Kensington

Hazard Mitigation Plan Update 2020

This plan integrates the following:

- **Hazard Mitigation Plan Update (FEMA)**
- **Community Wildfire Protection Plan (DNCR)**

November 14, 2020
Final for Adoption

Prepared for the Town of Kensington and NH Homeland Security & Emergency Management
By
The Kensington Planning Team

With assistance from Mapping and Planning Solutions

KENSINGTON

"Plans are worthless, but planning is everything. There is a very great distinction because when you are planning for an emergency you must start with this one thing: The very definition of "emergency" is that it is unexpected, therefore it is not going to happen the way you are planning."

-Dwight D. Eisenhower

HAZARD MITIGATION PLAN DEFINITIONS

*"A **natural hazard** is a source of harm or difficulty created by a meteorological, environmental, or geological event."*

***"Hazard mitigation** is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards (44CFR 201.2). Hazard mitigation activities may be implemented prior to, during, or after an event. However, it has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs."*

(Source: Local Mitigation Plan Review Guide, FEMA, October 1, 2011)

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Acknowledgements

This plan integrates elements to qualify it as a Community Wildfire Protection Plan (CWPP) according to the US Forest Service and the NH Department of Natural & Cultural Resources (DNCR). The plan was created through a grant from NH Homeland Security & Emergency Management (HSEM). The following organizations have contributed invaluable assistance and support for this project:

- NH Homeland Security & Emergency Management (HSEM)
- Federal Emergency Management Agency (FEMA)
- NH Office of Strategic Initiatives (OSI)
- Mapping and Planning Solutions (MAPS)
- NH Forests & Lands (DNCR)

This plan is an update to the most recent Kensington Hazard Mitigation Plan, approved in 2013. This plan was funded under the Pre-disaster Mitigation Grant Program (PDM17)

Approval Notification Dates for 2020 Update

Approved Pending Adoption (APA):..... _____, 2020
Jurisdiction Adoption:..... _____, 2020
CWPP Approval:..... _____, 2020
Plan Approval Date (HSEM): ..... _____, 2020
Receipt of FEMA Letter ..... _____, 2020
Plan Distribution (MAPS): ..... _____, 2020

TOWN OF KENSINGTON HAZARD MITIGATION PLANNING TEAM (HMPT)

The Town of Kensington would like to thank the following people for the time and effort spent to complete this plan; the following people have attended meetings or been instrumental in completing this plan:

- David Buxton ..... Kensington Road Manager
- Peter Graves..... Kensington Select Board
- Jerrald Heywood..... Kensington Police Sergeant
- Susan Varn ..... Kensington Citizen
- Mark Craig ..... Kensington Planning Board
- Kathleen Felch..... Kensington Assessor
- Jonathan True..... Kensington Fire Chief/EMD
- Scott MacDougall..... Kensington Citizen
- Becky Ruel..... Kensington Principal
- Mike Schwotzer..... Kensington Planning Board/ZBA
- Jennifer Ramsey..... Kensington School Board
- Jim Varn..... Kensington Citizen
- Scott Cain ..... Kensington Police Chief
- Jennifer Gilbert..... NH OSI
- Kayla Henderson ..... NH HSEM
- Elizabeth Gilboy..... NH HSEM
- June Garneau ..... MAPS
- Olin Garneau..... MAPS

Many thanks for all the hard work and effort given by each and every one of you. This plan would not exist without your knowledge and experience. The Town of Kensington also thanks the Federal Emergency Management Agency and NH Homeland Security & Emergency Management as the primary funding sources for this plan.

Acronyms associated with the above list:

EMD ..... Emergency Management Director
ZBA ..... Zoning Board of Adjustment

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Executive Summary

The Kensington Hazard Mitigation Plan Update 2020 was compiled to assist the Town of Kensington in reducing and mitigating future losses from natural, technological or human-caused hazardous events. The plan was developed by participants of the Kensington Hazard Mitigation Planning Team (HMPT), interested stakeholders, the general public and Mapping and Planning Solutions (MAPS). The plan contains the tools necessary to identify specific hazards and aspects of existing and future mitigation efforts.

This plan is an **update** to the 2013 Kensington Hazard Mitigation Plan. To produce an accurate and current planning document, the planning team used the 2013 plan as a foundation, building upon that plan to provide more timely information.

It must be noted that all planning meetings for the development of this project were completed before the arrival of COVID-19 in the United States. The final writing of this plan has been completed during the COVID-19 outbreak; therefore, there are some references to the virus, particularly in Chapter 5, Section C, Infectious Diseases.

Mitigation action items for natural hazards are the main focus of this plan. However, in addition to natural hazards, this plan addresses technological and human-caused hazards, as shown below.

NATURAL HAZARDS

1) Severe Winter Weather
2) Tropical & Post-Tropical Cyclones
3) Inland Flooding
4) Extreme Temperatures
5) Infectious Diseases
6) High Wind Events
7) Lightning
8) Drought
9) Wildfires
10) Earthquakes

TECHNOLOGICAL HAZARDS

1) Radiological
2) Known & Emerging Contaminants
3) Long Term Utility Outage
4) Aging Infrastructure
5) Hazardous Materials

HUMAN-CAUSED HAZARDS

1) Transport Accidents
2) Terrorism & Violence
3) Mass Casualty Incidents
4) Cyber Events

Some hazards that are listed in the 2018 New Hampshire Hazard Mitigation Plan were not included in this plan as the team felt they were unlikely to occur in Kensington or not applicable. These hazards can be seen in Chapter 3, Section A, with an explanation of why they have been omitted.

This plan also provides a list of Critical Infrastructure & Key Resources (CIKR) categorized as follows: Emergency Response Facilities (ERF), Non-Emergency Response Facilities (NERF), Facilities and Populations to Protect (FPP) and Potential Resources (PR). Also, this plan addresses the town's involvement in the National Flood Insurance Program (NFIP).

Some communities, when faced with an array of hazards, can cope with the impact of these hazards. For example, although severe winter weather is often a common hazard in New Hampshire, most New Hampshire communities handle two to three-foot snowstorms with little or no disruption of services. On the other hand, an unexpected ice storm can have disastrous effects on a community. Mitigation for this type of sudden storm is difficult to achieve: establishing warming and cooling centers, establishing notification systems, providing public outreach, tree trimming, opening shelters and perhaps burying overhead power lines are just a few of the action items that may be put in place.

In summary, finding mitigation action items for every hazard that affects a community is, at times, challenging. In addition, with today's economic constraints, cities and towns are less likely to have the financial ability to complete some mitigation action items, such as burying power lines. In preparing this plan, the Kensington HMPT has considered a comprehensive list of mitigation action items that could diminish the impact of hazards but has also decided to maintain a list of preparedness action items for future reference and action.

To simplify the language in the plan, the following abbreviations and acronyms will be used:

Kensington Hazard Mitigation Plan Update 2020	the plan or this plan
Kensington	the town or the community
Hazard Mitigation Planning Team	the team or HMPT
Hazard Mitigation Plan	HMP
Emergency Operations Plan	EOP
Mapping and Planning Solutions	MAPS
Mapping and Planning Solutions Planner	the planner
NH Homeland Security & Emergency Management	HSEM
Federal Emergency Management Agency	FEMA

For more acronyms, please refer to Appendix E: Acronyms

Mission Statement:
To make Kensington less vulnerable to the effects of hazards through the effective administration of hazard mitigation planning, wildfire hazard assessments, and a coordinated approach to mitigation policy and planning activities.

Vision Statement:
The Town of Kensington will reduce the impacts of natural hazards and other potential disasters through implementing mitigation measures, public education and deliberate capital expenditures within the community. Homes and businesses will be safer and the community's ISO rating may be improved.

Chapter 1: Hazard Mitigation Planning Process

A. Authority & Funding

The Kensington Hazard Mitigation Plan Update 2020 was prepared in accordance with the Disaster Mitigation Act of 2000 (DMA), Section 322 Mitigation Planning, signed into law by President Clinton on October 30, 2000. This hazard mitigation plan was prepared by the Kensington Hazard Mitigation Planning Team (HMPT) under contract with New Hampshire Homeland Security & Emergency Management (HSEM) operating under the guidance of Section 206.405 of 44 CFR Chapter 1 (10-1-97 Edition) and with the assistance and professional services of Mapping and Planning Solutions (MAPS). This plan was funded by HSEM through grants from the Federal Emergency Management Agency (FEMA). Matching funds for team members' time were also part of the funding formula.

B. Purpose & History of the FEMA Mitigation Planning Process

The ultimate purpose of Disaster Mitigation Act of 2000 (DMA) is to:

"…establish a national disaster hazard mitigation program -

- *To reduce the loss of life and property, human suffering, economic disruption and disaster assistance costs resulting from natural disasters; and*
- *To provide a source of pre-disaster hazard mitigation funding that will assist States and local governments (including Indian tribes) in implementing effective hazard mitigation measures that are designed to ensure the continued functionality of critical services and facilities after a natural disaster".*[1]

DMA 2000 amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by, among other things, adding a new section "322 – Mitigation Planning" which states:

> *"As a condition of receipt of an increased Federal share for hazard mitigation measures under subsection (e), a State, local, or tribal government shall develop and submit for approval to the President a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government."*[2]

HSEM's goal is to have all New Hampshire communities complete a local hazard mitigation plan as a means to reduce future losses from natural hazards before they occur. HSEM outlined a process whereby communities throughout the state may be eligible for grants and other assistance upon completion of this hazard mitigation plan.

The Kensington Hazard Mitigation Plan Update 2020 is a planning tool to use to reduce future losses from natural, technological and human-caused hazards as required by the Disaster Mitigation Act of 2000. This plan does not constitute a section of the town's Master Plan. However mitigation action items from this plan may be incorporated into future Master Plan updates.

The DMA places emphasis on local mitigation planning. It requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans as a condition to receiving Hazard Mitigation Grant Program (HMGP) project grants. Local governments must review this plan yearly and update this plan every five years to continue program eligibility.

[1] Disaster Mitigation Act (DMA) of 2000, Section 101, b1 & b2
[2] Disaster Mitigation Act (DMA) of 2000, Section 322a

C. JURISDICTION

This plan addresses one jurisdiction – the Town of Kensington, NH.

D. SCOPE OF THE PLAN & FEDERAL & STATE PARTICIPATION

A community's hazard mitigation plan often identifies a vast number of natural hazards and is somewhat broad in scope and outline. The scope and effects of this plan were assessed based on the impact of hazards and wildfire on: *Critical Infrastructure & Key Resources (CIKR), current residential buildings, other structures within the town, future development, administrative, technical and physical capacity of emergency response services and response coordination between federal, state and local entities.*

In seeking approval as a Hazard Mitigation Plan and a Community Wildfire Protection Plan (CWPP), the planning effort included participation of NH Homeland Security & Emergency Management (HSEM), the United States Department of Agriculture-Forest Service (USDA-FS), the NH Department of Natural & Cultural Resources (DNCR), and the NH Office of Strategic Initiatives (OSI) as well as routine notification of upcoming meetings to state and federal entities above. Designation as a CWPP may allow a community to gain access to federal funding for hazardous fuels reduction and other mitigation projects supported by the USDA-FS. By merging the two federal planning processes (hazard and wildfire), duplication is eliminated and the town has access to a larger pool of resources for pre-disaster planning.

The Healthy Forest Restoration Act (HFRA) of 2003 includes statutory incentives for the US Forest Service to give consideration to local communities as they develop and implement forest management and hazardous fuel reduction projects. For a community to take advantage of this opportunity, it must first prepare a CWPP. This hazard mitigation planning process not only satisfies FEMA's criteria regarding wildfires and all other hazards but also addresses the minimum requirements for a CWPP:

- ***Collaboration****: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.*

- ***Prioritized Fuel Reduction:*** *A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.*

- ***Treatment of Structural Ignitability:*** *A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.*[3]

Finally, as required under Code of Federal Regulations (CFR), Title 44, Part 201.6(c) (2) (ii) and 201.6(c) (3) (ii), the plan must address the community's participation in the National Flood Insurance Program (NFIP), its continued compliance with the program and as part of vulnerability assessment, the plan must address the NFIP insured structures that have been repetitively damaged due to floods.

[3] Healthy Forest Restoration Act; HR 1904, 2003; Section 101-3-a.b.c; http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_cong_bills&docid=f:h1904enr.txt.pdf

E. Public & Stakeholder Involvement

Public and stakeholder involvement was stressed during the initial meeting and community officials were given a matrix of potential team members (page 19). Community officials were urged to contact as many people as they could to participate in the planning process, including not only residents but also officials and residents from surrounding communities. The Town of Kensington understands that natural hazards do not recognize political boundaries.

Kensington belongs to SAU 16. Students in grades K-5 attend Kensington Elementary School. Middle school students in grades 6-8 attend Cooperative Middle School in Stratham with Exeter, Brentwood, Newfields, East Kingston and Stratham. Students in grades 9-12 attend school at Exeter High School in Exeter with Brentwood, Newfields, East Kingston, Stratham and Exeter. The Principal of the Kensington Elementary School and a School Board member were in attendance for many of the hazard mitigation planning meetings, offering excellent insight into issues that affect both the school district and the town.

The team also provided excellent public and stakeholder notification. Many interested citizens and stakeholders had the opportunity to become aware of the hazard mitigation planning taking place in Kensington. A press release (see right) was posted at several locations in the community and on the town's website. Meeting dates were also posted on the town's website (see on following page for a few examples of these postings).

Mapping and Planning Solutions
105 Union Street, Suite 1
Whitefield, NH 03598

Press Release

FOR IMMEDIATE RELEASE
Updated: August 5, 2019

Contact: June Garneau
603-837-7122

TOWN OF KENSINGTON COMMENCES
HAZARD MITIGATION PLANNING

The Emergency Management Director of the Town of Kensington will be meeting with June Garneau, of Mapping and Planning Solutions and other Team members from Kensington, to begin work on the required five-year update to the **2013 Kensington Hazard Mitigation Plan**. As a result of this meeting, Mapping and Planning Solutions is conducting a series of meetings on the Hazard Mitigation Plan over the next few months.

Through this series of public meetings, the Team will address issues such as flooding, hurricanes, drought, landslides and wildfires, and determine efforts the Town can undertake to mitigate the effects of both natural and human-caused hazards. The Team will also examine potential shelter sites and the need for generators at those sites.

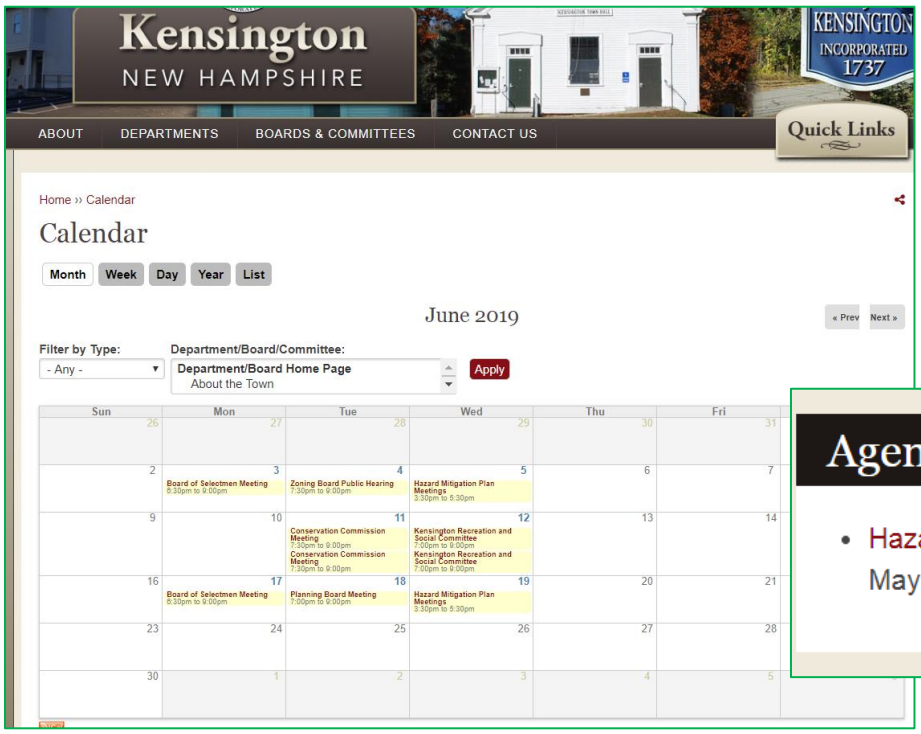
By examining critical infrastructure and key resources, along with past hazards, the team will establish priorities for future mitigation projects and steps that can be taken to increase public awareness of hazards in general.

As mandated by the Disaster Mitigation Act of 2000, all municipalities are required to complete a local Hazard Mitigation Plan in order to qualify for Federal Emergency Management Administration funding should a natural disaster occur. The planning processes are made possible by grants from FEMA.

The Hazard Mitigation Planning Team is currently being formed. Kensington citizens and any interested stakeholders are invited to participate. All interested parties should contact Chief True, the Kensington Fire Chief and Emergency Management Director, at 918-1615 if they wish to be included in the process.

Three meetings have been held. Additional meetings are scheduled for **Wednesdays, September 11** and **October 23** from **3:30 PM to 5:30 PM** at the Kensington Town Hall. The general public is encouraged to attend all meetings.

More information on the hazard mitigation planning process is available from June Garneau at Mapping and Planning Solutions, 603-837-7122.



Agendas

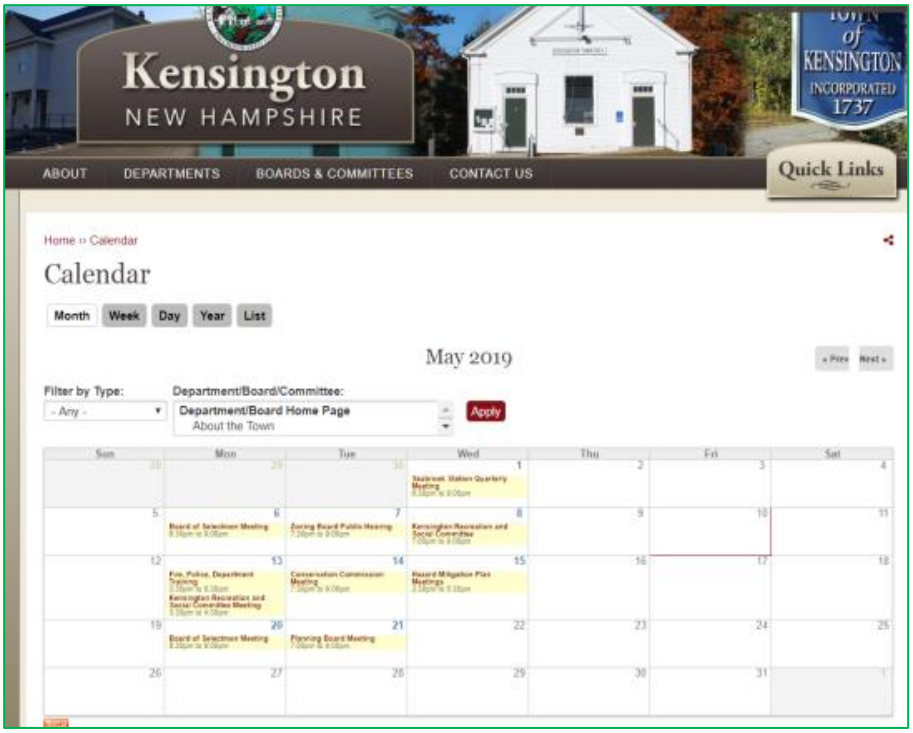
- Hazard Mitigation Plan Meetings
  May 15, 2019 - 3:30pm

News & Announcements

Heat Advisory July 17, 2019

Agendas

- Hazard Mitigation Plan Meeting
  October 23, 2019 - 3:30pm
- Hazard Mitigation Plan Meetings
  September 11, 2019 - 3:30pm
- Hazard Mitigation Plan Meetings
  July 18, 2019 - 3:30pm
- Hazard Mitigation Plan Meetings
  May 15, 2019 - 3:30pm



Lastly, the planner sent a monthly calendar to NH EMD's, Police and Fire Chiefs, Rangers and other state, federal and private officials, including stake-holders for the town (example shown below).

Tuesday	9/10/19	7:00 PM	Jefferson Town Offices	MP	N/A	
Wednesday	9/11/19	3:30 PM	Kensington Town Offices	HMP	Liz Gilboy	
Wednesday	9/11/19	6:30 PM	East Kingston Fire Station	HMP	Liz Gilboy	Rockingham
Monday	9/16/19	TBD	Wentworth Town Offices (tentative)	HMP	Paul Hatch	Grafton
Wednesday	9/18/19	9:00 AM	Waterville Valley Town Offices	HMP	Paul Hatch	Grafton
Wednesday	9/18/19	1:00 PM	Campton Town Offices	HMP	Paul Hatch	Grafton
Tuesday	9/24/19	7:00 PM	Jefferson Town Offices	MP	N/A	Coos
Wednesday	9/25/19	9:00 AM	Woodstock Town Offices	HMP	Paul Hatch	Grafton
Tuesday	10/8/19	7:00 PM	Jefferson Town Offices	MP	N/A	Coos
Monday	10/21/19	TBD	Wentworth Town Offices (tentative)	HMP	Paul Hatch	Grafton
Tuesday	10/22/19	7:00 PM	Jefferson Town Offices	MP	N/A	Coos
Wednesday	10/23/19	3:30 PM	Kensington Town Offices	HMP	Liz Gilboy	Rockingham
Wednesday	10/23/19	6:30 PM	East Kingston Fire Station	HMP	Liz Gilboy	Rockingham

It was noted that team composition is expected to be lower in smaller communities because of the small population base and the fact that many people "wear more than one hat". It is often very difficult to attract individual citizens to participate in town government and those that do generally hold full-time jobs and work as volunteers in a variety of town positions. With small populations, the percent of interested citizens in a town's planning processes is extremely small. Due to the availability of jobs and other economic factors, the town has a relatively high elderly population and a dwindling amount of young people with interest in politics. Kensington however is less rural than many small NH communities with approximately 177 persons per square mile.

Kensington had excellent participation in the development of this plan. In addition to the Emergency Management Director (EMD/Fire Chief), the Town Assessor, the Road Manager, the Police Chief and Police Sergeant, a member of the Select Board, a member of the Planning Board, the Elementary School Principal, a member of the School Board and HSEM participated in meetings. In addition, three interested citizens took the opportunity to attend several meetings. Comments made by all team members including the citizens of the community who attended, were integrated into the narrative discussion and were incorporated into the essence of the document.

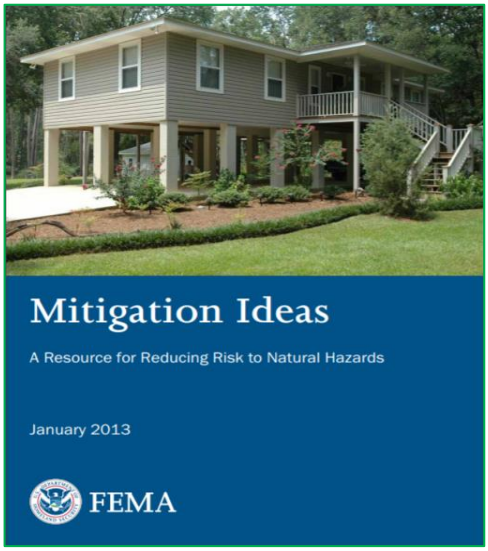
§201.6(b) requires that there be an open public involvement process in the formation of a plan. This process shall provide an opportunity for the public to comment on the plan during its formation as well as an opportunity for any neighboring communities, businesses, and others to review any existing plans, studies, reports, and technical information and incorporation of those in the plan, to assist in the development of a comprehensive approach to reducing losses from natural disasters.

F. INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The planning process included a complete review of the Kensington Hazard Mitigation Plan of 2013 for updates, development changes and accomplishments. In addition, as noted in the bibliography and in footnotes located throughout the plan many other documents were used to create this mitigation plan. Some, but not all, of those plans and documents are listed below:

The Kensington Hazard Mitigation Plan of 2013 .....Compare & Contrast
Kensington Master Plan (2011) .....Community Information
Kensington Annual Report (2019) .....Fire Report & Development
Other Hazard Mitigation Plans (Kingston, Salem, Littleton) .....Formats & Mitigation Ideas
The Kensington Ordinance Subdivision Regulations (2019) .....New Development Regulations
The Kensington Zoning Ordinance (2019).....Zoning Regulations
Flood Plain Development Ordinance (Part of Zoning).....Floodplain Regulations
Census 2010 Data .....Population Data
The NH DRA Summary of Inventory of Valuation MS-1 2018 for Kensington .....Structure Evaluation
The Economic & Labor Market Information Bureau Community Profile.....Population Trends
The American Community Survey (ACS 2014-2018).....Population Trends
Mitigation Ideas, FEMA, January 2013.....Mitigation Strategies
The Department of Cultural & Natural Resources (DNCR) .....DNCR Fire Report
The NH Office of Strategic Initiatives (OSI) .....Flood Losses
The NH Department of Revenue property tax valuation.....Property Information

Other technical manuals, federal and state laws as well as research data were combined with these elements to produce this integrated hazard mitigation plan. Please refer to the Bibliography in *Appendix A: Bibliography* and the plan's footnotes.



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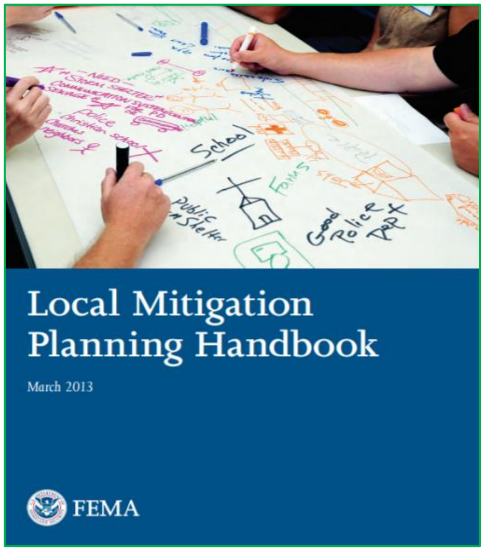

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G. Hazard Mitigation Goals

Before identifying new mitigation action items, the team reviewed and agreed to the goals in the State of New Hampshire Multi-Hazard Mitigation Plan, Update 2018. These goals are detailed below.

Overarching Goals

The following are the five overarching goals of this plan:

- *Minimize loss and disruption of human life, property, the environment and the economy due to natural, technological and human-caused hazards through a coordinated and collaborative effort between federal, state and local authorities to implement appropriate hazard mitigation measures.*
- *Enhance protection of the general population, citizens and guests of the community before, during and after a hazard event through public education about disaster preparedness and resilience and expanded awareness of the threats and hazards which face the community.*
- *Promote continued comprehensive hazard mitigation planning at local levels to identify, introduce and implement cost effective hazard mitigation measures.*
- *Address the challenges posed by climate change as they pertain to increasing the risk and impacts of the hazards identified within this plan.*
- *Strengthen Continuity of Operations and Continuity of Government at the local level to ensure continuation of essential services*

Natural Hazard Objectives

- *Reduce long-term flood risks through assessment, identification and strategic mitigation of at risk/vulnerable infrastructure (dams, stream crossings, roadways, coastal levees, etc.).*
- *Minimize illnesses and deaths related to events that present a threat to human and animal health.*
- *Assist communities with plan development, outreach and public education in order to reduce the impact from natural disasters.*
- *Ensure mitigation strategies consider the protection and resiliency of natural, historical and cultural resources.*

Technological Hazard Objectives

- *Ensure technological hazards are responded to appropriately and to mitigate the effect on citizens.*
- *Build upon state and local capabilities to identify and respond to* emerging contaminants.
- *Effectively collaborate between federal, state and local agencies as well as private partners, Non-Governmental Organizations (NGOs) and Volunteer Organizations Active in Disaster (VOADs).*

- *Enhance public education of technological hazards to assist in the prevention and mitigation of hazard impacts on the population.*

- *Ensure HazMat teams are properly equipped and trained to respond, contain and mitigate incidents involving technological hazards.*

- *Reduce the possibility of long-term utility outages by planning, training and exercising on utility failure events.*

- *Lessen the effects of technological hazards on communications infrastructure by building more resilient voice and data systems.*

HUMAN-CAUSED HAZARD OBJECTIVES

- *Ensure that grant related funding processes allow for expedient and effective actions to take place at the community and state-level.*

- *Identify Critical Infrastructure & Key Resources (CIKR) risks or vulnerabilities and protect or harden infrastructure against hazards.*

- *Improve the ability to respond and mitigate Cyber Events through increased training, exercising, improved equipment and utilizing the latest technologies.*

- *Foster collaboration between federal, state and local agencies on training, exercising and preparing for mass casualty incidents and terrorism.*

- *Ensure that state and community assets (i.e. hospitals, state agencies, non-profits, universities, nursing homes, prisons, etc.) are prepared for all phases of emergency management including training, reunification and exercising.*

Did You Know?

Money spent on reducing the risk of natural hazards is a wise investment. FEMA administers three grant programs that provide funding for eligible mitigation planning and projects: the Hazard Mitigation Grant Program (HMGP), the Flood Mitigation Assistance (FMA) Program, and the Pre-Disaster Mitigation (PDM) Program.

FEMA E-Brief, April 12, 2017

H. Hazard Mitigation Planning Process & Methodology

The planning process consisted of twelve specific steps; some steps were accomplished independently while other areas were interdependent. Many factors affected the ultimate sequence of the planning process such as the number of meetings, community preparation, attendance and other community needs. The planning process resulted in significant cross-talk regarding all types of natural, technical and human-caused hazards by team members.

All steps were included but not necessarily in the numerical sequence listed. The list of steps is as follows:

Planning Steps

Step 01: Team formation, orientation and goals

Step 02: Identify hazards and their risk and probability
Table 3.1 – Hazard Identification & Risk Assessment (HIRA)

Step 03: Profile and list historic and potential hazards
Table 3.2 – Historic Hazard Identification

Step 04: Profile, list and establish risk for Critical Infrastructure & Key Resources (CIKR)
Tables 4.1 to 4.4 – Critical Infrastructure & Key Resources

Step 05: Assess community's participation in the National Flood Insurance Program (NFIP)
Chapter 3, Section D

Step 06: Prepare an introduction to the community, discuss emergency service capabilities and development trends and review statistical information about the town
Chapter 2, Sections A, B and C & Table 2.1, Town Statistics

Step 07: Review current plans, policies & mutual aid & brainstorm to identify improvements
Table 6.1 – Current Plans, Policies & Mutual Aid

Step 08: Examine the mitigation actions items from the last plan
Table 7.1 – Accomplishments since the last Plan

Step 09: Evaluate and categorize potential mitigation action items
Tables 8.1 - Potential Mitigation Strategies & the STAPLEE

Step 10: Prioritize mitigation action items to determine an action plan
Table 9.1 – The Mitigation Action Plan

Step 11: Review the plan before submission to HSEM for APA (Approved Pending Adoption)

Step 12: Adopt and monitor the plan

I. Hazard Mitigation Building Blocks & Tables

Using a "building block" approach, the base, or foundation, for the mitigation plan update was the prior plan. Each table that was completed had its starting point with the last hazard mitigation plan completed by the community.

Ultimately, the "building blocks" led to the final goal, the development of prioritized mitigation "action items" that when put into an action plan, would lessen or diminish the impact of natural hazards on the town.

Hazard Mitigation Process
"The Building Blocks"

Hazard Identification & Risk Assessment (HIRA)
What are the hazards and which are most likely to impact Kensington?
Table 3.1

Critical Infrastructure & Key Resources
Are any in harm's way?
Tables 4.1-4.4

Current Plans, Policies & Mutual Aid
Do any need improvement?
Table 6.1

Historic Wildfires & the Wildland Urban Interface
What are the wildfire risks throughout Kensington?
Table 3.2

Past & Potentially Hazardous Locations
What areas of Kensington are hardest hit?
Table 3.2

Accomplishments since the Last Plan
Were strategies completed or should they be deleted or deferred to this plan?
Table 7.1

Mitigation Action Items
What can we do to lessen, diminish or eliminate the risk of hazards?
What problems are we trying to solve?
Table 9.1 – The End Goal

J. Narrative Description of the Process

The plan was developed with substantial local, state and federal coordination; completion of this new hazard mitigation plan required significant planning preparation. All meetings were geared to accommodate brainstorming, open discussion and an increased awareness of potential hazardous conditions in the town.

The planning process included a complete review of the 2013 Kensington Hazard Mitigation Plan. Using the 2013 plan as a base, each element of the old plan was examined and revised to reflect changes that had taken place in development and in the priorities of the community. In addition, referring to the 2013 plan, strategies from the past were reassessed and improved upon for the future.

The following narrative explains how the 2013 Kensington Hazard Mitigation Plan was used during each step of the planning process to make revisions that resulted in this plan.

Meeting 1, May 15, 2019

The first full meeting of the Kensington hazard mitigation team was held on May 15, 2019. Meeting attendance included David Buxton (Road Manager), Peter Graves (Select Board), Jerrald Heywood (Police Sergeant), Susan Varn (Citizen), Mark Craig (Planning Board), Kathleen Felch (Assessor), Jonathan True (Fire Chief & Emergency Management Director), Scott MacDougall (Citizen), Becky Ruel (Kensington Elementary School Principal), Elizabeth Gilboy (Homeland Security & Emergency Management), Olin Garneau (Mapping and Planning Solutions) and June Garneau (Mapping & Planning Solutions).

To introduce the team to the planning process, June reviewed the evolution of hazard mitigation plans, the funding, the 12 Step Process (handout), the collaboration with other agencies and the Goals (handout). June also explained the need to sign-in, track time (handout) and to provide public notice to encourage community involvement.

Work then began on *Table 2.1, Town Statistics*. Most of the work on this table was complete at this meeting with the exception of a few items that June would either determine through GIS or get at a later date. There was some discussion about the seasonal population change and housing in Kensington with summer and winter homes, however it was determined that Kensington does not have a major influx of seasonal tourist.

Hazards Mitigation Potential Team Members

Federal
USDA Forest Service

State
Department of Transportation (DOT)
Department of Natural & Cultural Resources (DNCR)
Office of Strategic Initiatives (OSI)

Local
Selectmen (Past/Present)
Town Manager/Administrator
Town Planner
Police Chief
Fire Chief
Emergency Management Director
Emergency Services
Fire Warden
Health Services
Education/School
Recreation Directors
Public Works Director
Road Agent
Water Management
Public Utilities
Waste Management
Dam Operators
Major Employers

Local - Special Interest
Land Owners
Home Owners
Forest Management
Timber Management
Tourism & Sportsman's Groups
Developers & Builders

Experts
GIS Specialists

Next on the Agenda were hazard identification and the completion of *Table 3.1, Hazard Identification & Risk Assessment (HIRA)*. After the hazards had been identified, the team then assessed the risk severity and probability by ranking each hazard on a scale of 1-5 (5 being very high or catastrophic) based on the following:

The Human Impact ..... Probability of Death or Injury
The Property Impact ..... Physical Losses and Damages
The Business Impact ..... Interruption of Service
The Probability ..... Likelihood of this occurring within 25 years

The rankings were then calculated to reveal the hazards which pose the greatest risks to the community. Ten natural hazards, five technological hazards and four human-caused hazards were identified. After analyzing these hazards in Table 3.1, Severe Winter Weather, Transport Accidents, Tropical & Post-Tropical Cyclones, Inland Flooding, Extreme Temperatures, Infectious Diseases and Terrorism & Violence were designated "High Risk" hazards for the town.

Having completed Table 3.1, the team started working on descriptions of each hazard and how they could, or do impact the community. In order to gain more knowledge of the impact of these hazards, June asked the team to describe each hazard as it relates to Kensington. For example, some of the questions asked were:

- *How often do these hazards occur?*
- *Do the hazards damage either the roads or structures?*
- *Have the hazards resulted in loss of life?*
- *Are the elderly and functional needs populations particularly at risk?*
- *What has been done in the past to cope with the hazards?*
- *Was outside help requested?*
- *Are the hazards further affected by an extended power failure?*
- *What mitigation steps can we take to eliminate the hazard or diminish its impact?*

Meeting 1 – May 15, 2019

1) Introduction
a) Evolution of Hazard Mitigation Plans & Community Wildfire Protection Plans
b) Reasons for Hazard Mitigation and Update
c) Community involvement to solicit input on how to mitigate the effects of hazards
d) Devise a plan that lessens, diminishes or completely eliminates the threat of Hazards to the town

2) The Process
a) Funding
b) Review of 12 Step Process & the team (handout)
c) Collaboration with other Agencies (HSEM, WMNF)

3) Meetings
a) Community Involvement - Public Notice, Press Release
b) Stakeholders
c) Signing In, Tracking Time, Agendas, Narrative (handout)

4) Today's Topics
a) Table 2.1, Town Information
b) Table 3.1, Hazard Identification & Analysis
c) Hazard Descriptions
d) Table 4.1-4.4, Critical Infrastructure & Key Resources

5) Homework
a) Homework – Critical Infrastructure & Key Resources
b) Digital Photos – contributions welcome

6) Future Meetings
a) _____

In addition to bringing more awareness to the hazards, these questions provided information to further analyze the impact of the hazards on the community. June noted that these descriptions would be used in Chapter 5.

With time running out before the hazard descriptions were completed, June advised the team that the remaining hazard descriptions would be completed at next meeting. June thanked the team for their work and assigned "homework" to team members, including requesting that the Road Manager prepare a list of road/culvert projects that would need to be completed within the next five years. June also asked the team to think about Critical Infrastructure & Key Resources (CIKR) and past events that have affected the town. The next meeting was scheduled for Wednesday, June 5, 2019.

MEETING 2, JUNE 5, 2019

Meeting attendance included David Buxton, Jerrald Heywood, Susan Varn, Kathleen Felch, Jonathan True, Becky Ruel, Mike Schwotzer (Planning Board), Jennifer Ramsey (School Board), Elizabeth Gilboy, Olin Garneau and June Garneau.

The meeting began with a review of the work that was done at the previous meeting. June reviewed *Table 2.1, Town Statistics* to ensure that the town data was accurate, no changes were made. Next June reviewed *Table 3.1, Hazard Identification & Risk Assessment (HIRA)* to be certain the team felt the hazards were in the correct order for the town. There were a few changes made to this table.

Next on the agenda was the completion of the Hazard Descriptions that were started at the previous meeting. While doing the Hazard Descriptions, development trends were also discussed.

Meeting 2 – June 5, 2019

1) Last Meeting
- a) Reviewed planning process, purpose, funding & collaboration.
- b) Reviewed of community involvement and stakeholders
- c) Worked on Table 2.1, Town Information
- d) Worked Table 3.1, Hazard Identification & Analysis
- e) Worked on Hazard Descriptions (Did not finish)

2) Today's Topics
- a) Review….
  - i) Table 2.1, Town Statistics
  - ii) Table 3.1, Hazard Identification & Analysis
- b) Finish Hazard Descriptions
- c) Work on….
  - i) Table 3.2, Historic Hazard Identification
  - ii) Table 4.1-4.4, Critical Infrastructure & Key Resources
  - iii) Table 6.1, Current Plans, Policies & Mutual Aid (time allowing)
  - iv) Table 7.1, Accomplishments since the prior plan (time allowing)

3) Homework
- a) Review materials sent by MAPS
- b) Digital Photos – contributions welcome

4) Future Meetings
- a) July 18, 2019 @ 3:30 PM

Next on the agenda were *Tables 4.1–4.4, Critical Infrastructure & Key Resources (CIKR)*. The Emergency Response Facilities, the Non-Emergency Response Facilities, the Facilities & Populations to Protect and the Potential Resources from the 2013 plan were examined and a few minor adjustments were made for this plan. In addition, the evacuation routes, helicopter landing zones and bridges on the evacuation routes were defined. Lastly, each of the Critical Infrastructure & Key Resources were analyzed for their "Hazard Risk".

With time running out, Tables 4.1-4.4 were not finished. June reviewed what would take place at the next meeting and thanked the team. The next meeting was set for July 18, 2019.

MEETING 3, JULY 18, 2019

Meeting attendance included Jerrald Heywood, Susan Varn, Jonathan True, Becky Ruel, Mike Schwotzer, Jennifer Ramsey, Jim Varn (Citizen), Olin Garneau and June Garneau.

The meeting began with finishing Tables 4.1-4.4 that was started at the previous meeting. The team added some key facilities that could either be beneficial during an emergency or places that need immediate response prior or during an emergency.

The team next worked on *Table 3.2, Historic Hazard Identification*, which lists past and potentially hazardous locations and/or events. First, they looked at the hazards that were listed in the last plan and determined which they would like to see kept in this plan.

Meeting 3 – July 18, 2019

1) Last Meeting
- a) Reviewed….
  - i) Table 2.1, Town Information
  - ii) Table 3.1, Hazard Identification & Analysis
- b) Finished….
  - i) Hazard Descriptions
- c) Worked on….
  - i) Table 4.1-4.4, Critical Infrastructure & Key Resources (did not finish)

2) Today's Topics
- a) Finish….
  - i) Table 4.1-4.4, Critical Infrastructure & Key Resources
- b) Work on….
  - i) Table 3.2, Historic Hazard Identification
  - ii) Table 6.1, Current Plans, Policies & Mutual Aid
  - iii) Table 7.1, Accomplishments since the prior plan (time allowing)

3) Homework
- a) Review materials sent by MAPS
- b) Digital Photos – contributions welcome

4) Future Meetings
- a) September 11, 2019 @ 3:30 PM
- b) October 23, 2019 @ 3:30 PM

Next, the team examined the record of Major Disaster and Emergency Declarations that have taken place in recent years.

While reviewing Table 3.2, June took the opportunity to explain the Wildland Urban Interface (WUI); this area is determined to be the area in which the urban environment interfaces with the wildland environment and the area that is most prone to the risk of wildfires. In Kensington, it was noted that the WUI, if determined using the 1320 foot buffer method, would cover the entire town of Kensington. Therefore, the entire town was thought to be in the WUI. Mitigation strategies were discussed to protect structures and to educate the town's citizens about the risk of wildfire.

June explained what would take place at the next meeting and adjourned the meeting. The next meeting was scheduled for September 11, 2019.

MEETING 4 – SEPTEMBER 11, 2019

Meeting attendance included Kathleen Felch, Jonathan True, Becky Ruel, Mike Schwotzer, Kayla Henderson (NH HSEM), Alexx Monastiero (NH HSEM) Olin Garneau and June Garneau.

Meeting 4 – September 11, 2019

1) Last Meeting
- a) Worked on….
  - i) Table 4.1-4.4, Critical Infrastructure & Key Resources
  - ii) Table 3.2, Historic Hazard Identification

2) Today's Topics
- a) Work on….
  - i) Table 6.1, Current Plans, Policies & Mutual Aid
  - ii) Table 7.1, Accomplishments since the prior plan

3) Homework
- a) Review materials sent by MAPS
- b) Digital Photos – contributions welcome

4) Future Meetings
- a) October 23, 2019 @ 3:30 PM

First, June lead the team through a review of the work that was done at the last meeting, including a review of *Table 3.2, Historic Hazard Identification* and *Table 4.1-4.4, Critical Infrastructure & Key Resources*.

Next, the team began working on *Table 6.1, Current Plans, Policies & Mutual Aid*; like other tables, this table was also pre-populated with information from the 2013 plan. Looking closely at the existing policies from the last plan and current mechanisms that are in place, the team determined if each plan, policy or mutual aid system should be designated as "No Improvements Needed" or "Improvements Needed" based on the "Key to Effectiveness" found in Chapter 6. It was explained to the team that those items that needed improvement would become new "Action Items" for this plan and be discussed again and re-prioritized when we got to our final table*, Table 9.1, The Mitigation Action Plan.*

Table 7.1, Accomplishments since the Last Plan, also pre-populated with data from the 2013 plan, was the next agenda item. June lead the team through each strategy to determine which of these strategies were "Completed" should be "Deleted" or should be "Deferred" to this plan as a new mitigation action item. Some action items from the 2013 plan had been completed or partially completed by the town while some were deleted as they were felt to be no longer useful or considered to be emergency preparedness, not mitigation. Still others were "deferred" for consideration as new "Action Items" for this plan.

To end the meeting, June provide the team with handouts detailing a comprehensive list of possible mitigation action items (see Chapter 8, Section A & B and Appendix E). June also encouraged team members to explore the link on their agendas for the FEMA Mitigation Idea booklet to see if any of the strategies in this book would be useful in Kensington (see right).

Link to explore:

FEMA Mitigation Ideas Book

https://www.fema.gov/media-library-data/20130726-1904-25045-0186/fema_mitigation_ideas_final508.pdf

The next meeting was scheduled for October 23, 2019.

MEETING 5 – OCTOBER 23, 2019

Meeting attendance included Kathleen Felch, Jonathan True, Becky Ruel, Mike Schwotzer, Scott Cain (Police Chief), Olin Garneau and June Garneau.

To begin the meeting, June walked the team through a complete review of Tables 6.1 & 7.1. Having translated her notes from the last meeting into paragraphs, June reviewed each item in the tables to see if the concepts and ideas of the team remained intact and to verify the accuracy of the information. The review of Table 6.1 resulted in 17 new "Action Items" for this plan, two of which are also in Table 7.1. The review of Table 7.1 left one additional item from Table 7.1 (that was not also in Table 6.1) deferred to become a new mitigation action item for this plan. Although several strategies from the last plan were determined to be emergency preparedness and not mitigation, the team decided to keep some of them in the plan as reminders to get these important action items completed.

Meeting 5 – October 23, 2019

1) Last Meeting
- a) Reviewed….
  - i) Table 4.1-4.4, Critical Infrastructure & Key Resources
  - ii) Table 3.2, Historic Hazard Identification
- b) Worked on….
  - i) Table 6.1, Current Plans, Policies & Mutual Aid
  - ii) Table 7.1, Accomplishments since the prior plan

2) Today's Topics
- a) Work on….
  - i) Start thinking about mitigation action items
  - ii) Table 9.1, Mitigation Action Plan
  - iii) STAPLEE

3) Homework
- a) Review materials sent by MAPS
- b) Digital Photos – contributions welcome

4) Future Meetings
- a) November 14, 2019 @ 3:30 PM

The meeting also included an overall recap of the work that had already been done. The recap included a brief look at each of the following completed tables:

- *Table 2.1 – Town Statistics*
- *Table 3.1 – Hazard Identification & Risk Assessment (HIRA)*
- *Table 3.2 – Historic Hazard Identification*
- *Tables 4.1-4.4 – Critical Infrastructure & Key Resources*
- *Table 6.1 – Current Plans, Policies & Mutual Aid*
- *Table 7.1 – Accomplishments since the Last Plan*

This review helped the team understand how each of these tables served as a building block for the final two tables, *Table 8.1, Potential Mitigation Strategies & the STAPLEE* and *Table 9.1, The Mitigation Action Plan*.

In addition to the action items identified in Tables 6.1 and 7.1, the team then reviewed a comprehensive list of additional potential action items. Using the handouts that had been provided by June at the last meeting, the team reviewed this list of mitigation strategies that was derived from several sources, including other local hazard

mitigation plans and the FEMA document "Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards, January 2013" (see Chapter 8, Sections A & B and Appendix E).

Next the team began work on *Table 8.1, Potential Mitigation Action Items & the STAPLEE* and *Table 9.1, The Mitigation Acton Plan*. June explained to the team that these tables were combined for the purpose of the meeting, but that they would become separate tables in the final plan. Having pre-populated the tables with the action items that had been deferred from Tables 6.1 and 7.1, the team looked carefully at each "Action Item" to assign responsibility, the time frame for completion, the type of funding that would be required and the estimated cost of the action (see Chapter 9, Section B).

Documentation for the planning process, including public involvement, is required to meet DMA 2000 (44CFR§201. (c) (1) and §201.6 (c) (1)). The plan must include a description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated. A description of the planning process should include how the planning team or committee was formed, how input was sought from individuals or other agencies who did not participate on a regular basis, what the goals and objectives of the planning process were, and how the plan was prepared. The description can be in the plan itself or contained in the cover memo or an appendix.

Work on this table included the STAPLEE process as shown in Chapter 8. Using the handouts provided by the planner, the team was able to go through the STAPLEE process for the action items that had been identified. The STAPLEE analysis would then become *Table 8.1, Potential Mitigation Action Items & the STAPLEE*. Most importantly, the STAPLEE process enabled the team to consider the cost-benefit of each action item.

Although most of Tables 9.1 and 8.1 were complete, there were a few action items to discuss at the next meeting as well as the "ranking" and "prioritizing" of each action item. June provided the team with one last handout that would be used during the next meeting, an explanation of the Ranking/Prioritizing (Chapter 9, Section A) method.

The next meeting was scheduled for November 14, 2019.

MEETING 6 – NOVEMBER 14, 2019

Meeting attendance included Jonathan True, Mike Schwotzer, Scott Cain, Kayla Henderson, Olin Garneau and June Garneau.

The meeting began where we had left off in Tables 9.1 & 8.1. After we had considered each strategy that was forwarded from Tables 6.1 & 7.1, the team considered additional mitigation items, many June had suggested from other plans. After much discussion and a careful review, ultimately, the team settled on thirty three "Mitigation Action Items" that they felt were achievable and that would help to diminish the impact of natural hazards in the future.

Once all of the mitigation action items had been determined and the STAPLEE was completed for each, the team was now ready for the ranking & prioritizing of the action items that had been identified. However, with time running out and several new action items added, June agreed to finish *Table 9.l, the Hazard Mitigation Action Plan,* for the team's review.

Meeting 6 – November 14, 2019

1) Last Meeting
- a) Reviewed…
  - i) Table 6.1, Current Plans, Policies & Mutual Aid
  - ii) Table 7.1, Accomplishments since the prior plan
- b) Worked On…
  - i) Table 9.1, Mitigation Action Items
  - ii) STAPLEE

2) Today's Topics
- a) Finish…
  - i) Table 9.1, Mitigation Action Plan
  - ii) STAPLEE
- b) Work on…
  - i) Ranking & Priority

3) Homework
- a) Review materials sent by MAPS
- b) Digital Photos – contributions welcome

4) Future Meeting
- a) _____
- b) _____

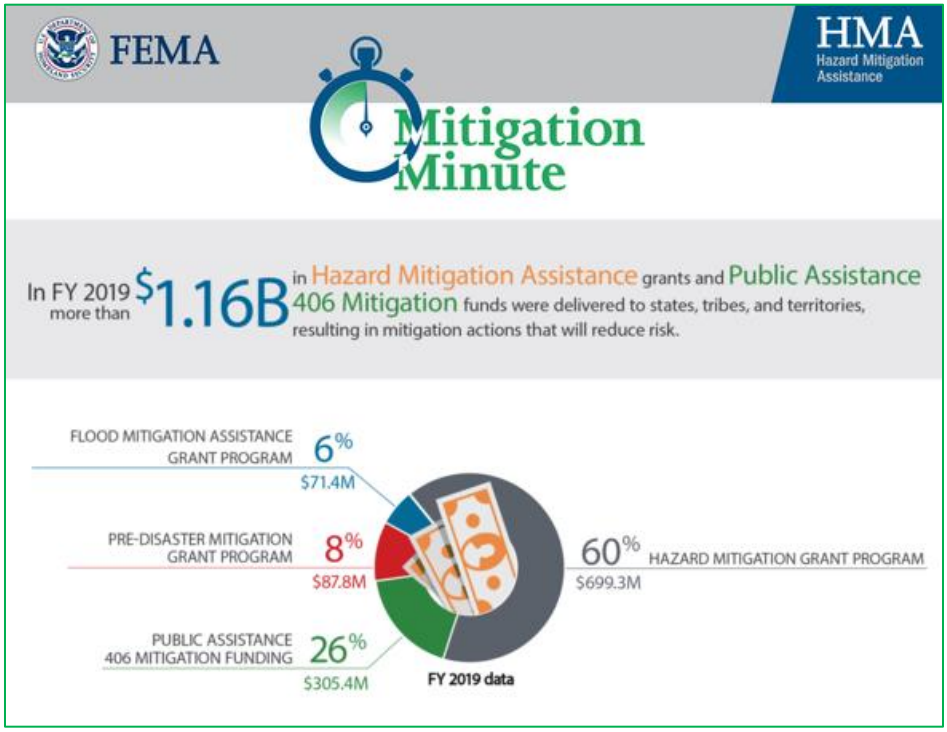
June noted that she would pre-rank the action items based on the time frame, the town's authority to get the strategy accomplished, the type of strategy and the STAPLEE score and place them in four categories as shown in Chapter 9, Section A. June agreed to send a "ranked" copy of Table 9.1 to the team so that they could assign the "priorities" for the action items that were agreed to. June also indicated that she would include an instruction sheet to use when recording the final priorities. The team was advised that in this way, they could assign a priority for each action item; for example, if seven action items were ranked "1" then the priority rank was 1-7. The team would able to determine which action items were the most important within their rankings as well as the order in which the action items would be accomplished. Chief True agreed to tally the team members' responses and to get the information back to June either at another brief meeting or through email.

June sent the team Table 9.1 on November 18, 2019. No additional meetings were scheduled at this time, but it was anticipated that a brief meeting may be held with Chief True on or around December 5th, when MAPS was also meeting with other Rockingham County communities.

MEETING 7– DECEMBER 5, 2019

Meeting attendance included Jonathan True and June Garneau.

June and John reviewed the ranking and priority from the comments made by team members and decided upon the final ranking and priority of each action item. No agenda was provided.



Mitigation Minute for January 15, 2020
Federal Emergency Management Agency (FEMA)

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Chapter 2: Community Profile

A. INTRODUCTION

Kensington is a beautiful community located in Rockingham County in the south east part of New Hampshire. Kensington is bordered to the east by Hampton Falls and Seabrook, to the south by South Hampton, to the north by Exeter and to the west by East Kingston. As a community in the "Seacoast" tourism region of New Hampshire, Kensington is located in the coastal plain of New Hampshire.

TOWN GOVERNMENT

A three-member Select Board governs the Town of Kensington. The town's departments include, but are not limited to, Fire, Police, Highway, Planning, Zoning, Recreation and Conservation. The largest, employer in Kensington is Unitil with 40+ employees.

DEMOGRAPHICS & HOUSING

Over the last 30 years, the population of Kensington has increased; the population change from 1980 (1,332) to 2010 (2,124) showed an increase of 792 according to US Census 2010. This represents a growth rate of approximately 59.46%. Kensington's population in 2018 was estimated to be 2,120.[4]

The American Community Survey (2014-2018) estimates a total of 900 housing units, most of which are single family (870). Multiple-family structures total 6 and mobile homes and other housing units number 24. The median household income is estimated to be $115,625 and the median age is 48.6 years.[5]

EDUCATION & CHILD CARE

Kensington students in grades K-5 attend Kensington Elementary School in Kensington. Students in grades 6-8 attend Cooperative Middle School in the neighboring town of Stratham. Students in grades 9-12 attend Exeter High School in Exeter. There are no colleges or universities in Kensington however; there is one childcare facility with a capacity of 20 children.

Incorporated: 1737

Origin: This town was once a parish of Hampton, and was incorporated in 1737 by Governor Jonathan Belcher of Massachusetts when New Hampshire was still part of that province. Of the 27 towns granted by Governor Belcher, only three were given names: Arlington, Peterborough, and Kensington, which was named for Edward Rich, Earl of Holland and Baron Kensington. England's Kensington, now a suburb of London, is the location of Kensington Palace, known for its beautiful public gardens. The palace was the birthplace of Queen Victoria, and the London home of Diana, Princess of Wales.

Villages and Place Names: Austin Corners, Brick School Corner, Eastman Corners, Five Corners, Lamprey Corners, Prescott Corner

Population, Year of the First Census Taken: 800 residents in 1790

Population Trends: Population change for Kensington was 1,412 over 58 years, from 708 in 1960 to 2,120 in 2018. The largest decennial percent change was a 47 percent increase between 1960 and 1970; the second largest was a 44 percent increase between 1990 and 2000. The 2018 Census estimate for Kensington was 2,120 residents, which ranked 135th among New Hampshire's incorporated cities and towns.

Population Density and Land Area, 2018 (US Census Bureau): 177.0 persons per square mile of land area. Kensington contains 12.0 square miles of land area and 0 square miles of inland water area.

Source: Economic & Labor Market Information Bureau, NH Employment Security, March 2020; Received 6/27/2020

[4] Economic & Labor Market Information Bureau, NH Employment Security, March 2020. Community Response 6/27/2020.
[5] American Community Survey, 2014-2018; the Census Bureau

NATURAL FEATURES

The Town of Kensington covers approximately 12.0 square miles of land area and 0 square miles of inland water. The highest peak is Indian Ground Hill at 305' above sea level. The lowest elevation in town is 115' above sea level in the center of town. Vegetation is typical of northern New England including both deciduous and conifer forests, open fields, swamp and riverine areas.

TRANSPORTATION

There are three major roadways which run through Kensington, they are, NH Routes 107, 108 and 150. NH Route 107 travels from East Kingston in the west to Seabrook in the east. NH Route 108 travels from East Kingston in the northwest intersecting and quickly heading out of Kensington to Exeter in the north. NH Route 150 travels from Route 108 in the northern part of Kensington, traveling through the town to South Hampton in the south. Other smaller and less travelled roadways lend access to other areas of the town.

B. EMERGENCY SERVICES

EMERGENCY OPERATIONS CENTER & EMERGENCY MANAGEMENT DIRECTOR

The Town of Kensington has a designated Emergency Management Director (EMD) and a designated Deputy Emergency Management Director (DEMD). The EMD maintains an Emergency Operations Center (EOC) as part of the town's emergency preparedness program. The EOC is where the EMD, department heads, government officials and volunteer agencies gather to coordinate their response to a major emergency or disaster event. In Kensington the designated primary EOC is the Town Hall. The secondary EOC is the Fire Rescue building.

KENSINGTON FIRE RESCUE & EMS

Kensington Fire Rescue is an on-call fire department providing quality fire services and emergency medical services to the residents and visitors of Kensington 24 hours a day, 365 days a year. The department staffs a paid on-call part-time chief, 19 paid on-call firefighters and operates one station within the community. Kensington Fire Rescue participates in the Seacoast Chief Fire Officers Mutual Aid District along with other area departments. Emergency medical services and transportation is also provided by Kensington Fire Rescue.

KENSINGTON POLICE DEPARTMENT

The Kensington Police Department is a full-time department providing quality law enforcement services to the residents and visitors of Kensington. The department staffs a full-time Chief, five full-time and four part-time officers. The Kensington Police Department has mutual aid agreement with surrounding towns, NH State Police and the Rockingham County Sheriff's Office.

KENSINGTON ROAD MANAGER

The Kensington Road Manager operates on a year-round, 24-hour basis as needed. The department staffs a full-time Road Manager with assistance through subcontractors. The Road Manager's mission is to support the citizens of Kensington through the safe operation, proper maintenance and future development of highway, supporting infrastructure and utilities in a manner that is cost conscious without sacrificing quality. The town does not belong to the NH Public Works Mutual Aid Association.

MEDICAL FACILITIES

Kensington's closest medical facility is Exeter Hospital in Exeter (5 miles, 100 beds). If the need arises, an alternative medical facility is Seabrook Emergency Room in Seabrook (3 miles, 10 beds).

EMERGENCY SHELTER(S)

The primary shelter is the location to which evacuees are directed at the time of an emergency. In Kensington, the designated primary shelter is Exeter High School which offers a large sleeping area, rest rooms, showers and kitchen facilities. The Exeter High School also has a permanent generator. The Kensington Elementary School, Kensington Fire Rescue and the Congregational Church are the designated possible secondary or short-term shelters. Cooling, warming and charging centers include the Kensington Elementary School, the Library, Kensington Fire Rescue, the Town Hall and the church across from the Town Hall.

C. KENSINGTON'S CURRENT & FUTURE DEVELOPMENT TRENDS

Over the last 10 years development in Kensington has been consistent with development trends in the rest of New Hampshire. Nearly every community in New Hampshire had experienced a significant drop in new home construction during the late 2000s and the early 2010s. This trend is only now beginning to change, but in Kensington, change has been slow. Information provided by City-Data.com (see chart to right) supports this trend in Kensington.[6]

Single-family new house Construction building permits

- 1997: 4 buildings, average cost: $85,500
- 1998: 7 buildings, average cost: $110,300
- 1999: 17 buildings, average cost: $122,900
- 2000: 10 buildings, average cost: $158,600
- 2001: 14 buildings, average cost: $237,000
- 2002: 18 buildings, average cost: $228,000
- 2003: 16 buildings, average cost: $227,300
- 2004: 10 buildings, average cost: $234,100
- 2005: 14 buildings, average cost: $253,200
- 2006: 7 buildings, average cost: $238,200
- 2007: 11 buildings, average cost: $221,200
- 2008: 2 buildings, average cost: $106,900
- 2010: 1 building, cost: $200,200
- 2011: 1 building, cost: $235,000
- 2012: 1 building, cost: $429,000
- 2013: 3 buildings, average cost: $195,700
- 2014: 2 buildings, average cost: $176,200
- 2015: 1 building, cost: $113,400

The Kensington planning team reported two small subdivisions in the past five years and noted that the town has purchased two farms in the community; the town maintains the development rights on these properties. No large-scale development is anticipated in the near future and no new Critical Facilities are being considered at this time.

In the 2018 Annual Report, the Planning Board stated, "*The Planning Board reviewed requests for two Accessory Dwelling Units and three Home Occupation Permits. The board also reviewed several lot line changes…They also approved a reclamation permit for a gravel pit, and worked with the fire chief on new cistern regulations.*"[7] In the 2019 Annual Report, the Planning Board stated, *"During this past year, applications for 1 Home Occupancy and 1 Accessory Dwelling Unit were reviewed, with both receiving approvals."*[8] No development has occurred in hazard prone areas or has impacted the town's hazard vulnerability.

The Planning Board and the Select Board will monitor growth in Kensington using existing regulatory documents such as the Zoning Ordinance, which includes the Flood Plain Management Ordinance, the Land Use Regulations, the Land Use Subdivision Regulations, the Land Use Site Plan Review, the Land Use Safety and Welfare Ordinance and the Kensington Master Plan. Building Permits are required in Kensington and as a relatively small community, Planning Board and Select Board members along with other town officials are almost always aware of building that is taking place.

[6] City-Data.com; http://www.city-data.com/city/Kensington-New-Hampshire.html
[7] Annual Town Report 2018, Kensington, NH; Planning Board Report, page 85
[8] Annual Town Report 2019, Kensington, NH; Planning Board Report, page 91

The Planning Board will follow town building and subdivision regulations to ensure that any building in hazardous areas will be built to minimize vulnerability to the hazards identified in this plan. The town recognizes the importance of growth, but also understands the impact that hazards can have on new facilities and homes if built within hazardous areas of the community. Town officials will continue to monitor any new growth and development, including new critical facilities, with regards to potentially hazardous events.

Kensington's Conserved Land as a Percent of Land in the Community *(GIS Analysis; 2019Conservation Files, Granit, UNH)*		
	Square Miles	**Percent of Town Land**
Approximate Square Miles in the Community	12.00	100.0%
Approximate Total Un-Conserved Land	9.05	75.4%
Approximate Total Conserved Land	2.95	24.6%
Municipal/County Land (1)	0.59	4.9%
Federal Owned Land (2)	0.00	0.0%
State Owned Land (3)	0.00	0.0%
Quasi Private(4)	0.30	2.5%
Private Land (5)	2.06	17.2%

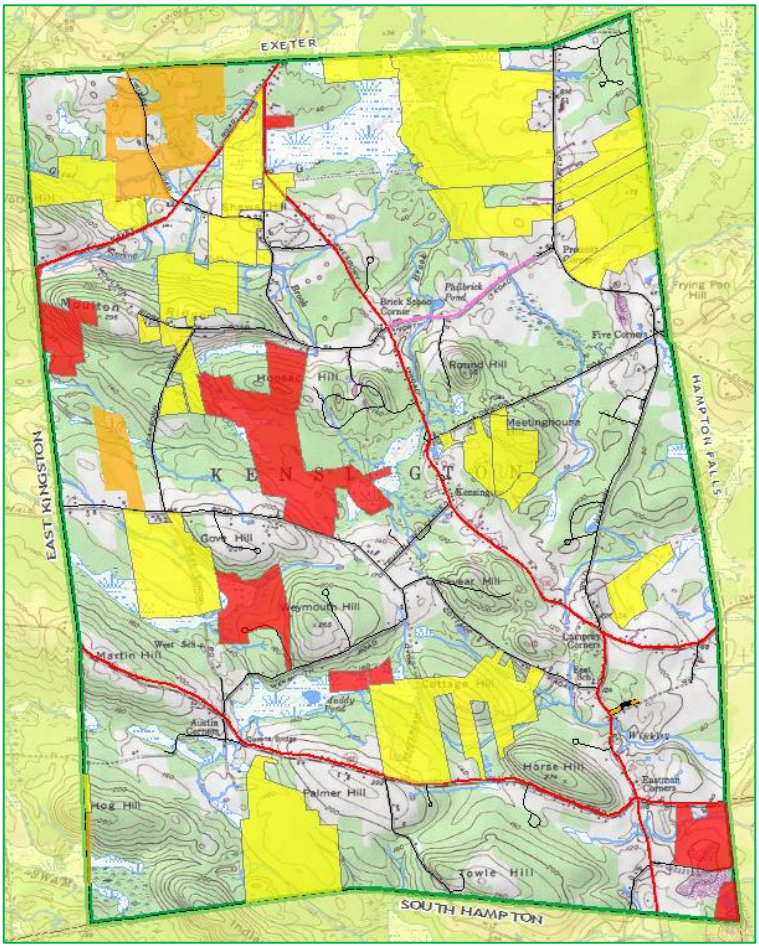


TABLE 2.1: TOWN STATISTICS

Table 2.1 - Town Statistics				
Census Population Data	**2010**	**2000**	**1990**	**1980**
Kensington, NH - Census Population Data	**2,124**	**1,902**	**1,318**	**1,332**
Rockingham County	**295,223**	**278,748**	**246,744**	**190,345**
Population Estimate for 2018 *(ACS 2014-2018*)*	2,120			
Elderly Population-% over 65 (ACS 2014-2018)*	20.0%			
Median Age (ACS 2014-2018)*	48.6			
Median Household Income (ACS 2014-2018)*	$115,625			
Individuals below the poverty level (ACS 2014-2018)*	4.0%			
Change in Population-Summer Weekends (%)	0%			
Change in Population-Winter Weekends (%)	0%			
Housing Statistics *(2010 Census)*				
Total Housing Units	806			
Occupied Housing Units	761 *(695 Owner Occupied; 66 Renter Occupied)*			
Vacant Housing Units	45 *(15 Seasonal, Recreation, Occasional Use; 14 all other vacant units)*			
Assessed Structure Value (2018-MS1)	**Value**		**1% Damage**	**5% Damage**
Residential	$190,738,020		$1,907,380	$9,536,901
Manufactured Housing	$896,600		$8,966	$44,830
Commercial	$10,932,700		$109,327	$546,635
Discretionary Preservation Easement	$155,680		$1,557	$7,784
Tax Exempt	$7,211,500		$72,115	$360,575
Utilities	$14,818,987		$148,190	$740,949
Totals	$224,753,487		$2,247,535	$11,237,674
**Chart above indicates the value of structures only and the likely loss value based on either a loss of 1% or 5% of structures.*				
Regional Coordination				
County	Rockingham			
Tourism Region	Seacoast			
Municipal Services & Government				
Town Manager or Administrator	No			
Select Board (3 member)	Yes; elected			
Planning Board	Yes; appointed			
School Board (3 member)	Yes; elected			
Zoning Board of Adjustment	Yes; appointed			

Table 2.1 - Town Statistics	
Conservation Committee	Yes; appointed
Master Plan	Yes; 2011
Emergency Operation Plan (EOP)	Yes; 2015
Hazard Mitigation Plan (HMP)	Yes; 2013
Zoning Ordinances	Yes; 2019
Subdivisions Regulations	Yes; 2019 (updated at least every year, as needed)
Capital Improvement Plan	No, not active
Capital Reserve Funds	Yes
Building Permits Required	Yes
Town Web Site	Yes; www.town.kensington.nh.us
Floodplain Ordinance	Yes; part of zoning
Member of NFIP	July 10, 2014
Flood Insurance Rate Maps (DFIRMS)	May 17, 2005
Flood Insurance Rate Study (FIS)	May 17, 2005
Percent of Local Assessed Valuation by Property Type - 2018 ***(NH Department of Revenue)***	
Residential Buildings	94.0%
Commercial Land & Buildings	3.6%
Other (including Utilities)	3.5%
Emergency Services	
Town Emergency Warning System(s)	NH Emergency Notification System (ENS) & Seabrook Sirens
School Emergency Warning System(s)	School Messenger
Emergency Page	Yes
Social Media	Facebook: Police Department & Town
ListServ	No
Local Newspapers	Seacoast News & Carriage Town News
Public Access TV	Exeter channel 98
Local TV Stations	WMUR channel 9
Local Radio	97.5 FM (emergency station); NHPR 103.9 FM (Portsmouth); WHEB 100.3 FM (Portsmouth); WPEA 90.5 FM (Phillips Exeter Academy)
Police Department	Yes; full-time Chief, five full-time, four part-time
Police Dispatch	Rockingham County Sheriff's Office
Police Mutual Aid	Surrounding towns, NH State Police & Rockingham County Sheriff's Office
Animal Control Officer	Yes

Table 2.1 - Town Statistics	
Kensington Fire Rescue	Yes; paid on-call part-time Chief, 19 paid on-call firefighters
Fire Dispatch	Rockingham County Sheriff's Office
Fire Mutual Aid	Seacoast Chief Fire Officers Mutual Aid District
Fire Stations	One
Fire Warden	Yes
Emergency Medical Services	Kensington Fire Rescue
EMS Dispatch	Rockingham County Sheriff's Office
Emergency Medical Transportation	Kensington Fire Rescue
HazMat Team	Seacoast Technical Assistance Response Team (START)
Established EMD	Yes
Established Deputy EMD	Yes
Line of Succession (should the EMD be out of Town)	1st….Deputy EMD
	2nd…Police Chief
	3rd….Fire Captain
	4th….Police Sergeant
Public Health Network	Seacoast Regional Public Health Network
Health Officer	Select Board
Building Inspector	Yes; part-time (contracted)
Established Public Information Officer (PIO)	No
Nearest Hospital	Exeter Hospital (5 miles, 100 beds)
Alternative Hospital(s)	Seabrook Emergency Room (3 miles,10 beds)
Local Humane Society or Veterinarians	New Hampshire SPCA (Stratham), Holistic Animal Healing Clinic (Exeter), Epping Road Veterinary Hospital (Exeter) & Health & Wellness Animal Hospital (Hampton Falls)
Primary EOC	Town Hall (generator)
Secondary EOC	Fire Rescue (generator)
Primary Shelter	Exeter High School (generator)
Cooling & Warming Shelter	Kensington Elementary School (no generator), Library, Fire Rescue, the Town Hall& church across from Town Hall
Utilities	
Town Sewer	Private septic
Road Manager	Yes; full-time Road Manager with assistance through subcontractors
Miles of Class V Roads	18.75 total miles, 18.5 paved, .25 gravel
Public Works Mutual Aid	No
Water Supply	Private wells

Table 2.1 - Town Statistics	
Waste Water Treatment Plant	No
Electric Supplier	Unitil
Natural Gas Supplier	Unitil (limited)
Cellular Telephone Access	Yes; limited
Pipelines	Natural Gas Pipeline (active)
High Speed Internet	Yes
Telephone Company	Consolidated Communications & Comcast
Transportation	
Primary Evacuation Routes	NH Routes 107, 108, 150
Secondary Evacuation Routes	Osgood Road, Lamprey Road, Stumpfield Road, Kimball Road, Drinkwater Road
Nearest Interstate	I-95, Exit 1 (4.5 miles)
Nearest Airstrip	Frank & Cole (two local airstrips)
Nearest Commercial Airport(s)	Portsmouth International Airport at Pease, Portsmouth (20 miles)
	Manchester-Boston Regional Airport, Manchester (36.5 miles)
	Boston Logan International Airport, Boston, MA (48.5 miles)
Public Transportation	No
Railroad	About 50 feet of railroad goes through town
Education & Childcare	
Elementary School	Grades K-5 attend Kensington Elementary School in Kensington
Middle School	Grades 6-8 attend Cooperative Middle School in Stratham with Exeter, Brentwood, Newfields, East Kingston and Stratham
High School	Grades 9-12 attend Exeter High School in Exeter with Brentwood, Newfields, East Kingston, Stratham and Exeter
School Administrative Unit	SAU 16
Licensed Childcare Facility	1 childcare facility, 20 capacity
Fire Statistics ***(NH Division of Forests & Lands, Fire Warden Report and the town)***	
Wildfire Fires (2014-2018)	No significant wildfires since the prior plan
Rockingham County Fire Statistics (2018)	2 fires, <1 acre
State Forest Fires Statistics (2018)	53 fires, 46 acres
**ACS: The American Community Survey, a five-year average of randomly mailed long-form surveys from the Census Bureau*	
Information found in Table 2.1, unless otherwise noted, was derived from the Economic & Labor Market Information Bureau, NH Employment Security, March 2020. Community Response Received 6/27/2019, https://www.nhes.nh.gov/elmi/products/cp/profiles-pdf/kensington.pdf.	

Chapter 3: Hazard Identification, Risk Assessment & Probability

A. Hazard Identification

The first step in hazard mitigation is to identify hazards. The team determined that 10 natural hazards have the potential to affect the community. *Table 3.1, Hazard Identification & Risk Assessment (HIRA),* provides estimates of the level of impact that each listed hazard could have on humans, property and business and averages them to establish an index of "severity". The estimate of "probability" for each hazard is multiplied by its severity to establish an overall "relative threat" factor.

The NH State Hazard Mitigation Plan includes many of the same potential hazards that have been identified in Kensington. Several of the state's hazards however were excluded from this plan. These include the following:

State Hazard	Reason for exclusion from this plan
Coastal Flooding	Distance away from the sea
Landslide	No known areas of landslide in the town
Solar Storm & Space Weather	The team felt this was not something the town can manage
Avalanches	No known areas of avalanches
Conflagration	No known areas for a conflagration event
Dam Failure	No dams will affect the town if breached

Specific hazards that have affected the town, the region and the state in the past are detailed in *Table 3.2, Historic Hazard Identification* and Chapter 5.

B. Risk Assessment

The hazards listed in Table 3.1 were then classified based upon the "Relative Threat" score as calculated in Column F; these were then separated into three categories using Jenks' Optimization, which is also known as natural breaks classification.[9] The "Relative Threat" score was then labelled into three categories, *High Risk, Medium Risk and Low Risk* as shown in Table 3.1, Column G. These categories are also indicated in Chapter 5, Sections B-D. By using this grouping process, the plan demonstrates each hazard's likelihood of occurrence in combination with its potential effect on the town. This process illustrates a comprehensive hazard statement and assists the town with understanding which hazards should receive the most attention.

In addition to the relative threat analysis determined in Table 3.1, the team used *Tables 4-1-4.4, Critical Infrastructure & Key Resources (CIKR),* to identify and analyze the potential hazard risk based on a scale of 1-3 for each CIKR.

[9] The natural breaks classification process is a method of manual data classification partitions data into classes based upon natural groups within the data distribution; ESRI, http://support.esri.com/en/knowledgebase/GISDictionary/term/natural%20breaks%20classification

C. PROBABILITY

The determination of the probability of occurrence is contained within Column D in Table 3.1 which assesses hazards based upon the likelihood of the hazard's manifestation within a 25 year period. The probability scores indicate whether the identified hazard has a *Very Low, Low, Moderate, High and Very High* probability. Probability categories are also indicated in Chapter 5, Sections B-D.

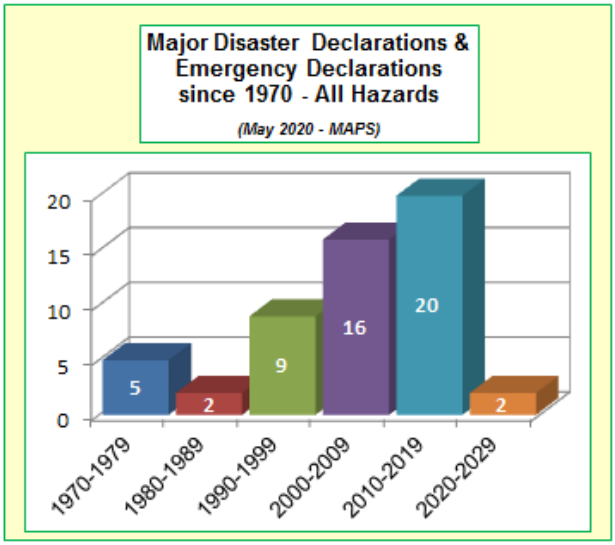
Overall, the Town of Kensington is fairly safe from the effects of natural, technological and human-caused hazards. However, due to Kensington's geographic location and its proximity to the seacoast, there is always a probability that future hazards will occur. Kensington's top hazards were determined to be Severe Winter Weather, Tropical & Post-Tropical Cyclones, Inland Flooding, Extreme Temperatures and Infectious Diseases.

HAZARD PROBABILITY & CLIMATE CHANGE

Although not identified as a natural hazard in this plan, no plan can be considered complete today without some discussion of the impact that climate change has had on weather patterns. *"The challenges posed by climate change, such as more intense storms, frequent heavy precipitation, heat waves, drought, extreme flooding, and higher sea levels, could significantly alter the types and magnitudes of hazards impacting states in the future"*, FEMA stated in its new State Mitigation Plan Review Guide[10]. By including climate change in the new hazard mitigation guide for state planners, FEMA is recognizing the reality of climate change.

The chart to the right shows the increased frequency of Major Disaster Declarations and Emergency Declarations in the State of New Hampshire, which may be indicative of climate change.[11] COVID-19 is indicated for the decade beginning in 2020.

Communities in New Hampshire, such as Kensington, should become increasingly aware of the effects of climate change on the hazards that are already being experienced and anticipate an increase in probability in the future.



HAZARD PROBABILITY COMBINED WITH LONG TERM UTILITY OUTAGE

Any potential disaster in Kensington is particularly impactful if combined with long term utility outage, as would most likely be the case with severe winter storms, blizzards and ice storms, hurricanes, tropical storms and windstorms. The food supply of individual citizens could become quickly depleted should a power failure last for a week or more. An outage during the winter months could result in frozen pipes and the lack of water and heat, a particular concern for the town's elderly and vulnerable citizens. The effects of any hazard, when combined with a long term utility outage, could result in a higher probability of damaging affects to the community.

[10] State Mitigation Pan Review Guide, FEMA, Released March 2015, Effective March 2016, Section 3.2, page 13
[11] Derived from FEMA's record of disasters; categorized by decade since 1970 by the planner; 2020-2029 includes COVID-19

TABLE 3.1: HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)

Table 3.1 - Hazard Identification & Risk Assessment (HIRA)							
Scoring for Probability (Columns A, B & C)	**Column A**	**Column B**	**Column C**	**Column D**	**Column E (A+B+C)/3**	**Column F D x E**	**Column G Risk**
1=Very Low (0-20%)	What is the probability of death or injury?	What is the probability of physical losses & damage?	What is the probability of interruption of service?	What is the probability of this occurring within 25 years?	Average of Human, Property & Business Impact	Relative Threat	**High** 8-10 **Medium** 4-7.9 **Low** 0-3.9
2=Low (21-40%)							
3=Moderate (41-60%)							
4=High (61-80%)	Human Impact	Property Impact	Business Impact	Probability of Occurrence	Severity	Risk Severity x Occurrence	
5=Very High (81-100%)							
Natural Hazards							
1) Severe Winter Weather	1.00	3.00	2.00	5.00	2.00	10.00	High
2) Tropical & Post-Tropical Cyclones	3.00	3.00	3.00	3.00	3.00	9.00	High
3) Inland Flooding	1.00	3.00	1.00	5.00	1.67	8.33	High
4) Extreme Temperatures	2.00	2.00	2.00	4.00	2.00	8.00	High
5) Infectious Diseases	4.00	1.00	3.00	3.00	2.67	8.00	High
6) High Wind Events	2.00	3.00	2.00	3.00	2.33	7.00	Medium
7) Lightning	1.00	2.00	3.00	3.00	2.00	6.00	Medium
8) Drought	1.00	2.00	4.00	2.00	2.33	4.67	Medium
9) Wildfires	2.00	2.00	2.00	2.00	2.00	4.00	Medium
10) Earthquakes	1.00	2.00	1.00	1.00	1.33	1.33	Low
Technological Hazards							
1) Radiological	5.00	5.00	5.00	1.00	5.00	5.00	Medium
2) Known & Emerging Contaminants	1.00	3.00	2.00	2.00	2.00	4.00	Medium
3) Long Term Utility Outage	1.00	2.00	2.00	2.00	1.67	3.33	Low
4) Aging Infrastructure	2.00	2.00	1.00	2.00	1.67	3.33	Low
5) Hazardous Materials	1.00	1.00	1.00	1.00	1.00	1.00	Low
Human-Caused Hazards							
1) Transport Accidents	4.00	4.00	2.00	3.00	3.33	10.00	High
2) Terrorism & Violence	4.00	4.00	4.00	2.00	4.00	8.00	High
3) Mass Casualty Incidents	4.00	2.00	1.00	2.00	2.33	4.67	Medium
4) Cyber Events	1.00	1.00	2.00	2.00	1.33	2.67	Low

D. NATIONAL FLOOD INSURANCE PROGRAM (NFIP) STATUS

Kensington has been a member of the National Flood Insurance Program (NFIP) since July 10, 2014. Kensington has a relatively small flood plain with approximately 1.12 square miles of land in the 100-year floodplain[12]. The floodplain areas of Kensington are primarily along Great Brook, Mill Brook and Winkley Brook. Kensington is likely to experience flooding on several roads and along most small rivers and streams. The latest Flood Insurance Rate Studies (FIRS) and Digital Flood Insurance Rate Maps (DFIRMS) are dated May 17, 2005.

According to the NH Office Strategic Initiatives, there are no NFIP residential policies in effect in Kensington for a total of $0 of insurance in force. No losses have been paid and there have been no repetitive losses claimed[13].

In 1968, although well-intentioned government flood initiatives were already in place, Congress established the National Flood Insurance Program (NFIP) to address both the need for flood insurance and the need to lessen the devastating consequences of flooding. The goals of the program are twofold: to protect communities from potential flood damage through floodplain management, and to provide people with flood insurance.

For decades, the NFIP has been offering flood insurance to homeowners, renters and business owners, with the one condition that their communities adopt and enforce measures to help reduce the consequences of flooding.

Source: http://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp

KENSINGTON FLOODPLAIN DEVELOPMENT ORDINANCE

The Town of Kensington adopted and incorporated the "Kensington Floodplain Management Ordinance" on March 11, 2014 as part of the town's Zoning Ordinance. The floodplain ordinance can be found in the Kensington Zoning Ordinance, Section 5.3, on pages 53-62[14]. Below is a brief description of each part of the Kensington Floodplain Management Ordinance. Items in italic are taken directly from the ordinance.

Section 5.3.1, Purpose

A. *Certain areas of the Town of Kensington, New Hampshire are subject to periodic flooding, causing serious damages to properties within these areas. Relief is available in the form of flood insurance as authorized by the National Flood Insurance Act of 1968. Therefore, the Town of Kensington, New Hampshire has chosen to become a participating community in the National Flood Insurance Program, and agrees to comply with the requirements of the National Flood Insurance Act of 1968 (P.L. 90-488, as amended) as detailed in this Floodplain Management Ordinance.*

B. *This Ordinance establishes a permit system and review procedure for development activities in the designated flood hazard areas of the Town of Kensington, New Hampshire.*

Severe Repetitive Loss (SRL) Properties--NFIP-insured buildings that, on the basis of paid flood losses since 1978, meet either of the loss criteria described on page SRL 1. SRL properties with policy effective dates of January 1, 2007, and later will be afforded coverage (new business or renewal) only through the NFIP Servicing Agent's Special Direct Facility so that they can be considered for possible mitigation activities.

Source: http://www.fema.gov/national-flood-insurance-program/definitions#R

[12] GIS Analysis of Rockingham County DFIRM (Digital Flood Insurance Rate Map)
[13] NH Office of Strategic Initiatives; Jennifer Gilbert, February 8, 2019
[14] http://www.Kensingtonnh.org/sites/vth-Kensington/files/file/file/ordinance_book_titlei_section200_article203_floodplaindev_04_07_09.pdf

Section 5.3.2, Establishment

Section 5.3.2 discusses the establishment of the Kensington Floodplain Management as part of the Zoning Ordinance and further states in Section B, *"The following regulations in this ordinance shall apply to all lands designated as special flood hazard areas by the Federal Emergency Management Agency (FEMA) in its "Flood Insurance Study for the Rockingham County, NH" dated May 17, 2005 together with the associated Flood Insurance Rate Maps dated May 17, 2005, which are declared to be a part of this ordinance and are hereby incorporated by reference."*

Section 5.3.3, Greater Restriction

"If any provision of this ordinance differs or appears in conflict with any other ordinance or regulation, the provision imposing the greater restriction or more stringent standard shall be controlling."

Section 5.3.4, Severability

"Should any section or provision of these regulations be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the regulations as a whole, or any part thereof other than the part so declared to be unconstitutional or invalid."

Section 5.3.5, Enforcement

"It shall be the duty of the Building Inspector to enforce and administer the provision of the Ordinance in accordance with RSA 676".

Section 5.3.6, Permits

"All proposed development in any special flood hazard area shall require a permit."

Section 5.3.7, Other Permits

"The Building Inspector shall not grant a building permit until the applicant certifies that all necessary permits have been received from those governmental agencies from which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U. S. C. 1334."

Section 5.3.8, Certification

Section 5.3.8 discusses the requirement for as-built elevation certificates, the determination and certification of floodproofing, and that, *"The Building Inspector shall maintain…the information for public inspection, and shall furnish such information upon request*."

Section 5.3.9, Construction Requirements

Section 5.3.9 details the need for the Building Inspector to *"…review all building permit applications…to determine whether proposed building sites will be reasonably safe from flooding."* This section goes on to discuss the prevention of *"floatation, collapse, or lateral movement…including the effects of buoyancy…resistant to flood damage…constructed by methods and practices that minimize flood damages."* Furthermore, this section discusses the protection of utilities *"…to prevent water from entering or accumulating with the components during conditions of flooding."*

Section 5.3.10, Water and Sewer Systems

Section 5.3.10 requires that water and sewer systems *"…will be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters."* On-site waste disposal systems are also discussed in this section.

Section 5.3.11, Base Flood Elevation Determination

Section 5.3.11 discusses the use of base flood elevation data for Zone A and states that*, "In Zone A where a base flood elevation is not known, the base flood elevation shall be at least 2 feet above the highest adjacent grade."*

Section 5.3.12, Structures

Section 5.3.12 in items A-D outlines the criteria required in Zone A for new construction of substantial improvements. This section discusses lowest floor elevation, floodproofing, proper structural components, and certification by a registered professional engineer or architect. This section further discusses manufactured homes and requirements for fully enclosed areas below the lowest floor that are subject to flooding.

Section 5.3.13, Recreational Vehicles

Section 5.3.13 details the requirements for recreational vehicles in Zone A, including the requirement that they *"…be on the site for few than 180 consecutive days…are fully licensed and ready for highway use…meet all standards of this ordinance…"*

Section 5.3.14, Watercourses

Section 5.3.14 discusses required authorization from the Wetlands Bureau and the need for assurances that watercourses and floodways are protection in the flood zone. This section states, *"No encroachments, including fill, new construction, substantial improvements, and other development are allowed within the floodway that would result in any increase in flood levels within the community during the base flood discharge."*

Section 5.3.15, Variances and Appeals

Section 5.3.15 discusses the variance and appeals process and states that a decision of the Building Inspector can be appealed to the Zoning Board of Adjustments and that variances may be approved based on specific criteria.

Section 5.3.16, Definitions

Section 5.3.16 provides definitions for specific terms that are used in the Floodplain Management Ordinance.

Table 3.1, Table 3.2 and Chapter 5, Section B provide more information on past and potential hazards in Kensington.

TABLE 3.2: HISTORIC HAZARD IDENTIFICATION

2013 HMPT = 2013 Hazard Mitigation Planning Team
2020 HMPT = 2020 Hazard Mitigation Planning Team

DR Major Disaster Declarations (DR) since 1953
EM Emergency Declarations (EM) since 1953

Table 3.2 includes the following sections:

A. Inland Flooding
B. Wildfires
C. High Wind Events
D. Severe Winter Weather
E. Earthquakes
F. Drought
G. Miscellaneous Hazards
H. Other Hazards

Type of Event	Date of Event	Location	Description	Source
A. Inland flooding including inland, riverine, heavy rainfall, rapid snowmelt, ice jam flooding, flooding as a result of dam failure & local road flooding: Riverine flooding is the most common disaster event in the State of NH. Significant riverine flooding in some areas of the state occurs in less than ten year intervals and seems to be increasing with climate change. The entire State of NH has a high flood risk. Flood events have the potential to impact the community on a townwide basis. No significant flooding events have taken place in Kensington since the flooding event in March 2018.				
Summary of flood events including Major Disaster Declarations & Emergency Declarations in the state & regionwide				
Flooding Prior to 1970	1927, 1936, 1938, 1943 (2), 1953, 1955, 1959		Spring and fall flooding events resulting from severe storms and/or heavy snowmelt	See below
Flooding 1970-1979	1972 **(DR-327)**, 1973 **(DR-399)**, 1974 **(DR-411)**, 1976, 1978 **(DR-549)**, 1979 **(EM-3073)**			
Flooding 1980-1989	1986 **(DR-771)**, 1987 **(DR-789)**			
Flooding 1990-1999	1990 **(DR-876)**, 1991 **(DR-923)**, 1991 **(DR -917)**, 1995, 1996 **(DR-1077)**, 1996 **(DR-1144)**, 1998 **(DR-1231)**			
Flooding 2000-2009	2003 **(DR-1489)**, 2005 **(DR-1610)**, 2006 **(DR-1643)**, 2007 **(DR-1695)**, 2008 **(DR-1787)**, 2008 **(DR-1799)**			
Flooding 2010 - Present	2010 **(DR-1892)**, 2010 **(DR-1913)**, 2011 **(DR-4006)**, 2012 **(DR-4065)**, 2013 **(DR-4139)**, 2015 **(DR-4206)**, 2017 **(DR-4329)**, 2017 **(DR-4355)**, 2018 **(DR-4370)**, 2019 **(DR-4457)**			
Detailed summary of flood events in the community				
Inland Flooding (Heavy Rain)	October 30-31, 1991	Rockingham	**Major Disaster Declaration DR-923:** Heavy rain in the area including in Kensington. Trick or Treat was done in the pouring rain; flooding occurred on Drinkwater Road.	FEMA 2013 HMPT 2020 HMPT
Inland Flooding (Heavy Rain)	October 20-23, 1996	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	**Major Disaster Declaration DR-1144:** Kensington experienced wind and flooding.	FEMA 2013 HMPT 2020 HMPT

Type of Event	Date of Event	Location	Description	Source
Inland Flooding (Heavy Rain)	June 12-July 2, 1998	Belknap, Carroll Grafton, Hillsborough, Merrimack & Rockingham	**Major Disaster Declaration DR-1231:** A series of rainfall events that lasted several weeks in Kensington. Yards flooded and water ponding on roads, some flooded basements.	FEMA 2013 HMPT 2020 HMPT
Inland Flooding (Heavy Rain) **Long Term Utility Outage**	May 12-23, 2006	Belknap, Carroll, Grafton, Hillsborough, Merrimack, Rockingham & Strafford	**Major Disaster Declaration DR-1643:** Flooding occurred in most of southern NH during the period of May 12-23, 2006 (Mother's Day Storm). Kensington was stranded and isolated because of flooded roads, particularly on Routes 84 &108. Kensington received $22,992.48 in FEMA aid.	FEMA 2013 HMPT 2020 HMPT
Inland Flooding (Heavy Rain)	April 15-23, 2007	All Ten NH Counties	**Major Disaster Declaration DR-1695:** FEMA & SBA obligated more than $27.9 million in disaster aid for flood damages following the April nor'easter (Tax Day Storm). Kensington received rain during this event but no significant flooding occurred.	FEMA 2013 HMPT 2020 HMPT
Inland Flooding (Heavy Rain) **High Wind Events Long Term Utility Outage**	February 23 - March 3, 2010	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	**Major Disaster Declaration: DR-1892:** Flood and wind damage occurred in southern NH including six counties resulting in 330,000 homes without power. More than $2 million was obligated by FEMA by June 2010. In Kensington, trees and power lines were down, most roads closed due to downed trees and power lines. Power was out in some places for up to three weeks. Kensington received $22,318.62 in FEMA aid.	FEMA 2020 HMPT
Inland Flooding (Heavy Rain)	March 14-31, 2010	Hillsborough & Rockingham	**Major Disaster Declaration DR-1913:** Flooding occurred in Hillsborough and Rockingham counties. Kensington received heavy rain which caused issues with some of the town's culverts and flooding in some locations. Kensington received $14,754.27 in FEMA aid.	FEMA 2013 HMPT 2020 HMPT
Inland Flooding (Tropical Storm Irene)	August 26-September 6, 2011	**EM 3333**: All Ten NH Counties **DR-4026:** Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan	**Major Disaster Declaration DR-4026 & Emergency Declaration EM-3333:** See below, Section C	FEMA 2020 HMPT
Inland Flooding (Heavy Rain)	March 2-8, 2018	Rockingham County	**Major Disaster Declaration, DR 4370:** The Federal Emergency Management Agency announced a major disaster declaration on June 8, 2018 for a period of severe storms and flooding from March 2-8, 2018 in one New Hampshire county. Kensington received heavy rain but no significant damage. (See below, Section D; the town received $16,585.91 in FEMA aid for **DR-4370** & **DR-4371**)	FEMA 2020 HMPT

Type of Event	Date of Event	Location	Description	Source
B. Wildfires: New Hampshire is heavily forested and is therefore vulnerable to wildfire, particularly during periods of drought. The proximity of many populated areas to the state's forested land exposes these areas to the potential impact of wildfire. Wildfires have the potential to impact the jurisdiction on a townwide basis. No significant wildfire events have taken place in Kensington since the prior hazard mitigation plan.				
Summary of wildfire events including Major Disaster Declarations, Emergency Declarations & Fire Management Assistance Declarations in the state				
Wildfire (Shaw Mountain)	July 2, 1953	Carroll County	**Major Disaster Declaration DR-11:** This wildfire occurred in Carrol County at Shaw Mountain. This fire did not reach Rockingham County or Kensington.	FEMA 2020 HMPT
Wildfire (Stoddard)	April 21-23, 2016	Cheshire County	**Fire Management Assistance Declaration, FM-5123:** Stoddard, NH. The Stoddard Fire burned 190 acres in April 2016 and caused the evacuation of 17 homes. This fire did not reach Rockingham County or Kensington.	FEMA
Wildfire (Covered Bridge Fire)	November 2016	Carroll County	**The Covered Bridge Fire:** A brush fire near the Albany Covered Bridge grew to 329 acres, primarily on White Mountain National Forest land. No structures were lost; Class E fire. This fire did not reach Rockingham County or Kensington.	Local Resources
Wildfire (Bayle Mountain)	May 2015	Carroll County	**The Bayle Mountain Fire:** This Class D fire burned 275 acres and took five days to put out on rocky and steep terrain in Ossipee, NH. Blackhawk and private helicopters along with fire crews from all over the state assisted to extinguish this fire. The Bayle Mountain Fire did no damage to homes. This fire did not reach Rockingham County or Kensington.	Local Resources
Wildfire (Dilly Cliff)	October 2017	Grafton County	**The Dilly Cliff Fire** in the Lost River Gorge Trail in North Woodstock off Route 112 (Lost River Road); Class C: Human-caused; 75 acres. The Dilly Cliff Fire was determined to be extinguished 36 days after it began. This fire did not reach Rockingham County or Kensington.	Local Resources
Detailed summary of wildfire events in the community				
No wildfires of significance have occurred in Kensington since the 2013 Hazard Mitigation Plan was completed.				2020 HMPT

Type of Event	Date of Event	Location	Description	Source
C. High Wind Events including Tropical & Post-Tropical Cyclones, Tornadoes, Downbursts & Windstorms: Tornadoes are spawned by thunderstorms and occasionally by hurricanes; tornadoes may occur singularly or in multiples. A downburst is a severe localized wind blasting down from a thunderstorm. Downburst activity is prevalent throughout NH and is becoming more common with climate change; most downbursts go unrecognized unless significant damage occurs. Hurricanes develop from tropical depressions which form off the coast of Africa. New Hampshire's exposure to direct and indirect impacts from hurricanes is real, but modest, as compared to other states in New England. A hurricane that is downgraded to a Tropical Storm is more likely to have an impact in New Hampshire. Tornadoes and other wind events have the potential to impact the community on a townwide basis. No significant high wind events have taken place in Kensington since Tropical Storm Sandy in October 2012.				
Summary of high wind events & tropical & post-tropical cyclone events including Major Disaster & Emergency Declarations in the state & regionwide				
Tropical & Post-Tropical Cyclones	1804, 1869, 1938, 1944, 1954 (2), 1960, 1976, 1978, 1985, 1991 **(DR-917)**, 1999 **(DR-1305)**, 2005 **(EM-3258)**, 2011 **(EM-3333 & DR-4026),** 2012 **(EM-3360)**		Number 4 (1938), Number 7 (1944), Carol (1954), Edna (1954), Donna (1960), Belle (1976), Amelia (1978), Gloria (1985), Bob (1991), Floyd (1999), Katrina (2005), Irene (2011), Sandy (2012)	See below
High Wind Events (Tornadoes)	1814, 1890, 1951, 1953, 1957, 1961, 1963, 2008 **(DR-1782)**		All listed tornadoes were reported as F2 tornadoes except for the June 1953 tornado which was reported as an F3.	See below
Detailed summary of high wind & tropical & post-tropical cyclone events in the community				
Tropical & Post-Tropical Cyclone (Great New England Hurricane)	September 21, 1938	All Ten NH Counties	**The Great New England Hurricane:** Statewide there were multiple deaths and damages in NH were about $12.3 million dollars in 1938 dollars (about $200 million now). Throughout New England 20,000 structures were damaged and 26,000 automobiles, 6,000 boats and 325,000 sugar maples were lost. 80% of the people lost power. Although there was no local recollection, it was expected that in Kensington damage would have been similar to the rest of the state. *(Source http://nhpr.org/post/75th-anniversary-new-englands-greatest-hurricane)*	FEMA 2013 HMPT 2020 HMPT
Tropical & Post-Tropical Cyclone (Hurricanes Carol & Edna)	August 31, 1954	All Ten NH Counties	**Hurricane Carol:** Hurricane Carol resulted in an extensive amount of trees blown down and damage to damage as well as large crop losses. Localized flooding and winds measuring over 100 mph also occurred. Hurricane Carol was followed by Hurricane Edna just 12 days later, which caused already weakened trees to fall. Although there was no local recollection, it was expected that in Kensington damage would have been similar to the rest of the state. *(Source: http://www.wmur.com/Timeline-History-Of-NH-Hurricanes/11861310)*	FEMA 2020 HMPT

Type of Event	Date of Event	Location	Description	Source
Tropical & Post-Tropical Cyclone (Hurricane Bob) **Long Term Utility Outage**	August 18-20, 1991	Carroll, Hillsborough, Rockingham & Strafford	**Major Disaster Declaration DR-917:** The effects of Hurricane Bob were felt statewide; counties to east were hardest hit. Kensington experienced power outages as a result of high winds for up to one week.	FEMA 2020 HMPT 2013 HMPT
High Wind Events (Downburst)	July 6, 1999	Kensington	This downburst affected several communities in the Seacoast area and parts of Kensington had significant blow downs. Although there was no structural damage in Kensington, there was in neighboring communities. Major tree damage, power outages, five fatalities and eleven injuries occurred in the region.	2020 HMPT 2013 HMPT
Tropical & Post-Tropical Cyclone (Hurricane Katrina evacuation)	August 29-October 1, 2005	All Ten NH Counties	**Emergency Declaration EM-3258:** Assistance was provided to evacuees from the area struck by Hurricane Katrina and to provide emergency assistance to those areas beginning on August 29, 2005, and continuing. The President's action made federal funding available to the state and all 10 New Hampshire counties. No pets or evacuees came to Kensington.	FEMA 2020 HMPT
High Wind Events (Tornado)	July 24, 2008	Belknap, Carroll, Merrimack, Strafford & Rockingham	**Major Disaster Declaration DR-1782:** Tornado damage to several New Hampshire counties resulting in minimal damage in Kensington. Kensington received $10,023.33 in FEMA aid.	FEMA 2013 HMPT 2020 HMPT
Tropical & Post-Tropical Cyclone (Tropical Storm Irene) **Long Term Utility Outage**	August 26-September 6, 2011	**EM 3333**: All Ten NH Counties **DR-4026:** Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan	**Major Disaster Declaration DR-4026 & Emergency Declaration EM-3333:** Tropical Storm Irene, August 26th- September 6, 2011, occurred in seven New Hampshire counties causing flood and wind damage. In addition, an Emergency Declaration was declared for all ten New Hampshire counties. In Kensington, extensive flooding and power outages due to downed trees.	FEMA 2013 HMPT 2020 HMPT
Tropical & Post-Tropical Cyclone (Hurricane Sandy) **Long Term Utility Outage**	October 26-November 8, 2012	Belknap, Carroll, Coos, Grafton, Rockingham & Sullivan	**Major Disaster Declaration DR-4095 & Emergency Declaration EM-3360:** The declaration covers damage to property from the storm that spawned heavy rains, high winds, high tides and flooding over the period of October 26-November 8, 2012. Hurricane Sandy came ashore in NJ and brought high winds, power outages and heavy rain to six New Hampshire counties. Kensington received $2,314.70 in FEMA aid.	FEMA 2013 HMPT 2020 HMPT

Type of Event	Date of Event	Location	Description	Source
D. Severe Winter Weather including Nor'easters, Blizzards & Ice Storms: Severe winter weather in NH may include heavy snow storms, blizzards, nor'easters and ice storms, particularly at elevations over 1,000 feet above sea level. Generally speaking, NH will experience at least one of these hazards during any winter season, however most NH communities are well prepared for such hazards. Severe winter weather and ice storms have the potential to impact the community on a townwide basis. No significant winter weather events have taken place in Kensington since the March 2018 snow event.				
Summary of severe winter weather events including Major Disaster Declarations & Emergency Declarations in the state & regionwide				
Severe Winter Weather (Ice Storms)	1942, 1969, 1970, 1979, 1991, 1998 **(DR-1199),** 2008 **(DR-1812)**		Major ice storms that have occurred causing major disruptions to power, transportation, public and private utilities.	FEMA 2020 HMPT
Severe Winter Weather (Snowstorms)	1920, 1929, 1940, 1950, 1952, 1958 (2), 1960, 1961, 1969, 1978, 1982, 1993 **(EM-3101)**, 2001 **(EM-3166)**, 2003 **(EM-3177)**, 2003 **(EM-3193)**, 2004, 2005 **(EM-3207)**, 2005 **(EM-3208),** 2005 **(EM-3211)**, 2008 **(EM-3297)**, 2009, 2011 **(EM-3344 & DR-4049), 2013 (EM-1405),** 2015 **(DR-4209),** 2017 **(DR-4316),** 2018 **(DR-4371)**		Major severe winter weather events marked by snowfalls exceeding 2' in parts of the state which resulted in disruptions to power and transportation systems.	FEMA 2020 HMPT
Detailed summary of severe winter storm events in the community				
Severe Winter Weather (Snowstorm)	Winter of 1968-69	All Ten NH Counties	The winter of 1968-69 brought record amounts of snow to all of New Hampshire. Pinkham Notch at the base of Mount Washington recorded more than 75" of snowfall in a four day period at the end of February 1969 in addition to snow that had already fallen in previous storms. All of NH experienced difficulty with snow removal because of the great depths that had fallen from December 1968 to April 1969. The 2013 Kensington HMP reported that a storm on February 8-10 brought 27" of snow and high winds; a second storm on February 22-28, brought 34-98" of snow in very slow moving system. Local recollection in Kensington recalls exiting a home by the upstairs window because of the amount of snow.	2013 HMPT 2020 HMPT
Severe Winter Weather (High Winds, Coastal Flooding & Snowstorm) **Long Term Utility Outage**	February 16, 1978	All Ten NH Counties	**Major Disaster Declaration DR-549:** The Blizzard of '78, a regionwide blizzard severely affecting southern New England, resulted in high accumulations of snow throughout all of New England and New Hampshire. Recorded accumulations show up to 28" in northeast New Hampshire, 25" in west central New Hampshire and 33" along coastal New Hampshire. This storm also brought hurricane-force winds which made this storm one of the more intense to occur this century across the northeastern United States. Kensington received a large accumulation of snow, some had snowbanks up to six feet; traffic was stalled. Power was out for at least a week in some areas.	FEMA 2013 HMPT 2020 HMPT

Type of Event	Date of Event	Location	Description	Source
Severe Winter Weather (Ice Storm)	January 7-25, 1998	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Strafford & Sullivan	**Major Disaster Declaration DR-1199:** A significant ice storm struck nearly every part of the state with a more significant impact in northern communities and in areas over 1,000 feet above sea level. This storm had little impact in Kensington although other parts of the state were hid badly with ice and snow. This storm was not declared in Rockingham County.	FEMA 2013 HMPT 2020 HMPT
Severe Winter Weather (Snowstorm)	February 17-18, 2003	Cheshire, Hillsborough, Merrimack, Rockingham & Strafford	**Emergency Declaration EM-3177:** The emergency declaration covers jurisdictions with record and near-record snowfall from a snowstorm that occurred February 17-18, 2003 and affected five New Hampshire counties. Heavy snow was received in Kensington but was handled by the Road Manager.	FEMA 2013 HMPT 2020 HMPT
Severe Winter Weather (Snowstorms)	January 22-23, 2005 February 10-11, 2005 March 11-12, 2005	**EM-3208-002** (Jan, Feb & Mar): All Ten NH Counties **EM-3207** (Jan): Belknap, Carroll, Cheshire, Grafton, Hillsborough, Rockingham, Merrimack, Strafford & Sullivan **EM-3208** (Feb): Carroll, Cheshire, Coos, Grafton & Sullivan **EM-3211** (Mar): Carroll, Cheshire, Hillsborough, Rockingham & Sullivan	**Emergency Declaration EM 3208-002:** The Federal Emergency Management Agency (FEMA) had obligated more than $6.5 million to reimburse state and local governments in New Hampshire for costs incurred in three snow storms that hit the state in 2005. The total aid for all three storms was $6,892,023 (January: $3,658,114; February: $1,121,727; March: $2,113,182). **Emergency Declaration EM-3207:** The total aid for the January storm in Rockingham: $679,628. **Emergency Declaration EM-3208**: Rockingham was not declared for the February storm. **Emergency Declaration EM-3211:** The total aid for the March storm in Rockingham: $445,888. Heavy snow was received in Kensington but was handled by the Road Manager.	FEMA 2013 HMPT 2020 HMPT
Severe Winter Weather (Snowstorm & Ice Storm) **Long Term Utility Outage**	December 11-23, 2008	All Ten NH Counties	**Major Disaster Declaration DR-1812 & Emergency Declaration EM-3297:** Damaging ice storm impacted the entire state including all 10 New Hampshire counties resulting in fallen trees and large scale power outages. Nearly $15 million in federal aid was been obligated by May 2009. This severe ice storm caused major damage to private and public utilities. Power was out in Kensington for most 6-7 days and for some up to 11 days. Kensington submitted reimbursement for $7,118.23 and received $3,398.25 on 8/16/10. Trees and power lines down, but there was no significant structure damage. Some snow was already on the ground which was handled by the Road Manager; however the ice caused significant problems in transportation and damage to utilities.	FEMA 2013 HMPT 2020 HMPT

Type of Event	Date of Event	Location	Description	Source
Severe Winter Weather (Snowstorm)	February 23 - March 3, 2010	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	**Major Disaster Declaration: DR-1892:** Flood and wind damage occurred in southern NH including six counties resulting in 330,000 homes without power. More than $2 million was obligated by FEMA by June 2010. The heavy snow accumulation was handled by the Road Manager. The heavy snow accumulation was handled by the Road Manager.	FEMA & 2020 HMPT
Severe Winter Weather (Snowstorm)	October 29-30, 2011	DR-4049: Hillsborough & Rockingham EM-3344: All Ten NH Counties	**Major Disaster Declaration DR-4049 & Emergency Declaration EM-3344:** A severe winter storm occurred on October 29-30, 2011 in two New Hampshire counties. **EM-3344:** The emergency declaration for snow removal and damage repair included all ten NH countries. (Snowtober)	FEMA & 2020 HMPT
Severe Winter Weather (Snowstorm)	February 8, 2013	All Ten NH Counties	**Major Disaster Declaration DR-4105:** Severe winter storm (Nemo) resulted in heavy snow in February 2013 in all ten New Hampshire counties; Kensington received $11,415 in FEMA aid for snow removal.	FEMA 2020 HMPT
Severe Winter Weather (Snowstorm)	January 26-28, 2015	Hillsborough, Rockingham & Strafford	**Major Disaster Declaration DR-4209:** A severe winter snowstorm occurred in three southern New Hampshire counties resulting in disaster aid to supplement state and local recovery efforts. Kensington received $19,611.38 in FEMA aid for snow and tree/branch removal.	FEMA 2020 HMPT
Severe Winter Weather (Snowstorm)	March 14-15, 2017	Belknap & Carroll	**Major Disaster Declaration DR-4316:** A severe winter snowstorm occurred in two New Hampshire counties resulting in disaster aid to supplement state and local recovery efforts. Although this storm was not declared in Rockingham County, the town postponed Town Meeting and Election day. The heavy snow accumulation was handled by the Road Manager.	FEMA & 2020 HMPT
Severe Winter Weather (Snowstorm)	March 13-14, 2018	Carroll, Strafford & Rockingham	**Major Disaster Declaration DR-4371:** The Federal Emergency Management Agency announced a major disaster declaration on June 8, 2018 for a period of a severe winter storm from March 13-14, 2018. Kensington held their town Meeting and Election Day as planned and the heavy snow accumulation was handled by the Road Manager. The town received $16,585.91 in FEMA aid for this storm and **Major Disaster Declaration DR-4370 (Section A).**	FEMA 2020 HMPT

Type of Event	Date of Event	Location	Description	Source
E. Earthquakes: According to the NH State Hazard Mitigation Plan, New Hampshire is considered to lie in an area of "Moderate" seismic activity when compared to other areas of the United States. New Hampshire is bordered to the north and southwest by areas of "Major" activity. Generally, earthquakes in NH cause little or no damage and have not exceeded a magnitude of 5.5 since 1940 Earthquakes have the potential to impact the community on a townwide basis. No significant earthquakes have taken place in Kensington since the 2.9 earthquake that occurred in East Kingston on February 15, 2018.				
Summary of earthquakes with a magnitude of 4.0 or greater in the state & regionwide				
Earthquakes	6/11/1638 **(Central NH, 6.5)**, 10/29/1727 **(Off Coastline, 6.0-6.3)**, 11/18/1755 **(Off Coastline, 5.8)**, 11/10/1810 **(Portsmouth, NH, 4.0)**, 7/23/1823 **(Off Hampton, NH, 4.1)**, 12/19/1882 **(Concord, NH, Unknown)**, 3/5/1905 **(Lebanon, NH, Unknown)**, 8/30/1905 **(Rockingham County, Unknown)**, 11/09/1925 (**Ossipee, NH, 4.0)**, 3/18/1926 **(New Ipswich, NH, Unknown)**, 11/10/1936 **(Laconia, NH, Unknown)**, 12/20/1940 **(Ossipee, NH, 5.5-5.8)**, 12/24/40 **(Ossipee, NH, 5.5-5.8)**, 1/19/1982 **(Laconia, NH, 4.0)**, 11/20/1988 **(Berlin, NH, 4.0)**, 4/6/1989 **(Berlin, NH, 4.1)**, 10/16/2012 **(Hollis Center, ME, 4.0)**		Occurrences of earthquakes with a magnitude of 4.0 or greater in recorded New Hampshire History	State of NH Multi-Hazard Mitigation Plan, Update 2018
Detailed summary of earthquakes that were felt in the community since 1940 with a magnitude of 3.0 or greater				
Earthquake	December 20, 1940	Ossipee, NH	Magnitude 5.5	State of NH Multi-Hazard Mitigation Plan, Update 2018 & 2020 HMPT
Earthquake	December 24, 1940	Ossipee, NH	Magnitude 5.5	
Earthquake	June 15, 1973	Quebec Border / NH	Magnitude 4.8	
Earthquake	January 19, 1982	West of Laconia, NH	Magnitude 4.5	
Earthquake	November 20, 1988	Berlin, NH	Magnitude 4.0	
Earthquake	April 6, 1989	Berlin, NH	Magnitude 4.1	
Earthquake	June 23, 2010	Ontario-Quebec Border	Magnitude 5.0	
Earthquake	June 26, 2010	Boscawen, NH	Magnitude 3.1	
Earthquake	October 16, 2012	Hollis Center, ME	Magnitude 4.0; felt in Kensington but no reported damage.	
Earthquake	February 15, 2018	East Kingston, NH	Magnitude 2.9; shaking felt in Kensington but there was no significant damage; some cracks in concrete blocks at the school	

Type of Event	Date of Event	Location	Description	Source
F. Drought: Droughts are generally not as damaging or disruptive as floods and other hazards and they are more difficult to define. 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. According to the NH State Hazard Mitigation Plan, New Hampshire has a low probability, severity and overall risk for drought. Droughts have the potential to impact the community on a townwide basis. No significant droughts have occurred in Kensington since the 2016 drought.				
Summary of drought in the state & regionwide				
Drought	1775**,** 1840**,** 1882, 1910's**,** 1929-1936**,** 1939-1944, 1947-1950**,** 1960-1969, 1999; 2001-2002, 2016-2017		Occurrences of serious droughts in recorded New Hampshire history.	State of NH Multi-Hazard Mitigation Plan, Update 2018
Summary of drought in the community since 1929				
Drought	1929-1936	Statewide	Regional	State of NH Multi-Hazard Mitigation Plan, Update 2018 & 2020 HMPT
Drought	1939-1944	Statewide	Severe in southeast and moderate elsewhere	
Drought	1947-1950	Statewide	Moderate	
Drought	1960-1969	Statewide	Regional longest recorded continuous spell of less than normal precipitation	
Drought	2001-2002	Statewide	Third worst drought on record	
Drought	2016-2017	Statewide	Declared drought for the summer of 2016 and into 2017, moderating from extreme in southern New Hampshire to dry in the most northern communities. The drought affected Kensington with the loss of 4-5 dug wells although there was no water ban. Eleven dry hydrants were unusable because of the low level of water in Kensington's ponds.	
G. Miscellaneous Past or Potential Hazards: Natural, technological and human-caused hazards and other unusual hazardous events have been noted throughout New Hampshire. Among others, one concern is the transport of hazardous material through communities by rail and tractor-trailer. Other natural, technological or human-caused hazards have the potential to impact the community on a townwide basis. Three additional hazards have taken place in Kensington since the prior plan, including Covid-19. These include two plane crashes and one extreme cold event in 2016. No extreme heat issues have taken place since the prior plan.				
Infectious Disease	January 20, 2020 – ongoing	All Ten NH Counties	**Major Disaster Declaration, DR-4516:** The Federal Emergency Management Agency ("FEMA") within the US Department of Homeland Security is giving public notice of its intent to provide assistance to the State of New Hampshire, local and tribal governments, and certain private nonprofit organizations under the major disaster declaration issued by the President on April 3, 2020, as a result of the Coronavirus Disease 2019 ("COVID-19").	FEMA & 2020 HMPT
Infectious Disease	January 20, 2020 – ongoing	All Ten NH Counties	**Emergency Declaration EM-3445:** Ten county declaration to provide individual assistance and public assistance as a result of the impact of COVID-19	FEMA & 2020 HMPT

Type of Event	Date of Event	Location	Description	Source
Extreme Temperatures	Winter 2016	Kensington Elementary School	Sewer pipe froze at the school causing bathrooms to be closed; a new sewer pipe was installed.	2020 HMPT
Transportation Accidents Plane Crash	October 2, 2005	Near Cole Farm Airport	WACO YMF crashed while landing at Cole Farm Airport when a pilot and a flight instructor were practicing soft field landings. Substantial damage to aircraft; no fatalities.	2020 HMPT
Transportation Accidents Plane Crash	September 1, 2014	Near Cole Farm Airport	11 AM plane crash occurred when a Cessna180 stalled and crashed after takeoff killing both the pilot and passenger.	2020 HMPT

H. Other Hazards: Identified hazards with no specific example of occurrence.

Natural Hazards	Although the team did not identify specific examples or past occurrences of these hazards, it was felt worthwhile to list them as potential hazards to the town. These hazards have the potential to impact the community either locally or on a townwide basis. See *Table 3.1, Hazard Threat Analysis* and Chapter 5 for more details on these hazards.
Lightning	
Technological Hazards	
Radiological	
Known & Emerging Contaminants	
Aging Infrastructure	
Hazardous Materials	
Human-Caused	
Terrorism & Violence	
Mass Casualty Incidents	
Cyber Events	

*Historic hazard events were derived from the following sources unless noted otherwise:

- Website for NH Disasters: http://www3.gendisasters.com/mainlist/newhampshire/Tornadoes
- FEMA Disaster Information: http://www.fema.gov/disasters
- The Tornado Project: http://www.tornadoproject.com/alltorns/nhtorn.htm
- The Tornado History Project: http://www.tornadohistoryproject.com/
- The Disaster Center (NH): http://www.disastercenter.com/newhamp/tornado.html
- EarthquakeTrack.com; http://www.Earthquaketrack.com

For more information on state and county-wide past events, see Major Disaster and Emergency Declarations, Appendix D*, NH Major & Emergency Declarations.*

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Chapter 4: Critical Infrastructure & Key Resources (CIKR)

With team discussion and brainstorming, Critical Infrastructure & Key Resources (CIKR) within Kensington were identified. The Hazard Risk rating was based on a scale of 1-3 with 1 indicating little or no risk.

TABLE 4.1 - EMERGENCY RESPONSE FACILITIES (ERF) & EVACUATION

EMERGENCY RESPONSE FACILITIES (ERF)			
ERF'S are primary facilities and resources that may be needed during an emergency response.			
Facility	**Type of Facility**	**Hazard Risk**	
Town Hall & Police Department & EOC (generator)	Government, Primary EOC & Law Enforcement	All Hazards	1
Fire Station (generator)	Fire Services	All Hazards	1
Town Shed	Heavy equipment, sand & gravel	All Hazards	1
Exeter High School (ARC) (generator)	Primary Shelter (Regional)	All Hazards	1
Kensington Elementary School (no generator)	Secondary Shelter & Warming & Charging Center	All Hazards	1
Kensington Congregational Church	Secondary Shelter & Cooling, Warming & Charging Center	All Hazards	1
Exeter Hospital	Medical facility	All Hazards	1
Seabrook Emergency Room	Medical facility	All Hazards	1
Cell Tower on Rosencrantz (Route 107)	Telecommunications & Radio	All Hazards & High Wind Events	1
Seacoast Ham Radio Repeater on Muddy Pond Road	Repeater System for Ham Radios	All Hazards & High Wind Events	1
Repeater on Kensington Elementary School	Communications Repeater for Police & Fire	All Hazards	1
Repeater on Moulton Ridge Road	Communications Repeater for Town Departments	All Hazards	1
Cell Town on North Road	Communications	All Hazards	1
Seabrook Station Sirens located in Kensington (8)	Communications	All Hazards	1
Evacuation Routes			
NH Route 107	Primary Evacuation Route	All Hazards	1
NH Route 108	Primary Evacuation Route	All Hazards & Inland Flooding	2
NH Route 150	Primary Evacuation Route	All Hazards	1
Osgood Road	Secondary Evacuation Route	All Hazards & Inland Flooding	2

EMERGENCY RESPONSE FACILITIES (ERF)			
Lamprey Road	Secondary Evacuation Route	All Hazards & Inland Flooding	2
Stumpfield Road	Secondary Evacuation Route	All Hazards	1
Kimball Road	Secondary Evacuation Route	All Hazards	1
Drinkwater Road	Secondary Evacuation Route	All Hazards & Inland Flooding	2
Bridges & Culverts on the Evacuation Routes			
Over the line in Exeter Route 108 over Exeter River	Bridge on Evac Route	All Hazards & Inland Flooding	2
Culvert in Hampton Falls at Line, Route 84 lowlands (Lamprey Road)	Bridge on Evac Route	All Hazards & Inland Flooding	2
Dams			
Water Supply @ 5 Amos Tuck Road	Dam on pond is failing (loose water supply and could wash out culvert)	All Hazards & Inland Flooding	2
6 Old Amesbury Road	Dam on pond is failing (loose water supply and could wash out culvert)	All Hazards & Inland Flooding	2
Helicopter Landing Zones			
LZ #1 - Kensington Elementary School KSNH1 - 42.56.43 (latitude) / 070.56.95 (long)	Open field Landing Zone	All Hazards	1
LZ #2 - Coles Airfield KSNH2 - 42.55.70 (latitude) / 070.58.38 (long)	Open Area Landing Zone	All Hazards	1

TABLE 4.2 – NON-EMERGENCY RESPONSE FACILITIES (NERF)

NON-EMERGENCY RESPONSE FACILITIES (NERF)			
NERF'S are facilities, that although they are critical, they are not necessary for the immediate emergency response efforts. This would include facilities to protect public health and safety and to provide backup emergency facilities.			
Facility	**Type of Facility**	**Hazard Risk**	
Congregational Church (no generator)	Warming & Cooling Shelter	All Hazards	1
Library (no generator)	Warming & Cooling Shelter	All Hazards	1
Electric Feed - Transmission Lines	Electric power transfer area	All Hazards	1
Power Substation - Switching Network	Electric power substation	All Hazards	1

TABLE 4.3 – FACILITIES & POPULATIONS TO PROTECT (FPP)

FACILITIES & PEOPLE TO PROTECT (FPP)			
FPPs are facilities that need to be protected because of their importance to the town and to residents who may need help during a hazardous event.			
Facility	**Type of Facility**	**Hazard Risk**	
Legion Hall	Gathering of People	All Hazards & Aging Infrastructure	2
Sawyer Field (open field) & Recreation Building	Gathering of people	All Hazards	1
Town Park (open field) & Recreation Building	Gathering of people	All Hazards	1
Grange	Gathering of people & Historic	All Hazards	1
Public Library	Gathering of people & Historic	All Hazards	1
Elementary School	Gathering of people	All Hazards	1
Unitarian Church	Historic (National Registry)	All Hazards & Aging Infrastructure	2
Congregational Church	Gathering of people & Historic (NH Registry)	All Hazards	1
Old Brick School House - North School	Historic (National Registry)	All Hazards	1
Elementary School Fields	Gathering of people	All Hazards	1
Kensington Town House	Historic (National Registry)	All Hazards	1
Alnoba Conference Center	Gathering of People	All Hazards	1
Green Gate Campground	Gathering of People	All Hazards	1
The Farm at Eastman Corner	Gathering of People	All Hazards	1
Horse Farms (5)	Gathering of People	All Hazards	1

TABLE 4.4 – POTENTIAL RESOURCES (PR)

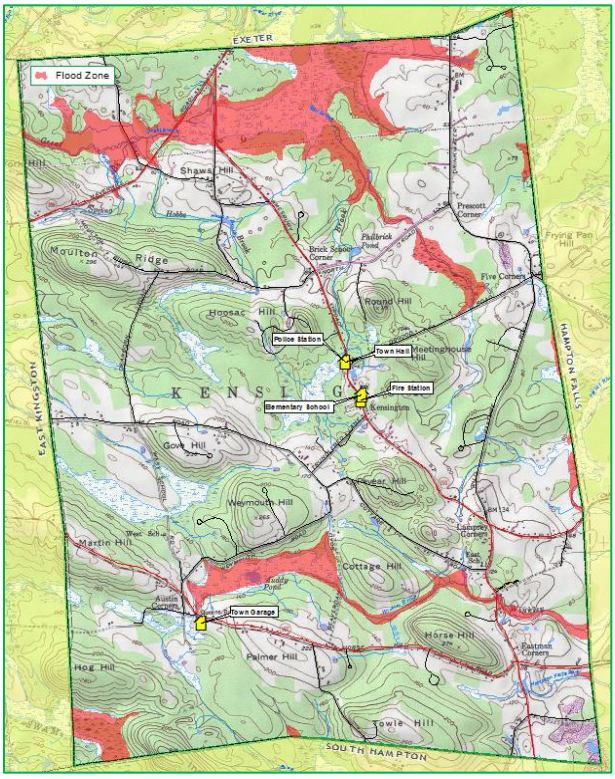
POTENTIAL RESOURCES (PR)			
PRs are potential resources that could be helpful for emergency response in the case of a hazardous event.			
Country Brook Café	Food & Water Supply	All Hazards	1
Farm at Eastman Corner	Food & Water Supply	All Hazards	1
Frank Airstrip	Airstrip (seasonal)	All Hazards	1
Cole Airstrip	Airstrip (seasonal)	All Hazards	1

POTENTIAL RESOURCES (PR)			
Rosencrantz (dealership)	Large heavy equipment	All Hazards	1
Kensington Auto	Tools and equipment	All Hazards	1
CP Lumber	Large equipment & Building Materials	All Hazards	1
Gravel Pits in town (3-4)	Large equipment, Sand & Gravel	All Hazards	1
Kuegel Storage Yard	Heavy machinery	All Hazards	1
Kensington Storage Shed	Heavy Equipment, Sand, Gravel & Salt	All Hazards	1
Royal Tree Service	Tree removal	All Hazards	1
Unitil Dispatch Office	Heavy Equipment	All Hazards	1
Alnoba Conference Center	Cottages, Sheltering	All Hazards	1
For additional resources, please refer to the Resource Inventory List in the current Emergency Operations Plan.			

Chapter 5: Hazard Effects in Kensington

A. Identifying Vulnerable Critical Infrastructure & Key Resources (CIKR)

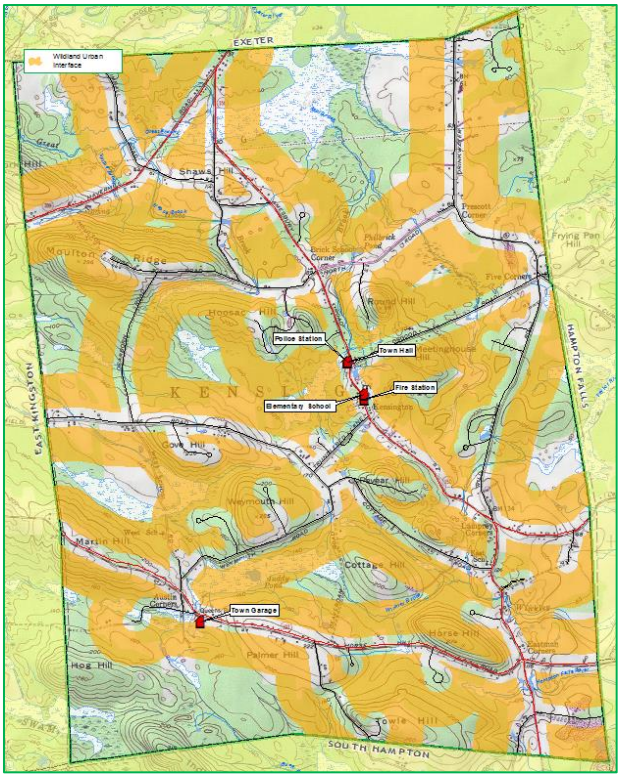
Because damages from floods and wildfires are more predictable than damages from other disasters, it is important to identify the Critical Facilities & Key Resources (CIKR) and that are most likely to be damaged by these events. Using Geographic Information System (GIS) analysis and aerial imagery, at-risk CIKR were identified throughout the town.



All CIKR in Kensington were identified and listed in Chapter 4, Tables 4.1-4.1; each of these CIKR were analyzed for their potential for flooding. This analysis and the GIS map shown to the right, indicate that Kensington's primary CIKR, the Town Hall, the Police and Fire Stations, the Elementary School and the Town Shed (garage) are not located in the 100-year floodplain. It is noted that four of the identified primary and secondary evacuation routes have potential for flooding; these include NH Route 108, Osgood Road, Lamprey Road and Drinkwater Road.

No additional CIKR were found to be in the designated FEMA floodplain although it is expected that there may be non-CIKR structures within the flood zone. Although the floodplain is primarily along rivers and within swampy areas, town officials should keep all at-risk properties in mind when a flood hazard is likely.

Using the same methodology that was used for flooding, CIKR falling within the Wildland Urban Interface (WUI) were reviewed. Identifying these facilities assists the team in creating wildfire mitigation action items and prioritizing those action items; it is important to determine which Critical Infrastructure & Key Resources are most vulnerable to wildfires.



None of Kensington's CIKR were found in the WUI; the town's primary CIKR were found to be within the 300 foot WUI buffer of roadways, therefore accessible by fire apparatus and hoses. However, many structures in Kensington could be subject to wildfire, particularly in neighborhoods with limited egress and a canopy of old-growth trees. Therefore, all structures in town can be assumed to be in the WUI.

B. Calculating the Potential Loss

It is difficult to ascertain the amount of damage that could be caused by hazards because the damage will depend on the hazard's extent and severity, making each hazard event somewhat unique. Therefore, we have used the assumption that hazards that impact structures could result in damage to either 0-1% or 1-5% of the town's structures, depending on the nature of the hazard and whether or not the hazard is localized.

MS1 – Assessed Value of All Structures			
2018-MS1	**Value**	**1% Damage**	**5% Damage**
Residential	$190,738,020	$1,907,380	$9,536,901
Manufactured Housing	$896,600	$8,966	$44,830
Commercial	$10,932,700	$109,327	$546,635
Discretionary Preservation Easement	$155,680	$1,557	$7,784
Tax Exempt	$7,211,500	$72,115	$360,575
Utilities	$14,818,987	$148,190	$740,949
Totals	$224,753,487	$2,247,535	$11,237,674

Based on this assumption, the potential loss from any of the identified natural hazards would range from **$0 to $2,247,535** or **$2,247,535 to $11,237,674** based on the 2018 Kensington town valuations which lists the assessed value of all structures in Kensington to be **$224,753,487** (see chart above).

Human loss of life was not included in the potential loss estimates, but could be expected to occur depending on the severity and type of the hazard. Although descriptions are given for technological and human-caused hazards, no potential loss estimates for these hazards is provided in this plan.

C. Natural Hazards

Descriptions below represent the **"local impact"** to the community for the hazards that were identified by the team. For the **"extent"** of these hazards, please refer to *Appendix C, The Extent of Hazards*, which includes charts such as the Saffir-Simpson Hurricane Wind Scale, the Beaufort Wind Scale, the National Weather Service Heat Index, the Sperry-Piltz Ice Accumulation Index and the Enhanced Fujita Scale for tornadoes.

Table 3.1, The Hazard Identification & Risk Assessment (HIRA), is used to evaluate the probability and the potential impact of all hazards.

The "Hazard Identification & Risk Assessment (HIRA)" and the "Probability" noted for each hazard below, are taken from analysis done in Table *3.1, Hazard Identification & Risk Assessment (HIRA).* The numbers preceding the hazard name in this section correspond to the numbers in Table 3.1 and are ordered by "Relative Threat". The estimated loss is determined using the methodology and table that are explained in Section B of this chapter.

1) Severe Winter Weather

Hazard Identification & Risk Assessment (HIRA) ..... High
Probability ..... Very High
Estimated Structure Loss Value ..... $2,247,535 to $11,237,674

Snowstorms, Blizzards & Nor'easters

Heavy snowstorms typically occur from December through April. New England usually experiences at least one or two heavy snowstorms with varying degrees of severity each year. Power outages, extreme cold and impacts to infrastructure are all effects of winter storms that have been felt in Kensington in the past; these impacts are a risk to the community, including isolation, especially of the elderly (20.0% of the population) and other vulnerable populations. The ability to get in and out of town and emergency service access can be hindered. Damage

caused by severe winter snowstorms varies according to wind velocity, snow accumulation, duration and moisture content. Seasonal accumulation can also be as significant as an individual snowstorm. Heavy overall winter accumulations can impact the roof-load of some buildings. Significant snowstorms, nor'easters and blizzards could diminish food supplies within two days.

In late October 2011, an unusually early snowstorm blanketed all of New Hampshire, leaving behind several inches of snow. Although the Kensington Road Manager handled the snow removal, leaves remaining on trees caused tree limbs and powerlines to fall. As a result, Kensington lost power for up to three days in some locations.

The winter of 2015 brought heavy snow to all of New Hampshire and record snowfall to southern New Hampshire. A Major Disaster Declaration (DR-4209) issued for the January 26-28, 2015 snowstorm provided nearly $20,000 in financial assistance to Kensington for snow removal. Overall, the winter of 2015 brought over 100 inches of snow to southern New Hampshire, causing a dozen or so roofs to collapse. The roof of the Kensington Elementary School had five feet of snow on it; roofs were shoveled at both the Elementary School and at the Fire Station. In the nearby town of Newton, the roof at the middle school collapsed. The town worked with emergency responders and others to clear snow from the roofs of many buildings in town, including several critical facilities.

More recently, in both March 2017 and March 2018, snowstorms with unusually high spring accumulation received Major Disaster Declarations (DR-4316 and DR-4371). In 2017, the scheduled Town Meeting and Election Day were postponed. However, the snow accumulation was handled by the Road Manager. During the 2018 storm, Town Meeting and Election Day were held as planned; the town received $16,585 to assist with cleanup efforts. The 2017 storm dropped 18-20 inches of snow, and the 2018 storm dropped 27 inches.

Although Kensington's Road Manager generally handles usual snow amounts without difficulty, Kensington's roads are often impacted by poor weather conditions and, this combined with heavy traffic on NH Routes 107, 108 and 150 can make travel difficult. The geography of Kensington is such that coastal storms often threaten the community, and at times when snow is predicted in the northern parts of the state, Kensington can experience a mix of sleet and freezing rain. Poor road conditions may hinder emergency response.

Ice Storms

Of more concern in Kensington than 2-4' snowstorms are ice storms, though the probability of the occurrence of a major ice storm is lower than that of a major snowstorm. A significant ice storm can inflict several million dollars in damage to forests and structures. Unlike typical snowstorms that are generally handled well by the Road Manager, ice storms present significant problems. Downed power lines and fallen trees make it difficult for the Road Manager and emergency responders. School buses are also at risk.

In December 2008, Kensington experienced one of the worst ice storms in New Hampshire history (Major Disaster Declaration: DR-1812). Like other communities in southern New Hampshire, extended power outages and fallen trees resulted in hardship for the entire community. Power was out for most of the community for 6-7 days, with some areas experiencing power loss for 11 days. Work crews were brought in from other communities to assist with the cleanup throughout southern New Hampshire. Although the Road Manager was able to handle the snow accumulation that accompanied this storm, ice on branches and powerlines resulted in significant problems in transportation and damage to utilities. FEMA funding was provided to assist with the cost of cleanup.

In Kensington, no significant damage occurred during the 1979 or 1998 ice storms. However, several southern New Hampshire communities sent work crews to northern communities to assist with cleanup after the 1998 storm brought significant damage to New Hampshire's North Country. In 2010, another ice storm struck southern New Hampshire, causing trees and power lines to fall once again producing power outages in some areas for a few days. It was estimated that over 300,000 homes in the state were without power during this storm, but in Kensington, there was no significant impact.

Due to the widespread nature of severe winter weather, particularly from ice storms, the potential loss value is estimated to be between 1% and 5% of the total assessed value of all structures in town.

2) Tropical & Post-Tropical Cyclones

Hazard Identification & Risk Assessment (HIRA) ..... High
Probability ..... Moderate
Estimated Structure Loss Value ..... $2,247,535 to $11,237,674

Wind damage due to tropical and post-tropical cyclones (hurricanes) is a consideration in Kensington, primarily because of its proximity to the Atlantic Ocean and the many tree-lined streets and forested areas. Like the 1938 hurricane and hurricanes Carol and Edna in 1954, significant forest damage and flooding could occur. Although tropical and post-tropical cyclones could fit into several different categories (wind and flooding), the team considered tropical and post-tropical cyclones to be separate events. Tropical and post-tropical cyclones are rare in New Hampshire, but they should not be ruled out as potential hazards. In most cases, tropical cyclones have been down-graded to post-tropical cyclones by the time they reach New Hampshire.

Unlike other parts of New Hampshire and Vermont, which received considerable damage during Tropical Storm Irene in 2011, Irene had a less significant impact in Kensington. The planning team did, however, report flooding and power outages due to fallen trees; the impact was less than in other regions of New England. Tropical Storm Sandy also impacted Kensington, bringing heavy rains and wind to the community. Kensington received $2,314.70 in past disaster federal assistance after Tropical Storm Sandy.

The probability that a tropical and post-tropical cyclone would remain a Category 1 or higher in this part of the state is low. Still, with the proximity to the Atlantic Ocean and increases in hurricane activity due to climate change, there is potential for a significant Tropical Cyclone (hurricane) to impact Kensington. Therefore, the potential loss value due to tropical and post-tropical cyclones was determined to be between 1% and 2% of the total assessed structure value.

3) Inland Flooding

Hazard Identification & Risk Assessment (HIRA) ..... High
Probability ..... Very High
Estimated Structure Loss Value ..... $0 to $2,247,535

100-Year Flood Events, Riverine Flooding & Ice Jams

Riverine flooding and 100-year flood events can occur as a result of hurricanes, tropical and post-tropical cyclones, heavy summer and fall rains as well as ice jams. Nearly every spring, rapid snowmelt and heavy rain has the potential to overwhelm small brooks and streams in Kensington, which can be further impacted by flood

conditions on the Exeter River, just over the Kensington town line. The Green Gate Campground is particularly vulnerable to flooding on the Exeter River.

The Kensington plan team reported that flooding occurred during the summer of 1998 when several yards and basements were flooded, and water ponding on roadways created a hazard. Also, the Mother's Day Storm of May 2006 caused Kensington to be isolated from surrounding towns as a result of flooding on roadways, particularly NH Routes 84 and 108. Kensington received FEMA assistance of nearly $23,000 for the Mother's Day Storm.

More recently, extraordinary rain and wind events took place in New Hampshire in July and October of 2017; however, neither of these storms was declared a major disaster declaration in Rockingham County. These storms had no significant impact in Kensington.

In March of 2018, a Major Disaster Declaration (DR-4329) was declared for Rockingham County. During this storm, Kensington received heavy rain and minor flooding but no significant damage. The town received federal assistance for this storm, along with a declared snowstorm in the same month.

The team did not report any flooding or damage that has resulted from ice jams.

Local Road Flooding

Local road flooding is often the result of rapid snowmelt and heavy spring or autumn rain events. Heavy rain from tropical downpours, hurricanes or severe thunderstorms along with rapid snowmelt often cause culverts to be overwhelmed and roads to wash out.

Many roads in Kensington are long and winding and subject to severe weather. The continuous erosion of roads makes for a daunting task of "up-keep" for the Road Manager. Fortunately, many of the town's major thoroughfares, including NH Routes 107, 108, 150 and 84, are the responsibility of the state. The Road Manager maintains a total of 18.75 miles of Class V roads in the community, 18.5 miles of which are paved and .25 miles of which are gravel.

Kensington has been proactive in the maintenance and repairs of culverts and has reduced the incidence of local road erosion and washouts. In the last five years, the Road Manager has diligently worked to improve the town's roadways, including a $100,000 project on Kimball Road. It was noted that 15-20 culverts in town require general maintenance, including cleaning and flushing.

Local Flooding as a result of Beaver Dams

As with many New Hampshire communities, beaver dams throughout Kensington can present a unique set of problems. Beaver dams can cause flooding in fields and on roads, potentially causing road damage should there be a failure of one or more of the dams. In Kensington, a particular problem exists at an eight-foot beaver dam at a pond off Hemlock Road; a dam failure at this location has the potential to wash out part of Osgood Road.

Local Flooding as a result of Dam Failure

Kensington is not host to any high hazard or significant hazard dams. There are, however, two dams located on private property that are maintained by Kensington Fire Rescue to enable access to water for fire suppression. Amos Tuck Dam and Old Amesbury Road Dam are aging and have the potential to fail. There is little or no potential for structure flooding at these sites, but there is potential to wash out culverts.

The expected loss value from flooding would be based primarily on the cost to repair roadways. Flooding in Kensington is not likely to be severe enough to take out utilities, but it may create areas of town that become inaccessible to emergency responders. The economic impact, the loss of accessibility and the cost of road repair factor into the estimated loss value. Therefore, the estimated loss value was determined to be between 0% and 1% of the total structure value.

4) EXTREME TEMPERATURES

Hazard Identification & Risk Assessment (HIRA) ..... High
Probability ..... High
Estimated Structure Loss Value ..... Not estimated

Extreme Cold & Heat

Winter temperatures can fall below -30°F and summer temperatures, laden with high humidity can soar to nearly 100°F. In the past, there was more concern about extreme cold temperatures, but with improved heating systems and local communications, most New Hampshire residents can cope with extreme cold. Additionally, many New Hampshire residents have equipped their homes with generators and woodstoves, and many cities and towns offer warming centers or have established a functional needs list to check on vulnerable citizens.

Of concern today are extreme heat conditions, which seem to be more common with the advent of climate change. A heatwave with temperatures above 95° for a week or more, could substantially impact elderly and vulnerable populations. Few residents, particularly vulnerable populations, have air conditioners and are less able to cope with extreme heat. The estimated elderly population in Kensington is 20.0%, and the estimated poverty rate is 4.0% of the total population[15].

Extreme Temperatures combined with Long Term Utility Outage

Extreme temperatures, when combined with power failure, are of the most concern. A long term utility outage could result in no water, heat and air conditioning for the town's most vulnerable populations. Town officials and the community as a whole should be concerned; they should look after vulnerable citizens to ensure that extreme temperatures do not create a life or property threatening disaster. The town provides warnings and recommendations regarding extreme temperatures on available social media platforms.

The cost of extreme temperatures is difficult to calculate as it is not based on the loss of structures. The expected loss value would be primarily on the economic impact on the community and the time and cost of emergency response. Although one extreme cold event was reported in 2016 (see Table 3.2), there were no extreme heat issues reported by the town. Based on the assumption that damage would not occur to structures, the structure loss value due to extreme temperatures was not estimated.

[15] US Census Bureau, American Community Survey, ACS, 2014-2018

5) INFECTIOUS DISEASES

Hazard Identification & Risk Assessment (HIRA) ..... High
Probability ..... Moderate
Estimated Structure Loss Value ..... Not estimated

"*Infectious diseases are disorders caused by organisms — such as bacteria, viruses, fungi or parasites. Many organisms live in and on our bodies. They're normally harmless or even helpful, but under certain conditions, some organisms may cause disease.*

Some infectious diseases can be passed from person to person. Some are transmitted by bites from insects or animals. And others are acquired by ingesting contaminated food or water or being exposed to organisms in the environment."[16]

Kensington's middle school students attend school at the Cooperative Middle School in Stratham, and high school students attend school at Exeter High Schools along with students from the neighboring towns of Exeter, Brentwood, Newfields, East Kingston and Stratham, thus enabling infection and viruses to be transmitted from elsewhere. Also, the Alnoba leadership center brings in people from all over the United States and the world, creating additional susceptibility.

Because of these factors, the team decided that infectious diseases and epidemics or pandemics could present a possible threat to Kensington. With the occurrence of world-wide pandemics such as SARS, the Zika Virus, H1N1 and Avian Flu, Kensington could be susceptible to an epidemic and subsequent quarantine. In fact, as of the writing of this plan, the entire world is coping with the onset of the COVID-19 pandemic, which had closed all non-essential businesses and schools throughout New Hampshire and most of the United States during the early months of the pandemic. As of August 15, 2020, the state reported 6,980 cases of COVID-19 and 423 deaths, as seen in the chart to the right.[17]

Current Situation in New Hampshire

New Hampshire 2019 Novel Coronavirus (COVID-19) Summary Report (data updated August 15, 2020, 9:00 AM)

NH Persons with COVID-19[1]	6,980
Recovered	6,264 (90%)
Deaths Attributed to COVID-19	423 (6%)
Total Current COVID-19 Cases	293
Persons Who Have Been Hospitalized for COVID-19	706 (10%)
Current Hospitalizations	15
Total Persons Tested at Selected Laboratories, Polymerase Chain Reaction (PCR)[2]	183,377
Total Persons Tested at Selected Laboratories, Antibody Laboratory Tests[2]	28,528
Persons with Specimens Submitted to NH PHL	39,854
Persons with Test Pending at NH PHL[3]	631
Persons Being Monitored in NH (approximate point in time)	2,750

Also as of August 15, 2020, Kensington reported 1-4 COVID-19 total cases, no current cases and no deaths, making Kensington one of the least impacted communities in Rockingham County; this may be due to the absence of nursing homes or other group facilities in the community or the unwillingness for residents to be tested. To help mitigate the crisis, town officials closed the Town Hall in March of 2020, only reopening with restrictions in August. Kensington has applied for Public Assistance through FEMA and is also working with the State of New Hampshire Governor's Office for Emergency Relief and Recovery (GOFERR) for additional relief assistance. A Point of Distribution (POD) has been set up as a joint effort with Kingston, East Kingston and Newton through the NH Public Health Network, of which the Emergency Management Director is the liaison.

[16] Infectious diseases, Overview, https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173
[17] https://www.nh.gov/covid19/news/documents/covid-19-update-08152020.pdf

As part of our discussion about infectious disease, it makes sense to discuss the opioid epidemic that is affecting the state and the nation in general. According to the National Institute on Drug Abuse, *"New Hampshire has the second-highest rate of opioid-related overdose deaths in the country. In 2016, there were 437 opioid-related overdose deaths…from 2013 through 2016, opioid-related deaths in New Hampshire tripled"*[18].

Like many New Hampshire communities, Kensington has also struggled with the use of opioids. In the Kensington 2019 Annual Report, the Police Department reported 18 calls for "Drug Arrests"[19]. The total number of drug arrests in 2019 was up by nine since 2018, but yet lower than the reported number of 47 in 2015. Although the availability and use of NARCAN® have helped lower the death rate in New Hampshire, opioid-related overdose deaths are still a common occurrence.

The team felt that an epidemic or pandemic, such as the pandemic we are experiencing today, will continue to pose a threat to the citizens of the community. However, because there would be no direct impact to structures within the town, the structure loss value was not estimated. Kensington's emergency service personnel continue to maintain extensive pandemic planning to prepare for and respond to infectious diseases.

6) High Wind Events

Hazard Identification & Risk Assessment (HIRA) ..... Medium
Probability ..... Moderate
Estimated Structure Loss Value ..... $0 to $2,247,535

Isolated high winds and downdrafts often occur in Kensington. These wind events are unpredictable and could fall timber, which in turn could block roadways, down power lines and impair emergency response. Old-growth softwood is affected by these unexpected windstorms, particularly in the spring, when the water table is high. As with other wind events, the emergency response could be difficult.

The town often experiences sporadic high winds due to its location on the coastal plain where there is little protection from high winds off the Atlantic Ocean. During the October 29, 2017 storm, Kensington experienced significant winds and lost power for 1-2 days. Unitil has aggressively trimmed trees, particularly those near power lines, which could cause damage throughout the community, but the risk still exists. The Town of Kensington has six scenic roads that are lined with susceptible old tree growth; trimming and cutting on these scenic roads requires special authority from the town.

Tornadoes & Downbursts

The biggest difference between tornadoes, microbursts and macrobursts is the direction, size and location that the wind comes from. A tornado generally covers a large area, perhaps even several miles. It has winds that blow in a circular fashion leaving behind downed trees that lie in a swirling pattern. Straight-line winds and winds that burst downward are indicative of a microburst; the fallen trees that are left behind lay in roughly the same direction. A microburst must be 2.5 miles in width or less, whereas a macroburst is a similar wind event that is greater than 2.5 miles wide and generally lasts longer than a microburst.

[18] NH Opioid Summary, National Institute on Drug Abuse; https://www.drugabuse.gov/drugs-abuse/opioids/opioid-summaries-by-state/new-hampshire-opioid-summary
[19] Annual Report, 2019; page 70; https://www.town.kensington.nh.us/sites/g/files/vyhlif736/f/uploads/2019_final_proof_annual_report.pdf

In Kensington, a microburst would be more likely than a tornado. Microbursts are becoming more common and often result in damage. Kensington has experienced high wind events in the past that may have actually been microbursts; but the team reported that there was probably only one suspected downburst in the last ten years.

A Major Disaster Declaration was declared for an EF2 tornado, which touched down in Rockingham County on July 24, 2008, traveling 52 miles north through Strafford County and Carroll County. This tornado impacted Kensington, leaving behind minimal damage. The town received a little over $10,000 in aid from FEMA to assist with cleanup operations. Many towns in this tornado's path sustained significant damage, and there was one fatality.

Although the incidence of downbursts is becoming more common, damaging high wind events are relatively uncommon natural hazards in New Hampshire. On average, only about six tornadoes touch down each year. Damage from high wind events largely depends on where the hazard strikes. If a high wind event were to strike a densely populated or commercial area, the impact could be significant and could result in personal injury and property damage. However, due to the rareness of tornadoes and the localized nature of downbursts, the potential loss value was determined to be between 0% and 1% of the total assessed structure value.

7) LIGHTNING

Hazard Identification & Risk Assessment (HIRA) ..... Medium
Probability ..... Moderate
Estimated Structure Loss Value ..... $0 to $2,247,535

Lightning

Severe lightning as a result of summer storms or as a residual effect from hurricanes and tornadoes has occurred in Kensington. Some of the town's structures are older and historic buildings, as detailed in Table 4.3.

Other vulnerable structures are surrounded by forest. Dry timber on the forest floor, some of which remains from past ice or windstorms and the age of many buildings and out-buildings combined with lightning strikes, can pose a significant disaster threat. Lightning could do damage to specific structures, injure or kill an individual, but the direct damage would not be widespread.

Although lightning is a potential problem, the town reports few occurrences, none of which were severe. In the past, the Fire Station and the Town Park have both been struck by lightning, but no injuries or fires resulted.

It was noted that severe thunder and lightning storms seem to happen more often in recent years, perhaps the result of climate change. Also concerning are the heavy rains that thunderstorms can produce and the subsequent erosion of ditches and roadways.

Hail

Although not common in Kensington, hailstorm events resulting from significant thunder and lightning storms can occur at any time. Summer storms may produce hail large enough to damage roofs, siding and automobiles. Damage from hail could also result in failed crops, thus creating an economic impact on the local economy and individual citizens. It should be noted, however, that Kensington is not a heavily farmed community. Overall, it was felt that a hailstorm event would be unlikely and would cause minimal damage.

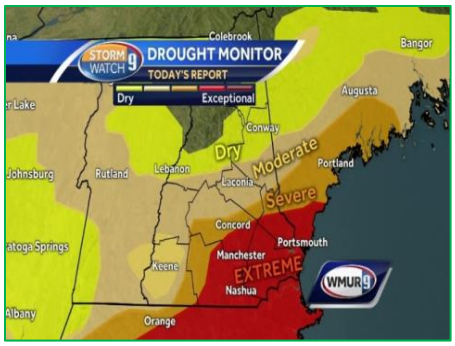
The last major hailstorm in the Kensington area was in 2006. During this event, some residents in the neighboring town of Exeter experienced roof and siding damage as well as vehicular damage. At least one car dealer in Exeter held a "damage sale" to sell inventory damaged by hail.

Based on the localized nature of lightning strikes and the minimal damage that can be expected from hail, the potential loss value was determined to be 0-1% of the total assessed structure value.

8) DROUGHT

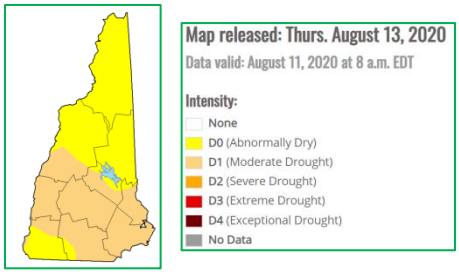
Hazard Identification & Risk Assessment (HIRA) ..... Medium
Probability ..... Low
Estimated Structure Loss Value ..... $0 to $2,247,535

An extended period without precipitation, or drought, could elevate the risk for wildfire and blow-downs in the forested areas of the community, and with an extreme drought, the water supply and aquifer levels could be threatened. All of Kensington's residents rely on private wells. Fortunately, significant droughts rarely occur in New Hampshire or Kensington. According to the NH Department of Environmental Services, only six significant droughts had occurred since 1929,[20] including the drought of 2016 (see Table 3.2).



WMUR Archives; September 15, 2016

The 2016 drought in New Hampshire was significantly worse in the southern part of the state than in the northern region. The image to the top-right from WMUR-TV in September 2016 shows drought conditions in New Hampshire during the summer of 2016[21]. As of August 13, 2020, Rockingham County and Kensington were in "moderate drought" conditions as seen in the image to the bottom-right.[22]



During the 2016 drought, 4-5 dug-wells dried up and were replaced with artesian wells in Kensington. Artesian well companies from all over the east coast remained busy for several weeks in southern New Hampshire. The 2016 drought also impacted the availability of water resources for fire suppression. The planning team reported that eleven dry hydrants were unusable due to the low level of water in Kensington's brooks and ponds. The 2016 drought continued into 2017 with dry conditions throughout the summer in some communities, but the impact was not as significant as the prior year.

The cost of future droughts in Kensington is difficult to calculate as any cost would likely result from associated fire risk, crop loss and diminished water supply. Based on these assumptions, the loss value was estimated to be between 0% and 1% of the total assessed structure value.

[20] NH DES; http://des.nh.gov/organization/divisions/water/dam/drought/documents/historical.pdf
[21] https://www.wmur.com/article/extreme-drought-conditions-worsen-in-new-hampshire/5269231
[22] https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NH

9) WILDFIRES

Hazard Identification & Risk Assessment (HIRA) ..... Medium
Probability ..... Low
Estimated Structure Loss Value ..... $0 to $2,247,535

There are two main potential losses with a wildfire, the forest itself and the threat to the built-up human environment and structures within the Wildland Urban Interface (WUI). In many cases, the only time it is feasible for a community to control a forest fire is when it threatens the built-up human environment.

Any wildfire discussion must include a discussion of the Wildland Urban Interface (WUI). The WUI can be determined in a variety of ways; however, it basically represents the area in which the forest and human habitation intersect. At times the WUI is defined as the area out of reach of available fire hoses and water resources, while other times, it is determined to be areas with substantial tree cover and limited egress. For many New Hampshire communities, entire towns are considered to be in the WUI because of the abundance of hardwood and softwood trees. In more populated areas, the WUI is often determined to be in densely populated neighborhoods where a large canopy of old-growth trees and limited access make people and structures more vulnerable. All structures within the WUI are generally assumed to be at some level of risk and, therefore, vulnerable to wildfire.

The potential exists for wildfires throughout Kensington. Currently available documentation on fires in Kensington and New Hampshire indicates that the majority of fires are human-caused; however, no significant wildfires have occurred in Kensington in many years. Fires in Kensington have been small brush fires of little significance.

The team described the forests of Kensington as consisting of primarily a combination of softwoods and northern hardwoods, mixed in with farmland and small residential neighborhoods. With a low probability of drought and high humidity, it was felt that most fires are "duff" fires, the burning of *"the layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil."*[23] Burn permits are required in Kensington, as they are throughout the state, but often burning takes place without the proper permits. Areas of town may be difficult to monitor. Therefore the occasional unauthorized burn will take place.

Due to the abundance of slash on the forest floor left by past ice storms, logging operations, blowdowns and the mixture of hardwood and softwood trees throughout the forests, there is potential for fast-burning fuels and a wildfire could potentially occur. To help combat fire, Kensington maintains and improves firefighting equipment and continuously maintains dry hydrants and fire ponds.

Large wildfires in New Hampshire are uncommon; however, four large fires have occurred in the state in recent years, the Dilly Cliff Fire in Woodstock, the Covered Bridge Fire in Albany, the Bayle Mountain Fire in Ossipee and the Stoddard Fire in Stoddard. No large fires have occurred in Kensington; however, given the right set of conditions (drought, lightning, human interface), the potential for large wildfires is good. Because the Town of Kensington is not as heavily forested as the northern regions of the state and wildfires are rare, the potential loss value was determined to be between 0% and 1% of the total assessed structure value.

[23] http://www.fs.fed.us/nwacfire/home/terminology.html

10) EARTHQUAKES

Hazard Identification & Risk Assessment (HIRA) ..... Low
Probability ..... Very Low
Estimated Structure Loss Value ..... $2,247,535 to $11,237,674

Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric and phone lines and are often associated with landslides and flash floods. Two earthquakes with a magnitude greater than 5.0 have occurred in New Hampshire since 1940, both of which occurred in Ossipee in December of 1940 (5.5-5.8). Three earthquakes with a magnitude greater than 4.0 have occurred in the state since 1982, one in Laconia (4.0), one in Berlin in 1988 (4.0) and another in Berlin in 1989 (4.1).

An earthquake felt by many New Hampshire residents occurred in October 2012 with its epicenter in nearby Hollis Center, ME. The team noted that this earthquake was felt in Kensington, but no damage occurred. On February 15, 2018, a magnitude 2.9 earthquake occurred in the neighboring town of East Kingston. The planning team reported that "shaking" was felt in Kensington, and although there was no significant damage, some cracks appeared in the concrete blocks at the elementary school.

It is well documented that there are fault lines running throughout New Hampshire, but high magnitude earthquakes have not been frequent in New Hampshire history. Small earthquakes continue to occur, but other than the East Kingston earthquake, none of these were felt in Kensington (see Table 3.2).

Although historically earthquakes have been rare in northern New Hampshire, the potential does exist, and depending on the location, the impact could be significant. Therefore, the potential structure loss value due to earthquakes was determined to be between 1% and 5% of the total assessed structure value.

D. TECHNOLOGICAL HAZARDS

The following technological hazards were also considered while developing this hazard mitigation plan. Though these hazards are not analyzed in more detail as part of this plan, they are nonetheless worth mentioning as real and possible hazards that could occur in Kensington. The estimated structure loss was not determined for technological hazards.

1) RADIOLOGICAL

Hazard Identification & Risk Assessment (HIRA) ..... Medium
Probability ..... Very Low

New Hampshire has one nuclear power plant, Seabrook Station Nuclear Power Plant in Seabrook. Seabrook Station has a 10-mile Emergency Planning Zone (EPZ) around which emergency planning is concentrated. The EPZ includes 17 New Hampshire towns, all in Rockingham County, including Brentwood, East Kingston, Exeter, Greenland, Hampton, Hampton Falls, Kensington, Kingston, New Castle, Newfields, Newton, North Hampton, Portsmouth and Rye. There are also six Massachusetts towns in the Seabrook EPZ.[24] As one of the communities within the EPZ of the Seabrook Station, Kensington is a community at risk should an event take place at the plant. If an actual event occurred at Seabrook Station, the need for evacuation would be driven by weather and wind conditions as advised by the state and based on the actual damages that occur.

[24] NH Department of Safety, HSEM; Nuclear Power Plants; http://www.nh.gov/safety/divisions/hsem/nuclearpowerplants/index.html

"The Radiological Emergency Response Plan (RERP) organizes NH emergency capabilities for a rapid and coordinated response to any incident at commercial nuclear power plants in or adjacent to NH (i.e., NH Seabrook and VT Yankee nuclear power stations)."[25] Kensington is part of the Seabrook EPZ and takes part in bi-annual drills to ensure the appropriate response at the time of an emergency.

2) Known & Emerging Contaminants

Hazard Identification & Risk Assessment (HIRA) ..... Medium
Probability ..... Low

Known contaminants in drinking water occur naturally or when introduced by man. Emerging contaminants are those that have not been historically monitored due to either lack of laboratory capabilities or an understanding of the risk that may be posed for human health. Damage to the environment, the local flora and fauna, a reduction in land values, restrictions on the use of public water sources, and an increase in short and long term health issues are just some of the impacts that can result from contaminants. There may also be a need for more robust water treatment equipment.[26]

Naturally occurring contaminants could include trace elements such as arsenic, lead, manganese and uranium. The most concerning of these to private well water is arsenic, which is naturally occurring and quite common in groundwater. The NH State Multi-hazard Mitigation Plan states that *"…health studies of New Hampshire residents have demonstrated the connection between arsenic and the increased prevalence of conditions such as bladder and other cancers and developmental effects on children."*[27]

Human-made contaminants generally include compounds such as pesticides and metals that have impacted the groundwater and/or surface water. Hazardous materials spills and other accidental introductions of chemicals into the ground and surface water have the potential to significantly affect the safety of public and private water supplies.

Emerging contaminants, such as poly or perfluoroalkyl substances (PFAs) have also been found in ground and surface water in New Hampshire. Additional emerging contaminants, such as Methyl Tertiary Butyl Ether (MtBE), have also been found. Increased public awareness and testing of PFAs and MtBEs are helping to counteract the effects of emerging contaminants. The planning team reported that Kensington has the highest level of arsenic, along with Hampton Falls, in the state.

Contamination of the aquifer with radon or arsenic is a concern as all of Kensington's residents rely on wells for drinking water. Testing by individual homeowners for known and emerging contaminants should be encouraged by the Town of Kensington.

[25] https://www.dhhs.nh.gov/dphs/radiological/emergency.htm
[26] NH Multi-hazard Mitigation Plan-2018
[27] Ibid

3) Long Term Utility Outage

Hazard Identification & Risk Assessment (HIRA) ..... Low
Probability ..... Low

Long term utility outages of five or more days have occurred in Kensington, both as a result of local line damage from high winds and storms and problems with the power grid. If a major or extended power outage occurs and lasts for more than a week, a significant hardship on individual residents could result, particularly those citizens who are elderly, handicapped, or poor.

After the 2008 ice storm, outages ranged from six to eleven days, depending on the location in town. Kensington also lost power during the Mother's Day storm in May 2006, as a result of a heavy rain and wind event during the winter of 2010 and for a short time during both Tropical Storm Irene and Sandy in 2011 and 2012 respectively. The team reported that long term power outages have diminished as a result of continued efforts by Unitil and the Road Manager to trim trees and branches near power lines.

Long term utility outage is a concern, particularly when combined with any of the natural hazards detailed above. However, the team felt that many residents were somewhat self-sufficient, as many are now equipped with generators and woodstoves. The most significant impact of an expended power failure would be the inconvenience caused by the inability to pump water for residents who rely on wells; there is no public water in Kensington. It is also noted that driving can be difficult due to weather conditions and the rural and hilly terrain of Kensington's roadways. Virtually all services, including major pharmacies and grocers, are located out of town.

As a relatively small and close-knit community, town officials are aware of persons who may need help in emergencies. Nonetheless, a long term utility outage causing frozen pipes and a lack of heat and water is potentially a severe hazard for the community.

4) Aging Infrastructure

Hazard Identification & Risk Assessment (HIRA) ..... Low
Probability ..... Low

"Infrastructure is the backbone of our community. While we don't always acknowledge it, the condition of our infrastructure has a very real impact on our lives. We all depend on roads and bridges to get us where we are going, water infrastructure that delivers clean on-demand water, electricity to light our home and office, and schools that will facilitate a learning environment."[28]

Aging infrastructure is the continued deterioration of roads, bridges, culverts, ports, railroads, wastewater facilities, airports, dams, utilities and public water and sewage systems. The American Society of Civil Engineers gave NH a C- rating overall in its 2017 report card.[29] The State Multi-hazard Mitigation Plan states that the average lifespan of a bridge is 50 years; the current average age of state-owned bridges in New Hampshire is 52-56 years.[30]

[28] https://www.infrastructurereportcard.org/wp-content/uploads/2016/10/2017-NH-Report-Card-hq-with-cover.pdf
[29] Ibid
[30] NH Multi-hazard Mitigation Plan, 2018, page 156

Aging infrastructure is a concern in Kensington as it is throughout New Hampshire and the United States. In Kensington, particularly concerning are the current Fire Station and the Town Shed (Garage); improvements to or replacement of these buildings will need to be addressed by town officials in the future.

5) HAZARDOUS MATERIALS

Hazard Identification & Risk Assessment (HIRA) ..... Low
Probability ..... Very Low

Hazardous material in fixed locations is a concern in many of New Hampshire's communities. Manufacturers, gas stations, fuel depots, small businesses and even homes can be found to have hazardous chemicals, explosive materials or poisons on site. Breaches in the storage, use, production or disposal can affect the groundwater, aquifers and water supply of a community as well as the air we breathe.

Small supplies of hazardous materials are found throughout Kensington. Fuel and propane tanks as well as chemicals and hazardous materials stored at private homes, construction and landscape companies, and utilities, could potentially cause contamination of ponds and brooks; a small fuel supply is also stored at two local airstrips. There are no large factories in Kensington that use or store a substantial quantity of hazardous materials and there are no large propane or fuel oil storage depots.

In the unlikely event that ignition of hazardous materials was to take place, entire buildings could be susceptible to explosion and fire; there could also be a disruption to regular traffic patterns.

E. HUMAN-CAUSED HAZARDS

The following human-caused hazards were also considered while developing this hazard mitigation plan. Though these hazards are not analyzed in more detail as part of this plan, they are nonetheless worth mentioning as real and possible hazards that could occur in Kensington. The estimated structure loss was not determined for human-caused hazards.

1) TRANSPORT ACCIDENTS

Hazard Identification & Risk Assessment (HIRA) ..... High
Probability ..... Moderate

Kensington's major roadways, NH Routes 107, 108 and 150 (Amesbury Road), are often traveled by trucks and busses carrying goods and people to and from other parts of the state. NH Route 84, Drinkwater Road and Wild Pasture Road, although not as busy as Kensington's major routes, also carry many varieties of truck traffic.

The planning team reported a hazardous materials spill in the fall of 2017 when a dump truck carrying gravel rolled onto its side. The truck's 100-gallon fuel tanks leaked and had to be drained; the NH Department of Environmental Services was called, and Clean Harbors was brought in to clean the accident site.

Pan Am Railway maintains a freight and passenger line through southern New Hampshire with approximately 50 feet of track in Kensington near the Exeter River. Although there hasn't been a derailment in the last ten years, freight that is hauled by Pan Am includes chemicals, propane, lumber, shale oil and other hazardous materials that could affect the water supply should a derailment occur.

Some of Kensington's roads are narrow and winding and subject to severe winter weather; when affected by flooding, winter snow conditions and ice they become treacherous. In these conditions, vehicular accidents, wildlife collisions and truck accidents involving hazardous materials are always a possibility. All roadways in Kensington are susceptible to hazards such as road flooding and high winds leading to downed trees in the roadways and potential hazardous materials spills.

The possibility of vehicular accidents involving hazardous materials is identified as a significant hazard in Kensington. Depending on the location of a hazardous material accident, the losses could be quite high, both in property and structural damage. However, the losses are also expected to be localized and unlikely to happen in a densely populated part of town.

2) Terrorism & Violence

Hazard Identification & Risk Assessment (HIRA) ..... High
Probability ..... Low

Terrorism is a concern throughout our country and the world, but Kensington is not host to any significant soft-targets. However, Alnoba, a leadership conference center located in Kensington, could be a potential target as could the Kensington Elementary School and the Town Hall. The proximity to populated areas, some of which are known for drug distribution, and the use of Kensington's roadways for drug transportation, presents a possible risk for violence. As with many small towns, the terrorism threat is minimal; if a terrorist incident were to occur, it would most likely be a home-grown terrorist event.

3) Mass Casualty Incidents

Hazard Identification & Risk Assessment (HIRA) ..... Medium
Probability ..... Low

A Mass Casualty Incident is a situation where the number of casualties exceeds the emergency resources that are typically available locally. MCIs have been known to occur as a result of bus, auto, train, and aircraft accidents, as well as incidents involving large crowds. MCIs can also be a result of natural hazards such as hurricanes, floods, earthquakes and tornadoes.

In Kensington, an MCI could happen anywhere, but would more likely occur on NH Routes 107, 108 and 150 (Amesbury Road). Many of Kensington's roads are rural and are winding, hilly and often busy; wildlife crossings and poor weather conditions contribute to the likelihood of Mass Casualty Incidents. Also, students in grades 6-12 travel to and from school by bus, thus creating the situation for MCI events. The planning team reported a fatal accident in 2016 when three Exeter High School graduates, all residents of the neighboring town of East Kingston, were killed in a rollover accident on NH Route 108.

Although Kensington is not impacted by a considerable influx of tourists or day visitors, it is the home of Alnoba. This leadership conference center is capable of hosting up to 300 people for weekly leadership classes. MCIs are not common, but they are a genuine possibility throughout the community.

4) CYBER EVENTS

Hazard Identification & Risk Assessment (HIRA) ..... Low
Probability ..... Low

Presidential Policy Directive (PDD-41) describes a cyber incident as *"An event occurring on or conducted through a computer network that actually or imminently jeopardizes the integrity, confidentiality, or availability of computers, information or communications systems or networks, physical or virtual infrastructure controlled by computers or information systems, or information resident thereon. For purposes of this directive, a cyber incident may include vulnerability in an information system, system security procedures, internal controls, or implementation that could be exploited by a threat source."*[31]

With the increased use of computers and the internet, cyber events could include targets such as banks, hospitals, schools, churches, town, city and state government operations, emergency operations and critical infrastructure. Cyber events have been known to take place almost anywhere, from small towns to large cities, causing significant expenditures, a disruption in regular business practices and the loss of data.

The Kensington planning team reported evidence of only one cyber event at SAU 16. Although cyber-attacks have not significantly impacted the town, the threat is real. Several communities, town departments and hospitals in the State of New Hampshire have had their data held for ransom. Added security on computer networks and user education on cyber threats is vital to protect sensitive town information and data.

[31] PDD-41; https://obamawhitehouse.archives.gov/the-press-office/2016/07/26/presidential-policy-directive-united-states-cyber-incident

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Chapter 6: Current Policies, Plans & Mutual Aid

A. Analysis of Effectiveness of Current Programs

After researching historic hazards, identifying CIKR and determining potential hazards, the team determined what is already being done to protect its citizens and structures. Once identified, the team addressed each current policy or plan to determine its effectiveness and to determine whether or not improvements were needed. This analysis became one of the tools the team used to identify mitigation action items for this plan.

With the knowledge of what regulations Kensington currently had in place, creating new action items was less difficult. This process was helpful in identifying current plans and policies that were working well and those that should be addressed as a new "Action Item" as well as the responsible departments. The table that follows, *Table 6.1, Policies, Plans & Mutual Aid*, shows the analysis that resulted from discussion with the team.

Existing policies, plans and mutual aid that were designated as "Improvements Needed" were added to ***Table 9.1, Mitigation Action Items*** as new strategies and were reprioritized to meet the current needs of the town.

Table 6.1: Current Policies, Plans & Mutual Aid

Key to Effectiveness:

Excellent.....The existing program works as intended and is exceeding its goals.
Good.....The existing program works as intended and meets its goals.
Average.....The existing program does not work as intended or does not meet its goals.
Poor.....The existing program does not work as intended, often falls short of its goals, or may present unintended consequences.

Current Program or Activity	Description	Managing Department	Effectiveness	Improvements Needed
Emergency Operation Plan (2015)	This plan identifies the response procedures and capabilities of the Town of Kensington in the event of a natural, technological or human-caused hazard.	Emergency Management Director	Good	**Improvements Needed:** The Kensington Emergency Operations Plan (EOP) was last updated in 2015 and will need to be updated again in 2020 according to the 5-year state recommendation. The new EOP should include an EOC Call Alert List as well as a detailed Resource Inventory List and Player Packets. This is deferred to this plan to update the EOP. **Action Item #19 (Also in Table 7.1)**
Social Media Accounts	Social media accounts, such as Facebook, Twitter, Instagram and local on-line newsletters can provide excellent information on not only emergency preparedness but also on hazard mitigation strategies that can be taken to protect homes and property.	Department Heads	Poor	**Improvements Needed:** Facebook pages are maintained by the Police Department at this time. This is deferred to create additional social media platforms with reliable information and to integrate all forms of social media to keep the citizens of Kensington informed about things happening in town and mitigation actions they can take to protect their properties from natural hazards. **Action Item #2 (Also in Table 7.1)**

Current Program or Activity	Description	Managing Department	Effectiveness	Improvements Needed
Training Kensington Fire-Rescue & Police Departments	Disaster training and drills which address Seabrook Station, Wildfire, Flooding and Hostile Based Incidents.	Emergency Management Director, Police & Fire Chiefs	Excellent	**Improvements Needed:** As part of an ongoing program of preparedness, Kensington emergency responders participate in regularly held trainings and drills which address wildfire, Seabrook, flooding and hostile based incidents. In addition, training of all fire responders is coordinated by the Fire Chief and includes the many aspects of emergency response including search and rescue, radiation and hazmat; drills are held annually. Fire training is done through the Seacoast Chief Fire Officers Mutual Aid District and the Fire Academy. The Police Department trains through the Police Academy, with surrounding towns and through local opportunities. EMS also trains regularly through local hospitals, online training and local opportunities. Although this is preparedness, this is deferred for continued training for all emergency responders through the life of this plan. **Action Item #15**
Safety Committee	Building Inspector, Fire Chief and Selectmen check safety status and of all town buildings on a rotating schedule.	Fire Chief / Building Inspector	Good	**Improvements Needed:** Kensington has developed a safety committee that determines the safety status of all town buildings. This is deferred to this plan to continue the Safety Committee to ensure that all critical facilities in Kensington are built and maintained sufficiently to withstand the natural hazards addressed in this plan. **Action Item #11.**
Mutual Aid Agreements (Fire, Police, Highway & EMS)	Mutual Aid agreements provide communications capabilities and cooperative assistance between area cities and towns; mutual aid provides access to resources that are appropriate to the scope of the emergency.	Emergency Management Director, Police & Fire Chiefs	Excellent	**Improvements Needed:** Kensington Fire Rescue has a mutual aid agreement with the Seacoast Chief Fire Officers Mutual Aid District and the NH Fire Master Plan. The Kensington Police Department has mutual aid agreements with surrounding towns, the NH State Police (Troop A) and the Rockingham County Sheriff's Office. The town is not a member of the NH Public Works Mutual Aid Association. Kensington Fire Rescue performs EMS services and provides medical transportation. The Rockingham County Sheriff's Office dispatches all Police, Fire & EMS services in Kensington. All mutual aid systems in work well, however, this is deferred to join the NH Public Works Association. **Action Item #23**

Current Program or Activity	Description	Managing Department	Effectiveness	Improvements Needed
Hazardous Materials Response Team START Team	A Hazardous Materials Response Team is a specialized team of individuals who have the skill and expertise to successfully manage HazMat related incidents. Kensington is a dues paying member of START which address Hazmat disasters in the region.	Fire Chief	Good	**Improvements Needed:** Although Kensington does not have a HazMat Team, Firefighters are trained in the basic response to HazMat incidents and are adept at maintaining perimeters until specialized teams arrive. The Fire Chief would most likely call dispatch who would then contact the Seacoast Technical Assistance Response Team (START) to request an available HazMat Response Team. Although this is preparedness, this is deferred to this plan to continue HazMat training for the members of Kensington Fire Rescue. **Action Item #14**
Tree Removal Program	Tree Removal Program to reduce damage from fallen trees and limbs to power lines and structures. Ensures proper tree and or branch removal during storm events where tree damage is persistent	Road Manager	Excellent	**Improvements Needed:** As trees become damaged and threaten power lines and structures on town roads, the Road Manager removes them. NH DOT (state roads) and Unitil (state & local roads) do this as needed. This is deferred to continue local tree removal efforts to help mitigate the effects of high wind events, ice storms and other natural hazards. **Action Item #10**
NH Emergency Notification System (ENS)	The NH Emergency Notification System (ENS) is a reverse calling warning system that uses listed phone numbers. The ENS does not include cell and unlisted numbers or email addresses. The Kensington Elementary School uses the "School Messenger" reverse calling system and is used for school activities as well as emergency notification.	Emergency Management Director	Excellent	**Improvements Needed:** The NH Emergency Notification System (ENS) is an excellent warning system but it only stores resident phone numbers that are listed in the phone book. The town has continuously provided information to residents on the ENS but this is deferred to continue to provide public outreach to encourage all residents to contact NH ENS to add cell numbers, emails, unlisted numbers and to verify information; use the website, a possible brochure at the Town Hall, Kensington Congregational Church Community Newsletter, social media platforms or a sign up at Town Meeting. **Action Item #1**
NIMS & ICS Training	The National Incident Management System (NIMS) and the Incident Command System (ICS) provide training that can help ensure effective command, control, and communications during emergencies	Emergency Management Director	Good	**Improvements Needed:** NIMS & ICS training has been done by most first responders. Although this is preparedness, this is deferred to this plan to continue to provide NIMS (IS-700) & ICS (ICS 100 & ICS 200) training to new first responders and to new town officials as they become elected and/or appointed. **Action Item #3**

Current Program or Activity	Description	Managing Department	Effectiveness	Improvements Needed
National Flood Insurance Program (NFIP) & Flood Ordinance (2014)	The minimum National Flood Insurance Program (NFIP) requirements (Section 60.3(c)) have been adopted. Kensington has been a member of the NFIP since July 10, 2014. The Flood Ordinance regulates all new and substantially improved structures located in the 100-year floodplain, as identified on the FEMA Flood Maps dated May 17, 2005.	Planning Board & Select Board	Excellent	**Improvements Needed:** The Kensington Flood Ordinance works well to successfully prohibit or force compliance to the ordinance for building and substantial improvements to structures within the FEMA flood zone. This is deferred to this plan to continue compliance with the National Flood Insurance Program, obtain NFIP brochures to have available at the Town Hall and to provide public outreach regarding the benefits of membership in the NFIP, whether or not properties are in the FEMA floodplain. Also deferred to provide robust information on flood mitigation techniques that can be taken to protect individual homes and properties and links to the NFIP, ready.gov and other pertinent websites and to research and consider joining the Community Rating System. **Action Item #4**
E- 911 Signage Compliance	E-911 signage compliance includes markers at driveway entrances that identify residence locations in conjunction with the E-911 alerting system.	Fire & Police Departments	Average	**Improvements Needed:** The town is about 70% compliant with E-911 signage. This is deferred to this plan to consider ways to get this signage more compliant so that emergency responders can better assist the public at the time of need. Use public outreach opportunities such as the website, the Kensington Congregational Church Community Newsletter or social media to promote better compliance or develop other means of establishing more compliance. Consider the establishment of an ordinance that outlines requirements for E-911 signage. **Action Item #9**
Capital Improvement Program (CIP)	A decision making tool used to plan and schedule town improvements over at least a six-year period. A CIP provides a suggested timeline for budgeting and implementing needed capital improvements.	Planning Board	Poor	**Improvements Needed:** The Kensington Capital Improvement Program has been established but is not currently active. A CIP should be reviewed at least annually to ensure that the goals of the program will be achieved to assist the town's departments with planned purchases or equipment and supplies. This is deferred to this plan to activate, review and update the CIP and to include mitigation action items from this plan. **Action Item #26**

Current Program or Activity	Description	Managing Department	Effectiveness	Improvements Needed
Master Plan (2011)	A Master Plan includes goals, objectives and expectations for the future development of the town	Planning Board	Average	**Improvements Needed:** The Kensington Master Plan was last updated in 2011 and will not be ready for a recommended complete update until 2021, which is within the scope of this plan. This is deferred to update this Master Plan according to the state's 10-year recommendation and to consider including a Natural Hazards Section, a Climate Change section and mitigation action items from this plan in any future updates. **Action Item #30**
Multi-Hazard Mitigation Plan (2013)	Addresses all potential hazards, natural, human-made and wildland fires	Emergency Management Director	Good	**Improvements Needed:** The Kensington Hazard Mitigation Plan (2013) is being updated with this plan. This is deferred to review this Hazard Mitigation Plan (2020) on an annual basis and include a review of the status of the mitigation action items in this plan and to update the plan again in 2024. **Action Item #24**
Culvert & Storm Water Maintenance Plan	A Culvert & Storm Water Maintenance Plan includes an inventory of all culverts and ditches in the community along with a record of location, size, etc. The Road Manager and the State DOT clean the drainage basins once a year and after major flooding events and culverts are repaired as needed.	Road Manager	Average	**Improvements Needed:** Although the Kensington Road Manager does a good job cleaning and repairing drainage basins and culverts, a written Culvert & Stormwater Maintenance Plan should be developed to ensure continuity of actions and efficient storm water management. This is deferred for continued maintenance and the development of a written Culvert & Stormwater Maintenance Plan detailing such items as the size, material, date of installation, recommended date for improvement, GPS location and any problems associated with the location (i.e. flooding). **Action Items #5 & #22**
Dry Hydrants & other Water Resources	There are no pressurized hydrants (no public water supply) although there are 32 dry hydrants and cisterns in the community as well as multiple locations available for water drafting.	Select Board & Fire Chief	Average	**Improvements Needed:** Dry hydrants and drafting sites throughout Kensington are utilized to provide water resources for firefighting. This is deferred to continue to maintain the dry hydrants and other water resources (Fire Rescue) in the community to help mitigate the effects of both structure fires and wildfires and to locate other water resources in areas of need. **Action Item #27**
Radio Communications	Emergency departments in Kensington (Police & Fire) have radio interoperability.	Emergency Management Director	Average	**Improvements Needed:** Kensington's communications systems and radios are not up to date with both state and federal requirements. This is deferred to update the radios and to include radios for other departments within the community. **Action Item #25**

Current Program or Activity	Description	Managing Department	Effectiveness	Improvements Needed
School Messenger	An alert system provided by the school regarding emergencies, weather advisories and/or school closings.	Kensington Elementary School	Excellent	**No Improvements Needed:** The Kensington Elementary School uses "School Messenger" to communicate with parents and students, providing important information regarding school emergencies, weather delays and cancellations, and other information pertinent to the school community.
Standard Operating Procedures (SOPs) & **Standard Operating Guidelines** (SOGs)	Standard Operating Procedures (SOPs) & Standard Operating Guidelines (SOGs) are used by both the Kensington Police Department and the Kensington Fire-Rescue	Emergency Management Director, Police & Fire Chiefs	Excellent	**No Improvements Needed:** Emergency responders in both the Fire and Police Departments are trained regularly on effective emergency response; both departments update their SOGs (Fire) and SOPs (Police) on an annual basis or more often if circumstances require.
Shoreland Water Quality Protection Act (SWQPA)	The Shoreland Water Quality Protection Act establishes minimum standards for the use and development of shorelands adjacent to the state's public water bodies; the Shoreland Water Quality Protection Act includes changes to vegetation requirements within the natural woodland and waterfront buffers, the impervious surface limitations and included a new shoreland permit by notification process.	Planning Board & Building Inspector	Good	**No Improvements Needed:** Kensington follows and exceeds the regulations detailed in the Shoreland Water Quality Protection Act (SWQPA). Kensington's wetland ordinance includes a 50-foot setback from structures from Hydric B soils and a 25-foot setback for structures from Hydric A soils. The SWQPA and local town ordinances regarding wetlands are reviewed annually and whenever an application for building or substantial improvements in wetland areas is being considered.
Subdivision & Site Plan Review Regulations (2019)	The purpose of subdivision regulations is to provide for the orderly present and future development of the town by promoting the public health, safety, convenience and welfare of the town's residents. In Kensington, all subdivision and site plans require erosion and sediment control plans.	Planning Board	Excellent	**No Improvements Needed:** The Kensington Subdivision Regulations, most recently updated in 2019 are in good shape. The Subdivision Regulations address set-backs, road frontage, size of the lot and building on steep slopes. The regulations also address the availability of water resources for fire suppression and regulations on the steepness of driveways and roads and maintaining adequate stormwater flow to prevent flooding. The Kensington Subdivision Regulations work well to protect the community from natural hazards.
CERT Program	A Citizens Emergency Response Team (CERT) provides assistance during emergencies.	Seacoast Regional Public Health Network	Excellent	**No Improvements Needed:** The Seacoast Regional Public Health Network has established a Citizens Emergency Response Team (CERT) to provide volunteers with basic training to assist communities in the Seacoast Region. Assistance from CERT teams provides added support for the town during emergency situations.

Current Program or Activity	Description	Managing Department	Effectiveness	Improvements Needed
Burning Index	New Hampshire Forests & Lands (DNCR) has a burning index which measures the risk for wildfires and how likely fires are to start on a given day. It also evaluates the potential damages wildfires can create, the number of people that will be needed to fight it and the type of equipment that might be needed as well.	NH Hampshire Forests & Lands (DNCR) & Kensington Fire Rescue	Excellent	**No Improvements Needed:** Kensington Fire Rescue receives regular notification of the burning index via text and email from NH Forests & Lands. This notification is made daily during the fire danger season and a Fire Danger Sign is located in town.
Life Safety & Fire Codes	Provides guidance for all buildings for life safety and fire codes	Kensington Fire Rescue	Good	**No Improvements Needed:** The National Fire Protection Association (NFPA) along with NH safety and fire codes provide guidance to Kensington Fire Rescue for inspection of all properties excluding one and two-family dwellings. Kensington Fire Rescue does the best they can to provide timely inspections.
Building Code & Permits	The town has adopted International Building Codes (IBC) or International Residential Codes (IRC) but does require builders to follow the NH State adopted codes for new construction so that national standards for flood, wind, earthquake, fire and snow load are met.	Select Board, Planning Board & Building Inspector	Good	**No Improvements Needed:** The town of has a part-time Building Inspector (contracted) however, the permitting process requires builders to abide by the International Building Codes (IBC), the International Residential Codes (IRC) and other applicable codes which have been adopted both by the State of New Hampshire and the town.
Capital Reserve Fund (CRF)	A type of account on a town's balance sheet that is reserved for long-term capital investment projects or any other large and anticipated expense(s) that will be incurred in the future. Reserve funds are set aside to ensure adequate funding to at least partially finance future projects, equipment and other expenditures.	Select Board	Excellent	**No Improvements Needed:** The town's Capital Reserve Funds are set aside each year at budget time to assist the town's departments with planned purchases of equipment and supplies or in emergency situations. The Kensington Capital Reserve Funds work well and are part of the Town Warrant at the annual Town Meeting.
Zoning Ordinances (2019)	Regulations dealing with land use including rural, residential, agriculture and timber management; constantly updated, they are considered current. Include drainage and infrastructure provisions.	Select Board & Planning Board	Excellent	**No Improvements Needed:** The Zoning Ordinance was last updated in 2019. The Zoning Ordinance is a working document that is reviewed and updated whenever an issue arises that needs the attention of the Planning or Select Boards. The Zoning Ordinances do what they are meant to do.
NH Amateur Radio Emergency Service	Amateur radio (ham radio) operators can be of great assistance to the town during emergency situations as an augment to the town's own communication resources.	Emergency Management Director	Excellent	**No Improvements Needed:** There are several ham radio operators in the town who are willing and able to assist Emergency Responders when needed; these ham radio operators are included in the town's Resource Inventory List in the Emergency Operations Plan.

Current Program or Activity	Description	Managing Department	Effectiveness	Improvements Needed
Local Road Design Standards	Local road design standards are specifications for the construction of roads. The town will not assume ownership of substandard roads.	Select Board, Planning Board & Road Manager	Excellent	**No Improvements Needed:** Local road standards have been established as part of planning board regulations to set standards for new roads to ensure that the town does not assume ownership of substandard roads that are not built to Class V standards and acceptance of new roads is voted at Town Meeting as a Warrant Article.
School Emergency Operations Plan (SEOP)	A School Emergency Operations Plan provides guidance on response to emergency situations in the school.	School Principal, SAU, Police, Fire & Emergency Management Director	Excellent	**No Improvements Needed:** The Kensington Elementary School has completed the school's Emergency Operations Plan according to the annual requirements of the state. The School's plan is current and will be updated in the future according to the state's requirements. Drills and exercises are done on a monthly basis. The plan is reviewed annually and drills with emergency responders are done at least annually.
State Health Department Public Health Plan	State plan, "Influenza, Pandemic, Public Health Preparedness and Response Plan" written by state health department to be prepared for any public health emergency; the town is part of Seacoast Regional Public Health Emergency Annex (RPHEA)	Seacoast Regional Public Health Network & Emergency Management Director	Excellent	**No Improvements Needed:** The State Public Health Plan, although not controlled by the town, provides service as part of the Seacoast Regional Public Health Emergency Annex and does was it was designed to do. The town's Health Officer (Select Board) attends public health meetings whenever possible.
NH Forest and Lands & Fire Permits	NH Forest & Lands, a division of the NH Department of Natural & Cultural Resources (DNCR) regulates open burning and permits.	NH Forests & Lands (DNCR) & Local Fire Warden	Excellent	**No Improvements Needed:** The system that is in place with NH Forests & Lands (DNCR) and the local fire warden works well. The public is aware of fire permitting requirements and the ability to get permits online ($3.00 fee required).

Chapter 7: Last Mitigation Plan

A. Date of Last Plan

Based on the Disaster Mitigation Act (DMA) of 2000, Kensington has participated in the development of hazard mitigation plans in the past. The most recent update was formally approved in 2013. This plan, the "Kensington Hazard Mitigation Plan Update 2020" is an update to the 2013 plan.

Below are the action items that were identified in the 2013 plan. The team identified the current status of each strategy based on three sets of questions:

COMPLETED

- Has the strategy been completed?
- If so, what was done?

Strategies "deferred" from the prior plan, were added to ***Table 9.1, Mitigation Action Plan*** as new strategies and were reprioritized to meet the current needs of the town.

DELETED

- Should the strategy be deleted?
- Is the strategy mitigation or preparedness?
- Is the strategy useful to the town under the current circumstances?

DEFERRED

- Should the strategy be deferred for consideration in this plan?
- If the strategy was not completed, should this strategy be reconsidered and included as a new action item for this plan?

In *Table 7.1: Accomplishments since the Last Plan*, the team was able to assess what had been accomplished and to determine what additional work may be needed. Items in red font were extracted word-for-word from the 2013 Hazard Mitigation Plan and do not represent a time frame for this plan. Two additional columns that are not shown here – *Funding or Support and Time Frame* – can be found in the 2013 Hazard Mitigation Plan.

Table 7.1: Accomplishments since the Last Plan

Score	New Mitigation Project	Responsibility or Oversight	Completed, Deleted or Deferred
39	DPW coordinated management call list / plan	Road Manager / EMD	**Completed & Deleted:** Since the prior plan, Kensington has not developed a DPW coordinated management call list/plan. This strategy from the last plan is deleted as this is preparedness, not mitigation. An emergency alert list, which includes those persons and departments that would be important for emergency response during a natural disaster, is addressed in the EOP planning process. Information pertinent to DPW management, an inclusion of a DPW call list and any DPW plans would also be part of the EOP planning process.

Score	New Mitigation Project	Responsibility or Oversight	Completed, Deleted or Deferred
38	Amend and develop effective erosion control and stormwater management regulations	Road Manager / Planning Board	**Completed & Deleted:** The Town of Kensington has addressed erosion control and stormwater management for new building or substantial improvement in the Subdivision, Zoning & Site Plan Review regulations. The regulations are currently in good shape; therefore this strategy from the last plan is deleted.
36	Join NFIP	Planning Board / Selectmen	**Completed & Deleted:** The Town of Kensington joined the National Flood Insurance Program on July 10, 2014. The town is in compliance with the NFIP and continues to monitor building or substantial improvements in the floodplain. This is deleted as the town has joined the NFIP, although an action item will be included in Table 9.1 on continuing flood education to the citizens of Kensington and maintaining compliance to the NFIP.
36	Mock scenario training for flooding events, snowstorms, and other natural/man-made hazards	EMD / Police Chief / Fire Chief	**Completed & Deleted:** Since the prior plan, Kensington has not held mock scenario training for natural hazards. This strategy from the last plan is deleted as this is preparedness, not mitigation. Training and drills are addressed in the EOP planning process.
36	Develop an evacuation plan for severe flooding events and all other natural hazards that may cause evacuation disruption	EMD / Police Chief / Fire Chief	**Completed & Deleted:** Since the prior plan, Kensington has developed an evacuation plan for natural hazards. This strategy from the last plan is deleted as this is preparedness, not mitigation. Evacuation is addressed in detail in the EOP planning process.
36	Elevate Kimball Road 2-2.5 feet as delineated on the past and future hazards map. Potentially add new culvert N12 pipes in order to decrease flood potential and increase water flow from one side of the street to the other	Road Manager	**Completed & Deleted:** Work has been done on Kimball Road to reduce flooding. The town has upgraded culverts, repaved the road and added elevation to the road to mitigate the problems that existed. This strategy from the prior plan is deleted as the project has been completed.
35	Finish Updating EOP	EMD	**Completed & Deferred:** The Kensington Emergency Operations Plan (EOP) was last updated in 2015 and will need to be updated again in 2020. The new EOP should include an EOC Call Alert List as well as a detailed Resource Inventory List and Player Packets. This is deferred to this plan to update the EOP. **Action Item #19 (also in Table 6.1)**
35	Identify HAM radio operators in Kensington	EMD	**Completed & Deleted:** Since the prior plan, Kensington has identified HAM radio operators in Kensington. This strategy from the last plan is deleted as this is preparedness, not mitigation. HAM radio operators are addressed in the EOP update.
35	Drink Water Road culverts replacement	Road Manager	**Completed & Deleted:** The work to improve the flow of stormwater on Drink Water Road has been completed. Several culverts were upgraded and there is no longer a flooding issue. This strategy from the prior plan is completed, therefore it is deleted.

Score	New Mitigation Project	Responsibility or Oversight	Completed, Deleted or Deferred
34	Educate residents about emergency preparedness through public outreach, forums, quarterly reports (mailed), calendars, KES marquee sign, Town Web site, and join NIXL	EMD / Police Chief	**Completed & Deferred:** The town has established an "Emergency Management" webpage that is accessible from the town's department list. An emergency webpage is great way to provide outreach to residents on not only emergency preparedness but also mitigation techniques property owners can use to reduce or eliminate the impact of natural hazards. This is deferred to this plan to continue to develop the emergency webpage and provide robust information and links to educate the public on general and seasonal mitigation techniques. The town also hopes to have the ability to get information out via the Kensington Congregational Church Community Newsletter and available social media platforms. **Action Item #2 (also in Table 6.1)**
33	Emergency strobe light (replacement for standard flares) as well as road flares, cones, illuminated signs and 2 programmable signs that can be hitched to trailers	Police Chief / Fire Chief	**Completed & Deleted:** Since the prior plan, Kensington has not purchased an emergency strobe light, road flares, cones, illuminated signs and two programmable signs that can be hitched to trailers. This strategy from the last plan is deleted as this is preparedness, not mitigation. Equipment needs are addressed in the EOP planning process.
33	Obtain Generator for the Elementary School / shelter and rewire school to accommodate such generator	EMD / Kensington Elementary School Principal	**Deferred:** A generator for the Kensington Elementary School was not obtained due to oversight and funding. This is deferred to this plan to work with the School Board to obtain funding and install an emergency generator at the Kensington Elementary School. The Elementary School is the designated "Warming & Charging Center" and the Secondary Shelter. **Action Item #29**
32	Establish Red Cross certification at the Kensington Elementary School as Primary Shelter	EMD / Kensington Elementary School Principal	**Completed & Deleted:** Since the prior plan, Kensington has not established Red Cross certification at the Kensington Elementary School. This strategy from the last plan is deleted as this is preparedness, not mitigation. Shelters are addressed in detail in the EOP planning process.
31	Obtain new Cots and Blankets for shelters and emergency response	EMD	**Completed & Deleted:** Since the prior plan, Kensington has not obtained new cots and blankets for shelters and emergency response. This strategy from the last plan is deleted as this is preparedness, not mitigation. Shelter supplies and equipment are addressed in detail in the EOP planning process.
30	Flat bottom boat with training	Fire Chief	**Completed & Deleted:** Since the prior plan, Kensington has not purchased a flat bottom boat and provided training. This strategy from the last plan is deleted as this is preparedness, not mitigation. Equipment needs are addressed in the EOP planning process.
27	Obtain Generator for the Grange Hall	EMD	**Completed & Deleted:** A generator for the Grange Hall was not obtained due to oversight and funding. This is deleted from this plan as the team felt a generator for the Grange Hall was no longer a priority for the town.

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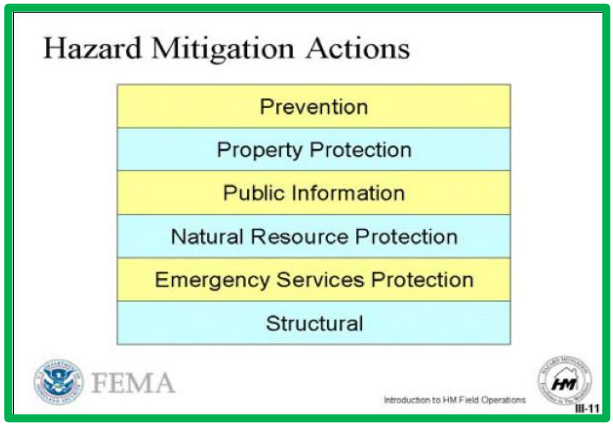
Chapter 8: New Mitigation Strategies & STAPLEE

A. Mitigation Strategies by Type

The following list of mitigation categories and possible strategy ideas was compiled from a number of sources including the USFS, FEMA, other planners and past hazard mitigation plans. This list was used during a brainstorming session to discuss what issues there may be in town. Team involvement and the brainstorming sessions proved helpful in bringing new ideas, better relationships and a more in-depth knowledge of the community.



Prevention

- Forest fire fuel reduction programs
- Special management regulations
- Fire Protection Codes NFPA 1
- Firewise® landscaping
- Culvert and hydrant maintenance
- Planning and zoning regulations
- Building Codes
- Density controls
- Driveway standards
- Slope development regulations
- Master Plan
- Capital Improvement Plan
- Rural Fire Water Resource Plan
- NFIP compliance

Public Education & Awareness

- Hazard information centers
- Public education and outreach programs
- Emergency website creation
- Firewise® training
- National Flood Insurance Program (NFIP) awareness
- Public hazard notification
- Defensible space brochures

Emergency Service Protection

- Critical facilities protection
- Critical infrastructure protection
- Emergency training for town officials
- Ongoing training for first responders

Property Protection

- Current use or other conservation measures
- Transfer of development rights
- Firewise® landscaping
- Water drafting facilities
- High risk notification for homeowners
- Structure elevation
- Real estate disclosures
- Flood proofing
- Building codes
- Development regulations

Natural Resource Protection

- Best management practices within the forest
- Forest and vegetation management
- Forestry and landscape management
- Wetlands development regulations
- Watershed management
- Erosion control
- Soil stabilization
- Open space preservation initiatives

Structural Projects

- Structure acquisition and demolition
- Structure acquisition and relocation
- Bridge replacement
- Dam removal
- Culvert up-size and/or realignment

B. Potential Mitigation Strategies by Hazard

In order to further promote the concept of mitigation, the team was provided with a handout that was developed by Mapping and Planning Solutions and used to determine what additional mitigation action items might be appropriate for the town. The mitigation action items from that handout are listed below and on the following page. Each item from this comprehensive list of possible mitigation action items was considered by the planning team to determine if any of these action items could be put in place for Kensington with special emphasis on new and existing buildings and infrastructure.

Strategies that may apply to more than one hazard	Type of Project
Community Outreach and Education	*Public Awareness*
Changes to Zoning Regulations	*Prevention*
Changes to Subdivision Regulations	*Prevention*
Steep Slopes Ordinance	*Prevention*
Density Controls	*Prevention*
Driveway Standards	*Prevention*
Emergency Website Creation	*Public Awareness*
Critical Infrastructure & Key Resources	*Emergency Service Protection*
Emergency Training for Town Officials	*Emergency Service Protection*
High Risk Notification to Homeowners	*Property Protection*
Master Plan Update or Development	*Prevention*
Capital Improvement Plan	*Prevention*

Flood Mitigation Ideas	Type of Project
Stormwater Management Ordinances	*Prevention*
Floodplain Ordinances	*Prevention*
Updated Floodplain Mapping	*Prevention*
Watershed Management	*Natural Resource Protection*
Drainage Easements	*Prevention*
Purchase of Easements	*Prevention*
Wetland Protection	*Natural Resource Protection*
Structural Flood Control Measures	*Prevention*
Bridge Replacement	*Structural Project*
Dam Removal	*Structural Project*
NFIP Compliance	*Prevention*
Acquisition, Demolition & Relocation	*Structural Project*
Structure Elevation	*Structural Project*
Flood Proofing	*Property Protection*
Erosion Control	*Natural Resource Protection*
Floodplain/Coastal Zone Management	*Prevention*
Building Codes Adoption or Amendments	*Prevention*
Culvert & Hydrant Maintenance	*Prevention*
Culvert & Drainage Improvements	*Structural Protection*
Transfer of Development Rights	*Property Protection*

Natural Hazard Mitigation Ideas	Type of Project
Landslide & Erosion	
Slide-Prone Area Ordinance	*Prevention*
Drainage Control Regulations	*Prevention*
Grading Ordinances	*Prevention*
Hillside Development Ordinances	*Prevention*
Open Space Initiatives	*Prevention*
Acquisition, Demolition & Relocation	*Structural Project*
Vegetation Placement and Management	*Natural Resource Protection*
Soil Stabilization	*Natural Resource Protection*
Lightning & Hail	
Building Construction	*Property Protection*
High Wind Events	
Construction Standards and Techniques	*Property Protection*
Safe Rooms	*Prevention*
Manufactured Home Tie Downs	*Property Protection*
Building Codes	*Property Protection*
Wildfire	
Building Codes	*Property Protection*
Defensible Space	*Prevention*
Forest Fire Fuel Reduction	*Prevention*
Burning Restriction	*Property Protection*
Water Resource Plan	*Prevention*
Firewise® Training & Brochures	*Public Awareness*
Woods Roads Mapping	*Prevention*
Extreme Temperatures	
Warming & Cooling Stations	*Prevention*
Severe Winter Weather	
Snow Load Design Standards	*Property Protection*
Subsidence	
Open Space	*Natural Resource Protection*
Acquisition, Demolition & Relocation	*Structural Project*
Earthquake	
Construction Standards and Techniques	*Property Protection*
Building Codes	*Property Protection*
Bridge Strengthening	*Structural Project*
Infrastructure Hardening	*Structural Project*
Drought	
Water Use Ordinances	*Prevention*

C. STAPLEE METHODOLOGY

Table 8.1, Potential Mitigation Items & the STAPLEE, reflects the newly identified potential hazard mitigation action items as well as the results of the STAPLEE evaluation as explained below. It should also be noted that although some areas are identified as "All Hazards", many of these would apply indirectly to wildfire response and capabilities. Many of these potential mitigation action items overlap.

The goal of each proposed mitigation action item is "*to reduce or eliminate the long-term risk to human life and property from hazards*". To determine the effectiveness of each mitigation action item in accomplishing this goal, a set of criteria that was developed by FEMA, the STAPLEE method, was applied to each proposed action item.

The STAPLEE method analyzes the **S**ocial, **T**echnical, **A**dministrative, **P**olitical, **L**egal, **E**conomic and **E**nvironmental 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 action items discussed in Table 8.1.

Social..... Is the proposed action item socially acceptable to the community? Is there an equity issue involved that would result in one segment of the community being treated unfairly?

Technical..... Will the proposed action item work? Will it create more problems than it solves?

Administrative ..... Can the community implement the action item? Is there someone to coordinate and lead the effort?

Political ..... Is the action item politically acceptable? Is there public support both to implement and to maintain the project?

Legal..... Is the community authorized to implement the proposed action item? Is there a clear legal basis or precedent for this activity?

Economic ..... What are the costs and benefits of this action item? Does the cost seem reasonable for the size of the problem and the likely benefits?

Environmental ..... How will the action item impact the environment? Will it need environmental regulatory approvals?

Each proposed mitigation action item was then evaluated and assigned a score based on the above criteria. Each of the STAPLEE categories w discussed and was awarded one of the following scores:

1 - Poor .....2 - Average.....3 - Good

An evaluation chart with total scores for each new action item is shown in Table 8.1.

The "Type" of Action Item was also considered (see section A of this chapter for reference):

- **Prevention**
- **Public Education & Awareness**
- **Emergency Service Protection**
- **Property Protection**
- **Natural Resource Protection**
- **Structural Projects**

D. Team's Understanding of Hazard Mitigation Action Items

The team determined that any strategy designed to reduce personal injury or damage to property that could be done prior to an actual disaster would be listed as a potential mitigation action item. This decision was made even though not all projects listed in Table 8.1 and *Table 9.1, The Mitigation Action Plan*, are fundable under FEMA pre-mitigation guidelines. The team determined that this plan was in large part a management document designed to assist the Select Board and other town officials in all aspects of managing and tracking potential emergency planning action items. For instance, the team was aware that some of these action items are more properly identified as preparedness or readiness issues. As there are no other established planning mechanisms that recognize some of these issues, the team did not want to "lose" any of the ideas discussed during these planning sessions and thought this method was the best way to achieve that objective.

Also, it should be noted that the town understands that the action items for a town of 200 are not the same as the action items for a town of 30,000. In addition, the action items for a town in the middle of predominantly hardwood forests, are not the same as the action items for a town on the Jersey Shore. Therefore the Town of Kensington has accepted the "Mitigation Action Items" in Tables 8.1 and 9.1 as the complete list of "Mitigation Action Items" for this town and only this town and hereby indicates that having carefully considered a comprehesive list of other possible mitigation action items (see sections A & B of this chapter) for this plan, there are no additional "Mitigation Action Items" to add at this time.

Potential mitigation action items in Table 8.1 are listed in numerical order and indicate if they were derived from prior tables in this plan, i.e., (Table 7.1).

Items in green such as (MU14) represent mitigation action items taken from Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013; see *Appendix F: Potential Mitigation Ideas*, for more information.

Table 8.1: Potential Mitigation Action Items & the STAPLEE

Action Items are listed in numerical order.

Proposed Mitigation Action Items	Affected Location Type of Activity	S	T	A	P	L	E	E	TTL
		3	3	3	3	3	3	3	21
Action Item #1: Provide public outreach to encourage all residents to contact the NH Emergency Notification System (ENS) to add cell numbers, unlisted numbers and emails and to verify information as required by the current or any new system that may be developed. Use the community website, a possible brochure, available social media platforms and local newsletters or a sign up at Town Meeting. **(MU14) (Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Public Education & Awareness -Prevention -Emergency Service Protection	*No apparent difficulty with this action item*							

Proposed Mitigation Action Items	Affected Location Type of Activity	S	T	A	P	L	E	E	TTL
Action Item #2: Provide robust information on the town's Emergency Management webpage, available social media platforms and local newsletters, such as the Kensington Congregational Church Community Newsletter to educate the public on hazard mitigation and preparedness measures **(MU14)** that will include such information as: emergency contacts, shelter locations, evacuation routes **(SW7, WF11 & T3)**, methods of emergency alerting, 911 compliance, water saving techniques **(D9)**, earthquake risk and mitigation activities that can be taken in residents' homes **(EQ7)**, steps homeowners can take to protect themselves and their properties when extreme temperatures occur **(ET1 & ET4)**, safety measures that can be taken during hail **(HA3)** and lightning storms **(L2)**, mitigation techniques for property protection and links to available sources. Educate homeowners regarding the risks of building in hazard zones and encourage homeowners to install carbon monoxide monitors and alarms **(WW5)** and provide public information regarding infectious diseases. Develop ways to provide notification to citizens and keep them informed with reliable information. **(Tables 6.1 & 7.1)**	**Affected Location** -Townwide **Type of Activity** -Public Education & Awareness -Prevention -Property Protection	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**21**
		No apparent difficulty with this action item							
Action Item #3: The Emergency Management Director (EMD) to encourage all town officials who may be required to respond to an emergency and any new emergency responders to take NIMS 700 (S-700) & ICS (ISC100 & ISC200). Additionally, the EMD to encourage key personnel to learn about and become adept with WEB-EOC. **(Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Emergency Service Protection	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**20**
		Political: *Some people, who should take these courses, may not want to take them.*							
Action Item #4: Advise the public about the local flood hazard, flood insurance and flood protection measures **(F10)** by obtaining and keeping on hand a supply of National Flood Insurance (NFIP) brochures to have available in the Town Hall. Give NFIP materials to homeowners and builders when proposing new development or substantial improvements; encourage property owners to purchase flood insurance **(F22)**, whether or not they are in the flood zone. Through public outreach, educate homeowners on the risks of building in the flood zone and measures that can be taken to reduce the change of flooding, such as securing debris, propane tanks, yard items or stored objects that may otherwise be swept away, damaged, or pose a hazard if picked up and washed away by floodwaters. Add links to the NFIP, Ready.gov and other flood mitigation information to the community website, a possible brochure, available social media platforms and local newsletters, such as the Kensington Congregational Church Community Newsletter. Continue to actively work with residents to ensure they are in compliance with the town's floodplain ordinance and consider joining the Community Rating System. **(F23)** **(Table 6.1)**	**Affected Location** -Areas prone to flooding **Type of Activity** -Public Education & Awareness -Prevention -Property Protection	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**21**
		No apparent difficulty with this action item							

Proposed Mitigation Action Items	Affected Location Type of Activity	S	T	A	P	L	E	E	TTL
Action Item #5: Maintain culverts and ditches in the community and develop and maintain a written stormwater maintenance plan in order to ensure more efficient stormwater management. In this plan or "inventory", include the location, date of installation, GPS coordinates, material, type, size, age and expected replacement date of all culverts, catch basins and drainage ditches in the community. **(F5) (Table 6.1)**	**Affected Location** -Culverts & Ditches Townwide **Type of Activity** -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	3	3	2	3	3	3	3	20
		Administrative: *There may be time limitations to get this accomplished*							
Action Item #6: Provide public outreach to the citizens of Kensington regarding the availability of the Kensington Elementary School and the Congregational Church as "Warming & Charging Centers" during times of extreme temperatures and severe winter weather. **(ET3 & WW6)**	**Affected Location** -Kensington Elementary School -Congregational Church **Type of Activity** -Public Education & Awareness -Prevention	3	3	3	3	3	3	3	21
		No apparent difficulty with this action item							
Action Item #7: Provide public outreach and education to encourage residents of Kensington to test their private well-water to determine if known and emerging contaminants, such as radon and arsenic, are present. Use available social media platforms, the Congregational Church Community Newsletter and the town's website. (N**U14)**	**Affected Location** -Townwide **Type of Activity** -Public Education & Awareness -Prevention -Natural Resource Protection	3	3	3	3	3	2	3	20
		Economical: *Budget constraints for those who need to correct problems in their water*							
Action Item #8: Improve, eliminate or take protective measures to decrease the incidence of flooding that results from beaver dams in the community. In particular, monitor and address the beaver situation off Hemlock Road, as it has the potential to wash out part of Osgood Road. **(F17)**	**Affected Location** -Beaver Dams Townwide **Type of Activity** -Public Education & Awareness -Prevention -Natural Resource Protection	3	3	3	3	3	3	3	21
		No apparent difficulty with this action item							
Action Item #9: Improve 911 house signage compliance so that emergency responders can better assist the public at the time of need. Use the community website, a possible brochure, available social media platforms and local newsletters such as the Kensington Congregational Church Community Newsletter. **(MU14) (Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Public Education & Awareness -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	3	3	3	2	3	3	3	20
		Political: *Some people may not want a 911 sign on their property*							
Action Item #10: In addition to work that is done by and with the local utility company, monitor and maintain brush cutting, drainage system maintenance and tree removal as part of a written tree maintenance program. Create defensible space around power lines, oil and gas lines and other infrastructure and work to reduce wildfire risk by clearing dead vegetation, cutting high grass and other fuel loads in the community. **(SW4, WF7, WF9 & F14) (Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	3	3	2	2	2	3	3	18
		Administrative: *There may be time limitations to get this accomplished* ***Political:*** *Some people may not want trees trimmed or removed; will need public hearing to cut trees on scenic roads* ***Legal:*** *Landowner liability*							

Proposed Mitigation Action Items	Affected Location Type of Activity	S	T	A	P	L	E	E	TTL
Action Item #11: Continue the Safety Committee activities to ensure that all critical facilities in Kensington are built and maintained sufficiently to withstand the natural hazards addressed in this plan. **(MU13)** **(Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Emergency Service Protection -Property Protection	3	3	3	3	3	3	3	21
		No apparent difficulty with this action item							
Action Item #12: Take efforts to reduce the risk from mosquito and tick-borne diseases, such as West Nile virus WNV), Eastern Equine Encephalitis (EEE), Jamestown Canyon virus (JCV) and Lyme Disease, by taking appropriate "spraying" measures to reduce the tick and mosquito population. Provide public education using available social media platforms, the Congregational Church Community Newsletter and the town's website to keep residents of Kensington informed about risks associated with infectious diseases, including Covid-19. **(MU14)**	**Affected Location** -Townwide **Type of Activity** -Public Education & Awareness -Prevention -Natural Resource Protection	3	3	3	3	3	3	3	21
		Political: *Some people may not want spraying to take place*							
Action Item #13: Post important information on the town's Emergency Management webpage and notices of red flag burning days. Obtain and have available Firewise® brochures to educate homeowners on methods to reduce fire risk around their homes **(WF10)** and provide a link to Firewise® on the Emergency page of the town's website. Provide Firewise® brochures to those residents seeking burn permits (if not obtained on-line); advise residents of the importance of maintaining defensible space, the safe disposal of yard and household waste and the removal of dead or dry leaves, needles, twigs, and combustible materials from roofs, decks, eaves, porches and yards. **(WF12)**	**Affected Location** -Townwide **Type of Activity** -Public Education & Awareness -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	3	3	3	3	3	3	3	21
		No apparent difficulty with this action item							
Action Item #14: Continue HazMat training for the members of Kensington Fire Rescue. **(Table 6.1)**	**Affected Location** -Kensington Fire Station **Type of Activity** -Prevention -Emergency Service Protection	3	3	3	3	3	3	3	21
		No apparent difficulty with this action item							
Action Item #15: Train all fire responders and EMS as coordinated by the Fire Chief and include the many aspects of emergency response. Fire training is done through the Seacoast Chief Fire Officers Mutual Aid District and the Fire Academy. Also, train all Police Officers though trainings offered by the Police Academy, through local opportunities and with surrounding towns. **(Table 6.1)**	**Affected Location** -Kensington Fire Station **Type of Activity** -Prevention -Emergency Service Protection	3	3	3	3	3	2	3	20
		Economical: *Budget constraints*							
Action Item #16: Through public outreach, encourage the businesses and residents of Kensington to follow best practices, the National Fire Protection Association (NFPA) codes and DES regulations to ensure the proper installation storage, use and removal of hazardous materials. Use the available social media platforms and the town's website. **(MU16)**	**Affected Location** -Businesses & Residents Townwide **Type of Activity** -Public Education & Awareness -Prevention -Emergency Service Protection	3	3	3	3	3	3	3	21
		No apparent difficulty with this action item							

Proposed Mitigation Action Items	Affected Location Type of Activity	S	T	A	P	L	E	E	TTL
		3	3	3	3	3	3	3	21
Action Item #17: Obtain approval of this hazard mitigation plan as a Community Wildfire Protection Plan (CWPP) to enable potential assistance from the state and federal governments for future wildfire mitigation projects. **(WF2)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Property Protection -Natural Resource Protection	*No apparent difficulty with this action item*							
		2	3	3	3	3	2	3	19
Action Item #18: Investigate a location to Install a new repeater and/or cell tower on town property to improve townwide communications. **(MU13)**	**Affected Location** -Location for new repeater (TBD) **Type of Activity** -Prevention -Emergency Service Protection	***Social:*** *Some may not want to have them in their "backyards" (NIMBY)* ***Economical:*** *Budget constraints*							
		3	3	3	3	3	3	3	21
Action Item #19: Update the Kensington Emergency Operations Plan to coincide with the new state ESF format. Include an analysis of the impact of natural hazards on Critical Infrastructure & Key Resources that may be needed during an emergency. The new EOP should include an EOC Call Alert List as well as a detailed Resource Inventory List and Player Packets. **(MU6) (Tables 6.1 & 7.1)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Emergency Service Protection	*No apparent difficulty with this action item*							
		3	3	3	3	3	2	3	20
Action Item #20: Create a database to track those individuals at high risk of death, such as the elderly, homeless, etc. by developing a new and updated survey of the functional needs population and a method of maintaining the data. **(ET3 & WW6)**	**Affected Location** -Functional Needs Population Townwide **Type of Activity** -Public Education & Awareness -Prevention -Emergency Service Protection	***Economical:*** *Budget constraints (initially)*							
		3	3	3	3	3	3	3	21
Action Item #21: With the assistance of qualified personnel, inspect all town facilities to determine if an investment in lightning rods would be beneficial. Install lightning rods as recommended. **(L1)**	**Affected Location** -Buildings that may need lightning rods; specifically the Congregational Church and town-owned buildings **Type of Activity** -Prevention -Emergency Service Protection -Property Protection	*No apparent difficulty with this action item*							
		3	3	3	3	3	3	3	21
Action Item #22: Lobby the state to upgrade the two state-owned culverts, one at the Brick School and one on Route 107, which have potential for flooding and are in need of improvements. **(F13)**	**Affected Location** -State-owned culverts at the Brick School and on Route 107 **Type of Activity** -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	*No apparent difficulty with this action item*							

Proposed Mitigation Action Items	Affected Location Type of Activity	S	T	A	P	L	E	E	TTL
Action Item #23: Requested funding from the Select Board for the $25 needed to join the NH Public Works Mutual Aid Association and provide training for the Road Manager, to ensure more access to public works resources at the time of an emergency. **(Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Emergency Service Protection	3	3	2	3	3	3	3	20
		Administrative: *Time will be needed to establish appropriate contracts*							
Action Item #24: Provide an annual review of the Kensington Hazard Mitigation Plan Update 2020 including a review of the status of "Action Items" listed in this plan to encourage completion. Obtain approval from the local elected body on an annual basis and do a complete update of the plan in five years. **(MU11) (Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Property Protection -Natural Resource Protection -Emergency Service Protection -Structural Project	3	3	3	3	3	3	3	21
		No apparent difficulty with this action item							
Action Item #25: Update Kensington's communications systems and radios and include radios for other departments within the community. **(Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Emergency Service Protection	3	2	3	3	3	1	3	18
		Technical: *Need to ensure adequate inter- and intra-operability of any new system* ***Economical:*** *Budget constraints*							
Action Item #26: Review, re-activate and update the Kensington Capital Improvement Program (CIP) to ensure that the goals of the program will be achieved to assist the town's departments with planned purchases or equipment and supplies. Review the CIP after approval of this plan to integrate concepts, ideas and action items from this hazard mitigation plan. **(MU6) (Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Emergency Service Protection	3	3	2	3	3	2	3	19
		Administrative: *Time limitations by departments and the Planning Board* ***Economical:*** *This is a budgetary process that will need attention from all departments*							
Action Item #27: Inspect the functionality of fire hydrants and maintain and repair all hydrants and other water resources in Kensington. Consider other areas of the community that have limited water resources and address these issues by installing new hydrants, drafting sites, fire ponds and/or cisterns as needed to help mitigate the effects of wildfire. **(WF8, MU12 & MU13) (Table 6.1)**	**Affected Location** -Dry & Pressurize Hydrants townwide & areas of town without water resources **Type of Activity** -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection	3	3	3	3	2	2	3	19
		Legal: *Some new water resources may be on private property and need permission or easements* ***Economical:*** *Budget constraints*							
Action Item #28: Amos Tuck Dam and Old Amesbury Road Dam are aging and have the potential to fail completely in a large rain storm. These are privately owned dams that are maintained by Kensington Fire Rescue to protect fire ponds. Improve conditions at these dams by dredging, adding wing walls and applying rip rap around the edge of the dams to prevent future flooding. **(F17 & MU13)**	**Affected Location** -Townwide **Type of Activity** -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection -Structural Project	3	3	3	3	3	1	2	18
		Economical: *Budget constraints* ***Environmental:*** *Some DES and wetlands permitting may be required*							

Proposed Mitigation Action Items	Affected Location Type of Activity	S	T	A	P	L	E	E	TTL
		3	3	3	3	2	2	3	19
Action Item #29: Work with the School Board to obtain funding and install a permanent generator at the Kensington Elementary School and the Congregational Church to ensure their use as a "Warming & Charging Center" and secondary shelters. **(MU13)** **(Table 7.1)**	**Affected Location** -Kensington Elementary School & the Congregational Church **Type of Activity** -Prevention -Emergency Service Protection -Structural Project	***Legal:*** *The SAU has to agree to the terms of the project* ***Economical:*** *Budget constraints*							
		3	2	2	2	3	1	3	16
Action Item #30: Review this plan, the Kensington Hazard Mitigation Plan Update 2020, whenever a review of the Master Plan is done and consider the incorporation of a natural hazards section, a climate change section and mitigation action items from this plan. **(MU6)** **(Table 6.1)**	**Affected Location** -Townwide **Type of Activity** -Prevention	***Technical:*** *Will most likely need to hire an outside contractor* ***Administrative:*** *Time requirements for Planning Board Members* ***Political:*** *Some may not see the need for a new Master Plan* ***Economical:*** *Budget constraints*							
		3	3	3	3	3	2	3	20
Action Item #31: Obtain dedicated cisterns to assist with fire suppression on Hilliard Road, Route 150 (multiple places), Osgood Road and Drinkwater Road. **(WF6)**	**Affected Location** -Area of town without water resources **Type of Activity** -Prevention -Emergency Service Protection -Property Protection -Natural Resource Protection -Structural Project	***Economical:*** *Budget constraints*							
		3	3	3	3	3	3	3	21
Action Item #32: Plan for and obtain funding in the town's Capital Improvement Plan (CIP) to finance the construction of a new Public Safety Facility which include a new Fire Station.	**Affected Location** -Place TBD for new Public Safety Facility **Type of Activity** -Emergency Service Protection -Structural Project	***Political:*** *Some residents may not see the need for this* ***Economical:*** *Budget constraints*							

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Chapter 9: Implementation Schedule for Prioritized Action Items

A. PRIORITY METHODOLOGY

After reviewing the finalized STAPLEE numerical ratings, the team prepared to develop *Table 9.1, The Mitigation Action Plan.* To do this, team members created four categories into which they would place the potential mitigation action items.

CATEGORY 0

Category 0 includes those items which are being done and will continue to be done in the future.

CATEGORY 1

Category 1 includes those items under the direct control of town officials, within the financial capability of the town using only town funding, those already being done or planned and those that could generally be completed within one year.

CATEGORY 2

Category 2 includes those items that the town does not have sole authority to act upon, those for which funding might be beyond the town's capability and those that would generally take between 13-36 months to complete.

CATEGORY 3

Category 3 includes those items that would take a major funding effort, those that the town has little control over the final decision and those that would take in excess of 37 months to complete.

Each potential mitigation action item was placed in one of these four categories and then those action items were prioritized within each category according to cost-benefit, time frame and capability. Actual cost estimates were unavailable during the planning process, although using the STAPLEE process along with the methodology detailed above and a Very Low Cost to High Cost estimate (see following page), the team was able to come up with a general consensus on cost-benefit for each proposed action item.

The team also considered the following criteria while ranking and prioritizing each action item:

- *Does the action reduce damage?*
- *Does the action contribute to community objectives?*
- *Does the action meet existing regulations?*
- *Does the action protect historic structures?*
- *Does the action keep in mind future development?*
- *Can the action be implemented quickly?*

The prioritization exercise helped the committee seriously evaluate the new hazard mitigation action items that they had brainstormed throughout the hazard mitigation planning process. While all actions would help improve the town's hazard and wildfire responsiveness capability, funding availability will be a driving factor in determining what and when new mitigation action items are implemented.

B. WHO, WHEN, HOW?

Once this was completed, the team developed an action plan that outlined who is responsible for implementing each action item, as well as when and how the actions will be implemented. The following questions were asked in order to develop a schedule for the identified mitigation action items.

WHO? Who will lead the implementation efforts? Who will put together funding requests and applications?

WHEN? When will these actions be implemented and in what order?

HOW? How will the community fund these projects? How will the community implement these projects? What resources will be needed to implement these projects?

In addition to the prioritized mitigation action items, *Table 9.1, The Mitigation Action Plan*, includes the responsible party (WHO), how the project will be supported (HOW) and what the time frame is for implementation of the project (WHEN).

Once the plan is approved, the community will begin working on the action items listed in *Table 9.1, The Mitigation Action Plan* (see below and on the following pages). An estimation of completion for each action item is noted in the "Time Frame" column of Table 9.1. Some projects, including most training and education of residents on emergency and evacuation procedures, could be tied into the emergency operations plan and implemented through that planning effort.

TABLE 9.1: THE MITIGATION ACTION PLAN

Table 9.1, The Mitigation Action Plan, located on the next page, includes problem statements that were expressed by the planning team. These action items are listed in order of priority and indicate if they were derived from other tables in this plan.

The estimated cost was determined using the following criteria:

- **Very Low Cost**..... $0 - $1,000 or staff time only
- **Low Cost**..... $1,000-$20,000
- **Medium Cost** ..... $20,000-$100,000
- **High Cost**..... $100,000 or more

The time frame was determined using the following criteria:

- **Short Term**..... Ongoing for the life of the plan
- **Short Term**..... Less than 1 year (0-12 months)
- **Medium Term**..... 2-3 years (13-36 months)
- **Long Term:** ..... 4-5 years (37-60 months)

Items in green such as **(MU14)** represent mitigation action items taken from Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013; see *Appendix F: Potential Mitigation Ideas*, for more information**.**

Mitigation Action Items are listed in order of priority.

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
0-1	***Problem Statement:*** *The NH Emergency Notification System (ENS) is an excellent warning system but it only stores resident phone numbers that are listed in the phone book. Residents may not be aware that they can add cell numbers, emails and unlisted numbers.* **Action Item #1:** Provide public outreach to encourage all residents to contact the NH Emergency Notification System (ENS) to add cell numbers, unlisted numbers and emails and to verify information as required by the current or any new system that may be developed. Use the community website, a possible brochure, available social media platforms and local newsletters or a sign up at Town Meeting. **(MU14)** **(Table 6.1)**	All Hazards	Select Board, Kensington Fire Rescue & Police Department	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)
0-2	***Problem Statement:*** *Although the town has established an Emergency Management page to provide public education on emergency preparedness and mitigation, these efforts should continue and expand into the future.* **Action Item #2:** Provide robust information on the town's Emergency Management webpage, available social media platforms and local newsletters, such as the Kensington Congregational Church Community Newsletter to educate the public on hazard mitigation and preparedness measures **(MU14)** that will include such information as: emergency contacts, shelter locations, evacuation routes **(SW7, WF11 & T3)**, methods of emergency alerting, 911 compliance, water saving techniques **(D9)**, earthquake risk and mitigation activities that can be taken in residents' homes **(EQ7)**, steps homeowners can take to protect themselves and their properties when extreme temperatures occur **(ET1 & ET4)**, safety measures that can be taken during hail **(HA3)** and lightning storms **(L2)**, mitigation techniques for property protection and links to available sources. Educate homeowners regarding the risks of building in hazard zones and encourage homeowners to install carbon monoxide monitors and alarms **(WW5)** and provide public information regarding infectious diseases. Develop ways to provide notification to citizens and keep them informed with reliable information. **(Tables 6.1 & 7.1)**	All Hazards including: Severe Wind, Drought, Earthquake, Extreme Temperatures, Hail, Lightning, Severe Winter Weather, Tornado, Wildfire & Infectious Disease	Select Board, Emergency Management, Deputy Management Director, Police Department & Kensington Fire Rescue	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
0-3	***Problem Statement:*** *Although first responders including firefighters have received NIMS & ICS training, not all of Kensington's town officials have.* **Action Item #3:** The Emergency Management Director (EMD) to encourage all town officials who may be required to respond to an emergency and any new emergency responders to take NIMS 700 (S-700) & ICS (ISC100 & ISC200). Additionally, the EMD to encourage key personnel to learn about and become adept with WEB-EOC. **(Table 6.1)**	All Hazards	Emergency Management Director	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)
0-4	***Problem Statement:*** *Residents and builders may not be aware of flood regulations & the availability of flood insurance through the National Flood Insurance Program (NFIP) and they also may not be aware of the risk of building in the floodplain and the steps they can take to reduce flooding.* **Action Item #4:** Advise the public about the local flood hazard, flood insurance and flood protection measures **(F10)** by obtaining and keeping on hand a supply of National Flood Insurance (NFIP) brochures to have available in the Town Hall. Give NFIP materials to homeowners and builders when proposing new development or substantial improvements; encourage property owners to purchase flood insurance **(F22)**, whether or not they are in the flood zone. Through public outreach, educate homeowners on the risks of building in the flood zone and measures that can be taken to reduce the change of flooding, such as securing debris, propane tanks, yard items or stored objects that may otherwise be swept away, damaged, or pose a hazard if picked up and washed away by floodwaters. Add links to the NFIP, Ready.gov and other flood mitigation information to the community website, a possible brochure, available social media platforms and local newsletters, such as the Kensington Congregational Church Community Newsletter. Continue to actively work with residents to ensure they are in compliance with the town's floodplain ordinance and consider joining the Community Rating System. **(F23)** **(Table 6.1)**	Inland Flooding	Select Board, Emergency Management, Deputy Management Director & Planning Board	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
0-5	***Problem Statement:*** *Although the Kensington Road Manager works to clean and repair drainage basins and culverts, a written stormwater maintenance plan should be developed to ensure continuity of actions and efficient stormwater management.* **Action Item #5:** Maintain culverts and ditches in the community and develop and maintain a written stormwater maintenance plan in order to ensure more efficient stormwater management. In this plan or "inventory", include the location, date of installation, GPS coordinates, material, type, size, age and expected replacement date of all culverts, catch basins and drainage ditches in the community. **(F5) (Table 6.1)**	Inland Flooding	Select Board & Road Manager	Local	**Short Term Ongoing** (For the life of the Plan)	**Low Cost** $1,000-$20,000
0-6	***Problem Statement:*** *Although public outreach has been done to advise the citizens of Kensington of the possibility of using the Kensington Elementary School and/or the Congregational Church as "Warming & Charging Centers" in times of extended cold temperatures, additional public outreach needs to be done.* **Action Item #6:** Provide public outreach to the citizens of Kensington regarding the availability of the Kensington Elementary School and the Congregational Church as "Warming & Charging Centers" during times of extreme temperatures and severe winter weather. **(ET3 & WW6)**	Extreme Temperatures & Severe Winter Weather	Emergency Management Director, School Board & Church Trustees	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time
0-7	***Problem Statement:*** *Some residents may not be aware of the risk of emerging contaminants in private water systems.* **Action Item #7:** Provide public outreach and education to encourage residents of Kensington to test their private well-water to determine if known and emerging contaminants, such as radon and arsenic, are present. Use available social media platforms, the Congregational Church Community Newsletter and the town's website. **(MU14)**	Known & Emerging Contaminants	Select Board, Planning Board & Building Inspector	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)
0-8	***Problem Statement:*** *Beaver dams are a problem townwide, causing flooding in fields and on roads.* **Action Item #8:** Improve, eliminate or take protective measures to decrease the incidence of flooding that results from beaver dams in the community. In particular, monitor and address the beaver situation off Hemlock Road, as it has the potential to wash out part of Osgood Road. **(F17)**	Inland Flooding	Select Board & Road Manager	Local & Grants	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
0-9	***Problem Statement:*** *The town has continuously used public outreach to inform residents of the need for proper 911 house signage. The town is currently about 70% compliant with the proper 911 signage. This is now in the NH Building Codes and NFPA codes and is enforceable by the Building Inspector.* **Action Item #9:** Improve 911 house signage compliance so that emergency responders can better assist the public at the time of need. Use the community website, a possible brochure, available social media platforms and local newsletters such as the Kensington Congregational Church Community Newsletter. **(MU14) (Table 6.1)**	All Hazards	Building Inspector & Fire Chief	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)
0-10	***Problem Statement:*** *As trees become damaged and threaten power lines and structures on town roads, the Kensington Road Manager removes them. NH DOT does this for state roads along with Unitil as needed. There is a need to continue to work to keep this hazard to a minimum.* **Action Item #10:** In addition to work that is done by and with the local utility company, monitor and maintain brush cutting, drainage system maintenance and tree removal as part of a written tree maintenance program. Create defensible space around power lines, oil and gas lines and other infrastructure and work to reduce wildfire risk by clearing dead vegetation, cutting high grass and other fuel loads in the community. **(SW4, WF7, WF9 & F14) (Table 6.1)**	High Wind Events, Wildfire, Severe Winter Weather-Ice Storms & Inland Flooding	Select Board & Road Manager	Local	**Short Term Ongoing** (For the life of the Plan)	**Low Cost** $1,000-$20,000
0-11	***Problem Statement:*** *Kensington has developed a Safety Committee that determines the safety status of all town buildings. The work of the Safety Committee needs to continue.* **Action Item #11:** Continue the Safety Committee activities to ensure that all critical facilities in Kensington are built and maintained sufficiently to withstand the natural hazards addressed in this plan. **(MU13) (Table 6.1)**	All Hazards	Fire Chief & Building Inspector	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
0-12	***Problem Statement:*** *Infectious diseases, such as mosquito and tick-borne illness in both humans and livestock as well the opioid crisis and Hepatitis A, B & C are diseases that are affecting all generations.* **Action Item #12:** Take efforts to reduce the risk from mosquito and tick-borne diseases, such as West Nile virus WNV), Eastern Equine Encephalitis (EEE), Jamestown Canyon virus (JCV) and Lyme Disease, by taking appropriate "spraying" measures to reduce the tick and mosquito population. Provide public education using available social media platforms, the Congregational Church Community Newsletter and the town's website to keep residents of Kensington informed about risks associated with infectious diseases, including Covid-19. **(MU14)**	Infectious Diseases	Select Board & Health Officer	Local	**Short Term Ongoing** (For the life of the Plan)	**Low Cost** $1,000-$20,000
0-13	***Problem Statement:*** *Although the town does a great job using its Emergency Management webpage to promote preparedness, residents may not be aware of the steps they can take to reduce the risk of fire at their homes.* **Action Item #13:** Post important information on the town's Emergency Management webpage and notices of red flag burning days. Obtain and have available Firewise® brochures to educate homeowners on methods to reduce fire risk around their homes **(WF10)** and provide a link to Firewise® on the Emergency page of the town's website. Provide Firewise® brochures to those residents seeking burn permits (if not obtained on-line); advise residents of the importance of maintaining defensible space, the safe disposal of yard and household waste and the removal of dead or dry leaves, needles, twigs, and combustible materials from roofs, decks, eaves, porches and yards. **(WF12)**	Wildfire & Conflagration	Kensington Fire Rescue	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)
0-14	***Problem Statement:*** *Although Kensington does not have a HazMat Team, firefighters are trained in the basic response to HazMat incidents and are adept at maintaining perimeters until specialized teams arrive. The Kensington EMD or the Fire Officer in charge would most likely call dispatch who would then contact the Seacoast Technical Assistance Response Team (START) to request an available HazMat Response Team. HazMat training needs to continue.* **Action Item #14:** Continue HazMat training for the members of Kensington Fire Rescue. **(Table 6.1)**	Hazardous Materials	Kensington Fire Rescue	Local	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
0-15	***Problem Statement:*** *Training of emergency responders is coordinated by the Fire Chief and Police Chief and includes the many aspects of emergency response. Although this is preparedness, this is retained in this plan to continue training.* **Action Item #15:** Train all fire responders and EMS as coordinated by the Fire Chief and include the many aspects of emergency response. Fire training is done through the Seacoast Chief Fire Officers Mutual Aid District and the Fire Academy. Also, train all Police Officers though trainings offered by the Police Academy, through local opportunities and with surrounding towns. **(Table 6.1)**	All Hazards & Wildfires	Kensington Fire Rescue & Police Department	Local & Grants	**Short Term Ongoing** (For the life of the Plan)	**Low Cost** $1,000-$20,000 (Fire Training) **Medium Cost** ($20,000-$100,000) (Police Training)
0-16	***Problem Statement:*** *Hazardous materials are stored in Kensington in small quantities in a variety of places including in fuel and propane tanks, at the small airstrip in town and at construction and landscape companies.* **Action Item #16:** Through public outreach, encourage the businesses and residents of Kensington to follow best practices, the National Fire Protection Association (NFPA) codes and DES regulations to ensure the proper installation storage, use and removal of hazardous materials. Use the available social media platforms and the town's website. **(MU16)**	All Hazards	Select Board, Building Inspector & Fire Chief	Local & Grants	**Short Term Ongoing** (For the life of the Plan)	**Very Low Cost** ($0 - $1,000 or staff time only)
1-1	***Problem Statement:*** *This plan, the Kensington Hazard Mitigation Plan Update, 2020, will need to be approved as Community Wildfire Protection Plan (CWPP).* **Action Item #17:** Obtain approval of this hazard mitigation plan as a Community Wildfire Protection Plan (CWPP) to enable potential assistance from the state and federal governments for future wildfire mitigation projects. **(WF2)**	Wildfire & Conflagration	Mapping and Planning Solutions	Local	**Short Term** (1 year or less: 0-12 months)	**Very Low Cost** ($0 - $1,000 or staff time only)
1-2	***Problem Statement:*** *The town's emergency radio & cell capabilities do not reach across the entire community. Communications "dead spots" remain.* **Action Item #18:** Investigate a location to Install a new repeater and/or cell tower on town property to improve townwide communications. **(MU13)**	All Hazards	Emergency Management Director	Local & Grants	**Short Term** (1 year or less: 0-12 months)	**Low Cost** $1,000-$20,000 (to the town)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
1-3	***Problem Statement:*** *The Kensington Emergency Operations Plan (EOP) was last updated in 2015 and will need to be updated again in 2020.* **Action Item #19:** Update the Kensington Emergency Operations Plan to coincide with the new state ESF format. Include an analysis of the impact of natural hazards on Critical Infrastructure & Key Resources that may be needed during an emergency. The new EOP should include an EOC Call Alert List as well as a detailed Resource Inventory List and Player Packets. **(MU6) (Tables 6.1 & 7.1)**	All Hazards	Emergency Management Director	Local & Grants	**Short Term** (1 year or less: 0-12 months)	**Low Cost** $1,000-$20,000
1-4	***Problem Statement:*** *A survey was done to identify the functional needs population in Kensington and although a list of the functional needs population exists, a new and updated survey needs to be completed.* **Action Item #20:** Create a database to track those individuals at high risk of death, such as the elderly, homeless, etc. by developing a new and updated survey of the functional needs population and a method of maintaining the data. **(ET3 & WW6)**	Extreme Temperatures, Severe Winter Weather & All Hazards	Emergency Management Director, Kensington Fire Rescue & Police Department	Local	**Short Term** (1 year or less: 0-12 months)	**Low Cost** $1,000-$20,000
1-5	***Problem Statement:*** *Lightning has struck town buildings in the past and has caused damage to electronics and power outages.* **Action Item #21:** With the assistance of qualified personnel, inspect all town facilities to determine if an investment in lightning rods would be beneficial. Install lightning rods as recommended. **(L1)**	Lightning	Select Board & Church Trustees	Local	**Short Term** (1 year or less: 0-12 months)	**Low Cost** $1,000-$20,000
1-6	***Problem Statement:*** *Two state-owned culverts, one at culvert at the Brick School and one on Route 107, have potential for flooding and are in need of repair.* **Action Item #22:** Lobby the state to upgrade the two state-owned culverts, one at the Brick School and one on Route 107, which have potential for flooding and are in need of improvements. **(F13)**	Inland Flooding	Select Board	Local	**Short Term** (1 year or less: 0-12 months)	**Very Low Cost** ($0 - $1,000 or staff time only)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
1-7	***Problem Statement:*** *Although most mutual aid systems in Kensington are excellent, the town does not belong to the NH Public Works Mutual Aid Association.* **Action Item #23:** Requested funding from the Select Board for the $25 needed to join the NH Public Works Mutual Aid Association and provide training for the Road Manager, to ensure more access to public works resources at the time of an emergency. **(Table 6.1)**	All Hazards	Select Board & Road Manager	Local	**Short Term** (1 year or less: 0-12 months)	**Very Low Cost** ($0 - $1,000 or staff time only)
1-8	***Problem Statement:*** *This plan, the Kensington Hazard Mitigation Plan Update 2020, will require an annual review and a complete update in five years.* **Action Item #24:** Provide an annual review of the Kensington Hazard Mitigation Plan Update 2020 including a review of the status of "Action Items" listed in this plan to encourage completion. Obtain approval from the local elected body on an annual basis and completely update the plan in five years. **(MU11) (Table 6.1)**	All Hazards	Emergency Management Director & Select Board	Local	**Short Term** (1 year or less: 0-12 months, for annual update) **Long Term** (3-5 years: 37-60 months, for 5-year complete update)	**Very Low Cost** ($0 - $1,000 or staff time only)
2-1	***Problem Statement:*** *Kensington's communications systems and radios are not up to date with either state or federal requirements.* **Action Item #25:** Update Kensington's communications systems and radios and include radios for other departments within the community. **(Table 6.1)**	All Hazards	Emergency Management Director	Local & Grants	**Medium Term** (2-3 years: 13-36 months)	**High Cost** ($100,000 or more)
2-2	***Problem Statement:*** *The Kensington Capital Improvement Program has been established but is not currently active. A CIP should be reviewed at least annually to ensure that the goals of the program will be achieved to assist the town's departments with planned purchases or equipment and supplies.* **Action Item #26:** Review, re-activate and update the Kensington Capital Improvement Program (CIP) to ensure that the goals of the program will be achieved to assist the town's departments with planned purchases or equipment and supplies. Review the CIP after approval of this plan to integrate concepts, ideas and action items from this hazard mitigation plan. **(MU6) (Table 6.1)**	All Hazards	Planning Board	Local	**Medium Term** (2-3 years: 13-36 months)	**Very Low Cost** ($0 - $1,000 or staff time only)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
2-3	***Problem Statement:*** *Kensington Fire Rescue tests and maintains dry hydrants throughout Kensington. Hydrant maintenance needs to continue to ensure water availability while fighting wildfires or conflagrations.* **Action Item #27:** Inspect the functionality of fire hydrants and maintain and repair all hydrants and other water resources in Kensington. Consider other areas of the community that have limited water resources and address these issues by installing new hydrants, drafting sites, fire ponds and/or cisterns as needed to help mitigate the effects of wildfire. **(WF8, MU12 & MU13) (Table 6.1)**	Wildfire & Conflagration	Kensington Fire Rescue	Local & Grants	**Medium Term** (2-3 years: 13-36 months)	**Medium Cost** ($20,000-$100,000)
3-1	***Problem Statement:*** *The Amos Tuck Dam and Old Amesbury Road Dam are aging and have the potential to fail completely in a large rain storm. These dams are privately owned but maintained by Kensington Fire Rescue as fire ponds.* **Action Item #28:** Amos Tuck Dam and Old Amesbury Road Dam are aging and have the potential to fail completely in a large rain storm. These are privately owned dams that are maintained by Kensington Fire Rescue to protect fire ponds. Improve conditions at these dams by dredging, adding wing walls and applying rip rap around the edge of the dams to prevent future flooding. **(F17 & MU13)**	Inland Flooding & Aging Infrastructure	Select Board & Kensington Fire Rescue	Local & Grants	**Long Term** (3-5 years: 37-60 months)	**Medium Cost** ($20,000-$100,000)
3-2	***Problem Statement:*** *Although Kensington has emergency backup power at many of the town's Critical Infrastructure & Key Resources (CIKR) there are still some CIKR that do not have backup emergency power including the Kensington Elementary School and the Congregational Church which are the designated "Warming & Charging Centers" and possible Secondary Shelters.* **Action Item #29:** Work with the School Board to obtain funding and install a permanent generator at the Kensington Elementary School and the Congregational Church to ensure their use as a "Warming & Charging Center" or secondary shelters. **(MU13) (Table 7.1)**	All Hazards	School Board, Emergency Management Director & Church Trustees	Local & Grants	**Long Term** (3-5 years: 37-60 months)	**Medium Cost** ($20,000-$100,000)

Final R/P	Problem Statement New Mitigation Action Item	Type of Hazard	Managing Department	Funding or Support	Time Frame	Est. Cost
3-3	***Problem Statement:*** *The Kensington Master Plan (2011) is reviewed annually and is in need of an update by 2021 (based on the state's 10-year recommendation), does not have a natural hazards section.* **Action Item #30:** Review this plan, the Kensington Hazard Mitigation Plan Update 2020, whenever a review of the Master Plan is done and consider the incorporation of a natural hazards section, a climate change section and mitigation action items from this plan. **(MU6) (Table 6.1)**	All Hazards	Planning Board	Local	**Long Term** (3-5 years: 37-60 months, for 10-year complete update)	**Medium Cost** ($20,000-$100,000)
3-4	***Problem Statement:*** *Several locations in Kensington may benefit from the installation of cisterns with water capacity adequate to assist with fire suppression.* **Action Item #31:** Obtain dedicated cisterns to assist with fire suppression on Hilliard Road, Route 150 (multiple places), Osgood Road and Drinkwater Road. **(WF6)**	Wildfire & Conflagration	Kensington Fire Rescue	Local & Grants	**Long Term** (3-5 years: 37-60 months)	**High Cost** ($100,000 or more)
3-5	***Problem Statement:*** *The Kensington Fire Station is aging and may not meet currently regulatory requirements.* **Action Item #32:** Plan for and obtain funding in the town's Capital Improvement Plan (CIP) to finance the construction of a new Public Safety Facility which include a new Fire Station.	All Hazards	Select Board, Fire Chief & Police Chief	Local & Grants	**Long Term** (3-5 years: 37-60 months)	**High Cost** ($100,000 or more)

Chapter 10: Adopting, Monitoring, Evaluating and Updating the Plan

A. Hazard Mitigation Plan Monitoring, Evaluation and Updates

A good mitigation plan must allow for updates where and when necessary and will incorporate periodic monitoring and evaluation mechanisms to allow for review of successes and failures or even just simple updates.

The Kensington Hazard Mitigation Plan Update, 2020 is considered a work in progress. There are three situations which will prompt revisiting this plan:

- *First, as a minimum, it will be reviewed annually or after any emergency event to assess whether the existing and suggested mitigation action items were successful. This review will focus on the assessment of the plan's effectiveness, accuracy and completeness in monitoring of the implementation action items. The review will also address recommended improvements to the plan as contained in the FEMA plan review checklist and address any weaknesses the town identified that the plan did not adequately address.*

- *Second, the plan will be thoroughly updated every five years.*

- *Third, if the town adopts any major modifications to its land use planning documents, the jurisdiction will conduct a plan review and make changes as applicable.*

In keeping with the process of adopting this hazard mitigation plan, the public and stakeholders will have the opportunity for future involvement as they will be invited to participate in any and all future reviews or updates of this plan. Public notice before any review or update will be given by such means as: press releases in local papers, using available social media, posting meeting information on the town website and at the Town Hall, sending letters to federal, state and local organizations impacted by the plan and posting notices in public places in the town. This will ensure that all comments and revisions from the public and stakeholders will be considered. The Emergency Management Director is responsible for initiating plan reviews and will consult with members of the hazard mitigation planning team identified in this plan.

Concurrence forms to be used for post-hazard or annual reviews are available in Chapter 11 of this plan. The town is encouraged to use these forms to document any changes and accomplishments since the development of this plan. Forms are available for years 1-4, with expectation that the five-year annual update will be in process during the fifth year.

B. Integration with Other Plans

This plan will only enhance mitigation if balanced with all other town plans. Kensington completed its last hazard mitigation plan in 2013 and has completed many of projects from that plan. Examples of these can be found in Table 7.1 and include items such as improving stormwater flow on Drink Water Road and Kimball Road, joining the National Flood Insurance Program (NFIP), and establishing erosion control and stormwater management for new buildings and substantial improvements. The town was able to integrate these actions into other town activities, budgets, plans and mechanisms.

The Town of Kensington will incorporate elements from this plan into the following documents:

KENSINGTON MASTER PLAN

Traditionally, Master Plans are updated every 5 to 10 years and detail the use of capital reserves funds and capital improvements within the town. An update of the Kensington Master Plan was completed in 2011 and is due for a recommended update in 2021. Future updates of the Master Plan may include a natural hazards section and a discussion about climate change; updates will also integrate concepts, ideas and action items from this hazard mitigation plan. **(Action Item #30)**

KENSINGTON EMERGENCY OPERATIONS PLAN 2015 (EOP)

The EOP is designed to allow the town to respond more effectively to disasters as well as mitigate the risk to people and property. EOPs are generally reviewed after each hazardous event and updated on a five-year basis. The last Kensington EOP was completed in 2015. An update for the Emergency Operations Plan is expected to be completed in 2020-21. The new EOP will include elements from this hazard mitigation plan. **(Action Item #19)**

TOWN BUDGET, CAPITAL IMPROVEMENT PLAN & CAPITAL RESERVE FUNDS

The Town of Kensington maintains both a Capital Improvement Plan (CIP) and Capital Reserve Funds (CRF) for major expenditures; however, the CIP is not currently active. The town will review and reactivate the CIP and consider including and integrating action items from this plan **(Action Item #26)**. The Capital Reserve Funds are adjusted annually in coordination with the Select Board and the town's department heads at budget time. The budget is then voted on at the annual Town Meeting. During the annual budget planning process, specific mitigation actions identified in this plan that require town fiscal support will be reviewed for incorporation into the budget. **(Action Items that require local money or match money)**

THE KENSINGTON ORDINANCES & SUBDIVISION REGULATIONS

As time goes by and the needs of the town change, the town's planning mechanisms will be reviewed and updated. In coordination with these actions, the Planning Board will review this plan and incorporate any changes that help mitigate the susceptibility of the community and its citizens to the dangers of natural, technical or human-caused disasters. The town's currently regulations are in good shape, however, it has been suggested that they should be reviewed upon approval of this plan.

The local governments will modify other plans and actions as necessary to incorporate hazard and/or wildfire issues. The Select Board ensures this process will be followed in the future. In addition, the town will review and make note of instances when this has been done and include it as part of their annual review of the plan.

C. PLAN APPROVAL & ADOPTION

This plan was completed in a series of open meetings beginning on December 15, 2019. The plan was presented to the town for review, submitted to HSEM for Conditional Approval *(APA, Approved Pending Adoption)*, formally adopted by the Select Board and resubmitted to HSEM for Final Approval. Once Final Approval from HSEM was met, copies of the plan were distributed to the town, HESM, FEMA, DNCR and the USDA-FS; the plan was then distributed as these entities saw fit. Copies of the plan remain on file at Mapping and Planning Solutions (MAPS) in both digital and paper format.

Chapter 11: Signed Community Documents and Approval Letters

A. Planning Scope of Work & Agreement

PARTIES TO THE AGREEMENT

Mapping and Planning Solutions **Current Plan Expiration: May 11, 2019**
Town of Kensington, NH **PDM17 Grant Expiration: January 30, 2021**

This agreement between the Town of Kensington (the town) or its official designee and Mapping and Planning Solutions (MAPS) outlines the town's desire to engage the services of MAPS to assist in planning and technical services in order to produce the 2018 Hazard Mitigation Plan Update (the Plan).

Agreement

This agreement outlines the responsibilities that will ensure that the plan is developed in a manner that involves Town members and local, federal and state emergency responders and organizations. The agreement identifies the work to be done by detailing the specific tasks, schedules and finished products that are the result of the planning process.

The goal of this agreement is that the plan and planning process be consistent with Town policies and that it accurately reflects the values and individuality of the town. This is accomplished by forming a working relationship between the town's citizens, the planning team and MAPS.

The plan created as a result of this agreement will be presented to the town for adoption once conditional approval is received from FEMA. When adopted, the plan provides guidance to the town, commissions, and departments; adopted plans serve as a guide and do not include any financial commitments by the town. Additionally, all adopted plans should address mitigation strategies for reducing the risk of natural, human-caused, and wildfire disasters on life and property and written so that they may be integrated within other town planning initiatives.

Scope of Work

MAPS - Responsibilities include, but are not limited to, the following:

- MAPS will collect data that is necessary to complete the plan and meet the requirements of the FEMA Plan Review Tool by working with the planning team (the team) and taking public input from community members.
- With the assistance of the team, MAPS will coordinate and facilitate meetings and provide any materials, handouts and maps necessary to provide a full understanding of each step in the planning process.
- MAPS will assist the team in the development of goals, objectives and implementation strategies and clearly define the processes needed for future plan monitoring, educating the public and integrating the plan with other Town plans and activities.
- MAPS will coordinate and collaborate with other federal, state and local agencies throughout the process.
- MAPS will explain and delineate the town's Wildland Urban Interface (WUI) and working with the team, will establish a list of potential hazards and analyze the risk severity of each.

- MAPS will author, edit and prepare the plan for review by the team prior to submitting the plan to FEMA for conditional approval. Upon conditional approval by FEMA, MAPS will assist the planning team as needed with presentation of the plan to the Kensington Board of Selectmen and/or Planning Board and continue to work with the town until final approval and distribution of the plan is complete, unless extraordinary circumstances prevail.

- MAPS shall provide, at its office, all supplies and space necessary to complete the Kensington Hazard Mitigation Plan.

- After final approval is received from FEMA, MAPS will provide the town with a two copies of the plan containing all signed documents, approvals and GIS maps along with CDs containing these same documents in digital form, for distribution by the town as it sees fit. Additional CDs may be requested at no additional cost. CD copies of the plan will be distributed by MAPS to collaborating agencies including, but not limited to, NH Homeland Security (HSEM) and FEMA.

- MAPS will provide Plan maintenance reminders and assistance on an annual basis leading up to the next five-year plan update at no cost to the town, if requested by the town.

The Town - Responsibilities include but are not limited to the following:

- The town shall insure that the planning team includes members who are able to support the planning process by identifying available Town resources including people who will have access to and can provide pertinent data. The planning team should include, but not be limited to, such Town members as the local Emergency Management Director, the Fire, Ambulance and Police Chiefs, members of the Board of Selectmen and the Planning Board, the Public Works Director or Road Manager, representatives from relevant federal and state organizations, other local officials, property owners, and relevant businesses or organizations.

- The town shall determine a lead contact to work with MAPS. This contact shall assist with recruiting participants for planning meetings, including the development of mailing lists when and if necessary, distribution of flyers, and placement of meeting announcements. In addition, this contact shall assist MAPS with organizing public meetings to develop the plan and offer assistance to MAPS in developing the work program which will produce the Plan.

- The town shall gain the support of stakeholders for the recommendations found within the plan.

- The town shall provide public access for all meetings and provide public notice at the start of the planning process and at the time of adoption, as required by FEMA.

- The proposed plan shall be submitted to the Board of Selectmen and/or Planning Board for consideration and adoption.

- After adoption and final approval from FEMA is received, the town will:

  - *Distribute copies of the plan as it sees fit throughout the local community.*
  - *Develop a team to monitor and work toward plan implementation.*
  - *Publicize the plan to and insure citizen awareness.*
  - *Urge the Planning Board to incorporate priority projects into the town's Capital Improvement Plan (if available).*
  - *Integrate mitigation strategies and priorities from the plan into other town planning documents.*

Terms

- **Fees & Payment Schedule**: The contract price is limited to $7,500; an invoice will be sent to the town for each payment as outlined below.

  - 1. Initial payment upon signing of this contract and receipt of first invoice $3,700
  - 2. Second payment upon Plan submittal to FEMA for Conditional Approval..... $3,600
  - 3. Final payment upon project completion and receipt of final Plan copy $200

  Total Fees..... $7,500

- **Payment Procedures:** The payment procedure is as follows:

  - MAPS will invoice the town
  - The town will pay MAPS
  - The town will forward the MAPS invoice along with an invoice from the town on letterhead to HSEM
  - HSEM will reimburse the town for the monies paid to MAPS

  All payments to MAPS are fully reimbursable to the town by Homeland Security & Emergency Management.

- **Required Matching Funds:** The Town of Kensington will be responsible to provide and document any and all resources to be used to meet the FEMA required matching funds in the amount of $2,500. Matching funds are the responsibility of the town of Kensington, not MAPS. Mapping and Planning Solutions will however assist the town with attendance tracking by asking meeting attendees to "sign in" at all meetings and to "log" any time spent outside of the meetings working on this project. MAPS will provide the town with final attendance records in spreadsheet form at project's end for the town to use in its match fulfillment.

- **Project Period:** This project shall begin upon signing this agreement by both parties and continue through a date yet to be determined or whenever the planning process is complete. The project period may be extended by mutual written agreement between the town, MAPS and Homeland Security if required. The actual project end date is dependent upon timely adoptions and approvals which may be outside of the control of MAPS and the town. It is anticipated that five or six two-hour meetings will be required to gather the necessary information to create the updated the Plan.

  The grant provided for this project is a Pre-Disaster Mitigation Grant (PDM17); per the grant agreement between the town and HSEM, all work must be completed by January 30, 2021. It is expected that this project will be completed long before the grant expiration date of January 30, 2021.

- **Ownership of Material:** All maps, reports, documents and other materials produced during the project period shall be owned by the town; each party may keep file copies of any generated work. MAPS shall have the right to use work products collected during the planning process; however, MAPS shall not use any data in such a way as to reveal personal or public information about individuals or groups which could reasonably be considered confidential.

- **Termination:** This agreement may be terminated if both parties agree in writing. In the event of termination, MAPS shall forward all information prepared to date to the town. MAPS shall be entitled to recover its costs for any work that was completed.

- **Limit of Liability:** MAPS agrees to perform all work in a diligent and efficient manner according to the terms of this agreement. MAPS' responsibilities under this agreement depend upon the cooperation of the Town of Kensington. MAPS and its employees, if any, shall not be liable for opinions rendered, advice, or errors resulting from the quality of data that is supplied. Adoption of the plan by the town and final approval of the plan by FEMA, relieve MAPS of content liability. Mapping and Planning Solutions carries annual general liability insurance.

- **Amendments**: Changes, alterations or additions to this agreement may be made if agreed to in writing between both the Town of Kensington and Mapping and Planning Solutions.

- **About Mapping and Planning Solutions**: Mapping and Planning Solutions provides hazard mitigation and emergency operations planning throughout New Hampshire. Mapping and Planning Solutions has developed more than forty Hazard Mitigation Plans, more than forty five Emergency Operations Plans and has completed the following FEMA courses in Emergency Planning and Operations:

  - Introduction to Incident Command System, IS-100.a
  - ICS Single Resources and Initial Action Incidents, IS-200.a
  - National Incident Management System (NIMS) An Introduction, IS-700.a
  - National Response Framework, An Introduction, IS 800.b
  - Emergency Planning, IS-235
  - Homeland Security Exercise & Evaluation Program (HSEEP)
  - IS-547.a – Introduction to Continuity Operations
  - IS-546.a – Continuity of Operations (COOP) Awareness Course
  - G-318; Preparing & Review Hazard Mitigation Plans
  - Climate Change Adaptation Planning, AWR-347

- **Contacts:**

For Mapping & Planning Solutions

June Garneau
Mapping and Planning Solutions
105 Union Street
Whitefield, NH 03598
jgarneau@mappingandplanning.com
(603) 837-7122; (603) 991-9664 (cell)

For the Town

Jon True, Fire Chief &EMD
Kensington Fire Rescue
12 Amesbury Road
Kensington, NH 03833
(603) 918-1615
24chief1@comcast.net

Signature below indicates acceptance of and agreement to details outlined in this agreement

FOR THE TOWN OF KENSINGTON, NH

Signature

JONATHAN M. TRUE

Printed Name/Title

8/23/18

Date

FOR MAPPING AND PLANNING SOLUTIONS

June E. Garneau

Signature
June Garneau, Owner
August 6, 2018

Signatures are scanned facsimiles, original signatures are on file.

B. Approved Pending Adoption (APA) & Formal Approval Emails from HSEM

APA from HSEM

Kensington, NH - Approvable Pending Adoption

Hazard Mitigation Planning <hazmitplanning@DOS.NH.GOV>

Sent: Thu 11/12/2020 11:54 AM
To: June Garneau; kenselectman1@kensingtontown.com; 24chief1@comcast.net
Cc: Wells, Meghan; Gilboy, Elizabeth

Good morning,

The Department of Safety, Division of Homeland Security & Emergency Management (HSEM) has completed its review of the Kensington, NH Hazard Mitigation Plan and found it approvable pending adoption. Congratulations on a job well done!

With this approval, the jurisdiction meets the local mitigation planning requirements under 44 CFR 201 **pending HSEM's receipt of electronic copies of the adoption documentation and the final plan**.

Acceptable electronic formats include Word or PDF files and must be submitted to us via email at HazardMitigationPlanning@dos.nh.gov. Upon HSEM's receipt of these documents, notification of formal approval will be issued, along with the final Checklist and Assessment.

The approved plan will be submitted to FEMA on the same day the community receives the formal approval notification from HSEM. FEMA will then issue a Letter of Formal Approval to HSEM for dissemination that will confirm the jurisdiction's eligibility to apply for mitigation grants administered by FEMA and identify related issues affecting eligibility, if any. If the plan is not adopted within one calendar year of HSEM's Approval Pending Adoption, the jurisdiction must update the entire plan and resubmit it for HSEM review. If you have questions or wish to discuss this determination further, please contact me at Kayla.Henderson@dos.nh.gov or 603-223-3650.

Thank you for submitting the Kensington, NH Hazard Mitigation Plan and again, congratulations on your successful community planning efforts.

Sincerely,

Ms. Kayla J. Henderson
State Hazard Mitigation Planner
State Liaison/SPDMG for DR 4516 – NH COVID-19 Disaster
New Hampshire Department of Safety
Homeland Security and Emergency Management
Office: 603-223-3650
Cell: 603-545-5302
Fax: 603-223-3609

Signatures are scanned facsimile, original signatures are on file.

FORMAL APPROVAL FROM HSEM

Signatures are scanned facsimile, original signatures are on file.

C. SIGNED CERTIFICATE OF ADOPTION

CERTIFICATE OF ADOPTION

KENSINGTON, NH

SELECT BOARD

A RESOLUTION ADOPTING THE TOWN OF KENSINGTON HAZARD MITIGATION PLAN UPDATE 2020

WHEREAS, the Town of Kensington has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of those natural hazards profiled in this plan, resulting in loss of property and life, economic hardship and threats to public health and safety; and

WHEREAS, the Town of Kensington has developed and received conditional approval from the Homeland Security & Emergency Management (HSEM) for its Hazard Mitigation Plan Update 2020 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held between May 15, 2019 to December 15, 2019 regarding the development and review of the Hazard Mitigation Plan Update 2020 and

WHEREAS, the plan specifically addresses hazard mitigation strategies and plan maintenance procedure for the Town of Kensington; and

WHEREAS, the plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural hazards that impact the Town of Kensington with the effect of protecting people and property from loss associated with those hazards; and

WHEREAS, adoption of this plan will make the Town of Kensington of eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by the Select Board:

1. The plan is hereby adopted as an official plan of the Town of Kensington;
2. The respective officials identified in the mitigation action items of the plan are hereby directed to pursue implementation of the recommended actions assigned to them;

Kensington, Hazard Mitigation Plan Update Certificate of Adoption, page two

3. Future revisions and plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as a part of this resolution for a period of five (5) years from the date of this resolution;

4. An annual report on the progress of the implementation elements of the plan shall be presented to the Select Board by the Emergency Management Director.

Adopted this day, the _____ of _____, 2020

Chairman of the Select Board

_____
Signature

_____
Print Name

Member of the Select Board

_____
Signature

_____
Print Name

Member of the Select Board

_____
Signature

_____
Print Name

Emergency Management Director

_____
Signature

_____
Print Name

IN WITNESS WHEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of Kensington on this day, _____, 2020

_____
Notary

_____
Expiration

_____
Date

Signatures are scanned facsimile, original signatures are on file.

D. Formal Approval Letter FEMA

PAGE LEFT INTENTIONALLY BLANK FOR INSERTION OF FINAL APPROVAL LETTER FROM FEMA WHEN RECEIVED.

Signatures are scanned facsimile, original signatures are on file.

E. CWPP Approval Letter from DNCR

Kensington, NH
A Resolution Approving the
Kensington Hazard Mitigation Plan Update 2020
As a Community Wildfire Protection Plan

Several public meetings and committee meetings were held between May 15, 2019 to December 15, 2019 regarding the development and review of the Kensington Hazard Mitigation Plan Update 2020. The Kensington Hazard Mitigation Plan Update 2020 contains potential future projects to mitigate hazard and wildfire damage in the Town of Kensington.

The Fire Chief/Emergency Management Director (EMD) along with the Select Board desire that this plan and be accepted by the Department of Natural and Cultural Resources (DNCR) as a Community Wildfire Protection Plan, having adhered to the requirements of said plan.

The Select Board and the Fire Chief/EMD approve the Kensington Hazard Mitigation Plan Update 2020 and understand that with approval by DNCR, this plan will also serve as a Community Wildfire Protection Plan.

For the Town of Kensington

APPROVED and SIGNED this day, _____, 2020.

_____ _____
Chairman of the Select Board Printed Name

_____ _____
Fire Chief/EMD Jonathan M. True

For the Department of Natural & Cultural Resources (DNCR)

APPROVED and SIGNED this day, _____, 2020.

_____ _____
Forest Ranger – NH Division of Forest and Lands, DNCR Printed Name

APPROVED and SIGNED this day, _____, 2020.

_____
Steven Sherman, Chief, NH Forest Protection Bureau / State Forest Fire Supervisor

Signatures are scanned facsimile, original signatures are on file.

F. ANNUAL REVIEW OR POST HAZARD CONCURRENCE FORMS

YEAR ONE

CHECK ALL THAT APPLY

☐ Annual Review & Concurrence - **Year One**: _____ (Date)

☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

The Town of Kensington, NH shall execute this page annually by the members of the town's governing body and the town's designated Emergency Management Director after inviting the public to attend any and all hearings that pertain to this annual and/or post hazard review and/or update by means such as press releases in local papers, posting meeting information on the town website and at the Town Hall, sending letters to federal, state local organizations impacted by the plan posting notices in public places in the town.

Kensington, NH
Hazard Mitigation Plan Update

REVIEWED AND APPROVED

DATE: _____

SIGNATURE: _____

PRINTED NAME: _____

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: _____

PRINTED NAME: _____

Chairman of the Select Board

Changes and notes regarding the 2020 Hazard Mitigation Plan Update

_____

_____

_____

_____

Please use reverse side for additional notes ➡

Additional Notes – Year One:

YEAR TWO

CHECK ALL THAT APPLY

☐ Annual Review & Concurrence - **Year Two**: _____ (Date)

☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

The Town of Kensington, NH shall execute this page annually by the members of the town's governing body and the town's designated Emergency Management Director after inviting the public to attend any and all hearings that pertain to this annual and/or post hazard review and/or update by means such as press releases in local papers, posting meeting information on the town website and at the Town Hall, sending letters to federal, state local organizations impacted by the plan posting notices in public places in the town.

Kensington, NH
Hazard Mitigation Plan Update

REVIEWED AND APPROVED

DATE: _____

SIGNATURE: _____

PRINTED NAME: _____

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: _____

PRINTED NAME: _____

Chairman of the Select Board

Changes and notes regarding the 2020 Hazard Mitigation Plan Update

_____

_____

_____

_____

Please use reverse side for additional notes 

Additional Notes – Year Two:

YEAR THREE

CHECK ALL THAT APPLY

☐ Annual Review & Concurrence - **Year Three**: _____ (Date)

☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

The Town of Kensington, NH shall execute this page annually by the members of the town's governing body and the town's designated Emergency Management Director after inviting the public to attend any and all hearings that pertain to this annual and/or post hazard review and/or update by means such as press releases in local papers, posting meeting information on the town website and at the Town Hall, sending letters to federal, state local organizations impacted by the plan posting notices in public places in the town.

Kensington, NH
Hazard Mitigation Plan Update

REVIEWED AND APPROVED

DATE: _____

SIGNATURE: _____

PRINTED NAME: _____

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: _____

PRINTED NAME: _____

Chairman of the Select Board

Changes and notes regarding the 2020 Hazard Mitigation Plan Update

_____

_____

_____

_____

Please use reverse side for additional notes ➡

Additional Notes – Year Three:

YEAR FOUR

CHECK ALL THAT APPLY

☐ Annual Review & Concurrence - **Year Four**: _____ (Date)

☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

☐ Annual Review & Concurrence – Post Hazardous Event: _____ (Event/Date)

The Town of Kensington, NH shall execute this page annually by the members of the town's governing body and the town's designated Emergency Management Director after inviting the public to attend any and all hearings that pertain to this annual and/or post hazard review and/or update by means such as press releases in local papers, posting meeting information on the town website and at the Town Hall, sending letters to federal, state local organizations impacted by the plan posting notices in public places in the town.

Kensington, NH
Hazard Mitigation Plan Update

REVIEWED AND APPROVED

DATE: _____

SIGNATURE: _____

PRINTED NAME: _____

Emergency Management Director

CONCURRENCE OF APPROVAL

SIGNATURE: _____

PRINTED NAME: _____

Chairman of the Select Board

Changes and notes regarding the 2020 Hazard Mitigation Plan Update

_____

_____

_____

_____

Please use reverse side for additional notes ➡

Additional Notes – Year Four:

Chapter 12: Appendices

- APPENDIX A: BIBLIOGRAPHY
- APPENDIX B: TECHNICAL AND FINANCIAL ASSISTANCE FOR HAZARD MITIGATION
  - *Hazard Mitigation Grant Program (HMGP)*
  - *Pre-Disaster Mitigation (PDM)*
  - *Flood Mitigation Assistance (FMA)*
  - *Repetitive Flood Claims (RFC)*
  - *Severe Repetitive Loss (SRL)*
- APPENDIX C: THE EXTENT OF HAZARDS
- APPENDIX D: MAJOR DISASTER & EMERGENCY DECLARATIONS
- APPENDIX E: ACRONYMS
- APPENDIX F: POTENTIAL MITIGATION IDEAS

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APPENDIX A: BIBLIOGRAPHY

Documents

Local Hazard Mitigation Planning Review Guide, FEMA, October 2011

Local Hazard Mitigation Planning Handbook, FEMA, March 2013

Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013

Hazard Mitigation Unified Guidance, FEMA, July 12, 2013

Hazard Mitigation Assistance Guidance, FEMA, February 27, 2015

Hazards Mitigation Plans

- Kensington Hazard Mitigation Plan, 2013
- Salem Hazard Mitigation Plan, 2018
- Littleton Hazard Mitigation Plan, 2017
- Kingston Hazard Mitigation Plan, 2019

NH State Multi-Hazard Mitigation Plan, 2018

- *https://prd.blogs.nh.gov/dos/hsem/wp-content/uploads/2015/11/State-of-New-Hampshire-Multi-Hazard-Mitigation-Plan-Update-2018_FINAL.pdf*

NH Division of Forests and Lands Quarterly Update

- *http://www.nhdfl.org/fire-control-and-law-enforcement/fire-statistics.aspx*

Disaster Mitigation Act (DMA) of 2000, Section 101, b1 & b2 and Section 322a

- *http://www.fema.gov/library/viewRecord.do?id=1935*

Economic & Labor Market Information Bureau, NH Employment Security, March 2020; Community Response for Kensington, Received, 6/27/2019, Census 2000 and Revenue Information derived from this site;

- *http://www.nhes.nh.gov/elmi/products/cp/profiles-htm/Kensington.htm*

Photos

- Photos taken by MAPS unless otherwise noted.

Wildfire Links

- US Forest Service; *http://www.fs.fed.us*
- US Fire Administration; *http://www.usfa.dhs.gov/*
- US Department of Agriculture Wildfire Programs: *http://www.wildfireprograms.usda.gov/*
- Firewise®; *http://www.firewise.org/*
- Fire Adapted Communities; *www.fireadapted.org*
- Wildfire Preparedness Guide to Forest Wardens; *www.quickseries.com*
- Ready Set Go; *www.wildlandfires.org*
- Fire education for children; *www.smokeybear.com*

Additional Websites

- NH Homeland Security & Emergency Management; *http://www.nh.gov/safety/divisions/hsem/*
- US Geological Society; *http://water.usgs.gov/ogw/subsidence.html*
- Department Environmental Services; *http://des.nh.gov/organization/divisions/water/dam/drought/documents/historical.pdf*
- The Disaster Center (NH); *http://www.disastercenter.com/newhamp/tornado.html*
- Floodsmart, about the NFIP; *http://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp*
- NOAA, National Weather Service; *http://www.nws.noaa.gov/glossary/index.php?letter=w*
- NOAA, Storm Prediction Center; *http://www.spc.noaa.gov/faq/tornado/beaufort.html*
- National Weather Service; *http://www.nws.noaa.gov/om/cold/wind_chill.shtml*
- Center for Disease Control; *https://www.cdc.gov/disasters/winter/index.html*
- Slate; *http://www.slate.com/id/2092969/*
- NH Office Strategic Initiatives; *http://www.nh.gov/osi/*
- Code of Federal Regulations; Title 14, Aeronautics and Space; Part 1, Definitions and Abbreviations; *https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title14/14tab_02.tpl*
- Federal Aviation Administration; *http://faa.custhelp.com*
- US Legal, Inc.; *http://definitions.uslegal.com/v/violent-crimes/*

APPENDIX B: TECHNICAL & FINANCIAL ASSISTANCE FOR HAZARD MITIGATION

FEMA's Hazard Mitigation Assistance (HMA) grant programs provide funding FEMA's Hazard Mitigation Assistance (HMA) grant programs provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages. Currently, FEMA administers the following HMA grant programs[32]:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Repetitive Flood Claims (RFC)
- Severe Repetitive Loss (SRL)

FEMA's HMA grants are provided to eligible applicants (states/tribes/territories) that, in turn, provide sub-grants to local governments and communities. The applicant selects and prioritizes subapplications developed and submitted to them by subapplicants. These subapplications are submitted to FEMA for consideration of funding.

Prospective subapplicants should consult the office designated as their applicant for further information regarding specific program and application requirements. Contact information for the FEMA Regional Offices and State Hazard Mitigation Officers is available on the FEMA website, www.fema.gov.

HMA Grant Programs

The HMA grant programs provide funding opportunities for pre- and post-disaster mitigation. While the statutory origins of the programs differ, all share the common goal of reducing the risk of loss of life and property due to natural hazards. Brief descriptions of the HMA grant programs can be found below.

A. Hazard Mitigation Grant Program (HMGP)

HMGP assists in implementing long-term hazard mitigation measures following Major Disaster Declarations. Funding is available to implement projects in accordance with state, tribal and local priorities.

Table 3: Eligible Activities by Program

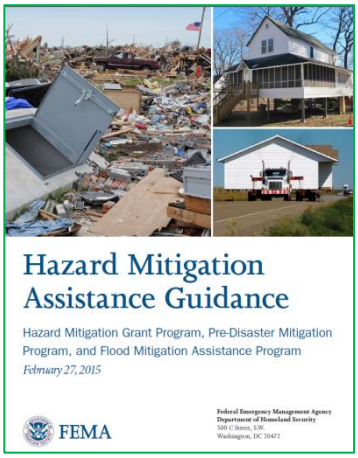
Eligible Activities	HMGP	PDM	FMA
1. Mitigation Projects	✓	✓	✓
Property Acquisition and Structure Demolition	✓	✓	✓
Property Acquisition and Structure Relocation	✓	✓	✓
Structure Elevation	✓	✓	✓
Mitigation Reconstruction	✓	✓	✓
Dry Floodproofing of Historic Residential Structures	✓	✓	✓
Dry Floodproofing of Non-residential Structures	✓	✓	✓
Generators	✓	✓	
Localized Flood Risk Reduction Projects	✓	✓	✓
Non-localized Flood Risk Reduction Projects	✓	✓	
Structural Retrofitting of Existing Buildings	✓	✓	✓
Non-structural Retrofitting of Existing Buildings and Facilities	✓	✓	✓
Safe Room Construction	✓	✓	
Wind Retrofit for One- and Two-Family Residences	✓	✓	
Infrastructure Retrofit	✓	✓	✓
Soil Stabilization	✓	✓	✓
Wildfire Mitigation	✓	✓	
Post-Disaster Code Enforcement	✓		
Advance Assistance	✓		
5 Percent Initiative Projects	✓		
Miscellaneous/Other[1]	✓	✓	✓
2. Hazard Mitigation Planning	✓	✓	✓
Planning Related Activities	✓		
3. Technical Assistance			✓
4. Management Cost	✓	✓	✓

[1] Miscellaneous/Other indicates that any proposed action will be evaluated on its own merit against program requirements. Eligible projects will be approved provided funding is available.

Eligibility Chart taken from Hazard Mitigation Assistance Guidance, February 27, 2015

[32] Information in Appendix B is taken from the following website and links to specific programs unless otherwise noted http://www.fema.gov/media-library-data/1424983165449-38f5dfc69c0bd4ea8a161e8bb7b79553/HMA_Guidance_022715_508.pdf

What is the Hazard Mitigation Grant Program?



The Hazard Mitigation Grant Program (HMGP) provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. Authorized under Section 404 of the Stafford Act and administered by FEMA, HMGP was created to reduce the loss of life and property due to natural disasters. The program enables mitigation measures to be implemented during the immediate recovery from a disaster.

Who is eligible to apply?

Hazard Mitigation Grant Program funding is only available to applicants that reside within a presidentially declared disaster area. Eligible applicants are

- State and local governments
- Indian tribes or other tribal organizations
- Certain non-profit organizations

Individual homeowners and businesses may not apply directly to the program; however a community may apply on their behalf.

How are potential projects selected and identified?

The state's administrative plan governs how projects are selected for funding. However, proposed projects must meet certain minimum criteria. These criteria are designed to ensure that the most cost-effective and appropriate projects are selected for funding. Both the law and the regulations require that the projects are part of an overall mitigation strategy for the disaster area.

The state prioritizes and selects project applications developed and submitted by local jurisdictions. The state forwards applications consistent with state mitigation planning objectives to FEMA for eligibility review. Funding for this grant program is limited and states and local communities must make difficult decisions as to the most effective use of grant funds.

B. Pre-Disaster Mitigation (PDM)

PDM provides funds on an annual basis for hazard mitigation planning and the implementation of mitigation projects prior to a disaster. The goal of the PDM program is to reduce overall risk to the population and structures, while at the same time, also reducing reliance on federal funding from actual disaster declarations.

Program Overview

The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event.

Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds.

C. Flood Mitigation Assistance (FMA)

FMA provides funds on an annual basis so that measures can be taken to reduce or eliminate risk of flood damage to buildings insured under the National Flood Insurance Program.

Program Overview

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.

Types of FMA Grants

Three types of FMA grants are available to states and communities:

Planning Grants to prepare Flood Mitigation Plans. Only NFIP-participating communities with approved Flood Mitigation Plans can apply for FMA Project grants.

Project Grants to implement measures to reduce flood losses, such as elevation, acquisition, or relocation of NFIP-insured structures. States are encouraged to prioritize FMA funds for applications that include repetitive loss properties; these include structures with 2 or more losses each with a claim of at least $1,000 within any ten-year period since 1978.

Technical Assistance Grants for the state to help administer the FMA program and activities. Up to ten percent (10%) of project grants may be awarded to states for Technical Assistance Grants

D. Repetitive Flood Claims (RFC)

RFC provides funds on an annual basis to reduce the risk of flood damage to individual properties insured under the NFIP that have had one or more claim payments for flood damages. RFC provides up to 100% federal funding for projects in communities that meet the reduced capacity requirements.

Program Overview

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).

Federal / Non-Federal Cost Share

FEMA may contribute up to 100 percent of the total amount approved under the RFC grant award to implement approved activities, if the applicant has demonstrated that the proposed activities cannot be funded under the Flood Mitigation Assistance (FMA) program.

E. Severe Repetitive Loss (SRL)

SRL provides funds on an annual basis to reduce the risk of flood damage to residential structures insured under the NFIP that are qualified as severe repetitive loss structures. SRL provides up to 90% federal funding for eligible projects.

Program Overview

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).

Definition

The definition of severe repetitive loss as applied to this program was established in section 1361A of the National Flood Insurance Act, as amended (NFIA), 42 U.S.C. 4102a. An SRL property is defined as a **residential property** that is covered under an NFIP flood insurance policy and:

(a) That has at least four NFIP claim payments (including building and contents) over $5,000 each and the cumulative amount of such claims payments exceeds $20,000; or

(b) For which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

For both (a) and (b) above, at least two of the referenced claims must have occurred within any ten-year period and must be greater than 10 days apart.

Purpose

To reduce or eliminate claims under the NFIP through project activities that will result in the greatest savings to the National Flood Insurance Fund (NFIF).

Federal / Non-Federal cost share

75/25%; up to 90% federal cost-share funding for projects approved in states, territories and federally-recognized Indian tribes with FEMA-approved Standard or Enhanced Mitigation Plans or Indian tribal plans that include a strategy for mitigating existing and future SRL properties.

For further information all of these programs, please refer to the new FEMA Hazard Mitigation Assistance Guidance:

http://www.fema.gov/media-library-data/1424983165449-38f5dfc69c0bd4ea8a161e8bb7b79553/HMA_Guidance_022715_508.pdf

APPENDIX C: THE EXTENT OF NATURAL HAZARDS

Hazards indicated with an asterisk * are included in this plan.

*SEVERE WINTER WEATHER

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

Snowstorms

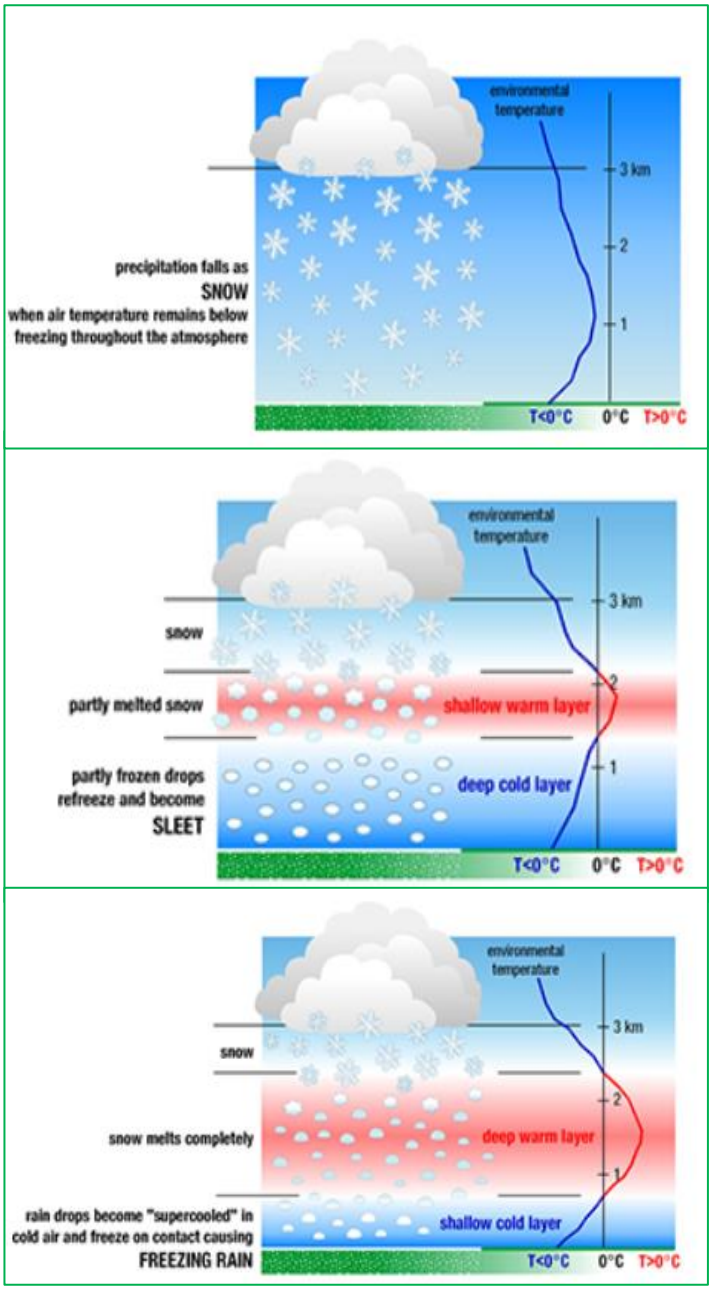
A winter storm can range from moderate snow to blizzard conditions. Blizzard conditions are considered blinding wind-driven snow over 35 mph that lasts several days. A severe winter storm deposits four or more inches of snow during a 12-hour period or six inches of snow during a 24-hour period.

Sleet

Snowflakes melt as they fall through a small band of warm air and later refreeze when passing through a wider band of cold air. These frozen rain drops then fall to the ground as “sleet”.

Freezing Rain & Ice Storms

Snowflakes melt completely as they fall through a warm band of air then fall through a shallow band of cold air close to the ground to become “supercooled”. These supercooled raindrops instantly freeze upon contact with the ground and anything else that is below 32 degrees Fahrenheit. This freezing creates accumulations of ice on roads, trees, utility lines and other objects resulting in what we think of as an “ice storm”. “Ice coating at least one-fourth inch in thickness is heavy enough to damage trees, overhead wires and similar objects.”[33]



Types of Severe Winter Weather
NOAA – National Severe Storms Laboratory

[33] NOAA, National Severe Storms Laboratory, https://www.nssl.noaa.gov/education/svrwx101/winter/types/

The Sperry-Piltz Ice Accumulation Index (SPIA) (below) is designed to help utility companies better prepare for predicated ice storms.[34]

The Sperry-Piltz Ice Accumulation Index, or "SPIA Index" – Copyright, February, 2009

ICE DAMAGE INDEX	* AVERAGE NWS ICE AMOUNT (in inches) *Revised-October, 2011	WIND (mph)	DAMAGE AND IMPACT DESCRIPTIONS
0	< 0.25	< 15	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	0.10 – 0.25	15 - 25	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
	0.25 – 0.50	> 15	
2	0.10 – 0.25	25 - 35	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
	0.25 – 0.50	15 - 25	
	0.50 – 0.75	< 15	
3	0.10 – 0.25	> = 35	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
	0.25 – 0.50	25 - 35	
	0.50 – 0.75	15 - 25	
	0.75 – 1.00	< 15	
4	0.25 – 0.50	> = 35	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
	0.50 – 0.75	25 - 35	
	0.75 – 1.00	15 - 25	
	1.00 – 1.50	< 15	
5	0.50 – 0.75	> = 35	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.
	0.75 – 1.00	> = 25	
	1.00 – 1.50	> = 15	
	> 1.50	Any	

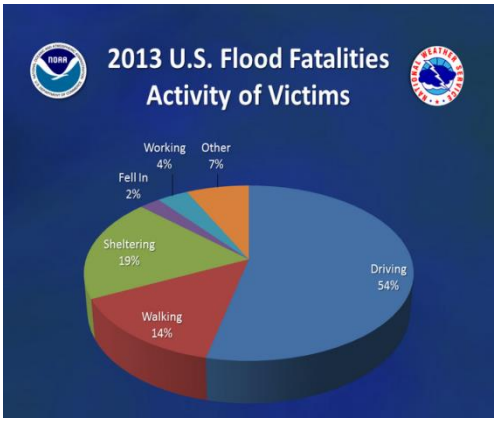
(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

*INLAND FLOODING

General Flooding Conditions

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

Inland floods are most likely to occur in the spring due to the increase in rainfall and melting of snow; however, floods can occur at any time of the year. A sudden thaw in the winter or a major downpour in the summer can cause flooding because there is suddenly a lot of water in one place with nowhere to go; warm temperatures and heavy rains cause rapid snowmelt producing prime conditions for flooding. In addition, rising waters in early spring often breaks ice into chunks that float downstream and pile up, causing flooding behind them. Small rivers and streams pose special flooding risks because they are easily blocked by jams. Ice in riverbeds and against structures presents a significant flooding threat to bridges, roads and the surrounding lands.



Flooding (Dam Failure)

[34] The Weather Channel, http://www.weather.com/news/weather-winter/rating-ice-storms-damage-sperry-piltz-20131202

Flooding as a result of dam failure can be small enough to only affect the immediate area of the dam, or large enough to cause catastrophic results to cities, towns and human life that is below the dam. The extent of flooding depends largely on the size of the dam, the amount of water that is being held by the dam, the size of the breach, the amount of water flow from the dam and the amount of human habitation that is downstream.

A "Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water, and which has a height of 4 feet or more, or a storage capacity of 2 acre-feet or more, or is located at the outlet of a great pond[35]. A dam failure occurs when water overtops the dam, or there is structural failure of the dam which causes there to be a breech and an unintentional release of water. Dams are classified in the following manner[36]:

Classification	Description	Inspection Intervals
Non-Menace	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 The dam must be less than six feet in height if the storage capacity is greater than 50 acre-feet or less than 25 feet in height if it has a storage capacity of 15-50 acre-feet.	Every 6 years
Low Hazard	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 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 contained sediment if the storage capacity is less two-acre-feet and is located more than 250 feet from a water body or water course, and/or reversible environmental losses to environmentally-sensitive sites.	Every 6 years
Significant Hazard	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 no probable loss of lives; however, there would be 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 pro public health losses including one or more of the following: damages to a public water system (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; or damage to an environmentally-sensitive site that does not meet the definition of reversible environmental losses.	Every 4 years
High Hazard	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 well 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 a 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 147-A:2 VII; or any other circumstance that would more likely than not cause one or more deaths.	Every 2 years

Flooding (local, road erosion)

Heavy rain, rapid snowmelt and stream flooding often cause culverts to be overwhelmed and roads to wash out.

[35] NH DES http://des.nh.gov/organization/divisions/water/dwgb/wrpp/documents/primer_chapter11.pdf
[36] http://des.nh.gov/organization/commissioner/pip/factsheets/db/documents/db-15.pdf

Today, with changes in land use, aging roads, designs that are no longer effective and undersized culverts, the risk of flooding is a serious concern. Inadequate and aging stormwater drainage systems create local flooding on both asphalt and gravel roads.

Flooding (Riverine)

Floodplains are usually located in lowlands near rivers and flood on a regular basis. The term 100-year flood does not mean that flood will occur once every 100 years. It is a statement of probability that scientists and engineers use to describe how one flood compares to others that are likely to occur. It is more accurate to use the phrase "1% annual chance flood". Flooding is often associated with hurricanes, heavy rains, ice jams and rapid snowmelt in the spring.

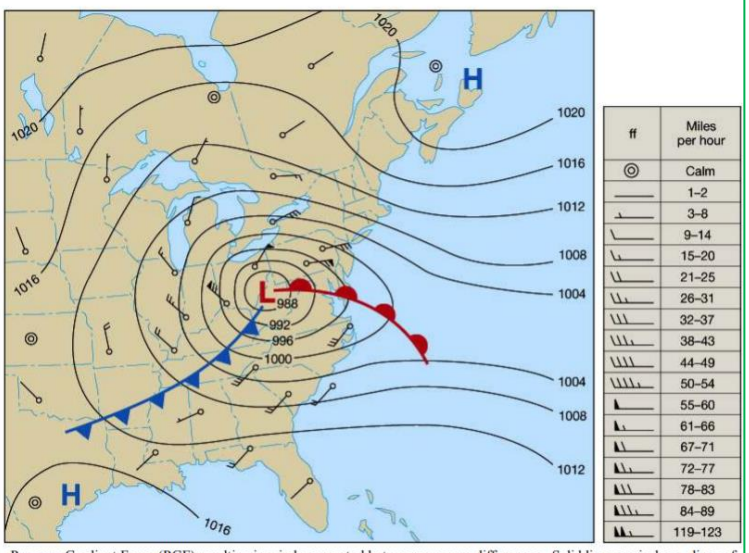
*HIGH WIND EVENTS

Windstorm

As stated by NOAA (National Oceanic & Atmospheric Administration), wind is defined as **"**The horizontal motion of the air past a given point." Winds begin with differences in air pressures. Those pressures which are higher at one place than another place set up a force pushing from the high pressure toward the low pressure; the greater the difference in pressures, the stronger the force. The distance between the area of high pressure and the area of low pressure also determines how fast the moving air is accelerated. Meteorologists refer to the force that starts the wind flowing as the "pressure gradient force." High and low pressures are relative. There's no set number that divides high and low pressure. Wind is used to describe the prevailing direction from which the wind is blowing with the speed given usually in miles per hour or knots." In addition, NOAA's issuance of a Wind Advisory takes place when sustained winds reach 25 to 39 mph and/or gusts to 57 mph.[37] [38]

Pressure Gradient Force, PGF

The Pressure Gradient Force (PGF) is the direct result of different air pressures. As we have done for temperature by drawing isothermal maps, we can do for pressure and draw isobaric maps. Lines on these maps connect points of equal pressure.



Pressure Gradient Force (PGF) resulting in winds generated between pressure differences. Solid lines are isobars - lines of constant pressure.

Figure 6.9 in *The Atmosphere, 8th edition*, Lutgens and Tarbuck, 8th edition, 2001.

[37] NOAA; *http://www.nws.noaa.gov/glossary/index.php?letter=w*

[38] Pressure Gradient Force Chart "snipped" from Air Pressure and Wind; https://www.weather.gov/media/zhu/ZHU_Training_Page/winds/pressure_winds/pressure_winds.pdf

Tornado

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

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

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

"Dr. T. Theodore Fujita developed the Fujita Tornado Damage Scale (F-Scale) to provide estimates of tornado strength based on damage surveys. Since it's practically impossible to make direct measurements of tornado winds, an estimate of the winds based on damage is the best way to classify a tornado. The new Enhanced Fujita Scale (EF-Scale) addresses some of the limitations identified by meteorologists and engineers since the introduction of the Fujita Scale in 1971. The new scale identifies 28 different free standing structures most affected by tornadoes taking into account construction quality and maintenance. The range of tornado intensities remains as before, zero to five, with 'EF-0' being the weakest, associated with very little damage and 'EF-5' representing complete destruction, which was the case in Greensburg, Kansas on May 4th, 2007, the first tornado classified as 'EF-5'. The EF scale was adopted on February 1, 2007."[39] The chart (right), adapted from wunderground.com, shows a comparison of the Fujita Scale to the Enhanced Fujita Scale.

EF SCALE	OLD F-SCALE	TYPICAL DAMAGE
EF-0 (65-85mph)	**F0** (65-73 mph)	**Light damage.** Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF-1 (86-110 mph)	**F1** (74-112 mph)	**Moderate damage.** Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF-2 (111-135 mph)	**F2** (113-157 mph)	**Considerable damage.** Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF-3 (136-165 mph)	**F3** (158-206 mph)	**Severe damage.** Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF-4 (166-200 mph)	**F4** (207-260 mph)	**Devastating damage.** Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF-5 (>200 mph)	**F5** (261-318 mph)	**Incredible damage.** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yards); high-rise buildings have significant structural deformation; incredible phenomena will occur.
EF No rating	**F6-F12** (319 mph to speed of sound)	**Inconceivable damage.** Should a tornado with the maximum wind speed in excess of EF5 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water heaters, storage tanks, automobiles, etc. will create serious secondary damage on structures.

[39] Enhance Fujita Scale, http://www.wunderground.com/resources/severe/fujita_scale.asp

Downburst

A downburst is a strong downdraft which causes damaging winds on or near the ground according to NOAA. Not to be confused with downburst, the term "microburst" describes the size of the downburst. A comparison of a microburst and the larger macroburst shows that both can cause extreme winds.

A microburst is a downburst with winds extending 2 ½ miles or less, lasting 5 to 15 minutes and causing damaging winds as high as 168 MPH. A macroburst is a downburst with winds extending more than 2 ½ miles lasting 5 to 30 minutes. Damaging winds, causing widespread, tornado-like damage, could be as high as 134 MPH.[40]

Below is the Beaufort Wind Scale, showing expected damage based on wind (knots), developed in 1805 by Sir Francis Beaufort of England and posted on NOAA's Storm Prediction Center website.[41]

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes bring to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft. taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft., whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-20 ft., white foam streaks off breakers	Whole trees moving, resistance felt walking against wind
8	34-40	Gale	Moderately high (13-20 ft.) waves of greater length, edges of crests begin to break into spindrift, forum blown in streaks	Whole trees in motion, resistance felt walking against wind
9	41-47	Strong Gale	High waves (20 ft.), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (20-30 ft.) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	Exceptionally high(30-45 ft.) waves, foam patches cover sea, visibility more reduced	
12	64+	Hurricane	Air filled with foam, waves over 45 ft., sea completely white with driving spray, visibility greatly reduced	

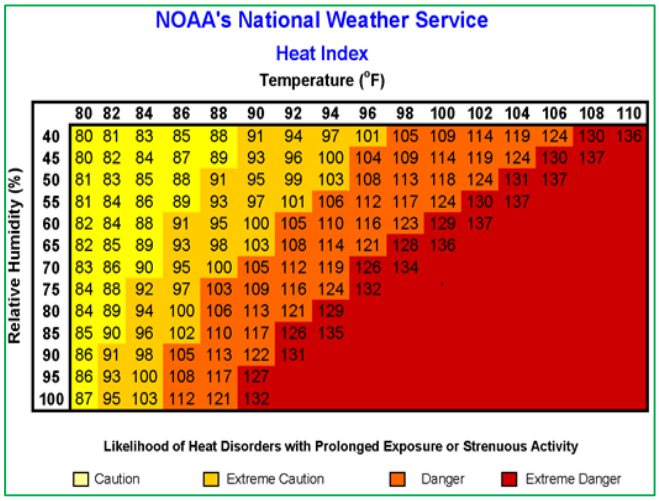
[40] NOAA - http://www.srh.noaa.gov/jetstream/tstorms/wind.html
[41] NOAA, Storm Prediction Center, *http://www.spc.noaa.gov/faq/tornado/beaufort.html*

*EXTREME TEMPERATURES

Extreme Heat

A heat wave is 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.

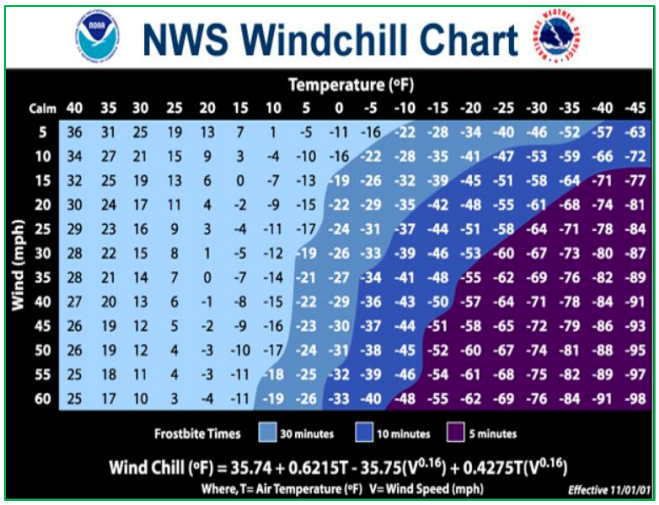


RH	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

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 at night, which can produce higher nighttime temperatures known as the "urban heat island effect.”[42] The chart above explains the likelihood of heat disorders that may result from high heat.[43]

Extreme Cold

What constitutes extreme cold and its effects can vary across different areas of the country. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered “extreme cold.” Whenever temperatures drop decidedly below normal and as wind speed increases, heat can leave your body more rapidly; these weather related conditions may lead to serious health problems. Extreme cold is a dangerous situation that can bring on health emergencies in susceptible people without shelter or who are stranded, or who live in a home that is poorly insulated or without heat.[44] The National Weather Service Chart (to the right) shows windchill as a result of wind and temperature.[45]



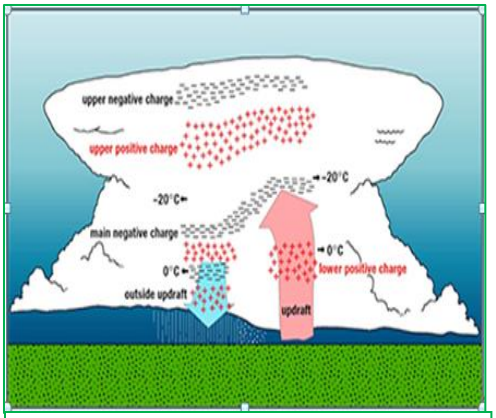
Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

[42] NOAA, Index/Heat Disorders; http://www.srh.noaa.gov/ssd/html/heatwv.htm
[43] NOAA; http://www.nws.noaa.gov/os/heat/index.shtml
[44] CDC; http://www.bt.cdc.gov/disasters/winter/guide.asp f
[45] National Weather Service; http://www.nws.noaa.gov/om/windchill/

*LIGHTNING

Lightning

As stated by the NOAA National Severe Storms Laboratory (NSSL) "Lightning is a giant spark of electricity in the atmosphere between clouds, the air, or the ground. In the early stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground. When the opposite charges build up enough, this insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning. The flash of lightning temporarily equalizes the charged regions in the atmosphere until the opposite charges build up again."[46]



"A conceptual model shows the electrical charge distribution inside deep convention (thunderstorms), developed by NSSL and university scientists. In the main updraft (in and above the red arrow), there are four main charge regions. In the convective region but outside the out draft (in and above the blue arrow), there are more than four charge regions." - NOAA

Thunder, a result of lightning, is created when the "lightning channel heats the air to around 18,000 degrees Fahrenheit..."[47] thus causing the rapid expansion of the air and the sounds we hear as thunder. Although thunder that is heard during a storm cannot hurt you, the lightning that is associated with the thunder can not only strike people but also strike homes, out-buildings, grass and trees sparking disaster. Wildfires and structure loss are at a high risk during severe lightning events.

Although thunderstorms and their associated lightning can occur any time of year, in New England they are most likely to occur in the summer months and during the late afternoon or early evening hours; they may even occur during a winter snowstorm. Trees, tall buildings and mountains are often the targets of lightning because their tops are closer to the cloud; however, lightning is unpredictable and does not always strike the tallest thing in the area.

Thunderstorms and lightning occur most commonly in moist warm climates. Data from the National Lightning Detection Network shows that over the continental U.S. an average of 20,000,000 cloud-to-ground flashes occur every year. Around the world, lightning strikes the ground about 100 times each second, or 8 million times a day.

In general, lightning decreases across the U.S. mainland toward the northwest. Over the entire year, the highest frequency of cloud-to-ground lightning is in Florida between Tampa and Orlando. This is due to the presence, on many days during the year, of a large moisture content in the atmosphere at low levels (below 5,000 feet), as well as high surface temperatures that produce strong sea breezes along the Florida coasts. The western mountains of the U.S. also produce strong upward motions and contribute to frequent cloud-to-ground lightning. There are also high frequencies along the Gulf of Mexico coast, the Atlantic coast and in the southeast United States. US Regions along the Pacific west coast have the least cloud-to-ground lightning."[48]

[46] NOAA National Severe Storms Laboratory, https://www.nssl.noaa.gov/education/svrwx101/lightning
[47] Ibid
[48] Ibid

Lightning Activity Level (LAL) Grid		
The lightning activity level is a common parameter that is part of fire weather forecasts nationwide. LAL is a measure of the amount of lightning activity using values 1 to 6 where:		
LAL	**Cloud & Storm Development**	**Lightning Strikes 15 Minutes**
1	No thunderstorms	**-**
2	Cumulus clouds are common but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	**1-8**
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two to three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	**9-15**
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common and lightning is frequent.	**16-25**
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rain is moderate to heavy and lightning is frequent and intense.	**>25**
6	Similar to LAL 3 except thunderstorms are dry.	

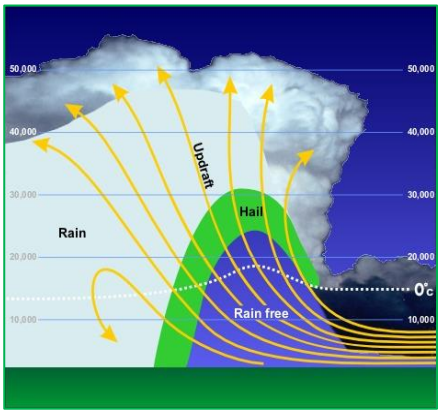
http://www.prh.noaa.gov/hnl/pages/LAL.php

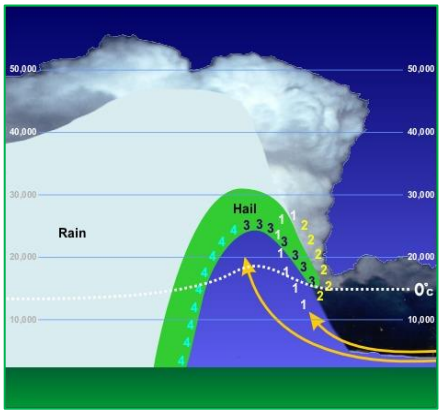
Hailstorm

Hailstones are balls of ice that grow as they are held up by winds, known as updrafts that blow upwards in thunderstorms. The updrafts carry droplets of supercooled water, water at a below-freezing temperature that is not yet ice. The supercooled water droplets freeze into balls of ice and grow to become hailstones. The faster the updraft, the bigger the stones can grow. Most hailstones are smaller in diameter than a dime, but stones weighing more than a pound have been recorded. "The largest hailstone recovered in the US fell in Vivian, SD on June 23, 2010 with a diameter of 8 inches and a circumference of 18.62 includes. It weighed 1 lb. 15 oz."[49]

Dime/Penny	0.75
Nickel	0.88
Quarter	1.00
Half Dollar	1.25
Ping Pong	1.50
Golf Ball	1.75
Hen Egg	2.00
Tennis Ball	2.50
Baseball	2.75
Tea Cup	3.00
Grapefruit	4.00
Softball	4.50

Details of how hailstones grow are complicated, but the results are irregular balls of ice that can be as large as baseballs. The chart above shows the relative size differences and a common way to "measure" the size of hail based on diameter.[50] The charts to the right show how hail is formed.[51]





[49] NOAA National Severe Storms Laboratory; https://www.nssl.noaa.gov/education/svrwx101/hail/
[50] http://www.pinterest.com/pin/126171227030590678/
[51] http://oceanservice.noaa.gov/education/yos/resource/JetStream/tstorms/hail.htm#hail

*WILDFIRES

Class	Aces Burned
Class A	0 to .25 acres
Class B	.26 to 9 acres
Class C	10 to 99 acres
Class D	100 to 299 acres
Class E	300 to 999 acres
Class F	1,000 to 4,999 acres
Class G	5,000 acres or more

Code	Statistical Cause
1	Lightning
2	Equipment Use
3	Smoking
4	Campfire
5	Debris Burning
6	Railroad
7	Arson
8	Children
9	Miscellaneous

As stated by the National Wildfire Coordinating Group (NWCG), wildfires are designated in seven categories as seen in the top chart to the right:[52] For the purpose of statistical analysis, the US Forest Service recognizes the cause of fires according to the bottom chart to the right:[53]

The definition according to the International Wildland-Urban Interface Code of wildfire is “an uncontrolled fire spreading through vegetative fuels exposing and possibly consuming structures”. In addition, the IWUIC goes on to define the wildland urban interface area as “that geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels.[54]

There are two main potential losses with a wildfire: the forest itself and the threat to the built-up human environment (the structures within the WUI). In many cases, the only time it is feasible for a community to control a wildfire is when it threatens the built-up human environment.

*TROPICAL & POST-TROPICAL CYCLONES

Cyclones (Hurricanes)

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

“The Saffir-Simpson Hurricane Wind Scale” (on the following page[55]) is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous and require preventative measures. In the western North Pacific, the term "super typhoon" is used for tropical cyclones with sustained winds exceeding 150 mph.”[56]

Flooding is often caused from the coastal storm surge of the ocean and torrential rains, both of which may accompany a hurricane; these floods can result in loss of lives and property.

Post-Tropical Cyclones

A tropical depression becomes a tropical storm when its maximum sustained winds are between 39-73 mph. Although tropical storms have winds of less than 74 miles per hour, like hurricanes, they can do significant damage. The damage most felt by tropical storms is from the torrential rains they produce which cause rivers and streams to flood and overflow their banks.

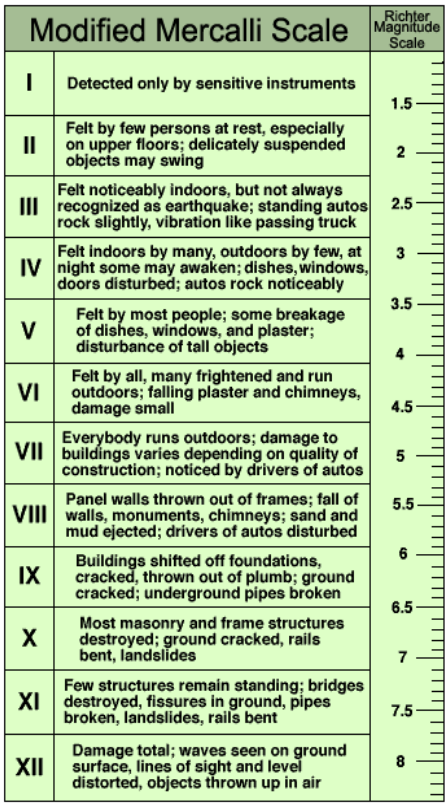
[52] http://www.nwcg.gov/pms/pubs/glossary/s.htm
[53] https://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsh?5109.14
[54] International Wildland-Urban Interface Code, 2012, International Code Council, Inc.
[55] National Hurricane Center; http://www.nhc.noaa.gov/aboutsshws.php
[56] National Hurricane Center, NOAA; http://www.nhc.noaa.gov/aboutsshws.php

Rainfall from tropical storms has been reported at rates of up to 6 inches per hour; 43 inches of rain in a 24 hour period was reported in Alvin, TX as a result of Tropical Storm Claudette.[57]

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt. 119-153 km/h	**Very dangerous winds will produce some damage:** Well-constructed frame homes could have damage to roof, shingles, and 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 83-95 kt. 154-177 km/h	**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 (major)	111-129 mph 96-112 kt. 178-208 km/h	**Devastating damage will occur:** Well-built frame 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 (major)	130-156 mph 113-136 kt 209-251 km/h	**Catastrophic damage will occur:** Well-built frame 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 (major)	157 mph or higher 137 kt. or higher 252 km/h 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

*EARTHQUAKES

An earthquake is a rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric and phone lines and often cause landslides, flash floods, fires and avalanches. Larger earthquakes usually begin with slight tremors but rapidly take the form of one or more violent shocks and end in vibrations of gradually diminishing force called aftershocks. The underground point of origin of an earthquake is called its focus; the point on the surface directly above the focus is the epicenter. The magnitude and intensity of an earthquake is widely determined by the use of two scales, the more commonly used Richter scale (measures strength or magnitude) and the Mercalli Scale (measures intensity or severity). The chart to the right shows the two scales relative to one another. The Richter scale measures earthquakes starting at 1 as the lowest with each successive unit being about 10 times stronger and more severe than the previous one.[58]

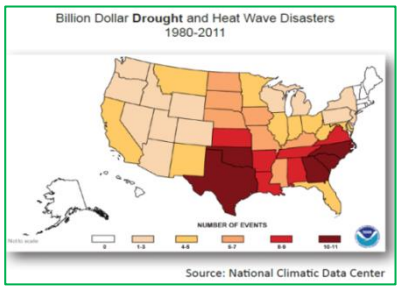


Four earthquakes occurred in New Hampshire between 1924-1989 having a magnitude of 4.2 or more. Two of these occurred in Ossipee, one west of Laconia and one near the Quebec border. It is well documented that there are fault lines running throughout New Hampshire, but high magnitude earthquakes have not been frequent in NH history.

[57] http://www.wpc.ncep.noaa.gov/research/mcs_web_test_test_files/Page1637.htm

[58] Modified Mercalli Scale/Richter Scale Chart; MO DNR, http://www.dnr.mo.gov/geology/geosrv/geores/richt_mercali_relation.htm

*DROUGHT



A drought is defined as a long period of abnormally low precipitation, especially one that adversely affects the growing season or living conditions of plants and animals. Droughts are rare in New Hampshire. They generally are not as damaging and disruptive as floods and are more difficult to define. The effect of drought is indicated through measurements of soil moisture, groundwater levels and stream flow.

However, not all of these indicators will be minimal during a drought. For example, frequent minor rainstorms can replenish the soil moisture without raising groundwater levels or increasing stream flow. Low stream flow also correlates with low groundwater levels because groundwater discharge to streams and rivers maintains stream flow during extended dry periods. Low stream flow and low groundwater levels commonly cause diminished water supply.

The US Drought Monitor provides an intensity scale as shown below to indicate the "Category" of drought any given time. During the peak months of the 2016 drought in New Hampshire, the southern part of the start was in Category D3 or Extreme Drought.

			Ranges				
Category	Description	Possible Impacts	Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: ▪ short-term dryness slowing planting, growth of crops or pastures Coming out of drought: ▪ some lingering water deficits ▪ pastures or crops not fully recovered	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
D1	Moderate Drought	▪ Some damage to crops, pastures ▪ Streams, reservoirs, or wells low, some water shortages developing or imminent ▪ Voluntary water-use restrictions requested	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	▪ Crop or pasture losses likely ▪ Water shortages common ▪ Water restrictions imposed	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	▪ Major crop/pasture losses ▪ Widespread water shortages or restrictions	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4	Exceptional Drought	▪ Exceptional and widespread crop/pasture losses ▪ Shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

https://droughtmonitor.unl.edu/AboutUSDM/AbouttheData/DroughtClassification.aspx

LANDSLIDE

Erosion is the wearing a way of land, such as loss of riverbank, beach, shoreline or dune material. It is measured as the rate of change in the position or displacement of a riverbank or shoreline over a period of time. Short-term erosion typically results from periodic natural events, such as flooding, hurricanes, storm surge and windstorms but may be intensified by human activities. Long-term erosion is a result of multi-year impacts such as repetitive flooding, wave action, sea level rise, sediment loss, subsidence and climate change. Death and injury are not typically associated with erosion; however, it can destroy buildings and infrastructure.[59]

While no universally accepted standard or scientific scale has been developed for measuring the severity of all landslides, severity can be measured several other ways:

- Steepness/grade of the Slope (measured as a percent)
- Geographical Area
    - Measured in square feet, square yards, etc.
    - More accurately measured using LIDAR/GIS systems
- Earthquake, either causing the event or caused by the event (measured using the Moment Magnitude Intensity or Mercalli Scale)

There are also multiple types of landslides:

- Falls: A mass detaches from a steep slope or cliff and descends by free-fall, bounding, or rolling
- Topples: A mass tilts or rotates forward as a unit
- Slides: A mass displaces on one or more recognizable surfaces, which may be curved or planar
- Flows: A mass moves downslope with a fluid motion. A significant amount of water may or may not be part of the mass

Like flooding, landslides are unique in how they affect different geographic, topographic, and geologic areas. Therefore, consideration of a multitude of measurements is required to determine the severity of the landslide event.[60]

*INFECTIOUS DISEASES

Bacterial & Viral Infections

There are many organisms that live inside our bodies and on our skin. These organisms are generally harmless and sometimes may even be helpful, they can cause illnesses. Infectious diseases can be transmitted from one person to another, by bites from animals or insects (zoonotic), from the environment or by consuming food or water that has been contaminated. Infectious diseases may be caused by bacteria, viruses, fungi and parasites.[61]

Some of the more common infectious diseases include Lyme disease, HIV/AIDS, Tuberculosis, Rabies, West Nile Virus, Eastern Equine Encephalitis (EEE), Ebola, Avian Flu, Enterovirus D-68, Influenza, Hepatitis A, Zika Virus, Meningitis, Legionella, Sexually Transmitted Diseases (STD), Hepatitis C, Salmonella, SARS and Staph.[62]

[59] Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards, FEMA, January 2013
[60] State of New Hampshire Multi-Hazard Mitigation Plan Update 2018 & https://oas.org/dsd/publications/Unit/oea66e/ch10.htm
[61] https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms-causes/syc-20351173
[62] https://www.dhhs.nh.gov/dphs/cdcs/index.htm

"Throughout history, millions of people have died of diseases such as bubonic plague or the Black Death, which is caused by Yersinia pestis bacteria, and smallpox, which is caused by the variola virus. In recent times, viral infections have been responsible for two major pandemics: the 1918-1919 "Spanish Flu" epidemic that killed 20-40 million people, and the ongoing HIV/AIDS epidemic that killed an estimated 1.5 million people worldwide in 2013 alone.

Bacterial and viral infections can cause similar symptoms such as coughing and sneezing, fever, inflammation, vomiting, diarrhea, fatigue, and cramping – all of which are ways the immune system tries to rid the body of infectious organisms. But bacterial and viral infections are dissimilar in many other important respects, most of them due to the organisms' structural differences and the way they respond to medications."[63]

In early 2020, a novel coronavirus emerged in China which then spread worldwide to become the worst pandemic since the 1918 Spanish Flu. Known as COVID-19, this novel coronavirus had infected 21,010,700 people and caused the deaths of 761,260 individuals worldwide as of August 14, 2020. Confirmed cases in the US as of this date was reported to be 5,280,315 with 167,828.[64] The majority of US residents have been advised to "stay-at-home" by State Governors; businesses have been closed in an effort to "flatten" the rising curve of confirmed cases through mitigation. As of August 2020, mitigation efforts appear to be working in some US states, while other states are struggling to control the virus. A nationwide testing program and an effective vaccine have not been developed. Stay-at-home orders have lifted in most states; however mitigation efforts are being encouraged in all areas. This is an evolving worldwide crisis, effecting millions of workers in the United States and presenting massive economic results. Although most people who have been confirmed with COVID-19 eventually recover, the virus has had a particular impact on the elderly and compromised individuals, particularly those in confined living quarters such as nursing homes and prisons.

The extent of infectious diseases is generally described by the level and occurrence of a particular disease as follows[65]:

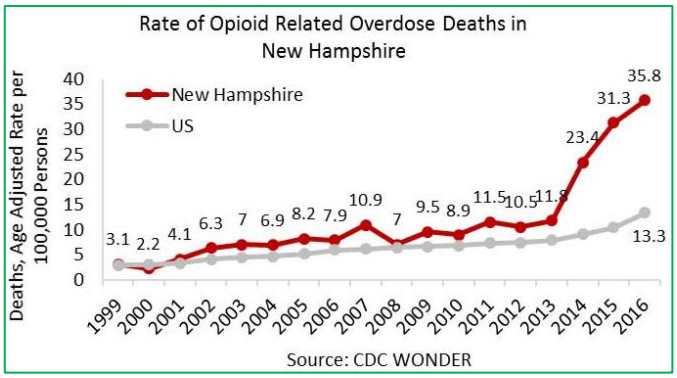
Endemic	Disease with a constant presence or usual prevalence in a population within a geographic area
Sporadic	Disease that occurs infrequently and irregularly
Hyperendemic	Disease that is persistent and has high levels of occurrence
Epidemic	Disease that shows an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area
Outbreak	Disease that has the same definition of epidemic, but is often used for a more limited geographic area
Cluster	Refers to an aggregation of cases grouped in place and time that are suspected to be greater than the number expected, even though the expected number may not be known.
Pandemic	An epidemic that has spread over several countries or continents, usually affecting a large number of people

[63] https://www.webmd.com/a-to-z-guides/bacterial-and-viral-infections#1
[64] Johns Hopkins University, https://coronavirus.jhu.edu/map.html
[65] https://www.cdc.gov/ophss/csels/dsepd/ss1978/lesson1/section11.html

Opioid Crisis

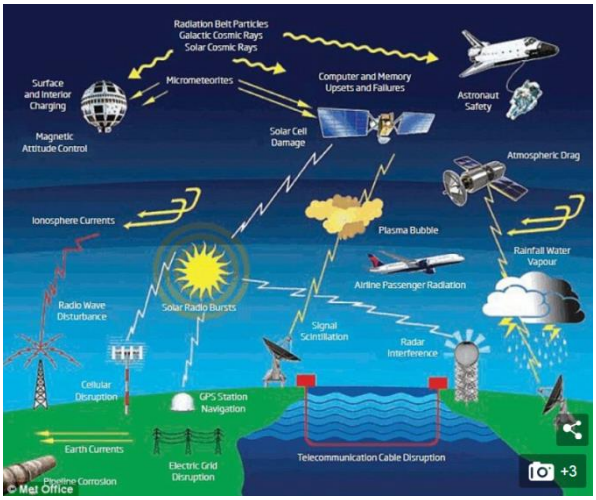
A revised report by the National Institute of Drug Abuse states, *"Every day, more than 130 people in the United States die after overdosing on opioids. The misuse of and addiction to opioids—including prescription pain relievers, heroin, and synthetic opioids such as fentanyl - is a serious national crisis that affects public health as well as social and economic welfare. The Centers for Disease Control and Prevention estimates that the total "economic burden" of prescription opioid misuse alone in the United States is $78.5 billion a year, including the costs of healthcare, lost productivity, addiction treatment, and criminal justice involvement."*

According to the National Institute on Drug Abuse, *"New Hampshire has the second highest rate of opioid-related overdose deaths – a rate of 35.8 deaths per 100,000 persons – nearly 3 times higher than the national rate of 13.2 deaths per 100,000. From 2013 through 2016, opioid-related deaths in New Hampshire tripled. This increase was mainly driven by the number of deaths related to synthetic opioids (predominately fentanyl), which increased more than tenfold, from 30 to 363 deaths, during this time."*[66] The chart to the right shows the increase in opioid-related overdose deaths in New Hampshire compared to those in the US overall.[67]



SOLAR STORM & SPACE WEATHER

When sudden amounts of stored magnetic energy and ions are discharged from the Sun's surface, solar flares, high-speed solar wind streams, solar energetic particles and coronal mass ejections (CMEs) are possible. At times, this magnetic energy finds its way to Earth by following the Sun's magnetic field. Then, upon collision with the Earth's magnetic field, these charged particles enter the Earth's upper atmosphere causing Auroras.



Charged magnetic participles can produce their own magnetic field which can disrupt navigation and communication systems and GPS satellites and can potentially produce Geomagnetic Induced Currents (GICs) which can affect the power grid and pipelines. An electromagnetic surge from a solar storm has potential to produce an Electromagnetic Pulse (EMP) which could cause significant damage to infrastructure such as nuclear power plants, banking systems, the electrical grid, sewage treatment facilities, cell phones, landlines and even vehicles. The image above shows the potential impacts from solar storm and space weather.[68]

[66] https://www.drugabuse.gov/drugs-abuse/opioids/opioid-summaries-by-state/new-hampshire-opioid-summary
[67] Ibid
[68] https://www.dailymail.co.uk/sciencetech/article-3764842/A-solar-storm-destroy-planet-unless-create-massive-magnetic-shield-protect-Earth-warns-expert.html

Solar Storm & Space Weather Extent[69]

Geomagnetic Storms				
Scale	**Description**	**Effect**	**Physical Measure**	**Average Frequency (1 cycle = 11 years)**
G 5	Extreme	**Power systems:** Widespread voltage control problems and protective system problems can occur; some grid systems may experience complete collapse or blackouts. Transformers may experience damage. **Spacecraft operations**: May experience extensive surface charging, problems with orientation, uplink/downlink and tracking satellites. **Other systems:** Pipeline currents can reach hundreds of amps, HF (high frequency) radio propagation may be impossible in many areas for one to two days, satellite navigation may be degraded for days, low-frequency radio navigation can be out for hours, and aurora has been seen as low as Florida and southern Texas (typically 40° geomagnetic lat.).	Kp = 9	4 per cycle (4 days per cycle)
G 4	Severe	**Power systems:** Possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid. **Spacecraft operations:** May experience surface charging and tracking problems, corrections may be needed for orientation problems. **Other systems:** Induced pipeline currents affect preventive measures, HF radio propagation sporadic, satellite navigation degraded for hours, low-frequency radio navigation disrupted, and aurora has been seen as low as Alabama and northern California (typically 45° geomagnetic lat.).	Kp = 8, including a 9-	100 per cycle (60 days per cycle)
G 3	Strong	**Power systems:** Voltage corrections may be required; false alarms triggered on some protection devices. **Spacecraft operations:** Surface charging may occur on satellite components, drag may increase on low-Earth-orbit satellites, and corrections may be needed for orientation problems. **Other systems:** Intermittent satellite navigation and low-frequency radio navigation problems may occur, HF radio may be intermittent, and aurora has been seen as low as Illinois and Oregon (typically 50° geomagnetic lat.).	Kp = 7	200 per cycle (130 days per cycle)
G 2	Moderate	**Power systems:** High-latitude power systems may experience voltage alarms; long-duration storms may cause transformer damage. **Spacecraft operations**: Corrective actions to orientation may be required by ground control; possible changes in drag affect orbit predictions. **Other systems:** HF radio propagation can fade at higher latitudes, and aurora has been seen as low as New York and Idaho (typically 55° geomagnetic lat.).	Kp = 6	600 per cycle (360 days per cycle)
G 1	Minor	**Power systems:** Weak power grid fluctuations can occur. **Spacecraft operations:** Minor impact on satellite operations possible. **Other systems:** Migratory animals are affected at this and higher levels; aurora is commonly visible at high latitudes (northern Michigan and Maine).	Kp = 5	1700 per cycle (900 days per cycle)

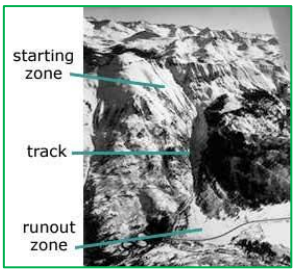
Solar Radiation Storms				
Scale	**Description**	**Effect**	**Physical Measure (Flux level of >=10 MeV particles)**	**Average Frequency (1 cycle = 11 years)**
S 5	Extreme	**Biological:** Unavoidable high radiation hazard to astronauts on EVA (extra- vehicular activity); passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.**Satellite operations:** Satellites may be rendered useless, memory impacts can cause loss of control, may cause serious noise in image data, star- trackers may be unable to locate sources; permanent damage to solar panels possible.**Other systems:** Complete blackout of HF (high frequency) communications possible through the polar regions, and position errors make navigation operations extremely difficult.	10^{5}	Fewer than 1 per cycle
S 4	Severe	**Biological:** Unavoidable radiation hazard to astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk. **Satellite operations:** May experience memory device problems and noise on imaging systems; star-tracker problems may cause orientation problems, and solar panel efficiency can be degraded. **Other systems:** Blackout of HF radio communications through the polar regions and increased navigation errors over several days are likely.	10^{4}	3 per cycle

[69] Extent charts taken from https://www.weather.gov/akq/SpaceWeather

Solar Radiation Storms				
S 3	Strong	**Biological:** Radiation hazard avoidance recommended for astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk. **Satellite operations:** Single-event upsets, noise in imaging systems, and slight reduction of efficiency in solar panel are likely. **Other systems**: Degraded HF radio propagation through the polar regions and navigation position errors likely.	10^{3}	10 per cycle
S 2	Moderate	**Biological:** Passengers and crew in high-flying aircraft at high latitudes may be exposed to elevated radiation risk. **Satellite operations:** Infrequent single-event upsets possible. **Other systems:** Small effects on HF propagation through the polar regions and navigation at polar cap locations possibly affected.	10^{2}	25 per cycle
S 1	Minor	**Biological:** None. **Satellite operations**: None. **Other systems:** Minor impacts on HF radio in the polar regions.	10	50 per cycle

Radio Blackout				
Scale	**Description**	**Effect**	**Physical Measure**	**Average Frequency (1 cycle = 11 years)**
R 5	Extreme	**HF Radio:** Complete HF (high frequency) radio blackout on the entire sunlit side of the Earth lasting for a number of hours. This results in no HF radio contact with mariners and on route aviators in this sector. **Navigation:** Low-frequency navigation signals used by maritime and general aviation systems experience outages on the sunlit side of the Earth for many hours, causing loss in positioning. Increased satellite navigation errors in positioning for several hours on the sunlit side of Earth, which may spread into the night side.	X20 (2×10^{-3})	Less than 1 per cycle
R 4	Severe	**HF Radio:** HF radio communication blackout on most of the sunlit side of Earth for one to two hours. HF radio contact lost during this time. **Navigation:** Outages of low-frequency navigation signals cause increased error in positioning for one to two hours. Minor disruptions of satellite navigation possible on the sunlit side of Earth.	X10 (10^{-3})	8 per cycle (8 days per cycle)
R 3	Strong	**HF Radio:** Wide area blackout of HF radio communication, loss of radio contact for about an hour on sunlit side of Earth. **Navigation:** Low-frequency navigation signals degraded for about an hour.	X1 (10^{-4})	175 per cycle (140 days per cycle)
R 2	Moderate	**HF Radio:** Limited blackout of HF radio communication on sunlit side, loss of radio contact for tens of minutes. **Navigation:** Degradation of low-frequency navigation signals for tens of minutes.	M5 (5×10^{-5})	350 per cycle (300 days per cycle)
R 1	Minor	**HF Radio:** Weak or minor degradation of HF radio communication on sunlit side, occasional loss of radio contact. **Navigation:** Low-frequency navigation signals degraded for brief intervals.	M1 (10^{-5})	2000 per cycle (950 days per cycle)

AVALANCHES



According to the National Snow & Ice Data Center "An avalanche is a rapid flow of snow down a hill or mountainside. Although avalanches can occur on any slope given the right conditions, certain times of the year and certain locations are naturally more dangerous than others. Wintertime, particularly from December to April, is when most avalanches tend to happen. However, avalanche fatalities have been recorded for every month of the year."[70]

"All that is necessary for an avalanche is a mass of snow and a slope for it to slide down…A large avalanche in North America might release 230,000 cubic meters (300,000 cubic yards) of snow. That is the equivalent of 20 football fields filled 3 meters (10 feet) deep with snow. However, such large avalanches are often naturally released, when the snowpack becomes unstable and layers of snow begin to fail. Skiers and recreationalists usually trigger smaller, but often more deadly avalanches."

North American Public Avalanche Danger Scale

Avalanche danger is determined by the likelihood, size and distribution of avalanches.

Danger Level	Travel Advice	Likelihood of Avalanches	Avalanche Size and Distribution
5 Extreme	Avoid all avalanche terrain.	Natural and human-triggered avalanches certain.	Large to very large avalanches in many areas.
4 High	Very dangerous avalanche conditions. Travel in avalanche terrain not recommended.	Natural avalanches likely; human-triggered avalanches very likely.	Large avalanches in many areas; or very large avalanches in specific areas.
3 Considerable	Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Natural avalanches possible; human-triggered avalanches likely.	Small avalanches in many areas; or large avalanches in specific areas; or very large avalanches in isolated areas.
2 Moderate	Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.	Natural avalanches unlikely; human-triggered avalanches possible.	Small avalanches in specific areas; or large avalanches in isolated areas.
1 Low	Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.	Natural and human-triggered avalanches unlikely.	Small avalanches in isolated areas or extreme terrain.

Safe backcountry travel requires training and experience. You control your own risk by choosing where, when and how you travel.

There are three main parts to an avalanche (see image above). The first and most unstable is the "starting zone", where the snow can "fracture" and slide. "Typical starting zones are higher up on slopes. However, given the right conditions, snow can fracture at any point on the slope."[71]

The second part is the "avalanche track", or the downhill path that the avalanche follows. The avalanche is evident where large swaths of trees are missing or where there are large pile-ups of rock, snow, trees and debris at the bottom of an incline.

The third part of an avalanche is the "runout zone". The runout zone is where the avalanche has come to a stop and left the largest and highest pile of snow and debris.

"Several factors may affect the likelihood of an avalanche, including weather, temperature, slope steepness, slope orientation (whether the slope is facing north or south), wind direction, terrain, vegetation and general snowpack conditions. Different combinations of these factors can create low, moderate, or extreme avalanche conditions. Some of these conditions, such as temperature and snowpack, can change on a daily or hourly basis."[72]

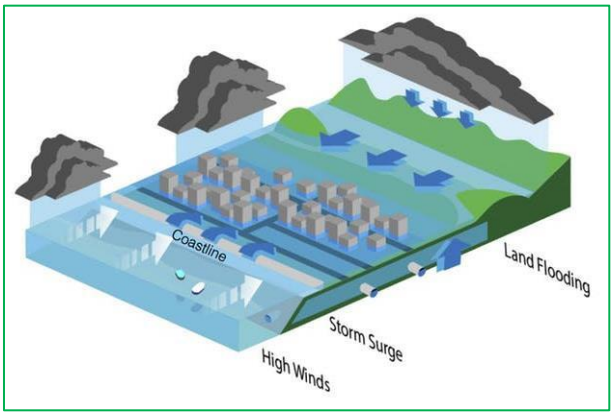
[70] Copyright Richard Armstrong, NSIDC, http://nsidc.org/cryosphere/snow/science/avalanches.html
[71] NSIDC, http://nsidc.org/cryosphere/snow/science/avalanches.html; image credit: Betsy Armstrong
[72] Copyright Richard Armstrong, NSIDC, http://nsidc.org/cryosphere/snow/science/avalanches.html

When the possibility of an avalanche is evident, an "avalanche advisory" is issued. This preliminary notification warns hikers, skiers, snowmobilers and responders that conditions may be favorable for the development of avalanches. The chart above shows avalanche danger as determined by likelihood, size & distribution.[73]

COASTAL FLOODING

Coastal areas are particularly susceptible to hazards such as flooding, erosion, storm surge and sea-level rise as a result of tropical and post-tropical cyclones, heavy rain events and gale-force winds and other natural phenomena. The flooding that results is *"determined by a combination of several factors such as storm intensity, forward speed, storm area size, coastline characteristics, angle of approach to the coast, tide height."*[74]

The severity of the flooding can vary depending on *"both the speed of onset (how quickly the floodwaters rise) and the flood duration. Nor'easters can impact the region for several days and produce storm surge with or without the addition of inland runoff from heavy precipitation."*[75] As shown in the image below, not only storm surge but also inland flooding can affect the severity of flooding along the shore.[76]



[73] http://www.avalanche.org/danger_card.php
[74] NH Multi-hazard Mitigation Plan-2018, page 55
[75] Ibid
[76] Ibid, page 53, "Understanding compound flooding from land and ocean sources", *Theodore Scontras, University of Maine)*

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APPENDIX D: NH MAJOR DISASTER & EMERGENCY DECLARATIONS

Major Disaster (DR) & Emergency Declarations (EM)

This list includes one Fire Management Assistance Declaration (FM)
Declarations are arranged chronologically, the most recent disaster is listed first

Number	Hazard	Date of Event	Counties	Description
DR-4516	Infectious Disease	January 20, 2020 – ongoing	All Ten NH Counties	**Major Disaster Declaration, DR-4516:** The Federal Emergency Management Agency ("FEMA") within the US Department of Homeland Security is giving public notice of its intent to provide assistance to the State of New Hampshire, local and tribal governments, and certain private nonprofit organizations under the major disaster declaration issued by the President on April 3, 2020, as a result of the Coronavirus Disease 2019 ("COVID-19").
EM-3445	Infectious Disease	January 20, 2020 – ongoing	All Ten NH Counties	**Emergency Declaration EM-3445:** Ten county declaration to provide individual assistance and public assistance as a result of the impact of COVID-19
DR-4457	Severe Storm & Flooding	July 11-12, 2019	Grafton	**Major Disaster Declaration, DR-4457:** The Federal Emergency Management Agency announced a major disaster declaration for a period of severe storms and flooding from July 11-12, 2019 in one New Hampshire County.
DR-4371	Severe Winter Storm & Snowstorm	March 13-14, 2018	Carroll, Strafford & Rockingham	**Major Disaster Declaration, DR 4371:** The Federal Emergency Management Agency announced a major disaster declaration on June 8, 2018 for a period of a severe winter storm from March 13-14, 2018.
DR-4370	Severe Storm & Flooding	March 2-8, 2018	Rockingham	**Major Disaster Declaration, DR 4370:** The Federal Emergency Management Agency announced a major disaster declaration on June 8, 2018 for a period of severe storms and flooding from March 2-8, 2018.
DR-4355	Severe Storms, Flooding	October 29-November 1, 2017	Sullivan, Grafton, Coos, Carroll, Belknap & Merrimack	**Major Disaster Declaration, DR-4355:** The Federal Emergency Management Agency (FEMA) announced that federal disaster assistance is available to the state of New Hampshire to supplement state and local recovery efforts in the areas affected by severe storms and flooding from October 29-Novermber 1, 2017 in five New Hampshire Counties.
DR-4329	Severe Storms, Flooding	July 1-2, 2017	Grafton & Coos	**Major Disaster Declaration DR-4329:** The Federal Emergency Management Agency (FEMA) announced that federal disaster assistance is available to the state of New Hampshire to supplement state and local recovery efforts in the areas affected by severe storms and flooding from July 1, 2017 to July 2, 2017 in Grafton County
DR-4316	Severe Winter Storm and Snowstorm	March 14-15, 2017	Belknap & Carroll	**Major Disaster Declaration DR-4316:** Severe winter storm and snowstorm in Belknap & Carroll Counties; disaster aid to supplement state and local recovery efforts.
FM-5123	Forest Fire	April 21-23, 2016	Cheshire	**Fire Management Assistance Declaration, FM-5123: Stoddard, NH**
DR-4209	Severe Winter Storm and Snowstorm	January 26-28, 2015	Hillsborough, Rockingham & Stafford	**Major Disaster Declaration DR-4209:** Severe winter storm and snowstorm in Hillsborough, Rockingham and Strafford Counties; disaster aid to supplement state and local recovery efforts.
DR-4139	Severe Storms, Flooding	July 9-10, 2013	Cheshire, Sullivan & Grafton	**Major Disaster Declaration DR-4139:** Severe storms, flooding, and landslides during the period of June 26 to July 3, 2013 in Cheshire, Sullivan and southern Grafton Counties.

Number	Hazard	Date of Event	Counties	Description
DR-4105	Severe Winter Storm	February 8, 2013	All Ten NH Counties	**Major Disaster Declaration DR-4105:** Nemo; heavy snow in February 2013.
DR-4095	Hurricane Sandy	October 26-November 8, 2012	Belknap, Carroll, Coos, Grafton, Rockingham & Sullivan	**Major Disaster Declaration DR-4095:** The declaration covers damage to property from the storm that spawned heavy rains, high winds, high tides and flooding over the period of October 26-November 8, 2012.
EM-3360	Hurricane Sandy	October 26-31, 2012	All Ten NH Counties	**Emergency Declaration EM-3360:** Hurricane Sandy came ashore in NJ and brought high winds, power outages and heavy rain to NH. Declared in all ten counties in the State of New Hampshire.
DR-4065	Severe Storm & Flooding	May 29-31, 2012	Cheshire	**Major Disaster Declaration DR-4065:** Severe Storm and Flood Event May 29-31, 2012 in Cheshire County.
DR-4049	Severe Storm & Snowstorm	October 29-30, 2011	Hillsborough & Rockingham	**Major Disaster Declaration DR-4049:** Severe Storm and Snowstorm Event October 29-30, 2011 in Hillsborough and Rockingham Counties.
EM-3344	Severe Snowstorm	October 29-30, 2011	All Ten NH Counties	**Emergency Declaration EM-3344:** Severe storm during the period of October 29-30, 2011; all ten counties in the State of New Hampshire. (Snowtober)
DR-4026	Tropical Storm Irene	August 26-September 6, 2011	Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan	**Major Disaster Declaration DR-4026:** Tropical Storm Irene Aug 26th- Sept 6, 2011 in Carroll, Coos, Grafton, Merrimack, Belknap, Strafford, & Sullivan Counties.
EM-3333	Tropical Storm Irene	August 26-September 6, 2011	All Ten NH Counties	**Emergency Declaration EM-3333:** Emergency Declaration for Tropical Storm Irene for in all ten counties.
DR-4006	Severe Storm & Flooding	May 26-30, 2011	Coos & Grafton Counties	**Major Disaster Declaration DR-4006:** May Flooding Event, May 26th-30th 2011 in Coos & Grafton County. (Memorial Day Weekend Storm)
DR-1913	Severe Storms & Flooding	March 14-31, 2010	Hillsborough & Rockingham	**Major Disaster Declaration DR-1913:** Flooding to two NH counties including Hillsborough and Rockingham counties.
DR-1892	Severe Winter Storm, Rain & Flooding	February 23 - March 3, 2010	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	**Major Disaster Declaration: DR-1892:** Flood and wind damage to most of southern NH including six counties; 330,000 homes without power; more than $2 million obligated by June 2010.
DR-1812	Severe Winter Storm & Ice Storm	December 11-23, 2008	All Ten NH Counties	**Major Disaster Declaration DR-1812:** Damaging ice storms to entire state including all ten NH counties; fallen trees and large scale power outages; five months after December's ice storm pummeled the region, nearly $15 million in federal aid had been obligated by May 2009.
EM-3297	Severe Winter Storm	December 11, 2008	All Ten NH Counties	**Emergency Declaration EM-3297:** Severe winter storm beginning on December 11, 2008.
DR-1799	Severe Storms & Flooding	September 6-7, 2008	Hillsborough	**Major Disaster Declaration: DR-1799:** Severe storms and flooding beginning on September 6, 2008.
DR-1787	Severe Storms & Flooding	July 24-August 14, 2008	Belknap, Carroll & Grafton & Coos	**Major Disaster Declaration DR-1787:** Severe storms, tornado, and flooding on July 24, 2008.
DR-1782	Severe Storms, Tornado, & Flooding	July 24, 2008	Belknap, Carroll, Merrimack, Strafford & Rockingham	**Major Disaster Declaration DR-1782:** Tornado damage to several NH counties.
DR-1695	Nor'easter, Severe Storms & Flooding	April 15-23, 2007	All Ten NH Counties	**Major Disaster Declaration DR-1695:** Flood damages; FEMA & SBA obligated more than $27.9 million in disaster aid following the April nor'easter. (Tax Day Storm)

Number	Hazard	Date of Event	Counties	Description
DR-1643	Severe Storms & Flooding	May 12-23, 2006	Belknap, Carroll, Grafton, Hillsborough, Merrimack, Rockingham & Strafford	**Major Disaster Declaration DR-1643:** Flooding in most of southern NH; May 12-23, 2006. (aka: Mother's Day Storm)
DR-1610	Severe Storms & Flooding	October 7-18, 2005	Belknap, Cheshire, Grafton, Hillsborough, Merrimack & Sullivan	**Major Disaster Declaration DR-1610:** To date, state and federal disaster assistance has reached more than $3 million to help residents and business owners in New Hampshire recover from losses resulting from the severe storms and flooding in October 2005.
EM-3258	Hurricane Katrina Evacuation	August 29-October 1, 2005	All Ten NH Counties	**Emergency Declaration EM-3258:** Assistance to evacuees from the area struck by Hurricane Katrina and to provide emergency assistance to those areas beginning on August 29, 2005, and continuing; The President's action makes Federal funding available to the state and all 10 counties of the State of New Hampshire.
EM-3211	Snow	March 11-12, 2005	Carroll, Cheshire, Hillsborough, Rockingham & Sullivan	**Emergency Declaration EM-3211**: March snowstorm; more than $2 million has been approved to help pay for costs of the snow removal; Total aid for the March storm is **$2,112,182.01** (Carroll: $73,964.57; Cheshire: $118,902.51; Hillsborough: $710,836; Rockingham: $445,888.99; Sullivan: $65,088.53; State of NH: $697,501.41)
EM-3208	Snow	February 10-11, 2005	Carroll, Cheshire, Coos, Grafton & Sullivan	**Emergency Declaration EM-3208:** FEMA had obligated more than $1 million by March 2005 to help pay for costs of the heavy snow and high winds; Total aid for the February storm is **$1,121,727.20** (Carroll: $91,832.72; Cheshire: $11,0021.18; Coos: $11,6508.10; Grafton: $213,539.52; Sullivan: $68,288.90; State of NH: $521,536.78)
EM 3208-002	Snow	January, February, March 2005	Belknap, Carroll, Cheshire, Grafton, Hillsborough, Rockingham, Merrimack, Strafford & Sullivan	**Emergency Declaration EM 3208-002:** The Federal Emergency Management Agency (FEMA) has obligated more than $6.5 million to reimburse state and local governments in New Hampshire for costs incurred in three snowstorms that hit the state earlier this year, according to disaster recovery officials. Total aid for all three storms is $6,892,023.87 (January: $3,658,114.66; February: $1,121,727.20; March: $2,113,182.01)
EM-3207	Snow	January 22-23, 2005	Belknap, Carroll, Cheshire, Grafton, Hillsborough, Rockingham, Merrimack, Strafford & Sullivan	**Emergency Declaration EM-3207:** More than $3.5 million has been approved to help pay for costs of the heavy snow and high winds; Total aid for the January storm is **$3,658,114.66** (Belknap: $125,668.09; Carroll: $52,864.23; Cheshire: $134,830.95; Grafton: $137,118.71; Hillsborough: $848,606.68; Merrimack: $315,936.55; Rockingham: $679,628.10; Strafford: $207,198.96; Sullivan: $48,835.80; State of NH: $1,107,426.59)
EM-3193	Snow	December 6-7, 2003	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack & Sullivan	**Emergency Declaration EM-3193:** The declaration covers jurisdictions with record and near-record snowfall that occurred over the period of December 6-7, 2003
DR-1489	Severe Storms & Flooding	July 21-August 18, 2003	Cheshire & Sullivan	**Major Disaster Declaration DR-1489:** Floods stemming from persistent rainfall and severe storms that caused damage to public property occurring over the period of July 21 through August 18, 2003.

Number	Hazard	Date of Event	Counties	Description
EM-3177	Snowstorm	February 17-18, 2003	Cheshire, Hillsborough, Merrimack, Rockingham & Strafford	**Emergency Declaration EM-3177:** Declaration covers jurisdictions with record and near-record snowfall from the snowstorm that occurred February 17-18, 2003
EM-3166	Snowstorm	March 5-7, 2001	Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham & Strafford	**Emergency Declaration EM-3166:** Declaration covers jurisdictions with record and near-record snowfall from the late winter storm that occurred March 2001
DR-1305	Tropical Storm Floyd	September 16-18,1999	Belknap, Cheshire & Grafton	**Major Disaster Declaration DR-1305:** The declaration covers damage to public property from the storm that spawned heavy rains, high winds and flooding over the period of September 16-18.
DR-1231	Severe Storms & Flooding	June 12-July 2, 1998	Belknap, Carroll Grafton, Hillsborough, Merrimack & Rockingham	**Major Disaster Declaration DR-1231:**
DR-1199	Ice Storm	January 7-25, 1998	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Strafford & Sullivan	**Major Disaster Declaration DR-1199:**
DR-1144	Severe Storms/Flooding	October 20-23, 1996	Grafton, Hillsborough, Merrimack, Rockingham, Strafford & Sullivan	**Major Disaster Declaration DR-1144:**
DR-1077	Storms/Floods	October 20-November 15, 1995	Carroll, Cheshire, Coos, Grafton, Merrimack & Sullivan	**Major Disaster Declaration DR-1077:**
EM-3101	High Winds & Record Snowfall	March 13-17, 1994	All Ten NH Counties	**Emergency Declaration EM-3101:**
DR-923	Severe Coastal Storm	October 30-31, 1991	Rockingham	**Major Disaster Declaration DR-923:**
DR-917	Hurricane Bob, Severe Storm	August 18-20, 1991	Carroll, Hillsborough, Rockingham & Strafford	**Major Disaster Declaration DR-917:**
DR-876	Flooding, Severe Storm	August 7-11, 1990	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, & Sullivan	**Major Disaster Declaration DR-876:**
DR-789	Severe Storms & Flooding	March 30-April 11, 1987	Carroll, Cheshire, Grafton, Hillsborough, Merrimack Rockingham, Strafford & Sullivan	**Major Disaster Declaration DR-789**

Number	Hazard	Date of Event	Counties	Description
DR-771	Severe Storms & Flooding	July 29-August 10, 1986	Cheshire, Hillsborough & Sullivan	**Major Disaster Declaration DR-771:**
EM-3073	Flooding	March 15, 1979	Coos	**Emergency Declaration EM-3073:**
DR-549	High Winds, Tidal Surge, Coastal Flooding & Snow	February 16, 1978	All Ten NH Counties	**Major Disaster Declaration DR-549:** Blizzard of 1978
DR-411	Heavy Rains, Flooding	January 21, 1974	Belknap, Carroll, Cheshire & Grafton	**Major Disaster Declaration DR-411:**
DR-399	Severe Storms & Flooding	July 11, 1973	All Ten NH Counties	**Major Disaster Declaration DR-399:**
DR-327	Coastal Storms	March 18, 1972	Rockingham	**Major Disaster Declaration DR-327:**
DR-11	Forest Fire	July 2, 1953	Carroll	**Major Disaster Declaration DR-11:**

Source:
Disaster Declarations for New Hampshire
http://www.fema.gov/disasters/grid/state-tribal-government/33?field_disaster_type_term_tid_1=All

APPENDIX E: HAZARD MITIGATION PLANNING – LIST OF ACRONYMS

AAR ..... After Action Report
ACS ..... Acute Care Site
ARC ..... American Red Cross
ARES ..... Amateur Radio Emergency Service
BFE ..... Base Flood Elevation
BOCA ..... Building Officials and Code Administrators
CBRNE ..... Chemical, Biological, Radiological,
CDC ..... Centers for Disease Control and Prevention
CDP ..... Center for Domestic Preparedness
CERT ..... Community Emergency Response Team
CFR ..... Code of Federal Regulations
CIKR ..... Critical Infrastructure & Key Resources
CIP ..... Capital Improvements Program
COG ..... Continuity of Government
COGCON ..... Continuity of Government Readiness Conditions
COOP ..... Continuity of Operations
CPCC ..... Continuity Policy Coordination Committee
CWPP ..... Community Wildfire Protection Plan
DBHRT ..... Disaster Behavioral Health Response Team
DEMD ..... Deputy Emergency Management Director
DES ..... Department of Environment Services
DFO ..... Disaster Field Office
DHHS ..... Department of Health and Human Services
DHS ..... Department of Homeland Security
DMCR ..... Disaster Management Central Resource
DNCR ..... Department of Natural & Cultural Resources
DOD ..... Department of Defense
DOE ..... Department of Energy
DOJ ..... Department of Justice
DOT ..... Department of Transportation
DPW ..... Department of Public Works
DRC ..... Disaster Recovery Center
EAS ..... Emergency Alert System
EMD ..... Emergency Management Director
EMS ..... Emergency Medical Services
EO ..... Executive Order
EOC ..... Emergency Operations Center
EPA ..... U.S. Environmental Protection Agency
EPZ ..... Emergency Planning Zone
ERF ..... Emergency Response Facility
ERG ..... Emergency Relocation Group
ESF ..... Emergency Support Functions
FEMA ..... Federal Emergency Management Agency
FIRM ..... Flood Insurance Rate Map
FPP ..... Facilities & Populations to Protect
GIS ..... Geographic Information System
HazMat ..... Hazardous Material(s)
HFRA ..... Healthy Forest Restoration Act
HMGP ..... Hazard Mitigation Grant Program
HSAS ..... Homeland Security Advisory System
HSEM ..... Homeland Security Emergency Management
HSPD ..... Homeland Security Presidential Directive
IAP ..... Incident Action Plan
IC ..... Incident Commander
ICC ..... Incident Command Center
ICS ..... Incident Command System
JIC ..... Joint Information Center
LEOP ..... Local Emergency Operations Plan
MAPS ..... Mapping and Planning Solutions
MCI ..... Mass Casualty Incident
MEF ..... Mission Essential Function
MOU ..... Memorandum of Understanding
NAWAS ..... National Warning System
NEF ..... National Essential Function
NERF ..... Non-Emergency Response Facility
NFIP ..... National Flood Insurance Program
NGVD ..... National Geodetic Vertical Datum of 1929
NIMS ..... National Incident Management System
NOAA ..... National Oceanic and Atmospheric Association
NRP ..... National Response Plan
NSPD ..... National Security Presidential Directive
NTAS ..... National Terrorism Advisory System Nuclear, and Explosive
NWS ..... National Weather Service
OSI ..... Office of Strategic Initiatives
PA ..... Public Assistance
PDA ..... Preliminary Damage Assessment
PDD ..... Presidential Decision Directive
PIO ..... Public Information Officer
PMEF ..... Primary Mission Essential Function
POD ..... Point of Distribution
PPE ..... Personal Protective Equipment
PR ..... Potential Resources
PSA ..... Public Service Announcement
RERP ..... Radiological Emergency Response Plan
RNAT ..... Rapid Needs Assessment Team
SERT ..... State Emergency Response Team
SITREP ..... Situation Report (Also SitRep)
SNS ..... Strategic National Stockpile
SOG ..... Standard Operating Guidelines
SOP ..... Standard Operating Procedures
SPNHF ..... Society for the Protection of NH Forests
UC ..... Unified Command
USDA-FS USDA-FS ..... US Department of Agriculture – Forest Service
USGS ..... United States Geological Society
VOAD ..... Volunteer Organization Active in Disasters
WMD ..... Weapon(s) of Mass Destruction
WMNF ..... White Mountain National Forest
WUI ..... Wildland Urban Interface

APPENDIX F: POTENTIAL MITIGATION IDEAS[77]

Drought

D1 ..... Assess Vulnerability to Drought Risk
D2 ..... Monitoring Drought Conditions
D3 ..... Monitor Water Supply
D4 ..... Plan for Drought
D5 ..... Require Water Conservation during Drought Conditions
D6 ..... Prevent Overgrazing
D7 ..... Retrofit Water Supply Systems
D8 ..... Enhance Landscaping & Design Measures
D9 ..... Educate Residents on Water Saving Techniques
D10 .... Educate Farmers on Soil & Water Conservation Practices
D11 .... Purchase Crop Insurance

Earthquake

EQ1.... Adopt & Enforce Building Codes
EQ2.... Incorporate Earthquake Mitigation into Local Planning
EQ3.... Map & Assess Community Vulnerability to Seismic Hazards
EQ4.... Conduct Inspections of Building Safety
EQ5.... Protect Critical Facilities & Infrastructure
EQ6.... Implement Structural Mitigation Techniques
EQ7.... Increase Earthquake Risk Awareness
EQ8.... Conduct Outreach to Builders, Architects, Engineers and Inspectors
EQ9.... Provide Information on Structural & Non-Structural Retrofitting

Erosion

ER1.... Map & Assess Vulnerability to Erosion
ER2.... Manage Development in Erosion Hazard Areas
ER3.... Promote or Require Site & Building Design Standards to Minimize Erosion Risk
ER4.... Remove Existing Buildings & Infrastructure from Erosion Hazard Areas
ER5.... Stabilize Erosion Hazard Areas
ER6.... Increase Awareness of Erosion Hazards

Extreme Temperatures

ET1 .... Reduce Urban Heat Island Effect
ET2 .... Increase Awareness of Extreme Temperature Risk & Safety
ET3 .... Assist Vulnerable Populations
ET4 .... Educate Property Owners about Freezing Pipes

Hailstorm

HA1.... Locate Safe Rooms to Minimize Damage
HA2.... Protect Buildings from Hail Damage
HA3.... Increase Hail Risk Awareness

Landslide

LS1..... Map & Assess Vulnerability to Landslides
LS2..... Manage Development in Landslide Hazard Areas
LS3..... Prevent Impacts to Roadways
LS4 .... Remove Existing Buildings & Infrastructure from Landslide

Lightning

L1..... Protect Critical Facilities
L2..... Conduct Lightning Awareness Programs

Flood

F1 ..... Incorporate Flood Mitigation in Local Planning
F2 ..... Form Partnerships to Support Floodplain Management
F3 ..... Limit or Restrict Development in Floodplain Areas
F4 ..... Adopt & Enforce Building Colds and Development Standards
F5 ..... Improve Stormwater Management Planning
F6 ..... Adopt Policies to Reduce Stormwater Runoff
F7 ..... Improve Flood Risk Assessment
F8 ..... Join or Improve Compliance with NFIP
F9 ..... Manage the Floodplain beyond Minimum Requirements
F10 .... Participate in the CRS
F11 .... Establish Local Funding Mechanism for Flood Mitigation
F12 .... Remove Existing Structures from Flood Hazard Areas
F13 .... Improve Stormwater Drainage System Capacity
F14 .... Conduct Regular Maintenance for Drainage Systems & Flood Control Structures
F15 .... Elevate of Retrofit Structures & Utilities
F16 .... Flood proof Residential & Non-Residential Structures
F17 .... Protect Infrastructure
F18 .... Protect Critical Facilities
F19 .... Construct Flood Control Measures
F20 .... Protect & Restore Natural Flood Mitigation Features
F21 .... Preserve Floodplains as Open Space
F22 .... Increase Awareness of Flood Risk & Safety
F23 .... Educate Property Owners about Flood Mitigation Techniques

Severe Wind

SW1... Adopt & Enforce Building Codes
SW2... Promote or Require Site & Building Design Standards to Minimize Wind Damage
SW3... Assess Vulnerability to Severe Wind
SW4... Protect Power Lines & Infrastructure
SW5... Retrofit Residential Buildings
SW6... Retrofit Public Buildings & Critical Facilities
SW7... Increase Severe Wind Awareness

Severe Winter Weather

WW1.. Adopt & Enforce Building Codes
WW2.. Protect Buildings & Infrastructure
WW3.. Protect Power Lines
WW4.. Reduce Impacts to Roadways
WW5.. Conduct Winter Weather Risk Awareness Activities
WW6.. Assist Vulnerable Populations

Tornado

T1 ..... Encourage Construction of Safe Rooms
T2 ..... Require Wind-Resistant Building Techniques
T2 ..... Conduct Tornado Awareness Activities

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Wildfire

WF1 ..... Map & Assess Vulnerability to Wildfire
WF2 ..... Incorporate Wildfire Mitigation in the Comprehensive Plan
WF3 ..... Reduce Risk through Land Use Planning
WF4 ..... Develop a Wildland Urban Interface Code
WF5 ..... Require or Encourage Fire-Resistant Construction Techniques
WF6 ..... Retrofit At-Risk Structure with Ignition-Resistant Materials
WF7 ..... Create Defensible Space around Structures & Infrastructure
WF8 ..... Conduct Maintenance to Reduce Risk
WF9 ..... Implement a Fuels Management Program
WF10 ..... Participate in the Firewise® Program
WF11 ..... Increase Wildfire Awareness
WF12 ..... Educate Property Owners about Wildfire Mitigation Techniques

Multi-Hazards

MU1 ..... Assess Community Risk
MU2 ..... Map Community Risk
MU3 ..... Prevent Development in Hazard Areas
MU4 ..... Adopt Regulations in Hazard Areas
MU5 ..... Limit Density in Hazard Areas
MU6 ..... Integrate Mitigation into Local Planning
MU7 ..... Strengthen Land Use Regulations
MU8 ..... Adopt & Enforce Building Codes
MU9 ..... Create Local Mechanisms for Hazard Mitigation
MU10 ..... Incentivize Hazard Mitigation
MU11 ..... Monitor Mitigation Plan Implementation
MU12 ..... Protect Structures
MU13 ..... Protect Infrastructure & Critical Facilities
MU14 ..... Increase Hazard Education & Risk Awareness
MU15 ..... Improve Household Disaster Preparedness
MU16 ..... Promote Private Mitigation Efforts

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Kensington Fire Station & Apparatus
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