TOWN OF AUBURN, NEW HAMPSHIRE

Town of Auburn, New Hampshire, Town Offices

HAZARD MITIGATION PLAN 2018

TOWN OF AUBURN
NEW HAMPSHIRE

HAZARD MITIGATION PLAN

October 2018

Prepared for the Town of Auburn, NH,
NH Homeland Security & Emergency Management (NHHSEM) and
Federal Emergency Management Agency (FEMA)
by
The Southern New Hampshire Planning Commission
with assistance from the Auburn Hazard Mitigation Committee

October, 2018

October 22, 2018 Public Hearing Date
October 22, 2018 Adoption Date
Final Plan

Acknowledgements

Southern NH Planning Commission and the Town of Auburn wish to thank the following individuals for serving on the Town's Hazard Mitigation Committee and for their assistance in the development of this Plan:

Acknowledgements

Appreciation is extended to the following people for contributing their time and effort to complete the *Auburn Hazard Mitigation Plan:*

2016-2018 Auburn Hazard Mitigation Committee Members

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Lillian Deeb	Police, Town of Auburn
Mike Dross	Road Agent, Town of Auburn
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Thanks also to:

- The New Hampshire Department of Safety, Homeland Security and Emergency Management (NH HSEM), which developed the *New Hampshire Natural Hazards Mitigation Plan*;
- The Southwest Region Planning Commission, which developed *Hazard Mitigation Planning for New Hampshire Communities*; and
- The Bedford, Chester, Derry, Goffstown, Hooksett, Manchester, New Boston, and Weare Hazard Mitigation Committees and their respective Hazard Mitigation Plans.

All the above publications served as models for this plan.

"We will of course be there to help after disaster strikes, but as you all know, there's no substitute for mitigation before it does....

As a poet once wrote, "the test of men lies in action." We as emergency managers and first responders cannot afford to wait for action....

Through planning, mitigation, education, and cooperation, we can make sure our at-risk communities are prepared before the first drop of rain or gust of wind ever threatens our shores."

—Joe Allbaugh, Director of FEMA,
Addressing the 2002 National Hurricane Conference

The preparation of this document has been financed in part by a grant from the State of New Hampshire Department of Safety, Divison of Homeland Security and Emergency Management.

Preface

Hazard mitigation planning is a relatively new field, spearheaded by the Federal Emergency Management Agency (FEMA) during the 1990s after Hurricane Andrew caused more than $20 billion in damage across several southern states. That event resulted in 54 fatalities and the disruption of millions of lives. The Disaster Mitigation Act of 2000, developed by FEMA, was intended to help both communities and states prepare for, and deal with, such disasters. While New England normally does not have hurricanes of Andrew's magnitude, this area does experience many types of natural disasters that cost both lives and money.

These disasters and other natural hazards occur during all four seasons in the Northeast: winter ice, snow, and nor'easters; spring flooding; summer downbursts and thunderstorms; and fall hurricanes. Planning to make a community *disaster-resistant* before these events occur can help save lives as well as homes and infrastructure. FEMA has several programs designed to strengthen the nation's disaster resistance by reducing risks and changing conditions and behaviors before a disaster in order to protect lives and prevent the loss of property.

FEMA has also raised its budget to upgrade the existing Flood Insurance Rate Maps through the Map Modernization project. Many communities have outdated maps that do not reflect the true extent of flooding potential.

A community's eligibility for hazard mitigation funding depends upon its having adopted a hazard mitigation plan that addresses these issues. Mitigation measures contained within the ***Auburn Hazard Mitigation Plan*** may be sufficient to receive grant funding.

It is hoped that this document will be a good first step toward analyzing hazards in Auburn, forecasting where potential disasters might occur, and reducing their impact on people and the community.

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The *Auburn Hazard Mitigation Plan* has been developed to help Auburn become a disaster-resistant community by taking measures to reduce future losses from natural or man-made hazardous events before they occur. The Auburn Hazard Mitigation Committee (Mitigation Committee), made up of community members and town officials, developed the plan.

Natural hazards are addressed as follows:

A. Flooding	C. Fire	E. Seismic Events
B. Wind	D. Ice and Snow Events	F. Other Hazards

The Mitigation Committee identified critical facilities, areas at risk, commercial economic impact areas, and hazardous materials facilities**.**

Critical Facilities:

- Town Offices
- Federal Facilities
- Post Offices
- Police and Fire Stations
- Emergency Operations Centers
- Military Stations
- Public Works Garages
- Emergency Fuel Facilities
- Emergency Shelters
- Airport and Related Facilities
- Wireless Communication Facilities and Radio Towers
- Public Water Systems, Pumps and Booster Stations
- Water Storage Tanks
- Sewer Systems and Pumps
- Electrical Power Substations
- Gas Pump Stations

Areas at Risk:

- Solid Waste and Recycling Facilities
- Telephone Facilities
- Media Communications
- Major Roads and Bridges
- Dams
- Historic Properties
- Libraries
- Schools
- Child Care Facilities
- Senior Housing and Nursing Homes
- Hotels
- Recreation Areas
- Commercial Resources
- Medical Facilities
- Religious Facilities

Existing Hazard Mitigation Strategies

The Mitigation Committee identified existing strategies related to hazard mitigation as follows:

- Emergency Operations Plan
- Floodplain Development Regulations
- Elevation Certificates
- Comprehensive Emergency Management Planning for Schools (CEMPS)
- Underground Storage Regulations
- Auburn Building Codes
- Excavation and Soil Removal Regulations
- Road Design Standards
- Snow Ordinance
- Fire Department Regulations
- Hazardous Materials Regulations
- Town Radio System
- Police Department
- State Dam Program
- NH Shoreland Protection Act
- Best Management Practices
- Lake Massabesic Watershed Protection Rules

New Mitigation Programs and Policies

The Mitigation Committee identified 22 *new* hazard mitigation strategies as follows:

- Maintain the most current building codes that set appropriate wind load design standards (no updates required at this time).
- Seek grant funding for an electronic sign that can be placed in front of town hall for emergency info during disasters or emergencies
- Include snow load design standards in the Construction Guideline Packet prepared by the building inspector for developers.
- Continue training for the building inspector on new technology, research, and design standards relating to wind loads, seismic design, and snow loads.
- Form a committed community network to check on the elderly populations during extreme heat or cold weather. The Massabesic Senior Citizens and Auburn's Senior Citizens already have a loose knit system to check on one another. Additionally, the Fire Department sends volunteers out to check on residents at critical points during the winter.
- Limit development on unmaintained private roads in isolated areas until the roads are brought into conformance with town road standards.
- Elevate Beaver Brook Road to above the floodplain in conjunction with the Town of Londonderry since it crosses the town line.
- Upsize culvert on Rockingham Road
- Require blasting of ledge on Dartmouth Drive before further development is allowed in order to mitigate ice and snow hazards
- Coordinate pre-construction meetings with a representative of the planning board, the building inspector, the road agent, and developers of new construction proposals to review potential hazards, existing ordinances, and opportunities to mitigate potential hazard impacts.
- Post a reminder notice regarding the snow ordinance and snow removal in the local publications at the beginning of winter each year.

- Post a notice during heavy winters alerting residents to not let snow accumulate on roofs, thus reducing the risks of roof collapse due to heavy snow loads.
- Adopt and implement new stormwater management regulations based on the new EPA requirements for MS-4 communities.
- Upgrade culvert on Maple Farm Rd
- Educate the public through newspaper and the town web site on the availability of National Flood Insurance Program information, DFIRMs and Flood Insurance Study at the Town Hall.
- Upgrade culvert on Old Candia Rd just East of Tower Hill
- Create a Hazard Mitigation and Emergency Preparedness page on the Town web site with links to valuable resources at both the FEMA, NH HSEM and SNHRCPP web sites.
- Include a report of the Hazard Mitigation Committee in the Annual Town Report to alert town residents to the Plan's completion, intents, and contents.
- Either pave/upgrade Hook Road and install a drainage system or install a bridge to elevate the road above the brook level to eliminate annual damages to the road and surrounding properties due to flooding and subsequent road wash outs.
- Research the implementation of Code Red or a similar public outreach system
- Provide water at the fire station for residents whose wells run dry.
- Encourage the State of NH to address flooding issues at the intersection of Hooksett Road & McEvoy Drive
- Encourage the State of NH to address flooding issues at the intersection of Hooksett Road & Rockingham Road

This plan is to be reviewed on an annual basis and updated every three to five years by the Auburn Planning Department in coordination with the Auburn Board of Selectmen. The next review will be during 2019 and the update prior to January 2026.

SECTION I
INTRODUCTION

"Plans are worthless. Planning is essential." —Dwight D. Eisenhower

Natural Hazards and Their Consequences

During the past decade, the United States has suffered a record number of natural disasters. In 1992, Hurricane Andrew caused an estimated $25 billion in damage. The 1993 Midwest floods resulted in some $12-$16 billion in damage. The 1994 Northridge earthquake caused $20 billion in damage, and the 2002 summer flooding in central Texas is expected to top $1 billion in damage. In New England, more than 100 natural disasters during the past quarter century have been sufficiently catastrophic to be declared "disaster areas" by the president, making them eligible for federal disaster relief. That is about four major disasters per year. Nine out of ten of these disasters were the result of flooding. Much of this damage might have been averted with the implementation of foresighted hazard mitigation efforts.

Floods, tornadoes, winter storms, hurricanes, earthquakes, and wildfires - natural disasters - are part of the world around us. Their occurrence is inevitable. These events can wreak havoc on the natural environment by uprooting trees, eroding riverbanks and shorelines, carving new inlets, and blackening forests. Yet the natural environment is amazingly resilient, often recuperating in a matter of days or weeks.

When these events strike the man-made environment, however, the result is often more devastating. Disasters occur when a natural hazard crosses paths with elements of the man-made environment, including buildings, roads, pipelines, or crops. When hurricanes tear roofs off houses, it is a disaster. When tornadoes ravage a town, it is a disaster. When floods invade low-lying homes, it is a disaster. If only undeveloped wetlands and floodplains are flooded, rather than homes and businesses, few take notice. The natural environment takes care of itself. The fabricated environment, in contrast, often needs some emergency assistance.

What Is Hazard Mitigation?

Hazard mitigation is the practice of reducing risks to people and property from natural hazards. FEMA's Federal Response Plan defines hazard mitigation as "activities designed to alleviate the effects of a major disaster or emergency or long-term activities to minimize the potentially adverse effects of future disaster in affected areas (A-5)." It includes both structural interventions, such as flood control devices, and nonstructural measures, such as avoiding construction in the most flood-prone areas. Mitigation includes not only avoiding the development

of vulnerable sections of the community, but also making existing development in hazard-prone areas safer. For example, a community could identify areas that are susceptible to damage from natural disasters and take steps to make these areas less vulnerable. It could also steer growth to less risky areas. Keeping buildings and people out of harm's way is the essence of mitigation.

Mitigation should not be seen as an impediment to growth and development. On the contrary, incorporating mitigation into development decisions can result in a safer, more resilient community, one that is more attractive to new families and businesses.

Why Develop a Hazard Mitigation Plan?

The full cost of the damage resulting from natural hazards—personal suffering, loss of lives, disruption of the economy, loss of tax base—is difficult to measure. New Hampshire is subject to many types of natural disasters: floods, hurricanes, nor'easters, winter storms, earthquakes, tornadoes, and wildfires, all of which can have significant economic and social impacts. Some, such as hurricanes, are seasonal and often strike in predictable locations. Others, such as floods, can occur any time of the year and almost anywhere in the state.

Benefits of Hazard Mitigation

Hazard mitigation offers many benefits for a community. It can:

- **Save lives and property.** A community can save lives and reduce property damage from natural hazards through identifying risks and taking action, such as elevating structures in the floodplain.
- **Reduce vulnerability to future hazards.** By having a mitigation plan in place, a community is prepared to take steps that will permanently reduce the risk of future losses. This opportunity is often lost when communities are built without regard to natural hazards, or when they are rebuilt after a disaster "just like they were before." While it is natural to want to return things to the way they were, it is important to remember that, in many cases, the disaster would not have been as severe if a mitigation plan had been implemented.
- **Facilitate post-disaster funding.** By identifying and ranking recovery projects before the next disaster, a community will be in a better position to obtain post-disaster funding because much of the background work necessary for applying for federal funding will already be done.
- **Speed recovery.** By developing a mitigation strategy, a community can identify post-disaster mitigation opportunities in advance of a disaster and be ready to respond quickly after a disaster.

Background: Auburn Hazard Mitigation Planning

The Federal Emergency Management Agency (FEMA) has recommended that all communities establish local hazard mitigation plans as a means to reduce future

losses from natural or man-made hazard events before they occur. Beginning November 1, 2004, FEMA has mandated an approved hazard mitigation plan be in place to receive specific disaster related grants. With a Pre-Disaster Mitigation Grant from FEMA, New Hampshire Homeland Security and Emergency Management (NH HSEM) provided funding to the Southern New Hampshire Planning Commission (SNHPC) to develop a local hazard mitigation plan for the Town of Auburn, which was adopted March 27, 2006. SNHPC began working with Auburn representatives during December 2016 to update this plan.

Purpose

The *Auburn Hazard Mitigation Plan* serves as a strategic planning tool for use by the Town of Auburn in its efforts to reduce future losses from natural or man-made hazard events before they occur. This *Plan* may constitute a new section of the Auburn Master Plan, in accordance with RSA 674:2.

Authority

This *Hazard Mitigation Plan* was prepared in accordance with the Town of Auburn's Emergency Operations Plan, effective June 2010, and under the authority of the Planning Mandate of Section 409 of Public Law 93-288 as amended by Public Law 100-707, the Robert T. Stafford Act of 1988, and the Disaster Mitigation Act of 2000. The *Auburn Hazard Mitigation Plan* will be referred to as the "*Plan*." After a public hearing was held at the Auburn Town Offices on March 13, 2006 the Auburn Board of Selectmen formally adopted this *Plan* on March 27, 2006. Documentation of this *Plan's* adoption is provided in Appendix H. The most recent update was formally adopted October 22, 2018.

Scope of the *Plan*

The scope of the *Auburn Hazard Mitigation Plan* includes the identification of natural hazards affecting the Town, as identified by the Auburn Hazard Mitigation Committee. The committee reviewed hazards in the following categories as outlined in the *State of New Hampshire Natural Hazard Mitigation Plan* and identified by the Committee:

A. Flooding - including riverine flood events, hurricanes, debris-impacted infrastructure, river ice jams, erosion, mudslides, rapid snowpack melt, and dam breach or failure.
B. Wind - including hurricanes, tornadoes, nor'easters, downbursts, and lightning.
C. Fire - including wild land fires, target hazards, and isolated areas.
D. Ice and snow events - including heavy snowstorms, ice storms, and hailstorms.
E. Seismic events - including earthquakes and landslides.
F. Other events - including utility pipe failure, geomagnetism, drought, and extreme heat or cold.

Methodology

In Fall 2016, the Auburn Hazard Mitigation Committee (AHMC) was formed to begin the initial planning stages of the ***Auburn Hazard Mitigation Plan***. The AHMC developed the contents of the *Plan* using the 10-step planning process set forth in the Southwest Regional Planning Commission's *Hazard Mitigation Planning for New Hampshire Communities* handbook, along with the FEMA *State and Local Mitigation Planning How-To Guides*. The SNHPC assisted the AHMC in the development of this *Plan*. The Committee consisted of representatives from various local agencies, including the Auburn Planning and Zoning Department, Fire Department, Building Department, and Board of Selectmen. The Committee held four meetings beginning in December 2016 and ending in April 2017 to collect information, compile, and review the *Plan*.

2016-2017 Plan Update Methodology

In December 2016, the Auburn Hazard Mitigation Committee (LHMC) was formed to begin updating the plan. The Update Committee used the same ten-step planning process set forth in the *Hazard Mitigation Planning for New Hampshire Communities* handbook as did the original Committee. Each section of the plan was reviewed and updated according to new information and the events of the past 5 years. The Update Committee consisted of representatives from various local agencies, including the Planning Department, Fire Department, Planning Board / ZBA, Board of Selectmen Administration, the Auburn Village School, and Department of Public Works. The Committee held a total of five public meetings beginning in December 2016 and ending in May 2017 to collect information, compile the plan update, and review the plan update.

2016 and 2017 Public Committee Meetings

On the following dates, the Auburn Hazard Mitigation Committee held committee meetings at the Auburn Town Offices: December 7, 2016, February 1 2017, March 27, 2017, and April 26, 2017. Committee meetings were made public and posted in a minimum of two public places as required by New Hampshire state law for public meetings.

Minutes were kept for each meeting and each committee member received an e-mail that contained minutes of the previous meeting and an agenda. The minutes were available to the public. Copies of the meeting agendas, minutes, and attendance sheets are provided in Appendix F.

Coordination with Other Agencies and Individuals

The Hazard Mitigation Committee members and their respective town departments contributed the contents and reviewed the *Plan* drafts. Departments represented were:

- Board of Selectmen
- Planning Board
- Building Department
- Fire Department
- Planning and Zoning Department
- Town Administration
- Police
- Auburn Village School

Committee member Bill Herman contacted neighboring communities, agencies, businesses, academia, nonprofits and other interested parties for their review and comment on the draft *Plan* during November 2016.

The *Plan* was distributed to all abutting communities, including Manchester, Hooksett, Candia, Chester, Derry, and Londonderry for their review and comments. Additionally, copies of the *Plan* were left at the Town Library, Town Planning Department, and SNHPC office, for public review and comment. Availability of the *Plan* and its locations were publicized by public notice in the Union Leader and postings at the Town Hall and town web site. No comments were received. Documentation of the public process and solicitation of comments from both the public and outside agencies may be found in Appendix G.

Public & Stakeholder Involvement

Public and stakeholder involvement was stressed throughout the process. A list of stakeholders consisting of various public officials and emergency response personnel was developed (see Table A,). This group was emailed all public meeting agendas and review materials with invitations to participate. Over the course of five meetings, a total of thirteen people representing Auburn participated in the review and development of the Plan

To seek public involvement and participation in the 2018 Plan Update, SNHPC released the following Press Release to the local media early on in the planning process. In addition, SNHPC prepared an article about the Hazard Mitigation Plans in its quarterly newsletter which is distributed electronically to every community and public official in the SNHPC Region, including local board members, volunteers and the general public (see following copy of the article). The Town of Auburn featured announcements regarding the plan update

committee dates on the electronic message board out front of the Town Offices, as well as posting notices on the Town's website. During the development of the Plan, SNHPC also posted meeting announcements and minutes on the SNHPC website and worked with town staff to post agendas and public notices of all the Auburn Hazard Mitigation Committee meetings at the Town Offices.

Existing Auburn Emergency Operations Plan

The Town of Auburn last updated the *Town of Auburn Emergency Operations Plan* in 2010. This *Plan* describes *preparedness* activities to improve the Town's ability to respond to an incident; *response* activities, including rescue operations, evacuation, emergency medical care, and emergency personnel training; and *recovery* activities that begin after the disaster. *Mitigation* activities help to reduce or eliminate the damages from future disaster events, and can occur before, during and after a disaster. The Auburn Emergency Management Director will ensure that the Hazard Mitigation Plan is incorporated into the Emergency Operations Plan as appropriate.

State of New Hampshire Legislation Related to Master Plans

During 2002, the State of New Hampshire adopted legislation related to master plans that requires municipalities to "provide more definitive guidance in planning and managing future growth." This new legislation allows a natural hazards section to be considered during the master planning process and incorporated into the master plan. The ***Auburn Hazard Mitigation Plan*** may serve as a new section of the existing or future *Auburn Master Plan*. This legislation, *RSA 674:2 Master Plan; Purpose and Description,* reads*:*

> *The Master Plan may also include the following sections:*
> *…(e) A natural hazards section which documents the physical characteristics, severity, frequency, and extent of any potential natural hazards to the community. It should identify those elements of the built environment at risk from natural hazards as well as extent of current and future vulnerability that may result from current zoning and development policies.*

The Town of Auburn will incorporate the Auburn Hazard Mitigation Plan into the Auburn Master Plan as appropriate and the Planning Board will ensure that it is included during the drafting and review of the Master Plan.

The following narrative explains how the 2012 Auburn Hazard Mitigation Plan was used during each step of the planning process to make revisions that resulted in this Plan.

Tasks to complete the Plan Update were as follows:

Task 1: Determine the Planning Area & Resources: This task was conducted by town staff and the Regional Planning Commission. Information from the previous plan was reviewed and revised. The results of this research can be found in Section II, "Community Profile".

Task 2: Building the Planning Team: This task was conducted by town staff and the Regional Planning Commission. Commission staff contacted department heads and land use board volunteers. Town staff made further inquiries and posted notices for residents and other stakeholders who might wish to volunteer their time and serve on a committee.

Task 3: Create an Outreach Program: This task was conducted by town staff and the Regional Planning Commission throughout the plan's update. Together multiple efforts were made to involve and educate the public regarding the process and input of the plan. Details of various outreach efforts can be found in this section of the plan.

Task 4: Review Community Capabilities: The Committee reviewed each type of hazard and which sections or town were vulnerable to that type of hazard. The results were the Identified Hazards Map, which can be found on page ___. Furthermore, the Committee identified and catalogued all of the critical facilities and areas at risk within the town, see Section V and maps "Critical Facilities," and "Areas at Risk" on pages 149 and 150 respectively.

Task 5: Conduct a Risk Assessment: The Committee conducted several assessments to help determine the gaps in coverage. These include Assessing Probability, Severity, and Risk (Section IV) and Vulnerability Assessment (Section V).

Task 6: Develop a Mitigation Strategy: The Committee reviewed all hazards and the existing mitigation strategies meant to address those hazards in Section VI. In addition, the Committee evaluated the effectiveness of the existing measures to identify where they can be improved. Section VII summaries the Committees efforts in reviewing "complete", "completed and ongoing", "deferred" and "new" mitigation action items. They evaluated all mitigation actions and prioritized them. The results are found in Section VIII, which provides the Committee's rank, the projects STAPLEE score, problem statement, mitigation action, hazard addressed, responsible party, anticipated cost, potential funding source and timeframe.

Task 7: Keep the Plan Current: The Town of Auburn understands the ramifications for ensuring that this plan be monitored and updated annually or after a presidentially declared disaster. Section IX addresses this issue.

Task 8: Review & Adopt the Plan: The Committee members reviewed and approved each section of the plan as it was completed. After acceptance by the Committee, the Plan was submitted to the New Hampshire Homeland Security and Emergency Management and the Federal Emergency Agency Region 1 Office, for review. At a public meeting, the Board of Selectmen formally adopted the plan on (add date of adoption). The plan was then granted formal approval by FEMA on (date of FEMA approval).

Task 9: Create a Safe & Resilient Community: The committee discussed the mitigation actions in the Action Plan and the ways in which the implementation of the actions will be beneficial to the community. Annual reviews of the Action Plan by the committee are needed to maintain the timeframes identified for completion of activities. Incorporation of the plan into other land use plans and the Capital Improvement Plan help to ensure that the goals of the plan are met. This is also reviewed in this section as well as Section IX.

"... [M]itigation works. The Seattle-Tacoma area did not suffer significant losses [following the February 28, 2001, earthquake] because 20 to 30 years ago local leaders invested in its future by passing building codes and issuing municipal bonds that implemented solid protective measures."

—Joe Allbaugh, Director of FEMA
Congressional testimony, May 16, 2001

Hazard Mitigation Goals of the Town of Auburn

The *Town of Auburn* ***Hazard Mitigation Plan***, which was prepared by the Southern New Hampshire Planning Commission and the Auburn Hazard Mitigation Committee and is maintained by the Auburn Emergency Management Director, sets forth the following hazard mitigation goals:

1. To improve upon the protection of the general population, citizens and guests of the Town of Auburn, from all natural and Human-caused hazards.

2. To reduce the potential impact of natural and Human-caused disasters on the Town's Critical Support Services, Critical Facilities and Infrastructure.

3. To improve the Town's Emergency Preparedness, Disaster Response and Recovery Capability.

4. To reduce the potential impact of natural and Human-caused disasters on the Town's Economy, Environment, Historical & Cultural Treasures and Private Property.

5. To identify, introduce and implement cost effective Hazard Mitigation measures in order to accomplish the Town's Goals.

6. To reduce the Town's liability with respect to natural and Human-caused hazards generally.

7. To address the challenges posed by climate change as they pertain to increasing risks in the Town's infrastructure and natural environment.

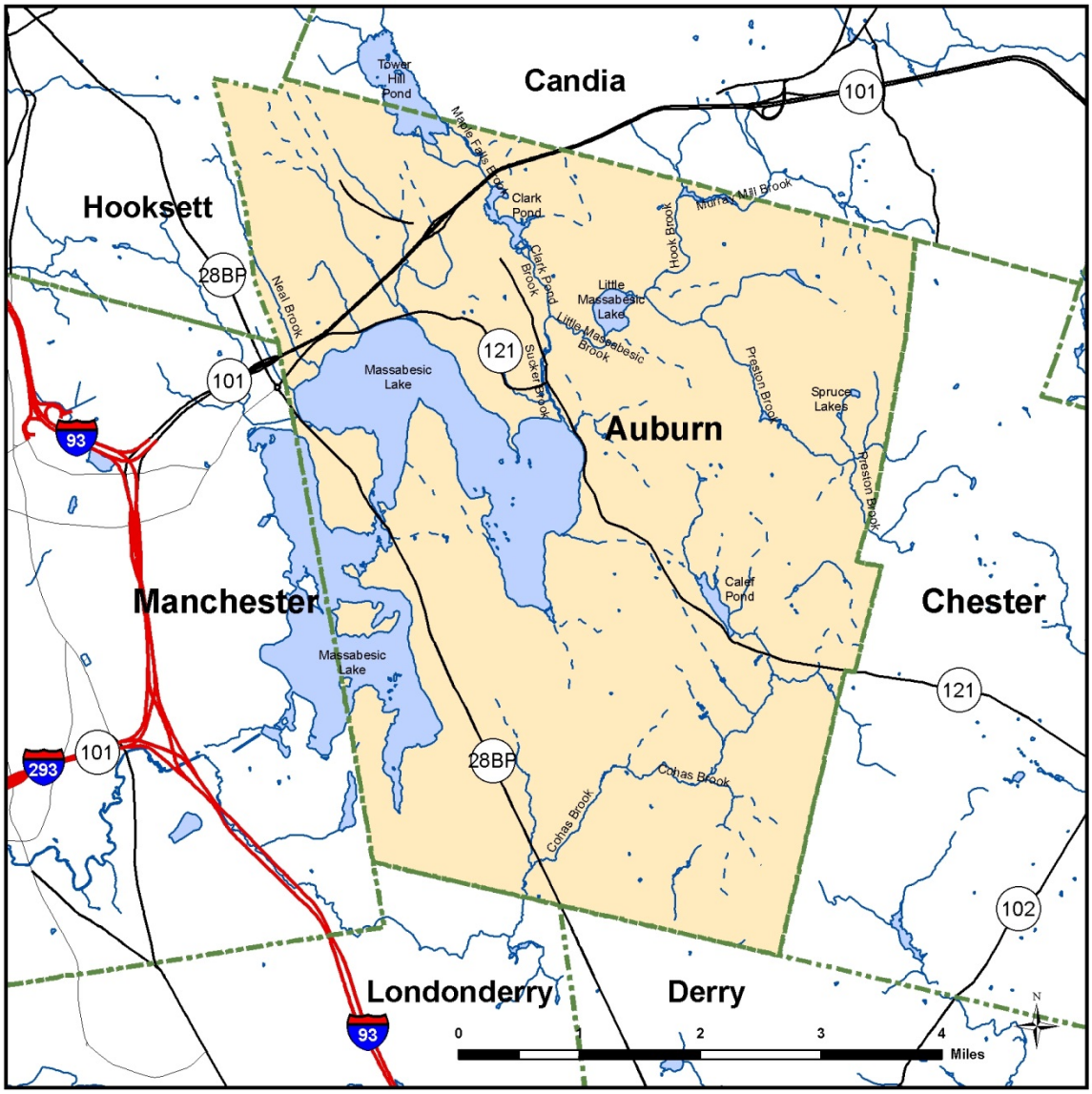
The Auburn Hazard Mitigation Committee adopted the above goals, derived from the 2010 State of New Hampshire Hazard Mitigation Plan, for the Town of Auburn, New Hampshire, at the March 21, 2011 committee meeting.

More specific objectives, established after the Committee's analysis of past and potential hazards and review of existing mitigation strategies, may be found at the beginning of Section V: Newly Identified Mitigation Strategies and Critical Evaluation.

SECTION II
HAZARD IDENTIFICATION

Location, Population, Topography, and Climate

The Town of Auburn is located in the south-central portion of the State of New Hampshire in Rockingham County. Auburn is bordered by the Town of Candia to the north; the Town of Chester to the east; the towns of Londonderry and Derry to the south; and the Town of Hooksett and City of Manchester to the west. It is located 23 miles southeast of the City of Concord and about 23 miles northeast of the City of Nashua. New Hampshire Routes 101, 121, and 28 Bypass provide primary highway access to the Town.



Location Map of Auburn, New Hampshire

Auburn encompasses a total of approximately 28.8 square miles, of which 25.4 square miles is land area. The 2010 U.S. Census population of Auburn was 4,953, and the most recent population estimate, 2015, for Auburn is 5,292. This is approximately 208 persons per square mile. (NHOEP)

Auburn has retained over time its natural and rural quality. Auburn's predominant land use is residential while commercial and industrial uses comprise a small amount of the Town's area. (Town of Auburn 2002 Master Plan I-1)

Auburn's topography is characterized by its hills, low mountains, broad valleys and multitude of large ponds and lakes. The area is typified by a combination of ice-carved bedrock geology and other surface areas with deep glacial deposits. The bedrock outcrops are composed of metamorphic rock, which pose a significant constraint on development, requiring blasting for foundation and footing construction and complicating septic design. Other upland areas of Auburn have a layer of unstratified drift or glacial till, typically composed of a mixture of sand, silt, clay and gravel, covering bedrock. The valleys and shorelines are characterized by stratified drift material, consisting of silt, sand and gravel deposited by the meltwaters of a retreating glacial ice sheet. Additionally, swampy areas, which serve as the headwaters for the many streams in the area, occur in low, poorly drained areas and are typically associated with Auburn's wetlands. (Ibid VIII-3)

The major water body in Auburn is Massabesic Lake, covering just over three square miles. Tower Hill Pond, Spruce Lakes, Little Massabesic Lake, Calef Pond and Clark Pond, all in Auburn, cover another .275 square miles, or 176 acres. Major watercourses in northern Auburn include Maple Falls Brook, Neal Brook, Clark Pond Brook, Hook Brook, Murray Mill Brook, Preston Brook, Sucker Brook, and Little Massabesic Brook. Cohas Brook runs from Londonderry, through the southern part of Auburn and into Chester at the east.

The climate of Auburn is typical of southern New Hampshire, with warm summers and cool winters. Temperatures during the month of July range from an average high of 82.1 degrees Fahrenheit to an average low of 54.6 degrees. January temperatures range from an average high of 32.3 degrees to an average low of 5.2 degrees. Prolonged periods of severe cold are rare. Annual average precipitation is 39.82 inches. (Golden Gate Weather Services)

Current Land Use Development Trends in Auburn

The total land area of Auburn is 18,437.8 acres. As of 2018, 8,454.9 acres, or 45.9 percent of land was developed. Of the total land area, 4,001 acres, or 21.7 percent, is public land, most of which includes lands owned by the Manchester Water Works. Lake Massabesic and its watershed area is mostly located in Auburn. The lake serves as the public water supply for Manchester and many of the surrounding towns. The next greatest amount of developed land is dedicated to residential use, accounting for 3,635.3 acres, or 43 percent of all developed land. Almost all residential acreage is in single-family use. Other residential acreage is relatively insignificant in quantity. In 2009, streets and utilities comprised 564.9 acres or 6.6 percent of developed land; industrial uses totaled 44.3 acres, or 0.5 percent of developed land; commercial land areas included 189.8 acres or 2.2 percent of developed land; and semi-public uses accounted for 19.7 acres or less than 0.3 percent of developed land.

Auburn continues to be the most rural of the five towns immediately surrounding Manchester. This characteristic is largely attributable to the 4,001 acres around Lake Massabesic in Manchester Water Works ownership, the small size of Auburn Village and the lack of direct highway access from most of the town to downtown Manchester. [1]

Historically, the growth in town has been predominately single-family residential development. This trend continued through the 1990s and into the present. Much of the recent residential development has been occurring in the southeastern area of town. Many of these new residential developments occurred in previously undeveloped, rural areas and required the construction of new roads for access. Auburn's land use today can be described as follows:

1. Rural residential development dispersed throughout town consisting of single-family detached homes on individual lots and in new subdivisions and cluster residential developments.
2. Limited agriculture and forestry uses
3. Two industrial areas
4. A small, compact Village Center
5. Large land holdings owned by Manchester Water Works
6. Recreational uses around Massabesic Lake

The dispersion of new residential dwellings, traditional subdivisions and cluster subdivisions throughout the rural areas of the community are a major land use trend happening in Auburn. The Town has experienced continued steady growth

[1] Southern New Hampshire Planning Commission Land Use Report 2009

over the past few years. [2] Existing and Future Land Use Maps are in the Appendix on pages 147 and 148.

There were 1,822 households in Auburn according to the 2010 Census. From 2010 to 2015, Auburn saw an estimated increase of 186 dwelling units, demonstrating a 10.2% increase during that time period. From 2012 to 2017, the town saw a rise of 276 residential units in subdivisions permitted as outlined in the table below. Single family residential makes up 94% of Auburn's housing stock, with duplex/multi-family at 5% and manufactured housing at 1%.[3]

Development Name	Location	Map & Lot	No. of Units	Year
Wethersfield	Wilson's Crossing Rd and Windsor Dr	2-3	50	2012
Hawthorn Drive	Hawthorn Dr	5-69	32	2014
Copley Court	Copley Court and Dearborn Rd	8-29	13	2015
Tilton Place	Nathaniel Way and Chester Rd	5-104	26	2016
Saddle Hill	Ledgewood Drive and Lovers Lane	8-2	26	2016
Dearborn Woods	Freedom Lane and Dearborn Road	8-42	19	2016
Village at Mount Minder	Cedar Crest Lane and Harvard Av	9-28.1	51	2017
Cohas Preserve	Haven Drive and Pingree Hill Rd	5-29	23	2017
Anderson Way	Anderson Way and Pingree Hill Rd	5-19	9	2017
Long Pond	Juniper Circle and Lovers Lane	8-25	27	2017
			276	

The Town of Auburn's existing Zoning Ordinance, Floodplain Development Regulations, and Subdivision and Site Plan Regulations all work to minimize the impacts, if not eliminate any development in the flood hazard areas. Within the floodplain district, no new development is allowed without a variance, which would increase flood levels during the occurrence of a 100-year flood event. These programs are further outlined in Section IV "Existing Mitigation Strategies and Proposed Improvements."

The land outside of the special flood hazard areas and areas of steep slopes remain the preferred location of development in Auburn by the town and developers and extensive acreage of vacant developable land still exists outside these areas. Future development, beyond current rates of growth, may increase pressure to utilize these hazard areas, despite their inherent risks. Nonetheless, any proposed new developments or significant improvements in these zones would require variances from the Zoning Board of Adjustments and the Planning

[2] Auburn Master Plan 2007
[3] Southern New Hampshire Planning Commission Housing Needs Assessment 2010

Board. The Town may assure low risk and low impact future development in the hazard zones given these review opportunities.

Overall, the increase in development in town given the latest standards—some of which were priorities from the previous Hazard Mitigation Plan—have increased resiliency and decreased vulnerability. The Town of Auburn takes the hazard mitigation plan goals and considerations into account when performing other planning exercises, whether land use, emergency operations, culvert prioritization, or others.

National Flood Insurance Program

Auburn has been participating in the National Flood Insurance Program (NFIP) since 1986. Currently, new countywide Digital Flood Insurance Rate Maps (DFIRMs), bearing the effective date of May 17, 2005, are used for flood insurance purposes, and are on file with the Auburn Planning and Building Departments. In addition the town has implemented the following actions related to continued compliance with NFIP:

- Establish mutual aid agreements with neighboring communities to address administering the NFIP following a major storm event.
- Address NFIP monitoring and compliance activities
- Revise/adopt subdivision regulations, erosion control regulations, board of health regulations, etc. to improve floodplain management in the community
- Inspect foundations at time of completion before framing to determine if lowest floor is at or above Base Flood Elevation (BFE), if they are in the floodplain
- Require the use of elevation certificates
- Enhance local officials, builders, developers, local citizens and other stakeholders' knowledge of how to read and interpret the FIRM
- Work with elected officials, the state and FEMA to correct existing compliance issues and prevent any future NFIP compliance issues through continuous communications, training and education

Actions associated with continued compliance with NFIP are prioritized with other newly identified mitigation actions in Section V and VI. According to Auburn's most recent NFIP Biennial Report, there were approximately 45 residential structures located in the FEMA designated special flood hazard areas (100-year floodplain), with an approximate population of 306.

The Town currently has 10 NFIP policies in force. Additionally, there has been 1 loss paid and there are no repetitive loss properties.

SECTION III
VULNERABILITY ASSESSMENT

Past and Potential Hazards

The Auburn Hazard Mitigation Committee identified past hazard events, which include flooding, wind, wildfire, ice, snow, and seismic events. Other hazards include geomagnetism, radon, drought, and extreme heat or cold. These hazards were identified in a brainstorming session with the Committee. The State of New Hampshire Hazard Mitigation Plan was consulted, as well as other supporting information derived from the resources listed in Appendix C. The Identified Hazard Zones Map are in Appendix J reflects the impact areas for each hazard. The Committee reviewed background information, areas at risk, and the potential for each hazard to occur, pose a risk to, or cause damage to structures, infrastructure or human life.

1. Assigning Low, Medium, or High values (numerically 1, 2 or 3) to each hazard type for its possible impact to Human, Property, and Business factors (vulnerability). (A score of zero is given if the hazard is considered non-applicable).
2. The same process is used to assign Low, Medium, or High, values (numerically 1, 2, or 3) to each hazard type with respect to the probability that the hazard would occur in the next 25 years
3. The Severity is calculated by determining the average of the Human, Property, and Business impacts.
4. Risk is calculated by multiplying severity by probability.
5. Relative Threat Results: Low, Medium, High risk is assigned as follows:

   (0-3.3 – Low) (3.4-6.6 Med) (6.7-10 High)

Hazard Vulnerability Assessment

0-N/A 1-Low 2-Moderate 3-High	**Human Impact** Probability of death or injury	**Property Impact** Physical losses and damages	**Business Impact** Interruption of Service	**Probability** Likelihood this will occur in 25 years	**Severity** Avg. of humans/ property business	**Relative Threat** Severity-x-Probability
Event						
Flooding						

Flooding (100-YR)	2	2	1	3	1.67	5
Riverine Flooding	2	2	1	3	1.67	5
Hurricanes	1	2	2	1	1.67	1.67
Debris Impacted Infrastructure	1	2	2	3	1.67	5
Erosion/Mudslides	0	0	0	0	0	0
Rapid Snow Pack Melt	0	2	2	3	1.33	4
Dam Breach/Failure	3	3	3	1	3	3
Wind						
Hurricanes	1	2	2	1	1.67	1.67
Tornadoes	1	2	2	1	1.67	1.67
Nor'easter	1	2	2	3	1.67	5
Downbursts	1	1	1	1	1	1
Lightning	2	2	1	3	1.67	5
Fires						
Wild Land Fires	1	1	0	3	.67	2
Target Hazards (Fire)	3	1	1	1	1.67	1.67
Isolated Homes	1	1	0	1	.67	.67
Ice and Snow Events						
Heavy Snowstorms	1	1	2	3	1.33	4
Ice Storms	1	1	2	3	1.33	4
Hailstorms	1	1	2	3	1.33	4
Seismic Events						
Earthquakes	0	0	0	1	0	0
Landslides	0	0	0	0	0	0
Other Hazards						
Geomagnetism	0	0	1	0	.33	0
Drought	0	1	1	1	.67	.67
Extreme Heat	1	0	0	3	.33	1
Extreme Cold	1	2	2	3	1.67	5
Utility Pipe Failure	1	1	1	0	1	0
Terrorism	3	3	3	0	3	0

A. Flooding

The Auburn Hazard Mitigation Committee reviewed the following kinds of hazards related to flooding:

1. Riverine Flooding

Riverine flooding is the most common disaster event in the State of New Hampshire. In recent years some areas in the State have experienced multiple disastrous flood events at recurrence intervals of less than ten years. New Hampshire usually has a climate of abundant precipitation. Weather ranges from moderate coastal to severe continental, with annual precipitation ranging from about 35 inches in the Connecticut and Merrimack River valleys, to about 90 inches on top of Mount Washington. (2013 State Multi-Hazard Mitigation Plan)

"The goal of flood hazard mitigation planning is to eliminate or reduce the long-term risks to human life and property from flooding by reducing the cause of the hazard or reducing the effects through preparedness, response, and recovery measures. Hazard mitigation is the only phase of emergency management that can break the cycle of damage, reconstruction, and repeated damage (NHHSEM 13)." Riverine flooding is the most common and significant hazard event in the State of New Hampshire as well as all of its municipalities.

Some of the more severe flooding in Auburn occurs during the spring, fall, and winter seasons. Spring floods are typically due to rapid snowmelt and heavy rains. Fall floods are frequently caused by heavy rainfall associated with tropical storms. However, Auburn is prone to flooding at all points in the year from heavy thunderstorms, causing rapid runoff and flooding.

From 1973 through the present (April 2018) there have been twenty-two flood-related declared disasters by FEMA. The most recent took place in September 2016. (FEMA, "Federally Declared Disasters by Calendar Year").

In 2005, 2006, 2007 and recently in 2010 Greater Manchester and much of Southern New Hampshire experienced significant flood events. The 2005, 2006, and 2007 events all exceeded 100 year flood recurrence intervals in some or all areas and the frequency of these events in the past 10 years is a major concern for the Town of Auburn along with the rest of the State.

Recurring flood areas and problem culverts at Hook Road (northern segment), Beaver Brook, and Pingree Hill Road that were identified in the previous hazard mitigation plan have been upgraded. The following areas in the Town of Auburn have had past recurring flood problems, including erosion and problem culverts:

Area	Type of Damage	Severity
Lake Massabesic	It has been approximately 15	Severe

	years since the lake has surpassed its shorelines	(although infrequent)
Hook Road – northern segment	Annual flooding causing road damage	Moderate
Bunker Hill Road	Annual flooding causing road damage	Mild
NH Route 121 at Severance Beach	Annual flooding causing road damage	Moderate
Lovers Lane	Annual flooding due to runoff causing basement flooding in structures near the wetland	Mild
Rockingham Road (Approx ½ mile away)	Annual flooding due to undersized culvert causing road damage	Moderate

Hook Road – northern segment was replaced with 2 large culverts since the last plan update. Also, the State installed a new culvert at NH Route 121 at Severance Beach in 2014 because the lake's bank exceeded Severance Beach; however, it has not resolved the problem there.

All Special Flood Hazard Areas (SFHAs) in the Town of Auburn are potentially at risk in the event of riverine flooding. The SFHAs are located on the Identified Hazard Zones Map at the end of this section.

High probability for riverine flooding to occur and cause damage in Auburn.

2. Hurricanes

The primary threats associated with hurricanes come from flooding due to a coastal storm surge, inland flooding due to heavy precipitation and severe winds. Hurricanes are known for their high winds and the damage they can cause, but about 80 percent of deaths during hurricanes are due to drowning.

The largest recorded hurricane to strike New Hampshire was the Great New England Hurricane of 1938, which caused $22 million (in 1938 dollars) in direct damage and killed 13 people. A repeat of this event today would be devastating. The state's population has more than doubled since 1938 and much of that population growth has been in areas near the coast or inland waterways. There are many more people in harm's way today. New Hampshire also lacks a statewide building code to enforce wind-resistant construction standards.

Hurricane Bob dealt New Hampshire a glancing blow in 1991 yet still was responsible for $2.5 million in damage and three deaths. It is important to note that tropical storms below hurricane intensity have been responsible for some of the worst inland flooding experienced in the Northeast. Moving slowly and carrying lots of moisture, tropical storms can produce rain of several inches per hour. Even though hurricanes tend to lose intensity and their winds diminish as they move north, the heavy rain they bring can still be dangerous. (2013 State Multi-Hazard Mitigation Plan)

From 1938 to 1999 there were 10 hurricanes or tropical storms in New Hampshire (State of New Hampshire Natural Hazards Mitigation Plan 2007, p. III-30). The September 1938 hurricane was a more notable flooding event to strike Auburn and other municipalities in southern New Hampshire. Hurricanes Carol and Edna caused some damage in August and September 1954. Potential effects of a hurricane include flooding, runoff not handled adequately, and disrupted travel. The most recent hurricanes were: August 2011 – Irene, October 2012 – Sandy, and October 2016 - Matthew. During these events trees and power lines came down, and there was minimal structural damage.

All areas of the Town of Auburn are potentially at risk if a hurricane reaches Rockingham County, New Hampshire.

Moderate probability for hurricanes to occur and cause flood damage in Auburn.

3. Debris-impacted infrastructure and river ice jams

Debris carried by floodwaters can significantly compromise the effectiveness of otherwise adequately designed bridges, dams, culverts, diverting structures, etc. Storm debris carried by floodwaters may exacerbate a given flooding hazard by becoming obstructions to normal storm water flow. Culverts and bridge crossings that are undersized in relation to the river or stream in which they are contained can lead to sedimentation and debris accumulation, potentially causing structural failures and major flooding downstream. (2013 State Multi-Hazard Mitigation Plan)

The potential effects of flooding are increased when infrastructure is obstructed either by debris or ice formations. These obstructions compromise the normal stormwater flow, creating an artificial dam or narrowing of the river channel causing a backup of water upstream and forcing water levels higher. Debris obstructions can be caused from vegetative debris, silt, soils, and other riparian structures that have been forced into the watercourse. Ice jams are caused by ice formations "in riverbeds and against structures." (NHHSEM 13, 16) Bridges,

culverts, and related roadways are most vulnerable to ice jams and debris-impacted infrastructure.
Historically, floods in Auburn have been due to snowmelt and heavy rains in conjunction with debris-impacted infrastructure. If flooding occurs in the Town of Auburn, there is the potential for debris-impacted infrastructure and ice jams to cause damage. Debris obstruction problems have occurred at the culvert on Hook Road. In 2003, flooding and debris obstruction caused the culvert to fail. Occasionally, beaver dams obstruct culverts and watercourses; however, they are removed as soon as they are discovered to avoid any potential associated flooding. Areas that have persistent beaver issues include Priscilla Lane and Raymond Rd.

All Special Flood Hazard Areas in the Town of Auburn are potentially at risk if there is an ice jam or debris-impacted infrastructure. Particular concern should be given to bridges along the many brooks in Auburn including Maple Falls, Clark Pond, Little Massabesic, Hook, Murray Mill, Preston, Neal and Cohas Brooks.

Moderate probability for debris-impacted infrastructure or ice jams to occur and cause damage in Auburn.

5. Rapid snowpack melt

The State's climate, mountainous terrain increases the susceptibility to flooding which may be accelerated by the seasonal rapid melting of the snowpack, coupled with moderate temperatures and heavy rains. The upland areas may be exposed to associated erosion and deposition issues in or near streambeds. The lower-lying areas of the State may experience either flash-flooding or inundation events accelerated by the rapid melting of the snowpack. (2013 State Multi-Hazard Mitigation Plan)
Structures and improvements located on, along, or at the base of steep slopes are most vulnerable to rapid snowpack melt. These areas can be seen on the Identified Hazard Zones GIS map's depiction of steep slopes. There have been no known past rapid snowpack melt events in the Town of Auburn that the Hazard Mitigation Committee was aware of.

All areas of steep slopes, as mapped in this *Plan*, are potentially at risk in the event of rapid snowpack melt.

Low to moderate probability for rapid snowpack melt to occur and cause damage in Auburn.

6. Dam breach or failure

Dams can sustain damage during an unusually heavy rain event or a rain event that occurs in conjunction with runoff produced during the spring thaw, which can stress a dam beyond its design capabilities. An example would be if a storm event produced more runoff than a dam's outlet works (spillways and gates, etc.) could pass. (2013 State Multi-Hazard Mitigation Plan)

The State of New Hampshire uses a hazard potential classification based on the impact of dam breach or failure. All Class H and S dams have the potential to cause damage if they breach or fail. Auburn has eight Class NM dams (non-menace or no hazard potential), four Class L dams (low hazard potential), and one Class H dam (high hazard potential). There are no Class S dams (significant hazard potential). The dam classes are defined in Appendix B. (NHDES Dam Bureau, "Dams")

"The Department of Environmental Services (DES), through its Dam Bureau, is charged with the responsibility of ensuring the public safety as it relates to the regulation of dams (NHHSEM 17)." Per RSA 482:2 and RSA 482:12, all owners of Class H and S dams are required to submit an Emergency Action Plan to NHDES as well as other applicable agencies in the State. (NHDES Dam Bureau, Environmental Fact Sheet DB-11)

Auburn's Class H dam, owned by Manchester Water Works, is located at Tower Hill Pond at Maple Falls Brook, along the northern limits of the Town. The inundation area spans from the dam itself at the northern limits to the Town Center and Raymond Road at the south, just east of Hooksett Road at the west, and crossing Chester Road at the east. The inundation area includes Clark Pond, Little Massabesic Lake, marshlands, and preserved undeveloped land owned by Manchester Water Works. The road network for the most part circumscribes this area with little development at risk. A portion of the Village School property (not structure) is located in the inundation area.

Floodwaters would instantaneously begin to rise at the dam taking only 30 minutes to reach a peak elevation of 305 feet. At the southern limit of the inundation area, it would take 1.5 hours for the water level to begin to rise and then an additional two hours to reach a peak level of 255 feet. The Emergency Action Plan should be consulted for detailed information and a map of the inundation area.

There have been no known past dam breach or failure events in the Town of Auburn that the Hazard Mitigation Committee was aware of.

The SFHAs in proximity to Auburn's dams as well as their designated floodways would be impacted by a dam breach**.**

Moderate probability for dam breach or failure to occur and cause damage in Auburn.

B. Wind

The Auburn Hazard Mitigation Committee reviewed the following kinds of hazards related to wind:

1. Hurricanes

Severe hurricanes reaching south-central New Hampshire in the late summer and early fall are the most dangerous of the coastal storms that pass through New England from the south. Tropical depressions are considered to be of hurricane force when winds reach 74 miles per hour (see the following table for hurricane categorization according to the Saffir-Simpson Scale). Substantial damage may result from winds of this force, especially considering the duration of the event, which may last for many hours. Potential effects of hurricane force winds include fallen trees, telephone poles, and power lines.

Saffir-Simpson Hurricane Wind Scale

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph	**Very dangerous winds will produce some damage:** Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph	**Extremely dangerous winds will cause extensive damage:** Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3	111-129 mph	**Devastating damage will occur:** Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4	130-156 mph	**Catastrophic damage will occur:** Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

5	**157 mph or higher**	**Catastrophic damage will occur:** A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Source: National Oceanic and Atmospheric Administration (NOAA)

Winds from the Hurricane of 1938, previously mentioned, reached a high of 186 miles per hour, a category 5 on the Saffir-Simpson Scale. (NHHSEM 56)

All areas of Auburn are at risk if a hurricane reaches Rockingham County, NH.

Moderate probability for hurricane force winds to occur and cause damage in Auburn.

2. Tornadoes

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. These events are spawned by thunderstorms and occasionally by hurricanes. They may also occur singularly or in multiples. Tornados 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 2013 State Multi-Hazard Mitigation Plan)

Tornadoes are measured using the enhanced Fujita Tornado Damage Scale, as seen in the following table (National Oceanic and Atmospheric Administration).

FUJITA SCALE			DERIVED EF SCALE		**OPERATIONAL EF SCALE**	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	**EF Number**	**3 Second Gust (mph)**
0	40-72	45-78	0	65-85	**0**	**65-85**
1	73-112	79-117	1	86-109	**1**	**86-110**
2	113-157	118-161	2	110-137	**2**	**111-135**
3	158-207	162-209	3	138-167	**3**	**136-165**
4	208-260	210-261	4	168-199	**4**	**166-200**
5	261-318	262-317	5	200-234	**5**	**Over 200**

Source: NOAA

Between 1950 and 2010, there were ten known tornadoes in Rockingham County. Two of these were F0, two were F1, five were F2 (August 1951, July 1957, July 1961, May 2006 and July 2007), and one was a F3 (July 1953). (Tornado Project Online) These storms totaled approximately $358,000 in damages across the county (NOAA National Climatic Data Center). There have been no records of notable damage from this hazard since the last Plan update.

All areas of Auburn are potentially at risk if a tornado reaches the Town.

High probability for tornadoes to occur and cause damage in Auburn.

3. Nor'easters

A Nor'easter is a large weather system traveling from South to North, passing along or near the seacoast. As the storm approaches New England and its intensity becomes increasingly apparent, the resulting counterclockwise cyclonic winds strike the coast and inland areas from a Northeasterly direction. In the winter months, oftentimes heavy snow conditions accompany these events. It can form over land or over the coastal waters. These winter weather events are notorious for producing heavy snow, rain, and tremendous waves that crash onto Atlantic beaches, often causing beach erosion and structural damage. Wind gusts associated with these storms can exceed hurricane force in intensity. A nor'easter gets its name from the continuously strong northeasterly winds blowing in from the ocean ahead of the storm and over the coastal areas. " Hazards from nor'easters include icing and heavy snows which cause downed trees and power lines to go down.

Nor'easters are measured on the Dolan- Davis Scale, as seen in the following table.

Dolan-Davis Nor'easter Classification Scale				
Storm Class	**% of Nor'easters**	**Avg. Return Interval**	**Avg. Duration (hours)**	**Impact**
1- WEAK	49.7	3 days	8	No property damage
2- MODERATE	25.2	1 month	18	Modest property damage
3- SIGNIFICANT	22.1	9 months	34	Local-scale damage and structural loss
4- SEVERE	2.4	11 years	63	Community scale damage and structural loss
5- EXTREME	0.1	100 years	95	Extensive regional-scale damage and structural loss

Source: State of NH Natural Hazards Mitigation Plan and NC Division of Emergency Management

All areas of Auburn are potentially at risk for property damage and loss of life due to nor'easters.

High probability for nor'easters to occur and cause wind damage in Auburn.

4. Downburst

"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. Depending on the size and location of these events, the destruction to property may be devastating. Downbursts fall into two categories. Microbursts cover an area less than 2.5 miles in diameter, and macrobursts cover an area at least 2.5 miles in diameter (NHHSEM 59)"

More recent downburst activity occurred on July 6, 1999 in the form of a macroburst within central New Hampshire; throughout Merrimack, Grafton and Hillsborough Counties. There were two fatalities as well as two lost roofs, widespread power outages, and downed trees, utility poles and wires. The following table is from the 2013 State Multi-Hazard Mitigation Plan.

State of New Hampshire Micro/Macroburst Historic Events

Location(Town or Counties)	Date	Type	Damages
Town of Stratham	08/18/1991	Microburst	11 Injured, 5 fatalities and $2,498,974 in damages
Town of Moultonborough	07/26/1994	Microburst	Downed trees, utility poles and wires, 1800 homes without power, and 50 – 60 houses damaged
Merrimack, Grafton, Hillsborough	07/06/1999	Macroburst	2 fatalities, 2 roofs blown off structures, downed trees, widespread power outages, and damaged utility poles and wires
Town of Bow	09/06/2011	Microburst	City Auto in Bow had 15 campers damaged and estimated $200,000 in damage
Lake Winnisquam, Tilton	07/04/2012	Microburst	Several large trees came down, many landing on homes or parked vehicles. No one was hurt, but there was a lot of damage. Thirty homes were damaged and 12 people spent the night sheltered at a local hotel.
City of Franklin, Webster Lake	10/30/2012	Microburst	Several large trees came down, landing on two summer homes, completely demolishing one. No injuries were reported.

All locations in Auburn are at risk for property damage and loss of life due to downbursts. The Hazard Mitigation Committee is not aware of any confirmed downburst events in the Town of Auburn since the last plan update.

Moderate probability for downbursts to occur and cause damage in Auburn.

5. Lightning

Lightning is a giant spark of electricity that occurs within the atmosphere, or between the atmosphere and the ground. As lightning passes through the air, it heats the air to a temperature of 50,000 degrees Fahrenheit, considerably hotter than the surface of the Sun. During a lightning discharge, the sudden heating of the air causes it to expand rapidly. After the discharge, the air contracts quickly as it cools back to ambient temperatures. This rapid expansion and contraction of the air causes a shock wave that we hear as thunder, a shock wave that can damage building walls and break glass. In the United States, it is reported that an average of 54 people are killed by lightning annually. (2013 State Multi-Hazard Mitigation Plan)

There were three recorded lightning strikes in the Town of Auburn. The first occurred in June of 1999 when lightning struck a 50 by 75 foot shed, causing a fire that destroyed the building. Damages were estimated at $30,000. The second event struck a tall pine tree, causing the top of the tree to fall on a house porch during August of 1999. Damages to the porch were estimated between $5,000 and $10,000. This second storm also caused damages in other Rockingham County communities. The third lightning strike damaged several structures in Auburn during a July of 2002 event that caused $5,000 worth of damage throughout the county and into the surrounding towns of Merrimack and Strafford Counties (NOAA National Climatic Data Center). Since the previous plan update, there have been sporadic occurrences suggestive of a lightning strike such as fallen tree limbs; however, it is unclear whether or not these incidents were caused by a lightning strike or a different hazard type.

Lightning can be measured to determine how likely it may be for starting fires. Using a Level system of 1 to 6 corresponding with storm development and the number of lightning strikes, the Lightning Activity level (LAL) measures the magnitude of lightning strikes as displayed in the below table Lightning Activity Level (LAL)

Level	LAL Cloud and Storm Development	Cloud to Ground Strikes per 5 Minutes	Cloud to Ground Strikes per 15 Minutes
LAL 1	No thunderstorms	n/a	n/a
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five minute period.	1 to 5	1 to 8
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10	6 to 10	9 to 15

	cloud to ground strikes in a 5 minute period.		
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a 5 minute period.	11 to 15	16 to 25
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.	>15	>25
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.	6 to 10	9 to 15

Source: National Weather Service

All areas of Auburn are potentially at risk for property damage and loss of life due to lightning. There were some fallen tree limbs since the last plan update; however, it's unclear whether they were from lightning or a different hazard type.

Moderate probability for lightning to occur and cause damage in Auburn.

C. Fires

The Auburn Hazard Mitigation Committee reviewed the following kinds of hazards related to fires:

1. Wild Land Fires

Wildfire is defined as any unwanted and unplanned fire burning in forest, shrub or grass and is 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 land-use practices, fire suppression and fire exclusion.

New Hampshire is a heavily forested state and is therefore vulnerable to this hazard, particularly during periods of drought and/or large- scale natural disturbances causing unusual fuel buildup. The proximity of many populated areas to the State's forested lands exposes these areas and their populations to the potential impact of wildfire. The Granite State is the second most forested state in the United States (trailing Maine). Forests occupy 84 percent, or 4.8 million acres. The southern portion of the State has seen rapid commercial and residential development which has extended into previously forested areas. Although this development has slowed, this sprawl has created its own concerns regarding the increased risk of damage in the wildland-urban interface. In a study conducted by the United States Forest Service in 2006, New Hampshire was ranked as having the highest percentage of homes in the wildland-urban interface of any state in the nation. Present concerns are that the Ice Storm of

2008 has also left a significant amount of woody debris in the forests of the region and may fuel future wildfires. (2013 State Multi-Hazard Mitigation Plan)
The Town of Auburn has two fire stations serving approximately 29 square miles. The Safety Complex also serves as the Emergency Operations Center and the Police Department. Its facilities include space for six apparatus, including one engine, two tankers, one rescue vehicle, one forestry truck and one boat, radio dispatch, tool room, meeting room, classroom, and offices. There is additional space to accommodate the future expansion of the fire department and emergency operation services.

Station One, located at the south end of Auburn, houses space for an additional six apparatus including one car, two engines, two forestry trucks, and the Gator. Like the Safety Complex, there is another meeting room, offices, secondary dispatch, and a tool room.

Data pertaining to fires can be found in the Auburn Annual Town Reports. There was a total of 202 fires from 2007-2010, including tree, brush, and grass fires, structure fires, vehicle fires, and other fire types including controlled burns, cooking, trash, or refuse fires, and other unauthorized burns. There was an average of 51 fires a year. An example summary of data from 2007-2010 is provided as follows.

	Number of Responses				Annual
Fire Type	2007	2008	2009	2010	**Average**
Structure Fire	23	18	23	22	22
Tree, Brush, or Grass Fire	19	5	11	14	12
Vehicle Fire	4	4	2	6	4
Other Fires	13	15	14	9	13
Total Number of Fires	**59**	42	50	51	51
HazMat, Gas Leaks, and Downed Power Lines	27	25	22	50	31
EMS Responses	221	189	193	255	215
All Other Responses	244	217	265	182	227
Total All Fires and Responses	**551**	**473**	**417**	**542**	496
Total Estimated Property Loss	$1,391,530	N/A	$142,000	$244,800	$444,582.50

The potential magnitude of a hazard event, also referred to as the extent, scale or strength of a disaster, provides a measurement of how large and significant a hazard can become. The Table below shows the National Wildfire Coordinating Group (NWCG) Size Fire Classification.

National Wildfire Coordinating Group (NWCG) Size Fire Classification	
Class A	1/4 acre or less

Class B	More than 1/4 acre, but less than 10 acres
Class C	10 acres or more, but less than 100 acres
Class D	100 acres or more, but less than 300 acres
Class E	300 acres or more, but less than 1,000 acres
Class F	1,000 acres or more, but less than 5,000 acres
Class G	5,000 acres or more

In the Town of Auburn, the following areas are susceptible to wild land fires:

- All new developments (when trees are cut, soil dries leaving dead grass)
- Pingree Hill Road and Silver Hill
- Dearborn Road near Chester Turnpike
- Lake Massabesic area and Manchester Water Works land
- 28 Bypass from Parker Farm to the Londonderry Town Line

These areas have been identified on the Identified Hazard Zones GIS map. There have not been any wildfires of note since the 2011 plan update.

High probability for wild land fires to occur and cause damage in Auburn.

2. Target Hazards

Target Hazards are facilities or areas of town that require a greater amount of pre-fire tactical planning to address emergencies larger than the average fire event. In the Town of Auburn, a couple areas have high concentrations of either combustible or hazardous materials which, were a fire to occur, could increase the severity of the fire and possibly have catastrophic results.

In the Town of Auburn, the following areas are susceptible to target hazard related fires:

- Explosive bunkers at Maine Drilling and Blasting and Green Mountain Explosives off of Goldedge Drive
- Propane bulk storage off 28 Bypass near Priscilla Lane

These areas have been identified on the Identified Hazard Zones GIS map.

Moderate probability for target hazard related fires to occur and cause damage in Auburn.

3. Isolated Homes

Isolated homes are more susceptible to the impacts of wildfire due to the challenges of reaching them with fire-fighting capabilities. Isolated homes are a concern for New Hampshire, as it is heavily forested and there has been an increase in the urban-wildlife interface as towns develop and grow.

The Town of Auburn has several unpaved private roads with homes located along Lake Massabesic. Many of the roads are very narrow and poorly maintained. One home on Shore Drive had a fire in December of 2004 and because of the poor road conditions only one fire truck could access the home. Additional water had to be pumped into the area and personnel had to walk to the site.

In the Town of Auburn, the following areas have isolated residential developments:

- Shore Drive
- Fox Lane
- Deerneck Lane
- Deschenes Lane

These areas have been identified on the Identified Hazard Zones GIS map.

Low probability for isolated homes to be damaged in Auburn.

D. Ice and Snow Events

The Auburn Hazard Mitigation Committee reviewed the following kinds of hazards related to ice and snow events:

1. Heavy Snowstorms

A heavy snowstorm is generally considered to be one that deposits four or more inches of snow (or 10 cm) in a twelve-hour period. A blizzard is a violent snowstorm with winds blowing at a minimum speed of 35 miles (56 kilometers) per hour and visibility of less than one-quarter mile (400 meters) for three hours. A Nor'easter is a large weather system traveling from south to north, passing along the coast. As the storm's intensity increases, the resulting counterclockwise winds which impact the coast and inland areas in a Northeasterly direction. Winds from a Nor'easter can meet or exceed hurricane force winds. (2013 State Multi-Hazard Mitigation Plan)

For the intents of this *Plan*, heavy snowstorms include all storms with four or more inches of snow in a 12-hour period, including all blizzards and nor'easters with large snow accumulation.

Since 2000, the Federal Emergency Management Agency declared 11 snowstorm-related Emergency Declarations for Rockingham County. The following is a table of all snowstorm related declared storms from 2000 to the present.

Disaster Type	Date	Declared County/Area
Severe winter storm and snowstorm	3/13/2018	Rockingham

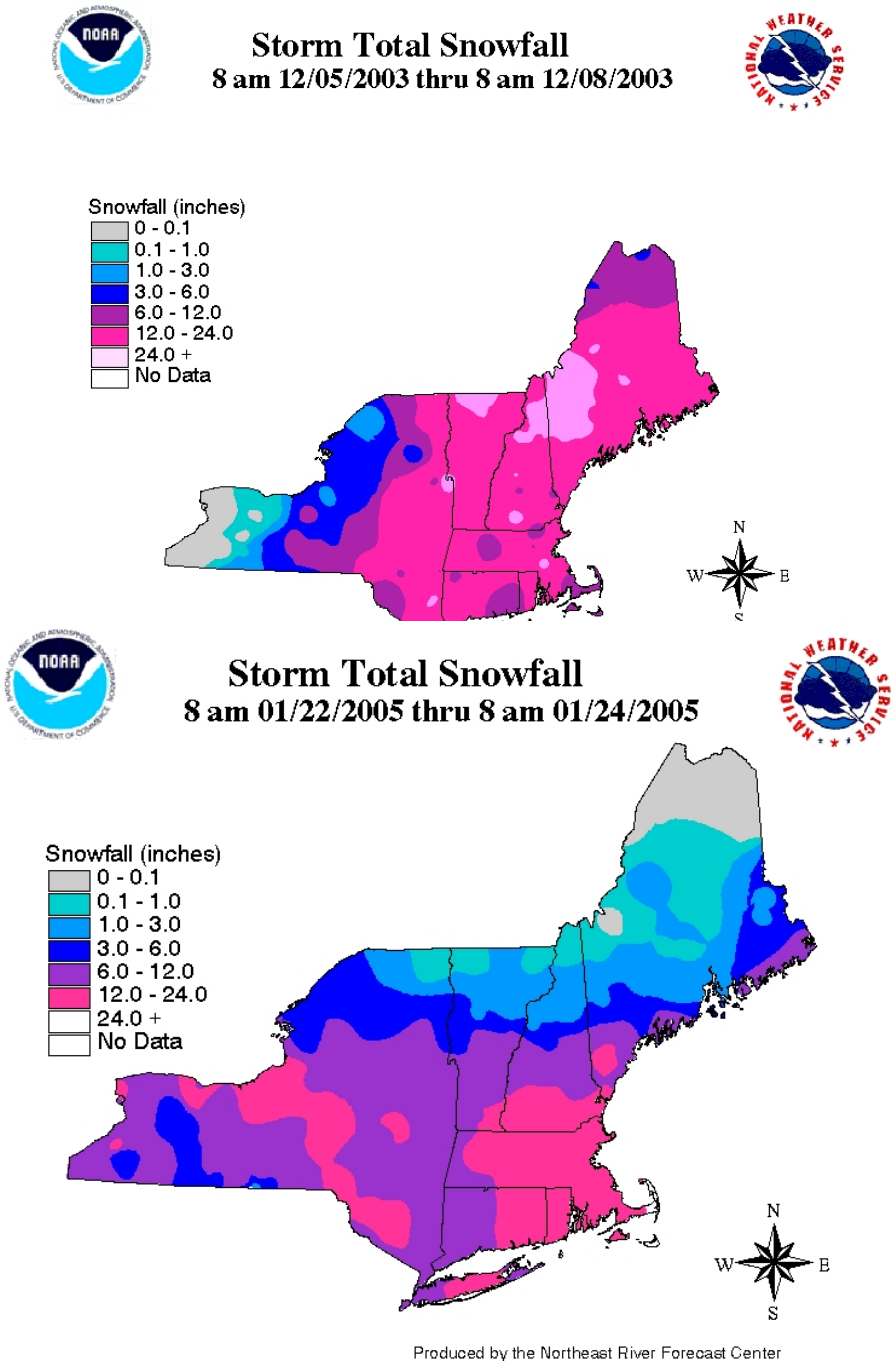
Severe winter storm and snowstorm	1/26/2015	Rockingham
Severe winter storm and snowstorm	2/8/2013	Rockingham
Severe winter storm and snowstorm	10/29/2011	Rockingham
Severe winter storm	2/23/2010	Rockingham
Severe winter storm	12/11/2008	Rockingham
Severe winter storm	12/11/2008	Rockingham
Record snowfall	3/11/2005	Rockingham
Record and/or near record snowfall	1/22/2005	Rockingham
Record snowfall	2/17/2003	Rockingham
Record snowfall	3/5/2001	Rockingham

In the past 17 years, the Federal Emergency Management Agency declared six snowstorm-related Emergency Declarations for Rockingham County. The first was declared by FEMA in March of 1993 for statewide heavy snow. The second was for snowstorms during March of 2001 covering seven of the state's 10 counties. (FEMA, "Federally Declared Disasters by Calendar Year")

The third declared emergency was for a snowstorm on February 17-18, 2003. This storm accumulated approximately 11 inches of snow in Auburn by 9 am on February 18. (National Weather Service, "Winter Weather Summaries") This snow was added to an existing base of snow to create an approximate snow depth of 29 inches (National Weather Service, "Climate Data").

The fourth declared emergency was on December 6-7, 2003. This emergency was declared for eight of 10 New Hampshire counties. The storm accumulated approximately 20 inches of snow in the Auburn area and winds were measured at up to 39 miles per hour (National Weather Service, "Winter Weather Summaries"). Following is a map depicting snowfall during this storm.

The last declared emergency declared emergency was for January 22-23, 2005 and was declared for all New Hampshire counties, except Coos. The storm accumulated 19.5 inches of snow on top of an existing six-inch snow depth. (National Weather Service, "Winter Weather Summaries" and "Climate Data")



Source: National Weather Service Forecast Office, http://www.erh.noaa.gov/er/gyx/storm_map_120503_120803.jpg

Source: National Weather Service Forecast Office, http://www.erh.noaa.gov/er/gyx/storm_map_012405.jpg

All areas of Auburn are potentially at risk for property damage and loss of life due to heavy snows.

High probability for heavy snowstorms, blizzards, and nor'easters to occur and cause damage in Auburn.

2. Ice Storms

"When a mass of warm moist air collides with a mass of cold arctic air, the less dense warm air will rise and the moisture may precipitate in the form of rain. When this rain falls through the colder more dense air and encounters cold surfaces, the latent heat of fusion is removed by connective and/or evaporative cooling. Ice forms on these cold surfaces and may continue to form until the ice is quite deep, as much as several inches.

Auburn, including the rest of New Hampshire and much of the Northeast, experienced an intense ice storm from December 11-12, 2008. A major disaster declaration was declared for 10 counties in New Hampshire, including Rockingham. The damage was widespread and approximately 400,000 residents of New Hampshire lost power from the storm. Restoring power to a majority of the State took approximately 14 days and in some extreme cases it took 17 days.

"It was absolutely unprecedented in devastation. Take the largest number of outages in any past storm, multiply that figure by three, and it still won't equal the outages in the 2008 ice storm." PSNH spokesman, Matt Chagnon, went on to say that, "the response was as unprecedented as the storm itself. PSNH put 2,400 linemen to work. On average, they restored power to 28,000 customers a day."[4] *The 2008 ice storm is believed to be the worst ice storm ever recorded in New Hampshire.*

All areas of Auburn are potentially at risk for property damage and loss of life due to ice storms.

High probability for ice storms to occur and cause damage in Auburn.

3. Hailstorms

Hailstorms are characterized by showery precipitation in the form of irregular pellets or balls of ice more than five mm in diameter, falling from a cumulonimbus cloud (NOAA. National Weather Service. Glossary. http://w1.weather.gov/glossary/index.php?letter=n. 02-06-14).

[4] Sullivan, Margo. *State, power companies explore ice storm response*. 12/29/08. http://www.eagletribune.com/punews/local_story_364030134.html

"Most hailstones are smaller in diameter than a dime, but stones weighing more than a pound have been recorded. Details of how hailstones grow are complicated but the results are irregular balls of ice that can be as large as baseballs, sometimes even bigger. While crops are the major victims, hail is also a hazard to vehicles and windows. Hail damage events can be severe to persons, property, livestock and agriculture (Ibid)."

Between 1963 and 1994 the National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center (NCDC) online database has recorded 11 hail storms in Rockingham County. Storms occurred during the months of June, July, and August. Several isolated hailstones have occurred in surrounding communities since 1994. Hailstone diameters recorded ranged from .75 to 1.75 inches.

All areas of Auburn are potentially at risk from this hazard.

Moderate probability for hailstorms
to occur and cause damage in Auburn.

The Hail Size Description Chart developed by the National Oceanic and Atmospheric Administration (NOAA) and enhanced by other National Weather Service local sites depicts the potential size of hail during a hurricane or severe storm event. Some examples from the Hail Size Description chart include "1/2 inch=Pea Size" and "2 inches=Hen Egg Size."

Hail Size Description

Hailstone Diameter in Inches	Size Description
<1/4	Bb
¼	Pea Size
½	Mothball Size
¾	Penny Size
7/8	Nickel Size
Severe Criteria 1	Quarter Size
1 ¼	Half Dollar Size
1 ½	Walnut or Ping Pong Ball Size
1 ¾	Golf Ball Size
2	Hen Egg Size
2 ½	Tennis Ball Size
2 ¾	Baseball Size
3	Teacup Size
3 4/5	Softball Size

4	Grapefruit Size
4 ¾	CD/DVD
Note: Hail size refers to the diameter of the hailstone.	

Sources: National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS)

Earthquake locations are from the USGS/NEIC PDE catalog.

E. Seismic Events

The Auburn Hazard Mitigation Committee reviewed the following kinds of hazards related to seismic events:

1. Earthquakes

An earthquake is defined as a series of vibrations induced in the Earth's crust by the abrupt rupture and rebound of rocks in which elastic strain has been slowly accumulating. New Hampshire is considered to lie in an area of moderate seismic hazard with respect to other areas within the United States. New Hampshire has had and will continue to experience large damaging earthquakes; however, the intervals between such events are greater in New Hampshire than in high hazard areas.

Earthquakes in New Hampshire cannot be associated with specific, known faults. Though there are no identified active faults in New Hampshire, no doubt that there are active faults located beneath the surface. With that said, there is a "zone" that extends from north of the Lakes Region south along the Merrimack River into Massachusetts where most New Hampshire earthquakes have occurred. New Hampshire is in the low attenuation of seismic waves in the eastern United States. Attenuation is a term in physics that means the slow loss of intensity of flow through any kind of medium. Seismic waves can cover an area 4 to 40 times greater in the east than they do in the west because of the cold hard rock geology of New Hampshire. The importance of this to emergency planning and response is that damages can be expected to be spread over a much greater area, and an earthquake's location does not have to be close to a particular point to cause damage. (2013 State Multi-Hazard Mitigation Plan)

There are two scales that measure earthquakes, the Modified Mercalli (MM) and the Richter scales. The Richter scale is a measurement of magnitude of the quake as calculated by a seismograph and does not measure damage. The Modified Mercalli scale denotes the intensity of an earthquake as it is perceived by humans, their reactions, and damage created. It is not a mathematically based

scale but a ranking of perception. (USGS) Refer to page 41 of the State of New Hampshire Natural Hazards Mitigation Plan for detailed descriptions of each.

One of New England's more notable seismic zones runs from the Ossipee Mountain area of New Hampshire, through the Auburn area, and continues south toward Boston, Massachusetts. This particular area has a mean return time of 408 years for a 6.0 Richter scale earthquake or a 39 percent probability of occurrence in 200 years. Additionally for a 6.5 Richter scale quake, there is a mean return time of 1,060 years or a 17 percent probability of occurrence in 200 years. (Pulli) When New England is generalized as a whole for earthquake probability estimation, the risk increases from the specific hazard zone noted above. For New England there is an estimated return time of every 10 years for an earthquake with a 4.6 Richter scale magnitude and 1000 years for 7.0 magnitude. (NHHSEM 43)

From 1728 to 1989, there were 270 earthquakes in New Hampshire. This averages to approximately one quake per year. There were six quakes over 4.0 on the Richter scale during the 1900s. (Ibid 39-42) The most recent earthquake recorded in New Hampshire was on January 3, 2011, 20 miles NNW of Laconia, New Hampshire, with a magnitude of 2.5 on the Richter scale (USGS Earthquake Hazards Program). There have not been any earthquakes since the last Plan update.

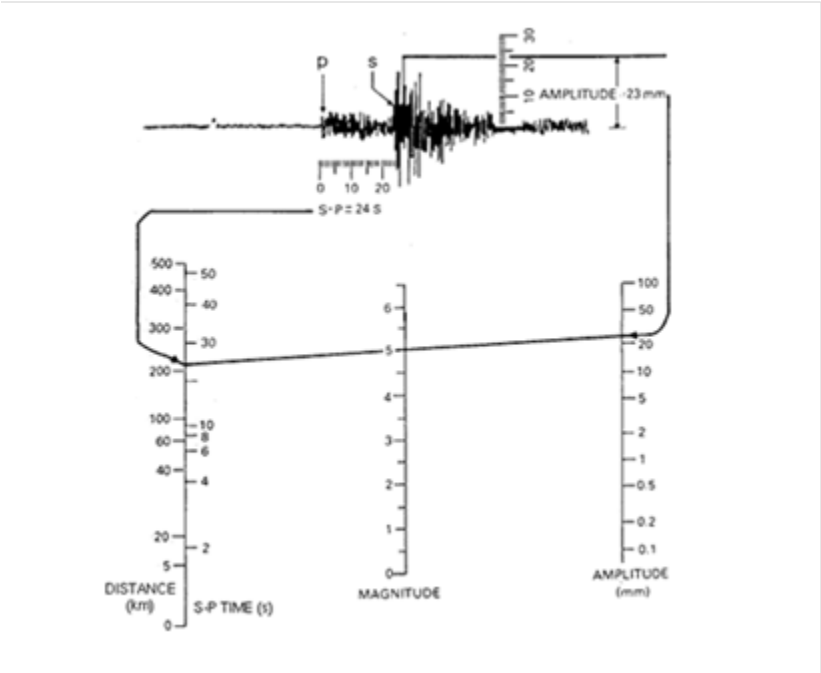
Modified Mercalli Scale

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest,especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.

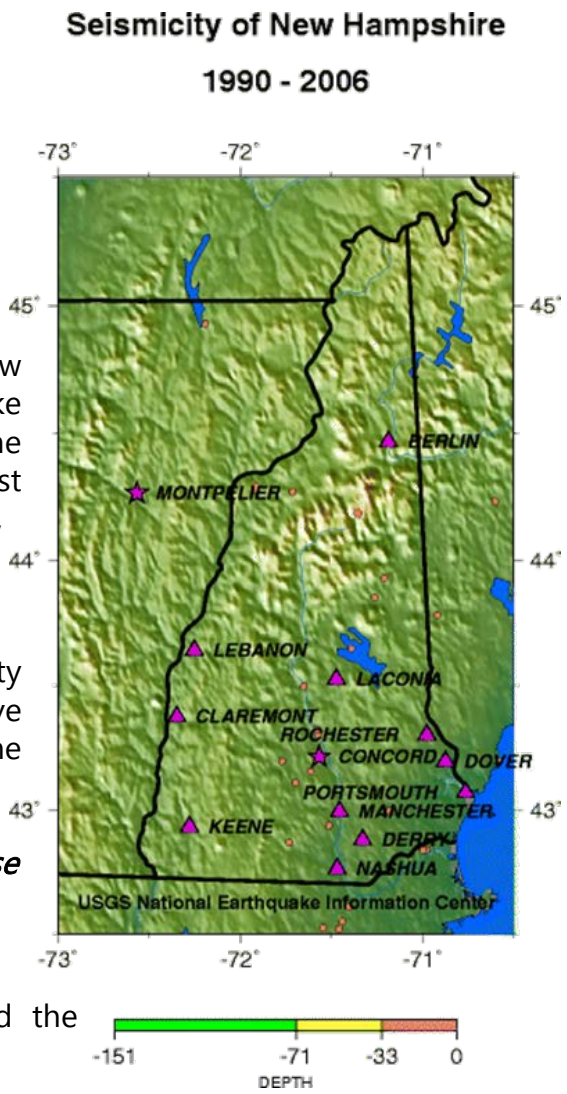
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

Source: United States Geological Survey

Richter Scale



Source: USGS



Depth is in kilometers.
Purple Triangles: Cities
Purple Star: Capital City
Circles: Earthquakes (color represents depth range)
Earthquake locations are from
the USGS/NEIC PDE catalog.

From 1728-1989, there were 270 earthquakes in New Hampshire. This averages to approximately one quake every year. There have been six quakes over 4.0 on the Richter scale during the 1900s (Ibid 39-42). The most recent quake occurred on June 9, 2010, near Berlin, New Hampshire, with a magnitude of 1.8 on the Richter scale (USGS Earthquake Hazards Program).

All areas of Auburn are potentially at risk for property damage and loss of life due to earthquakes. There have been no recorded earthquakes that impacted the community of Auburn since the last plan update.

Low probability for earthquakes to occur and cause damage in Auburn.

F. Other Hazards

The Auburn Hazard Mitigation Committee reviewed the following other kinds of hazards:

1. Utility pipe failure

Failure of utility pipe systems, including water, gas, and sewer, can be caused by joint leakage, contamination, pipe fracture or tuberculation. Pipe fractures are the most costly and potentially damaging of the failure modes. (Makar 2) Fractures can be caused by blunt force (e.g. construction digging) or ground shifting caused by the natural expansion and contraction of freezing and thawing soil during the winter months or from earthquakes. Pipe blocks in sewer systems can cause a buildup of harmful gasses and lead to explosions. (Suffolk County Water Authority)

Potential effects of water main failures can include immediate loss of water supply in the surrounding area, flooding, and road collapse. Sewer main failures can cause sewage backups, effluent leakage, and exposure to harmful bacteria. Leaks in gas mains can lead to fires or explosions if there is either an ignition source or pressure built up in the pipe. Explosions occurring in underground pipes can create craters, and possibly result in death, injuries, and property damage. (National Transportation Safety Board, "Pipeline Accidents")

There are approximately 2.6 miles of water lines in Auburn. Water mains range in diameter from four to 16 inches. Manchester Water Works maintains 20 fire hydrants, nine fire services (6 to 8-inch diameter pipes), and 92 domestic services (¾ to 6-inch pipes) in Auburn. (Manchester Water Works)

During 2004, there were no leaks in the water mains. Manchester Water Works main breaks occur at an approximate frequency of .05 breaks per mile, compared to the national average of .20 breaks per mile.

The developed area immediately north of Lake Massabesic should be considered at risk for utility system failures.

Low probability for utility system failures to occur and cause damage in Auburn.

2. Geomagnetism

The State of New Hampshire Natural Hazards Mitigation Plan defines geomagnetism as "…of, or pertaining to, the earth's magnetic field and related phenomena. Large geomagnetic disturbances commonly known as magnetic storms, if global in scale, or as magnetic substorms, if localized in scale and limited to night time high altitude auroral regions, are of particular significance for electric power utilities, pipeline operations, radio communications, navigation, satellite operations, geophysical exploration and GPS (global positional system) use. (NHHSEM 50)"

Geomagnetism includes both solar wind coupling and magnetic storms. Solar wind coupling is the relationship between solar events and winds with geomagnetic activity within the earth's magnetosphere. "Magnetic storms occur when the radiation belts become filled with energetic ions and electrons. The drift of these particles produces a doughnut shaped ring of electrical current around the earth...Magnetic storms are often initiated by the sudden arrival of a high-speed stream of solar wind, carrying high particle density and high magnetic field. (Ibid)"

High-tension lines and communications towers are at risk in Auburn.

Low probability for geomagnetism to occur and cause damage in Auburn.

3. Drought

A drought is a natural hazard that evolves over months or even years and can last as long as several years to as short as a few months. Fortunately droughts are rare in New Hampshire. The severity of the drought is gauged by the degree of moisture deficiency, its duration and the size of the area affected. The effect of droughts, or decreased precipitation, is indicated through measurements of soil moisture, groundwater levels, lake levels, stream flow and increased fire danger. Not all of these indicators will be minimal during a particular drought. For example, frequent minor rainstorms can replenish the soil moisture without raising ground water levels or increasing stream flow for a sustained period of time.

Low stream flow correlates with low ground water level because it is ground water that discharges to streams and rivers that maintain stream flow during extended dry periods. Low stream flow and low ground water levels commonly cause diminished water supply.

New Hampshire breaks the State into five Drought Management Areas: one in the north; one across the central region; and three along the southern portion of the State. Federal agencies have coordinated to develop the National Drought Monitor which classifies the duration and severity of the drought using precipitation, stream flow, and soil moisture data coupled with information provided on a weekly basis from local officials. The New Hampshire Drought Management Team, whose efforts are coordinated by the NH DES, utilizes these maps to help determine which areas are hit the hardest. NH DES also maintains a "Situation Summary" where precipitation, stream flow, groundwater level, lake level and fire danger data from all over the state can be accessed to assess if areas in New Hampshire are being impacted by drought.

There are five magnitudes of drought outlined in the New Hampshire State Drought Management Plan. The highest magnitude is Exceptional, followed by Extreme, Severe, Moderate and Abnormally Dry. Each level has varying responses. (2013 State Multi-Hazard Mitigation Plan)

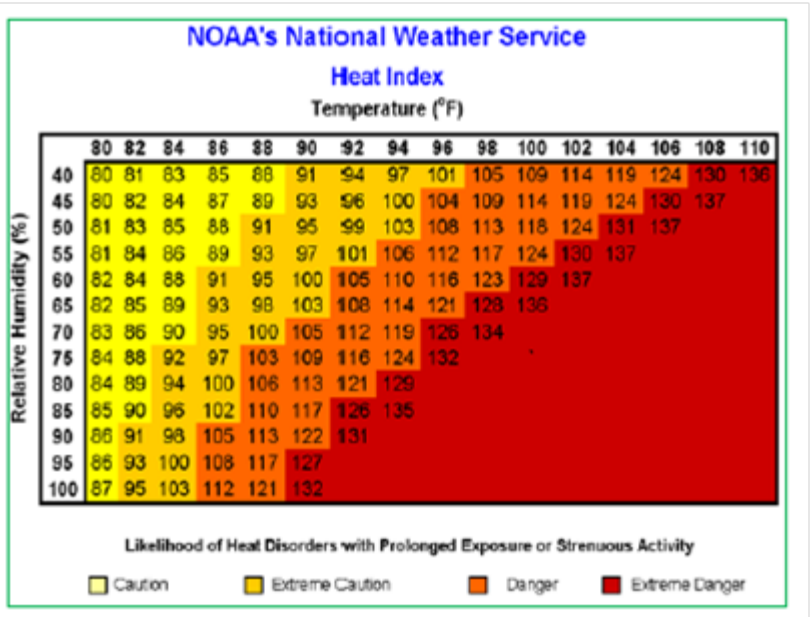
Since the last plan update, New Hampshire has experienced two significant drought periods. In spring of 2012, New Hampshire experienced a statewide drought. In 2016, southern New Hampshire experienced a severe to moderate drought. As of September 1, 2016, Rockingham County experienced a severe drought (NH Drought Management Team: Drought Status in New Hampshire 9/1/2016).

All areas of Auburn would be affected by a drought.

Moderate probability for drought to occur and cause damage in Auburn.

4. Extreme Heat

A Heat Wave is defined as a "Prolonged period of excessive heat, often combined with excessive humidity." Heat kills by pushing the human body beyond its limits. In extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature. Most heat disorders occur because the victim has been overexposed to heat or has over-exercised for his or her age and physical condition. Older adults, young children and those who are sick or overweight are more likely to succumb to extreme heat. Conditions that can induce heat-related illnesses include stagnant atmospheric conditions, and poor air quality. Consequently, people living in urban areas may be at greater risk from the effects of a prolonged heat wave than those living in rural areas. Also, asphalt and concrete store heat longer and gradually release heat a night, which can produce higher nighttime temperatures known as the "urban heat island effect." NOAA's National Weather Service has prepared the following Heat Index identifying likelihood of heat disorders under prolonged exposure or strenuous activity.

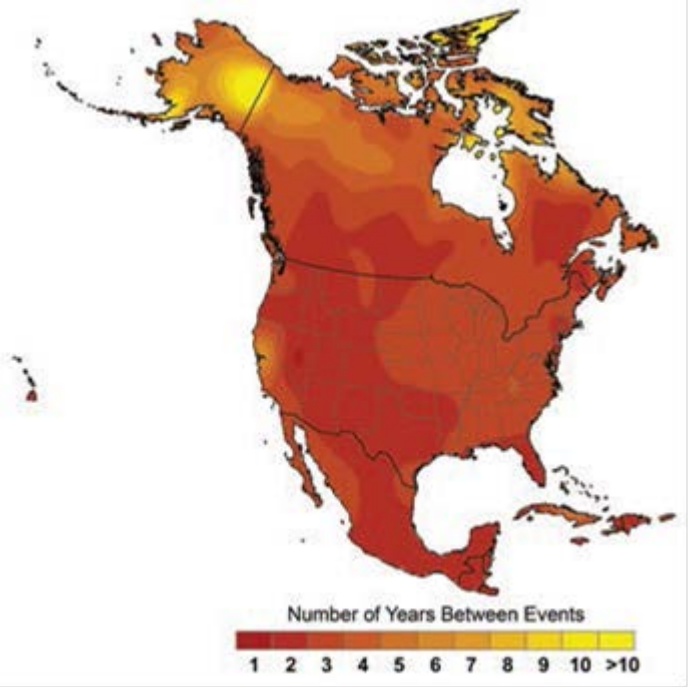


All areas of Auburn would be affected by extreme heat, in its event. Particular areas and populations at a greater risk are:

- elderly populations and day care centers;

- the power system that may become overburdened; and
- communications negatively affected by power burden.

Projected Number of Years Between Extreme Heat Events in the U.S.



Source: Karl, T.R., J.M. Melillo, and T.C. Peterson (eds.). 2009.
Global Climate Change Impacts in the United States

Low probability for extreme heat to occur and cause damage in Auburn.

5. Extreme Cold

While most New Hampshire residents are rather habituated to the extreme cold situations in the State, and this is not a section identified by the State of New Hampshire Natural Hazards Mitigation Plan, it was decided to include a statement in this *Plan*. For the purposes of this *Plan* extreme cold will be referred to in a general manner, without a scientific definition. Periods of extreme cold pose a life-threatening situation for Auburn's low-income populations. With the rising costs of heating fuel and electric heat, many low-income citizens are not

able to adequately heat their homes, exposing themselves to cold related medical emergencies or death.

In Concord, New Hampshire there are on average 21 days below 32 degrees Fahrenheit in November, 29 days in December, 30 days in January, 27 days in February, and 26 days in March (Concord National Weather Service Office is closest to Auburn, NH reporting to the Northeast Regional Climate Center database). The coldest temperatures recorded for each month were –5 degrees Fahrenheit in November, -22° in December, -33° in January, -37° in February, and -16° in March. (Northeast Regional Climate Center)

All areas of Auburn would be affected by extreme cold, in its event. Particular areas and populations at a greater risk are:

- elderly populations and day care centers;
- power system that may become overburdened; and
- low income populations.

Moderate to high probability for extreme cold to occur and cause damage in Auburn.

6. Avalanche

Although avalanches affect other communities in NH, the Town of Auburn has no experiences of avalanches recorded due to no steep slopes of concern near infrastructure or other uses.

Low probability for this hazard to occur and cause significant damage in Auburn; therefore, it has been omitted from this plan.

A GIS-generated map, following this page, was prepared to illustrate the Identified Hazard Zones.

5. Terrorism

The Fire Department has identified a need in their ongoing Mass Casualty Incident (MCI) Plan to prepare for an act of terrorism. Lake Massabesic is situated northeast of Manchester-Boston Regional Airport, directly in the flight path of Runway 6/24.

SECTION IV
ASSESSING PROBABILITY, SEVERITY, AND RISK

Past and Potential Hazards

The Auburn Hazard Mitigation Committee rated each hazard utilizing the following process:

1. Assigning Low (0 to 33%chance) , Medium (34-66% chance) , or High (67 to 10% chance) values (numerically 1, 2 or 3) to each hazard type for its possible impact to Human, Property, and Business factors (vulnerability). (A score of zero is given if the hazard is considered non-applicable).

2. The same process is used to assign Low (0 to 33% chance), Medium (34-66% chance), or High (34-66% chance) , values (numerically 1, 2, or 3) to each hazard type with respect to the probability that the hazard would occur in the next 25 years.

3. The Severity is calculated by determining the average of the Human, Property, and Business impacts.

4. Risk is calculated by multiplying severity by probability.

5. Relative Threat Results: Low, Medium, High risk is assigned as follows:

(0-3.3 – Low) (3.4-6.6 Med) (6.7-10 High).

The summary of their rating is in the following table.

Hazard Vulnerability Assessment

0-N/A 1-Low 2-Moderate 3-High	Human Impact Probability of death or injury	Property Impact Physical losses and damages	Business Impact Interruption of Service	Probability Likelihood this will occur in 5 years	Severity Avg. of humans/ property business	Relative Threat Severity-x-Probability
Event						
Flooding						
Flooding (100-YR)	2	2	1	3	1.67	5
Riverine Flooding	2	2	1	3	1.67	5
Hurricanes	1	2	2	1	1.67	1.67
Debris Impacted Infrastructure	1	2	2	3	1.67	5
Erosion/Mudslides	0	0	0	0	0	0
Rapid Snow Pack Melt	0	2	2	3	1.33	4
Dam Breach/Failure	3	3	3	1	3	3
Wind						
Hurricanes	1	2	2	1	1.67	1.67
Tornadoes	1	2	2	1	1.67	1.67
Nor'easter	1	2	2	3	1.67	5
Downbursts	1	1	1	1	1	1
Lighting	2	1	1	3	1.33	4
Fires						
Wild Land Fires	1	1	0	3	.67	2
Isolated Homes	1	1	0	1	.67	.67
Target Fires	3	1	1	1	1.67	1.67
Ice and Snow Events						
Heavy Snowstorms	1	1	2	3	1.33	4
Ice Storms	1	1	2	3	1.33	4
Hailstorms	1	1	2	3	1.33	4
Seismic Events						
Earthquakes	0	0	0	1	0	0
Landslides	0	0	0	0	0	0
Other Hazards						
Geomagnetism	0	0	1	0	0.33	0

Drought	0	1	1	1	0.67	.67
Extreme Heat	1	0	0	3	0.33	1
Extreme Cold	1	2	2	3	1.67	5
Arsenic in Wells						0
Civil Disorder						0
Terrorism	3	3	3	0	3	0
Utility Pipe Failure	1	1	1	0	1	0

SECTION V
VULNERABILITY ASSESSMENT: IDENTIFICATION AND ESTIMATION OF LOSSES

Disaster Risk and Vulnerability Assessment

The Town of Auburn is susceptible to a variety of natural hazards, including flooding, river ice jams, severe winter storms, and hurricanes. The following is an estimate of damage in dollars that may result when a natural hazard occurs in the town.

These estimates were calculated using FEMA's Understanding Your Risks: Identifying Hazards and Estimating Losses, August 2001. The publication's methodology was modified for this Plan based on the data available. For example, the inventory of assets includes available NFIP data, 2015 Town valuation, and identified essential facilities. Data is not yet available in a format (i.e. assessing data linked to a GIS coverage of tax maps and building footprints) to locate property specific information in a given hazard area other than as produced expressly for this Plan. The following calculations used available current or historical data and "Worksheet 4" in the Estimating Losses section of Understanding Your Risks: Identifying Hazards and Estimating Losses. Background, historical information, associated risks, and summary of assets considered in the estimation process are described in the following subsections to this chapter.

Human losses were not calculated during this exercise, but could be expected to occur depending on the type and severity of the hazard. The estimates typically represent only structural loss, unless sufficient data was available to incorporate contents, structure use, and function loss. The tables below show current valuation of the Town of Auburn.[5]

Note: Erosion, Mudslides, Landslides, Geomagnetism and Avalanches were identified as a zero risk factor by the Auburn Hazard Mitigation Committee and therefore removed from the risk assessment valuation process.

[5] From the NH Department of Revenue Administration, "2016 Tables by County"

Land Use Classification	2016 Assessed Valuation		
	Land	Buildings	Total
Current Use	$262,535	-	$262,535
Residential	$312,135,100	$291,073,248	$603,208,348
Manufactured Housing	-	$1,238,800	$1,238,800
Commercial/Industrial	$16,341,200	$30,653,200	$46,994,400
Disc Pres Easement	$2,600	$35,252	$37,852
Utilities**	-	-	$7,992,700
		Total Assessed Valuation	**$ 659,734,635**

** The NHPUC only provides assessed value as a combination of land and structure value.

Disaster assistance totals from 2006-2010 were $1,184,705 (75% Federal and 12.5% State). Disasters included floods in 2006, 2007 and 2010, an icestorm in 2008 and a windstorm in 2010.

Flooding **$0.9 – 3.2 million**

As of the most recent FEMA biennial report, the Town of Auburn had 45 residential structures located in the floodplain, with an estimated population of 306. The average residential house sale price is $285,000 (NHHFA). Two scenarios were considered with a low estimate assuming damage to 25 percent of the structures with a one-foot flood depth and a high estimate assuming damage to 50 percent of the structures with a four-foot flood depth. These estimates also assume the residential structures are one- or two-story homes with basements and the non-residential structures are two-story without basements. Standard values for percent damage, functional downtime and displacement time were used from FEMA's *Understanding Your Risks: Identifying Hazards and Estimating Losses* and its "Worksheet 4- Estimate Losses" was used to determine the actual estimates.

The low estimate was $480,938 in structural damages, $360,703 in contents loss, and $28,454 in structure use and function loss. The total low estimate loss was $870,094. The high estimate was $1,795,500 in structural damages, $1,346,625 in contents loss, and $70,727 in structure use and function loss. The total high estimate loss was $3,212,852.

Infrastructure damage could also be extensive, including roads, bridges, utilities, towers, etc. If a devastating flood were to occur, the damage to properties located within the floodplain could exceed this estimated amount. It is clear that Auburn could benefit greatly from any flood mitigation measures that would help reduce typical losses that occur during a major flood event.

Hurricanes **up to $6 million**

Most of the damage from hurricanes is caused by high water and strong winds. While Auburn is less vulnerable to hurricanes than coastal areas, significant damage could be expected, particularly in areas with manufactured homes. Assuming a community-wide assessed structural valuation, adjusted to market value, of approximately $600 million, damaging 1 percent of these structures could result in losses of up to $6 million. This does not include other damages expected to occur on public property within the community.

Debris-Impacted Infrastructure and River Ice Jams **$10,000 to $1 million**

Damage from these two hazards could be expected to occur not only to privately owned structures, but also to infrastructure such as roads, bridges, and culverts. An estimate of damage, in dollars, from this type of hazard can range widely, depending on the nature and severity of the hazard. Past debris-impacted infrastructure, in Auburn, has been minimal. Therefore, it is difficult to separate actual damages to represent this type of hazard. A small-to-medium-sized event could be expected to produce a loss from $10,000 to $1 million.

Erosion, Mudslides and Rapid Snowpack Melt **$41,682 to $208,410**

Erosion, mudslide, and rapid snowpack melt damage usually affects infrastructure such as roads and bridges, but can also affect individual structures and businesses. The inventory of essential facilities located in the areas of steep slopes was used to prepare an estimate of this type of damage, since a complete inventory was not available. There are no value estimates for the one dam that would be vulnerable to these hazards. However, data is available for the remaining structures in the hazard zone. For a moderate event, assuming from 1 percent to 5 percent structural damages, and from .5 percent to 2.5 percent content loss, damages could be expected between $41,682 and $208,410. Since this hazard has not been widespread in Auburn, damages from this hazard should be minimal.

Dam Breach or Failure **$0.75 million to $2.3 million**

Auburn has one Class H dam that could cause serious failure damage. The four Class L dams and eight Class NM dams have a low to very low potential for causing damage in the surrounding areas. Damage estimates could be expected to be about 25-75 percent of the flooding estimate, or $0.75 to $2.3 million.

Tornadoes **$500,000 to $15 million**

The enhanced Fujita Scale is used to determine the intensity of tornadoes. Most tornadoes are in the EF0 to EF2 Class, in a range that extends to EF5 Class. Building to modern wind standards provides significant property protection from tornadoes. The design wind speed in Auburn is 95 miles per hour, Exposure Category B, in accordance with the 2009 International Building Code. While it is difficult to assess the monetary impact a tornado may have on a community, as there are no existing standard loss estimation models, the dollar range shown

above indicates an approximation of what might be expected. Tornadoes rarely occur in this part of the country, so damage from this hazard would be uncommon.

Heavy Snowstorms, Nor'easters, Ice Storms $10,000 to $3 million

Damage from heavy snowstorms, nor'easters and ice storms vary greatly depending on the amount of snow and ice that accumulates during the storm. The ice storm of 2008 caused much damage to power lines, structures, and the agricultural economy in northern New England and southeastern Canada. These types of storms in Auburn could be expected to cause damage ranging from several thousand dollars to several million, depending on the severity of the storm.

Lightning $1,000 - $30,000

Damage from lightning is typically minimal and occurs in isolated events without record of actual costs incurred. Within the Town of Auburn there are three recorded lightning strikes with damage estimates ranging from $5,000 to $30,000. Other incidences throughout the region, occurring to municipal facilities in Manchester, have incurred damages ranging between $1,000 and $15,000.

Wild Land Fires $0.43 million to $8.5 million

A fire can strike at any time, but may be expected to occur during years of drought and particularly in the spring and fall months. From 2007 through 2010 there were 202 fires encompassing small isolated events, car fires, building and structural fires, and wild land fires.

Grass or wild land fires can spread more rapidly between structures due to the increased intensity and size of the fire. Presuming a small-to-medium-sized fire that destroys from one to 20 homes, damage from this hazard could be expected to range from $427,500 to $8.5 million. Other damage (such as to utilities) was not included in this estimate.

Earthquakes up to $10.9 - $22.4 million

Assuming a moderate earthquake occurs in Auburn, where structures are not built to a high seismic design level and are mostly of wood frame construction, there could be both partial and total substantial damage to the community's structures.

This estimate used "Worksheet 4" and the town-wide assessed valuation of residential, commercial, and industrial structures. Auburn's actual peak ground acceleration (PGA) is .063g. This represents the average strength of an earthquake with a 10 percent probability of reoccurring in 50 years. FEMA's *Understanding Your Risks: Identifying Hazards and Estimating Losses* provides data to conduct damage estimates for PGAs of .05g or .07g. The following

estimate uses these two PGA levels, assumes low seismic design for all structures, and estimates the upper limits of expected damages if an earthquake were to impact Auburn. The first calculation (.05 PGA) yields $423,387 in structural damages, $119,792 in content damages, and $10,301,645 in structure use loss for a total estimate of $10,844,825 in damages. The second calculation (.07 PGA) yields $1,35,043 in structural damages, $370,367 in content damages, and $20,739,204 in structure use loss for a total estimate of $22,444,614 in damages.

Utility Pipe Failure **$200 to $40,000**

No information on water or gas main failures is available for specific properties in Auburn. Other communities in the SNHPC region have incurred damages of $200 to $40,000 from water and sewer main leaks or breaks.

Downbursts, Hailstorms, Landslides, Geomagnetism, Drought, Extreme Heat/Cold

No major damage is known to have occurred in the Town of Auburn related to these types of events. Therefore, no potential loss estimates have been prepared for these categories.

Note: The aforementioned figures are estimates only. The amount of damage from any hazard will vary from these figures depending on the time of occurrence, severity of impact, weather conditions, population density, building construction at the exact event local, and the triggering of secondary events.

Critical Facilities

The following are summary tables of the critical facilities located in each of the five identified hazard zones within the Town. For the purposes of this *Plan* a critical facility is defined as a building, structure or location which:

- is vital to the hazard response effort;
- maintains an existing level of protection from hazards for the Town; and
- would create a secondary disaster if a hazard were to impact it.

These summaries were queried from a database of all essential facilities created for this *Plan*.[6] The Hazard Mitigation Committee, based on its knowledge of the Town and the SNHPC, using various directories, were the primary sources for the Critical Facilities listing. The assessed values presented are the total building values and do not include the cost of land or building contents. Assessments were conducted during 2009 and at the time of the *Plan* are assumed to be 100 percent of the full market value.

The five identified hazard zones are:

- **Town Wide Hazards -** includes hurricanes, tornadoes, nor'easters, downbursts, lightning, heavy snow, ice storms, hailstorms, earthquakes, geomagnetism, utility pipe failure, drought, or extreme heat/cold.
- **Special Flood Hazard Areas** - includes riverine flooding, hurricanes, debris-impacted infrastructure, ice jams, rapid snowpack melt, or dam breach.
- **Steep Slopes -** includes erosion, mudslides, or landslides.
- **Wild Land Fires -** includes wild land fire hazards.
- **Target Hazards**- includes target hazards.

Summary of Critical Facilities by Hazard Zones		
Hazard Zone	**No. of Facilities**	**Total Assessed Building Value**
Town Wide (all facilities)	23	$1,544,500
Flood Hazard Zones	1	NA
Past/Potential Flooding Areas	1	NA
Past/Potential Wind/Snow Damage Areas	1	NA
Steep Slopes	0	$0
Wild Land Fires	3	NA
Target Hazards	0	$0
Downburst Areas	0	$0
Isolated Homes	0	$0

[6]All facilities' proximity to the various hazard zones was identified using GIS as follows:

- Special Flood Hazard Areas and Steep Slopes - intersecting or within the mapped area
- Wild Land Fires and Target Hazards - intersecting or within the mapped area

Town Wide Hazards (Summary of all Critical Facilities)		
Facility Type	**No. of Facilities**	**Assessed Building Value**
Bridges	16	NA
Government Facilities		
Town Offices	1	$264,100
Public Works Garage	1	$385,100
Solid Waste Treatment Plant	1	NA
Emergency Response Facilities		
Fire Station	2	$895,300
Police Station	1	$690,500
Emergency Operations Center*	1	$690,500

Special Flood Hazard Areas		
Facility Type	**No. of Facilities**	**Assessed Building Value**
Bridges	1	NA

Steep Slopes Hazard Areas		
Facility Type	**No. of Facilities**	**Assessed Building Value**
No critical facilities near steep slopes		

Wild Land Fires Hazard Areas		
Facility Type	**No. of Facilities**	**Assessed Building Value**
Solid Waste Treatment Plant	1	NA
Bridges	2	NA

*The Safety Complex includes the Emergency Operations Center, the Police Station and one of the two fire stations.

Areas at Risk

Auburn's Hazard Mitigation Committee has divided Critical Facilities List for the Town of Auburn this list of facilities into four categories.

1. The first category contains facilities needed for Emergency Response in the event of a disaster.
2. The second category contains Non-Emergency Response Facilities that have been identified by the Committee as non-essential. These are not required in an emergency response event, but are considered essential for the everyday operation of Auburn.
3. The third category contains Facilities/Populations that the Committee wishes to protect in the event of a disaster.
4. The fourth category contains Potential Resources, which can provide services or supplies in the event of a disaster.

Category 1 - Emergency Response Services:

The Town has identified the Emergency Response Facilities and Services as the highest priority in regards to protection from natural and man-made hazards.

Emergency Operations Center / Fire Station

Fire/Safety Complex – 55 Eaton Hill Road
Alternate Fire Station – 6 Pingree Hill Road
Town Offices – 47 Chester Road

Police Station

Safety Complex – 55 Eaton Hill Road

Red Cross Approved Emergency Shelters

Auburn Village School – 11 Eaton Hill Road

Primary Evacuation Routes

NH 101
NH 28 Bypass - Londonderry Turnpike
NH 121 - Hooksett Road/Chester Road

Bridges Located on Primary Evacuation Routes

NH 101 Overpasses (x4)
Dear Neck Bridge
121 Bypass (Maple Falls/Town Center)
Hooksett Road at Eaton Hill Road
NH 121 at Severance Beach

Power stations, sub-stations, transmission lines

3 Substations, Granite State Switching Station

Telephone facilities, transmission lines and cell towers

4 Cell towers, FAA Tower at Bridal Path, Communication Tower incl. FAA

Hospitals (none in Auburn)
Proposed ambulatory center at Wellington Business Park
Closest facility is Eliot Medical Center in Manchester, NH

Helicopter Landing Sites
Auburn Village School – 11 Eaton Hill Road
Wayne Eddos Field – NH 28 Bypass and Priscilla Lane
NH 101 Exit 2 (westbound side)
Air Strip on Bunker Hill Road

Schools
Auburn Village School – 11 Eaton Hill Road
First Assembly of God

Category 2 - Non Emergency Response Facilities:
The town has identified these facilities as non-emergency facilities; however, they are considered essential for the everyday operation of Chester.

Facilities
Miles Drive Facility – NH 101 Exit 2
273 Chester Turnpike

a) **Public Water System** – Manchester Waterworks has 2+ miles of water lines on the west side of Auburn, including 17 fire hydrants
b) **Transfer Station** – Waste Management has a private facility on NH 28 Bypass Road/Londonderry Turnpike
c) **Post Office** – 61 Raymond Road

Category 3 - Facilities/Populations to Protect:
The third category contains people and facilities that need to be protected in event of a
disaster.

Annual Events
Duck Race / Auburn Day – Host is Auburn Historical Association, September
Friends of Massabessic Bicycle Association (FOMBA) Trail Race - September
FOMBA Turkey Burner Fun Ride – November
Public Safety Day – AFD, APD & Parks & Recreation – June
New Hampshire 10-K Road Race – Millennium Running, August
Concerts in the Park – Host Auburn Parks & Recreation, July & August
Deliberative Session of Town Meeting, Auburn Village School – February
Deliberative Session of School District Meeting, Auburn Village School – February

Ravens Race – Hosted by Audubon Center, Audubon Way (snowshoeing event)
Annual Winter Carnival & Burning of the Greens – Hosted by Auburn Parks & Precreation at Skating Rinks, Eaton Hill Road

School/Daycare
Auburn Village School

Gathering Places
Gazeebo at Bunker Hill Road
Auburn Tavern
Dunkin Donuts
Auburn Village School (Gym and Cafeteria)
Community Room at Safety Complex
Visiting Angels

Historic Buildings/Sites
Library
Town Hall
Longmeadow Church
Auburn Historical Association – 102 Hooksett Road
Audubon Society

Religious Facilities
Longmeadow Church
First Assembly of God
St. Peters Church
First Haven Baptist

Major Employers
Auburn Village School
Maine Drilling & Blasting
Builders Insulation Company
Town of Auburn
Heritage Plumbing & Heating
Daniels Equipment
Green Mountain Explosives
ARC inc.
NH Blacktop Sealers
Pelmac

Natural Assets
Lake Massabesic
Tower Hill Pond

Hazardous Sites
Rockingham Road
Blasting companies at NH-28 and Gold Ledge Drive
NH Demolition
Dead River Propane (NH 28 Bypass)

Recreation Facilities
Circle of Fun Playground, Bunker Hill Road
Appletree Park Playground, Appletree Road
Wayne Eddows Recreational Fields, Priscilla Lane
Auburn Village School Athletic Field, Eaton Hill Road
Lacrosse Field (adjacent to Safety Complex), Eaton Hill Road
Ice Skating Rinks and Basketball Court (adjacent to Safety Complex), Eaton Hill Road
Audubon Center, Audubon Way
Recreational Trails (hiking, bike riding, snowmobiling, walking, etc.), Manchester Water Works property, throughout Auburn
Fishing & Boating, Lake Massabessic, Auburn
Boating, Massabessic Yacht Club, By-Pass 28
Calef Campground, Chester Road (Route 121)

Dams
N/A

Category 4 - Potential Resources:
Contains facilities that provide potential resources for services or supplies.

Medical Supplies
N/A

Gas/Fuel
Dead River Supply
New Auburn Supermarket

Emergency Power Source
Safety Center has generator
Fire station has fixed generator and 3 portable generators
Auburn Village School has one
Town Hall has a fixed generator
St. Peters Church has generator

Building Materials
Master Halco – NH 28 Bypass
Daniels Equipment
Gemini Electric
Heritage
United Rental

Commercial Economic Impact Areas

The following is a summary table of the commercial-economic impact areas located in each of the four identified hazard zones within the Town. For the purposes of this *Plan*, a commercial economic impact area includes organizations and businesses with more than 15 employees. These are facilities that are vital to the community's economic well-being.

This summary was queried from a database of all essential facilities created for this *Plan*.[7]

The five identified hazard zones are:

- **Town Wide Hazards-** includes hurricanes, tornadoes, nor'easters, downbursts, lightning, heavy snow, ice storms, hailstorms, earthquakes, geomagnetism, utility pipe failure, drought, or extreme heat/cold.
- **Special flood hazard areas**- includes riverine flooding, hurricanes, debris-impacted infrastructure, ice jams, rapid snowpack melt, or dam breach.
- **Steep Slopes-** includes erosion, mudslides, or landslides.
- **Wild Land Fires-** includes wild land fire hazards.
- **Target Hazards**- includes target hazards.

Commercial Economic Impact Areas		
Hazard Zone	**Number of Employers**	**Number of Employees**
Town Wide (all facilities)	16	N/A
Flood Hazard Zones	0	N/A
Past/Potential Flood Zones	1	N/A
Snow/Wind Damage Areas	0	N/A
Steep Slopes	1	N/A

[7]All facilities' proximity to various hazard zones was identified using GIS as follows:

- Special Flood Hazard Areas and Steep Slopes - intersecting or within the mapped area
- Wild Land Fires and Target Hazards - intersecting or within the mapped area

Hazardous Materials Facilities

The following is a summary table of the hazardous materials facilities located in each of the four identified hazard zones within the Town. For the purposes of this *Plan*, hazardous materials facilities include active hazardous waste generators, underground storage tanks, and above-ground storage tanks. As defined by the NH Department of Environmental Services, active hazardous waste generators may include businesses that produce household hazardous waste, or treat, store or dispose of hazardous waste, or be a waste handler or used oil marketer.

This summary was queried from a database of all essential facilities created for this *Plan*. [8] The listing of Hazardous Materials Facilities was created from the NH Department of Environmental Services GIS data layers for hazardous waste generators, above ground, and underground storage tanks.

The five identified hazard zones are:

- **Town Wide Hazards-** includes hurricanes, tornadoes, nor'easters, downbursts, lightning, heavy snow, ice storms, hailstorms, earthquakes, geomagnetism, utility pipe failure, drought, or extreme heat/cold.
- **Special flood hazard areas**- includes riverine flooding, hurricanes, debris-impacted infrastructure, ice jams, rapid snowpack melt, or dam breach.
- **Steep Slopes-** includes erosion, mudslides, or landslides.
- **Wild Land Fires-** includes wild land fire hazards.
- **Target Hazards**- includes target hazards.

Number of Hazardous Material Facilities within the Hazard Zones			
Hazard Zone	**Hazardous Waste Generators**	**Above Ground Storage Tank Sites**	**Underground Storage Tank Sites**
Town Wide	24	4	9
Flood Hazard Zones	0	0	0
Past/Potential Flooding Areas	0	0	0
Steep Slopes	0	0	0
Wild Land Fires	0	0	0

[8] All facilities' proximity to the various hazard zones was identified using GIS as follows:

- Special Flood Hazard Areas and Steep Slopes - intersecting or within the mapped area
- Wild Land Fires and Target Hazards - intersecting or within the mapped area

SECTION VI
EXISTING MITIGATION STRATEGIES AND PROPOSED IMPROVEMENTS

Description of Existing Programs

The Town of Auburn has adopted several programs and ordinances for hazard mitigation. Below are brief descriptions of these programs and how they aid in hazard mitigation.

Emergency Operations Plan

Auburn maintains an Emergency Operations Plan, last updated in 2010. The plan coordinates the town departments' actions and responses before, during, and after a disaster. Events planned for range from multiple vehicle accidents and hazardous materials incidents to flooding and snowstorms. The plan was prepared to conform to guidelines by the Federal Emergency Management Agency, US Nuclear Regulatory Commission, Federal Energy Regulatory Commission, New Hampshire Homeland Security and Emergency Management and the NH Emergency Operations Plan. The plan establishes the Emergency Operations Center (at the Safety Complex). The Emergency Operations Plan identifies or addresses shelters, evacuation procedures, emergency notification, and health and medical services.

Floodplain Development Regulations (Zoning Ordinance)

Floodplain district regulations apply to all lands designated as special flood hazard areas by FEMA on the Digital Flood Insurance Rate Maps (DFIRMs), dated May 17, 2005. Encroachments, including fill, new construction, substantial improvements to existing structures, and other development, are prohibited unless certification by a registered professional engineer is provided by the applicant demonstrating that such encroachment will not result in any increase in flood levels during the occurrence of the 100-year base flood. Additionally, the Zoning Ordinance specifies that there shall be no development permitted in the floodway. The building inspector shall review all building permit applications for new construction or substantial improvements to determine whether proposed building sites will be reasonably safe from flooding.

Elevation Certificates

An Elevation Certificate is required when a structure is built or substantially improved within a known flood zone, or if the flood map shows a part of the lot within the flood zone and the certified foundation plan shows the house is located within the flood zone. The land surveyor must supply the footing elevation.

Watershed Protection Ordinance (Zoning Ordinance)

The Watershed Protection Ordinance, contained within the Zoning Ordinance, regulates the area within 125 feet from the edge of bodies of water, brooks, streams, and

wetlands. The primary objectives of this ordinance are to mitigate any development that may negatively interfere with these water systems' natural functions and reduce any potential financial impacts that may be caused by the inappropriate use of these lands.

Excavation and Soil Removal Regulations
Earth removal regulations minimize safety hazards created by open excavations, safeguard the public health and welfare, preserve the natural assets of soil, water, forests and wildlife, maintain aesthetic features of the environment, prevent land and water pollution, and promote soil stabilization. The Town of Auburn maintains two sets of excavation regulations, one in the Zoning Ordinance and the second in a separate Excavation Regulations document.

Sanitary Protection (Zoning Ordinance)
The Sanitary Protection section of the Zoning Ordinance establishes provisions to assure that sewage disposal does not negatively impact public health. Design standards are set for septic systems to meet or exceed standards enforced by the NH Department of Environmental Services.

Underground Storage Regulation (Zoning Ordinance)
The Underground Storage Regulations are established to protect Auburn's groundwater from potential contamination due to the storage and handling of hazardous materials, motor fuels, heating oils, and other oils. The regulation set standards for storage tanks equal to or larger than 100 gallons, including construction materials and leak detection.

Sewage, Sludge, and Septage (Zoning Ordinance)
This section of the Zoning Ordinance establishes more stringent regulations for the land application and surface disposal of sewage sludge than are set forth in 40 CFR 503.11 et seq. This is in the interest of promoting the public health and safety of Auburn's residents.

Travel Trailer Park/Travel Trailer (Zoning Ordinance)
Travel trailer regulations prohibit using these vehicles for permanent living. Additionally, it establishes that the trailers must be stored in a way that is not be detrimental to the neighborhood or surrounding property and creates density requirements for trailer parks.

Manufactured Housing (Zoning Ordinance)
Regulations are established to provide suitable and affordable living environments on individual lots in Rural, Residential-One, and Residential-Two districts. Minimum standards are set regulating construction and safety standards in order to protect the occupants and reduce the homes' vulnerability to natural disasters.

Stormwater Management and Erosion and Sediment Control (Site Plan Regulations)
The Town of Auburn has had extensive stormwater regulations in place to address runoff, soil erosion, and sedimentation from development sites. Efforts must be taken

to minimize any impacts from stormwater runoff and erosion. Additionally, the post-development peak runoff rate must not exceed pre-development rates for a 25-year storm.

Drainage Requirements (Subdivision Regulations)
Auburn's Subdivision Regulations set engineering design standards to minimize any adverse impacts from stormwater drainage.

Road Design Standards (Subdivision and Site Plan Regulations)
Auburn maintains road design regulations as part of the Town's Subdivision and Site Plan Regulations. The Subdivision Regulations establish construction standards to ensure the safe flow of travel on all new roads and improvements to existing roads.

Auburn Building Codes
The Auburn Building Department enforces the State of New Hampshire Building Code as authorized in RSA 155-A. Building codes set minimum safety standards for occupants utilizing structural, fire and life safety provisions, wind loads and design, seismic design, flood proofing, and egress design.

Fire Department Regulations
The Town of Auburn Fire Department enforces the *National Fire Protection Association (NFPA) Standards* to protect residents from fire hazards in residential and non-residential facilities. The regulations establish protection requirements for fire alarm systems and smoke detectors for single family residential, multi-family residential, commercial and industrial facilities and occupants.

Hazardous Materials Regulations
The Town of Auburn enforces state regulations regarding hazardous materials. Auburn's Fire Department participates in the Southeastern New Hampshire Hazardous Materials Mutual Aid District (SNHHMMAD). SNHHMMAD provides technical expertise, during an emergency, on decontamination, rescue and control, as well as hazardous materials mitigation. The district is composed of 15 member communities incorporating over 140,000 residents and 400 square miles.

Snow Ordinance
The Snow Ordinance allows the Town to enforce parking bans to expedite the flow of traffic and snow removal. Additionally, the ordinance prohibits shoveling snow into roads.

Town Radio System
The Fire and Police Departments maintain separate, but interoperable, radio networks for day-to-day operations. The systems can also interface with regional mutual aid and State agencies. Additionally, the Town of Derry Fire Department provides fire, 911, and ambulance dispatch service for the Town of Auburn.

Police
The Chief of Police is charged with preserving public peace, preventing riots and disorder, and receiving and issuing emergency warnings. During fires the police are to prevent theft and further unwarranted destruction of property.

Comprehensive Emergency Management Planning for Schools (CEMPS)
Comprehensive Emergency Management Planning for Schools is available from the NH Bureau of Emergency Management. CEMPS outlines training for school teachers, administrators, and students on actions to be taken during an emergency at school. The school district will continue to implement this program.

Manchester Water Works Emergency Operations Manual
This manual establishes an action plan for the department and its employees in the event of a natural or man-made disaster. Specific response plans are outlined for each hazard type as it pertains to the individual Water Works divisions. The manual also includes emergency contact lists, a list of Manchester Water Works' buildings and structures, emergency action and notification forms, and additional information on the hazards.

Lake Massabesic Watershed Protection Rules
These rules (ENV-WS 386.47) were established and adopted by the New Hampshire Department of Environmental Services under RSA 485:24 to protect the purity of the water supply and watershed land. Limits are placed on acceptable recreation activities, development, and use of land in the designated watershed area. These regulations are enforced by the Manchester Water Works and a staff of watershed patrol officers who focus on public education and outreach.

State Dam Program
There is one class H dam, four class L dams and eight class NM dams in Auburn that are maintained in compliance with the State Dam Program. Town staff inspects the dams on a regular basis. Inspections look for seepage, erosion, animal burrows, spalling, cracking, vegetation growth, and security issues. Preventive maintenance is conducted as needed.

New Hampshire Shoreland Protection Act
The Shoreland Protection Act, adopted during 1994 and last updated in 2008, establishes minimum standards for the future subdivision, use, and development of all shore lands within 250 feet of the ordinary high water mark. When repairs, improvements, or expansions are proposed to existing development, the law requires these alterations to be consistent with the intent of the Act. The NH Department of Environmental Services is responsible for enforcing the standards within the protected shoreland, unless a community adopts an ordinance or shoreland provisions that are equal to or more stringent than the Act.

Best Management Practices

The State has established Best Management Practices (BMPs) for erosion and sediment control. These BMPs are methods, measures or practices to prevent or reduce water pollution, including, but not limited to, structural and nonstructural controls, operation and maintenance procedures, and other requirements and scheduling and distribution of activities. Usually, BMPs are applied as a system of practices rather than a single practice. BMPs are selected because of site-specific conditions that reflect natural background conditions.

Existing Protection Matrix

The Auburn Hazard Mitigation Committee has developed a summary matrix of existing strategies that support hazard mitigation efforts, which is presented on the following pages. This matrix, a summary of the preceding information, includes the existing protection program (column 1), a description of the existing protection (column 2), the area of town affected (column 3), the enforcing department or agency (column 4), and the identified improvements or changes needed and funding sources (column 5).

COLUMN 1: TYPE OF EXISTING PROTECTION	**COLUMN 2:** RESPONSIBLE AGENT/ DESCRIPTION	**COLUMN 3:** HAZARD/ AREA OF TOWN COVERED	**COLUMN 4:** EFFECTIVENESS	**COLUMN 5:** IMPROVEMENTS OR CHANGES NEEDED
Emergency Operations Plan	Fire and Emergency Management	Town	Good	
Floodplain Development Ordinance (Zoning Ordinance)	Dev. – Planning Board; ENF – Permitting	Town	Good	
Elevation Certificates	Permitting	Town	Good	
Watershed Protection Ordinance (Zoning Ordinance)	Inspector	Town	Good	
Excavation and Soil removal Regulations	Planning Board	Town	Good	
Sanitary Protection (Zoning Ordinance)	Inspector	Town	Good	
Underground Storage Regulation (Zoning Ordinance)	Inspector	Town	Good	
Sewage, Sludge, and Septage (Zoning Ordinance)	Inspector	Town	Good	
Travel Trailers (Zoning	Inspector	Town	Good	

Ordinance)				
Manufactured Housing (Zoning Ordinance)	Inspector	Town	Good	
Stormwater Management and Erosion and Sediment Control (Site Plan Regulations)	Planning	Town	Good	
Drainage Requirements (Subdivision Regulations)	Planning	Town	Good	
Road Design Standards (Subdivision and Site Plan Regulations)	Planning	Town	Good	
Auburn Building Codes	Inspector	Town	Good	
Auburn Fire Department Regulations	Fire Department	Town	Good	
Hazardous Materials Regulations	Planning Board	Town	Average	
Snow Ordinance	Board of Selectmen	Town	Good	
Town Radio System	Police & Fire Departments	Town	Poor	
Police	Police Department	Town	Good	
Comprehensive Emergency Management Planning for Schools	Auburn Village School Principal	Town	Average	
Manchester Water Works Emergency Operations Manual Good	City of Manchester	Their Property		
Lake Massabesic Watershed	Dev.: Zoning Use: MWW, NH DES	Town	Good	

Protection Rules	Protection: State			
NH State Dam Program	NH DES	Town	Good	
NH Shoreland Protection Act	Zoning	Town	Good	
Best Management Practices (BMPs)	Road Agent	Town	Good	

Summary of Recommended Improvements to Existing Programs

Improvements to existing programs were reviewed, and keyed below, for their ability to reduce hazard impacts to both existing (E) and future (F) buildings and infrastructure, as well as the Town's ability to respond (R) to disasters. The Auburn Hazard Mitigation Committee recommends the following three improvements to existing mitigation programs[9]:

- Update needed for Narrow Band Pagers – Town Radio System

[9] More specific details on each recommended improvement can be found in Section V "Prioritized Implementation Schedule and Funding Sources."

SECTION V
NEWLY IDENTIFIED MITIGATION STRATEGIES AND CRITICAL EVALUATION

Summary of Existing and New Strategies

Initial selection of mitigation projects was based on filling in perceived gaps in hazard protection within the Town. The Auburn Hazard Mitigation Committee then brainstormed additional actions of benefit to the Town and its residents with the potential to reduce future damages. Projects were reviewed for their ability to reduce hazard impacts to both existing and future buildings and infrastructure; as well as the Town's ability to respond to disasters. The Auburn Hazard Mitigation Committee reviewed all mitigation actions from the 2012 plan, identified whether they were completed, completed and ongoing, or deferred. The committee identified attentional steps to be taken and considered changes in priorities due to political will or budget issues. The Committee also identified new potential mitigation strategies**:**

Existing and New Mitigation Strategies

Priorities and Programs Outlined in 2012 Plan	**Update**	**Next Steps**
All Tasks	**Completed, Ongoing, or Needing Action?**	
1. Maintain current building codes	Ongoing	
2. Electronic sign	Ongoing	Need for mobile electric signage
3. Snow load design standards	Completed	Remove
4. Training for building inspector	Ongoing	Search & register for training programs
5. Community network to check on elderly population	Ongoing	Better promote through Village Cryer
6. Limit development on unmaintained private roads	Ongoing	
7. Elevate Beaver Brook Rd.	Completed	Remove
8. Upsize culvert on Rockingham Rd.	Completed	Remove
9. Require blasting of ledge on Dartmouth Dr.	Needing Action	Private development needs to occur first
10. Coordinate pre-construction meetings	Ongoing	
11. Post a reminder notice regarding snow ordinance	Ongoing	
12. Post a notice on snow accumulation	Needing Action	Use Village Cryer & e-message sign
13. Adopt and implement stormwater management regulations based on EPA	Ongoing	

requirements for MS-4 communities		
14. Upgrade culvert on Maple Farm Rd.	Needing Action	Lack of funding
15. Education through newspaper and town website	Ongoing	
16. Upgrade culvert on Old Candia Rd.	Ongoing	
17. Hazard Mitigation/Emergency Prep info on town website	Completed	Remove
18. Report of the Hazard Mitigation Committee in Annual Town Report	Needing Action	Will occur after plan adoption
19. Pave/upgrade Hook Rd. and install drainage	Ongoing	Needs funding
20. Code Red or similar Public outreach system	Completed	Remove
21. Provide water when wells run dry	Ongoing	Set up at fire department
22. Encourage State to address flooding issues on Hooksett Rd	Ongoing	
2018 New Proposed Strategies		
Town Radio: improve coordination with all departments	New	Need to price & coordinate
Purchase mobile signage for emergency facilities	New	Must identify funds
Generators for the Highway Department	New	Must identify funds
New Rescue vehicle for Fire Department	New	Must schedule after forecast end of lifecycle

Mitigation Strategy Evaluation Process

Using a similar methodology as the previous plan, the HMP Committee identified new actions based on the updated risk assessment and capability assessment. The new actions were prioritized in combination with the actions carried forward from the previous plan. The STAPLEE method analyzes the Social, Technical, Administrative, Political, Legal, Economic and Environmental aspects of a project and is commonly used by public administration officials and planners for making planning decisions.

The following questions were asked about the proposed mitigation strategies identified in the table below:

- **Social**: Is the proposed strategy socially acceptable to the community? Are there equity issues involved that would mean that one segment of the community is treated unfairly?

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

Each mitigation strategy was evaluated and assigned a score (Good = 3, Average = 2, Poor = 1) based on the above criteria by the Committee. An evaluation chart with total scores for each strategy can be found in the table below. Each strategy was evaluated and prioritized according to the final score. The highest scoring strategies were determined to be of most importance, economically, socially, environmentally, and politically.

STAPLEE CHART **Mitigation Strategy**	Is it **Socially** acceptable?	Is it **Technically** feasible &potentially successful?	Is it **Administratively** workable?	Is it **Politically** acceptable?	Is there **Legal** authority to implement?	Is it **Economically** beneficial?	Is it **Environ-mentally** beneficial?	Total Score
1. Maintain current building codes	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
2. Electronic sign	**3**	**3**	**3**	**2**	**3**	**2**	**2**	**24**
3. Training for building inspector	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
4. Community network to check on elderly population	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
5. Limit development on unmaintained private roads	**2**	**3**	**2**	**2**	**3**	**2**	**3**	**23**
6. Require blasting of ledge on Dartmouth Dr	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**

STAPLEE CHART Mitigation Strategy	Is it **Socially** acceptable?	feasible &potentially successful?	**Administratively** workable?	Is it **Politically** acceptable?	authority to implement?	Is it **Economically** beneficial?	Is it **Environ-mentally** beneficial?	Total Score
7. Coordinate pre-construction meetings	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
8. Post a reminder notice regarding snow ordinance	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
9. Post a notice on snow accumulation	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
10. Adopt and implement stormwater mgt regs based on EPA Reqs for MS-4 communities	**3**	**1**	**1**	**2**	**3**	**2**	**3**	**15**
11. Upgrade culvert on Maple Farm rd	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
12. Education through newspaper and town website	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
13. Upgrade culvert on Old Candia Rd	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
14. Report of Hazmit committee in annual Town Report	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
15. Pave/upgrade Hook Rd and install drainage	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
16. Provide water when wells run dry and when anticipating excessive heat or drought	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
17. Encourage State to address flooding issues on Hooksett Rd	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
18. Town Radio: Coordination with all departments	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
19. Electronic + mobile signage for emergency facilities for such uses as evacuation before a hazard	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**26**
20. Generators for highway dept., Library, and town	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**
21. Fire department – new rescue vehicle (tanker)	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**27**

SECTION VI
PRIORITIZED IMPLEMENTATION SCHEDULE AND FUNDING SOURCES

Implementation Strategy for Priority Mitigation Actions

The Auburn Hazard Mitigation Committee created the following prioritized implementation schedule for the 22 newly identified strategies and six improvements. All agency and grant source acronyms are listed at the end of this section.

Additional funding sources will be researched by the Town of Auburn as required to successfully implement the prior mitigation actions. Grants will be particularly researched on a project-by-project basis to search out the best grant match.

Rank / ID	STAPLEE Score *	Problem Statement	Mitigation Action	Hazard Addressed	Responsible Party	Anticipated Cost	Potential Funding Source	Time-frame
1	**27**	This upgrade will eliminate repetitive flooding and damages to the roadway and adjacent properties.	Upgrade culvert on Old Candia Road	Flood	RA	$50k-$100k	TOB, HM	S
2	**27**	The cost of water provision at the fire stations would be outweighed by the potential impacts to the Town's residents were their wells to run dry during droughts.	Provide water when wells run dry or in drought and when anticipating excessive heat or drought	Drou ght	FD	<$10k	TOB	O
3	**27**	Development of a phone tree or other similar mechanism is a low cost method of ensuring all residents are safe, cared for, and also quickly identifies those in need of emergency services.	Community network to check on elderly population	Ext. heat + cold	FD	<$10k	TOB	O
4	**27**	Upgrades to radio system will improve communication among police, fire, school, and highway departments.	Town Radio: coordinate with all departments	All	FD	<$10k	TOB	s
5	**26**	This upgrade of a large, portable message sign/radar trailer would allow information to be quickly passed to citizens in the event of a critical incident.	Electronic + mobile signage for emergency	All	EM, FD	$10k-$20k	HS, EG, TOB	S

			facilities					
Rank / ID	STAPLEE Score	Problem Statement	Mitigation Action	Hazard Addressed	Responsible Party	Anticipated Cost	Potential Funding Source	Time-frame
6	**27**	It is imperative that current and updated building codes are maintained in order to proactively prepare for or be resilient to natural hazards.	Maintain current building codes	All	BI	<$10k	TOB	O
7	**27**	It is important that the building inspector receives the necessary ongoing training and support to perform best practices and proactively prepare for any hazards.	Training for Building Inspector	All	PZ, BD RA, TE	<$10k	TOB,PD	O
8	**27**	This upgrade will eliminate repetitive flooding and damages to the roadway and adjacent properties.	Pave/upgrade Hook Road and install drainage	Flood	RA, BS HS	$50k-$100k	TOB, HM	L
9	**27**	New rescue vehicles are needed to replace aging equipment so that the Fire Department can sufficiently combat fires in the Town of Auburn.	Fire Dept – new rescue vehicle (tanker)	Fire	FD	>$100k	H	S
10	**27**	Each spring the Town distributes its Annual Report to all residents. Inclusion of a one-page report on the Hazard Mitigation Committee's activities would come at little cost to the Town and advertise the efforts taken by the Committee.	Report of HazMit committee in Annual Town Report	All	HC	<$10k	TOB	S
11	**27**	This is a low cost method of hazard identification for all new development requiring site plan or subdivision review where potential hazards can be identified and solutions established prior to const.	Coordinate pre-construction meetings	All	RA	<$10k	TOB	o
12	**27**	Advertisements in local publications are a low cost way to keep citizens informed about the risks associated with heavy snow accumulation and can potentially reduce the risk of property damage and loss of life from roof or structural collapse.	Post notice on snow accumulation	Snow	BD	$10k-$20k	TOB	O
13	**27**	Reminder notices in local publications are a low cost way to keep citizens informed about snow removal policies and reduce snow removal costs to the Town associated with citizen's non-compliance.	Post reminder notice regard-ing snow ordinance	Snow	BD, BS	<$10k	TOB	O
14	**27**	Advertising through the local newspaper is a low cost method of information dissemination to all households in the Town and would alert residents to the availability of NFIP materials and promote greater awareness of the floodplain, its extents, and	Education through newspaper & town website	All	PD, BD	<$10k	TOB	O

		associated risks of development.						
Rank / ID	STAPLEE Score	Problem Statement	Mitigation Action	Hazard Addressed	Responsible Party	Anticipated Cost	Potential Funding Source	Time-frame
15	**27**	This upgrade will eliminate repetitive flooding and damages to the roadway and adjacent properties.	Upgrade culvert on Maple Farm Rd	Flood	RA	$25k-$50k	TOB, HM	M
16	**27**	If a disaster or storm event were to cut power to large sections of the community for extended time period, it would be helpful to have a generator at the Highway dept. garage and library to meet ongoing needs of Town's road crews.	Generators for highway dept., library, and town	All	RA, LT	$25k-$50k	TOB	L
17	**27**	Upgrades will eliminate repetitive flooding and damages to the roadway and adjacent properties.	Encourage State to address flooding issues on Hooksett rd.	Flood	RA, BS	>$100k	DOT	O
18	**23**	Limiting development would come at no cost to the Town and would assure that no future development is at risk for reduced availability to emergency services due to inadequate roads and lack of access points.	Limit development of unmaintained private roads	Fire/ isolated homes	PZ, BD	<$10k	TOB	O
19	**24**	This is a simple, yet effective means of communication during and prior to natural disasters for getting emergency information to the citizens of Auburn	Electronic sign	All	EM, BS	$10k-$20k	EG	L
20	**15**	Maintenance of the most up-to-date codes and standards is a low cost way to ensure development at the highest known appropriate standards and prevent property damage or loss of life.	Adopt & implement stormwater mgt regs based on EPA Reg. for MS4 comms.	Flood	PD, SC	<$10k	TOB	O
21	**27**	The ledge produces ice and snow hazards for development beyond on Dartmouth Drive and blasting should mitigate this hazard for future development in the area	Require blasting of ledge on Dartmouth	Ice/ snow	PB	>$100k	PD	L

Summary of Agency Acronyms

NHHSEM= New Hampshire Bureau of Emergency Management
NH DOT= New Hampshire Department of Transportation

Summary of Grant Acronyms

EMPG= Emergency Management Preparedness Grant
FMAGP= Fire Management Assistance Grant Program
HMGP= Hazard Mitigation Grant Program
MM= Map Modernization
PDM= Pre-Disaster Mitigation Program

Additional grant related information is in Appendix D.

Cost of Implementation

The following table compares rough estimated costs of implementing each of the prioritized mitigation actions. The actual final project budgets may exceed or be lower than the estimated range. Nonetheless, these figures are assumed to represent a generic project of its type. These estimates are to serve as a comparative tool for project selection and planning purposes. Costs were derived from personal knowledge of the Auburn Hazard Mitigation Committee, past project costs in the Southern New Hampshire region, and Internet searches for project costs from either town requests for proposals or manufacturers' specifications.

	Cost Range				
Project	**< $10,000**	**$10,000-$25,000**	**$25,000-$50,000**	**$50,000-$100,000**	**>$100,000**
23. Maintain current building codes	X				
24. Electronic sign		X			
25. Snow load design standards	X				
26. Training for building inspector	X				
27. Community network to check on elderly population	X				
28. Limit development on unmaintained private roads	X				
29. Elevate Beaver Brook Rd					X
30. Upsize culvert on Rockingham Rd				X	
31. Require blasting of ledge on Dartmouth Dr					X
32. Coordinate pre-construction meetings	X				
33. Post a reminder notice regarding snow ordinance	X				
34. Post a notice on snow accumulation	X				

Project	Cost Range				
	< $10,000	$10,000-$25,000	$25,000-$50,000	$50,000-$100,000	>$100,000
35. Adopt and implement stormwater mgt regs based on EPA Reqs for MS-4 communities	X				
36. Upgrade culvert on Maple Farm rd		X			
37. Education through newspaper and town website	X				
38. Upgrade culvert on Old Candia Rd		X			
39. Hazard Mit/Em Prep info on town website	X				
40. Report of the Hazmit Committee in Annual Town Report	X				
41. Pave/upgrade Hook Rd and install drainage				X	
42. Code Red or similar Public outreach system	X				
43. Provide water when wells run dry	X				
44. Encourage State to address flooding issues on Hooksett Rd	X				

SECTION VII
ADMINISTRATIVE PROCEDURES REGARDING ADOPTION, EVALUATION AND MONITORING OF THE PLAN

"Incorporating hazard mitigation considerations into the thought processes and decision making that comprise local planning reinforces community sustainability and strengthens community planning programs. It ensures that the community survives natural disasters so that it can grow and develop as it was envisioned."

— Michael J. Armstrong, Associate Director for Mitigation, FEMA

Adoption

Upon notification that FEMA has conditionally approved this *Plan*, a public hearing will be held and the Auburn Board of Selectmen will formally adopt the ***Auburn Hazard Mitigation Plan*** as an official statement of town policy. In the future, this *Plan* may constitute a new section of the Auburn Master Plan, in accordance with RSA 674:2. The public hearing shall be properly posted and advertised by the Town in accordance with New Hampshire state law. Documentation that the Auburn Board of Selectmen have formally adopted the *Plan* will be included in the Appendix H.

Adoption of the ***Auburn Hazard Mitigation Plan*** demonstrates the Town's commitment to hazard mitigation. It also qualifies the municipality for federal, state, and local funding and prepares the public for what the community can be expected to do both before and after a natural hazard disaster occurs.

Following adoption, the Hazard Mitigation Committee and the Board of Selectmen shall seek to incorporate the mitigation actions identified in the Prioritized Implementation Schedule of Section VI of the *Plan* into other planning mechanisms, including the Town's Master Plan.

Monitoring, Evaluating and Updates

The ***Auburn Hazard Mitigation Plan*** shall be monitored and evaluated annually to track progress in implementing the mitigation strategies and actions as well as updating the goals and objectives of the *Plan*. The Auburn Board of Selectmen's administrative assistant shall be responsible for initiating this review and scheduling an annual meeting of the Hazard Mitigation Committee. The Auburn Emergency Management Director shall be responsible for ensuring that the *Plan* is updated for FEMA approval at least every 5 years. In addition to reviewing Hazard Mitigation Committee members' progress on projects, the strategy for the following year will be reviewed and new projects will be selected for implementation at the annual meeting.

The Auburn Board of Selectmen's administrative assistant will conduct updates in coordination with the Hazard Mitigation Committee and Auburn Board of Selectmen.

Updates should be made to the *Plan* every three to five years[10] to accommodate actions that have failed or are not considered feasible after a review for their consistency with STAPLEE, the timeframe, the community's priorities, and funding resources. Priorities that were not ranked high, but identified as potential mitigation strategies, should be reviewed as well during the monitoring and update of this *Plan* to determine feasibility of future implementation. Also, at that time any other items identified during the annual meetings will be updated in the *Plan*, including, but not limited to, goals, objectives, identification of past hazard events, and the inventory of town assets vulnerable to hazards.

Keeping with the process of adopting the ***Auburn Hazard Mitigation Plan***, a public hearing to receive comment on the *Plan* maintenance and updating shall be held during the review period, and the Board of Selectmen will adopt the final product.

During the budget process each year, department heads shall be responsible for considering hazard mitigation actions that need to be implemented as well as forwarding new actions that might be necessary to the Board of Selectmen's administrative assistant for inclusion in the annual plan review. The plan will be considered for incorporation into the community's Town Operating Budget, capital improvement plan considerations, and/or other planning mechanisms.

Continued Public Involvement

The public will continue to be invited and encouraged to be involved during this process at monitoring, evaluation and update meetings. All meetings involving implementation or updates of the *Plan* shall be open to the public as is required by RSA 91-A and notices of the meetings will be posted at least 24 hours in advance in a minimum of two locations, such as the town offices and library. The meetings may also be publicized in the local newspaper. To gain additional public involvement, draft copies of the amended *Hazard Mitigation Plan* will be made available at two public locations for review and comment. The document should be left for a minimum of two weeks and then all comments will be considered in drafting final revisions.

[10] FEMA Disaster Mitigation Act of 2000 44 CFR Part 201.6(d)(3) mandates "Plans must be reviewed, revised if appropriate, and resubmitted for approval within five years to continue to be eligible for HMGP project grant funding." (Federal Register Vol. 36, No. 38, Feb 26, 2002, Rules and Regulations, p8852)

APPENDIX A

DEFINITIONS

Areas at Risk: Emergency equipment or areas not needed to respond at the time of a natural disaster, but which could still be threatened if a natural disaster were to occur. These include critical facilities not utilized for emergency response, people and facilities to be protected in the event of a disaster, and/or potential resources for services or supplies in the event of a disaster. Examples include schools, parks, commercial resources, day care facilities, and senior housing.

Critical Facilities: Any building, structure or location that is vital to the hazard response effort, maintains an existing level of protection from hazards for the municipality, and would create a secondary disaster if a hazard were to impact it. Examples include emergency medical services, law enforcement, electric generators, and emergency shelters.

Commercial Economic Impact Areas: These areas include organizations and businesses with more than 25 employees. These are facilities that are vital to the community's economic well-being.

Emergency Operations Plan: A jurisdiction's emergency operations plan is typically designed to establish the procedures that will take place during an emergency and designate who will be responsible to perform those procedures.

Essential Facilities: All critical facilities, areas at risk, commercial economic impact areas, and hazardous material locations.

GIS: Geographic Information Systems includes a form of mapping that enables users to easily locate physical attributes of a community such as dams, bridges, wetlands, steep slopes, etc. Much of the data for these maps is maintained by Complex Systems Research Center in Durham, NH.

Hazard Mitigation: The practice of reducing risks to people and property from natural hazards. FEMA defines hazard mitigation as "any action taken to reduce or eliminate the long-term risk to human life and property from hazards."

Hazardous Materials Facilities: These facilities include active hazardous waste generators, underground storage tanks, and above-ground storage tanks.

Hazardous Waste Generators: Defined by the NH Department of Environmental Services, these are businesses that produce household hazardous waste, or treat and store or dispose of hazardous waste, or be a waste handler or used oil marketer.

APPENDIX B

NEW HAMPSHIRE DAM CLASSIFICATION SCHEDULE

Non Menace (NM) structure means a dam that is not a menace because it is in a location and of a size that failure or misoperation of the dam would not result in probable loss of life or loss to property, provided the dam is:

- Less than six feet in height if it has a storage capacity greater than 50 acre-feet; or
- Less than 25 feet in height if it has a storage capacity of 15 to 50 acre-feet.

Low Hazard (L) structure means a dam that has a low hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in any of the following:

- No possible loss of life.
- Low economic loss to structures or property.
- Structural damage to a town or city road or private road accessing property other than the dam owner's that could render the road impassable or otherwise interrupt public safety services.
- The release of liquid industrial, agricultural, or commercial wastes, septage, Or contaminated sediment if the storage capacity is less than two-acre-feet and is located more than 250 feet from a water body or water course.
- Reversible environmental losses to environmentally-sensitive sites.

Significant Hazard (S) structure means a dam that has a significant hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in any of the following:

- No probable loss of lives.
- Major economic loss to structures or property.
- Structural damage to a Class I or Class II road that could render the road impassable or otherwise interrupt public safety services.
- Major environmental or public health losses, including one or more of the following:
- Damage to a public water system, as defined by RSA 485:1-a, XV, which will take longer than 48 hours to repair.
- The release of liquid industrial, agricultural, or commercial wastes, septage, sewage, or contaminated sediments if the storage capacity is 2 acre-feet or more.
- Damage to an environmentally-sensitive site that does not meet the definition of reversible environmental losses.

High Hazard (H) means a dam that has a high hazard potential because it is in a location and of a size that failure or misoperation of the dam would result in probable loss of human life as a result of:

- Water levels and velocities causing the structural failure of a foundation of a habitable residential structure or commercial or industrial structure, which is occupied under normal conditions.
- Water levels rising above the first floor elevation of a habitable residential structure or a commercial or industrial structure, which is occupied under normal conditions when the rise due to dam failure is greater than one foot.
- Structural damage to an interstate highway, which could render the roadway impassable or otherwise interrupt public safety services.
- The release of a quantity and concentration of material, which qualify as "hazardous waste" as defined by RSA 471-A:2 VI.
- Any other circumstance that would more likely than not cause one or more deaths.

APPENDIX C
BIBLIOGRAPHY, AGENCIES, WEB SITES

I. BIBLIOGRAPHY

City of Charlestown. Hazard Mitigation Plan. Charlestown RI: January 1997.

City of Manchester, New Hampshire Water Works. "Dam Monitoring Program." 12 Feb 2004. <http://www.manchesternh.gov/CityGov/WTR/Wtrshed/Dams.html>

City of Manchester, New Hampshire Water Works. Emergency Action Plan: Tower Hill Dam. Manchester: Manchester Water Works, September 13, 1989.

City of Manchester, New Hampshire Water Works. Emergency Operations Manual. Manchester: Manchester Water Works, November 2003.

City of Manchester, New Hampshire Water Works. "Water Distribution: Distribution Programs." 13 Feb 2004. <http://www.manchesternh.gov/CityGov/WTR/Programs/Home.html>

City of Montpelier Department of Planning and Development. Montpelier Flood Hazard Mitigation Plan. Montpelier, Vermont: May 1998.

Commonwealth of Massachusetts. Flood Hazard Mitigation Planning: A Community Guide. The Commonwealth of Massachusetts, Department of Environmental Management, Flood Hazard Management Program: June 1997.

Federal Emergency Management Agency. Community-Based Hazard Mitigation Planning: Lowering the Risks and Costs of Disasters. New England Training Workshop, 27 August 1998.

Federal Emergency Management Agency. "Federally Declared Disasters by Calendar Year." 26 Jan 2004. <http://www.fema.gov/library/drcys.shtm>

Federal Emergency Management Agency. Federal Response Plan. FEMA, January 2003.

Federal Emergency Management Agency. Flood Insurance Study (FIS): Town of Auburn, New Hampshire, Merrimack County. FEMA, May 1980.

Federal Emergency Management Agency. Hazard Mitigation Planning Handbook. Washington, DC: FEMA, 1997.

Federal Emergency Management Agency. Multi-Hazard Mitigation Planning Guidance Under the Disaster Mitigation Act of 2000. Washington, DC: FEMA, March 2004.

Federal Emergency Management Agency. National Mitigation Strategy: Partnerships for Building Safer Communities. Washington, DC: FEMA, December 6, 1995.

Federal Emergency Management Agency. Post-Disaster Hazard Mitigation Planning Guidance for State and Local Governments. Washington, DC: FEMA, September 1990.

Federal Emergency Management Agency. Protecting Business Operations: Second Report on Costs and Benefits of Natural Hazard Mitigation. Washington, DC: FEMA, August 1998.

Federal Emergency Management Agency. Reducing Losses in High Risk Flood Hazard Areas: A Guidebook for Local Officials. Washington, DC: FEMA, February 1987.

Federal Emergency Management Agency. Understanding Your Risks: Identifying Hazards and Estimating Losses, FEMA 386-2. Washington, DC: FEMA, August 2001.

Florida Department of Community Affairs. The Local Mitigation Strategy: A Guidebook for Florida Cities and Counties. Florida: April 1998.

Golden Gate Weather Services. "New Hampshire Climate Normals (1971-2000)." 27 December 2004. <http://ggweather.com/normals/NH.htm>

Kafka, Alan L. Ph.D. "Why Does the Earth Quake in New England?: The Science of Unexpected Earthquakes, Revised: January 3, 2004." Weston Observatory, Department of Geology and Geophysics, Boston College. 26 Jan 2004. <http://www2.bc.edu/~kafka/Why_Quakes/why_quakes.html>

Makar Ph. D., Jon. "Failure Analysis for Grey Cast Iron Water Pipes." Ottawa: Institute for Research Construction, National Research Council Canada, September 1999. 17 Feb 2004. <http://irc.nrc-cnrc.gc.ca/fulltext/nrcc43363.pdf>

NOAA National Climatic Data Center. "Storm Events." 20 October 2004. <http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms>

National Weather Service Forecast Office. "Climate Data- Past Weather and Normals." 26 Jan 2004. <http://www.erh.noaa.gov/er/gyx/climate.shtml#disclaimer>

National Weather Service Forecast Office. "Winter Weather Summaries issued during the past 120 days." 26 Jan 2004. <http://www.erh.noaa.gov/er/gyx/pns.html>

National Weather Service – National Hurricane Center. "The Saffir-Simpson Hurricane Scale." 23 Jan 2004. <http://www.nhc.noaa.gov/aboutsshs.shtml>

New Hampshire Department of Environmental Services Dam Bureau. "Dams" GIS Data Layer. NHDES GIS Department, June 2002.

New Hampshire Department of Environmental Services Dam Bureau. Environmental Fact Sheet DB-4 "Typical Failure Modes of Embankment Dams," 1997. 23 Jan 2004. <http://www.des.state.nh.us/factsheets/dam/db-4.htm>

New Hampshire Department of Environmental Services Dam Bureau. Environmental Fact Sheet DB-5 "Typical Failure Modes for Stone Faced Earth Dams," 1997. 23 Jan 2004. <http://www.des.state.nh.us/factsheets/dam/db-5.htm>

New Hampshire Department of Environmental Services Dam Bureau. Environmental Fact Sheet DB-6 "Typical Failure Modes for Dam Spillways," 1997. 23 Jan 2004. <http://www.des.state.nh.us/factsheets/dam/db-6.htm>

New Hampshire Department of Environmental Services Dam Bureau. Environmental Fact Sheet DB-7 "Typical Failure Modes for Gated Dam Outlets," 1997. 23 Jan 2004. <http://www.des.state.nh.us/factsheets/dam/db-7.htm>

New Hampshire Department of Environmental Services Dam Bureau. Environmental Fact Sheet DB-11 "Emergency Action Plans: Prudent Planning Required for Dam Owners," 1997. 23 Jan 2004. <http://www.des.state.nh.us/factsheets/dam/db-11.htm>

New Hampshire Department of Environmental Services Shoreland Protection. Environmental Fact Sheet SP-1 "Erosion Control for Construction in the Protected Shoreland Buffer Zone," 1998. 23 Jan 2004. <http://www.des.state.nh.us/factsheets/sp/sp-1.htm>

New Hampshire Department of Environmental Services Watershed Management Bureau Volunteer Lake Assessment Program. "Glossary of Lake Terms." 23 Jan 2004. <http://www.des.state.nh.us/wmb/vlap/glossary.htm>

New Hampshire Homeland Security and Emergency Management (NHHSEM). State of New Hampshire Natural Hazards Mitigation Plan. Concord, NH: NH Bureau of Emergency Management, October 1999.

New Hampshire Department of Safety, Division of Homeland Security and Emergency Management. State of New Hampshire Natural Hazards Mitigation Plan. Concord, NH: NH Bureau of Emergency Management, 2010.

New Hampshire Office of Energy and Planning (NHOEP). "2003 Population Estimates of New Hampshire Cities and Towns." 23 December 2004. <http://nh.gov/oep/programs/DataCenter/Population/documents/2003populationestimates.pdf >

New Hampshire Office of Energy and Planning (NHOEP). "2009 Population Estimates of New Hampshire Cities and Towns." 23 February 2011.

North Carolina Division of Emergency Management Hazard Mitigation Section. "Nor'easters." 23 Jan 2004. <http://www.dem.dcc.state.nc.us/mitigation/noreaster.htm>

Northeast Regional Climate Center. "Comparative Climatic Data for the United States." 26 Jan 2004. <http://www.nrcc.cornell.edu/ccd.html>

Office of Management and Budget. Federal Programs Offering Non-Structural Flood Recovery and Floodplain Management Alternatives. The Office of Management and Budget, June 1998.

Pulli, Jay J. "Seismicity, Earthquakes Mechanisms, and Seismic Wave Attenuation in the Northeastern United States," PhD Dissertation Abstract. MIT, June 10, 1983. 26 Jan 2004. <http://www-eaps.mit.edu/erl/research/theses/abstracts/Pulli.html>

Schwab, J. with K. Topping, et al. Planning for Post-Disaster Recovery and Reconstruction. Planning Advisory Services, Report Number 483/484. Chicago: American Planning Association, December 1998.

Southern New Hampshire Planning Commission. Real Estate Tracking Project- 2004. Manchester, NH: SNHPC, December 2004.

Suffolk County Water Authority (SFWA). "It's Tough Work, But Somebody's Got To Do It." Oakdale, NY: Jan 2003. 17 Feb 2004. <http://www.scwa.com/commercial/currentbill.cfm>

Texas Natural Resource Conservation Commission. Texas Community Officials Primer on Floodplain Planning Strategies and Tools. Texas, June 1994.

Tornado Project Online. "New Hampshire Tornadoes 1950-1995: Hillsborough." 23 Jan 2004. <http://www.tornadoproject.com/>

Town of Auburn, New Hampshire. 2000 Annual Report. Auburn, NH: Town of Auburn, NH, March 2001.

Town of Auburn, New Hampshire. 2001 Annual Report. Auburn, NH: Town of Auburn, NH, March 2002.

Town of Auburn, New Hampshire. 2002 Annual Report. Auburn, NH: Town of Auburn, NH, March 2003.

Town of Auburn, New Hampshire. 2003 Annual Report. Auburn, NH: Town of Auburn, NH, March 2004.

Town of Holden Beach, North Carolina. Community-Based Hazard Mitigation Plan. Holden Beach, NC: State of North Carolina, 2003. As published at: <http://www.ncem.org/mitigation/example_plans.htm#approvedplans>

United States Geological Survey (USGS). "Our Science." 30 December 2004. <http://www.usgs.gov/science.html#hazards>

United States Geological Survey (USGS). "Probabilistic Hazard Lookup by Zip Code, 1996." 30 December 2004. <http://eqint.cr.usgs.gov/eq/html/zipcode.html>

United States Geological Survey (USGS). "The Severity of an Earthquake." 26 Jan 2004. <http://pubs.usgs.gov/gip/earthq4/severitygip.html>

United States Geological Survey (USGS) Earthquake Hazards Program. "ANSS Maps of Recent Earthquake Activity in the USA." 26 Jan 2004. <http://earthquake.usgs.gov/recenteqsUS/Maps/US2/42.44.-73.-71_eqs.html>

University of California Berkeley, National Information Services for Earthquake Engineering. "Damage due to Structural Vibration." 13 Feb 2004. <http://nisee.berkely.edu/bertero/html/damage_due_to_structural_vibration.html#j35>

Wisconsin Department of Natural Resources. Community Flood Mitigation Planning Guidebook.

World Bank. "Reservoir Safety Design." 13 Feb 2004. <http://www.worldbank.org/html/fpd/em/hydro/rsd.stm>

II. AGENCIES

New Hampshire Homeland Security and Emergency Management		(603) 271-2231
Federal Emergency Management Agency		1-877-336-2734
NH Regional Planning Commissions:		
	Central NH Regional Planning Commission	226-6020
	Lakes Region Planning Commission	279-8171
	Nashua Regional Planning Commission	424-2240
	North Country Council	444-6303
	Rockingham Planning Commission	778-0885
	Southern New Hampshire Planning Commission	669-4664
	Southwest Region Planning Commission	357-0557
	Strafford Regional Planning Commission	742-2523
	Upper Valley Lake Sunapee Regional Planning Commission	448-1680
NH Executive Department:		
	New Hampshire Office of Energy and Planning	(603) 271-2155
NH Department of Cultural Resources		(603) 271-2392
	Division of Historical Resources	603-271-3483
NH Department of Environmental Services		(603) 271-3503
	Air Resources	271-1386
	Waste Management	271-2925
	Water Conservation	271-0659
	Dam Safety & Maintenance	271-3406
NH Fish and Game Department		(603) 271-3421
NH Department of Resources and Economic Development		(603) 271-2411
	Division of Economic Development	(603) 271-2591
	Division of Forests and Lands	(603) 271-2214
	Division of Parks and Recreation	(603) 271-3556
NH Department of Transportation		(603) 271-3734
U.S. Department of Commerce		(202) 482-2000
	National Oceanic and Atmospheric Administration	1-301-713-1208
	National Weather Service; Gray, Maine	207-688-3216
U.S. Department of the Interior		
	U.S. Fish and Wildlife Service	1-800-344-9453
	U.S. Geological Survey	1-888-275-8747
U.S. Department of Agriculture		
	Natural Resource Conservation Service	888-526-3227

III. WEBSITES

Sponsor	Internet Address	*Summary of Contents*
Natural Hazards Research Center, U. of Colorado	http://www.colorado.edu/hazards/	*Searchable database of references and links to many disaster-related web sites.*
Atlantic Hurricane Tracking Data by Year	http://weather.unisys.com/hurricane/	*Hurricane track maps for each year, 1886 – 1996*
National Emergency Management Association	http://nemaweb.org	*Association of state emergency management directors; list of mitigation projects.*
NASA Natural Disaster Reference Database	http://gcmd.nasa.gov/Resources/pointers/hazards.html	*Searchable database of worldwide natural disasters.*
U.S. State and Local Gateway	http://www.fedgate.org/fg_statelocal.htm	*General information through the federal-state partnership.*
National Weather Service	http://nws.noaa.gov/	*Central page for National Weather Warnings, updated every 60 seconds.*
USGS Real Time Water Data	http://waterdata.usgs.gov/nwis/rt	*Provisional hydrological data*
Dartmouth Flood Observatory	http://www.dartmouth.edu/~floods/	*Observations of flooding situations.*
FEMA, National Flood Insurance Program, Community Status Book	https://www.fema.gov/national-flood-insurance-program-community-status-book	*Searchable site for access of Community Status Books*
Florida State University Atlantic Hurricane Site	http://www.met.fsu.edu/explores/tropical.html	*Tracking and NWS warnings for Atlantic Hurricanes and other links*
National Lightning Safety Institute	http://lightningsafety.com/	*Information and listing of appropriate publications regarding lightning safety.*
NASA Optical Transient Detector	http://www.nasa.gov/centers/marshall/news/background/facts/otd.html	*Space-based sensor of lightning strikes*
LLNL Geologic and Atmospheric Hazards	https://www.llnl.gov/	*General hazard information developed for the Deptment of Energy.*
The Tornado Project Online	http://www.tornadoproject.com/	*Information on Tornadoes, including details of recent impacts.*
National Severe Storms Laboratory	http://www.nssl.noaa.gov/	*Information about and tracking of severe storms.*
Earth Satellite Corporation	http://www.earthsat.com/HTML/naturalvue/	*Flood risk maps searchable by state.*
USDA Forest Service Web	http://www.fs.fed.us/fire/management/	*Information on forest fires and land management.*
Sponsor	*Internet Address*	*Summary of Contents*

APPENDIX D
Technical and Financial Assistance for Hazard Mitigation

This matrix provides information about key all-hazards grant programs from the Departments of Homeland Security, Justice, Transportation, Health and Human Services, and Education, under which state, local, and tribal governments, first responders, and the public are eligible to receive preparedness, response, recovery, mitigation, and prevention assistance.

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
Programs to prepare the Nation to address the consequences of natural and man-made disasters and emergencies.				
Department of Homeland Security	*Border and Transportation Security Directorate*	State Homeland Security Grant Program www.ojp.usdoj.gov	This core assistance program provides funds to build capabilities at the state and local levels and to implement the goals and objectives included in state homeland security strategies and initiatives in the State Preparedness Report.	State governments
	Emergency Preparedness and Response Directorate	Emergency Management Performance Grants www.fema.gov http://www.fema.gov/government/grant/index.shtm	To assist State and local governments in enhancing and sustaining all-hazards emergency management capabilities.	States with pass through to local emergency management organizations
	Emergency Preparedness and Response Directorate	Assistance to Firefighters Grant Program www.usfa.fema.gov/grants http://www.firegrantsupport.com/afg/	The primary goal of the Assistance to Firefighters Grants (AFG) is to meet the firefighting and emergency response needs of fire departments and nonaffiliated emergency medical services organizations.	Local, State, and Regional Fire Departments and agencies.
	Emergency Preparedness and Response Directorate	State and Local Emergency Operation Centers (EOCs) www.fema.gov http://www.fema.gov/government/grant/index.shtm	To improve emergency management and preparedness capabilities by supporting flexible, sustainable, secure, and interoperable Emergency Operations Centers (EOCs) with a focus on addressing identified deficiencies and needs.	States; local governments may be sub-grantees of the State

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	Emergency Preparedness and Response Directorate	Citizen Corps www.citizencorps.gov	To bring community and government leaders together to coordinate community involvement in emergency preparedness, planning, mitigation, response and recovery.	States with a pass through to local governments
Department of Homeland Security	*Emergency Preparedness and Response Directorate*	National Fire Academy Training Grants www.fema.gov	To provide financial assistance to State Fire Training Systems for the delivery of a variety of National Fire Academy courses/programs.	State fire training organizations
	Emergency Preparedness and Response Directorate	Emergency Management Institute Training Assistance www.fema.gov	To defray travel and per diem expenses of State, local and tribal emergency management personnel who attend training courses conducted by the Emergency Management Institute, at the Emmitsburg, Maryland facility; Bluemont, Virginia facility; and selected off-site locations. Its purpose is to improve emergency management practices among State, local and tribal government managers, in response to emergencies and disasters. Programs embody the Comprehensive Emergency Management System by unifying the elements of management common to all emergencies: planning, preparedness, mitigation, response, and recovery.	State, local, and tribal emergency managers

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	Emergency Preparedness and Response Directorate	Hazardous Materials Assistance Program (CERCLA Implementation)	Provide technical and financial assistance through the States to support State, local and tribal governments in oil and hazardous materials emergency planning and exercising. To support the Comprehensive Hazardous Materials (HAZMAT) Emergency Response – Capability Assessment Program (CHER-CAP) activities.	State, local, and tribal governments, state emergency response committees, local emergency planning commissions
	Emergency Preparedness and Response Directorate	Interoperable Communications Equipment Grant http://www.fema.gov/government/grant/index.shtm	To provide governance, planning, training and exercise, and equipment funding to States, Territories, and local and tribal governments to carry out initiatives to improve interoperable emergency communications, including communications in collective response to natural disasters, acts of terrorism, and other man-made disasters.	N/A
Department of Homeland Security	*Emergency Preparedness and Response Directorate*	Chemical Stockpile Emergency Preparedness Program www.fema.gov	A cooperative agreement to enhance emergency preparedness capabilities of the States and local communities at each of the eight chemical agent stockpile storage facilities. The purpose of the program is to assist States and local communities in efforts to improve their capacity to plan for and respond to accidents associated with the storage of chemical warfare materials.	State and local governments and the general public in the vicinity of the eight chemical agent stockpile storage facilities.
	National Preparedness Directorate	**Metropolitan Medical Response System** http://www.fema.gov/mmrs	To provide contractual funding to the 124 largest metropolitan jurisdictions to sustain and enhance the integrated medical response plans to a WMD terrorist attack.	Local governments

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
Department of Justice	*Office of Domestic Preparedness*	State Domestic Preparedness Equipment Support Program http://www.ojp.usdoj.gov/odp/equipment.htm	Funding will be provided to enhance first responder capabilities, and to provide for equipment purchases and exercise planning activities for response to Weapons of Mass Destruction (WMD) domestic terrorist incidents.	State and local governments
	Office of Community Oriented Police Services (COPS)	COPS Interoperable Communications Technology Program www.cops.usdoj.gov	To facilitate communications interoperability public safety responders at the state and local level.	Tribal, State, and local law enforcement agencies
Department of Health and Human Services		Public Health and Social Services Emergency Fund www.hhs.gov	To continue to prepare our nation's public health system and hospitals for possible mass casualty events, and to accelerate research into new treatments and diagnostic tools to cope with possible bioterrorism incidents.	Individuals, families, Federal, State, and local government agencies and emergency health care providers
	Health Resources and Services Administration	State Rural Hospital Flexibility Program www.ruralhealth.hrsa.gov	To help States work with rural communities and hospitals to develop and implement a rural health plan, designate critical access hospitals (CAHs), develop integrated networks of care, improve emergency medical services and improve quality, service and organizational performance.	States with at least one hospital in a non-metropolitan region

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
Department of Health and Human Services	*Health Resources and Services Administration*	EMS for Children www.hrsa.gov	To support demonstration projects for the expansion and improvement of emergency medical services for children who need treatment for trauma or critical care. It is expected that maximum distribution of projects among the States will be made and that priority will be given to projects targeted toward populations with special needs, including Native Americans, minorities, and the disabled.	State governments and schools of medicine
	National Institute of Health	Superfund Hazardous Substances Basic Research and Education www.nih.gov	To establish and support an innovative program of basic research and training consisting of multi-project, interdisciplinary efforts that may include each of the following: (1) Methods and technologies to detect hazardous substances in the environment; (2) advance techniques for the detection, assessment, and evaluation of the effects of hazardous substances on humans; (3) methods to assess the risks to human health presented by hazardous substances; and (4) and basic biological, chemical, and physical methods to reduce the amount and toxicity of hazardous substances.	Any public or private entity involved in the detection, assessment, evaluation, and treatment of hazardous substances; and State and local governments
	Centers for Disease Control	Immunization Research, Demonstration, Public Information and Education www.cdc.gov	To assist States, political subdivisions of States, and other public and private nonprofit entities to conduct research, demonstrations, projects, and provide public information on vaccine-preventable diseases and conditions.	States and nonprofits organizations

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	Centers for Disease Control	Surveillance of Hazardous Substance Emergency Events www.atsdr.cdc.gov	To assist State health departments in developing a State-based surveillance system for monitoring hazardous substance emergency events. This surveillance system will allow the State health department to better understand the public health impact of hazardous substance emergencies by developing, implementing, and evaluating a State-based surveillance system.	State, local, territorial, and tribal public health departments
Department of Health and Human Services	*Centers for Disease Control*	Human Health Studies, Applied Research and Development www.atsdr.cdc.gov	To solicit scientific proposals designed to answer public health questions arising from situations commonly encountered at hazardous waste sites. The objective of this research program is to fill gaps in knowledge regarding human health effects of hazardous substances identified during the conduct of ATSDR's health assessments, consultations, toxicological profiles, and health studies, including but not limited to those health conditions prioritized by ATSDR.	State health departments
Department of Education	Office of Safe and Drug free Schools (OSDFS)	Readiness and Emergency Management for Schools http://www.ed.gov/programs/dvpemergencyresponse/index.html/	This grant program supports efforts by LEAs to improve and strengthen their school emergency management plans, including training school personnel and students in emergency management procedures; communicating with parents about emergency plans and procedures; and coordinating with local law enforcement, public safety, public health, and mental health agencies.	School Districts

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
Department of Transportation	*Pipeline and Hazardous Materials Safety Administration (PHMSA)*	Hazardous Materials Emergency Preparedness Training and Planning Grants http://phmsa.dot.gov/hazmat/grants	Increase state, local, territorial, and Native American tribal effectiveness to safely and efficiently handle HazMat accidents and incidents; enhance implementation of the Emergency Planning and Community Right-to-Know Act of 1986; and encourage a comprehensive approach to emergency planning and training by incorporating response to transportation standards.	States, local, territorial, tribal governments.
Programs to coordinate Federal response efforts and to assists states, localities, and tribes in responding to disasters and emergencies.				
Department of Homeland Security	*Emergency Preparedness and Response Directorate*	Urban Search and Rescue www.fema.gov	To expand the capabilities of existing Urban Search and Rescue Task Forces.	28 existing US&R Task Forces
Programs to provide assistance to States, localities, tribes, and the public to alleviate suffering and hardship resulting from Presidentially declared disasters and emergencies caused by all types of hazards.				
Department of Homeland Security	*Emergency Preparedness and Response Directorate*	Individuals and Households Program http://www.fema.gov/assistance/process/guide.shtm	**To provide assistance to individuals and families who have been affected by natural or man-made Presidentially declared disasters. Funding provided from the Disaster Relief Fund.**	Individuals and Families

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	Emergency Preparedness and Response Directorate	Public Assistance http://www.fema.gov/government/grant/pa/index.shtm	**To provide assistance to states, localities, tribes, and certain non-profit organizations affected by natural or man-made Presidentially declared disasters. Funding provided from the Disaster Relief Fund**	State, local and tribal governments; private non-profit organizations
	Emergency Preparedness and Response Directorate	Fire Management Assistance Grant Program http://www.fema.gov/government/grant/fmagp/index.shtm	**Provide funds to States, local, and tribal governments for the mitigation, management, and control of wildland fires posing serious threats to improved property.**	State, local and tribal governments
Small Business Administration	*Office of Disaster Assistance*	Disaster Loan Program http://www.sba.gov/services/disasterassistance/	**To offer financial assistance to those who are trying to rebuild their homes and businesses in the aftermath of a disaster.**	Individuals, families, private sector
Department of Justice	*Office for Victims of Crime*	Antiterrorism and Emergency Assistance Program http://www.ojp.usdoj.gov/ovc/publications/infores/terrorism/	**To provide assistance programs for victims of mass violence and terrorism occurring within and outside the United States and a compensation program for victims of international terrorism.**	Public and private nonprofit victim assistance agencies
Programs to reduce or eliminate future risk to lives and property from disasters.				
Department of Homeland Security	*Emergency Preparedness and Response Directorate*	Hazard Mitigation Grant Program http://www.fema.gov/government/grant/hmgp/index.shtm	**To provide assistance to states, localities, and tribes to fund projects that will reduce the loss of lives and property in future disasters. Funding is provides from the Disaster Relief Fund and administered by the states according to their own priorities.**	State, local, and tribal governments

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	Emergency Preparedness and Response Directorate	Pre-Disaster Mitigation Program http://www.fema.gov/government/grant/pdm/index.shtm	**This program provides funding for mitigation activities before disaster strikes. In recent years it has provided assistance for mitigation planning. In FY03, Congress passes a competitive pre-disaster mitigation grant program that will include project funding.**	State, local, and tribal governments
Department of Homeland Security	*Emergency Preparedness and Response Directorate*	Flood Mitigation Assistance Program (FMA) http://www.fema.gov/government/grant/fma/index.shtm	**The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP).FEMA provides FMA funds to assist States and communities implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program.**	State, local and tribal governments

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
	Emergency Preparedness and Response Directorate	Repetitive Flood Claims Program (RFC) http://www.fema.gov/government/grant/rfc/index.shtm	**The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Up to $10 million is available annually for FEMA to provide RFC funds to assist States and communities reduce flood damages to insured properties that have had one or more claims to the National Flood Insurance Program (NFIP).**	State, local and tribal governments
	Emergency Preparedness and Response Directorate	Severe Repetitive Loss Program (SRL) http://www.fema.gov/government/grant/srl/index.shtm	**The Severe Repetitive Loss (SRL) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to severe repetitive loss (SRL) structures insured under the National Flood Insurance Program (NFIP).**	State, local and tribal governments
	Emergency Preparedness and Response Directorate	Map Modernization http://www.fema.gov/plan/prevent/fhm/mm_main.shtm	**This funding provides assistance to develop digital flood maps, support flood-mapping activities and expand the Cooperating Technical Partners Program to communities and regional entities.**	State, local and tribal governments
Programs to interdict potentially hazardous events from occurring				

Agency	Office/ Directorate	Program	Purpose	Funding Beneficiaries
Department of Health and Human Services	*Centers for Disease Control*	Immunization Grants www.cdc.gov	To assist States and communities in establishing and maintaining preventive health service programs to immunize individuals against vaccine-preventable diseases.	States
Other				
Department of Housing and Urban Development	*NH Office of Energy and Planning*	Community Development Block Grant (CDBG) Program http://www.hud.gov/offices/cpd/communitydevelopment/programs/	HUD provides flexible grants to help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations.	State, local and tribal governments

Mitigation Programs of Other NH State Agencies
The following State of New Hampshire agencies are directly or indirectly involved in activities that include Hazard Mitigation Planning and/or program implementation:

- *NH Department of Transportation Bureau of Repair and Maintenance*
- *NH OSP/NFIP Program*
- *NH OSP Coastal Program*
- *NH DRED Division of Forests and Lands*
- *NHDES Water Resources Division – Dam Safety Program*
- *NHDES Wetlands Program*
- *NHDES Shoreline Protection*

APPENDIX E

STAPLEE AND PROJECT EVALUATION

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

- ***Social*:** Is the proposed action socially acceptable to the community? Are there equity issues involved that would mean that one segment of the community is treated unfairly?

- *Technical:* Is the proposed action technically feasible and will it work? Is it a long term solution?

- *Administrative:* Can the community implement the action? Is there someone to coordinate and lead the effort? Are there funding sources already allocated or available for this project?

- *Political:* Is the action politically acceptable? Does the project help to achieve other community objectives?

- *Legal:* Is the community authorized to implement the proposed action? Is there a clear legal basis of precedent for this project or is there chance of legal challenge?

- *Economic:* What are the costs and benefits of this action? Does the cost seem reasonable for the size of the problem and the likely benefits? Does the project reduce potential future damages from disasters?

- *Environmental:* How will the action impact the environment, i.e. land, water, animals, plants? Will the action need and meet environmental regulatory approvals?

APPENDIX F

COMMITTEE MEETING AGENDAS, MINUTES AND ATTENDANCE SHEETS

Auburn Hazard Mitigation Committee Meeting

AGENDA: Meeting # 1
December 7, 2016
Town Hall, 47 Chester Road
Auburn, NH 03032

1. Introductions

a. Elect Chair
b. Minute Taker
c. Ground Rules (Plan requirements, Time Match, Who's Missing?)

2. Overview of the Hazard Mitigation Planning Process

a. Review of materials (including maps)
b. Posting requirements
c. Public Involvement and Outreach
d. Purpose and benefits of Hazard Mitigation Plans
e. Tasks to complete the plan update (see attached)
f. Review HMP Goals (page 11)
g. Development Trends

3. Identify/Update Past and Potential Hazards (HMP Section II)

a. Identify past hazard events in Auburn
   Natural hazards are addressed as follows:
   i. Flooding
   ii. Wind
   iii. Wildfire
   iv. Ice and Snow Events
   v. Earthquakes
   vi. Other Hazards
b. Discuss maps
c. Hazard Vulnerability Assessment

4. Task List for Meeting #2

a. Hazard Identification and Probability
b. Hazard Vulnerability Assessment
c. Costs
d. Photos

5. Next Meeting Schedule_____ and Adjournment

Town of Auburn
Hazard Mitigation
Committee Meeting
December 7, 2016

Present: William Herman, Town Administrator; Sylvia von Aulock & Derek Shooster, SNHPC; Ed Gannon, Fire Chief; Denise Royce, Land Use Administrator; Carrie Rouleau-Cote, Building Inspector; Lil Deebs, Police Department; Michael Dross, Road Agent; Lori Collins, AVS Principal.

1. Introductions:

Ms. Von Aulock began the meeting with Introductions and started with the first thing on the agenda was to elect a Chair and a Minute Taker.

Elect Chair

Ms. Royce moved to elect Chief Gannon as the Chair, seconded by Lil Deeb. Everyone was in agreement.

Minute Taker

Mr. Gannon moved to elect Ms. Royce as the Minute Taker, seconded by Lil Deeb. Everyone was in agreement.

Ground Rules

Ms. Von Aulock began by talking about FEMA and having the public invited to these meetings. Ms. Von Aulock moved on to talk about outreach events with Chief Gannon and how to create an outreach program to show what Hazard Mitigation is all about.

Ms. Von Aulock moved on to discuss budget and how SNHPC would do all the work and how it goes towards the match and preparing public safety handouts. That time would go towards time matched. What they would do is set up a small booth like at the Snowflake Fair. Ms. Von Aulock stated that it's usually a year process. Ms. Von Aulock indicated that there would be a meeting every 6 weeks.

Discussions were as follows:

- Existing town Land Use
- Future Land Use
- Identified Hazard Zones
- Who's Missing –
    - Bill Herman – Selectmen
    - Denise Royce – Land Use/PB & ZBA

Ms. Von Aulock went through the Table of Contents of the Town of Auburn's Hazard Mitigation Plan dated 2012.

VII – CIP
Mitigation Strategies
Adoption Procedures

2. Overview of the Hazard Mitigation Planning Process

Review of Materials (including maps)

Ms. Von Aulock went through the List of Maps within the plan.

Posting Requirements

Ms. Von Aulock talked about the Board and the Town of Auburn website and how we would have to let FEMA know where and when the meeting would be held.

Public Involvement and Outreach

This was discussed above.

Purpose and Benefits of Hazard Mitigation Plans

Ms. Von Aulock started by looking into the book and purpose of which some would be updated and moved on to talk about the purpose which is located on Page 3 of the Hazard Mitigation Plan book. This plan also talks about the existing Auburn Emergency Operations Plan which is located on Page 6.

Ms. Von Aulock went on to talk about What is Hazard Mitigation which is located on Page 2 and indicated that FEMA is very important.

At this time, Ms. Von Aulock asked if there were any questions. None were noted.

Tasks to Complete the Plan Update
Review HMP Goals (page 11)
Development Trends

Ms. Von Aulock handed out a packet which talked about the Auburn Hazard Mitigation Committee Tasks Meeting 1, December 7th, 2016.

Ms. Von Aulock stated that Section 4 & Section 5 would be updated to reflect the Group as follows:

- William Herman – Board of Selectmen
- Denise Royce – Land Use Administrator (PB & ZBA)
- Carrie Rouleau-Cote – Building Inspector
- Ed Gannon – Fire Chief
- Lori Collins – School Principal
- Lil Deeb – Police Department

Newspaper – Union Leader & Auburn Village Crier
Hooksett Banner
Derry News
School Newspaper

Ms. Von Aulock stated that a notice could be placed in one of the above referenced to serve as an outreach as well. It was also pointed out that there was something on Facebook called "Auburn NH Community Group" which was created by Linda Coulter.

A brief discussion ensued with regard to the Town of Auburn Deliberative and voting day which is scheduled for March14th, 2017 to possibly set up an outreach booth. Mr. Herman stated that it would require the moderator's approval to do anything.

It was believed that the School Deliberative was scheduled for February 26th but Mr. Herman was unsure.

Ms. Von Aulock moved on to talk about the Auburn Emergency Operations Plan and Mr. Herman believed that 2015 was the last time it was done but indicated that he would find out when.

Ms. Von Aulock asked about the CIP (Capital Improvements Plan) and the culvert replacement and believed that they would want to know about that now. Mr. Herman stated that there was not a current one adopted yet as the Planning Board was in the process and that the school was not in it. Ms. Collins indicated that she did not believe they had a plan. Mr. Herman asked what the amount was in order to be in the CIP. Ms. Royce stated that it was anything that was over $10,000.

Mr. Herman and Ms. Collins talked about security. Ms. Collins explained how Homeland Security had conducted an audit and how they could not do it without doing renovations to the school. Ms. Von Aulock asked what the name of the plan was. Ms. Collins stated that it was called "Renovation and Addition." Ms. Von Aulock asked Ms. Collins to put something together to explain the "Renovation and Addition."

Discussion ensued with regard to the Zoning Ordinance flood plain and setbacks. Mrs. Rouleau-Cote stated that it was the International Code and the State Fire Code.

It was pointed out that the 2007 Master Plan is in the process of being updated and that the Planning Board would be moving forward within the next month or two.

Chief Gannon talked about the MCI Plan which was the Mass Casualty Incident Plan and Ms. Von Aulock asked Chief Gannon to prepare an explanation on this for the report.

Mr. Shooster moved on to talk about the Plan Development Steps on Page 6 of the Hazard Mitigation Plan.

Next, Ms. Von Aulock talked about Page 9, Hazard Mitigation Goals of the Town of Auburn and went through the 7 goals identified within the Hazard Mitigation Plan and stated that FEMA and Homeland Security will go back and see that we've included these goals. Mr. Herman stated that Auburn's hazard was flooding and that this year we've experienced a drought. Discussion ensued with regard to the roads in Auburn and how well the roads in the Town of Auburn were.

Ms. Von Aulock moved on to Page 13, Current Land Use Development Trends in Auburn and explained that Mr. Shooster would be coming back to meet with Mrs. Rouleau-Cote and Ms. Royce at some time to go through all the new developments that has occurred within the past five (5) years.

Ms. Von Aulock asked Chief Gannon and Mr. Dross about photos of flooding and rescues and if they could put something together so that they could be included and to include the storm date and storm name and location on which the photos were taken. Ms. Von Aulock stated that Mr. Shooster would be putting together a list of recent storms to be included on Page One of the Hazard Mitigation Committee Tasks. Ms. Von Aulock asked if there were any micro burst that had occurred within the Town of Auburn. Both Mr. Herman and Chief Gannon talked about the micro burst that occurred on Manchester Water Works property that affected approximately 10 to 15 acres of land. Ms. Von Aulock asked Chief Gannon if he could put something together about the micro burst and Chief Gannon said yes. Mr. Herman indicated that the Town of Auburn was reimbursed from FEMA for all of these storms.

Ms. Von Aulock asked about flooding and updating this and started with Lake Massabesic. Mr. Herman pointed out that approximately 2 to 3 years ago on Manchester Road which is called Severance Beach. Mr. Dross added that DOT should have raised the road and they did not. Mr. Dross also talked about how Hook Road has been fixed and should be removed from the list. Ms. Von Aulock stated that she would need the year that it was repaired and the cost. Mr. Dross moved on to talk about Beaver Brook and stated that the Town of Londonderry did the repairs. Discussion ensued with regard to Pingree Hill Road that was identified on the map locations which was fixed and still outstanding and questionable.

1. **Identify/Update Past and Potential Hazards (HMP Section II)**

At this time, Mr. Shooster directed everyone to the handout that was given to everyone and everyone went through the past and potential hazards (Hazard Vulnerability Assessment). Ms. Von Aulock pointed out that this was a good guide to show how the sections will change.

Hazard Vulnerability Assessment

Ms. Von Aulock went on to discuss the Hazard Vulnerability Assessment which was on Page 2 of the handout and went through and rated each as follows:

1 being low

2 being medium
3 being high

Discussion ensued with regard to Hurricane Irene and Chief Gannon stated that he would check to see if the Fire Department had any photos.

Beaver activity was marked on the map and that there was a cost of $20,000 for tree removal within the Town of Auburn.

Discussion moved on to talk about Dams and Ms. Von Aulock asked if there had been any work done on them. Mr. Dross stated that Manchester Water Works owns most of the dams and that they have ongoing maintenance. Mr. Herman added that if Tower Hill goes, a lot of Auburn would be affected.

Ms. Deeb added that she would check at the Police Department regarding the micro burst that occurred on Manchester Water Works property. Ms. Von Aulock asked Chief Gannon about lightening and if there was any damages and what the cost was within the last five (5) years (page 27). Ms. Von Aulock asked about wild fires and Chief Gannon added that he would check on areas including the island that burned for two (2) weeks.

Discussion moved on to if there were any isolated homes within the Town of Auburn. Chief Gannon indicated that it has stayed the same thanks to the Planning Department. Mr. Dross added that Kimball's Point was a maintained road. Mrs. Rouleau-Cote added that there were fire hydrants in the area.

Target Hazards included NH Signs due to the high levels of mercury according to Chief Gannon. Earthquakes were discussed on Page 34. Utility Pipe Failure – pointed to Cottage Avenue where there was a water line break last year which then included a Betterment Assessment for those involved of which Manchester Water Works took it over.

Chief Gannon would be writing something up with regard to terrorism.

2. **Task List for Meeting #2**

    a. **Hazard Identification and Probability**
    b. **Hazard Vulnerability Assessment**
    c. **Costs**
    d. **Photos**

It was determined that the discussion at the next meeting would start on Page 39 – Vulnerability Assessment Updated.

3. **Next Meeting Schedule _____ and Adjournment**

Next Meeting is Scheduled for Wednesday, February 1st, 2017 at 10:00 A.M. to 12:00 P.M. and Adjournment

Mr. Shooster suggested that any photos that were found should be e-mailed to him.

The Meeting Adjourned at 12:08 P.M.

The next Hazard Mitigation Meeting will tentatively be held at the Town Hall, 47 Chester Road on Wednesday, February 1st, 2017.

Town of Auburn, New Hampshire

Hazard Mitigation Committee Meeting #1

December 7, 2016
10:00AM

Town Hall
47 Chester Road, Auburn, NH

ATTENDANCE SHEET

Name	Position Title/ Department Affiliation	E-mail & Phone
Derek Shooster	Assistant Planner, SNHPC	603.669.4664 DSHOOSTER@SNHPC.ORG
Ed Gannon	Fire Chief	603-765-4410 chief@auburnfire.org
Lori Collins	Principal	(603)4832769 X1022 lcollins@sau15.net
Mike Dross	Road Agent	303-4223
Lillian Deeb	Auburn Police	ldeeb@townofauburnnh.com
Carrie Rouleau-Côté	Building Official	bldginspc@townofauburnnh.com
Bill Herman	Town Administrator	townadmin@townofauburnnh.com
Denise Royce	Land Use Admin	planning@townofauburnnh.com
Sylvia von Aulock	Deputy Executive Director, SNHPC	SVONAULOCK@SNHPC.ORG

Auburn Hazard Mitigation Committee Meeting

AGENDA: Meeting # 2
10:00 AM February 1, 2017
Town Hall, 47 Chester Road
Auburn, NH 03032

1. **Call to Order**
2. **Approve the Minutes of December 7, 2016 meeting**
3. **Review Task List From Meeting #1**
    a. Hazard Identification and Probability, and related actions
    b. Costs
    c. Photos
    d. Overview of Recent Development Trends
4. **Vulnerability Assessment (Section III): Identify/Update Critical Facilities**
    a. Review risk by hazards, consideration of past events and their associated costs
    b. Definition of Critical Facilities, Areas at Risk, Commercial Economic Impact Areas, and Hazardous Waste Sites
    c. Review of Critical Facilities in current plan and identify those that are not listed or those that have changed.
5. **Mitigation Programs (Sections IV & VI)**
    a. Review existing mitigation strategies & programs, matrix, and summary
    b. Identify new mitigation strategies
6. **Task List for Meeting #3**
    a.
    b.
    c.
    d.
7. **Next Meeting Schedule_____ and Adjournment**

Town of Auburn
Hazard Mitigation
Committee Meeting
February 1, 2017

Present: William Herman, Town Administrator; Cam Prolman and Derek Shooster, SNHPC; Ed Gannon, Fire Chief; Denise Royce, Land Use Administrator; Carrie Rouleau-Cote, Building Inspector; Ray Pelton, Police Department; Michael Dross, Road Agent; Lori Collins, AVS Principal.

Also Present: Sylvia von Aulock, Tony Collins

Call to Order: 10:03am

Mr. Shooster reiterated that Chief Gannon was voted in as Chair and that Ms. Royce was voted in to be the minute taker.

Approval of Minutes of December 7, 2016

Mr. Herman made a motion to approve the minutes of December 7, 2016, seconded by Mr. Dross. All were in favor and the motion passed.

Review Task List from Meeting #1

Mr. Shooster went over the task list from the last meeting at which time task were given to each individual.

Mr. Prolman believed that they could get some FEMA and Homeland Security Hazard Mitigation materials to be used as a public outreach program and Ms. Collins stated that she could put some at the school and Chief Gannon added that they could put some at the Safety Complex and also the Town Hall as well. Mr. Herman believed that they could probably scan it and put it on the town's website.

Mr. Shooster asked about collecting any information on costs associated with dealing with anything related to hazard planning, mitigation, etc.… and that he has received some items from Mr. Herman with regard to culverts and bridge in town and asked if anyone had any materials that they could dig up related to flooding or storm damage that has been a cost to the town. Mr. Gannon said that he did get some information to relay to him and that he would send them over to him.

Mr. Gannon talked about the wildland fires and that he had a personnel list and would get more information to Mr. Shooster in that regard. Mr. Shooster stated that he has not received any photos of natural disasters that has occurred within the last five (5) years and asked if anyone had any. Mr. Gannon informed Mr. Shooster that he had some old photos but unfortunately they were not tied to a specific event but that he had some events that occurred recently that he could put a date and time of the occurrence. Mr. Shooster believed they could figure out the date of the occurrence as well. Mr. Prolman pointed out that it did not necessarily have to be related to a storm. Mr. Gannon

indicated that he found some photos on a hard drive showing old flooding photos that he would send to Mr. Shooster.

Mr. Shooster asked about the down burst that occurred on the Auburn/Manchester line and if there were any photos. Mr. Gannon stated that the down burst occurred around July 24, 2008 and because it only affected two (2) empty lots that Manchester Water Works owned and that there was no physical damage to any buildings and luckily all the trees fell onto the property and did not affect power lines or the road. Mr. Gannon further stated that Manchester Water Works had someone come in to clean it up. A brief discussion ensued with regard to the down burst that occurred on Manchester Water Works property.

Mr. Shooster asked about lightning rods on buildings. Mr. Gannon stated that the lightning rods on their buildings are gone but you will still find some lightning rods on some of the homes in town.

Mr. Shooster asked about wild land fires. Mr. Gannon stated that he would get those to him electronically. Mr. Shooster asked about water line leaks in Auburn within the last five (5) years. Mr. Gannon said not in Auburn.

Discussion ensued with regard to the Brownfield site located in the Wellington Business Park. Mr. Herman indicated that the clean-up occurred in 2000 by the Federal Government. It was lead pollution that was polluted by the military.

Mr. Shooster indicated that Mr. Herman's assignments were all set and asked Ms. Royce what the length and distribution of water mains were in the Town of Auburn as the existing plan says 2.6 miles but with the addition of Cottage Ave what would that yield. Ms. Royce stated 600 feet which was a private line that Manchester Water Works took over in 2015. Mr. Shooster stated that Ms. Collins already provided him with the information for the school. Mr. Shooster thanked everyone and believed that concluded everything from meeting #1.

Mr. Shooster moved on to the next chapter which would be to identify the areas at risk. Mr. Shooster wanted to note that he had met with Ms. Royce of which he was provided a list of the developments that have occurred within the last five (5) years. Mr. Shooster believed it was an impressive list for the number of units Auburn is adding is actually more units on the horizon that Auburn has had in previous years except for the mid 1980's. Ms. Collins indicated that she was at capacity with the school. A brief discussion ensued with regard to the school and the proposed warrant article.

Mr. Herman pointed out that last year the cluster subdivision went away and that since that time, no subdivision plans have been proposed before the Planning Board.

Areas at Risk

Mr. Shooster wanted to take a look at the areas that could be at risk in the event of a hazard. At this time, Mr. Shooster went through each category as follows:

<u>Category 1 – Emergency Response Services:</u>

Fire Station/Police/Safety Complex – 55 Eaton Hill Road
2nd Fire Station – 6 Pingree Hill Road
Town Offices – 47 Chester Road
Emergency Shelters - Ms. Collins will check to see if the school (AVS) is considered a location for the Red Cross. Also both fire stations are used as warming stations.

Primary Evacuation Routes would be Chester Road, Londonderry Turnpike, Wilsons Crossing Road and Route 101 and Route 121.

Bridges – Chief Gannon indicated that there were 4 bridges which includes 101 overpasses, Deerneck Bridge By Pass, By Pass 28 and the 4 corners located on Route 121 (possibly called Maple Falls) and another one by the school and near Severance Beach (121 which is a state road).

Telephone hubs – Intersection of Hooksett Road and Rockingham Road, By Pass 28 just passed Priscilla Lane, Dunkin Donuts, Bunker Hill Road, Intersection of Raymond Road and Dearborn Road. Mr. Herman pointed out that there was a cell tower located on Leppert Way.

Hospitals – Mr. Herman believed there was a proposal before the Planning Board for an Ambulatory Surgery Center within the Dartmouth Drive/Wellington Business Park. Mr. Shooster asked Ms. Royce to write a little blurb about this proposed facility.

Mr. Shooster asked if there were any helicopter landing sites within the Town of Auburn. Chief Gannon indicated that they have landed at the school and on 101 at Exit 2 and Wayne Eddows Field off of By Pass 28 on Priscilla Lane. Ms. Royce mentioned Mr. Therriault off of Bunker Hill Road has a private landing strip on his property.

Mr. Shooster asked about schools within the Town of Auburn. Auburn Village School, Montessori School off of Rockingham Road, First Assembly of God

Category 2 – Non-Emergency Response Facilities:

Public Water Systems - This would be Manchester Water Works which includes approximately 100 homes within the Town of Auburn. Chief Gannon indicated that there were about 25 fire hydrants within the town but would check on that.

Mr. Shooster moved on to Solid Waste Treatment Plant – It was noted that all of Auburn has private septic systems.

Transfer Station – Mr. Herman stated that it was private (Waste Management) that handled all of Auburn, Manchester and a few other places and was located on By Pass 28.

Telephone Facilities – Chief Gannon reiterated what was noted above with regard to locations.

Post Office – located off of Raymond Road.

Essential Service – Myles Travel Plaza located off of Exit #2.

Category 3 – Facilities/Populations to Protect:

Annual Events – Duck Race/Auburn Day which is held in September.
Wayne Eddows/Town Bizarre which is held around June 3rd.

School/Daycare – Montessori on Rockingham Road.
Assembly of God on Myles Drive
Sweet Peas Daycare – 32 Hooksett Road
Tiny Tots – Wilsons Crossing Road

Gathering Places – Circle of Fun Playground – Bunker Hill Road
Wayne Eddows – Priscilla Lane
AVS – Eaton Hill Road
Auburn Tavern – Hooksett Road
Dunkin Donuts – Hooksett Road
Safety Complex – Community Room – Eaton Hill Road
Town Hall – 47 Chester Road
Visiting Angels – Hooksett Road
Audubon Society – Audubon Way

Historic Buildings/Sites – Mr. Herman believed that the Town Hall had a lot of history in it as well as Long Meadow Church, the Auburn Historical Society and the Library both of which are located on Hooksett Road.

Religious Facilities – Long Meadow Church, First Assembly of God, St. Peters, First Haven Baptist Church.

Major Employers – Town of Auburn has 50 employees that included fire and police. Linear Technology and Sunset Labs, Stantec Consulting and C Squared, ARC which is located on Bunker Hill Road.

Natural Assets – Lake Massabesic
Tower Hill Pond
Recreational Trails
Rail Trail – Rockingham County
Spruce Swamp
Little Massabesic

Hazardous Sites - Green Mountain Explosives – Gold Ledge Drive
Dead River – Propane tanks – Priscilla Lane

Recreation Facilities - Wayne Eddows Field – Priscilla Lane
Circle of Fun – Bunker Hill Road/Chester Road
AVS – school on Eaton Hill Road

Appletree Road Park

Dams - Tower Hill
Griffin Mill

Category 4 – Potential Resources:

Medical Supplies - None located within the Town of Auburn.

Gas/Fuel - Auburn Supermarket – Center of town.
Dead River
Myles Travel Plaza – Hooksett Road
Mega X on the By Pass

Emergency Power Source - AVS – School
Pingree Hill Road
Safety Complex
Town Hall
Fire Station has a fixed generator and 3 portable generators.

Building Materials - Master Halco located on Beaver Brook Road and By Pass 28.
Gemini Electric – Priscilla Lane
Heritage Plumbing – Priscilla Lane
Power Up Generators – Priscilla Lane
United Rental – Priscilla Lane

Commercial Economic Impact Areas -Commercial disruption in the case of a disaster. Priscilla Lane and Wellington Business Park. Mr. Shooster asked Chief Gannon if he has a terrorism write up. Chief Gannon indicated that they would be crashing a plane into the lake on June 24th for training purposes. Chief Gannon explained that they would be putting people in the woods as well as floating in the water. A brief discussion ensued with regard to training.

Discussed E-waste day in the fall.

Hazardous Materials Facilities – who inspects oil and propane tanks and Mr. Dross believed it was the Building Inspector as well as the Fire Captain would be able to inspect them in the Building Inspector's absence.

Review of Existing Protection Mitigation Program Effectiveness

Mr. Shooster began by saying that they would be going through the Emergency Operations Plan, Floodplain Development Ordinance (Zoning Ordinance) and rate them poor, average or good with poor being that the system plan does not work and average would mean that it works relatively well, however, sometimes it does fall short and good means that it's in good shape and is achieving its goals.

At this time, Mr. Shooster and the team went through each one and rated them individually.

Emergency Operations Plan – Fire/Emergency Management – Good – last updated 2014.

Floodplain Development Ordinance (Zoning Ordinance) – Planning Board/Carrie – Good – No

Elevation Certificates – Carrie – Good – No

Watershed Protection Ordinance (Zoning Ordinance) – Carrie – Good –

Hazardous Materials Regulations – Planning Board – Town – Average – New Report of Buildings in town

Snow Ordinance – Police Dept. – Police Dept. – Good

Town Radio System – Independent Police/Fire – Average – Ms. Collins indicated that she was not connected to this. Chief Gannon indicated that the school was on 2 separate bands and that he would work with Ms. Collins in fixing the communication. Mr. Shooster asked both Ms. Collins and

Chief Gannon to get together and put together a wish list of how to improve the town radio system so that he could include it in the report.

Police – PD – just updated

Comprehensive Emergency Management Planning for Schools – Ms. Collins – Average

Manchester Water Works Emergency Operations Manual – MWW – Good

Lake Massabesic Watershed Protection Rules – Mr. Herman answered by saying that it would depend on what they were talking about and if it was regarding development it would be zoning and if it's regard the use of the MWW property then it would be MWW which is fairly restrictive – Good

NH State Dam Program – MWW – Good

NH Shoreland Protection Act – State of NH – Good

Best Management Practices (BMPs) – Road Agent – Good

Drainage Requirements (Subdivision Regulations) – Planning Board – Good

Road Design Standards (Subdivision and Site Plan Regulations) – Planning Board/Road Agent – Good

Manufactured Housing (Zoning Ordinance) – Planning Board – State Regulations – Good – Foundation Required

Auburn Building Codes – Carrie – Follow State Building Codes – Good

Excavation and Soil Removal Regulations – Carrie on behalf of the Planning Board – Good – No Change needed (Only have 2 excavation pits)

Sanitary Protection (Zoning Ordinance) – Exceed the State Standards

Underground Storage Regulations (Zoning Ordinance) – Have something in our Zoning Ordinance and probably mimics the State of NH Regulations.

Sewage, Sludge and Septage (Zoning Ordinance) – Zoning Ordinance – Limit the type and quantity for agricultural use.
Travel Trailers (Zoning Ordinance) – Zoning – Mrs. Rouleau-Cote explained that we do have a campground that we do not allow them to be utilized as housekeeping but we do have a campground that has approximately 17 units that are year round occupancy. – Average

Stormwater Management and Erosion and sediment Control (Site Plan Regulations) – Zoning – SWWP Plan - Good

Mitigation Actions

Mr. Prolman began going through the list as follows:

Maintain Current Building Codes – Carrie – Ongoing – Adopt the State Building Code - 2009 and hopefully the State will adopt the 2015 Building Code.

Electronic Sign – FEMA – Mr. Herman explained that there is warrant article on the ballot for a radar sign (mobile) that could also be used as a message board and that there was some talk about getting another electronic sign to put in front of the Safety Complex because the school gets a lot of traffic and that they would be looking at getting a grant for the one at the complex.

Snow Load Design Standards – Carrie – 65 lb. snow load – State Building Code (IBC & IRC) – Completed

Training for Building Inspector – Ongoing

Community network to check on elderly population – Fire Dept. – Ongoing

Limit Development on unmaintained private roads – Mrs. Rouleau-Cote explained that the Town of Auburn historically does not grant Variances for single family homes on unmaintained roads. Any new subdivisions require the road to be brought up to town standards. – Ongoing

Elevate Beaver Brook Road – Mr. Dross indicated that the Town of Londonderry has done that – Completed

Upsize culvert on Rockingham Road – Completed

Require blasting of ledge on Dartmouth Drive – Mr. Dross stated that once it becomes developed that something would have to be done – Ongoing

Coordinate pre-construction meetings – Stantec – Ongoing

Post a reminder notice regarding snow ordinance – Ongoing

Post a notice on snow accumulation – Ongoing – Put link on website

Adopt and implement stormwater mgmt. regs based on EPA Reqs for MS-4 communities – Ongoing

Upgrade culvert on Maple Farm Road – Needed Action – Not Funded

Education through newspaper and town website – (Flood Insurance) – Mr. Herman believed there was something on the website.

Upgrade culvert on Old Candia Road – Ongoing – Spring 2017 (Hazard Mitigation Grant Funded Project)

Hazard Mit/Em Prep info on town website – Completed

Report of the Hazmit Committee in Annual Town Report – Needed Action

Pave/upgrade Hook Road and install drainage – Ongoing – Mr. Dross indicated that the drainage is done and 1,600 feet of it is paved but they still have some pavement to do (years)

Code Red or similar Public outreach system – NIXEL & NH Alerts

Provide water when wells run dry – Fire Dept. – Ongoing – based on need

Encourage State to address flooding issues on Hooksett Road & McEvoy – Completed
Rockingham Road – Ongoing – Negotiations

Town Radio coordinates with all departments – Ongoing – (Ray Pelton & Lori Collins) – Interoperability

Highway Department – Obtain generator

A discussion ensued with regard to the drought this past year (2016).

Mr. Shooster recapped what would be required prior to the next meeting as follows:

1) Ms. Royce to write something up regarding the proposed Ambulatory Surgery Center site plan to be located within the Wellington Business Park and send it to Mr. Shooster.

2) Chief Gannon to write something up regarding the number of hydrants within the Town of Auburn.

3) Fire Dept., Police Dept. and Ms. Collins, Principal of Auburn Village School to work together to improve communication through town radio system.

4) Ms. LaChance to write up something with regard to Parks and Recreation.

Adjournment

Chief Gannon made a motion to adjourn, seconded by Mr. Prolman and the Meeting stood Adjourned at 12:03 P.M.

The next Hazard Mitigation Meeting will tentatively be held at the Town Hall, 47 Chester Road on Wednesday, March 22nd, 2017.

Town of Auburn, New Hampshire

Hazard Mitigation Committee Meeting #2

February 1, 2017
10:00 AM

Town Hall, 47 Chester Road
Auburn, NH 03032

ATTENDANCE SHEET

Name	Position Title/ Department Affiliation	E-mail & Phone
DEREK SHOOSTER	ASSISTANT PLANNER, SNHPC	DSHOOSTER@SNHPC.ORG 603.669.4664
Cam Pirolman	Assist. Planner SNHPC	CPirolman@SNHPC.ORG
Denise Royce	LAND USE ADMIN	planning@townofauburnnh.com
MIKE DROSS	ROAD AGENT	603-303-4223
ED GANNON	Fire Chief	chief@auburnfire.org 603 765 4414
RAY PELTON	Auburn Police	RPELTON@TOWNOFAUBURN.COM
LORI COLLINS	Auburn Villages	LCOLLINS@SAUL.NET
TONY COLLINS	visitor	AJCOLLINS104@gmail.com
Bill Herman	Town Administrator	townadmin@townofauburnnh.com
Carrie Rouleau-Cote	Bldg Official	bldginspe townofauburn nh.com

Auburn Hazard Mitigation Committee Meeting

AGENDA: Meeting # 3
10:00 AM March 22, 2017
Town Hall, 47 Chester Road
Auburn, NH 03032

1. **Call to Order**
2. **Approve the Minutes of February 1, 2017 meeting**
3. **Review Task List From Meeting #2**
    a. Vulnerability Assessment (Section III): Identify/Update Critical Facilities
    b. Review existing mitigation strategies & programs, matrix, and summary
    c. Identify new mitigation strategies, next steps
4. **STAPLEE Process (group activity, see worksheet)**
5. **Prioritize Implementation Schedule**
    a. Rank mitigation actions, consider STAPLEE scores, costs, political will, relative necessity, timeliness, etc.
6. **Assess Community's Participation in National Flood Insurance Program**
    a. Review of NFIP and Auburn's involvement
    b. Identify, analyze, and prioritize actions related to continued compliance with NFIP
    c. Flood Ordinance Update
7. **Tentative Next Meeting Schedule_____ and Adjournment**

Town of Auburn
Hazard Mitigation
Committee Meeting
March 22, 2017

Present: William Herman, Town Administrator; Cam Prolman and Derek Shooster, SNHPC; Ed Gannon, Fire Chief; Denise Royce, Land Use Administrator; Carrie Rouleau-Cote, Building Inspector; Michael Dross, Road Agent.

Absent: Ray Pelton, Police Department; Lori Collins, AVS Principal. Sylvia von Aulock.

Call to Order: 10:13am

Approval of Minutes of December 7, 2016

Chief Gannon made a motion to approve the minutes of February 1, 2017, seconded by Mrs. Rouleau-Coté. All were in favor and the motion passed.

Review Task List from Meeting #2

Mr. Shooster went over the task list from the last meeting at which time task were given to a few people to follow up on. Mr. Shooster indicated that he did hear back from most of the individuals which pertained to bridges located on primary evacuation routes and major employers made up of the 10 biggest employers within the town. Mr. Shooster then moved on to say that they reviewed existing protection mitigation program effectiveness and ranked them by good, poor and needing improvement. Mr. Shooster stated that the last exercise was going over mitigation actions by identifying from the items in the previous mitigation plan, what's on going, what has been completed and what needs action. There were five (5) items that were identified as completed and removed from needing to do anything else on. The last thing they did was discuss new proposed strategies for the next Hazard Mitigation Plan. Those included better coordination for all town radio with all departments, electronic signage and mobile signage for emergency facilities and events. Generators for the Highway Department, library and/or mobile generators and new rescue vehicle for the Fire Department. Mr. Shooster asked if there were any other comments or thoughts on Meeting #2. Chief Gannon believed that some of those had been addressed either negatively or positively. Mr. Shooster said yes.

Mr. Shooster moved on to talk about what was either unfunded or under-funded like require blasting of ledge on Dartmouth Drive as that was undeveloped due to market forces and still needed action.

Mr. Shooster went on to talk about the upgrade to culvert on Old Candia Road is scheduled for this spring and has been funded. There were a number of next steps identified for existing mitigation strategies.

Mr. Shooster moved on to the exercise that he wanted to do today which was located in the packet that was e-mailed to everyone but Mr. Shooster had copies for anyone that did not have one with them.

STAPLEE Process (group activity, see worksheet)

Mr. Prolman explained to the Board members what this worksheet would be used for and how each one would have to be ranked with a score of Good = 3, Average = 2, or Poor = 1.

At this time, Mr. Prolman went through the following questions that would be asked about the proposed mitigation strategies identified in the table below:

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

At this time, the Board members and Mr. Shooster and Mr. Prolman went through the Staplee Chart and rated each one below:

STAPLEE CHART Mitigation Strategy	Is it **Socially** acceptable?	Is it **Technically** feasible &potentially successful?	Is it **Administratively** workable?	Is it **Politically** acceptable?	Is there **Legal** authority to implement?	Is it **Economically** beneficial?	Is it **Environ-mentally** beneficial?	Total Score
1. Maintain current building codes								
2. Electronic sign								
3. Training for building inspector								
4. Community network to check on elderly population								
5. Limit development on unmaintained private roads								
6. Require blasting of ledge on Dartmouth Dr								
7. Coordinate pre-construction meetings								
8. Post a reminder notice regarding snow ordinance								
9. Post a notice on snow accumulation								
10. Adopt and implement stormwater mgt regs based on EPA Reqs for MS-4 communities								
11. Upgrade culvert on Maple Farm rd								
12. Education through newspaper and town website								
13. Upgrade culvert on Old Candia Rd								

STAPLEE CHART Mitigation Strategy	Is it **Socially** acceptable?	Is it **Technically** feasible &potentially successful?	Is it **Administratively** workable?	Is it **Politically** acceptable?	Is there **Legal** authority to implement?	Is it **Economically** beneficial?	Is it **Environ-mentally** beneficial?	Total Score
14. Report of Hazmit committee in annual Town Report								
15. Pave/upgrade Hook Rd and install drainage								
16. Provide water when wells run dry								
17. Encourage State to address flooding issues on Hooksett Rd								
18. Town Radio: Coordination with all departments								
19. Electronic + mobile signage for emergency facilities								
20. Generators for highway dept., Library, and town								
21. Fire department – new rescue vehicle (tanker)								

The following amendments were discussed:

3) Training for building inspector to change to Code Enforcement Personnel.

16) Provide water when wells run dry to change from the Fire Department to expand beyond the Fire Department to Health Officer or Emergency Personnel and coordinate with Manchester Water Works.

At this time, Mr. Shooster asked if Mrs. Rouleau-Cote, Mr. Herman or Chief Gannon to draft a new sentence to the way they would like to have it worded to better reflect this statement in the report.

17) Mr. Dross commented that the state put in a new culvert but was unsure whether it solved the problem which is by McEvoy and Hooksett Road. It was replaced over the summer of 2016. Mr. Herman pointed out the culverts that were replaced by Griffin Mill by the school and McEvoy.

18) Chief Gannon spoke with regard to town radio: Coordination with all departments and pointed out that the school is in the process of obtaining portable radios that they would program for them with the interoperability channels that they use from a Fire Department's prospective and would also have the town wide channels on it. The school will also be able to listen to the Fire Department and Police Department channels but will not be able to transmit on those frequencies. Chief Gannon also indicated that the school already has their evacuation plan in place which will occur either in April or May? Mrs. Rouleau-Cote believed that they could call it Maintain Communication. Mr. Shooster thought it was awesome that they were able to do this since the last Hazard Mitigation meeting.

19) Electronic and mobile signage for emergency facilities – discussion ensued with this regard and believed that this would pertain to #2 above and sounded redundant and ended up saying that #2 should be the Fixed Sign at Complex and #19 is for the Electronic Mobile Signage for Emergency use.

20) Change name to Generator for Highway Department only because many of the buildings already have a generator so the only area in need of a generator would be the Highway Department building.

Mr. Shooster asked Ms. Royce if she had the last meeting minutes printed in front of her. Ms. Royce presented Mr. Shooster with the previous meeting minutes so that Mr. Shooster could look up what was discussed at the last meeting regarding generators. Mr. Dross did not believe this was a major priority at this time and it was decided to rate this as a low priority.

21) Fire Department – New Rescue Vehicle – Mr. Shooster mentioned possible grant for this and Chief Gannon believed that the two (2) vehicles should be separate requests and decided to take out the word "tanker".

Prioritize Implementation Schedule

At this time, the Board and Mr. Shooster went through the list and listed the responsible party and potential funding source for each.

Chief Gannon believed that each one of the Board members could go through and add up the scores and rank each action accordingly. Mr. Prolman believed they should go through each one during the meeting and asked the Board members and Mr. Shooster what they thought. Mr. Dross asked Mr. Prolman and Mr. Shooster to send to each member and they could do it individually. Mr. Herman believed they could do it fairly quickly.

At this time, Mr. Herman went through 1 to 21 individually and ranked them according to the list below:

Time Frame	
Short Term	1 year or less
Mid Term	2 to 3 years
Long Term	4 to 5 years
Ongoing	This action will be completed on an ongoing basis throughout the life of the plan

Assess Community's Participation in National Flood Insurance Program

Mr. Shooster began by asking if Auburn participated. Mr. Herman said yes. Mr. Shooster asked if there were any actions related to continued compliance with NFIP. Mr. Herman explained that it was on autopilot and there was an adoption. Mr. Shooster asked if the Flood Ordinance was up to date. Mrs. Rouleau-Cote said yes.

Tentative Next Meeting Schedule April 26, 2017 @ 10:00am and Adjournment

Mr. Shooster moved on to discuss with the Board members the date for the next tentative meeting date and asked if the Board wanted to meet a month from today. After a brief discussion, it was noted that the next Hazard Mitigation meeting date would be held on Wednesday, April 26th at 10:00am.

Adjournment

Chief Gannon made a motion to adjourn, seconded by Mr. Dross and the Meeting stood Adjourned at 12:01 P.M.

The next Hazard Mitigation Meeting will tentatively be held at the Town Hall, 47 Chester Road on Wednesday, April 26th, 2017.

Town of Auburn, New Hampshire

Hazard Mitigation Committee Meeting ~~#2~~ #3

March 23

~~February 1~~, 2017

10:00 AM

Town Hall, 47 Chester Road
Auburn, NH 03032

ATTENDANCE SHEET

Name	Position Title/ Department Affiliation	E-mail & Phone
Derek Shooster	SNHPC	DSHOOSTER@SNHPC.ORG
Ed Gannon	AFD	chief@auburnfire.org
Denise Royce	Land Use Admin	planning@townofauburnnh.com
Mike Sun	Road Agent	
Carrie Rouleau-Cote	Bldg Insp.	bldginsp@townofauburnnh.com
Bill Herman	Town Administrator	townadmin@townofauburnnh.com

Auburn Hazard Mitigation Committee Meeting

AGENDA: Meeting # 4
10:00AM April 26, 2017
Town Hall, 47 Chester Road
Auburn, NH 03032

1. **Call to Order**
2. **Approve the Minutes of March 22, 2017 meeting**
3. **Review Task List From Meeting #3**
    a. STAPLEE Process (group activity worksheet)
    b. Implementation Schedule Prioritization – rank mitigation actions
    c. NFIP Participation
4. **Prioritize Implementation Schedule**
    a. Discuss priorities
    b. Build timeline and fill in schedule
5. **Overview**
6. **Tentative Next Meeting Schedule_____ and Adjournment**

Town of Auburn
Hazard Mitigation
Committee Meeting
April 26, 2017

Present: William Herman, Town Administrator; Cam Prolman and Derek Shooster, SNHPC; Denise Royce, Land Use Administrator; Carrie Rouleau-Cote, Building Inspector;
Absent: Ed Gannon, Fire Chief. Michael Dross, Road Agent. Ray Pelton, Police Department; Lori Collins, AVS Principal. Sylvia von Aulock.

Call to Order: 10:10am

Mr. Shooster began by saying that this was going to be a very quick meeting. Mr. Herman informed Mr. Shooster that Ms. Collins was on vacation and that Mr. Dross was in the hospital and the only one he had not heard from was Mr. Pelton. Chief Gannon had an emergency to deal with and was unavailable. Mr. Shooster stated that they could hold the meeting now and adopt the minutes or they could hold off until the new date likely in a couple of weeks to have everyone present. Mr.

Shooster also asked everyone present if everyone had an opportunity to look through the Staplee Chart and the prioritization of implementation strategies. Everyone present said that they did not have a chance to take a look at it yet. Mr. Prolman believed it was a group effort and not having everyone present to comment.

Discussion ensued about the ledge cut on Dartmouth Drive and the need for Mr. Dross to be present. Mr. Herman mentioned the sink holes where two (2) were on Dartmouth Drive and one at the intersection of Hooksett Road and Harvard Avenue. Mr. Shooster asked Mr. Herman to write the description of the events and when they happened and if there were any photos of these sink holes and if it was FEMA funded. Mr. Herman believed they did get funds from FEMA but that he would take a look and see. Mr. Shooster thanked Mr. Herman.

Mr. Prolman believed that they should see when the next time everyone is available. At this time everyone looked at the calendar. Mr. Shooster asked if everyone was available on May 17th and everyone that was present said yes. Mr. Shooster did not believe that they would have to meet again until late summer.

Approval of Minutes of March 22, 2017

Everyone decided to hold off approving the minutes until everyone was present. Mr. Herman indicated that there were eight (8) present and there were only three (3) of us so there was not a quorum so we could not hold a meeting. Mr. Shooster also stated that Chief Gannon was the Chairman and he was absent so there was nobody to take his place.

Review Task List from Meeting #3

Mr. Shooster pointed out that he had sent out the task list to everyone and explained that the homework assignment was to come prepared for May 17th and identify something as Short, Mid, Long Term or On-going.

Mr. Shooster talked about the sink hole and wanted to see what other towns have done and asked Mr. Herman if there were any photos. Mr. Prolman asked if they could take photos themselves of the sink hole on Dartmouth Drive. Mr. Herman said yes and that there were jersey barriers around the sink hole.

STAPLEE Process (group activity, see worksheet)

Prioritize Implementation Schedule

Time Frame	
Short Term	1 year or less
Mid Term	2 to 3 years
Long Term	4 to 5 years
Ongoing	This action will be completed on an ongoing

	basis throughout the life of the plan

Mrs. Rouleau-Cote asked Mr. Shooster or Mr. Prolman if they received the e-mail from her regarding the notes about the drought conditions. They did not and asked her to e-mail them to them again.

Mr. Shooster asked if there were any other homework assignments from previous weeks. None were noted from those who were present today.

Overview

Tentative Next Meeting Schedule __May 17, 2017 @ 10:00am___ and Adjournment

Mr. Shooster reiterated that the next Hazard Mitigation meeting date would be held on Wednesday, May 17th at 10:00am.

Mr. Herman talked about the meeting at Southern New Hampshire Planning Commission regarding Age Friendly Forum scheduled for Wednesday, May 10th at 9:00am until 10:30am. Mrs. Rouleau-Cote suggested notifying the library as they were very vocal about this.

Adjournment

Mr. Shooster thanked everyone present and the meeting ended at 10:24am.

The next Hazard Mitigation Meeting will tentatively be held at the Town Hall, 47 Chester Road on Wednesday, May 17th, 2017.

APPENDIX G

PUBLIC AND OTHER AGENCY PARTICIPATION

TOWN OF AUBURN HAZARDS MITIGATION PLAN MEETING
(OPEN TO THE PUBLIC)

The Southern New Hampshire Planning Commission (SNHPC) is assisting the Town of Auburn in updating the community's existing 2012 Hazard Mitigation Plan and is inviting the public and surrounding municipalities as well as other local, town, state and federal officials and environmental organizations to participate in the planning process.

The first Auburn Hazard Mitigation Committee Meeting will take place on December 7, 2016 at 10:00 AM in the Auburn Town Hall located at 47 Chester Road, Auburn, NH.

As the primary contacts for the plan, please contact Bill Herman, Town Administrator at (603) 483-5052 ext. 111 or Sylvia von Aulock with the SNHPC for any questions, information, or interest in the plan at (603)-669-4664. Thank you!

END

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TOWN OF AUBURN HAZARDS MITIGATION PLAN MEETING
(OPEN TO THE PUBLIC)

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END

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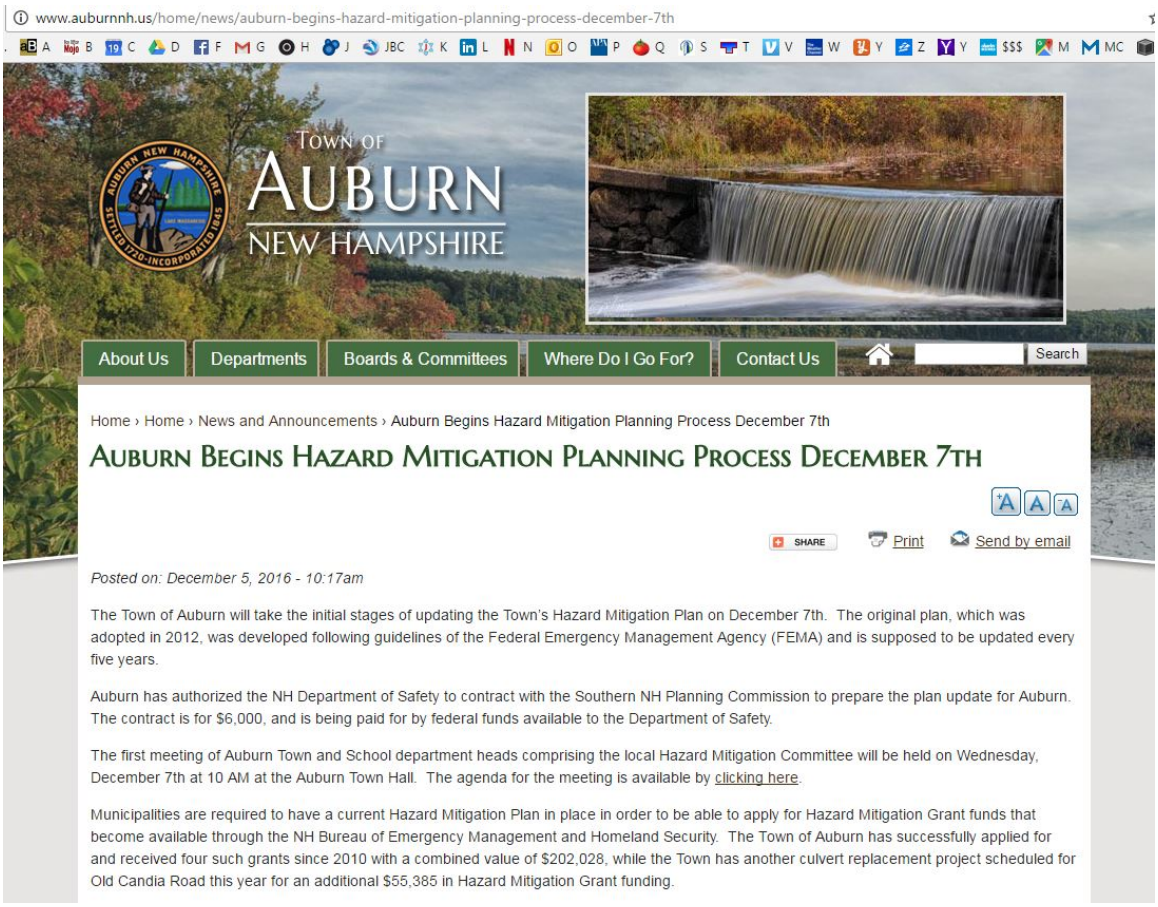

www.auburnnh.us/home/news/auburn-begins-hazard-mitigation-planning-process-december-7th
TOWN OF
AUBURN
NEW HAMPSHIRE
About Us
Departments
Boards & Committees
Where Do I Go For?
Contact Us
Search
Home › Home › News and Announcements › Auburn Begins Hazard Mitigation Planning Process December 7th
AUBURN BEGINS HAZARD MITIGATION PLANNING PROCESS DECEMBER 7TH
SHARE
Print
Send by email
Posted on: December 5, 2016 - 10:17am
The Town of Auburn will take the initial stages of updating the Town's Hazard Mitigation Plan on December 7th. The original plan, which was adopted in 2012, was developed following guidelines of the Federal Emergency Management Agency (FEMA) and is supposed to be updated every five years.
Auburn has authorized the NH Department of Safety to contract with the Southern NH Planning Commission to prepare the plan update for Auburn. The contract is for $6,000, and is being paid for by federal funds available to the Department of Safety.
The first meeting of Auburn Town and School department heads comprising the local Hazard Mitigation Committee will be held on Wednesday, December 7th at 10 AM at the Auburn Town Hall. The agenda for the meeting is available by clicking here.
Municipalities are required to have a current Hazard Mitigation Plan in place in order to be able to apply for Hazard Mitigation Grant funds that become available through the NH Bureau of Emergency Management and Homeland Security. The Town of Auburn has successfully applied for and received four such grants since 2010 with a combined value of $202,028, while the Town has another culvert replacement project scheduled for Old Candia Road this year for an additional $55,385 in Hazard Mitigation Grant funding.


www.snhpc.org
SOUTHERN NEW HAMPSHIRE PLANNING COMMISSION
Working as the Regional Planning Commission and Metropolitan Planning Organization for the Southern New Hampshire Region.
COMMUNITY PROFILES
DATA AND GIS
TRANSPORTATION PLANNING
COMMUNITY AND ECONOMIC DEVELOPMENT
ENVIRONMENTAL PLANNING
SNHPC
HOME
ABOUT THE COMMISSION
OFFICERS, BOARD AND STAFF
OFFICE HOURS AND DIRECTIONS
REPORTS AND PUBLICATIONS
EMPLOYMENT
REQUEST FOR PROPOSAL/QUALIFICATIONS
NEWSLETTER
LINKS
GATEWAY TO TRANSPORTATION RESOURCES
BROWNFIELDS
OFFICE ADDRESS
438 Dubuque Street
Manchester, NH 03102
Phone: 603-669-4664
Fax: 603-669-4350
www.snhpc.org
Staff Directory
Welcome to the official website of the Southern New Hampshire Planning Commission (SNHPC). The Commission was formed under the New Hampshire Statutes in 1966. SNHPC serves as the coordinating agency for the planning initiatives of fourteen communities in the region.
By taking a regional approach to address development concerns, we can attempt to craft effective and efficient solutions that will preserve the special character and valuable resources of the region.
FOR INFORMATION ON A COMMUNITY CLICK ON MAP
Deerfield
Weare
Hooksett
Candia
Goffstown
Francestown
New Boston
Manchester
Auburn
Chester
Bedford
Londonderry
Derry
Windham
SOLAR UP NEW HAMPSHIRE
MEETING NOTICE
SNHPC/MPO Meeting
April 25, 2017
11:30 AM, SNHPC Conference Room
Auburn Hazard Mitigation Meeting
April 26, 2017
10:00 AM, Auburn Town Hall
NH OEP Spring Planning and Zoning Conference
April 29, 2017
8:00 AM-3:30 PM, Grappone Conference Center
CART Board Meeting
May 2, 2017
3:30 PM, Derry Municipal Center
Candia Age-Friendly Assessment
May 2, 2017
4:00 PM, Candia Town Offices
SNHPC Executive Committee Meeting
May 4, 2017
7:30 AM, Belmont Hall
Natural Resource Advisory Committee Meeting
Tips to Ensure a Robust Conservation Stewardship Program
May 17, 2017
5:00 PM, SNHPC Conference Room

APPENDIX H

DOCUMENTATION OF PLAN ADOPTION

Town of Auburn, New Hampshire
Auburn Board of Selectmen

A Resolution Approving the Auburn Hazard Mitigation Plan
2018

WHEREAS, the Southern New Hampshire Planning Commission received funding from the New Hampshire Department of Safety – Homeland Security and Emergency Management under a Pre-Disaster Mitigation Grant to assist the Town of Auburn in the preparation of the Auburn Hazard Mitigation Plan Update; and

WHEREAS, several public planning meetings/hearings were held between January and June of 2018 regarding the development and review of the Auburn Hazard Mitigation Plan Update; and

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

WHEREAS, a public hearing was held by the Auburn Board of Selectmen on , 2018 to formally approve and adopt the Auburn Hazard Mitigation Plan.

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

APPROVED and SIGNED this _____ day of _____, 2018.

Board of Selectmen

_____

_____

_____

_____

_____

ATTEST

_____

APPENDIX I

2006, 2011 IDENTIFIED MITIGATION STRATEGIES UPDATE

2006 & 2011 Newly Identified Mitigation Strategies Update

	Mitigation Action	Who (Leadership)	When (Deadline)	How (Funding Source)	2010 Update
1	Maintain the most current building codes that set appropriate wind load design standards (no updates required at this time).	Building Department	Continuous implementation	*Town Operating Budget*	Continuously being implemented
2	Coordinate pre-construction meetings with a representative of the planning board, the building inspector, the road agent, and developers of new construction proposals to review potential hazards, existing ordinances, and opportunities to mitigate potential hazard impacts.	Planning Department, Building Department, Road Agent, Town Engineering firm	Continuous implementation	*Town Operating Budget offset by developer's escrow account*	Continuously being implemented
3	Continue training for the building inspector on new technology, research, and design standards relating to wind loads, seismic design, and snow loads.	Building Inspector	Continuous implementation	*Town Operating Budget*	Continuously being implemented
4	Include snow load design standards in the Construction Guideline Packet prepared by the building inspector for developers.	Building Inspector	Continuous implementation	*Town Operating Budget*	Continuously being implemented
5	Adopt the new state-wide National Electric Code 2005 edition.	Building Department	2 Years	*Town Operating Budget*	Complete

6	Post a reminder notice regarding the snow ordinance and snow removal in the local publications at the beginning of winter each year.	Board of Selectmen, Building Department	Annually(October or November)	*Town Operating Budget*	Complete and Continuously being implemented
7	Implement new FIRM and FIS effective May 17, 2005.	Building Department, Planning Department	Continuous implementation	*Town Operating Budget*	Complete
8	Post a notice during heavy winters alerting residents to not let snow accumulate on roofs, thus reducing the risks of roof collapse due to heavy snow loads.	Building Department	Continuous implementation	*Town Operating Budget*	Deferred due to lack of appointing responsibility, BOS Admin will post on Town website
9	Update the Watershed Protection Ordinance to include list of identified wetlands and buffer following prime wetland mapping.	Planning Department	2 Years	*Town Operating Budget*	Deleted, Proposed to voters and rejected
10	Include a report of the Hazard Mitigation Committee in the Annual Town Report to alert town residents to the Plan's completion, intents, and contents.	Hazard Mitigation Committee Chair	Annually (January)	Town Operating Budget	Completed in '05-'06, deferred due to lack of appointing responsibility. BOS Admin will coordinate going forward
11	Investigate the feasibility, advantages, and costs to hire a town forester.	Hazard Mitigation Committee, Board of Selectmen	1-2 Years	Town Operating Budget	Incomplete and deleted, no town owned forest lands

12	Create a Hazard Mitigation and Emergency Preparedness page on the Town web site with links to valuable resources at both the FEMA, NH HSEM and SNHRCPP web sites.	Hazard Mitigation Committee	2 Years	Town Operating Budget	Deferred due to lack of appointing responsibility. Currently active in the Southern New Hampshire Region Community Preparedness Program and BOS Admin will link to website with info
13	Provide water at the fire station for residents whose wells run dry.	Fire Department	Beginning in Summer 2006 and continuously as needed	Town Operating Budget	Continuously being implemented as needed
14	Upgrade the undersized culvert at Pingree Hill Road.	Road Agent, Highway Safety Committee and Board of Selectmen	10-20 Years	Town Operating Budget, PDM	Complete
15	Either pave/upgrade Hook Road and install a drainage system or install a bridge to elevate the road above the brook level to eliminate annual damages to the road and surrounding properties due to flooding and subsequent road wash outs.	Road Agent, Highway Safety Committee and Board of Selectmen	1-2 years	Town Operating Budget, PDM	Deferred due to lack of funding, HazMit Grant funded in 2011

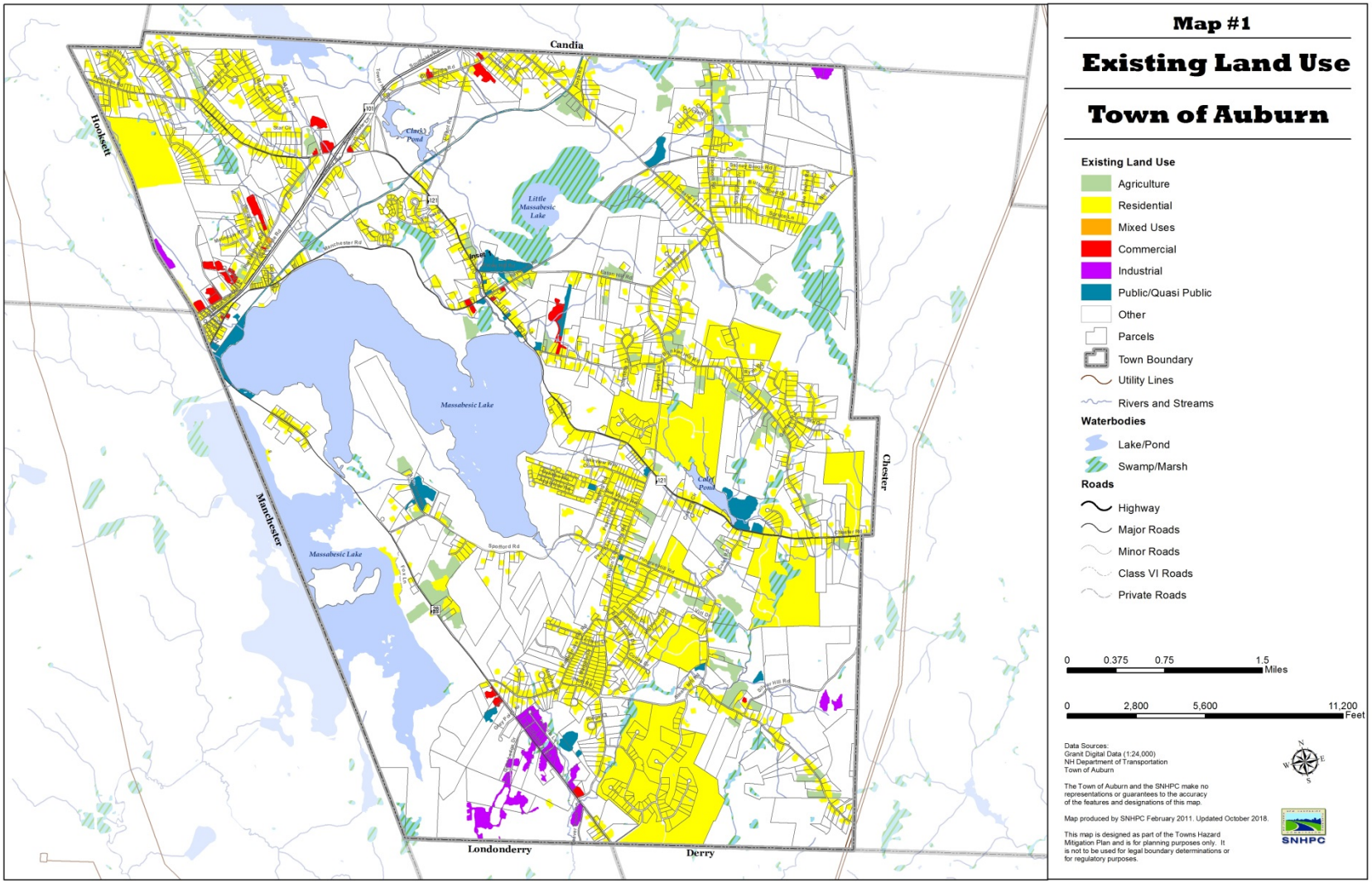
16	Educate the public through newspaper and the town web site on the availability of National Flood Insurance Program information, DFIRMs and Flood Insurance Study at the Town Hall.	Planning Department, Building Department	1-2 Years	Town Operating Budget	Deferred due to lack of appointing responsibility, BOS Admin will post going forward
17	Adopt and implement new stormwater management regulations based on the new EPA requirements for MS-4 communities.	Planning Department and Stormwater Committee	1-2 Years	Town Operating Budget	Deferred, currently on previous permit
18	Form a committed community network to check on the elderly populations during extreme heat or cold weather. The Massabesic Senior Citizens and Auburn's Senior Citizens already have a loose knit system to check on one another. Additionally, the Fire Department sends volunteers out to check on residents at critical points during the winter.	Fire Department	Continuous implementation	Town Operating Budget	Continuously being implemented as needed
19	Elevate Beaver Brook Road to above the floodplain in conjunction with the Town of Londonderry since it crosses the town line.	Road Agent, Highway Safety Committee and Board of Selectmen	5 years	Town Operating Budget, PDM	Deferred due to lack of funding and coordination.
20	Request a re-study of the land just east of Lover's Lane and surrounding the adjacent brook from FEMA for the Flood Insurance Rate Maps (FIRMs).	Planning Department	5-10 Years	Town Operating Budget, FEMA NFIP	Deleted, No longer a concern

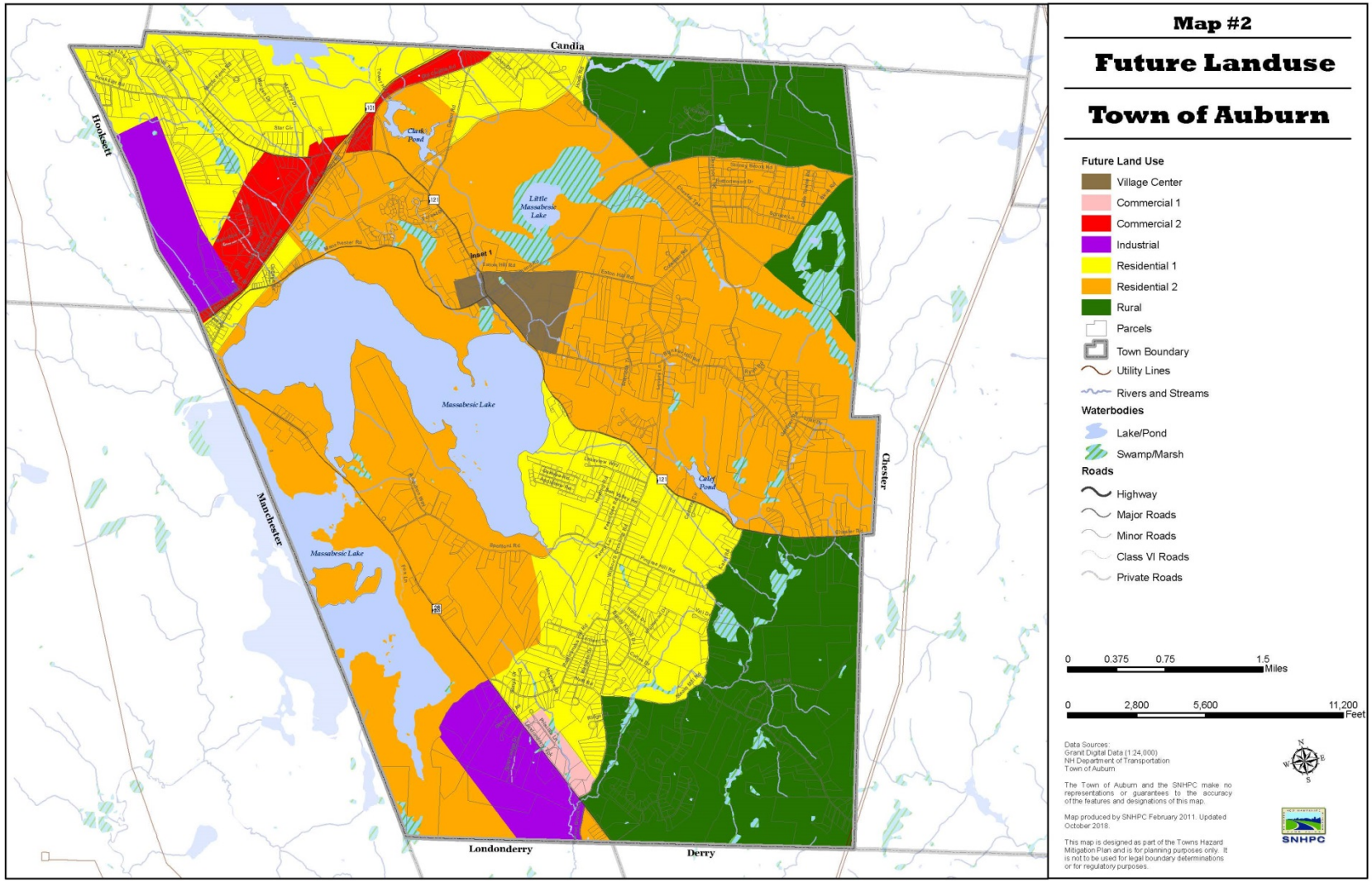
21	Limit development on unmaintained private roads in isolated areas until the roads are brought into conformance with town road standards.	Planning and Zoning Department, Building Department	5 Years	Town Operating Budget	Continuously being implemented

	ongoing or still needed actions will be prioritized with newly identified mitigation actions for 2011

APPENDIX J

MAPS


Map #1
Existing Land Use
Town of Auburn
Existing Land Use
Agriculture
Residential
Mixed Uses
Commercial
Industrial
Public/Quasi Public
Other
Parcels
Town Boundary
Utility Lines
Rivers and Streams
Waterbodies
Lake/Pond
Swamp/Marsh
Roads
Highway
Major Roads
Minor Roads
Class VI Roads
Private Roads
0 0.375 0.75 1.5 Miles
0 2,800 5,600 11,200 Feet
Data Sources:
Grant Digital Data (1:24,000)
NH Department of Transportation
Town of Auburn
The Town of Auburn and the SNHPC make no representations or guarantees to the accuracy of the features and designations of this map.
Map produced by SNHPC February 2011. Updated October 2018.
This map is designed as part of the Towns Hazard Mitigation Plan and is for planning purposes only. It is not to be used for legal boundary determinations or for regulatory purposes.
SNHPC
Candia
Hooksett
Manchester
Chester
Londonderry
Derry
Massabesic Lake
Little Massabesic Lake
Clark Pond
Cole Pond


Map #2
Future Landuse
Town of Auburn
Future Land Use
Village Center
Commercial 1
Commercial 2
Industrial
Residential 1
Residential 2
Rural
Parcels
Town Boundary
Utility Lines
Rivers and Streams
Waterbodies
Lake/Pond
Swamp/Marsh
Roads
Highway
Major Roads
Minor Roads
Class VI Roads
Private Roads
0 0.375 0.75 1.5 Miles
0 2,800 5,600 11,200 Feet
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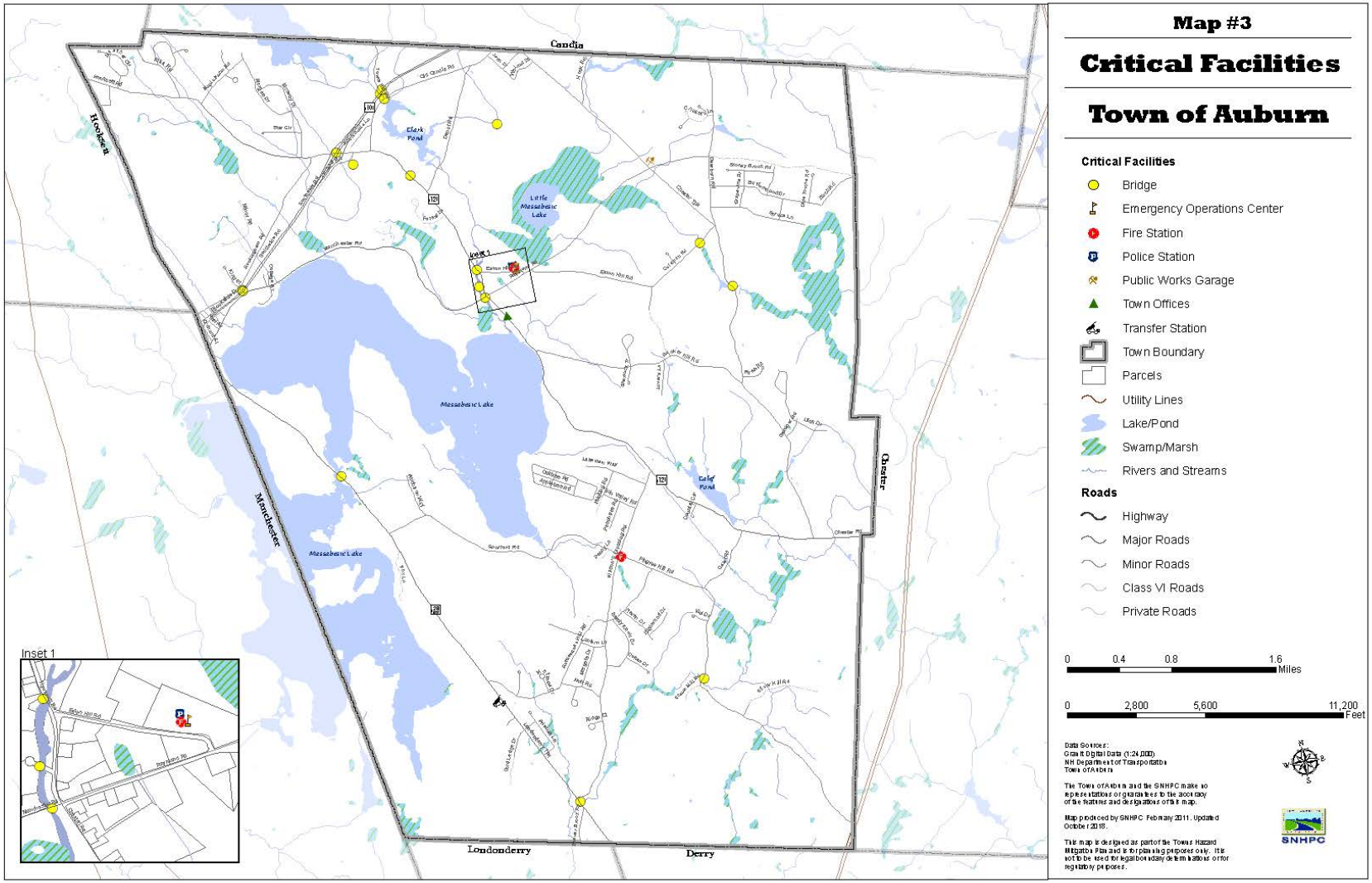
Candia
Hooksett
Manchester
Londonderry
Derry
Chester
Clark Pond
Little Massabesic Lake
Massabesic Lake
Massabesic Lake
Inset 1
Carly Pond


Map #3
Critical Facilities
Town of Auburn
Critical Facilities
Bridge
Emergency Operations Center
Fire Station
Police Station
Public Works Garage
Town Offices
Transfer Station
Town Boundary
Parcels
Utility Lines
Lake/Pond
Swamp/Marsh
Rivers and Streams
Roads
Highway
Major Roads
Minor Roads
Class VI Roads
Private Roads
0 0.4 0.8 1.6 Miles
0 2,800 5,600 11,200 Feet
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Candia
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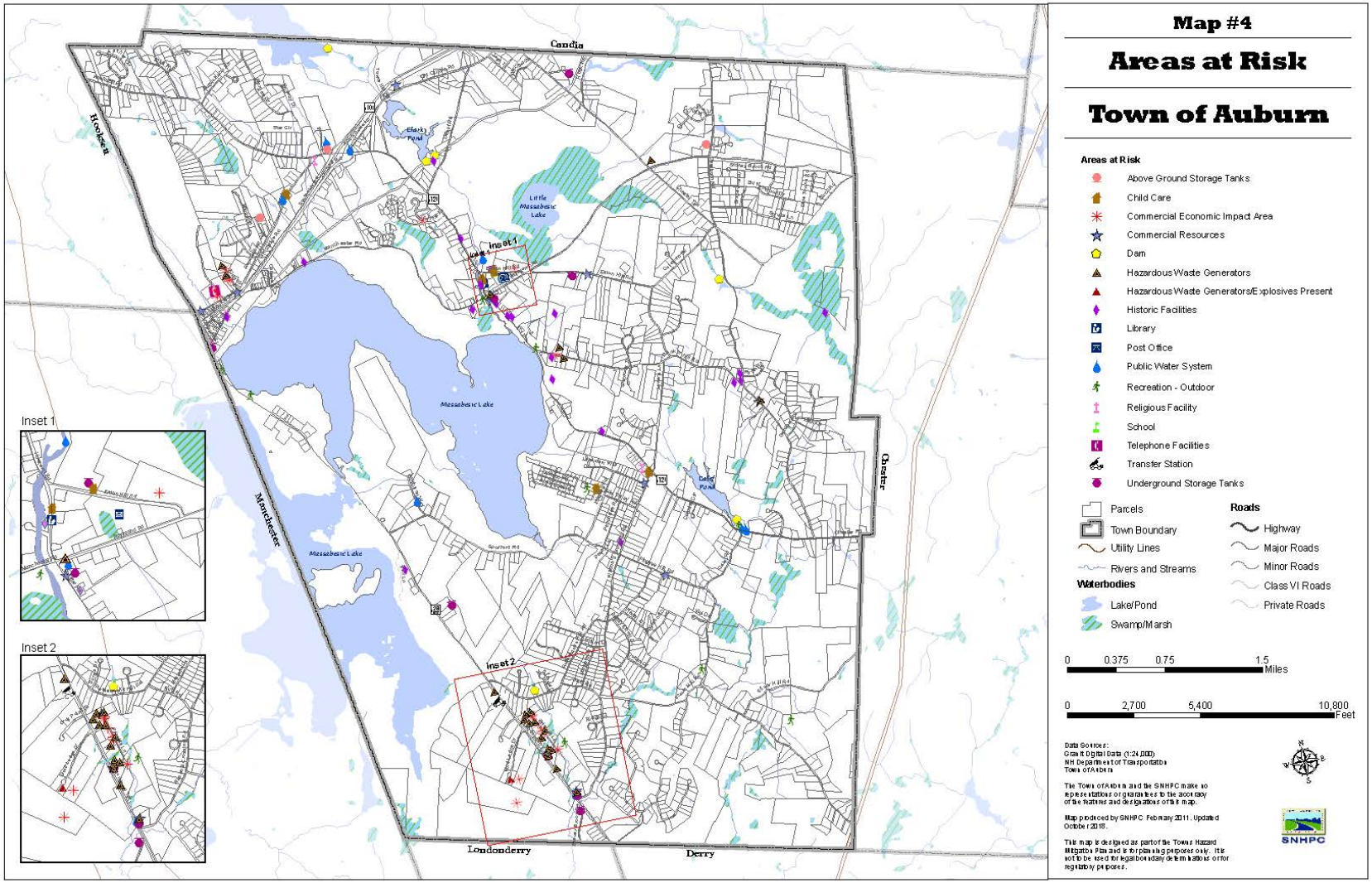
Auburn
Clark Pond
Little Massabesic Lake
Massabesic Lake
Inset 1


Map #4
Areas at Risk
Town of Auburn
Areas at Risk
Above Ground Storage Tanks
Child Care
Commercial Economic Impact Area
Commercial Resources
Dam
Hazardous Waste Generators
Hazardous Waste Generators/Explosives Present
Historic Facilities
Library
Post Office
Public Water System
Recreation - Outdoor
Religious Facility
School
Telephone Facilities
Transfer Station
Underground Storage Tanks
Parcels
Town Boundary
Utility Lines
Rivers and Streams
Waterbodies
Lake/Pond
Swamp/Marsh
Roads
Highway
Major Roads
Minor Roads
Class VI Roads
Private Roads
0 0.375 0.75 1.5 Miles
0 2,700 5,400 10,800 Feet
Data Sources:
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NH Department of Transportation
Town of Auburn
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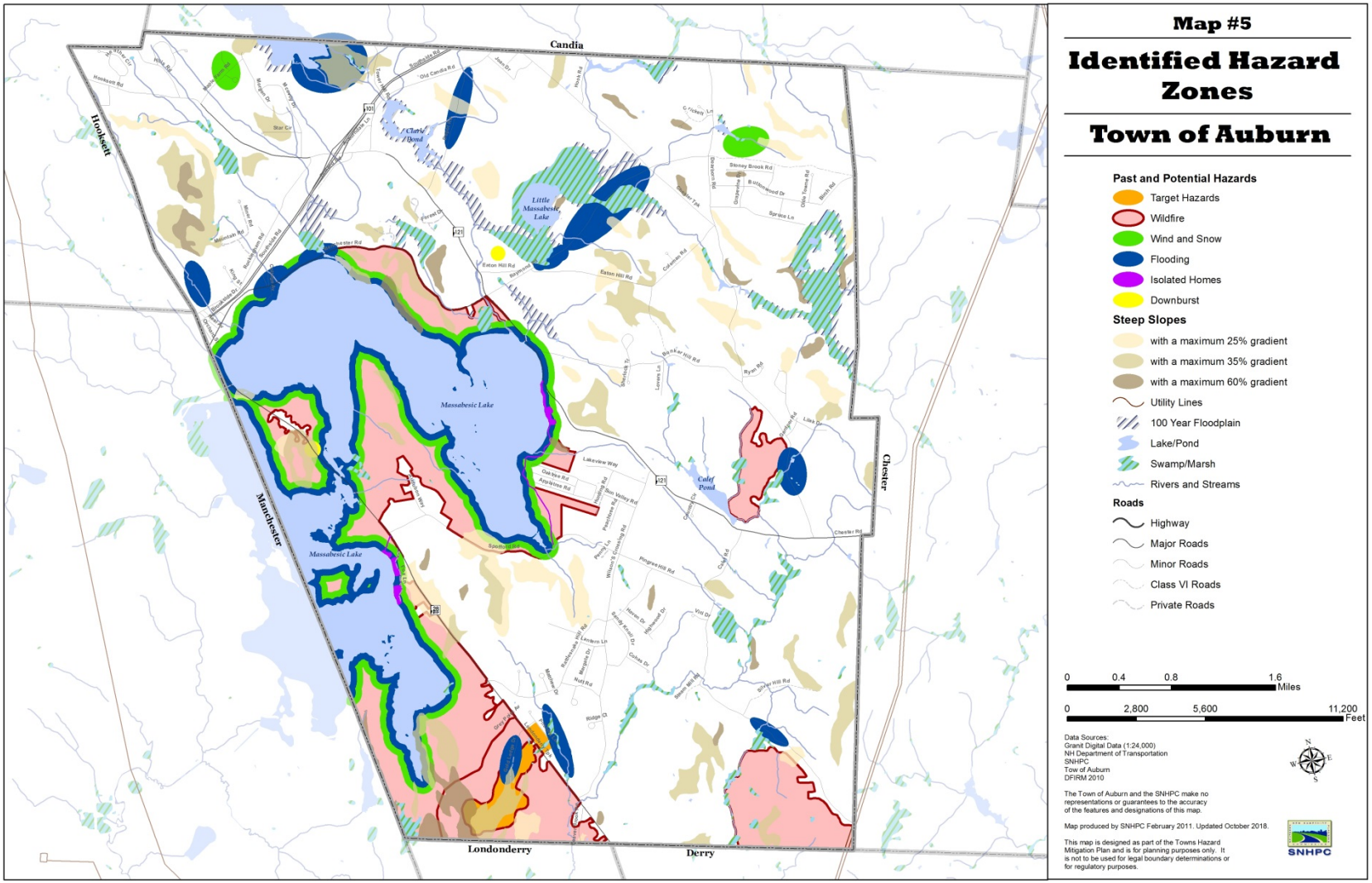
SNHPC
Candia
Hooksett
Manchester
Chester
Londonderry
Derry
Inset 1
Inset 2
Massabesic Lake
Little Massabesic Lake
Beaver Brook
Ebby Pond
Inset 1
Inset 2


Map #5
Identified Hazard Zones
Town of Auburn
Past and Potential Hazards
Target Hazards
Wildfire
Wind and Snow
Flooding
Isolated Homes
Downburst
Steep Slopes
with a maximum 25% gradient
with a maximum 35% gradient
with a maximum 60% gradient
Utility Lines
100 Year Floodplain
Lake/Pond
Swamp/Marsh
Rivers and Streams
Roads
Highway
Major Roads
Minor Roads
Class VI Roads
Private Roads
0 0.4 0.8 1.6 Miles
0 2,800 5,600 11,200 Feet
Data Sources:
Granit Digital Data (1:24,000)
NH Department of Transportation
SNHPC
Tow of Auburn
DFIRM 2010
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Candia
Hooksett
Manchester
Londonderry
Derry
Chester
Massabesic Lake
Little Massabesic Lake
Clark Pond
Colef Pond