium
Extreme Heat	3	1.00	3	Low/Medium
Erosion	3	1.67	3.9	Low/Medium
Wildfire	2	1.00	2.5	Low/Medium
Natural Contaminants	1	0.33	1	Low
HazMat	1	1.00	1	Low
Public Health/Biohazard	3	1.67	5.21	Medium
Terrorism	1	2.33	2.33	Low/Medium

#### IV. CRITICAL FACILITIES/LOCATIONS

The Critical Facilities list, identified by the Springfield Hazard Mitigation Committee, is divided into three categories. The first category contains facilities needed for emergency response in the event of a disaster. The second category contains non-emergency response facilities that are not required in an event, but that are considered essential for the everyday operation of the Town of Springfield. The third category contains facilities/populations that the Committee wishes to protect in the event of a disaster. Values were obtained from town tax records for main structures plus assessed value for accessory structures for 2011. The buildings and other structures within hazard areas is substantially different from the past plan as there are new overlay maps through the NH Department of Revenue Administration Mosaic Program which provide more accurate information.

The Town Offices building is used for the Emergency Operations Center (EOC). The Springfield Fire, Highway, and Safety Building is the primary shelter and the Town Hall might be used as temporary shelter in temperate weather. A back-up primary shelter is located in Sunapee.

**Table IV-1: EMERGENCY RESPONSE FACILITIES, SERVICES & STRUCTURES**

Critical Facility	Hazard Vulnerability	Value
Springfield Fire, Hwy & Safety Building (Shelter)	Winter storms; wind; earthquake	\$297,600
Memorial Building (Emergency Operations Center, Police, Town Offices, Library)	Winter storms; wind; earthquake	\$350,000
Town Hall (Temporary Shelter)	Winter storms; wind; earthquake	\$419,100
Deer Hill Communications Tower	Winter storms; wind; earthquake	Unknown
Routes 4A and 114 and bridges for Evacuation & Emergency Access	Winter storms; earthquake; flood	Unknown

**Table IV-2: NON-EMERGENCY RESPONSE FACILITIES & STRUCTURES**

<b>Critical Facility</b>	<b>Hazard Vulnerability</b>	<b>Value</b>
Roads	Winter storms; earthquake; flood; erosion	Unknown
Oak Hill Cell Tower	Winter storms; wind; earthquake	\$495,200
New London-Springfield Water Precinct well, pump station , and storage facility	Earthquake; flood	Unknown
Village District of Eastman Water System	Earthquake; flood	Unknown
Public Utilities	Winter storms; earthquake; flood	\$12,053,600
Garage at Town Hall	Winter storms; wind; earthquake	\$18,000

**Table IV-3: FACILITIES & POPULATIONS TO PROTECT**

<b>Critical Facility</b>	<b>Hazard Vulnerability</b>	<b>Value</b>
Historical Society Building	Winter storms; earthquake; flood	\$70,700
All homes and commercial buildings	Winter storms; earthquake; flood	\$121,731,900
Springfield Power	Winter storms; earthquake; dam failure	\$7,692,200

## V. DETERMINING HOW MUCH WILL BE AFFECTED

### A. IDENTIFYING VULNERABLE FACILITIES

It is important to determine which critical facilities and other structures are the most vulnerable and to estimate potential losses. The first step is to identify the facilities most likely to be damaged in a hazard event. To do this, the locations of critical facilities were compared to the location of past and potential hazard events. Facilities and structures located in federally and locally determined flood areas, wildfire prone areas, etc. were identified and included in the analysis. There is neither large land areas slated for potential development nor large development projects in the works, so vulnerability of undeveloped land was not analyzed.

**Table V-1: VULNERABILITY OF EXISTING DEVELOPED AREAS**

Hazard	Area	Critical Facilities	Buildings	Infrastructure	Natural Resources	Total Known Building Value in Areas
Dam Failure (see map)	Very small area	None	None	None	NA	\$0
Flooding (see maps for areas without buildings)	Eastman Access Road/Eastman	Village District of Eastman Water System	2 mobile homes	roads	NA	\$66,800
	Stoney Brook Road	None	2 houses	road	NA	\$247,900
	Glenwood	None	2 houses	roads	NA	\$284,000
	Golf Course Road	New London-Springfield Water	none	roads	NA	\$0
Hurricane	Town-wide	All	All	All	All	\$122,000,000
Tornado & Downburst	Site specific	All	All	All	All	Unknown
Thunderstorm/Lightening/Hail	Site specific	All	All	All	All	Unknown
Severe Winter/Ice Storms	Town-wide/Site specific	All	All	All	All	Unknown

<b>Hazard</b>	<b>Area</b>	<b>Critical Facilities</b>	<b>Buildings</b>	<b>Infrastructure</b>	<b>Natural Resources</b>	<b>Total Known Building Value in Areas</b>
Earthquake	Town-wide	All	All	All	All	\$15,000,000
Landslide	Kolelemook Lake	None	Four cottages	Roads	Wildlife habitat; vegetation; lake edge	\$600,000
Drought	Town-wide	NA	All	Individual wells	Wildlife habitat; vegetation; forest; crops	NA
Extreme Heat	Town-wide	NA	NA	NA	Wildlife habitat; vegetation; forest; crops	NA
Erosion	Oak Hill Area	None	NA	Roads	Wildlife habitat; vegetation; forest	NA
Wildfire	Forest/Urban Interface	All	All	All	Wildlife habitat; vegetation; forest; crops	Unknown
Natural Contaminants	Site Specific	NA	NA	NA	NA	NA
HazMat Spills	Site Specific	NA	NA	NA	NA	NA
Public Health/Biohazard	Town-wide	NA	NA	NA	NA	NA
Terrorism	Site Specific	Town Hall; Memorial Hall	NA	NA	NA	NA

## **B. IDENTIFYING VULNERABLE SPECIAL POPULATIONS**

There are no centers of special populations in Springfield such as elderly housing or schools. The elderly and physically or mentally impaired residents are located within the community, but scattered throughout the town in their homes. Town-wide programs will have to take this into account. Town officials having knowledge of its residents will assist in protection of those with special needs. Most of Springfield's population is located along the maintained roads throughout town.

## **C. POTENTIAL LOSS ESTIMATES**

This section identifies areas in town that are most vulnerable to hazard events and estimates potential losses from these events. 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 quite unique. In addition, human loss of life was not included in the potential loss estimates, but



could be expected to occur. FEMA's *Understanding Your Risks: Identifying Hazards and Estimating Losses* (August 2001) was used in estimating loss evaluations. The value of structures was determined by using town records. The Town's tax maps were used to determine number of units within each hazard area. The land damage cost, structure content loss costs, and function loss cost were not determined.

#### **Dam Failure – Low Risk - \$0 Estimated Cost**

The Eastman Dam is classified as a “high hazard potential” dam in the neighboring Town of Eastman. A very small corner of Springfield has been mapped in the inundation area of this dam in the event of a dam failure. There are no homes in this area. Other dams in Springfield classified as “low hazard potential” or “non-menace” or “ruins” and no formal inundation maps have been developed for these dams.

#### **Flooding – Medium Risk - \$222,960 Estimated Cost**

There are approximately 5 residential houses, 2 mobile homes, and no commercial structures in Springfield that are located within the FEMA designated Special Flood Hazard Areas and Committee determined flood areas. The total value of these structures is \$610,200 for the houses and \$66,800 for the mobile homes. If it is estimated that a flood would cause 28 % structural damage to the houses (\$170,856) and 78% structural damage to the mobile homes (\$52,104), the damage would total an estimated \$222,960. There are no critical facilities within the determined flood areas. Several roads are impacted by these flood prone areas. In 2011, the cost for town road damage due to flooding was about \$15,000.

#### **Hurricane – Low/Medium Risk – No Recorded or Estimated Cost**

Damage caused by hurricanes can be severe and expensive. Springfield has been impacted in the past by both wind and flooding damage as a result of hurricanes. The total assessed value of all structures within Springfield is approximately \$122,000,000. It is random which structures would be impacted and how much. There is no standard loss estimation available and no record of past costs.

#### **Tornado & Downburst – Low/Medium Risk – No Recorded or Estimated Cost**

Tornadoes, downbursts, and microbursts are relatively uncommon natural hazards in New Hampshire, although microbursts in 2007 caused substantial damage. On average, about six tornado events strike each year. In the State of NH, the average annual cost of tornadoes between 1950 and 1995 was \$197,000 (The Disaster Center). These wind events occur in specific areas, so calculating potential town-wide losses is not possible. There is no standard loss estimation model available for tornadoes due to their random nature.

**Thunderstorm/Lightening/Hail – Low/Medium Risk – No Recorded or Estimated Cost**

According to the Federal Alliance for Safe Homes, in an average year, hail causes more than \$1.6 billion worth of damage to residential roofs in the United States, making it, year in and year out, one of the most costly natural disasters. Lightning is one of the most underrated severe weather hazards, yet it ranks as the second-leading weather killer in the United States. More deadly than hurricanes or tornadoes, lightning strikes in America each year killing an average of 73 people and injuring 300 others, according to the National Weather Service. There is no cost estimation model for thunderstorms due to their random nature.

**Severe Winter Weather – Medium Risk – No Recorded or Estimated Cost**

Ice storms often cause widespread power outages by downing power lines, and these storms can also cause severe damage to trees. New England usually experiences at least one or two severe snowstorms, with varying degrees of severity, each year. All of these impacts are a risk to the community and put all residents, especially the elderly, at risk.

According to a study done for the Institute for Catastrophic Loss Reduction (Canada) and the Institute for Business and Home Safety (U.S.), the 1998 Ice Storm inflicted \$1.2 billion (U.S.) worth of damage in the U.S. and Canada. In New Hampshire alone, over 67,000 people were without power ([http://www.meteo.mcgill.ca/extreme/Research\\_Paper\\_No\\_1.pdf](http://www.meteo.mcgill.ca/extreme/Research_Paper_No_1.pdf)). The U.S. average insurance claim was \$1,325 for personal property, \$1,980 for commercial property, and \$1,371 for automobiles.

**Earthquake – Low Risk - \$1,500,000 Estimated Cost**

Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric and phone lines, and precipitate landslide and flash flood events. Several earthquakes with epicenters in NH since 1924 have had a magnitude of 4.0 or more. Two of these occurred in Ossipee, one west of Laconia, and one near the Quebec border. Buildings in Springfield have not been subject to any seismic design level requirement for construction and would be susceptible to structural damage. The dams, bridges, and roads would be vulnerable to a sizable earthquake event.

FEMA's *Understanding Your Risks: Identifying Hazards and Estimating Costs*, August 2001 provides that an earthquake with a 5% peak ground acceleration (as determined by the US Geologic Survey for the area) could cause damage to single family residences by around 10% of the structural value. If all buildings in Springfield were impacted by an earthquake, the estimated damage could be around \$12 million.

**Landslide – Low Risk – No Recorded or Estimated Cost**

In the past, landslide events have not caused damage to structures in Springfield, so there can be no damage estimate for this type of event. However, there are four cottages in the area of a potential landslide along Route 114. It is not known if the cottages would be affected or not. It is unknown what the cost of any road damage or lake edge might be.

**Drought - Low Risk – No Recorded or Estimated Cost**

A long drought would cause damage to crops and dry up wells. There is no cost estimate for this hazard in Springfield.

**Extreme Heat – Low Risk – No Recorded or Estimated Cost**

Excessive heat kills more people in the U.S. than tornadoes, hurricanes, floods, and lightning combined. The elderly, very young, obese and those who work outdoors or have substance abuse problems are most at risk from succumbing to heat. Additionally, people in urban areas are more susceptible as asphalt and cement tend to hold in heat throughout the night (Federal Alliance of Safe Homes website). The costs for this hazard are in terms of human suffering. It is not anticipated that there would be any structural or infrastructure costs.

**Erosion – Low/Medium Risk – No Recorded or Estimated Cost**

A housing development on Oak Hill has caused substantial erosion in the area due to housing constructed on steep slopes. This has impacted the adjacent roads in the area by making them more susceptible to erosion and wash out. Construction itself can cause erosion if best management practices are not used to control run-off from disturbed soils, and the rooftops of buildings displace water which would have gone into the ground. This is then exacerbated by the steep slopes where the run-off moves more quickly and can cause more damage. There is not an estimated cost for the wash-out of roads that could be directly attributed to this erosion, but it is anticipated that at least a portion of the cost is due to erosion. Since the zoning ordinance does not restrict development in steep slopes, it is anticipated that similar situations could arise in the town.

**Wildfire – Low/Medium Risk – No Recorded or Estimated Cost**

The risk of fire is difficult to predict based on location. Forest fires are more likely to occur during drought years. In addition, areas and structures that are surrounded by dry vegetation that has not been suitably cleared are at high risk. Fire danger is generally universal, however, and can occur practically at any time. Dollar damage would depend on the extent of the fire and the number and type of buildings burned. About 85% of the town is in primarily forested. Since the entire developed area of Springfield interfaces with forest, all structures are potentially vulnerable to wildfire. The estimated value of these structures is approximately \$122,000,000.

According to the Grafton County Forester, there are no reliable figures for the value of timber in New Hampshire; and excluding the last big fires of the early 1940s, the acres and timber values affected by fires would not be supportive of major investment in fire prevention in this region (v. fire-prone western regions). (The Sullivan County Forester was not available at the time of writing this plan.)

### **Natural Water & Air Contaminants - Low Risk – No Recorded or Estimated Cost**

The cost of a natural contamination hazard would be the health of individuals exposed to the material. No cost estimate is provided for this hazard. Inexpensive radon test kits are available at hardware stores to test air quality. Individuals could also test their water which could cost from \$30 - \$300 depending on what contaminants they include in the test. Installing appropriate water purifiers could alleviate the risk of most contaminants with the exception of radon which would require an expensive aeration treatment system (estimated cost of \$2,500), if it were present.

### **Hazardous Material Spills - Low Risk – No Recorded or Estimated Cost**

The cost of a hazardous material spill would depend upon the extent of the spill, the location of the spill in relation to population, structures, infrastructure, and natural resources, as well as the type of hazardous material. The cost of any clean-up would be imposed upon the owner of the material. However, other less tangible costs such as loss of water quality might be borne by the community. No cost estimate has been provided for this possible hazard. There are no significant hazardous waste generators in Springfield. There are “small quantity generators” including the Springfield Power Plant which burns pulp wood chips to sell power. Any spills would probably be a result of accidents from these small quantity generators, heating fuel delivery, or transport of hazardous materials through the town on Routes 114 and 4A or Interstate-89.

### **Public Health/Biohazard**

The cost of a public health event would depend upon the severity and the exposure of citizens. There is no cost estimate for this type of event.

### **Terrorism**

The cost of an act of terrorism would depend upon the scale of the damage. There is no cost estimate for this type of event.

## VI. EXISTING MITIGATION ACTIONS

The following table provides the existing mitigation actions in Springfield. The fifth column lists if there were recommendations for improvement in the previous hazard mitigation plan and if those recommendations were put into action or not and if not, why. The final column provides either an update of the mitigation action or proposed improvements that are currently being recommended for the future. The latter are provided in red and they will be evaluated further in upcoming chapters of this plan.

**Table VI-1: EXISTING MITIGATION ACTIONS**

Existing Mitigation Action & Description	Hazard Type/Service Area	Responsible Local Agent	Effective-ness (Low, Average, High)	Recommendations in Previous Plan/Actions Taken to Meet Recommendations or Not Met	Update/Future Proposed Improvements
<b>Emergency Back-Up Power</b> - One stationary and one portable generator at Highway Garage; two portable generators at Fire Station; two portable generators on fire apparatus; one stationary generator in Memorial Hall	Multi-Hazard/Town-wide	Highway Dept	Average	Need generator at Memorial Hall for Town Offices and Police/ <i>Done in spring 2012</i>	Will continue to maintain a generator in Memorial Hall
<b>Town Warning System</b> - Siren in town offices can be heard within two miles	Multi-Hazard/central Main Street only	Town emergency services	Low	No recommended improvements in previous plan	Will maintain town warning system
<b>Flood Insurance Program</b> – Provides federal flood insurance opportunities	Flood/Entire Town	Select Board	Average	No recommended improvements in previous plan	Began participating in program in 2010 and will continue participation
<b>Planning and Zoning land use regulations</b> - Conservation District Overlays and restrictions	Flood & Erosion/Town-wide	Planning Board	Average	Amend land use regulations to include NH Flood Insurance Program requirements to participate in the program and add restrictions from building in steep slopes and provide maximum grade for driveways/ <i>Town joined flood insurance program; added driveway grade requirement in zoning; did not add for steep slopes though it was considered</i>	<i>Continue to encourage Planning Board to consider a steep slopes district in the zoning ordinance.</i>

Existing Mitigation Action & Description	Hazard Type/Service Area	Responsible Local Agent	Effective-ness (Low, Average, High)	Recommendations in Previous Plan/Actions Taken to Meet Recommendations or Not Met	Update/Future Proposed Improvements
<b>Municipal Records Backup</b> – Provide on-line municipal electronic data backup through Local Area Network Data Backup	Multi-Hazard/Town Offices	Select Board	High	Not in previous plan	Continue conversion of older paper files to electronic files for backup
<b>Town Master Plan</b> – Goals/objectives for growth; updated in 2005	Multi-Hazard/Town-wide	Planning Board	High	No recommended improvements in previous plan	Add reference to hazard mitigation plan and local emergency operation plan in next master plan update.
<b>School Evacuation Plan</b> – Kearsarge District schools (out of Springfield) and Kindergarten	Multi-Hazard/all schools out of town	Police Chief	High	No recommended improvements in previous plan (middle and high school in Sutton; elementary in New London)	Continue program; they have Reverse 911 to contact parents in case of emergency
<b>Building Code Enforcement</b> – Inspects buildings & issues permits; no local building codes	Flood & Wildfire & Urban Fire/Town-wide	Selectboard	Average	No recommended improvements in previous plan	Continue program
<b>Fire Safety Inspections</b> – Checks oil burners, wood stoves, daycares, etc...	Wildfire/Town-wide	Fire Chief	High	No recommended improvements in previous plan	Continue program
<b>Town Radio</b> – Fire: use Deer Hill Tower repeater if goes out, will use Moose Mountain tower in Hanover; Police: use Green Mountain repeater in Claremont	Multi-Hazard/Town-wide	Town emergency services	High	No recommended improvements in previous plan	Continue program
<b>Emergency Operations Plan</b> – Plan to deal with emergencies	Multi-Hazard/Town-wide	Emergency Management Director	High	No recommended improvements in previous plan	Update entire plan before 2015
<b>Safety Awareness Program</b> – Fire prevention and safety training	Wildfire/Town-wide	EMD/Fire Dept	High	No recommended improvements in previous plan	Continue program
<b>Public Education</b> – Distribute “Emergency Preparedness Guide,”	Multi-Hazard/Town-wide	EMD/Fire Dept	High	No recommended improvements in previous plan	Provided information table at Old Home Day and voting day; brochures in town office and links

Existing Mitigation Action & Description	Hazard Type/Service Area	Responsible Local Agent	Effectiveness (Low, Average, High)	Recommendations in Previous Plan/Actions Taken to Meet Recommendations or Not Met	Update/Future Proposed Improvements
provide information on air & water contaminants					on town web site; continue program; continue program
<b>Tree Maintenance Program</b> – Performed by State and town	Multi-Hazard/Town-wide	Highway Dept	High	Purchase chipper/Did not purchase due to lack of resources	Buy chipper
<b>Storm Drain Maintenance</b> – Inspect and maintain culverts	Flood/Town-wide	Highway Dept	High	No recommended improvements in previous plan	Replaced 19 culverts in 2012 and performed substantial ditching; continue program
<b>HazMat Spill Program</b> – Midwest Regional HazMat Team	HazMat/Town-wide	Fire Dept	High	No recommended improvements in previous plan	Continue program
<b>Mutual Aid – Police -</b>	Multi-Hazard/Town-wide	Police Chief	High	No recommended improvements in previous plan	Continue program
<b>Mutual Aid – Fire -</b>	Wildfire and Urban Fire/Town-wide	Fire Chief	High	No recommended improvements in previous plan	Continue program
<b>Mutual Aid – Ambulance</b> – Contract with New London Hospital; back-up is Newport	Multi-Hazard/Town-wide	Select Board	High	No recommended improvements in previous plan	Continue program
<b>Road Safety</b> – Information to redirect traffic during a hazard event	Multi-Hazard/Town-wide	Road Agent	High	Acquire road closure signs/ <i>Bought signs and barricades</i>	Continue program
<b>Class VI Road Maintenance</b>	Multi-Hazard/Town-wide	Police Chief	Average	Investigate maintenance without reversion to Class V status/ <i>determined to not be possible</i>	Provide greater enforcement to protect roads from damage by inappropriate traffic; Close roads in wet seasons
<b>9-1-1</b> – Provides location of structures for event assistance	Multi-Hazard/Town-wide	Select Board	Average	Update mapping as duplicate numbers; purchase “Reverse 9-1-1”/ <i>have Code Red through Hanover Dispatch; renumbered Route 114</i>	Continue program
<b>Forest Access Roads Inventory</b> – Provide map for wildfire and recreational accident access	Multi-Hazard/Town-wide	Select Board	Low	Map forest access roads/ <i>Working with Hanover Dispatch and Snowmobile Club to GPS roads</i>	Complete forest access roads map

Existing Mitigation Action & Description	Hazard Type/Service Area	Responsible Local Agent	Effective-ness (Low, Average, High)	Recommendations in Previous Plan/Actions Taken to Meet Recommendations or Not Met	Update/Future Proposed Improvements
<b>Road Design &amp; Road/Bridge Maintenance</b> - State and Local Control of Roads and Bridges	Flood & Erosion/Town-wide	Highway Dept	High	Install box culvert on Golf Course Road/ <i>No action taken due to lack of resources</i>	Road Agent inspected and considers existing culvert adequate – to be deleted in next plan update (no solution at this time)
				Replace culvert on Messer Hill Road (shallow working space) / <i>Working on this in 2012</i>	Replace 2' culvert with 2' squash culvert
				George Hill Road bridge over Gove Brook 071/138/ <i>no action taken as not appropriate</i>	Road Agent inspected and considers it adequate
				George Hill Road over Bog Brook 064/152/ <i>no action taken as not appropriate</i>	Road Agent inspected and considered adequate for a few years; State considers it fair
				Star Lake Road over Star Lake outlet (Class VI) 092/052/ <i>No action taken</i>	This road and bridge are now private. This item will be removed in the next plan update.
				1653 Stoney Brook Road culvert backs up for unknown reason (clogged or broken) and under-washing road; inaccessible culvert 20' below road and 80' long/ <i>Not in previous plan</i>	Hire someone to video pipe length to determine problem
				Town Farm Road 5' culvert overflows/ <i>Not in previous plan</i>	Add 2' accessory culvert on side of road to prevent road washin

Table VI-2 examines the proposed improvements and evaluates them as 1: Low; 2: Average; and 3: High for effectiveness looking at several criteria as shown in the table. The totals are then ranked to prioritize the improvements to help the Committee focus on the most effective strategy improvements.



**Table VI-2: PRIORITIZING EXISTING MITIGATION STRATEGY IMPROVEMENTS**

Rank	Strategy Improvement	Reduce Damage	Community Objectives	Existing Regulations	Quickly Implemented	Socially Acceptable	Technically Feasible	Administration Possible	Benefit - Cost	TOTAL SCORE	Mitigate Existing or New Development
1	<b>Messer Hill Road</b> – Replace round culvert with squash culvert	3	3	3	3	3	3	3	3	24	Both
1	<b>Town Farm Road</b> – Add accessory culvert to prevent washout	3	3	3	3	3	3	3	3	24	Both
2	<b>Emergency Operations Plan</b> - Update entire plan before 2015	3	3	3	2	3	3	3	3	23	Both
2	<b>Forest Access Roads Inventory</b> – Develop forest access roads map	3	3	3	2	3	3	3	3	23	Both
3	<b>Tree Maintenance Program</b> – Purchase chipper	2	3	3	2	3	3	3	3	22	Both
3	<b>Municipal Records Backup</b> - Continue conversion of older paper files to electronic files for backup	3	3	3	1	3	3	3	3	22	Both
4	<b>Stoney Brook Road</b> – Video culvert to determine if clogged or broken	1	3	3	3	3	2	3	3	21	Both
4	<b>Town Master Plan</b> - Add reference to hazard mitigation plan and local emergency operation plan in next master plan update.	1	3	3	2	3	3	3	3	21	Both
5	<b>Zoning Ordinance</b> - Continue to encourage Planning Board to consider a steep slopes district in the zoning ordinance.	2	3	3	2	2	3	1	3	19	New

## **VII. GOALS AND NEWLY IDENTIFIED MITIGATION ACTIONS**

### **A. GOALS & OBJECTIVES**

The Springfield Hazard Mitigation Committee reviewed its goals and developed objectives to meet these goals.

#### **Goals**

1. To protect the general population, the citizens of the town and guests, from all natural and human-made hazards.
2. To reduce the potential impact of natural and human-made disasters on the town's critical support services, critical facilities, and infrastructure.
3. To reduce the potential impact of natural and human-made disasters on the town's economy.
4. To reduce the potential impact of natural and human-made disasters on the town's natural environment.
5. To reduce the potential impact of natural and human-made disasters on the town's specific historic treasures and interests as well as other tangible and intangible characteristics which add to the quality of life of the citizens and guests of the Town.
6. To identify, introduce, and implement cost effective hazard mitigation measures to accomplish the town's goals (above) and to raise awareness and acceptance of hazard mitigation.

### **B. NEW PROPOSED MITIGATION ACTIONS**

The Springfield Hazard Mitigation Committee brainstormed potential new mitigation actions. The proposed new measures are encompassed within existing programs, so completely new actions were not developed.

## VIII. PRIORITIZED IMPLEMENTATION SCHEDULE

The Springfield Hazard Mitigation Committee created the following action plan for implementation of priority mitigation strategies:

**Table VIII-1: PRIORITIZED IMPLEMENTATION SCHEDULE OF EXISTING PROGRAM IMPROVEMENT ACTIONS**

<b>Mitigation Action</b>	<b>Who (Leadership)</b>	<b>When (Fiscal Year)</b>	<b>How (Funding Sources)</b>	<b>Cost (Estimated)</b>
<b>Zoning Ordinance</b> - Continue to encourage Planning Board to consider a steep slopes district in the zoning ordinance.	Planning Board	2013	NA	\$0
<b>Town Master Plan</b> - Add reference to hazard mitigation plan and local emergency operation plan in next master plan update.	Planning Board	2018	NA	\$0
<b>Emergency Operations Plan</b> - Update entire plan before 2015	EMD	2015	Grant/Match	\$2,500 Grant/\$2,500 Match
<b>Tree Maintenance Program</b> – Purchase chipper	Road Agent	2013	Taxes	\$20,000
<b>Forest Access Roads Inventory</b> – Finish forest access roads map	Fire Chief & Selectmen	2014	Taxes	\$500
<b>Messer Hill Road</b> – Replace round culvert with squash culvert	Road Agent	2013	Taxes	\$2,000
<b>Stoney Brook Road</b> – Video culvert to determine if clogged or broken	Road Agent & Select Board	2013	Taxes	\$500
<b>Town Farm Road</b> – Add accessory culvert to prevent washout	Road Agent	2013	Taxes	\$3,000
<b>Municipal Data Backup</b> – backup electronic data and scan paper documents	Select Board	2018	Taxes	\$5,000 to hire temporary worker

## **IX. ADOPTION & IMPLEMENTATION OF THE PLAN**

A good plan needs to provide for periodic monitoring and evaluation of its successes and challenges, and to allow for updates of the Plan where necessary. In order to track progress and update the Mitigation Strategies identified in the Plan, the Town of Springfield will revisit the Hazard Mitigation Plan *annually, or after a hazard event*. The Springfield Emergency Management Director will initiate this review and should consult with the Hazard Mitigation Committee. Changes will be made to the plan to accommodate for projects that have failed, or that are not considered feasible after a review for their consistency with the evaluation criteria, the timeframe, the community's priorities, and funding resources. Priorities that were not ranked highest, but that were identified as potential mitigation strategies, will be reviewed as well during the monitoring and update of this plan, to determine feasibility for future implementation. The plan will be updated and submitted for FEMA approval at a minimum every five years as required by the Disaster Mitigation Act 2000.

### **A. IMPLEMENTATION THROUGH EXISTING PROGRAMS**

The Plan will be adopted locally as an Annex to the recently updated Emergency Operations Plan (EOP), and it will be updated annually along with the EOP. **The Town had not incorporated hazard mitigation into other Town documents in the past although changes had been made to the zoning ordinance to restrict driveway grade.** The Board of Selectmen, during the Capital Improvement Process, will review and include any proposed structural projects outlined in this plan.

### **B. CONTINUED PUBLIC INVOLVEMENT**

The public will continue to be involved in the hazard mitigation planning process. In future years, a public meeting will be held (separate from the adoption hearing) to inform and educate members of the public. Additionally, a press release will be distributed, and information will be posted on the Town website.

Copies of the Hazard Mitigation Plan have been or will be sent to the following parties for review and comment:

- Board of Selectmen, Springfield
- Upper Valley Lake Sunapee Regional Planning Commission

## RESOURCES USED IN THE PREPARATION OF THIS PLAN

*Guide to Hazard Mitigation Planning for New Hampshire Communities*, prepared for NH HSEM by the Southwest Regional Planning Commission, October 2002

*FEMA Multi-Hazard Mitigation Planning Guidance Under the Disaster Mitigation Act of 2000*, March 2004, Last Revised June 2007

FEMA 386-1 *Getting Started: Building Support for Mitigation Planning*, September 2002

FEMA 386-2 *Understanding Your Risks: Identifying Hazards and Estimating Costs*, August 2001

FEMA 386-3 *Developing the Mitigation Plan: Identifying Mitigation Actions and Implementation Strategies*, April 2003

*Ice Storm '98* by Eugene L. Lecomte et al for the Institute for Catastrophic Loss Reduction (Canada) and the Institute for Business & Home Safety (U.S.), December 1998

*Town of Springfield Emergency Operations Plan*, 2010

*Town of Springfield Master Plan*, 2005

NH HSEM's *State of New Hampshire Natural Hazard Mitigation Plan*, 2010

[www.fema.gov/news/disasters.fema](http://www.fema.gov/news/disasters.fema): Website for FEMA's Disaster List

[www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms](http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms): Website for National Oceanic & Atmospheric Administration Disaster List

[www.tornadoproject.com](http://www.tornadoproject.com): Website for The Tornado Project

[www.crrel.usace.army.mil/](http://www.crrel.usace.army.mil/): Website for Cold Regions Research and Engineering Laboratory Website (CRREL)

[www.nesec.org](http://www.nesec.org): Website for Northeast States Emergency Consortium

[http://earthquake.usgs.gov/research/hazmaps/products\\_data/2002/ceus2002.php](http://earthquake.usgs.gov/research/hazmaps/products_data/2002/ceus2002.php): Website for area earthquake information

## **APPENDICES**

<b>Appendix A:</b>	<b>Technical Resources</b>
<b>Appendix B:</b>	<b>Hazard Mitigation Assistance Grants</b>
<b>Appendix C:</b>	<b>Meeting Documentation</b>
<b>Appendix D:</b>	<b>Map of Hazard Areas and Critical Facilities</b>
<b>Appendix E:</b>	<b>Map of Eastman Dam Inundation Map</b>
<b>Appendix F:</b>	<b>Town Adoption &amp; FEMA Approvals of Hazard Mitigation Plan</b>



**APPENDIX A:**  
**Technical Resources**



## APPENDIX A: TECHNICAL RESOURCES

### 1) Agencies

New Hampshire Homeland Security and Emergency Management	
Hazard Mitigation Section .....	271-2231
Federal Emergency Management Agency .....	(617) 223-4175
NH Regional Planning Commissions:	
Upper Valley Lake Sunapee Regional Planning Commission .....	448-1680
NH Executive Department:	
Governor's Office of Energy and Community Services .....	271-2611
New Hampshire Office of State Planning .....	271-2155
NH Department of Cultural Affairs: .....	271-2540
Division of Historical Resources .....	271-3483
NH Department of Environmental Services: .....	271-3503
Air Resources .....	271-1370
Waste Management .....	271-2900
Water Resources .....	271-3406
Water Supply and Pollution Control .....	271-3504
Rivers Management and Protection Program .....	271-1152
NH Office of Energy and Planning .....	271-2155
NH Municipal Association .....	224-7447
NH Fish and Game Department .....	271-3421
NH Department of Resources and Economic Development: .....	271-2411
Natural Heritage Inventory .....	271-3623
Division of Forests and Lands .....	271-2214
Division of Parks and Recreation .....	271-3255
NH Department of Transportation .....	271-3734
Northeast States Emergency Consortium, Inc. (NESEC) .....	(781) 224-9876
US Department of Commerce:	
National Oceanic and Atmospheric Administration:	
National Weather Service; Gray, Maine .....	207-688-3216

US Department of the Interior:	
US Fish and Wildlife Service .....	225-1411
US Geological Survey .....	225-4681
US Army Corps of Engineers.....	(978) 318-8087
US Department of Agriculture:	
Natural Resource Conservation Service .....	868-7581

## 2) Mitigation Funding Resources

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

‡NESEC – Northeast States Emergency Consortium, Inc. is a 501(c)(3), not-for-profit natural disaster, multi-hazard mitigation and emergency management organization located in Wakefield, Massachusetts. Please, contact NH OEM for more information.

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

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

### 3) Websites

Sponsor	Internet Address	Summary of Contents
Natural Hazards Research Center, U. of Colorado	<a href="http://www.colorado.edu/litbase/hazards/">http://www.colorado.edu/litbase/hazards/</a>	Searchable database of references and links to many disaster-related websites.
Atlantic Hurricane Tracking Data by Year	<a href="http://wxp.eas.purdue.edu/hurricane">http://wxp.eas.purdue.edu/hurricane</a>	Hurricane track maps for each year, 1886 – 1996
National Emergency Management Association	<a href="http://nemaweb.org">http://nemaweb.org</a>	Association of state emergency management directors; list of mitigation projects.
NASA – Goddard Space Flight Center “Disaster Finder:	<a href="http://www.gsfc.nasa.gov/ndrd/disaster/">http://www.gsfc.nasa.gov/ndrd/disaster/</a>	Searchable database of sites that encompass a wide range of natural disasters.
NASA Natural Disaster Reference Database	<a href="http://ltpwww.gsfc.nasa.gov/ndrd/main/html">http://ltpwww.gsfc.nasa.gov/ndrd/main/html</a>	Searchable database of worldwide natural disasters.
U.S. State & Local Gateway	<a href="http://www.statelocal.gov/">http://www.statelocal.gov/</a>	General information through the federal-state partnership.
National Weather Service	<a href="http://nws.noaa.gov/">http://nws.noaa.gov/</a>	Central page for National Weather Warnings, updated every 60 seconds.
USGS Real Time Hydrologic Data	<a href="http://h20.usgs.gov/public/realtime.html">http://h20.usgs.gov/public/realtime.html</a>	Provisional hydrological data
Dartmouth Flood Observatory	<a href="http://www.dartmouth.edu/artsci/geog/floods/">http://www.dartmouth.edu/artsci/geog/floods/</a>	Observations of flooding situations.
FEMA, National Flood Insurance Program, Community Status Book	<a href="http://www.fema.gov/fema/csb.htm">http://www.fema.gov/fema/csb.htm</a>	Searchable site for access of Community Status Books
Florida State University Atlantic Hurricane Site	<a href="http://www.met.fsu.edu/explores/tropical.html">http://www.met.fsu.edu/explores/tropical.html</a>	Tracking and NWS warnings for Atlantic Hurricanes and other links

Sponsor	Internet Address	Summary of Contents
National Lightning Safety Institute	<a href="http://lightningsafety.com/">http://lightningsafety.com/</a>	Information and listing of appropriate publications regarding lightning safety.
NASA Optical Transient Detector	<a href="http://www.ghcc.msfc.nasa.gov/otd.html">http://www.ghcc.msfc.nasa.gov/otd.html</a>	Space-based sensor of lightning strikes
LLNL Geologic & Atmospheric Hazards	<a href="http://wwwep.es.llnl.gov/wwwep/ghp.html">http://wwwep.es.llnl.gov/wwwep/ghp.html</a>	General hazard information developed for the Dept. of Energy.
The Tornado Project Online	<a href="http://www.tornadoobject.com/">http://www.tornadoobject.com/</a>	Information on tornadoes, including details of recent impacts.
National Severe Storms Laboratory	<a href="http://www.nssl.uoknor.edu/">http://www.nssl.uoknor.edu/</a>	Information about and tracking of severe storms.
Independent Insurance Agents of America IIAA Natural Disaster Risk Map	<a href="http://www.iaa.iix.com/ndcmap.htm">http://www.iaa.iix.com/ndcmap.htm</a>	A multi-disaster risk map.
Earth Satellite Corporation	<a href="http://www.earthsat.com/">http://www.earthsat.com/</a>	Flood risk maps searchable by state.
USDA Forest Service Web	<a href="http://www.fs.fed.us/land">http://www.fs.fed.us/land</a>	Information on forest fires and land management.

**APPENDIX B:**  
**Hazard Mitigation Assistance Grants**

## **APPENDIX B: HAZARD MITIGATION ASSISTANCE GRANTS**

Hazard Mitigation Assistance (HMA) grant programs of the Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA), presents a critical opportunity to protect individuals and property from natural hazards while simultaneously reducing reliance on Federal disaster funds. The HMA programs provide pre-disaster mitigation grants annually to local communities. The statutory origins of the programs differ, but all share the common goal of reducing the loss of life and property due to natural hazards. Eligible applicants include State-level agencies including State institutions; Federally recognized Indian Tribal governments; Public or Tribal colleges or universities (PDM only); and Local jurisdictions that are participating in the National Flood Insurance Program (NFIP).

The HMA grant assistance includes four programs:

1. *The Pre-Disaster Mitigation (PDM) program:* This provides funds for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are awarded on a competitive basis.
2. *The Flood Mitigation Assistance (FMA) program:* This provides funds so that cost-effective measures can be taken to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under the NFIP. The long-term goal of FMA is to reduce or eliminate claims under the NFIP through mitigation activities.
3. *The Repetitive Flood Claims (RFC) program:* This program provides funding to reduce or eliminate the long-term risk of flood damage to structures insured by NFIP that have had one or more claim payments for flood damages. The long-term goal of the RFC program is to reduce or eliminate claims under the NFIP through mitigation activities that are in the best interest of the NFIP.
4. *The Severe Repetitive Loss (SRL) program:* This program provides funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss residential structures insured under the NFIP.

Potential eligible projects are shown in the following table by grant program. For further information on these programs visit the following FEMA websites:

PDM – [www.fema.gov/government/grant/pdm/](http://www.fema.gov/government/grant/pdm/)

FMA – [www.fema.gov/government/grant/fma](http://www.fema.gov/government/grant/fma)

RFC – [www.fema.gov/government/grant/rfc](http://www.fema.gov/government/grant/rfc)

SRL – [www.fema.gov/government/grant/srl](http://www.fema.gov/government/grant/srl)

Mitigation Project:	PDM	FMA	RFC	SRL
<b>1. Property Acquisition and Demolition or Relocation Project</b>				
Property Elevation	X	X	X	X
<b>2. Construction Type Projects</b>				
Property Elevation	X	X	X	X
Mitigation Reconstruction <sup>1</sup>				X
Localized Minor Flood Reduction Projects	X	X	X	X
Dry Floodproofing of Residential Property <sup>2</sup>		X		X
Dry Floodproofing of Non-residential Structures		X	X	
Stormwater Management	X	X		
Infrastructure Protection Measure	X			
Vegetative Management/Soil Stabilization	X			
Retrofitting Existing Buildings and Facilities (Wind/Earthquake)	X			
Safe room construction	X			
<b>3. Non-construction Type Projects</b>				
All Hazard/Flood Mitigation Planning	X	X		
<p>1. The SLR Program allows Mitigation Reconstruction projects located outside the regulatory floodway or Zone V as identified on the effective Flood Insurance Rate Map (FIRM), or the mapped limit of the 1.5-foot breaking wave zone. Mitigation Reconstruction is only permitted if traditional elevation cannot be implemented.</p> <p>2. The residential structure must meet the definition of “Historic Structure” in 44 CFR§59.1.</p>				

## OTHER HAZARD MITIGATION ASSISTANCE FUNDING

### Environmental Protection Agency

The EPA makes available funds for water management and wetlands protection programs that help mitigate against future costs associated with hazard damage.

Mitigation Funding Sources Program	Details	Notes
Clean Water Act Section 319 Grants	Grants for water source management programs including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and regulation. <a href="http://www.epa.gov/OWOW/NPS/cwact.html">http://www.epa.gov/OWOW/NPS/cwact.html</a>	Funds are provided only to designated state and tribal agencies
Clean Water State Revolving Funds	State grants to capitalize loan funds. States make loans to communities, individuals, and others for high-priority water-quality activities. <a href="http://www.epa.gov/owow/wetlands/initiative/srf.html">http://www.epa.gov/owow/wetlands/initiative/srf.html</a>	States and Puerto Rico
Wetland Program Development Grants	Funds for projects that promote research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. <a href="http://www.epa.gov/owow/wetlands/initiative/#financial">http://www.epa.gov/owow/wetlands/initiative/#financial</a>	See website

### National Oceanic and Atmosphere Administration (NOAA)

NOAA is the major source for mitigation funding related to coastal zone management and other coastal protection projects.

Mitigation Funding Sources Program	Details	Notes
Coastal Services Center Cooperative Agreements	Funds for coastal wetlands management and protection, natural hazards management, public access improvement, reduction of marine debris, special area management planning, and ocean resource planning. <a href="http://www.csc.noaa.gov/funding/">http://www.csc.noaa.gov/funding/</a>	May only be used to implement and enhance the states' approved Coastal Zone Management programs
Coastal Services Center Grant Opportunities	Formula and program enhancement grants for implementing and enhancing Coastal Zone Management programs that have been approved by the Secretary of Commerce. <a href="http://www.csc.noaa.gov/funding/">http://www.csc.noaa.gov/funding/</a>	Formula grants require non-federal match
Coastal Zone Management Program	The Office of Ocean and Coastal Resource Management (OCRM) provides federal funding and technical assistance to better manage our coastal resources. <a href="http://coastalmanagement.noaa.gov/funding/welcome.html">http://coastalmanagement.noaa.gov/funding/welcome.html</a>	Funding is reserved for the nation's 34 state and territory Coastal Zone Management Programs
Marine and Coastal Habitat Restoration	Funding for habitat restoration, including wetland restoration and dam removal. <a href="http://www.nmfs.noaa.gov/habitat/recovery/">http://www.nmfs.noaa.gov/habitat/recovery/</a>	Funding available for state, local and tribal governments and for- and non-profit organizations.



## Floodplain, Wetland and Watershed Protection Programs

USACE and the U.S. Fish and Wildlife Service offer funding and technical support for programs designed to protect floodplains, wetlands, and watersheds.

Funding and Technical Assistance for Wetlands and Floodplains Program	Details	Notes
USACE Planning Assistance to States (PAS)	Fund plans for the development and conservation of water resources, dam safety, flood damage reduction and floodplain management. <a href="http://www.lre.usace.army.mil/planning/assist.html">http://www.lre.usace.army.mil/planning/assist.html</a>	50 percent non-federal match
USACE Flood Plain Management Services (FPMS)	Technical support for effective floodplain management. <a href="http://www.lrl.usace.army.mil/p3md-o/article.asp?id=9&amp;MyCategory=126">http://www.lrl.usace.army.mil/p3md-o/article.asp?id=9&amp;MyCategory=126</a>	See website
USACE Environmental Laboratory	Guidance for implementing environmental programs such as ecosystem restoration and reuse of dredged materials. <a href="http://el.erdc.usace.army.mil/index.cfm">http://el.erdc.usace.army.mil/index.cfm</a>	See website
U.S. Fish & Wildlife Service Coastal Wetlands Conservation Grant Program	Matching grants to states for acquisition, restoration, management or enhancement of coastal wetlands. <a href="http://ecos.fws.gov/coastal_grants/viewContent.do?viewPage=home">http://ecos.fws.gov/coastal_grants/viewContent.do?viewPage=home</a>	States only. 50 percent federal share
U.S. Fish & Wildlife Service Partners for Fish and Wildlife Program	Program that provides financial and technical assistance to private landowners interested in restoring degraded wildlife habitat. <a href="http://ecos.fws.gov/partners/viewContent.do?viewPage=home">http://ecos.fws.gov/partners/viewContent.do?viewPage=home</a>	Funding for volunteer-based programs

## Housing and Urban Development

The Community Development Block Grants (CDBG) administered by HUD can be used to fund hazard mitigation projects.

Mitigation Funding Sources Program	Details	Notes
Community Development Block Grants (CDBG)	Grants to develop viable communities, principally for low and moderate income persons. CDBG funds available through Disaster Recovery Initiative. <a href="http://www.hud.gov/offices/cpd/communitydevelopment/programs/">http://www.hud.gov/offices/cpd/communitydevelopment/programs/</a>	Disaster funds contingent upon Presidential disaster declaration
Disaster Recovery Assistance	Disaster relief and recovery assistance in the form of special mortgage financing for rehabilitation of impacted homes. <a href="http://www.hud.gov/offices/cpd/communitydevelopment/programs/dri/assistance.cfm">http://www.hud.gov/offices/cpd/communitydevelopment/programs/dri/assistance.cfm</a>	Individuals
Neighborhood Stabilization Program	Funding for the purchase and rehabilitation of foreclosed and vacant property in order to renew neighborhoods devastated by the economic crisis. <a href="http://www.hud.gov/offices/cpd/communitydevelopment/programs/neighborhoodspg/">http://www.hud.gov/offices/cpd/communitydevelopment/programs/neighborhoodspg/</a>	State and local governments and non-profits

## Bureau of Land Management

The Bureau of Land Management (BLM) has two technical assistance programs focused on fire mitigation strategies at the community level.

Mitigation Funding Sources Program	Details	Notes
Community Assistance and Protection Program	Focuses on mitigation/prevention, education, and outreach. National Fire Prevention and Education teams are sent to areas across the country at-risk for wildland fire to work with local residents. <a href="http://www.blm.gov/nifc/st/en/prog/fire/community_assistance.html">http://www.blm.gov/nifc/st/en/prog/fire/community_assistance.html</a>	See website
Firewise Communities Program	Effort to involve homeowners, community leaders, planners, developers, and others in the effort to protect people, property, and natural resources from the risk of wildland fire before a fire starts. <a href="http://www.firewise.org/">http://www.firewise.org/</a>	See website

## U.S. Department of Agriculture

There are multiple mitigation funding and technical assistance opportunities available from the USDA and its various sub-agencies: the Farm Service Agency, Forest Service, and Natural Resources Conservation Service.

Mitigation Funding Sources Agency Program	Details	Notes
USDA Smith-Lever Special Needs Funding	Grants to State Extension Services at 1862 Land-Grant Institutions to support education-based approaches to addressing emergency preparedness and disasters. <a href="http://www.csrees.usda.gov/funding/rfas/smith_lever.html">http://www.csrees.usda.gov/funding/rfas/smith_lever.html</a>	Population under 20,000
USDA Community Facilities Guaranteed Loan Program	This program provides an incentive for commercial lending that will develop essential community facilities, such as fire stations, police stations, and other public buildings. <a href="http://www.rurdev.usda.gov/rhs/cf/cp.htm">http://www.rurdev.usda.gov/rhs/cf/cp.htm</a>	Population under 20,000
USDA Community Facilities Direct Loans	Loans for essential community facilities. <a href="http://www.rurdev.usda.gov/rhs/cf/cp.htm">http://www.rurdev.usda.gov/rhs/cf/cp.htm</a>	Population of less than 20,000
USDA Community Facilities Direct Grants	Grants to develop essential community facilities. <a href="http://www.rurdev.usda.gov/rhs/cf/cp.htm">http://www.rurdev.usda.gov/rhs/cf/cp.htm</a>	Population of less than 20,000
USDA Farm Service Agency Disaster Assistance Programs	Emergency funding and technical assistance for farmers and ranchers to rehabilitate farmland and livestock damaged by natural disasters. <a href="http://www.fsa.usda.gov/">http://www.fsa.usda.gov/</a>	Farmers and ranchers
USDA Forest Service National Fire Plan	Funding for organizing, training, and equipping fire districts through Volunteer, State and Rural Fire Assistance programs. Technical assistance for fire related mitigation. <a href="http://www.forestsandrangelands.gov/">http://www.forestsandrangelands.gov/</a>	See website
USDA Forest Service Economic Action Program	Funds for preparation of Fire Safe plans to reduce fire hazards and utilize byproducts of fuels management activities in a value-added fashion. <a href="http://www.fs.fed.us/spf/coop/programs/eap/">http://www.fs.fed.us/spf/coop/programs/eap/</a>	80% of total cost of project may be covered
USDA Natural Resources Conservation Service Emergency Watershed Protection Support	Funds for implementing emergency measures in watersheds in order to relieve imminent hazards to life and property created by a natural disaster. <a href="http://www.nrcs.usda.gov/programs/ewp/">http://www.nrcs.usda.gov/programs/ewp/</a>	See website

<b>Mitigation Funding Sources Agency Program</b>	<b>Details</b>	<b>Notes</b>
Services		
USDA Natural Resources Conservation Service Watershed Protection and Flood Prevention	Funds for soil conservation; flood prevention; conservation, development, utilization and disposal of water; and conservation and proper utilization of land. <a href="http://www.nrcs.usda.gov/programs/watershed/index.html">http://www.nrcs.usda.gov/programs/watershed/index.html</a>	See website

### Health and Economic Agencies

Alternative mitigation programs can be found through health and economic agencies that provide loans and grants aimed primarily at disaster relief.

<b>Federal Loans and Grants for Disaster Relief Agency Program</b>	<b>Details</b>	<b>Notes</b>
Department of Health & Human Services Disaster Assistance for State Units on Aging (SUAs)	Provide disaster relief funds to those SUAs and tribal organizations who are currently receiving a grant under Title VI of the Older Americans Act. <a href="http://www.aoa.gov/doingbus/fundopp/fundopp.asp">http://www.aoa.gov/doingbus/fundopp/fundopp.asp</a>	Areas designated in a Disaster Declaration issued by the President
Economic Development Administration (EDA) Economic Development Administration Investment Programs	Grants that support public works, economic adjustment assistance, and planning. Certain funds allocated for locations recently hit by major disasters. <a href="http://www.eda.gov/AboutEDA/Programs.xml">http://www.eda.gov/AboutEDA/Programs.xml</a>	The maximum investment rate shall not exceed 50 percent of the project cost
U.S. Small Business Administration Small Business Administration Loan Program	Low-interest, fixed rate loans to small businesses for the purpose of implementing mitigation measures. Also available for disaster damaged property. <a href="http://www.sba.gov/services/financialassistance/index.html">http://www.sba.gov/services/financialassistance/index.html</a>	Must meet SBA approved credit rating

### Research Agencies

The United States Geological Survey (USGS) and the National Science Foundation (NSF) provide grant money for hazard mitigation-related research efforts.

<b>Hazard Mitigation Research Grants Agency Program</b>	<b>Details</b>	<b>Notes</b>
National Science Foundation (NSF) Decision, Risk, and Management Sciences Program (DRMS)	Grants for small-scale, exploratory, high-risk research having a severe urgency with regard to natural or anthropogenic disasters and similar unanticipated events. <a href="http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5423&amp;org=SES">http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5423&amp;org=SES</a>	See website
U.S. Geological Survey (USGS) National Earthquake Hazards Reduction Program	The purpose of NEHRP is to provide products for earthquake loss reduction to the public and private sectors by carrying out research on earthquake occurrence and effects. <a href="http://www.usgs.gov/contracts/nehrrp/">http://www.usgs.gov/contracts/nehrrp/</a>	Community with a population under 20,000

## **Appendix C: Meeting Documentation**

### **Meeting #1: Thursday, September 27, 2012 – 7:00 – 9:00 PM (2 hours)**

- General discussion of requirements and in-kind match process
- Review goals of hazard mitigation plan and revise (hand out)
- Review hazards (see poster – Add hazards? Remove hazards?)
- Identify and map past/potential hazards (update map & lists in Chapter 2)
- Flooding – Are there any non-FEMA flood areas?
- Specific past and potential events of hazards not in 2008 plan (recent events)
- Potential development areas in town (compare with list in 2008 plan)
- Identify critical facilities (update map and list)
- Determine Vulnerability to Hazards for Town
- Determine Probability of Hazards for Town
- Review Critical Facilities & hazard vulnerability
- Discuss future meetings, public notice, stakeholders to be notified, notices to abutting towns

### **Meeting #2 Thursday, October 11, 2012 (2 hours)**

- Review previously determined potential mitigation efforts (were they implemented? If not, why not and are they still on the table to be implemented?)
- Brainstorm improvements to existing mitigation efforts
- Brainstorm potential new mitigation efforts

### **Meeting #3 Thursday, October 25, 2012 (2 hours)**

- Evaluate the past and potential mitigation efforts
- Develop a prioritized implementation schedule and discuss the adoption and monitoring of the plan

### **Meeting #4 November 8, 2012 (1 hour)**

- Review and revise draft plan

PLEASE SIGN IN - Springfield, NH Hazard Mitigation Plan Meeting: September 27, 2012

	Name (please print)	Title & Town	Mailing Address	Telephone	E-mail
1	Gene Hayes	ZIRTA	Grantham, NH 03753 1260 Stony Brook Rd	3/763-4898	ghayes166@aol.com
2	FRANK ANDERSON	CITIZEN	45 CREELEY RD Springfield NH 03284	763 9687	frankanderson03284@yahoo.com
3	John Jacques	CITIZEN	164 Tumble Lake Villa Merrimack, NH 03017	526-2355	jacques@tds.net
4	John Trachy	CITIZEN	PO BOX 2 Georges Mills 03737	763-5727	JTRACHY@NYNEX.COM.NET
5	Keith Cutting	EMD	PO Box 605 Grantham NH	763-3235	keithcutting@gmail.com
6	Janet Roberts	Adm. Assist	PO Box 32 Springfield NH	763-4805	janet@springfieldnh.net
7	Leigh Callaway	Selectman	PO Box 22 Springfield NH	763-4805	leighcallaway@ymail.com
8	TIM JULLIAN	CHIEF of POLICE	PO Box 163 03284-0163 P.O. Box 226 03284	236-6902	springcup@stnet.com
9	Dallas Patten	FD	03284	236-6903	Dallas-patten@earthlink.net
10					
11					

Public

PLEASE SIGN IN - Springfield, NH Hazard Mitigation Plan Meeting: October 11, 2012

	Name (please print)	Title & Town	Mailing Address	Telephone	E-mail
1	David Beckley	COCAUTNAM E.M.D.	Box 10 South COCAUTNAM NH 03753.	603-759-9390	COCAUTNAM-EMD@Comcast.net
2	Peter Abair	Springfield Selectman	PO Box 165 Springfield	603 763 4691	
3	Leish Calloway	Springfield Health Officer	PO Box 22 Springfield	763-4805	leishcalloway@gmail.com
4	Tom Dossine	Citizen Springfield	PO Box 47 SPRINGFIELD 03784	763-9754 763-9887	TomDossine@comcast.net
5	Ken McGuire	Citizen Springfield	164 Tucker Village New London, NH 03257	526-2359	jacqueline@tds.net
6	Quinn Hughes	ZBA Field Rep	12603 Haverbrook Rd Smythtown NH 03753	763-4878	quinnhughes@comcast.net
7	Danielle Morse	NHSEM CHIEF of POLICE	33 Helen Dr. Concord NH 03305	419-0214	danielle.morse@dos.nh.gov
8	Tim Sullivan	PO Box 41 SPRINGFIELD 03284	603 236-6902		springcup@smnet.com
9	Janet Roberts	Admin Assist	PO Box 33 Springfield NH 03305	763-4805	janet@springfieldnh.net
10					
11					

PLEASE SIGN IN – Springfield, NH Hazard Mitigation Plan Meeting: October 25, 2012

	Name (please print)	Title & Town	Mailing Address	Telephone	E-mail
1	Tom Perkins	Health Officer Coastal			
2	John Mack	Springfield			
3	Gene Hayes	ZBA			
4	Janet Roberts	Springfield Library			
5	Peter Blair	Springfield			
6	Kenn Roberts	Fire Dept			
7	Tom Williams	Police			
8	Keith Callaway	Selectboard			
9	Kimberly E. Rogers	Citizen			
10					
11					



PLEASE SIGN IN - Springfield, NH Hazard Mitigation Plan Meeting: November 8, 2012

	Name (please print)	Title & Town	Mailing Address	Telephone	E-mail
1	David Becker	EMD GROUNHAM NH	300 Rte 10 South GROUNHAM NH 03753	863- 759-9390	GROUNHAM-EMD@ Comcast.net
2	Peter Macalibla	Fire Chief	P.O. Box 75 Springfield NH 03284	359-4944	Pmacalibla@springfieldnh.net
3	Tim Williams	CHIEF of POLICE	Box 41 SPRINGFIELD NH 03284	603 236-6902	springfield@ springfieldnh.com
4	Keith Callaway	Selectman	P.O. Box 282 Springfield 03284	603 763-4805	kcallaway@springfieldnh.net
5	Ken Poole	Ken Poole	Box 47 Springfield NH	763- <del>2827</del>	
6	Ken Jacques	Citizen	164 Twin Lake Village Road New London NH 03257	526-2359	jacques@tds.net
7	Janet Roberts	Admin. Assist	P.O. Box 22 Springfield NH	763-4805	janet@springfieldnh.net
8	Ken Poole	Ken Poole	P.O. Box 605 Lincolnton NH	763-3235	lincolnton@ springfieldnh.net
9	John Macky	SPSId	P.O. Box 2 Georges Mills	763-5127	John.Macky@ GMAIL.COM
10	Gene Hughes	ZBA	1260 Sky Brook Rd. Gronham, NH 03753	763-4898	ghughes1004@aol.com
11					

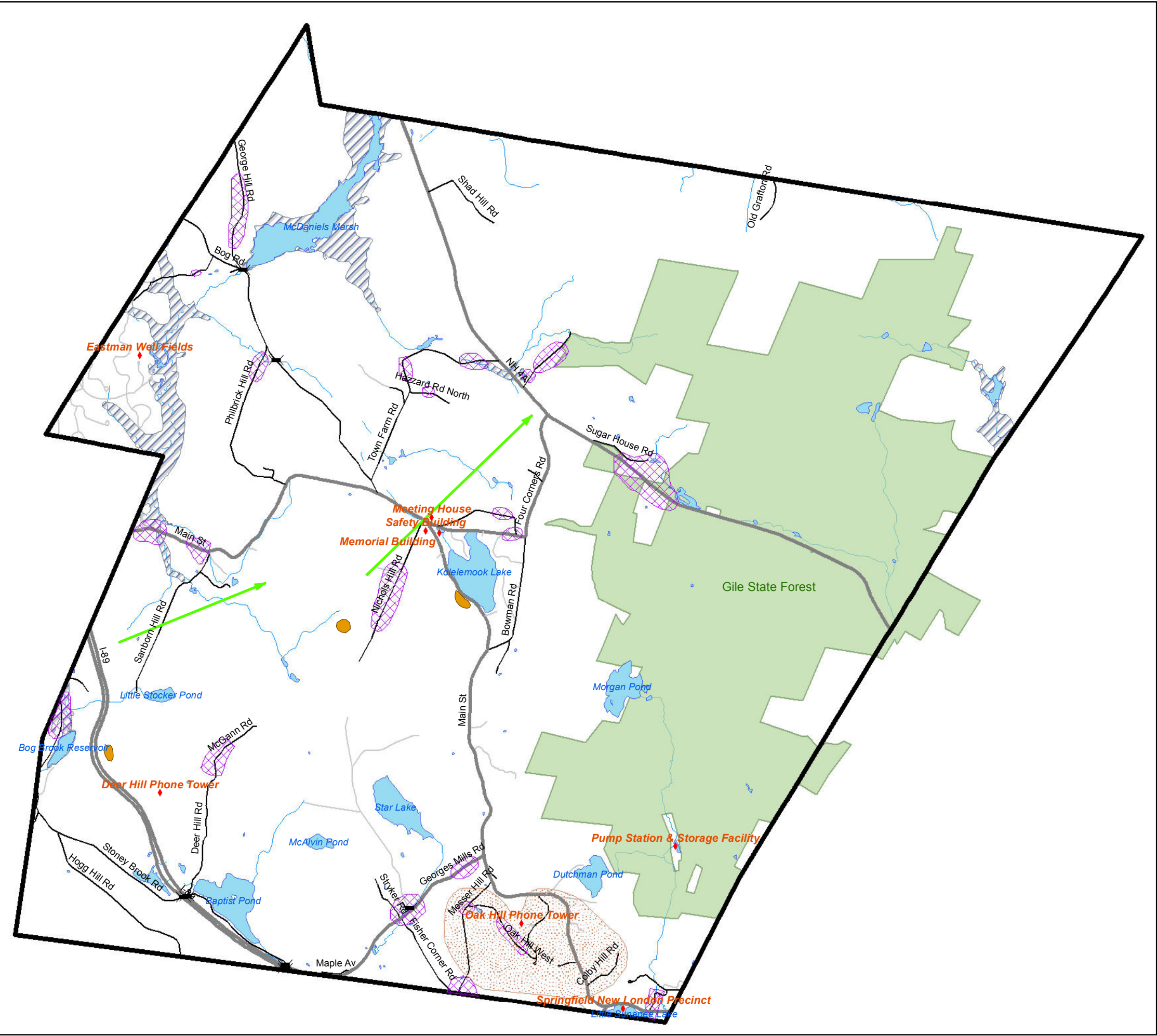


**APPENDIX D:**

**Map of Hazard Areas and Critical Facilities**

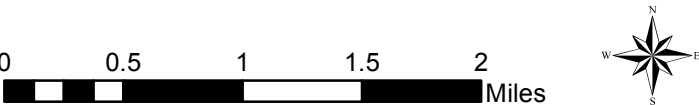


# Critical Facilities and Hazard Areas Springfield, New Hampshire



- Legend**
  - Bridges
  - Critical Facilities
  - Special Flood Hazard Area
  - Windstorm Hazard
  - Landslide Hazard
  - Erosion Hazard
  - Local Flooding Hazard

- Town Boundaries
  - State Roads
  - Town Roads
  - Private Roads
  - Lake or Pond
  - Gile State Forest
  - Permanent Stream



Map created by Upper Valley Lake Sunapee Regional Planning Commission, for the Town of Springfield, New Hampshire, November 2012.

Critical facilities and hazard areas delineated by Springfield Hazard Mitigation Committee, digitized by UVLSRPC, mapped 2007, updated 2012.

Special Flood Hazard Area from digital Flood Insurance Rate Maps published by Federal Emergency Management Agency, 2006.

Roads and bridges from NH Department of Transportation Bureau of Planning and Community Assistance, 1:24,000-scale, distributed by NH GRANIT, 2011.

Town boundaries from USGS 1:24000 scale Digital Line Graphs, distributed by NH GRANIT, 1992. Gile State Forest from NH Public/Conservation Lands database, distributed by NH GRANIT, 2012.

UVLSRPC, NH GRANIT and data contributors make no claim as to the accuracy or validity of any data sources. For planning purposes only.

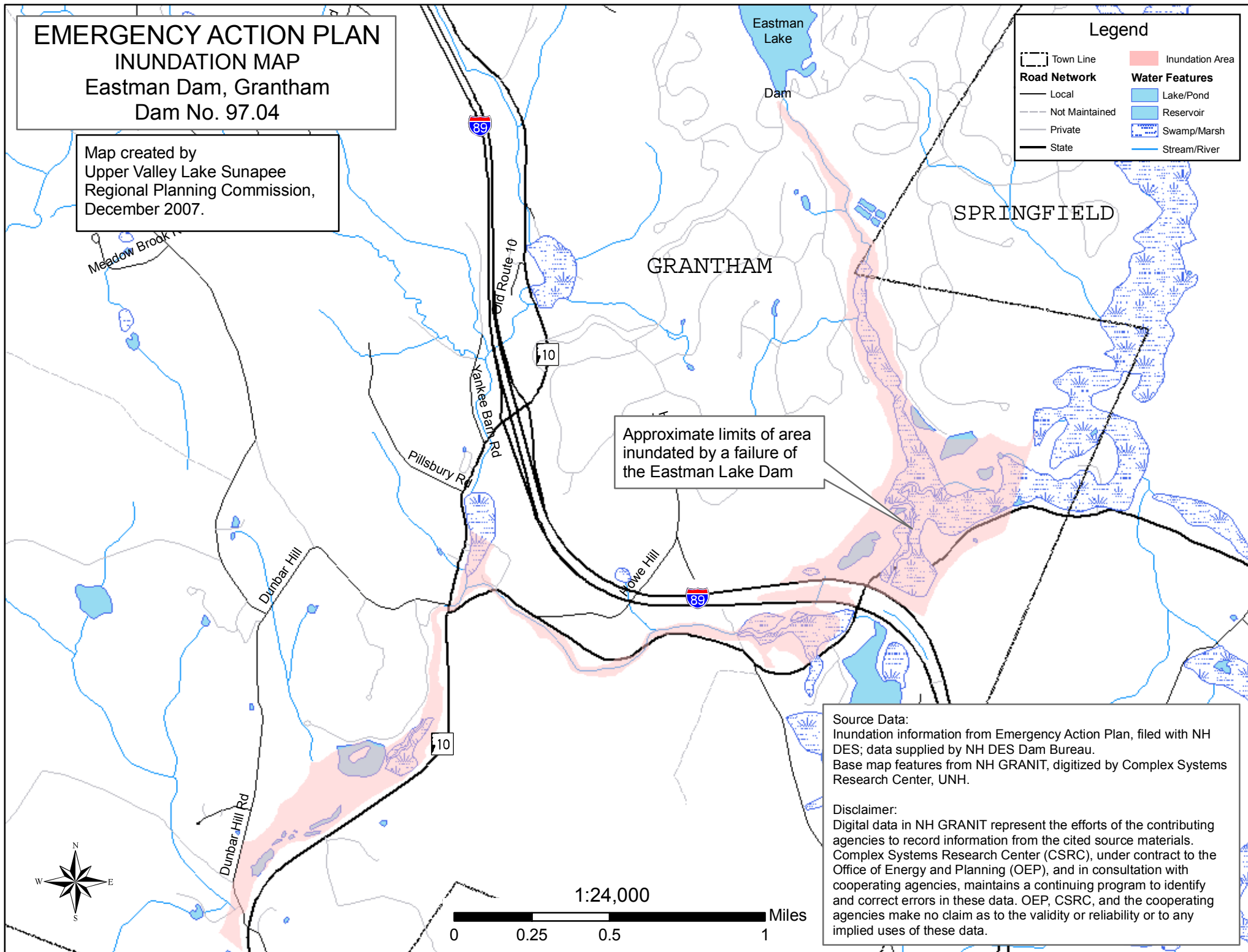
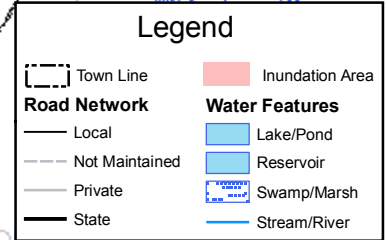
## **APPENDIX E**

### **Map of Eastman Dam Inundation Map**



# EMERGENCY ACTION PLAN INUNDATION MAP Eastman Dam, Grantham Dam No. 97.04

Map created by  
Upper Valley Lake Sunapee  
Regional Planning Commission,  
December 2007.



**APPENDIX F:**

**FEMA Approvals and Town Adoption of Hazard Mitigation Plan**



**Town of Springfield, New Hampshire**  
**Board of Selectmen**  
**A Resolution Approving the Springfield Hazard Mitigation Plan Update 2013**

WHEREAS, the Town of Springfield received assistance from the Upper Valley Lake Sunapee Regional Planning Commission through funding from the NH Homeland Security and Emergency Management to prepare a hazard mitigation updated plan; and

WHEREAS, several planning meetings to develop the hazard mitigation plan update were held in September through November 2012 and then presented to the Board of Selectmen for review and discussion on March 25, 2013; and

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

WHEREAS, the Board of Selectmen held a public meeting on Mar 25, 2013 to formally approve and adopt the Springfield Hazard Mitigation Plan Update 2013.

NOW, THEREFORE BE IT RESOLVED that the Springfield Board of Selectmen approve the Springfield Hazard Mitigation Plan Update 2013.

APPROVED and SIGNED this 25 day of March, 2013.

TOWN OF SPRINGFIELD  
BOARD OF SELECTMEN

Chair

(seal)

ATTEST:

*Donald Hill, chairman*  
*J. Carlaw*  
*George B. McLeod*





**FEMA**

MAY 22 2013

Keith Cutting, Director  
Town of Springfield Emergency Management  
Town of Springfield  
2750 Main Street  
Springfield, NH 03284

Dear Mr. Cutting:

Thank you for the opportunity to review the Town of Springfield, NH Hazard Mitigation Plan Update 2013. The Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) Region I has evaluated the plan for compliance with 44 C.F.R. Pt. 201. The plan satisfactorily meets all of the mandatory requirements set forth by the regulations.

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

Approved mitigation plans are eligible for points under the National Flood Insurance Program's Community Rating System (CRS). Complete information regarding the CRS can be found at [www.fema.gov/business/nfip/crs.shtm](http://www.fema.gov/business/nfip/crs.shtm), or through your local floodplain administrator.

The Town of Springfield, NH Hazard Mitigation Plan Update 2013 must be reviewed, revised as appropriate, and resubmitted to FEMA for approval within **five years of the plan approval date of May 8, 2013** in order to maintain eligibility for mitigation grant funding. Over the next five years, we encourage the Town to continue updating the plan's assessment of vulnerability, adhere to its maintenance schedule, and begin implementing, when possible, the mitigation actions proposed in the plan.

Keith Cutting  
Page 2

Once again, thank you for your continued dedication to public service demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please do not hesitate to contact Marilyn Hilliard at (617) 956-7536.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Ford", written in a cursive style.

Paul F. Ford  
Acting Regional Administrator

PFF:mh

cc: Beth Peck, Acting New Hampshire State Hazard Mitigation Officer  
Jennifer Gilbert, Asst. New Hampshire State NFIP Coordinator  
Victoria Davis, Planner UVLSRPC

Enclosure

# LOCAL MITIGATION PLAN REVIEW TOOL – FINAL PLAN

## Approved Hazard Mitigation Plan Update 2013 for the Town of Springfield, NH

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The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

<b>Jurisdiction:</b> Town of Springfield, NH	<b>Title of Plan:</b> Town of Springfield, NH Hazard Mitigation Plan Update 2013 <b>Type of Plan:</b> Single	<b>Date of Plan:</b> 2012 <b>Plan Adopted:</b> 3/25/2013
<b>Local Point of Contact:</b> Keith Cutting <b>Title:</b> Emergency Management Director <b>Agency:</b> Town of Springfield, NH Emergency Management <b>Phone Number:</b> 603-763-4805 <b>E-Mail:</b> <a href="mailto:Keith.a.cutting@dartmouth.edu">Keith.a.cutting@dartmouth.edu</a>		<b>Address:</b> 2750 Main Street Springfield, NH 03284
<b>Consultant:</b> Victoria Davis <b>Title:</b> Planner <b>Agency:</b> Upper Valley Lake Sunapee RPC <b>Phone Number:</b> (603) 448-1680 <b>E-Mail:</b> <a href="mailto:vdavis@uvlsrc.org">vdavis@uvlsrc.org</a>		<b>Address:</b> 10 Water Street, Suite 225 Lebanon, NH 03766

<b>State Reviewer:</b> Beth Peck	<b>Title:</b> Hazard Mitigation Planner & Pre-Disaster Mitigation Grant Program Manager <b>E-Mail:</b> <a href="mailto:Elizabeth.Peck@dos.nh.gov">Elizabeth.Peck@dos.nh.gov</a>	<b>Date:</b> 11/14/2012 11/27/2012
-------------------------------------	---	---------------------------------------

<b>FEMA Reviewers:</b> Scott Sevacko Brigitte Ndikum-Nyada	<b>Titles:</b> STARR Planner Community Planner	<b>Date:</b> 12/14/2012, 1/28/2013, 1/29/2013 & 4/29/2013
<b>Date Received in FEMA Region</b>	3/28/2013	
<b>Plan Not Approved</b>	1/28/2013	
<b>Plan Approvable Pending Adoption:</b>	2/15/2013	
<b>Plan Adopted</b>	3/25/2013	
<b>Plan Approved</b>	5/8/2013	

See Section 2 for Plan Strengths and Opportunities for Improvement.

## SECTION 1: REGULATION CHECKLIST

**INSTRUCTIONS:** The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been ‘Met’ or ‘Not Met.’ The ‘Required Revisions’ summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is ‘Not Met.’ Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b>ELEMENT A. PLANNING PROCESS</b>				
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Section I, pp. 2-7	X		
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Section I, pp. 3, 6-7	X		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Section I, pp. 3, 7	X		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Section II, pp. 8, 11 Section III, pp. 14, 23-24, 28, 30-37 Section IV, pp. 47-49 Appendix A	X		
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Section IX, p. 58	X		
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Section IX, p. 58	X		
<b>ELEMENT A: REQUIRED REVISIONS: See Section 2 for Plan Strengths and Opportunities for Improvement.</b>				
<b>ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</b>				
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Section III, pp. 12-39	X		
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Section III, pp. 12-39	X		

1. REGULATION CHECKLIST		Location in Plan (section and/or page number)	Met	Not Met
<b>Regulation</b> (44 CFR 201.6 Local Mitigation Plans)				
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Section III, pp. 40-42 Section IV, pp. 43-44 Section V, pp. 45-50	X		
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Section III, p. 16	X		
<b>ELEMENT B: REQUIRED REVISIONS :</b> <a href="#">See Section 2 for Plan Strengths and Opportunities for Improvement.</a>				
<b>ELEMENT C. MITIGATION STRATEGY</b>				
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Section VI, pp. 51-54 Section VIII, p. 57	X		
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Section III, p. 16 Section VI, p. 51	X		
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Section I, pp. 5-6 Section VII, p.56	X		
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Section VI, pp. 51-55 Section VII, p. 56	X		
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Section VI, p. 55 Section VIII, p. 57	X		
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Section VI, pp. 51-52 Section VIII, p. 57 Section IX, p. 58	X		
<b>ELEMENT C: REQUIRED REVISIONS:</b> <a href="#">See the last pages for Plan Strengths and Opportunities for Improvement.</a>				
<b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b> (applicable to plan updates only)				
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Section II, pp. 10-11	X		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Section VI, pp. 51-54	X		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Section VI: p. 55	X		
<b>ELEMENT D: REQUIRED REVISIONS:</b> <a href="#">See Section 2 for Plan Strengths and Opportunities for Improvement.</a>				
<b>ELEMENT E. PLAN ADOPTION</b>				

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan (section and/or page number)</b>	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	The Town of Springfield, NH adopted the Plan on 3/25/2013. The certificate of adoption is on the last page of the final Plan.		X	
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	N/A			
<b>ELEMENT E: REQUIRED REVISIONS:</b>				
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b>				
F1.				
F2.				
<b>ELEMENT F: REQUIRED REVISIONS:</b>				

## SECTION 2: PLAN ASSESSMENT

### A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

#### Element A: Planning Process

##### **Plan Strengths:**

- The plan describes the involvement of stakeholders (elected officials/decision makers, plan implementers, department heads and other planning agencies (i.e., regional planning councils).
- Notices were sent to the Town Offices of neighboring towns to invite town officials. All meetings were posted at the Town office and post office to inform residents and encourage participation.
- The plan provides extensive supplemental materials (i.e., contacts, technical resources, meeting documentation, programs, etc.)
- Excellent before and after photographs showcasing flooding events that have occurred in Springfield.

##### **Opportunities for Improvement:**

- Consider using more diverse methods of public participation, such as surveys, questionnaires, or workshops, to solicit feedback.

- For the next plan update, include more specific documentation of opportunities for public, other agency, and stakeholder involvement in the planning process (e.g. newspaper notices, newsletter notices, blog entries, website pages).
- Future update, the plan must document how the public was given the opportunity to be involved in the planning process AND how their feedback was incorporated into the plan. Uses of survey/questionnaires provide a means for public comments.

### Element B: Hazard Identification and Risk Assessment

#### Plan Strengths:

- The plan describes the use of best available data (i.e., studies, reports, technical information, etc.) to describe significant hazards.
- The plan calculates potential losses to vulnerable buildings and infrastructure for each of the identified hazards and describes the methodologies used to estimate these losses.

#### **Opportunities for Improvement:**

- Consider expanding the plan to include other human influenced hazards (e.g., infrastructure failure, mass power outage, etc.).
- Although the plan identifies critical facilities and describes their vulnerability to hazards, also consider categorizing them based on essential need during an emergency response effort.
- Consider including a Past and Future Hazards Map to clearly delineate the location of at-risk-areas.
- If more disaster related photographs and hazard mitigation best practice photos are available, consider including in the next Plan Update.

### Element C: Mitigation Strategy

#### Plan Strengths:

- The plan describes integration of mitigation actions with existing local authorities, policies, programs, and resources.
- A discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects is included in the plan.
- The plan identifies an inventory of locally-imported existing mitigation strategies and activities to help decrease the community's hazard risk.
- The plan provides supplemental materials (i.e., technical resources, programs, funding sources, meeting documentation, etc.).

#### **Opportunities for Improvement:**

- Although the plan did a good job of assessing existing plans, policies and programs, consider expanding the capability assessment to include other available resources for mitigation such as staff or funding available through taxing authority and/or annual budgets.
- Consider using the STAPLEE method to prioritize new mitigation strategies.

- Hazard Mitigation goals need to be developed specifically for the Town of Springfield. The goals could be developed early in the planning process and refined based on the risk assessment findings, or developed entirely after the risk assessment is completed. They should also be compatible with the goals expressed in other Springfield's documents. In future updates focus more on the mitigation strategy for the Plan's goals, objectives, strategies, priorities, and projects and explicitly link the objectives to the vulnerability assessment and the mitigation action plan.
- C6: For future updates, the plan must explain **how** the Town of Springfield incorporated the mitigation plan, when appropriate, into other planning mechanisms as a demonstration of progress in local hazard mitigation efforts. Also, the updated Plan must continue to describe how the mitigation strategy, including the goals and hazard mitigation actions will be incorporated into other planning mechanisms. Provide adequate details as to what the process was and how the community did incorporate the requirements of this plan into other plans such as comprehensive or capital improvement plans etc....

#### **Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)**

##### ***Plan Strengths:***

- The plan describes in detail the schedule and methodology for monitoring and evaluating the plan.
- The plan includes how potential future development identified in the plan may affect the risks and vulnerabilities of the Town.

##### ***Opportunities for Improvement:***

- Although the plan determines prioritization for new hazard mitigation actions and reflects progress in local mitigation efforts, it also must describe if and how any priorities changed since the plan was previously approved.
- Consider including documentation of annual reviews and committee involvement in the plan
- D3: The plan must describe if and how any priorities changed since the plan was previously approved. If no changes in priorities are necessary, the planning team should validate the information in the previously approved plan and state that the validation resulted in no changes in priorities in this plan update.
- On pages 53-54, the Existing Mitigation Actions' descriptions (under the last column), words like "**continue program**" need to be explained to meet the requirement as indicated above. For example, to ensure that the plan reflects current conditions, including post-disaster conditions etc..., the building code enforcement action is described as having an average effectiveness. Instead of 'continue program,' there needs to be a narrative recommending a direction that would have a better than average effectiveness in the next existing mitigation actions' status update. Points to consider when evaluating how the existing mitigation actions' priorities changed or not changed after the Plan was previously approved: Did the action(s) meet its intended goal? Was/were the mitigation actions/projects successful or failed during a disaster? Did action change due to political reasons, financial, legal or disaster conditions?.



## B. Resources for Implementing Your Approved Plan

- The latest 2013 updated version of the State of New Hampshire Hazard Mitigation Plan is an excellent resource.
- More information about applying for grants, available publications and training opportunities can be obtained from Elizabeth Peck, Hazard Mitigation Planner and PDM Grant Manager,
- Consider what actions can be funded by various governmental agencies (federal and state), especially when meeting multiple community goals. Federal agencies may support integrated planning efforts such as rural development, sustainable communities and smart growth, wildfire mitigation, conservation, etc.
- Seek out other non-governmental or non-emergency management funding sources such as from private organizations and businesses, federal initiatives (Smart Growth, Sustainable Communities), Federal Highways pilot projects, and historic preservation programs.
- The planning stages of riverine hazard mitigation projects may be eligible for assistance from the U.S. Army COE and the USDA Natural Resources Conservation Service.
- Explore opportunities for further coordination of hazard mitigation planning and 208 storm water planning to achieve efficiencies and dual purpose projects.
- Explore opportunities for further coordination of hazard mitigation assistance of Part 406 and/or Part 404 or document the use of any of this mitigation assistance.

### **Technical Assistance**

Technical assistance is available through **Risk MAP** to assist communities in identifying, selecting, and implementing activities to support mitigation planning and risk reduction; Attend any Risk MAP's discovery meetings that may be scheduled in the State (or neighboring communities with shared watersheds boundaries) in the future.

USDA, Natural Resources Conservation Service (NRCS)

Conservation Technical Assistance

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/cta>

### **Publications**

FEMA B-797, Hazard Mitigation Field Book – Roadways

<http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4271>

Flood Hazard Mitigation Handbook for Public Facilities

<http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=3724>

FEMA 386-6, Mitigation Planning How To #6: Integrating Historic Property & Cultural Resource Considerations into Hazard Mitigation Planning

<http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=1892>

FEMA P-787 Catalog of FEMA Wind, Flood & Wildfire Publications, Training Courses

& Workshops (2012) <http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=3184>

- There is a New Tool called “Action Tracker” for Mitigation Actions. The Action Tracker is a new data system FEMA is using to document mitigation ideas and progress for all communities. Check this link to obtain and set up a profile to follow and maintain your community's selected mitigation

actions/projects: <http://fema.starr-team.com/Account/Login.aspx?ReturnUrl=%2f> or <http://fema.starr-team.com>

- The **Mitigation Actions Tracker** prototype is a web-based tool for Risk MAP providers and mitigation planners to document and report local mitigation actions influenced by Risk MAP (or non-Risk MAP) processes. Data captured will support measuring Risk MAP Action Metric performance while also providing stakeholders valuable mitigation information that can be leveraged by future planning or other risk reduction efforts.
- **FAQ Action Measures:** What is Action Measure 1? What is Action Measure 2? Action Measure 1 is defined as the percentage of population where Risk MAP helped identify new strategies or improved current planned mitigation actions, in direct collaboration with communities. Through collaboration between Risk MAP project teams and communities, previously identified actions (from Hazard Mitigation Plans) are improved on or new strategies are developed "on the spot." Action Measure 2 is defined as the percentage of population that has advanced identified mitigation actions. This includes communities that at a minimum advanced or began implementing identified mitigation actions, either from their Mitigation Plan or from new strategies identified during the Risk MAP project. Given that the actual implementation of a project may take years to execute, FEMA will track indicators that actions are initiated, in progress, or completed. Action Measure 1 is an internal measure that will be emphasized in Joint Program Reviews, whereas Action Measure 2 is an external measure that is reported to stakeholders. When is the progress on each measure assessed? When should mitigation actions be identified and documented? <http://fema.starr-team.com/Account/Login.aspx?ReturnUrl=%2f>
- **Mitigation Ideas: A Resource for Reducing Risk from Natural Hazards** is available on the FEMA website at <http://www.fema.gov/hazard-mitigation-planning-resources#7>. Through Risk MAP, FEMA has developed and released this new resource for helping communities identify actions to improve their disaster resiliency! [\*Mitigation Ideas: A Resource for Reducing Risk from Natural Hazards\*](#) presents ideas for how to mitigate the impacts of different natural hazards, from drought and sea level rise, to severe winter weather and wildfire. The document also includes ideas for actions that communities can take to reduce risk to multiple hazards, such as incorporating a hazard risk assessment into the local development review process.
- **Other consideration:** Creating Equitable, Healthy, and Sustainable Communities: Strategies for Advancing Smart Growth, Environmental Justice, and Equitable Development... [http://www.epa.gov/smartgrowth/equitable\\_development\\_report.htm](http://www.epa.gov/smartgrowth/equitable_development_report.htm)
- More information on the Partnership for Sustainable Communities: <http://www.sustainablecommunities.gov>

[\*Local Mitigation Planning Handbook\*](#) (*Handbook*) as the official guide for local governments to develop, update and implement local mitigation plans. While the requirements under §201.6 have not changed, the *Handbook* provides guidance to local governments on developing or updating hazard mitigation plans to meet the requirements under the Code of Federal Regulations (CFR) Title 44 – Emergency Management and Assistance §201.6, *Local Mitigation Plans*. The *Handbook* complements and liberally references the [\*Local Mitigation Plan Review Guide\*](#) (October 1, 2011), which is the official guidance for Federal and State officials responsible for reviewing local mitigation plans in a fair and consistent manner. Both the *Guide* and the *Handbook* can be found on the FEMA Mitigation Planning web page at <http://www.fema.gov/mitigation-planning-laws-regulations-guidance#3>.