# TOWN OF SOUTH HAMPTON, NH HAZARD MITIGATION PLAN UPDATE 2025

Adopted by the SOUTH HAMPTON, NH BOARD OF SELECTMEN

DATE

Prepared with the Assistance of the



This project was partially funded by NH Homeland Security and Emergency Management

## **CERTIFICATE OF ADOPTION**

WHEREAS, the Town of South Hampton received funding from the NH Division of Homeland Security and Emergency Management under a Pre-Disaster Mitigation Grant and assistance from Rockingham Planning Commission in the preparation of the South Hampton Hazard Mitigation Plan Update; and

WHEREAS, several planning meetings were held between September 2024 and \_\_\_\_\_\_ regarding the development and review of the South Hampton Hazard Mitigation Plan Update 2025; and

WHEREAS, the South Hampton Hazard Mitigation Plan Update 2025 contains several potential future projects to mitigate hazard damage in the Town of South Hampton; and

WHEREAS, a duly noticed public meeting was held by the South Hampton Board of Selectmen on to formally approve and adopt the South Hampton Hazard Mitigation Plan Update 2025.

RESOLVED by the South Hampton Board of Selectmen:

- The Plan is hereby adopted as an official plan of the Town of South Hampton;
- The respective individuals identified in the mitigation strategy of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;
- Future revisions and Plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as part of this resolution for a period of five (5) years from the date of this resolution;
- An annual report of the progress of the implementation elements of the Plan shall be presented to the Board of Selectmen by the Town's Emergency Management Director or Town Administrator.

NOW, THEREFORE BE IT RESOLVED that the South Hampton Board of Selectmen adopts the South Hampton Hazard Mitigation Plan Update 2025.

IN WITNESS THEREOF, the undersigned has affixed his/her signature and the corporate seal of the Town of South Hampton on this \_\_\_\_\_\_.

South Hampton Board of Selectmen Chair

ATTEST

**Public Notary** 

## TABLE OF CONTENTS

Executive Summary	1
CHAPTER I – INTRODUCTION	2
Background	2
Methodology	2
Hazard Mitigation Goals and Objectives	6
Chapter II – Community Profile	7
Natural Features	7
Land Use and Development	11
CHAPTER III – NATURAL HAZARDS IN THE TOWN OF SOUTH HAMPTON	13
What are the Hazards?	13
Hazard Definitions	13
Profile of Past and Potential Hazards	16
CHAPTER IV – CRITICAL FACILITIES	32
Chapter V – Potential Hazard Affects	35
CHAPTER VI – EXISTING HAZARD MITIGATION ACTIONS	38
CHAPTER VII – POTENTIAL MITIGATION ACTIONS	40
CHAPTER VIII – PRIORITIZATION OF MITIGATION ACTIONS	44
CHAPTER IX – ACTION PLAN	53
CHAPTER X – INCORPORATING, MONITORING, EVALUATING, AND UPDATING THE PLAN	56

#### LIST OF MAPS

- Map 1 Land Use
- Map 2 Past and Future Hazards
- Map 3 Critical Facilities

#### LIST OF FIGURES

- Figure 1 South Hampton Location Map
- Figure 2 South Hampton Watershed Map
- Figure 3 South Hampton Wetland Map
- Figure 4 South Hampton Floodplain Map

#### LIST OF TABLES

- Table 1 NFIP Policy & Loss Statistics
- Table 2 Hazard Identification and Risk Assessment
- Table 4 Past Hazard Events in South Hampton, NH and Rockingham County

Tables 4 – 7 Critical Facilities

Table 8 – Existing Hazard Mitigation Actions

Table 9 – Potential Mitigation Actions

Table 10.a-10.o STAPLEE tables

Table 11 – Action Plan

Appendices:

A - Summary of Hazard Mitigation Strategies

B - Technical and Financial Assistance for Hazard Mitigation

C - Saffir-Simpson Hurricane Scale

D - Enhanced Fujita Tornado Damage Scale

E - Richter Magnitude Scale

F - Thunderstorm Criteria

G – Lightning Risk Definitions

H – Hail Size Description Chart

I – Sperry-Pitz Ice Accumulation Index

J -NOAA Drought Monitor Scale

K – Class of Wildfire and Urban Wildland Zones

L – Extreme Temperature Heat Index

M – Wind Chill Chart

N – Definition of Infectious Disease

O – Documentation of Planning Process

P – FEMA Approval Letter

## ACKNOWLEDGEMENTS

The South Hampton Board of Selectmen extends special thanks to those that assisted in the development of this Plan update by serving as member of Natural Hazards Mitigation Committee:

J.D. Bernardy – State Representative and Zoning Board of Adjustment, Town of South Hampton, NH Kate Blunt - Chair, Planning Board, Town of South Hampton, NH Becky Burdick, Member, School Board, South Hampton, NH Lee Knapp, Health Officer/Selectman, Town of South Hampton, NH Lori Laverty, South Hampton Public Library Director, Town of South Hampton, NH April Melo, South Hampton Public Library Trustee, Town of South Hampton, NH Bob Moore – Fire Chief, Town of South Hampton, NH Tyler Morrill – Emergency Management Director, Town of South Hampton, NH Meredith Nadeau, Superintendent, SAU 21 Pam Noon, Council on Aging representative, South Hampton, NH Brenda Oldak, Council on Aging representative, South Hampton, NH Ron Preston – Selectman, Town of South Hampton, NH Angela Racine – Town Administrator, Town of South Hampton, NH Eric Vichill – Police Lieutenant, Town of South Hampton, NH Michelle Witt, Principal, Barnard School, South Hampton NH Eric Worthem, Selectman, Town of South Hampton, NH

The South Hampton Board of Selectmen offers thanks to the NHHSEM which provided support and funding for this Plan Update.

In addition, thanks are extended to the staff of the Rockingham Planning Commission for professional services, process facilitation and preparation of this document.

## EXECUTIVE SUMMARY

The South Hampton Hazard Mitigation Plan Update 2025 (herein after, the Plan) was compiled to assist the Town of South Hampton in reducing and mitigating future losses from natural hazard events. The Plan was developed by the Rockingham Planning Commission and participants from the Town of South Hampton Hazard Mitigation Committee and contains the tools necessary to identify specific hazards and aspects of existing and future mitigation efforts.

The following hazards are addressed:

- Flooding
- Hurricane
- Tornado
- Severe Winter Weather
- Wildfire
- Earthquake
- Extreme Temperatures
- Climate Change
- Infectious Disease

The Critical Facilities include but are not limited to:

- Town Hall
- Public Safety Building
- Town Highway Shed
- Barnard School
- Library

The South Hampton Hazard Mitigation Plan Update 2025 is considered a work in progress and should be revisited after every natural hazard event to assess whether the existing and suggested mitigation strategies are successful. Copies have been distributed to the Town Hall and Emergency Operations Center, and a copy will remain on file at the Rockingham Planning Commission, the New Hampshire Homeland Security and Emergency Management (NHHSEM) and the Federal Emergency Management Agency (FEMA). This Plan was approved by both agencies prior to its adoption at the local level.

## CHAPTER I - INTRODUCTION

#### BACKGROUND

The New Hampshire Homeland Security and Emergency Management (NHHSEM) has a goal for all communities within the State of New Hampshire to establish local hazard mitigation plans to reduce and mitigate future losses from natural hazard events. The NHHSEM outlined a process whereby communities throughout the State may be eligible for grants and other assistance upon completion of a local hazard mitigation plan. FEMA's *2013 Hazard Mitigation Planning Handbook* was consulted throughout the Plan update process by staff from both the Rockingham Planning Commission and local officials in South Hampton to stimulate conversation about how the Town can become more resilient to natural hazards. The State's Regional Planning Commissions are charged with providing assistance to selected communities to develop local plans.

The South Hampton Hazard Mitigation Plan Update 2025 was prepared by participants from the Town of South Hampton Hazard Mitigation Committee with the assistance and professional services of the Rockingham Planning Commission (RPC). The Hazard Mitigation Committee included representatives from all town departments and the school. Local businesses and organizations assisting socially vulnerable and underserved members of the community were also invited to participate in the Plan Update. The Plan serves as a strategic planning tool for use by the Town of South Hampton in its efforts to identify and mitigate the future impacts of natural hazard events.

#### METHODOLOGY

The Rockingham Planning Commission (RPC) organized the first meeting with Town department heads and other stakeholders from the Town of South Hampton on August 16, 2024, to begin the initial planning stages of the Plan Update. This meeting precipitated the development of the Natural Hazards Mitigation Committee (herein, the Committee). RPC and participants from the Town developed the content of the Plan using the ten-step process set forth in the Hazard Mitigation Planning for New Hampshire Communities. The following is a summary of the ten-step process conducted to compile the Plan. Publicly noticed work session meetings were also held on August 16, 2024, September 16, 2024, December 9, 2024, and . All work session meetings were open to the public, but members of the public did not attend any of the meetings. The Board of Selectmen held a duly noticed public meeting on the draft Plan Update on April 14, 2025. Members of the public attended the meeting but did not request changes to the draft Plan. The Selectmen initiated a 30-day public comment period at meeting. The Town of South Hampton's Town Administrator, the Emergency the Management Director, and staff from the Rockingham Planning Commission solicited input on the Plan from local officials, school administration, agencies supporting socially disadvantaged community members and vulnerable populations, local businesses, abutting municipalities, and residents throughout the Plan development process. Documentation of meeting agendas and meeting attendance is in Appendix O.

The Town's 2016 Plan served as the starting point for discussion on hazards impacting the Town, as well as discussions on mitigation strategies. The 2016 Plan served as a reference for local land use regulations and policies, development of the Town's Capital Improvement Plan and department budgets, and has been referenced in several reports, including the RPC's 2015 Regional Master Plan.

#### Step 1 – Form Committee

A Committee comprised of the Town Administrator, EMD, Fire Chief, Police Chief, Road Agent, Board of Selectmen, Health Officer, SAU Superintendent, Barnard School Principal, School Board Members, Public Library Director, and Council on Aging representatives was established to work with staff from the Rockingham Planning Commission to update the Plan.

#### Step 2 – Public Outreach and Stakeholder Involvement

RPC staff worked with the Town Administrator and Emergency Management Director to coordinate meaningful community engagement and public outreach about the Plan Update process to residents, local businesses, academia, organizations supporting socially vulnerable populations, and Emergency Management Directors in the abutting municipalities of Seabrook, NH, Kensington, NH, East Kingston, NH, Newton, and Amesbury, MA. All these stakeholders were invited to join Plan Update Committee meetings and were provided with an opportunity to comment on the Plan and contribute updated information.

Public notices about the Plan Update meetings were posted on the Town website to inform viewers and followers about meetings and opportunities to comment on the Plan. Notice about the Plan Update process was also posted on the Rockingham Planning Commission's website and published in the RPC's monthly newsletter. The newsletter is distributed to local officials in the 27-town RPC region. The Town Administrator shared the draft Plan Update with the few local businesses in South Hampton and received no comments on the Plan. Representatives of the school were active in the Plan update process

All Plan Update meetings were open to the public. RPC staff facilitated the Plan Update Committee meetings, guided the plan update process, and prepared the Plan Update. Appendix O documents the individuals and organizations invited to participate in the Plan Update as well as the public outreach materials distributed by the Town and the Rockingham Planning Commission.

#### Step 3 – Identify Natural Hazards Impacting South Hampton

The Committee reviewed the list of natural hazards impacting South Hampton that were included in the 2016 Plan and added Climate Change and Infectious Disease to the list of hazards impacting the community.

#### Step 4 - Identify Critical Facilities and Areas of Concern

The Committee identified facilities and areas considered to be important to the Town for emergency management purposes, for provision of utilities and community services, evacuation routes, and for recreational, historical, cultural, and social value. Participants in the Committee identified areas where damage from historic natural disasters have occurred and areas where critical man-made facilities and other features may be at risk in the future for loss of life, property damage, environmental pollution, and other risk factors. RPC generated a set of base maps with GIS (Geographic Information Systems) that were used in the process of identifying past and future hazards.

#### Step 5 – Identify Existing Mitigation Strategies

After collecting detailed information on each critical facility in South Hampton, the Committee and RPC staff identified existing Town mitigation strategies relative to flooding, hurricane and wind events, severe winter weather, wildfire, earthquake, drought, extreme temperatures, climate change, and infectious disease. This process involved reviewing resources listed under Step 7.

#### Step 6 – Identify the Gaps in Existing Mitigation Strategies

The existing strategies were then reviewed by the RPC and the Committee for coverage and effectiveness, degree of completion as well as the need for improvement.

#### Step 7 – Identify Potential Mitigation Strategies

A list of additional hazard mitigation actions and strategies for the Town of South Hampton was developed. Natural Hazard Mitigation Plans for other communities in the region were utilized to identify new mitigation strategies as well as the following relevant resources:

- 2013 FEMA Mitigation Ideas A Resource for Reducing Risk to Natural Hazards
- 2016 Town of South Hampton Hazard Mitigation Plan Update
- 2017 Seacoast Public Health Network Community Health Improvement Plan
- 2018 Climate Adaptation and Resilience Checklist and Guidance
- 2021 Town of South Hampton Subdivision and Site Plan Regulations
- 2023 State of New Hampshire Hazard Mitigation Plan Update
- 2024 Town of South Hampton Zoning Ordinance
- 2024 State of New Hampshire Priority Climate Action Plan
- 2024 Merrimack Valley Region Multi-Hazard Mitigation Plan

#### Step 8 – Develop the Action Plan

The potential hazard mitigation actions and strategies were reviewed, and each strategy was rated (good, average, or poor) for its effectiveness according to several factors (e.g., technical, and administrative applicability, political and social acceptability, legal authority, environmental impact, financial feasibility). Each factor was then scored, and all scores were totaled for each strategy. Strategies were ranked by overall score for preliminary prioritization then reviewed again under Step 9.

#### **Step 9 - Determine Priorities**

The preliminary prioritization list was reviewed to make changes and determine a final prioritization for new hazard mitigation actions and improvements to existing protection strategies. RPC staff also presented recommendations to be reviewed and prioritized by the Plan Update Committee.

#### Step 9 - Develop Implementation Strategy

Using the chart provided under Step 9 in the handbook, an implementation strategy was created which included person(s) responsible for implementation (who), a timeline for completion (when), and a funding source and/or technical assistance source (how) for each identified hazard mitigation actions. Also, whenever the Master Plan, Capital Improvement Plan (CIP), and land use regulations are updated, the South Hampton Hazard Mitigation Plan Update 2025 shall be consulted to determine if strategies or actions suggested in the Plan can be incorporated into the Town's future land use recommendations and capital expenditures.

#### Step 11 - Adopt and Monitor the Plan

RPC staff compiled the results of Steps 1 to 10 into a draft document. This draft Plan was reviewed by members of the Committee and by staff members at the RPC. The draft Plan was also placed on the Town of South Hampton website for review by the public. Stakeholders (listed in Appendix O) were emailed the draft Plan and invited to comment. Stakeholders included Emergency Management

Directors in neighboring communities, local businesses, academia, and agencies serving socially vulnerable and underrepresented communities. A duly noticed public meeting was held by the South Hampton Board of Selectmen on \_\_\_\_\_\_\_. The meeting allowed all stakeholders to provide comments and suggestions for the Plan in person, prior to the document being finalized. After the meeting the Select Board instituted a 30-day comment period. No comments were received from the public. The draft Plan was revised to incorporate comments from the Selectmen and Town staff and then submitted to the NH HSEM and FEMA Region I for their review and comments. Any changes required by NH HSEM and FEMA were made and a revised draft document was then submitted to the South Hampton Board of Selectmen for their final review. A public meeting was then held by the Board of Selectmen on \_\_\_\_\_\_\_ to approve and adopt the Plan. The formal letter of approval from FEMA Region 1 can be found in the Appendix. The Town will post the approved Plan Update on the Town website to facilitate continued public participation in hazard mitigation activities.

To track progress and update the Mitigation Strategies identified in the Action Plan, the Town's Hazard Mitigation Committee will remain active and will revisit the Plan annually and after each natural hazard event. These reviews will assess the Plan's effectiveness, accuracy, and completeness in achieving its stated purpose and goals. The Emergency Management Director will coordinate Plan reviews, which will include robust public outreach and address the recommended improvements to the Plan as contained in the FEMA plan review checklist, as well as any weaknesses the Town has identified that the Plan did not adequately address. The Plan will also be thoroughly updated every five years.

#### HAZARD MITIGATION GOALS AND OBJECTIVES OF THE TOWN OF SOUTH HAMPTON, NEW HAMPSHIRE

The Town of South Hampton sets forth the following hazard mitigation goals and objectives:

- Reduce or avoid long-term vulnerabilities posed by natural hazards impacting South Hampton, including the impacts from flooding, hurricanes, tornadoes, downbursts, severe winter weather, wildfire, and extreme heat.
- Improve upon the protection of the Town of South Hampton's general population, the citizens of the State and guests, from all natural and man-made hazards.
- Reduce the potential impact of natural and man-made disasters on South Hampton and the State's Critical Support Services.
- Reduce the potential impact of natural and man-made disasters on South Hampton's Critical Facilities in the State.
- Reduce the potential impact of natural and man-made disaster on South Hampton's and the State's infrastructure.
- Improve South Hampton's Emergency Preparedness.
- Improve South Hampton's Disaster Response and Recovery Capability.
- Reduce the potential impact of natural and man-made disasters on private property in South Hampton.
- Reduce the potential impact of natural and man-made disasters on South Hampton's and the State's economy.
- Reduce the potential impact of natural and man-made disasters on South Hampton's and the State's natural environment.
- Reduce South Hampton's and the State's liability with respect to natural and man-made hazards generally.
- Reduce the potential impact of natural and man-made disasters on South Hampton's and the State's specific historic treasures and interests as well as other tangible and intangible characteristics that add to the quality of life to the citizens and guests of the State and the town.
- Identify, introduce and implement cost effective Hazard Mitigation measures so as to accomplish South Hampton's and the state's goals and objectives in order to raise the awareness and acceptance of hazard mitigation planning.

Through the adoption of this Plan the Town of South Hampton concurs and adopts these goals and objectives.

## CHAPTER II – COMMUNITY PROFILE

South Hampton is a rural community in southeastern New Hampshire. The 2023 US Census population estimate was 896. The median age of residents was 48 years, and the median household income was \$151,250, significantly higher than the statewide median household income of \$88,235. The population density was 113.4 persons per square mile of land. South Hampton has an area of 8 square miles, including 0.1 square miles of inland water area; approximately ten percent of the land in town is conserved from development. The Town is characterized by scattered residential development surrounded by forest and farmland and wetlands associated with the Powwow River. The highest point in South Hampton is Sawyers Hill with an elevation of 320 feet above sea level.

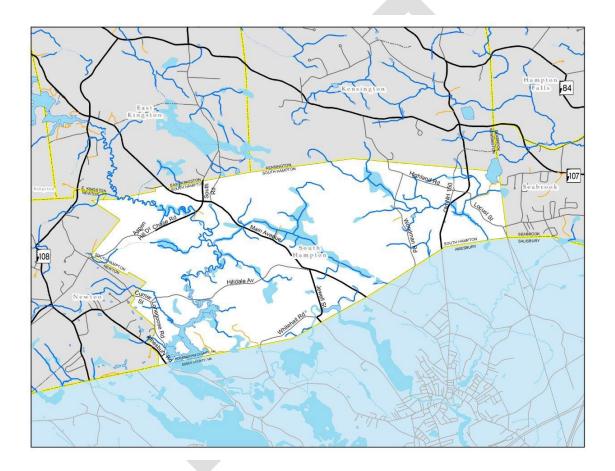
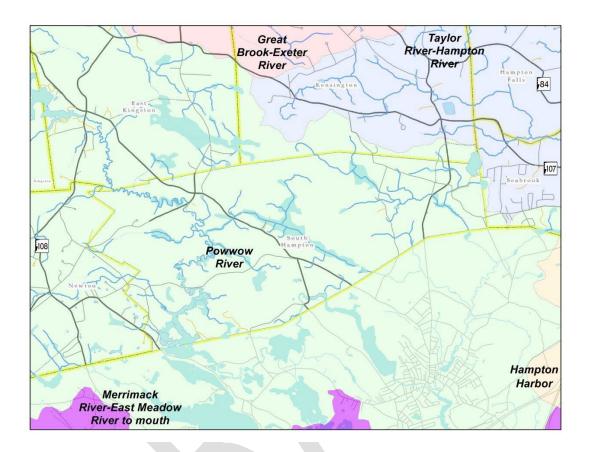


Figure 1: Location Map of South Hampton, New Hampshire



#### Figure 2: Watershed Map of South Hampton, New Hampshire

South Hampton lies within the Powwow River watershed, which is part of the much larger Merrimack River watershed. The Powwow River flows into South Hampton from East Kingston, flows through South Hampton for 2.7 miles and crosses into Amesbury, Massachusetts. The Back River flows into South Hampton from Kensington with a course of 1.9 miles before crossing into Amesbury, MA.

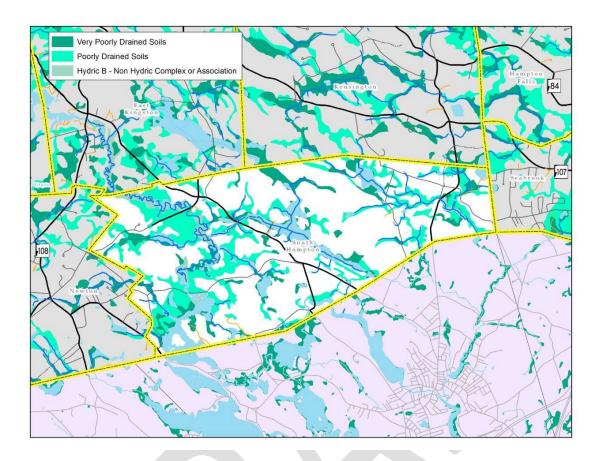
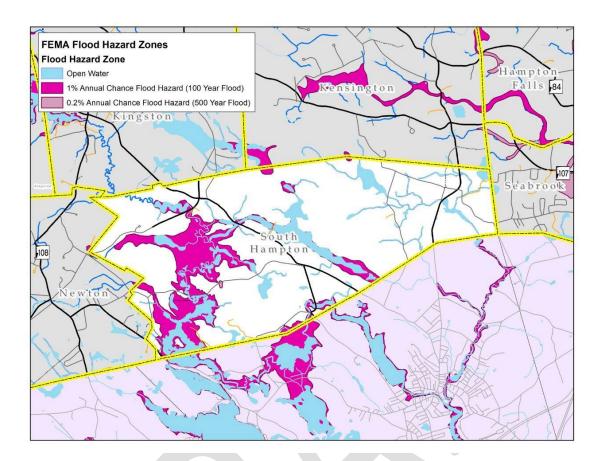


Figure 3: Wetland Map of South Hampton, New Hampshire

South Hampton is interspersed with numerous freshwater wetland systems, many adjacent to rivers and their valleys and floodplains, streams and ponds. Other freshwater wetlands are isolated in low lying areas. The National Wetlands Inventory has identified 1,265 acres of wetland in South Hampton, approximately 25% of the town's surface area.



#### Figure 4: Floodplain Map of South Hampton, New Hampshire

Areas within the 100-year floodplain in South Hampton are located generally along the Powwow River, Tuxbury Pond and Lake Gardner. Building within a floodplain area is regulated by the Zoning Ordinance, which limits the ability to develop in these sensitive areas.

#### CURRENT AND FUTURE DEVELOPMENT TRENDS

Land use and development are based on the Town of South Hampton Zoning Ordinance. The Town's Zoning Ordinance establishes seven zoning districts encompassing Rural-Residential, Commercial, Industrial, Wetland Conservation, Aquifer Protection, Steep Slope, and Historic. Town boards work to guide development in these zones with the intent of maintaining and protecting the town's rural character. South Hampton is characterized by scattered, low-density residential development and limited commercial development along Route 150.

The Town's 2011 Master Plan recommends future non-residential development be encouraged alongside Route 150 and on the east side of town closer to I-95 and Route 1. Since the 2016 Plan Update, the Town has issued 10 residential building permits and one commercial building permit. The

Committee determined this rate of growth does not negatively impact the Town's ability to respond to hazard events or to mitigate natural hazards.

South Hampton's greatest hazard mitigation challenge is posed by the Tuxbury Pond RV Campground located in the southwest portion of town along the border with Amesbury, MA. The campground is located primarily in South Hampton on Tuxbury Pond and operates seasonally from April 15 – October 15. A portion of the campground is in Amesbury, MA. The campground has over 400 recreational vehicle sites, and when open, doubles the population of South Hampton, creating a significant burden for South Hampton's police, fire, and public works staff. The campground is owned by a Chicago-based company which is unresponsive to problems with water, sewer, hazard mitigation, and criminal activity. The owner does not coordinate disaster response with South Hampton officials.

The Town has adopted, and enforces land use regulations designed to mitigate hazards, including wetlands protection, aquifer protection, steep slopes, erosion and sediment control, and floodplain development. All these regulations are increasing the town's resilience to climate change in areas impacted by flooding. Despite these efforts, the Town's vulnerability to natural hazards has increased due to climate change, the increasing number of natural hazard events, and management challenges presented by the Tuxbury Pond Campground. This vulnerability is expected to increase further. Natural hazards identified in this Plan Update will be considered during local review of land development proposals as well as the development of local land use regulations, and updates to the Master Plan.

MAP 1: LAND USE MAP

## CHAPTER III – NATURAL HAZARDS IN SOUTH HAMPTON

#### Introduction

The first step in planning for natural hazard mitigation is to identify hazards that may affect the Town. Some communities are more susceptible to certain hazards (i.e., flooding near rivers, hurricanes on the seacoast, etc.). The Town of South Hampton is prone to several types of natural hazards. These hazards include flooding, including extreme precipitation events; hurricanes or other high-wind events; severe winter weather; earthquakes; drought; wildfire; extreme temperatures; climate change; and infectious disease. Other natural hazards can and do affect the Town, but these were the hazards prioritized by the Committee for mitigation planning because they occur with regularity and/or were considered to have high damage potential.

Natural hazards that are included in the State's Hazard Mitigation Plan 2023 Update that are not included in this Plan Update include: landslide, subsidence, radon, avalanche, solar storm, and space weather. Subsidence and avalanche are rated by the State as having Low and No risk in Rockingham County, respectively; due to this they were left out of the Plan. South Hampton has no record of landslides and little chance of one occurring that could possibly damage property or cause injury, and so landslides were not included in this Plan. The State's Plan indicates that Rockingham County is at Moderate risk to radon; this hazard was not included in the Plan. When compared with natural hazards that could be potentially devastating to the Town, such as flooding and severe winter weather, it was not considered an effective use of the Committee's time to include radon in the Plan at this time. Solar storms and space weather are rated as a low risk for all of New Hampshire. There are no significant past occurrences of impact from space weather or solar storms in the state per the State Plan, so the Committee did not include this hazard in the Plan Update.

The hazard profiles below include a description of the natural hazard, the geographic location of each natural hazard (if applicable), the extent of the natural hazard (e.g. magnitude or severity), probability, past occurrences, and community vulnerability. Past occurrences of natural hazards were mapped on Map 2: Past and Future Hazards. Community vulnerability identifies the specific areas, general type of structures, specific structures, or general vulnerability of the Town of South Hampton to each natural hazard. Probability was defined as high, a roughly 66-100% chance of reoccurrence annually; medium, roughly a 33-66% chance of reoccurrence annually; and low, roughly a 0-33% chance of reoccurrence annually.

#### **Flooding**

**Description** - Floods are a temporary overflow of water onto lands that are not normally covered by water. Flooding results from extreme precipitation events, rapid snow melting, 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.

- **100-year Floodplain Events** Floodplains are usually located in lowlands near rivers, and flood on a regular basis. The term 100-year flood does not mean that flood will occur once every 100 years. It is a statement of probability that scientists and engineers use to describe how one flood compares to others that are likely to occur. It is more accurate to use the phrase "1% annual chance flood". What this means is that there is a 1% chance of a flood of that size happening in any year.
- Erosion and Mudslides Erosion is the process of wind and water wearing away soil. Typically, in New Hampshire, the land along rivers can be intensely developed. Mudslides may form when a layer of soil atop a slope becomes saturated by significant precipitation and slides along a more cohesive layer of soil or rock. Erosion and mudslides become significant threats to development during floods. Floods speed up the process of erosion and increase the risk of mudslides.
- **Rapid Snowpack Melt** Warm temperatures and heavy rain cause rapid snowmelt. Quickly melting snow coupled with moderate to heavy rains are prime conditions for flooding.
- **River Ice Jams** Rising waters in early spring often break ice into chunks, which float downstream and may pile up, causing flooding. Small rivers and streams pose special flooding risks because they are easily blocked by jams. Ice in riverbeds and against structures presents significant flooding threats to bridges, roads, and the surrounding lands.
- Severe Storms Flooding associated with severe storms can inflict heavy damage to property. Heavy rains during severe storms are a common cause of inland flooding.
- Dam Breach and Failure Dam failure results in rapid loss of water that is normally held by the dam. These kinds of floods are extremely dangerous and pose a significant threat to both life and property. The NH Dam Bureau's records list no active dams in South Hampton. The Lake Gardner Dam in abutting Amesbury, MA is classified as a High Hazard Dam. The dam is owned and managed by the City of Amesbury, MA. Management of the dam and water levels impacts South Hampton because the northern shore of Lake Gardner abuts Jewell Street in South Hampton. Failure of the Trickling Falls Dam in the abutting town of East Kingston could pose a threat to downstream roads and homes near Hilldale Avenue, Chase Road, and Whitehall Road.

**Location** – South Hampton is vulnerable to flooding in several locations. Generally, the Town is at risk within Flood Zones A and AE identified by FEMA on Flood Insurance Rate Maps (FIRM). The Town identified several areas susceptible to flooding that are not within these flood zones. These areas are listed below and displayed on Map 2: Past and Future Hazards.

**Extent** –The extent of flooding can range from minimal to severe. Minimal flooding can result in high water alongside roads and in yards; severe flooding can result in washed out roads and homes and businesses isolated by high and fast-moving water. The extent of the flood zones can be seen in Map 2: Past and Future Hazards. The NH Dam Bureau reports there are no active dams in South Hampton but

the failure of dams in the abutting communities of Amesbury, MA and East Kingston, NH could result in flooding of roads and homes in South Hampton.

**Probability** – The probability of flooding roadways and properties from heavy rain and rapidly melting snow is high, especially in the areas listed below. The Town also regularly assesses culverts to ensure integrity and ability to pass stormwater. See Table 3, Hazard Identification and Risk Assessment.

**Past Occurrence** - Flooding is a common hazard for the town of South Hampton. Several locations were identified as areas of reoccurring flooding or high potential for future flooding:

- Lone Goose Road
- Woodman Road
- Evans Road
- Hilldale Avenue
- Chase Road
- Jewell Road
- Whitehall Road
- Main Avenue

Closures of these roads due to high water levels and unsafe driving conditions can prevent residents from reaching homes and businesses, restrict emergency response vehicles, and school bus routes. High water levels and swiftly moving water can also cause culvert failure and erosion, undermining road safety. The Town has completed substantial work on culverts since the 2016 Plan to mitigate flooding, resulting in no known impacts to the community since the last Plan Update. No dams have failed in town in recent memory.

**Community Vulnerability** - Flooding is most likely to impact structures located in the flood zones, as well as the following roads listed above. Flood mitigation and preventions is taking place in a variety of ways in South Hampton, including working with homeowners and developers on site plan design that considers areas prone to flooding and identifies long-term management of runoff and flood storage.

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

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

To get secure financing to buy, build or improve structures in the Special Flood Hazard areas, it is legally required by federal law to purchase flood insurance. Lending institutions that are federally regulated or federally insured must determine if the structure is in the SFHA and must provide written notice

requiring flood insurance. Flood insurance is available to any property owner located in a community participating in NFIP.

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

The FEMA Regional Office provides information about repetitive loss properties to State and local floodplain management officials. The FEMA Regional Office may also offer property owners building inspection and financial incentives for undertaking measures to mitigate future flood losses. These measures include elevating buildings from the flood area, and in some cases drainage improvement projects. If the property owners agree to mitigation measures, their property may be removed from the target list and would no longer be serviced by the SDF.

Policies in force	Insurance in Force	Number of Paid Losses (since 1978)	Total Losses Paid (since 1978)
3 Single family residential	\$370,000	6	\$18,627
Source: FEMA De	cember 2024		

## Table 1: Town of South HamptonNFIP Policy and Loss Statistics

**South Hampton NFIP Repetitive Flooding Losses** – South Hampton joined the Regular Program of the NFIP on June 1, 1989. The current Flood Insurance Rate Map and Flood Insurance Study is dated January 29, 2021. There are three single-family residential policies in force. The town has had one repetitive loss property. The town has accepted the flood insurance study.

**Floodplain Management Goals/Reducing Flood Risks** - A major objective to floodplain management is to continue participation in the NFIP. Communities that agree to manage Special Flood Hazard Areas shown on NFIP maps participate in the NFIP by adopting minimum standards. The minimum requirements are the adoption of the floodplain Ordinances and Subdivision/Site Plan Review requirements for land designated as Special Flood Hazard Areas. Under Federal Law, any structure located in a floodplain is required to have flood insurance. Federally subsidized flood insurance is available to any property owner located in a community participating in the NFIP. Communities that fail to comply with the NFIP will be put on probation and/or suspended. Probation is a first warning where all policy holders receive a letter notifying them of a \$50 increase in their insurance. In the event of

suspension, the policyholders lose their NFIP insurance and are left to purchase insurance in the private sector, which is of significantly higher cost. If a community is having difficulty complying with NFIP policies, FEMA is available to meet with staff and volunteers to work through the difficulties and clear up any confusion before placing the community on probation or suspension.

The Building Inspector/Floodplain Administrator for the Town of South Hampton is responsible for making determinations of substantial improvement and substantial damage. These determinations are made for all development in a special flood hazard area that proposes to improve an existing structure including alterations, movement, enlargement, replacement, repair, additions, rehabilitations, renovations, repairs of damage from any origin (such as, but not limited to flood, fire, wind, or snow) and any other improvement of or work on such structure including within its existing footprint.

The Floodplain Administrator, in coordination with any other applicable community official(s), shall be responsible for the following:

- Determine if a substantial damage (SD) determination needs to be made and communicate SD and permit requirements to property owners.
- Verify the cost of repairs to the structure.
- Verify the market value of the structure.
- Make the SD determination and issue it to the property owner.
- Permit development/ensure compliance with community ordinance.
- Inspect development and maintain as-built compliance documentation post construction.

**Potential Administrative Techniques to Minimize Flood Losses in South Hampton** - A potential step in mitigating flood damage is participating in NFIP. South Hampton continues to consistently enforce NFIP compliant policies to continue its participation in this program and has effectively worked within the provisions of NFIP. Below is a list of actions South Hampton should consider, or continue to perform, to comply with NFIP:

- Participate in NFIP training offered by the State and/or FEMA (or in other training) that addresses flood hazard planning and management.
- Continue with Mutual Aid Agreements with neighboring communities to address administering the NFIP following a major storm event.
- Address NFIP monitoring and compliance activities.
- Revise subdivision regulations, erosion control regulations, board of health regulations to improve floodplain management in the community.
- Prepare, distribute, or make available NFIP insurance and building codes explanatory pamphlets or booklets.
- Identify and become knowledgeable of non-compliant structures in the community.
- Continue to inspect foundations at time of completion before framing to determine if lowest floor is at or above Base Flood Elevation (BFE) if they are in the floodplain.
- Require the use of elevation certificates.
- Enhance local officials, builders, developers, local citizens, and other stakeholders' knowledge of how to read and interpret the FIRM.
- Work with elected officials, the state and FEMA to correct existing compliance issues and prevent any future NFIP compliance issues through continuous communications, training, and education.

#### Hurricane-High Wind Events

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

- Hurricanes and Coastal Storms A hurricane is a tropical cyclone in which winds reach speeds of 74 miles per hour or more and blow in a large spiral around a relatively calm center. The eye of the storm is usually 20-30 miles wide and may extend over four hundred miles. High winds are a primary cause of hurricane-inflicted loss of life and property damage. The Saffir–Simpson hurricane wind scale (SSHWS), or the Saffir–Simpson hurricane scale (SSHS) for short, classifies hurricanes into five categories distinguished by the intensities of their sustained winds. To be classified as a hurricane, a tropical cyclone must have maximum sustained winds of at least 74 mph, Category 1. The highest classification in the scale, Category 5, is reserved for storms with winds exceeding 156 mph. The Saffir/Simpson Hurricane Scale is included in Appendix C.
- **Tornadoes** A tornado is a violent windstorm characterized by a twisting, funnel shaped cloud. They develop when cool air overrides a layer of warm air, causing the warm air to rise rapidly. The atmospheric conditions required for the formation of a tornado include great thermal instability, high humidity, and the convergence of warm, moist air at low levels with cooler, drier air aloft. Most tornadoes remain suspended in the atmosphere, but if they touch down, they become a force of destruction. Tornadoes produce the most violent winds on earth, at speeds of 280 mph or more. In addition, tornadoes can travel at a forward speed of up to seventy mph. Damage paths can be more than one mile wide and 50 miles long. Violent winds and debris slamming into buildings cause the most structural damage. The Enhanced 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 with a hurricane, a tornado covers a much smaller area but can be more violent and destructive.
- Severe Thunderstorms All thunderstorms contain lightning. During a lightning discharge, the sudden heating of the air causes it to expand rapidly. After the discharge, the air contracts quickly as it cools back to ambient temperatures. This rapid expansion and contraction of the air causes a shock wave that we hear as thunder, which can damage building walls and break glass.
- **Lightning** Lightning is a giant spark of electricity that occurs within the atmosphere or between the atmosphere and the ground. As lightning passes through air, it heats the air to a temperature of about 50,000 degrees Fahrenheit, considerably hotter than the surface of the sun. Lightning strikes can cause death, injury, and property damage.
- Hail Hailstones are balls of ice that grow as they are held up by winds, known as updrafts, which blow upwards in thunderstorms. The updrafts carry droplets of supercooled water water at a below freezing temperature but not yet ice. The supercooled water droplets hit the balls of ice and freeze instantly, making the hailstones grow. The faster the updraft, the bigger the stones can grow. Most hailstones are smaller in diameter than a dime, but stones weighing

more than a pound have been recorded. Details of how hailstones grow are complicated, but the results are irregular balls of ice that can be as large as baseballs, sometimes even bigger. While crops are the major victims, hail is also a hazard to vehicles and windows.

**Location** - Hurricane events are more potentially damaging with increasing proximity to the coast. The Town's proximity to the Atlantic Coast makes hurricanes and high wind events severe threats. For this Plan, high-wind events were considered to have an equal chance of affecting any part of South Hampton. For this Plan, high wind, lightning, hail, tornadoes, and thunderstorms were considered to have an equal chance of affecting any part of Town.

**Extent** – Hurricane strength is measured using the Saffir-Simpson scale, located in the appendix of this Plan. South Hampton is located within Zone II hurricane-susceptible region (indicating a design wind speed of 160 mph). From 1950 to 2018 Rockingham County was subject to nine tornado events, these included 2 type F0 (Gale Tornado, 40-72 mph), 2 type F1 (Moderate Tornado, 73-112 mph), 4 type F2 (Significant Tornado, 113-157 mph) and 1 type F3 (Severe Tornado, 158-206 mph). Type 3 tornados can cause severe damage including tearing the roofs and walls from well-constructed homes, trees can be uprooted, trains over-turned, and cars lifted off the ground and thrown. Between 1900 and 2018, 2 hurricanes have made landfall in New Hampshire, category 1, and category 2. Measurement scales for hurricanes, tornadoes, thunderstorms, lightning risk, and hail can be found in the appendix of this Plan.

**Probability** -High. The State of New Hampshire's Multi-Hazard Mitigation Plan Update 2023 rates Rockingham County with high likelihood of hurricane, tornado, and "Nor'-Easters" events. Also, it rates the risk of downbursts, lightning, and hail events as moderate. See Table 3, Hazard Identification and Risk Assessment.

**Past Occurrence** – Between 1635 and 2018 14 hurricanes have impacted the State of New Hampshire. The worst of these occurred on September 21, 1938, with wind speeds of up to 186 mph in MA and 138 mph elsewhere. Thirteen of 494 people killed by this storm were residents of New Hampshire. The Storm caused \$12,337,643 in damage (1938 dollars); timber not included. Hurricanes Sandy and Irene created areas of localized flooding in South Hampton and power loss. High wind events in 2010, 2014, 2016, 2018, 2023, and 2024 resulted in extensive power outages, downed wires, and trees. Heavy rain associated with tropical storms in 2017, 2018, and 2020, impacted South Hampton, resulting in flooding along roads, low lying areas, and floodplains. The Committee determined that tornadoes and hail have not impacted South Hampton in recent memory. Wind and rain associated with severe thunderstorms have resulted in downed trees and limbs and isolated areas of flooding.

**Community Vulnerability** – The Committee determined that high wind, heavy rain, lightning, and hail associated with hurricanes, tornadoes and thunderstorms can impact every neighborhood in South Hampton before, during and after the storm, resulting in downed trees, coastal flooding and the flooding of ponds, rivers, streams, roads and basements, and damage to home, businesses, and infrastructure.

#### Severe Winter Weather

**Description** – Severe winter weather in the form of heavy snowstorms, ice storms and Nor'easters are a threat to the community with subzero temperatures from extreme wind chill and storms causing low visibility for commuters. Heavy snow loads from storms are known to collapse buildings. Ice storms

disrupt power and communication services. Extreme cold affects vulnerable populations, including the elderly.

- **Heavy 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.
- Ice Storms An ice storm involves rain, which freezes upon impact. Ice coating at least onefourth inch thickness is heavy enough to damage trees, overhead wires, and similar objects. Ice storms also often produce widespread power outages.
- Nor'easter A Nor'easter is a large weather system traveling from South to North passing along or near the seacoast. As the storm approaches New England and its intensity becomes increasingly apparent, the resulting counterclockwise cyclonic winds impact the coast and inland areas form a Northeasterly direction. The sustained winds may meet or exceed hurricane force, with larger bursts, and may exceed hurricane events by many hours (or days) in terms of duration.

Location - Severe winter weather events have an equal chance of affecting any part of South Hampton.

**Extent** - Large snow events in Southeastern New Hampshire can produce thirty inches of snow. Portions of central New Hampshire recorded snowfalls of ninety-eight inches during one slow moving storm in February of 1969. Ice storms occur regularly in New England. The Sperry-Piltz ice accumulation scale is found in the Appendix of this Plan. Seven severe ice storms have been recorded that have affected New Hampshire since 1929. These events caused disruption of transportation, loss of power and millions of dollars in damage.

**Probability** - High. The State of New Hampshire's Multi-Hazard Mitigation Plan 2023 Update rates Rockingham County with high likelihood of heavy snow and ice storms. See Table 3, Hazard Identification and Risk Assessment.

**Past Occurrence** – South Hampton has been impacted by six severe winter storms in recent memory. A severe winter storm struck the region on March 19, 2013, with heavy snow fall resulting in 48 hours of snow removal. A severe winter storm in 2015, two Nor'easters in 2018, a heavy snowstorm in December 2022 resulted in power outages, and two Nor'Easters in March 2023 and March 2024 required extensive snow removal, removal of fallen trees, and utility repairs.

**Community Vulnerability** - Severe winter weather has struck South Hampton and every other community in the region on an annual basis in recent memory. The Committee determined that heavy snow, strong and gusty winds, and frigid temperatures can impact all parts of town equally, resulting in downed trees and power lines, extended power outages, and unsafe driving condition. Extended power outages and the resulting loss of heat in homes of elderly residents are of concern. Rapid snow melting after severe winter weather can result in flooding of rivers and streams, posing risk to roads and structures. The Committee identified the elderly and vulnerable populations, utility lines and towers, and trees at greatest risk from severe winter weather.

#### **Earthquakes**

**Description** – Seismic activity including landslides and other geologic events. 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, electricity and phone lines, and often cause landslides, flash floods, fires, and avalanches. Larger earthquakes usually begin with slight tremors but rapidly take the form of one or more violent shocks, and end in vibrations of gradually diminishing force called aftershocks. The underground point of origin of an earthquake is called its focus; the point on the surface directly above the focus is the epicenter. The magnitude and intensity of an earthquake is determined using scales such as the Richter Magnitude Scale, located in the Appendix of this Plan.

**Location** – An earthquake has an equal chance of affecting all areas of South Hampton.

**Extent** - Geologic events are often associated with California, but New England is considered a moderate risk earthquake zone. The Committee determined all areas of South Hampton are at equal risk of damage from an earthquake.

**Probability** - Moderate. The State of New Hampshire's Multi-Hazard Mitigation Plan 2023 Update ranks all the Counties in the State with at moderate risk to earthquakes. See Table 3, Hazard Identification and Risk Assessment.

**Past Occurrence** – There has been no reported damage in South Hampton from earthquakes in recent memory. A 3.8 magnitude quake hit off the coast of Portsmouth, NH on January 27, 2025 but no damage was reported in South Hampton. The strongest damaging quakes to impact New Hampshire were centered in Tamworth on December 20 and 24, 1940, both with a measured magnitude of 5.8. The Hazard Mitigation Committee expects a magnitude 3.4 to 4.5 magnitude to be the worst-case scenario.

**Community Vulnerability** - New England is particularly vulnerable to the injury of its inhabitants and structural damage because of our built environment. Few New England States currently include seismic design in their building codes. Massachusetts introduced earthquake design requirements into their building code in 1975 and Connecticut very recently did so, but these specifications are for new buildings or very significantly modified buildings. New Hampshire has no such code specifications. Existing buildings, bridges, water supply lines, electrical power lines and facilities, etc. have rarely been designed for earthquake forces. The Committee determined that earthquakes do not pose a frequent threat to South Hampton, but if one were to occur the most vulnerable structures include dams, bridges, brick structures, infrastructure, and utility lines, as well as secondary hazards such as fire, power outages or a hazardous material leak or spill.

#### <u>Drought</u>

**Description** - Drought is a period of unusually constant dry weather that persists long enough to cause deficiencies in water supply (surface or underground). Droughts are slow-onset hazards that can severely affect municipal water supplies, crops, recreation resources, and wildlife. If drought conditions extend over several years, the direct and indirect economic impacts can be significant. High temperatures, high winds, and low humidity can worsen drought conditions and make areas more susceptible to wildfire. In addition, human actions and demands for water resources can accelerate drought-related impacts.

**Location** – The Committee determined that homes and businesses served by wells are the most vulnerable to drought. The risks of wildfire associated with drought conditions are greatest in forested and open grassland areas.

**Extent** - Although New Hampshire is typically thought of as a water-rich state, there are times the demand for water can be difficult to meet. A combination of increased population and extended periods of low precipitation can cause reduced water supplies. Drought can impact South Hampton after extended periods of limited rain and snowfall, often for several months, and can be a town-wide hazard. Rockingham County experienced extreme drought in 2021 and 2022 referred to as a D3 on the U.S. Drought Monitor Scale. The Hazard Mitigation Committee expects extreme drought to be the worst-case scenario. The Town monitors the information provided by the DES Drought Management Program and advises residents on water conservation during periods of drought. The U.S. Drought Monitor Scale is in the appendix of this Plan.

Probability - Low. See Table 3, Hazard Identification and Risk Assessment.

**Past Occurrence** - The State of New Hampshire Multi-Hazard Mitigation Plan 2023 Update rates Rockingham Count at low risk for drought. However, drought conditions persisted across southern New Hampshire for two of the last five years, prompting the Town to request voluntary outdoor watering bans.

**Community Vulnerability** - The Committee determined that water supply and fire flow are the most at risk due to drought conditions. Increasing development and associated populations growth in the region, year-round and seasonal, stress water supply during periods of drought.

#### <u>Wildfire</u>

**Description** - Wildfire is defined as an uncontrolled and rapidly spreading fire, including grass and forest fires. A forest fire is an uncontrolled fire in a woody area. They often occur during drought and when woody debris on the forest floor is readily available to fuel the fire. Grass fires are uncontrolled fires in grassy areas.

**Location** - The Committee determined that the forest and grasses areas spread throughout town are at risk to wildfires.

**Extent** - A wildfire in South Hampton is unlikely, but if a field fire or crown fire were to occur it could be damaging to structures abutting large, wooded areas. A large grass fire could damage structures and neighborhoods near large open areas. A large grass and forest fire has not impacted South Hampton in recent memory. The largest wildfire in town has not surpassed five acres. The Hazard Mitigation Committee expects a wildfire of less than 10 acres to be the worst-case scenario. The Wildland-Urban Interface Scale, a tool to quantify the expected severity of wildfire events in developed areas, is included in the Appendix.

**Probability** - Medium. The State of New Hampshire's Multi-Hazard Mitigation Plan 2023 Update rates Rockingham County with moderate risk to wildfires. See Table 3, Hazard Identification and Risk Assessment. **Past Occurrence** - No Large fires have occurred in South Hampton in recent memory. Smoke from Canadian wildfire impacted air quality in 2023.

**Community Vulnerability** - The Committee determined that all forested and open areas in South Hampton are prone to wildfires, with the threat increasing during periods of drought. The Committee noted that seasonal activity at the Tuxbury Pond RV Park presents the greatest threat.

#### Extreme Temperatures

**Description** - Temperatures across New Hampshire have increased by an average of three degrees since 1901, the result of climate change. Warming is highest during the fall and winter seasons and is associated with a decrease in frequency and severity of cold extremes. Conditions of extreme heat are defined as a prolonged period of excessively hot weather, with temperatures above the average high temperature for a particular region for that time of year, often combined with high humidity. In New Hampshire, extreme heat conditions are defined as two days of temperatures over 90 degrees. The heat index is a measure of how hot it really feels when relative humidity is factored in with actual air temperature. The hottest temperature recorded in the region was 104 degrees on August 2, 1975.

Winter storms, blizzards, and episodes of high barometric pressure accompanied by clear night skies can bring extreme cold temperatures to the region, increasing the risk of frostbite and hypothermia. The risk of extended power outages increases during winter storms, increasing the vulnerability of elderly and vulnerable residents. The coldest temperature recorded in the region was -26 degrees on January 22, 1984.

Location – Extreme temperatures can affect all areas of South Hampton.

**Extent** - Extreme heat events impact South Hampton for 3-5 days each summer, and extreme cold events impact the Town 3-5 days each winter. Extreme heat events impacted South Hampton in 2021, 2023, and 2024, with temperatuers exceeding 90 degrees. The National Weather Service Heat Index and the Wind Chill Chart are included in the Appendix.

**Probablility** – The Committee ranked the probablilty of extreme temperatures as high. See Table 3, Hazard Identification and Risk Assessment.

**Past Occurrence** – Annually. Since the last Plan Update, South Hampton has experienced an increase in days with a high heat index. Winter days with below average temperatures have remained the same but do not occur each year.

**Community Vulnerability** - The Committee determined that all parts of town are at risk of impacts associated with extreme temperatures. Extreme heat can cause heat-related illnesses, like heat stroke or heat exhaustion, which occur when the body is unable to cool itself fast enough. The young, elderly and vulnerable populations are especially vulnerable to heat stroke. The EMD maintains a list of these populations and proactivey checks on residents during periods of extreme temperatures. The South Hampton Town Hall can operate as a heating and cooling center.

#### Climate Change

**Description** - Climate is defined as the long-term, prevailing pattern of temperature, precipitation, and other weather variables at a given location as described by statistics, such as means and extremes. Climate differs from weather in that weather is the current state or short-term variation of these variables at a given location. Climate change is the observed change in atmospheric variables over time that are the result of natural and anthropogenic, or human-caused, influences. Climate change is directly related to the ongoing increase in global temperature, a rise that is influenced by the steady increase in the concentration of atmospheric greenhouse gases that has been occurring and continues to occur across the globe.

**Location** – Climate change can affect all areas in South Hampton, in the form of increased temperatures and extreme precipitation events.

**Extent** – Extreme heat events impact South Hampton for 3-5 days each summer, and the number of days may increase as the result of climate change. The average annual temperature in New Hampshire has increased three degrees since the early 20<sup>th</sup> century. Warming temperatures in the winter have been larger than any other season. Future winter warming will have large effects on snowfall and snow cover. Flooding from extreme precipitation events increasingly impact South Hampton. Mean precipitation and precipitation extremes are projected to increase in the future, with associated increases in flooding

**Probability** – The Committee determined the probability of climate change impacting South Hampton as high given the increase in hazard events since the last Plan Update. See Table 3, Hazard Identification and Risk Assessment.

**Past Occurrence** – Annually. Since the 2016 Plan Update, South Hampton has experienced drought, extreme heat, and extreme precipitation events, as described under the individual hazard.

**Community Vulnerability** - The Committee determined that all parts of town are at risk of impacts associated with climate change and the effects of climate change pose real and significant threats to community safety, resilience, and quality of life. The Committee determined that climate change impacts South Hampton in the following ways:

- Flooding of roadways, including evacuation routes, and homes and businesses due extremen precipitation events.
- Increasing periods of extreme heat impact human health, especially among the elderly and vulnerable populations, and stress water supplies.

#### Infectious Disease

**Description** – Infectious diseases are illnesses caused by organisms – such as bacteria, viruses, fungi, or parasites. Many organisms live in and on our bodies. They are 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. Signs and symptoms vary depending on the organism causing the infection but often include fever and fatigue. Mild infections get better on their own without treatment, while some life-threatening infections may require hospitalization. A definition of infectious diseases by the Mayo Clinic is in the Appendix.

According to the Unites States Centers for Disease Control and Prevention (CDC), the number of people with a disease that is usually present in a community is referred to as the baseline or endemic level of the disease. This number of infections is not necessarily the desired level, which may in fact be zero, but rather is the typical or normal number of people infected. In the absence of intervention and if the number of infections is not high enough to deplete the pool of susceptible people, the disease may continue to occur at this level indefinitely. Thus, the baseline level is often regarded as the expected level of the disease. While some diseases are so rare in each population that a single case warrants an epidemiological investigation (e.g., rabies, plague, polio), there are other diseases that occur more commonly so that only deviations from the norm (i.e., seeing more cases than expected) warrants investigation.

Epidemics occur when an agent (the organism) and susceptible hosts are present in adequate numbers, and the agent can be effectively conveyed from a source to the susceptible people. More specifically, an epidemic may result from a recent increase in the amount or virulence of the agent, the recent introduction of the agent into a setting where it has not been before, an enhanced mode of transmission so that more susceptible people are exposed, a change in the susceptibility of people's response to the agent, and/or factors that increase exposure or involve introduction through new portals of entry.

Epidemics may be caused by infectious diseases, which can be transmitted through food, water, the environment, or person-to-person or animal-to-person, and non-infectious diseases, such as chemical exposure, which causes increased rates of illness. Infectious diseases that may cause an epidemic can be broadly categorized into the following groups: foodborne (E.Coli), water (Giardiasis), vaccine preventable (Measles), sexually transmitted (HIV), person-to -person (TB), arthropod borne (Lyme), zoonotic (Rabies), and opportunistic fungal and fungal infections (Candidiasis). An epidemic may also result from a bioterrorist event in which an infectious agent is released into a susceptible population, often through an enhanced mode of transmission, such as aerosolizing.

Location – Infectious disease can affect all areas of South Hampton.

**Extent** – The magnitude and severity of infectious disease is described by its speed of onset (how quickly people become sick, or cases are reported) and how widespread the infection is. Some infectious diseases are inherently more dangerous and deadly than others, but the best way to describe the extent of infectious diseases relates to the disease occurrence:

- Endemic Constant presence and/or usual prevalence of a disease or infection agent in a population within a geographic area
- Hyperendemic Persistent, high levels of disease occurrence.
- Cluster 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.
- Epidemic An increase, usually sudden, in the number of cases of a disease above what is normally expected.
- Outbreak The same as epidemic, but over a much smaller geographical area.
- Pandemic Epidemic that has spread over several countries or continents, usually affecting many people.

**Probability** – The probability of infectious disease is high. See Table 3, Hazard Identification and Risk Assessment.

**Past Occurrence** – Infectious diseases, such as seasonal influenza, and gastrointestinal illness occur annually in South Hampton. The COVID-19 pandemic impacted South Hampton beginning in 2020 and the town continues to experience cases of COVID-19 and community transmission.

**Community Vulnerability** – The Committee determined that all parts of town are at risk of impacts associated with infectious disease. Rates of illness, duration of disease, and the ability to treat or prevent illness once the causative agent is identified are just a few factors that will further determine the vulnerability of the population.

In response to the COVID-19 pandemic, South Hampton town staff collaborated to oversee information sharing and coordination of the Town's pandemic response. Information was distrubited via Town and school newsletters and emails. The Police and Fire Departments worked with Town adminstration to form a task force to share information, and the Library Director also worked as a community liason. The COVID-19 pandemic impacted both town and school operations, the general work force, and supply chains for everyday items.

Table 2 summarizes South Hampton's vulnerability to the natural hazards identified in this Plan Update. Flooding and extreme precipiation events resulting from climate change are the greatest risks facing the community.

Scoring for Probability	<b>Column A</b> Probability	<b>Column B</b> Probability	<b>Column C</b> Probability	Column D Probability of	Column E (A+B+C/3)	Column F (D x E)	<b>Column G</b> Risk
Columns A, B & C	of death	of physical	of	occurring	Impact	Relative	NISK
	or injury	losses and	interruption	within 25	average	threat	
	or injury	damage	of service	years	ureruge	lineat	
1=Very Low (0-20%)			I				High
2=Low (21-40%)							13.0-21.9
3=Moderate							Medium
(41-60%							6.0-12.9
4=High (61-80%)							
5=Very High							Low
(81-100%							0-5.9
	Human	Property	Business	Probability	Severity	Risk	
	Impact	Impact	Impact	of		Severity x	
				Occurrence		Occurrence	
Natural Hazard	•			•		•	-
Flooding	4.00	5.00	5.00	5.00	4.66	23.30	High
Hurricane/High	3.00	5.00	5.00	5.00	4.33	21.66	High
Wind							
Coastal Storms	3.00	5.00	5.00	5.00	4.33	21.66	High
Severe Winter	4.00	4.00	4.00	5.00	4.00	20.0	High
Weather							
Climate Change,	2.00	5.00	5.00	5.00	4.00	20.00	High
including extreme							
precipitation events							
Extreme	3.00	3.00	2.00	5.00	2.66	13.33	High
Temperatures							
Infectious Disease	5.00	1.00	5.00	4.00	3.66	14.66	High
Lightning/Hail	2.00	3.00	2.00	5.00	2.33	11.66	Medium
Earthquakes	5.00	5.00	5.00	2.00	5.00	10.00	Medium
Drought	1.00	3.00	2.00	5.00	2.00	10.00	Medium
Wildfires	2.00	4.00	3.00	3.00	3.00	9.00	Medium

#### Table 2 – Hazard Identification and Risk Assessment

Table 3: State of New Hampshire Presidentially Declared Disasters (DR) and Emergency Declarations (EM) 1982-2024 Source: <i>State of NH Multi-Hazard Mitigation Plan, 2013 Update and FEMA</i>							
Date Declared	Event	FEMA DR	Program	Amount	Counties Declared		
08/27/86	Severe storms/flooding	FEMA-771-DR	PA	\$1,005,000	Cheshire and Hillsborough		
04/16/87	Severe storms/flooding	FEMA-789-DR	PA/IA	\$4,888,889	Carroll, Cheshire, Grafton, Hillsborough, Merrimack, Rockingham, and Sullivan		
08/29/90	Severe storms/winds	FEMA-876-DR	PA	\$2,297,777	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, and Sullivan		
09/09/91	Hurricane	FEMA-917-DR	РА	\$2,293,449	Statewide		
11/13/91	Coastal storm/flooding	FEMA-923-DR	PA/IA	\$1,500,000	Rockingham		
03/16/93	Heavy snow	FEMA-3101-DR	PA	\$832,396	Statewide		
01/03/96	Storms/floods	FEMA-1077-DR	PA	\$2,220,384	Carroll, Cheshire, Coos, Grafton, Merrimack, and Sullivan		
10/29/96	Severe storms/flooding	FEMA-1144-DR	РА	\$2,341,273	Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan		
01/15/98	Ice storm	FEMA-1199-DR	PA/IA	\$12,446,202	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Strafford, and Sullivan		
07/02/98	Severe storms	FEMA-1231-DR	PA/IA	\$3,420,120	Belknap, Carroll, Grafton, Merrimack, Rockingham, and Sullivan		
10/18/99	Hurricane/tropical storm Floyd	FEMA-1305-DR	РА	\$750,133	Belknap, Cheshire, and Grafton		
3/2001	Snow emergency	FEMA-3166-EM	PA	\$4,500,000	Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, and Straffor		
2/17/2003 - 2/18/2003	Snow emergency	FEMA-3177-EM	PA	\$3,000,000	Cheshire, Hillsborough, Merrimack, Rockingham, and Strafford		
09/12/03	Severe storms/flooding	FEMA-1489-DR	PA	\$1,300,000	Cheshire and Sullivan		
03/11/03	Snow emergency	FEMA-3177-EM	PA	\$3,000,000	Cheshire, Hillsborough, Merrimack, Rockingham, and Strafford		

01/15/04	Snow emergency	FEMA-3193-EM	ΡΑ	\$3,200,000	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, and Sullivan
03/30/05	Snow emergency	FEMA-3207-EM	ΡΑ	\$4,654,738	Belknap, Carroll, Cheshire, Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan
03/30/05	Snow emergency	FEMA-3208-EM	PA	\$1,417,129	Carroll, Cheshire, Coos, Grafton, and Sullivan
04/28/05	Snow emergency	FEMA-3211-EM	PA	\$2,677,536	Carroll, Cheshire, Hillsborough, Rockingham, and Sullivan
10/26/05	Severe storm/flooding	FEMA-1610-DR	PA/IA	\$14,996,626	Belknap, Cheshire, Grafton, Hillsborough, Merrimack, and Sullivan
05/31/06	Severe storm/flooding	FEMA-1643-DR	PA/IA	\$17,691,586	Belknap, Carroll, Grafton, Hillsborough, Merrimack, Rockingham, and Strafford
4/15/2007 - 4/23/2007	Severe storm/flooding	FEMA-1695-DR	PA/IA	\$27,000,000	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan
08/11/08	Severe storms/tornado/flooding	FEMA-1782-DR	ΡΑ	\$1,691,240	Belknap, Carroll, Merrimack, Rockingham, and Strafford
09/05/08	Severe storms/flooding	FEMA-1787-DR	РА	\$4,967,595	Belknap, Coos, and Grafton
10/03/08	Severe storms/flooding	FEMA-1799-DR	РА	\$1,050,147	Hillsborough and Merrimack
12/11/08	Severe winter storm	FEMA-3297-EM	DF A/P A	\$900,000	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan
01/02/09	Severe winter storm	FEMA-1812-DR	DF A/P A	\$19,789,657	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan
03/29/10	Severe winter storm	FEMA-1892-DR	PA	\$9,103,138	Merrimack, Rockingham, Strafford, and Sullivan
05/12/10	Severe winter storm	FEMA-1913-DR	PA	\$3,057,473	Hillsborough and Rockingham
07/22/11	Severe storms/flooding	FEMA-4006-DR	PA	\$1,664,140	Coos and Grafton
09/03/11	Tropical storm Irene	FEMA-4026-DR	PA/IA	\$11,101,752	Belknap, Carroll, Coos, Grafton, Merrimack, Strafford, and Sullivan

06/18/12	Severe storms/flooding	FEMA-4065-DR	PA	\$3,046,189	Cheshire
10/30/12	Hurricane Sandy	DR-4095 EM-3360	PA DFA	\$2,132,376	Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan
2/8/2013 - 2/10/2013	Severe storm/blizzard	DR-4105	ΡΑ	\$6,127,598	Belknap, Carroll, Cheshire, Hillsborough, Merrimack, Strafford, and Rockingham
6/26/2013 – 7/3/2013	Severe storms/flooding	DR-4139	ΡΑ	\$6,389,705	Cheshire, Sullivan, and Grafton
1/26/2015 – 1/29/2015	Severe winter storm/snowstorm	DR-4209	РА	\$4,607,527	Strafford, Rockingham, and Hillsborough
3/14/2017 – 3/15/2017	Severe winter storm/snowstorm	DR-4316	РА	\$80,306.55	Belknap and Carroll
1/1/2017 – 1/2/2017	Severe storms/flooding	DR-4329	ΡΑ	\$6,218,291	Grafton and Coos
10/29/2017 11/1/2017	Severe Storm/flooding	DR-4355	ΡΑ	\$4,710,744	Sullivan, Merrimack, Belknap, Carroll, Grafton, Coos
3/2/2018 – 3/3/2018	Severe Storm/flooding	DR-4370	PA, IA	\$3,344,036	Rockingham
3/13/2018 – 3/14/2018	Severe Winter Storm/snowstorm	DR-4371	ΡΑ, ΙΑ	\$1,981,453	Carroll, Strafford, Rockingham
7/11/2019- 7/12/2019	Severe Storm/flooding	DR-4457	РА	\$675,907,70	Grafton
7/17/2021- 7/19/2021	Severe Storm/flooding	DR-4622	РА	\$1,195,832	Cheshire
3/13/2020 – 5/11/2023	COVID-19 Pandemic	EM-3445	ΡΑ, ΙΑ	NA	New Hampshire
1/20/2020- 5/11/2023	COVID-19 Pandemic	DR-4516	PA, IA	\$284,982,234	New Hampshire
7/29/2021- 8/2/2021	Severe Storm/flooding	DR-4624	РА	\$3,530,071	Cheshire, Sullivan
12/22/2022- 12/25/2022	Severe Storm/flooding	DR-4693	РА	\$1,251,386	Belknap, Carroll, Grafton, Coo
7/9/2023- 7/13/2023	Severe Storm/flooding	DR-4740	PA	\$170,675	Rockingham, Cheshire, Sullivan, Grafton, Belknap, Carroll, Coos
12/17/2023- 12/21/2023	Severe Storm/flooding	DR-4761	ΡΑ	NA	Carroll, Grafton, Coos
1/9/2024- 1/14/2024	Severe Storms/flooding	DR-4771	PA	NA	Rockingham, Grafton

Program Key: PA: Public Assistance IA: Individual Assistance DFA: Direct Federal Assistance

#### MAP 2: PAST AND FUTURE HAZARDS

## CHAPTER IV – CRITICAL FACILITIES

The Critical Facilities list has been created by the South Hampton Hazard Mitigation Committee. The Critical Facilities List has been broken up into four categories. The first category contains facilities needed for Emergency Response in the event of a disaster. The second category contains Non-Emergency Response Facilities that have been identified by the committee as non-essential. These are not required in an emergency response event but are considered essential for the everyday operation of South Hampton. The third category contains Facilities/Populations that the committee wishes to protect in the event of a disaster. The fourth category contains Potential Resources, which can provide services or supplies in the event of a disaster. Map 3: Critical Facilities at the end of this Chapter identifies the location of the facilities and the evacuation routes. A detailed description of critical facilities can be found in Tables 4 - 7.

Critical Facility Name	Address	Comments
Town Hall and Library	3 Hilldale Ave.	Heating/Cooling Center
Police Station/Fire Station/EOC	128 Main Ave.	Emergency Response
Highway Shed	Across from 55 Hilldale Ave.	
Barnard School	219 Main Ave.	Grades K-8 public school
Seventh Day Adventist	285 Main Ave.	Grades 1-8 private school
Baptist Church	10 Jewell St.	
Bridge – Rt. 107 at Fire Station	Between 120 and 122 Main Ave.	Evacuation Route
Bridge – Jewell St.	Between 53 and 65 Jewell St.	Evacuation Route
	Between 66 Jewell St. and 11	
Bridge – Whitehall Rd.	Whitehall Rd.	Evacuation Route
Fire Pond	Between 245 and 251 Main Ave.	Fire suppression

Table 4: Category 1 - Emerge	ncy Re	esponse S	Services and	Facilities

## Table 5: Category 2 - Non-Emergency Response Facilities

The town has identified these facilities as non-emergency facilities; however, they are considered essential for the everyday operation of South Hampton.

Critical Facility Name	Address	Comments
	Road access between 120 and 122	
Grassy Brook	Main Ave.	Water infrastructure
	Road access between 245 and 251	
Main Ave. dry hydrant	Main Ave.	Water infrastructure
Heron Pond dry hydrant	290 Main Ave.	Water infrastructure
Currierville dry hydrant	Between 5 and 21 Currier St.	Water infrastructure
Woodman Rd. dry hydrant	Between 21 and 27 Woodman Rd.	Water infrastructure
Beach dry hydrant	Hillman Ave. at Stockmans Bridge	Water infrastructure

Databaldar's dry bydrant	Patwaan 10 and 16 Waadman Dd	Water infrastructure
Batchelder's dry hydrant	Between 10 and 16 Woodman Rd.	water infrastructure
Sanborn Water Hole	Between 115 and 123 Hilldale Ave.	Water infrastructure
Noon's Pond	8 Woodman Rd.	Water infrastructure
Hume Brook	Between 219 and 221 Hilldale Ave.	Water infrastructure
Jewell Town Bridge	Between 53 and 65 Jewll St. Bridge	
Stockman's Bridge	Between 140 and 171 Hilldale Ave.	Bridge
Between 66 Jewell St. and 11		
Capp's Bridge	Whitehall Rd.	Bridge
Chase Road Bridge	Between 19 and 20 Chase Rd.	Bridge

## Table 6: Category 3 - Facilities/Populations to Protect

The third category contains people and facilities that need to be protected in the event of a disaster.

Critical Facility Name	Address	Comments
Town Hall	3 Hilldale Ave.	Congregation facility
Library	3 Hilldale Ave.	Congregation facility
	Across from 45-55 Hilldale	
Town Recreation Facility	Ave.	Congregation facility
Barnard School	219 Main Ave.	Public school
Seventh Day Adventist School	285 Main Ave.	Private school
Four structures within the Historic	10 Jewell St., 3 Hilldale Ave., 7	Municipal and privately
District	Hildale Ave.	owned buildings
		Recreational vehicles and
Tuxbury Pond RV Resort	167 Campground Rd.	tent camping

## Table 7: Category 4 - Potential Resources

This category contains facilities that provide potential resources for services or supplies in the event of a natural disaster.

Critical Facility Name	Address	Comments
Midway Excavators	84 Exeter Rd.	Heavy equipment
Town Road Agent		Heavy equipment
	268 Amesbury Rd.,	
CP Building Supply	Kensington, NH	Building supplies

MAP 3: CRITICAL FACILITIES MAP

## CHAPTER V – POTENTIAL HAZARD DAMAGE

## IDENTIFYING VULNERABLE FACILITIES AND CALCULATING THE POTENTIAL LOSS

The Hazard Mitigation Committee identified the areas in South Hampton most vulnerable to the natural hazards identified in Chapter III, estimated the locations of buildings and critical facilities in these areas, and calculated the potential hazard damage.

## FLOODING

Structures were identified by overlaying digital versions of FEMA's FIRM maps on 2015 digital aerial photography of the town of South Hampton. Because of the scale and resolution of the FIRM maps and imagery this is only an approximation of the total structures located within the 100-year floodplain (A-zone and AE-zone). All structures were assumed to be single family residential units with an average assessed value of \$385,000. The costs for repairing or replacing bridges, railroads, power lines, telephone lines, and contents of structures are not included in this estimate. In addition, the figures used were based on buildings which are one or two stories high with basements.

The following calculation is based on one-foot flooding and assumes that, on average, one- or two-story buildings with basements receive 15% damage (Understanding Your Risks, Identifying Hazards and Estimating Losses, FEMA page 4-13):

## Potential Structure Damage: 15%

Approximately 24 structures in the AE Zone valued at \$9,240,000 = potential damage \$1,386,000. Approximately 1 structure in the A Zone valued at \$385,000 = \$57,750 potential damage.

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

## Potential Structure Damage: 20%

Approximately 24 structures in the AE Zone valued at \$9,240,000 = \$1,848,000 potential damage. Approximately 1 structure in the A Zone valued at \$385,000 = \$77,000 potential damage.

**Dam Breach and Failure** - Dam failure results in rapid loss of water that is normally held by the dam. These kinds of floods are extremely dangerous and pose a significant threat to both life and property. The NH Dam Bureau's records list no active dams in South Hampton. The Lake Gardner Dam in abutting Amesbury, MA is classified as a High Hazard Dam. The dam is owned and managed by the City of Amesbury, MA. Management of the dam and water levels impacts South Hampton because the northern shore of Lake Gardner abuts Jewell Street in South Hampton. Failure of the Trickling Falls Dam in the abutting town of East Kingston could pose a threat to downstream roads and homes near Hilldale Avenue, Chase Road, and Whitehall Road. The Committee could not determine a damage estimate for a breach or failure of the dams in abutting towns. The Committee noted that there are several beaver dams located throughout South Hampton on private land that could cause road and field flooding if breached, including a beaver dam on the conservation land owned by the Audubon Society of New Hampshire. The Committee determined that an approximate dollar value of potential damage is not known without conducting a detailed engineering study on the specific dam sites, as well as measuring the potential downstream impacts.

## HURRICANE/HIGH WIND EVENTS

**Hurricane** - Hurricanes do affect the Northeast coast periodically. Since 1900, two hurricanes have made landfall in the State of New Hampshire. Due to the coastal location of the Town of South Hampton, hurricanes and storm surges present a real hazard to the community. Even degraded hurricanes or tropical storms could still cause significant damage to the structures and infrastructure. The assessed value of all residential and commercial in the Town of South Hampton is \$262,791,412. Assuming 1% to 5% damage, a hurricane could result in \$2,627,914 to \$13,139,571 of structure damage.

**Tornado** - Tornadoes are relatively uncommon natural hazards in New Hampshire. On average, about six tornadoes touchdown each year. Damage largely depends on where the tornado strikes. If strikes are in an inhabited area, the impact could be severe. The assessed value of all residential and commercial in the Town of South Hampton is \$262,791,412. Assuming 1% to 5% damage, a tornado could result in \$2,627,914 to \$13,139,571 of structure damage.

**Severe Lightning** - The amount of damage caused by lightning will vary according to the type of structure hit and the type of contents inside. There is no record of a lightning strike in South Hampton since the 2016 Plan Update.

#### SEVERE WINTER WEATHER

**Heavy Snowstorm** - Heavy snowstorms typically occur during January and February. 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 South Hampton in the past. All these impacts are a risk to the community, including isolation, especially of the elderly, and increased traffic accidents. The damage caused because of this type of hazard varies according to wind velocity, snow accumulation and duration. The assessed value of all residential and commercial in the Town of South Hampton is \$262,791,412. Assuming 1% to 5% damage, a heavy snowstorm could result in \$2,627,914 to \$13,139,571 of structure damage.

**Ice Storms** - Ice storms often cause widespread power outages by downing power lines and damaging trees. They can also cause severe damage to trees. An ice storm in southern New Hampshire in 2008 resulted in \$150 million dollars' worth of property damage. Ice storms in South Hampton could be expected to cause damage ranging from a few thousand dollars to several million, depending on the severity of the storm.

#### EARTHQUAKE

Earthquakes can cause buildings and bridges to collapse, disrupt gas, electricity, and phone lines and are often associated with landslides and flash floods. If an earthquake were to impact South Hampton, underground utility lines would be susceptible. In addition, buildings that are not built to a high seismic

design level would be susceptible to structural damage. The assessed value of all residential and commercial in the Town of South Hampton is \$262,791,412. Assuming 1% to 5% damage, an earthquake could result in \$2,627,914 to \$13,139,571 of structure damage.

## WILDFIRE

The risk of fire is difficult to predict based on location. Forest fires are more likely to occur during years of drought. However, these areas are identified as at risk to wildfire (Map 2: Past and Future Hazards) by the Hazard Mitigation Committee. These areas include large tracts of open vegetation including forests and open fields. Drought conditions increase the risks of wildfire in these open vegetated areas. The area of South Hampton at risk to potential wildfire are former agricultural fields that are transitioning to brush, shrubs, and woodlands, the woodlands abutting the Tuxbury Pond RV park and the woodlands abutting the gun club. The Committee also noted that ATV use along the utility right of way also poses a threat of wildfire caused by sparks and heat issued by recreational vehicles. The potential damage would be determined by the size of the wildfire and proximity to structures.

## EXTREME TEMPERATURES

The Committee determined that all parts of town are at risk of impacts associated with extreme temperatures. Young and elderly populations are especially vulnerable to heat stroke. The EMD maintains a list of these populations and contacts them during extreme heat and other weather events to check on their welfare.

## CLIMATE CHANGE

The potential hazard damages from climate change are discussed above under flooding and extreme temperatures.

## INFECTIOUS DISEASE

Epidemics have the potential to cause a significant loss of life and/or widespread illness throughout the State, as well as cause disruptions to economies at all levels. The threat of a pandemic influenza, such as COVID-19, exemplifies a devastating situation where there may be an extreme shortage of essential service workers, a rapid transmission of disease from person-to-person, and no effective vaccination to prevent the illness. The monetary value for this impact cannot be determined. The Town's Emergency Management Director led the Town's response to the COVID-19 pandemic, coordinating the sharing of information, and organizing and implementing immunization clinics. The monetary value for this impact cannot be determined.

## CHAPTER VI – EXISTING HAZARD MITIGATION PROGRAMS

Research shows how the climate of New Hampshire and the Seacoast region has changed over the past century and predicts the future climate of the region will be affected by human activities that are warming the planet. Overall, New England has been getting warmer and wetter over the last century and the rate of change has increased over the last four decades. Higher temperature events and more intense storm events will impact both the built and natural environments. To address these challenges, the Town has proactively designed several hazard mitigation programs to mitigate the impacts of natural hazards and increase resiliency. Table 8 describes programs that are currently in place as hazard mitigation actions or strategies for South Hampton.

Existing Program	Area Covered	Responsible Local Agent	Effectiveness (Poor, Avg., Good)	Recommended Changes- Actions-Comments
2024 Zoning Ordinance	Town-wide	Planning Board/ZBA/Code Enforcement	Good	Includes shoreland, wetland, and floodplain regulations to mitigate impacts of development
2012 Subdivision and Site Plan Review Regulations	Town-wide	Planning Board	Good	Reviewed annually and updated as needed. Includes erosion and sediment control, flood hazard areas, and stormwater management
2018 Building Codes	Town-wide	Building Inspector	Good	In line with State standards
2011 Master Plan	Town-wide	Planning Board	Good	Updated as needed
2016 Capital Improvements Plan	Town-wide	Planning Board	Good	Updated as needed
2012 Emergency Operations Plan	Town-wide	EMD	Good	Updated as needed
2024 NFIP Floodplain Ordinance	Town-wide	Building Inspector	Good	Continues to participate in NFIP
Culvert Inspection and Maintenance Program	Town-wide	Road Agent	Good	Culverts are inspected annually, and problems are addressed quickly
2022 Seabrook Radiological Response Plan	Town-wide	EMD	Good	Town participates in planning and training for a radiological emergency
2017 Seacoast Public Health Community Health Improvement Plan	Multi-town	Seacoast Public Health Network	Good	Includes public health emergency preparedness

## Table 8: Existing Hazard Mitigation Programs for the Town of South Hampton

Existing Program	Area Covered	Responsible Local Agent	Effectiveness (Poor, Avg., Good)	Recommended Changes- Actions-Comments
Barnard School Emergency Response Plan	School property	School Principal	Good	Plan is reviewed annually by SAU and Town
2017 Seacoast Public Health Community Health Improvement Plan	Multi-town	Seacoast Public Health Network	Good	Includes public health emergency preparedness
Municipal Emergency Services	Town-wide	EMD, Police Chief, Fire Chief	Good	Local and regional training required for all emergency service personnel
Mutual Aid	Region	EMD, Police Chief, Fire Chief, Road Agent	Good	Town participates in several regional emergency response programs
Roadside Tree Trimming Program	Town-wide	Road Agent and Unitil	Good	Town is still waiting for reimbursement from Until for tree removal after April 2024 storm
Land Conservation Program	Town-wide	Conservation Commission/Board of Selectmen	Good	Town works with landowners and land conservation organizations to protect land from development
Reverse 911	Town-wide	EMD	Good	None
Household Hazardous Waste Collection	Town-wide	Board of Selectmen	Good	Town participates in annual collection of household hazardous waste to reduce toxic material storage in homes
Contact List for Vulnerable Residents	Town-wide	Fire Chief	Good	Town maintains a list of vulnerable residents and checks in with these residents during weather hazard events
Public Outreach and Education on Hazard Mitigation	Town-wide	EMD/Town Administrator/ Librarian/Barnard School	Good	Information on hazard mitigation and emergency preparedness is shared by the Town and School via social media, including websites and Facebook

## CHAPTER VII – POTENTIAL MITIGATION ACTIONS

The list of potential mitigation actions was developed by the Committee by analyzing the existing Town programs and identifying proposed improvements and changes to existing programs. Additional programs were also identified as potential mitigation strategies. The hazards that were defined in this plan were analyzed for potential mitigation opportunities using the New Hampshire's Hazard Mitigation Plan, other abutting community's hazard mitigation plans, and FEMA's *Mitigation Ideas, A Resource for Reducing Risk to Natural Hazards*. Following this review and evaluation of potential mitigation strategies, the following hazards were identified as being critical for mitigation and therefore the committee included strategies pertinent to those listed below that the community will attempt to implement in a timely manner. These potential mitigation strategies were ranked in five categories according to how they accomplished each item:

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

Mitigation Strategies or Action	Mitigation Category	Hazards Mitigated	Description	Status 2025: New/Completed/ Deferred/Removed
Repair Stockman's Bridge	Emergency Services	All Hazards	Stockman's Bridge is a State red-listed bridge. The Town has an article on the 2025 warrant for funds to design repairs to the bridge. The Town will be reimbursed by NHDOT for costs associated with bridge repairs.	Deferred
Road elevation projects	Emergency Services/	Flooding	Raise roadbeds to reduce	Removed
on Lone Goose Road and	Prevention/		flood risk	
Woodman Road	Property Protection			
Rewire Barnard School for a generator; purchase and install a generator to establish an emergency shelter and heating and cooling center	Emergency Services	All	Barnard School is the best option for a new emergency shelter and heating and cooling center	Deferred
Salt shed enlargement	Emergency Services/	Winter	A larger shed is needed for	Removed
	Preparedness	Storms	additional salt storage	

## Table 9: Potential Mitigation Actions

Mitigation Strategies or Action	Mitigation Category	Hazards Mitigated	Description	Status 2025: New/Completed/ Deferred/Removed
Monitor beaver dam flowage at ASNH Brookside Wildlife Sanctuary to identify flooding threats to Woodman Road	Prevention/ Preparedness/Eme rgency Services/ Property Protection	Flooding	Active and abandoned beaver dams on private land and on conservation land owned by the Audubon Society of NH result in flooding of roads and critical infrastructure and private property	Deferred
EMD and Fire Department inventory areas of town at risk of wildfire	Prevention/ Preparedness/ Emergency Services/ Property Protection	Wildfire	Open fields and fields reverting to woodlands are at risk of wildfire	Completed
Provide residents with information about risks from natural hazard events and hazard mitigation	Prevention/ Preparedness/ Public Information and Involvement	All Hazards	The Town shares hazard mitigation information from NHHSEM, FEMA and our sources with residents via the town newsletters and social media	Completed and ongoing
Maintain culvert inventory	Preparedness/ Emergency Services	Flooding	Culverts are inventoried and inspected but prioritization of retrofits and replacement is needed	Deferred
Install new dry hydrants and assess and repair existing dry hydrants	Preparedness/Eme rgency Services/ Property Protection	Wildfire	Some work has been completed on this action, but three hydrants are still needed	Deferred
Purchase 12 traffic cones and 10 barricades	Emergency Services	All Hazards	Cones and barricades are needed for public safety during hazard response	Completed
Purchase portable electronic messaging board	Preparedness/ Emergency Services/ Pubic Information and Involvement	All Hazards	One sign has been purchased but one more needed	Deferred
Purchase or build a Fire Stage Warning sign	Preparedness/ Public Information and Involvement	Wildfire	A Fire Stage Warning sign outside the Fire/Police Station would inform residents of fire hazard risk	Completed

Mitigation Strategies or Action	Mitigation Category	Hazards Mitigated	Description	Status 2025: New/Completed/ Deferred/Removed
Purchase larger water tank for forestry vehicle	Preparedness/Eme rgecy Services/ Property Protection	Wildfire	The existing water tank on the forestry vehicle is 250 gallons, insufficient for response needs. A 500- gallon tank is needed.	Completed
Re-instate Public Safety Day to raise awareness of natural hazards and emergency preparedness	Preparedness/ Public Information and Involvement	All Hazards	The Town has held a Public Safety Day in the past an it should be held every 2-3 years going forward	Deferred
Work with NHDOT to install a blinking light at the intersection of Main Ave., Chase Rd. and South Rd.	Emergency Services	All Hazards	The intersection is the site of frequent traffic accidents, impacting a primary evacuation route.	Completed
Purchase new forestry vehicle	Emergency Services	All Hazards	The current forestry vehicle is old and needs to be replaced	New
Purchase and install new communication equipment, including radios and tower, and establish a dedicated communication channel for Police, Fire, School, and Town Administration	Emergency Services	All Hazards	New communication equipment is needed and a dedicated channel would enable direct emergency communication between town officials	New
Update the MOU with Amesbury Health Center for advanced life support services	Emergency Services	All Hazards	Advanced life support services provided by Exeter Hospital has ended, sending towns in the region to search for services. An updated MOU with Amesbury Health Center would reinforce the working relationship between the Town and the Health Center	New

Mitigation Strategies or Action	Mitigation Category	Hazards Mitigated	Description	Status 2025: New/Completed/ Deferred/Removed
Adopt model Stormwater Management Regulations	Preparedness	Flooding	Adopting the model Stormwater Regulations could reduce flooding and erosion	New
Update CIP	Preparedness	All Hazards	The current CIP was completed in 2016 and needs updating	New
Purchase inflatable bedding for use during emergencies	Emergency Services	All Hazards	Inflatable bedding could be used at Town Hall or the School when emergency shelter is needed	New
Purchase and install a generator in Town Hall so that it may be used as an emergency shelter and heating and cooling center	Emergency Services	All Hazards	A generator would enable the Town Hall to be used as a shelter if the school is not available, and would enable continuity of town operations during power disruptions	New

## CHAPTER VIII – FEASIBILITY AND PRIORITIZATION OF PROPOSED MITIGATION ACTIONS

The goal of each strategy or action is the reduction or prevention of damage from a hazard event. To determine their effectiveness in accomplishing this goal, a set of criteria was applied to each proposed strategy. The Committee used STAPLEE assessment tool to rank the proposed mitigation actions. The STAPLEE method analyzes the Social, Technical, Administrative, Political, Legal, Economic and Environmental aspects of a project and is commonly used by public administration officials and planners for making planning decisions. The following questions were asked about the proposed mitigation strategies identified in Tables 10a – 10i:

- Does it reduce disaster damage?
- Does it contribute to other goals?
- Does it benefit the environment?
- Does it meet regulations?
- Will historic structures be saved or protected?
- Does it help achieve other community goals?
- Could it be implemented quickly?

#### STAPLEE criteria:

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

Each proposed mitigation strategy was evaluated using the above criteria and assigned a score (Good = 3, Average = 2, Poor = 1) based on the above criteria. After each strategy was evaluated and prioritized according to the final score, the highest scoring strategies were determined to be of more importance, economically, socially, environmentally, and politically feasible and, hence, prioritized over those that were lower scoring. This prioritizing was used as a basis for developing the Action Plan outlined in Table 12.

## Table 10a: Repair Stockman's Bridge

Criteria	Score
Does it reduce disaster damage?	2
Does it contribute to other goals?	2
Does it benefit the environment?	1
Does it meet regulations?	3
Will historic structures be saved or protected?	2
Does it help achieve other community goals?	3
Could it be implemented quickly?	2
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	2
SCORE	35

 Table 10b: Re-wire Barnard School for a generator; purchase and install generator to establish an

 emergency shelter and heating and cooling center

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	1
Does it meet regulations?	3
Will historic structures be saved or protected?	1
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	38

# Table 10c: Monitor beaver dam flowage at ASNH Brookside Wildlife Sanctuary to identify floodingthreats to Woodman Road

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	2
Does it meet regulations?	1
Will historic structures be saved or protected?	1
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	37

## Table 10d: Maintain culvert inventory

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	3
Does it meet regulations?	3
Will historic structures be saved or protected?	3
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	42

## Table 10e: Install new dry hydrants and assess and repair existing new dry hydrants

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	3
Does it meet regulations?	3
Will historic structures be saved or protected?	3
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	42

## Table 10f: Purchase portable electronic messaging board

Criteria	Score
Does it reduce disaster damage?	1
Does it contribute to other goals?	3
Does it benefit the environment?	2
Does it meet regulations?	2
Will historic structures be saved or protected?	1
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	36

# Table 10g: Re-instate Public Safety Day to raise awareness of natural hazards and emergencypreparedness

Criteria	Score
Does it reduce disaster damage?	1
Does it contribute to other goals?	3
Does it benefit the environment?	1
Does it meet regulations?	1
Will historic structures be saved or protected?	1
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	34

## Table 10h: Purchase new forestry vehicle

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	3
Does it meet regulations?	3
Will historic structures be saved or protected?	3
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	
SCORE	42

# Table 10i: Purchase and install new communication equipment, including radios and tower,and establish a dedicated emergency communication channel for Police, Fire, School,and Town Administration

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	1
Does it meet regulations?	3
Will historic structures be saved or protected?	2
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	39

## Table 10j: Update the MOU with Amesbury Health Center to ensure advanced life support services

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	1
Does it meet regulations?	3
Will historic structures be saved or protected?	3
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	40

Table 10k: Adopt model stormwater management regulations

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	3
Does it meet regulations?	3
Will historic structures be saved or protected?	2
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	41

## Table 10I: Update CIP

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	2
Does it meet regulations?	3
Will historic structures be saved or protected?	1
Does it help achieve other community goals?	3
Could it be implemented quickly?	2
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	36

Table 10m: Town partner with NHHSEM, NH Dept. of Safety, Town of Amesbury, MA, and the ownersof the Tuxbury Pond RV Resort to develop an emergency response plan for the campground

Criteria	Score	
Does it reduce disaster damage?	3	
Does it contribute to other goals?	3	
Does it benefit the environment?	3	
Does it meet regulations?	3	
Will historic structures be saved or protected?	1	
Does it help achieve other community goals?	3	
Could it be implemented quickly?	3	
S: Is it Socially acceptable?		
T: Is it Technically feasible and potentially successful?		
A: Is it Administratively workable?	3	
P: Is it Politically acceptable?	3	
L: Is there Legal authority to implement?	3	
E: Is it Economically beneficial?	3	
E: Are other Environmental approvals required?	3	
SCORE	41	

## Table 10n: Purchase inflatable bedding to use during emergencies

Criteria	Score
Does it reduce disaster damage?	1
Does it contribute to other goals?	3
Does it benefit the environment?	1
Does it meet regulations?	2
Will historic structures be saved or protected?	1
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	35

# Table 10o: Purchase and install a generator in Town Hall so it may be used as an emergency shelterand heating and cooling center

Criteria	Score
Does it reduce disaster damage?	3
Does it contribute to other goals?	3
Does it benefit the environment?	3
Does it meet regulations?	3
Will historic structures be saved or protected?	1
Does it help achieve other community goals?	3
Could it be implemented quickly?	3
S: Is it Socially acceptable?	3
T: Is it Technically feasible and potentially successful?	3
A: Is it Administratively workable?	3
P: Is it Politically acceptable?	3
L: Is there Legal authority to implement?	3
E: Is it Economically beneficial?	3
E: Are other Environmental approvals required?	3
SCORE	41

# CHAPTER IX – IMPLEMENTATION SCHEDULE FOR PRIORITY MITIGATION ACTIONS

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

- **WHO?** Who will lead the implementation efforts? Who will put together funding requests and applications?
- **HOW?** How will the community fund these projects? How will the community implement these projects? What resources will be needed to implement these projects?

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

Table 11 is the Action Plan, and includes the responsible party (WHO), how the project will be supported (HOW), and what the timeframe is for implementation of the project (WHEN). Also included is a cost estimate for each project if available.

STAPLEE Score	Project	Responsibility/ Oversight	Funding/ Support	Estimated Cost	Time frame
42	Purchase and install new communication equipment, including radios, tower, and establish a dedicated emergency communication channel for Police, Fire, School, and Town Administration	EMD	Town and Grant Funds	Unknown	Medium 2-3 years
42	Purchase new forestry vehicle	Fire Chief	Town and Grant Funds	\$100,000	Medium 2-3 years
42	Install new dry hydrants and access and repair existing dry hydrants	Fire Chief	Town and Grant Funds	Unknown	Medium 2-3 years
42	Maintain culvert inventory	Road Agent/ Board of Engineers	Town and Grant Funds	\$1,000	Short One year

## Table 11: Action Plan for Proposed Mitigation Actions

STAPLEE	Project	Responsibility/	Funding/	Estimated	Time
Score		Oversight	Support	Cost	frame
41	Town partner with NHHSEM, NH Dept. of Safety, Town of Amesbury, MA and owners of Tuxbury Pond RV Resort to develop an Emergency Response Plan for the campground	Board of Selectmen	Town and Grant funds	Unknown	Short One year
41	Purchase and install a generator for Town Hall so that it may be used as an emergency shelter, heating and cooling center, and for continuity of operations	EMD	Town and Grant funds	Unknown	Short One year
41	Adopt model stormwater management regulations	Planning Board	Town	Staff time	Medium 2-3 years
40	Update MOU with Amesbury Health Center for advanced life support services	EMD	Town	Staff time	Medium 2-3 years
38	Rewire Barnard School for a generator; purchase and install a generator to establish an emergency shelter and heating and cooling center	SAU/School Board/ Board of Selectmen	Town and Grant Funds	Unknown	Short One year
37	Monitor beaver dam flowage to identify flooding threats to Woodman Road	Board of Selectmen	Town	Staff time	Short One year
36	Purchase portable electronic messaging board	Police Chief	Town and Grant funds	\$40,000	Medium 2-3 years
36	Update CIP	Planning Board	Town	Staff and volunteer time	Short One year
35	Repair Stockman's Bridge	Board of Selectmen	Town and Grant funds	\$30,000	Medium 2-3 years
35	Purchase inflatable bedding for emergency shelter use	EMD	Town and grant funds	Unknown	Short One year
34	Re-instate Public Safety Day to raise awareness of natural hazards and emergency preparedness	Police Chief	Town and grant funds	Staff time	Medium 2-3 years

Sources of funding and support for the projects listed in Table 12 include:

- Town of South Hampton Annual Town Department and Town Board and Commission operating budgets, Capital Improvements Plan allocation, and department staff time.
- State of New Hampshire The State of New Hampshire oversees several competitive grant programs designed to fund the projects listed in Table 13, including the Clean Water State Revolving Fund, Climate Pollution Reduction Grants, Coastal Resilience Grants, Drinking Water-Related Grants, Drinking Water State Revolving Fund, Drinking Water and Groundwater Trust Fund, Infrastructure Funding/ARPA, Watershed Assistance Grants, and the Department of Transportation Ten Year Plan prioritized projects.
- Federal Sources of federal grants for hazard mitigation are included in Appendix B.

## CHAPTER X – MONITORING, EVALUATING, AND UPDATING THE PLAN

#### Incorporating the Plan into Existing Planning Mechanisms

Upon review and approval by FEMA and the State of New Hampshire, the Plan Update will be adopted as a standalone document of the Town and as an appendix of the Town's Emergency Operations Plan (EOP). The Plan will also be consulted when the Town updates its Master Plan and Capital Improvement Program (CIP), develops the annual town budget, and amends local land use regulations. The Planning Board is responsible for updating the CIP and will review the Action Plan during each update. The Planning Board in conjunction with the Emergency Management Director and Town Administrator will determine what items can and should be added to the CIP based on the Town's annual budget and possible sources of other funding. Considerations about future land use and proximity to current and potential hazard areas need to be inherently part of the planning process. NH RSA 674:2 III (e) gives cities the authority to include a natural hazards section, which documents the physical characteristics, severity, and extent of any potential natural hazards to the community, within the framework of a Master Plan.

#### Monitoring, Evaluating and Updating the Plan

Recognizing that many mitigation projects are ongoing, and that while in the implementation stage communities may suffer budget cuts, experience staff turnover, or projects may fail altogether, a good plan needs to provide for periodic monitoring and evaluation of its successes and failures and allow for updates of the Plan where necessary.

To track progress and update the Mitigation Strategies identified in the Action Plan, the Hazard Mitigation Committee shall remain active and will revisit the Plan annually and after each natural hazard event. These reviews will assess the Plan's effectiveness, accuracy, and completeness in achieving its stated purpose and goals. Plan reviews will also address the recommended improvements to the Plan as contained in the FEMA plan review checklist and any weaknesses the Town identified that the Plan was not adequately addressed. The Plan will also be thoroughly updated every five years. This review will incorporate any new information based on changing conditions in land use, hazard types, and climate change. The Emergency Management Director is responsible for initiating these reviews and will involve appropriate stakeholders, including academia, businesses, and organizations assisting vulnerable populations. In keeping with the process of adopting the 2025 Plan Update, a public hearing to receive public comment on Plan maintenance and updating will be held during any review of the Plan. This publicly noticed meeting will allow members of the community not involved in developing the Plan to provide input and comments each time the Plan is revised. The final revised Plan will be adopted by the Select Board appropriately, at a second publicly noticed meeting, and posted on the Town website to enable public review. The Plan will also be thoroughly updated every five years.

Changes will be made to the Plan to accommodate for projects that have failed or are not considered feasible after a review of their consistency with STAPLEE, the timeframe, the community's priorities, and funding resources. Priorities that were not ranked high, but identified as potential mitigation strategies, will be reviewed as well during the monitoring and update of this Plan to determine feasibility of future implementation.

#### APPENDIX A: SUMMARY OF HAZARD MITIGATION STRATEGIES

## I. RIVERINE MITIGATION

A. **PREVENTION** - Prevention measures are intended to keep the problem from occurring in the first place, and/or keep it from getting worse. Future development should not increase flood damage. Building, zoning, planning, and/or code enforcement officials usually administer preventative measures.

1. Planning and Zoning - Land use plans are put in place to guide future development, recommending where - and where not - development should occur. Sensitive and vulnerable lands can be designated for uses that would not be incompatible with occasional flood events - such as parks or wildlife refuges. A Capital Improvements Program can recommend the setting aside of funds for public acquisition of these designated lands. The zoning ordinance can regulate development in these sensitive areas by limiting or preventing some or all development - for example, by designating floodplain overlay, conservation, or agricultural districts.

2. Open Space Preservation - Preserving open space is the best way to prevent flooding and flood damage. Open space preservation should not, however, be limited to the flood plain, since other areas within the watershed may contribute to controlling the runoff that exacerbates flooding. Land Use and Capital Improvement Plans should identify areas to be preserved by acquisition and other means, such as purchasing easements. Aside from outright purchase, open space can also be protected through maintenance agreements with the landowners, or by requiring developers to dedicate land for flood flow, drainage and storage.

**3.** Floodplain Development Regulations - Floodplain development regulations typically do not prohibit development in the special flood hazard area, but they do impose construction standards on what is built there. The intent is to protect roads and structures from flood damage and to prevent the development from aggravating the flood potential. Floodplain development regulations are generally incorporated into subdivision regulations, building codes, and floodplain ordinances, which either stand-alone or are contained within a zoning ordinance.

Subdivision Regulations: These regulations govern how land will be divided into separate lots or sites. They should require that any flood hazard areas be shown on the plat, and that every lot has a buildable area that is above the base flood elevation.

Building Codes: Standards can be incorporated into building codes that address flood proofing for all new and improved or repaired buildings.

Floodplain Ordinances: Communities that participate in the National Flood Insurance Program are required to adopt the minimum floodplain management regulations, as developed by FEMA. The regulations set minimum standards for subdivision regulations and building codes. Communities may adopt more stringent standards than those set forth by FEMA.

**4. Stormwater Management** - Development outside of a floodplain can contribute significantly to flooding by covering impervious surfaces, which increases storm water runoff. Storm water management is usually addressed in subdivision regulations. Developers are typically required to build retention or detention basins to minimize any increase in runoff caused by new or expanded impervious surfaces, or new drainage systems. Generally, there is a prohibition against storm water

leaving the site at a rate higher than it did before the development. One technique is to use wet basins as part of the landscaping plan of a development. It might even be possible to site these basins based on a watershed analysis. Since detention only controls the runoff rates and not volumes, other measures must be employed for storm water infiltration - for example, swales, infiltration trenches, vegetative filter strips, and permeable paving blocks.

**5. Drainage System Maintenance** - Ongoing maintenance of channel and detention basins is necessary if these facilities are to function effectively and efficiently over time. A maintenance program should include regulations that prevent dumping in or altering watercourses or storage basins; regrading and filling should also be regulated. Any maintenance program should include a public education component, so that the public becomes aware of the reasons for the regulations. Many people do not realize the consequences of filling in a ditch or wetland or regrading their yard without concern for runoff patterns.

**B. PROPERTY PROTECTION -** Property protection measures are used to modify buildings subject to flood damage, rather than to keep floodwaters away. These may be less expensive to implement, as they are often carried out on a cost-sharing basis. In addition, many of these measures do not affect a building's appearance or use, which makes them particularly suitable for historical sites and landmarks.

**1. Relocation** - Moving structures out of the floodplain is the surest and safest way to protect against damage. Relocation is expensive, however, so this approach will probably not be used except in extreme circumstances. Communities that have areas subject to severe storm surges, ice jams, etc. might want to consider establishing a relocation program, incorporating available assistance.

2. Acquisition - Acquisition by a governmental entity of land in a floodplain serves two main purposes: (1) it ensures that the problem of structures in the floodplain will be addressed; and (2) it has the potential to convert problem areas into community assets, with accompanying environmental benefits. Acquisition is more cost effective than relocation in those areas that are subject to storm surges, ice jams, or flash flooding. Acquisition, followed by demolition, is the most appropriate strategy for those buildings that are simply too expensive to move, as well as for dilapidated structures that are not worth saving or protecting. Relocation can be expensive; however, there are government grants and loans that can be applied toward such efforts.

**3.** Building Elevation - Elevating a building above the base flood elevation is the best on-site protection strategy. The building could be raised to allow water to run underneath it, or fill could be brought in to elevate the site on which the building sits. This approach is cheaper than relocation and tends to be less disruptive to a neighborhood. Elevation is required by law for new and substantially improved residences in a floodplain and is commonly practiced in flood hazard areas nationwide.

**4. Floodproofing** - If a building cannot be relocated or elevated, it may be floodproofed. This approach works well in areas of low flood threat. Flood proofing can be accomplished through barriers to flooding, or by treatment to the structure itself.

Barriers: Levees, floodwalls, and berms can keep floodwaters from reaching a building. These are useful, however, only in areas subject to shallow flooding.

Dry Flood proofing: This method seals a building against the water by coating the walls with waterproofing compounds or plastic sheeting. Openings, such doors, windows, etc. are closed either permanently with removable shields or with sandbags.

Wet Flood proofing: This technique is usually considered a last resort measure since water is intentionally allowed into the building to minimize pressure on the structure. Approaches range from moving valuable items to higher floors to rebuilding the floodable area. An advantage over other approaches is that simply by moving household goods out of the range of floodwaters, thousands of dollars can be saved in damages.

**5. Sewer Backup Protection -** Storm water overloads can cause backup into basements through sanitary sewer lines. Houses that have any kind of connection to a sanitary sewer system - whether it is downspouts, footing drain tile, and/or sump pumps, can be flooded during a heavy rain event. To prevent this, there should be no such connections to the system, and all rain and ground water should be directed onto the ground, away from the building. Other protections include:

- Floor drain plugs and floor drain standpipe, which keep water from flowing out of the lowest opening in the house.
- Overhead sewer keeps water in the sewer line during a backup.
- Backup valve allows sewage to flow out while preventing backups from flowing into the house.

**6. Insurance** - Above and beyond standard homeowner insurance, there is other coverage a homeowner can purchase to protect against flood hazard. Two of the most common are National Flood Insurance and basement backup insurance.

National Flood Insurance: When a community participates in the National Flood Insurance Program, any local insurance agent can sell separate flood insurance policies under rules and rates set by FEMA. Rates do not change after claims are paid because they are set on a national basis.

Basement Backup Insurance: National Flood Insurance offers an additional deductible for seepage and sewer backup, provided there is a general condition of flooding in the area that was the proximate cause of the basement getting wet. Most exclude damage from surface flooding that would be covered by the NFIP.

**C. NATURAL RESOURCE PROTECTION** - Preserving or restoring natural areas or the natural functions of floodplain and watershed areas provide the benefits of eliminating or minimizing losses from floods, as well as improve water quality and wildlife habitats. Parks, recreation, or conservation agencies usually implement such activities. Protection can also be provided through various zoning measures that are specifically designed to protect natural resources.

1. Wetlands Protection - Wetlands can store large amounts of floodwaters, slowing and reducing downstream flows, and filtering the water. Any development that is proposed in a wetland is regulated by either federal and/or state agencies. Depending on the location, the project might fall under the jurisdiction of the U.S. Army Corps of Engineers, which in turn, calls upon several other agencies to review the proposal. In New Hampshire, the N.H. Wetlands Board must approve any project that impacts a wetland. And, many communities in New Hampshire also have local wetland

ordinances. Generally, the goal is to protect wetlands by preventing development that would adversely affect them. Mitigation techniques are often employed, which might consist of creating a wetland on another site to replace what would be lost through the development. This is not an ideal practice, however, since it takes many years for a new wetland to achieve the same level of quality as an existing one.

2. Erosion and Sedimentation Control - Controlling erosion and sediment runoff during construction and on farmland is important, since eroding soil will typically end up in downstream waterways. And, because sediment tends to settle where the water flow is slower, it will gradually fill in channels and lakes, reducing their ability to carry or store floodwaters. Practices to reduce erosion and sedimentation have two principal components: (1) minimize erosion with vegetation and; (2) capture sediment before it leaves the site. Slowing the runoff increases infiltration into the soil, thereby controlling the loss of topsoil from erosion and the resulting sedimentation. Runoff can be slowed by vegetation, terraces, contour strip farming, no-till farm practices, and impoundments (such as sediment basins, farm ponds, and wetlands).

**3. Best Management Practices** - Best Management Practices (BMPs) are measures that reduce nonpoint source pollutants that enter waterways. Nonpoint source pollutants are carried by storm water to waterways, and include such things as lawn fertilizers, pesticides, farm chemicals, and oils from street surfaces and industrial sites. BMPs can be incorporated into many aspects of new developments and ongoing land use practices. In New Hampshire, the Department of Environmental Services has developed best management practices for a range of activities, from farming to earth excavations.

**D. EMERGENCY SERVICES -** Emergency services protect people during and after a flood. Many communities in New Hampshire have emergency management programs in place, administered by an emergency management director (very often the local police or fire chief).

1. Flood Warning - On large rivers, the National Weather Service handles early recognition. Communities on smaller rivers must develop their own warning systems. Warnings may be disseminated in a variety of ways, such as sirens, radio, television, mobile public-address systems, or door-to-door contact. It seems that multiple or redundant systems are the most effective, giving people more than one opportunity to be warned.

2. Flood Response - Flood response refers to actions that are designed to prevent or reduce damage or injury, once a flood threat is recognized. Such actions and the appropriate parties include:

- activating the emergency operations center (emergency director)
- sandbagging designated areas (public works department)
- closing streets and bridges (police department)
- shutting off power to threatened areas (public service)
- releasing children from school (school district)
- ordering an evacuation (selectmen/city council/emergency director)
- opening evacuation shelters (churches, schools, Red Cross, municipal facilities)

These actions should be part of a flood response plan, which should be developed in coordination with the persons and agencies that share the responsibilities. Drills and exercises should be conducted so that the key participants know what they are supposed to do.

**3.** Critical Facilities Protection - Protecting critical facilities is vital, since expending efforts on these facilities can draw workers and resources away from protecting other parts of the community. Buildings or locations vital to the flood response effort:

- emergency operations centers
- police and fire stations
- hospitals
- highway garage
- selected roads and bridges
- evacuation routes
- buildings or locations that, if flooded, would create secondary disasters
- hazardous materials facilities
- water/wastewater treatment plants
- schools
- nursing homes

All such facilities should have their own flood response plan that is coordinated with the community's plan. Nursing homes, other public health facilities, and schools will typically be required by the state to have emergency response plans in place.

**4.** Health and Safety Maintenance - The flood response plan should identify appropriate measures to prevent danger to health and safety. Such measures include:

- patrolling evacuated areas to prevent looting
- providing safe drinking water
- vaccinating residents for tetanus
- clearing streets
- cleaning up debris

The plan should also identify which agencies will be responsible for carrying out the identified measures. A public information program can be helpful to educate residents on the benefits of taking health and safety precautions.

**Structural Projects** - Structural projects are used to prevent floodwaters from reaching properties. These are all man-made structures and can be grouped into the six types of discussed below. The shortcomings of structural approaches are that:

- they can be very expensive
- they disturb the land, disrupt natural water flows, and destroy natural habitats
- they are built to an anticipated flood event, and may be exceeded by a greater-than-expected flood
- they can create a false sense of security

**Reservoirs** - Reservoirs control flooding by holding water behind dams or in storage basins. After a flood peaks, water is released or pumped out slowly at a rate the river downstream can handle.

Reservoirs are suitable for protecting existing development, and they may be the only flood control measure that can protect development close to a watercourse. They are most efficient in deeper valleys or on smaller rivers where there is less water to store. Reservoirs might consist of man-made holes dug to hold the approximate amount of floodwaters, or even abandoned quarries. As with other structural projects, reservoirs:

- are expensive
- occupy a lot of land
- require periodic maintenance
- may fail to prevent damage from floods that exceed their design levels
- may eliminate the natural and beneficial functions of the floodplain

Reservoirs should only be used after a thorough watershed analysis that identifies the most appropriate location and ensures that they would not cause flooding somewhere else. Because they are so expensive and usually involve more than one community, they are typically implemented with the help of state or federal agencies, such as the Army Corps of Engineers.

**Levees/Floodwalls** - Probably the best know structural flood control measure is either a levee (a barrier of earth) or a floodwall made of steel or concrete erected between the watercourse and the land. If space is a consideration, floodwalls are typically used, since levees need more space. Levees and floodwalls should be set back out of the floodway, so that they will not divert floodwater onto other properties.

**Diversions** - A diversion is simply a new channel that sends floodwater to a different location, thereby reducing flooding along an existing watercourse. Diversions can be surface channels, overflow weirs, or tunnels. During normal flows, the water stays in the old channel. During flood flows, the stream spills over the diversion channel or tunnel, which carries the excess water to the receiving lake or river.

Diversions are limited by topography; they won't work everywhere. Unless the receiving water body is relatively close to the flood prone stream and the land in between is low and vacant, the cost of creating a diversion can be prohibitive. Where topography and land use are not favorable, a more expensive tunnel is needed. In either case, care must be taken to ensure that the diversion does not create a flooding problem somewhere else.

**Channel Modifications -** Channel modifications include making a channel wider, deeper, smoother, or straighter. These techniques will result in more water being carried away, but, as with other techniques mentioned, it is important to ensure that the modifications do not create or increase a flooding problem downstream.

Dredging: Dredging is often cost-prohibitive because the dredged material must be disposed of somewhere else, and the stream will usually fill back in with sediment. Dredging is usually undertaken only on larger rivers, and then only to maintain a navigation channel.

Drainage modifications: These include man-made ditches and storm sewers that help drain areas where the surface drainage system is inadequate or where underground drainage ways may be safer or more attractive. These approaches are usually designed to carry the runoff from smaller, more frequent storms.

**Storm Sewers -** Mitigation techniques for storm sewers include installing new sewers, enlarging small pipes, street improvements, and preventing back flow. Because drainage ditches and storm sewers convey water faster to other locations, improvements are only recommended for small local problems where the receiving body of water can absorb the increased flows without increased flooding.

In many developments, streets are used as part of the drainage system, to carry or hold water from larger, less frequent storms. The streets collect runoff and convey it to a receiving sewer, ditch, or stream. Allowing water to stand in the streets and then draining it slowly can be a more effective and less expensive measure than enlarging sewers and ditches.

**Public Information -** Public information activities are intended to advise property owners, potential property owners, and visitors about the hazards associated with a property, ways to protect people and property from these hazards, and the natural and beneficial functions of a floodplain.

**1. Map Information -** Flood maps developed by FEMA outline the boundaries of the flood hazard areas. These maps can be used by anyone interested in a property to determine if it is flood-prone. These maps are available from FEMA, the NH Office of Emergency Management, the NH Office of State Planning, or your regional planning commission.

**Outreach Projects** - Outreach projects are proactive; they give the public information even if they have not asked for it. Outreach projects are designed to encourage people to seek out more information and take steps to protect themselves and their properties. Examples of outreach activities include:

- Mass mailings or newsletters and e-newsletters to all residents
- Posting resource information on town website and social media accounts
- Notices directed to floodplain residents
- Displays in public buildings, malls, etc.
- Newspaper articles and special sections
- Radio and TV news releases and interview shows
- A local flood proofing video for cable TV programs and to loan to organizations
- A detailed property owner handbook tailored for local conditions
- Presentations at meetings of neighborhood groups

Research has shown that outreach programs work, although awareness is not enough. People need to know what they can do about the hazards, so projects should include information on protection measures. Research also shows that locally designed and run programs are much more effective than national advertising.

**Real Estate Disclosure** - Disclosure of information regarding flood-prone properties is important if potential buyers are to be able to mitigate damage. Federally regulated lending institutions are required to advise applicants that a property is in the floodplain. However, this requirement needs to be met only five days prior to closing, and by that time, the applicant is typically committed to the purchase. State laws and local real estate practice can help by making this information available to prospective buyers early in the process.

**Library** - Your local library can serve as a repository for pertinent information on flooding and flood protection. Some libraries also maintain their own public information campaigns, augmenting the activities of the various governmental agencies involved in flood mitigation.

**Technical Assistance** - Certain types of technical assistance are available from the NFIP Coordinator, FEMA, and the Natural Resources Conservation District. Community officials can also set up a service delivery program to provide one-on-one sessions with property owners. An example of technical assistance is the flood audit, in which a specialist visits a property. Following the visit, the owner is provided with a written report, detailing the past and potential flood depths, and recommending alternative protection measures.

**Environmental Education** - Education can be a great mitigating tool, if people can learn what not to do before damage occurs. And the sooner the education begins, the better. Environmental education programs for children can be taught in the schools, park and recreation departments, conservation associations, or youth organizations. An activity can be as involved as course curriculum development or as simple as an explanatory sign near a river. Education programs do not have to be limited to children. Adults can benefit from knowledge of flooding and mitigation measures. And decision-makers, armed with this knowledge, can make a difference in their communities.

## II. EARTHQUAKES

A. **PREVENTIVE -** Planning/zoning to keep critical facilities away from fault lines.

Planning, zoning and building codes to avoid areas below steep slopes or soils subject to liquefaction. Building codes to prohibit loose masonry, overhangs, etc.

#### **B. PROPERTY PROTECTION:**

Acquire and clear hazard areas.

Retrofitting to add braces, remove overhangs.

Apply mylar to windows and glass surfaces to protect from shattering glass.

Tie down major appliances provide flexible utility connections.

Earthquake insurance riders.

**C. EMERGENCY SERVICES -** Earthquake response plans to account for secondary problems, such as

## fires and hazardous materials spills.

#### **D. EMERGENCY SERVICES -** Slope stabilization.

#### III. DAM FAILURE

#### A. PREVENTIVE:

Dam failure inundation maps.

Planning/zoning/open space preservation to keep area clear. Building codes with flood elevation based on dam failure.

Dam safety inspections.

Draining the reservoir when conditions appear unsafe.

**B. PROPERTY PROTECTION -** Acquisition of buildings in the path of a dam breach flood. Flood insurance.

**C. EMERGENCY SERVICES -** Dam conditioning monitoring; warning and evacuation plans based on dam failure.

**D. EMERGENCY SERVICES -** Dam improvements, spillway enlargements. Remove unsafe dams.

#### IV. WILDFIRES

#### A. PREVENTIVE:

Zoning districts to reflect fire risk zones.

Planning and zoning to restrict development in areas near fire protection and water resources. Requiring new subdivisions to space buildings, provide firebreaks, on-site water storage, wide roads multiple accesses.

Building code standards for roof materials, spark arrestors. Maintenance programs to clear dead and dry bush, trees. Regulation on open fires.

## B. PROPERTY PROTECTION:

Retrofitting of roofs and adding spark arrestors.

Landscaping to keep bushes and trees away from structures.

Insurance rates based on distance from fire protection.

- C. NATURAL RESOURCE PROTECTION Prohibit development in high-risk areas.
- D. EMERGENCY SERVICES Fire Fighting

## V. WINTER STORMS

**A. PREVENTIVE -** Building code standards for light frame construction, especially for wind-resistant roofs.

## **B. PROPERTY PROTECTION:**

Storm shutters and windows

Hurricane straps on roofs and overhangs

Seal outside and inside of storm windows and check steals in spring and fall.

Family and/or company severe weather action plan & drills:

include a NOAA weather radio

designate a shelter area or location

keep a disaster supply kit, including stored food and water

keep snow removal equipment in good repair; have extra shovels, sand, rock, salt and gas know how to turn off water, gas, and electricity at home or work

- C. NATURAL RESOURCE PROTECTION Maintenance program for trimming tree and shrubs
- D. EMERGENCY SERVICES Early warning systems/NOAA Weather Radio Evacuation Plans

## APPENDIX B: TECHNICAL AND FINANCIAL ASSISTANCE FOR HAZARD MITIGATION

Local Municipalities must have a FEMA-approved Hazard Mitigation Plan to be eligible for Hazard Mitigation Assistance Grants. Information on these grants may be found at: <u>http://www.fema.gov/media-library-data/1424983165449-</u> 38f5dfc69c0bd4ea8a161e8bb7b79553/HMA\_Guidance\_022715\_508.pdf

**HAZARD MITIGATION GRANT PROGRAM (HMGP)** - Authorized under Section 404 of the Stafford Act, 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. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. Hazard Mitigation Grant Program funding is only available in States following a Presidential disaster declaration. Eligible applicants are:

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

Individual homeowners and businesses may not apply directly to the program; however, a community may apply on their behalf. HMGP funds may be used to fund projects that will reduce or eliminate the losses from future disasters. Projects must provide a long-term solution to a problem, for example, elevation of a home to reduce the risk of flood damages as opposed to buying sandbags and pumps to fight the flood. In addition, a project's potential savings must be more than the cost of implementing the project. Funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in danger of, repetitive damage.

**PRE-DISASTER MITIGATION GRANTS PROGRAM -** The <u>Pre-Disaster Mitigation (PDM) program</u> provides technical and financial assistance to States and local governments for cost-effective pre-disaster hazard mitigation activities that complement a comprehensive mitigation program, and reduce injuries, loss of life, and damage and destruction of property. FEMA provides grants to States and Federally recognized Indian tribal governments that, in turn, provide sub-grants to local governments (to include Indian Tribal governments) for mitigation activities such as planning, and the implementation of projects identified through the evaluation of natural hazards.

**FLOOD MITIGATION ASSISTANCE (FMA) PROGRAM -** FEMA provides funding to assist States and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). There are three types of grants available under FMA: Planning, Project, and Technical Assistance Grants. FMA Planning Grants are available to States and communities to prepare Flood Mitigation Plans. NFIP-participating communities with approved Flood Mitigation Plans can apply for FMA Project Grants. FMA Project Grants are available to States and NFIP participating communities to implement measures to reduce flood losses. Ten percent of the Project Grant is made available to States as a Technical Assistance Grant. These funds may be used by the State to help administer the program. Communities receiving FMA Planning and Project Grants must participate in the NFIP.

## EMERGENCY MANAGEMENT PERFORMANCE GRANT

**GUIDELINES** - Emergency Management Performance Grant (EMPG Program) funding is available to local communities and eligible Agencies for projects that fall in FOUR general areas of Emergency Management: Planning activities; Training activities; Drills and Exercises; and Emergency Management Administration.

The following list of possible projects and activities is meant to guide you in selecting projects for an EMA Grant Submission. This list of suggested projects is not intended to be all-inclusive. Local communities or agencies may have other specific projects and activities that reflect local needs based on local capability assessments and local hazards.

#### Planning Activities may include:

- Develop a Hazard Mitigation Plan for your community.
- Prepare a hazard mitigation project proposal for submission to NHHSEM.

- Create, revise, or update Dam Emergency Action plans.
- Update your local Emergency Operations Plan (EOP). Consider updating a number of specific annexes each year to ensure that the entire plan is updated at least every four years.
- If applicable, develop or incorporate a regional HazMat Team Annex into your EOP.
- Develop an Anti-Terrorism Annex into your EOP.
- Develop a local/regional Debris Management Annex into your EOP.
- Develop and maintain pre-scripted requests for additional assistance (from local area public works, regional mutual aid, State resources, etc.) and local declarations of emergency.
- Develop and maintain written duties and responsibilities for EOC staff positions and agency representatives.
- Develop and maintain a list of private non-profit organizations within your local jurisdiction to ensure that these organizations are included in requests for public assistance funds.
- Prepare a submission for nomination as a "Project Impact" Community.

## Training Activities may include:

- Staff members attend training courses at the Emergency Management Institute.
- Staff members attend a "field delivered" training course conducted by NHHSEM.
- Staff members attend other local, State, or nationally sponsored training event, which provides skills or knowledge relevant to emergency management.
- Staff members complete one or more FEMA Independent Study Courses.
- Identify and train a pre-identified local damage assessment team.

## Drills and Exercises might include:

- Conduct multi-agency EOC Exercise (Tabletop or Functional) and forward an Exercise Evaluation Report, including after action reports, to NHHSEM (external evaluation of exercises is strongly encouraged). Drills or Exercises might involve any of the following scenarios:
  - Hurricane Exercise
  - o Terrorism Exercise
  - Severe Storm Exercise
  - o Communications Exercise
  - Mass Causality Exercise involving air, rail, or ship transportation accident
- Participate in multi-State or multi-Jurisdictional Exercise and forward Exercise Report to NHHSEM.
- HazMat Exercise with Regional HazMat Teams
- NHHSEM Communications Exercises
- Observe or evaluate State or local exercise outside your local jurisdiction.
- Assist local agencies and commercial enterprises (nursing homes, dams, prisons, schools, etc.) in developing, executing, and evaluating their exercise.
- Assist local hospitals in developing, executing and evaluating Mass Care, HazMat, Terrorism, and Special Events Exercises.
- Administrative Projects and Activities may include:
- Maintain an Emergency Operations Center (EOC) and alternate EOC capable of accommodating staff to respond to local emergencies.
- Establish and maintain a Call-Down List for EOC staff.
- Establish and maintain Emergency Response/Recovery Resource Lists.
- Develop or Update Emergency Management Mutual Aid Agreements with a focus on Damage Assessment, Debris Removal, and Resource Management.

- Develop and maintain written duties and responsibilities for EOC staff positions and agency representatives.
- Develop or Update Procedures for tracking of disaster-related expenses by local agencies.

**FLOOD MITIGATION ASSISTANCE (FMA) PROGRAM -** FMA 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). FMA regulations can be found in 44 CFR Part 78. Funding for the program is provided through the National Flood Insurance Fund. FMA is funded at \$20 million nationally. FMA provides funding to assist States and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP).

There are three types of grants available under FMA: Planning, Project, and Technical Assistance Grants. FMA Planning Grants are available to States and communities to prepare Flood Mitigation Plans. NFIPparticipating communities with approved Flood Mitigation Plans can apply for FMA Project Grants. FMA Project Grants are available to States and NFIP participating communities to implement measures to reduce flood losses. Ten percent of the Project Grant is made available to States as a Technical Assistance Grant. These funds may be used by the State to help administer the program. Communities receiving FMA Planning and Project Grants must participate in the NFIP. A few examples of eligible FMA projects include: the elevation, acquisition, and relocation of NFIP-insured structures.

States are encouraged to prioritize FMA project grant applications that include repetitive loss properties. The FY 2001 FMA emphasis encourages States and communities to address target repetitive loss properties identified in the Agency's Repetitive Loss Strategy. These include structures with four or more losses, and structures with 2 or more losses where cumulative payments have exceeded the property value. State and communities are also encouraged to develop Plans that address the mitigation of these target repetitive loss properties.

### APPENDIX C: SAFFIR/SIMPSON HURRICANE SCALE

## **Courtesy of National Hurricane Center**

This can be used to give an estimate of the potential property damage and flooding expected along the coast with a hurricane.

Category	Definition	Effects
One	Winds 74- 95 mph	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal road flooding and minor pier damage
Two	Winds 96- 110 mph	Some roofing material, door, and window damage to buildings. Considerable damage to vegetation, mobile homes, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of center. Small craft in unprotected anchorages break moorings.
Three	Winds 111-130 mph	Some structural damage to small residences and utility buildings with a minor amount of curtainwall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures with larger structures damaged by floating debris. Terrain continuously lower than 5 feet ASL may be flooded inland 8 miles or more.
Four	Winds 131-155 mph	More extensive curtainwall failures with some complete roof structure failure on small residences. Major erosion of beach. Major damage to lower floors of structures near the shore. Terrain continuously lower than 10 feet ASL may be flooded requiring massive evacuation of residential areas inland as far as 6 miles.
Five	Winds greater than 155 mph	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Major damage to lower floors of all structures located less than 15 feet ASL and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5 to 10 miles of the shoreline may be required.

Additional information: http://www.nhc.noaa.gov/aboutsshws.php

### APPENDIX D: ENHANCED FUJITA TORNADO DAMAGE SCALE

	The Enhanced Fujita Scale									
F-Scale Number	Potential Damage	Wind Speed	Type of Damage							
FO	Light	65 – 85 mph	Little to no damage to man-made structures. Breaks branches off trees; pushes over shallow-rooted trees; damages signs							
F1	Moderate	86 – 110 mph	Beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; Moderate damage.							
F2	Considerable	111 – 135 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars from trains pushed over; large trees snapped or uprooted; light object missiles generated.							
F3	Severe	136 – 165 mph	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cards lifted and thrown.							
F4	Devastating	166 – 200 mph	Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.							
F5	Incredible	Over 200 mph	Strong frame houses leveled off foundations and carried considerable distances; automobile-sized missiles fly through the air in excess of 109 yards; trees debarked; steel reinforce concrete structures badly damaged. Complete devastation.							

Additional Information:

http://www.spc.noaa.gov/faq/tornado/ef-scale.html

### APPENDIX E: THE RICHTER MAGNITUDE SCALE

Earthquake Severity	У
Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across where people live.
7.0-7.9	Major earthquake. Can cause serious damage over larger areas.
8 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Additional information: <u>https://earthquake.usgs.gov/learn/topics/mercalli.php</u> <u>https://earthquake.usgs.gov/learn/topics/measure.php</u> <u>https://earthquake.usgs.gov/data/shakemap/</u>

when we have a second

**The Richter Magnitude Scale** - Seismic waves are the vibrations from earthquakes that travel through the Earth; they are recorded on instruments called seismographs. Seismographs record a zig-zag trace that shows the varying amplitude of ground oscillations beneath the instrument. Sensitive seismographs, which greatly magnify these ground motions, can detect strong earthquakes from sources anywhere in the world. The time, locations, and magnitude of an earthquake can be determined from the data recorded by seismograph stations.

Earthquakes with magnitude of about 2.0 or less are usually call microearthquakes; they are not commonly felt by people and are generally recorded only on local seismographs. Events with magnitudes of about 4.5 or greater - there are several thousand such shocks annually - are strong enough to be recorded by sensitive seismographs all over the world. Great earthquakes, such as the 1964 Good Friday earthquake in Alaska, have magnitudes of 8.0 or higher. On average, one earthquake of such size occurs somewhere in the world each year. The Richter Scale has no upper limit. Recently, another scale called the moment magnitude scale has been devised for more precise study of great earthquakes. The Richter Scale is not used to express damage. An earthquake in a densely populated area which results in many deaths and considerable damage may have the same magnitude as a shock in a remote area that does nothing more than frightens wildlife. Large-magnitude earthquakes that occur beneath the oceans may not even be felt by humans.

## Appendix F

#### Extreme Weather Madness Thunderstorm Criteria

THUNDERSTORM TYPES	Rainfall Rate/hr	MAX WIND GUST	HAIL SIZE	PEAK TORNADO Possibility	LIGHTNING FREQUENCY (5 min Intervals)	Darkness Factor	STORM IMPACT
T-1 – Weak thunderstorms or Thundershowers	.0310	< 25 MPH	None	None	Only a few strikes during the storm.	Slightly Dark. Sunlight may be seen under the storm.	<ol> <li>No damage.</li> <li>Gusty winds at times.</li> </ol>
T-2 – Moderate Thunderstorms.	.10"25"	25-40 MPH	None	None	Occasional 1-10	Moderately Dark. Heavy downpours may cause the need for car lights.	<ol> <li>Heavy downpours.</li> <li>Occasional lightning.</li> <li>Gusty winds.</li> <li>Very little damage.</li> <li>Small tree branches may break</li> <li>Lawn furniture moved around</li> </ol>
T-3 – Heavy Thunderstorms 1. Singular or lines of storms.	.25"55"	40-57 МРН	1/4 " to ¾"	EF0	Occasional to Frequent 10-20	Dark. Car lights used. Visibility low in heavy rains. Cars may pull off the road.	<ol> <li>Minor Damage.</li> <li>Downpours that produce some flooding on streets.</li> <li>Frequent lightning could cause house fires.</li> <li>Hail occurs within the downpours.</li> <li>Small branches are broken.</li> <li>Shingles are blown off roofs.</li> </ol>
T-4 - Intense Thunderstorms 1. Weaker supercells 2. Bow Echos or lines of Storms	.55" – 1.25"	58 to 70 MPH	1" to 1.5"	EF0 to EF2	Frequent 20-30	Very Dark. Car lights used. Some street lights come on	<ol> <li>Moderate Damage.</li> <li>Heavy rains can cause flooding to streams and creeks. Roadway flooding. 3. Hail can cause dents on cars and cause crop damage.</li> <li>Wind damage to trees and buildings.</li> <li>Tornado damage.</li> <li>Power outages</li> </ol>
T-5 - Extreme Thunderstorms 1. Supercells with famility of tornadoes. 2. Derecho Windstorms	1.25" – 4"	Over 70 Mph	Over 1.5" to 4"	EF3 to EF5	Frequent to Continuous. > 30	Pitch Black, Street Lights come on. House lights maybe used	<ol> <li>Severe Damage to Trees and Property. Damage is widespread.</li> <li>Flooding rains.</li> <li>Damaging hail.</li> <li>Damaging wind guts to trees and buildings.</li> <li>Tornadoes F3-F5 or family of tornadoes can occur. Tornadoes can cause total devastation.</li> <li>Widespread power outages.</li> </ol>

Copyright 2010 AccuWeather.com by Sr. Meteorologist Henry Margusity

## Appendix G Lightning Risk Definitions

Lightning Risk Definitions							
	Thunderstorms are only expected to be isolated or widely scattered in coverage (20						
Low Risk	Percent Chance). Atmospheric conditions do not support frequent cloud-to-ground						
	lightning strikes.						
Moderate Risk	Thunderstorms are forecast to be scattered in coverage (30-50 Percent Chance).						
WOULFALE KISK	Atmospheric conditions support frequent cloud-to-ground lightning strikes.						
	Thunderstorms are forecast to be numerous or widespread in coverage (60-100						
High Risk	Percent Chance). Atmospheric conditions support continuous and intense cloud-to-						
	ground lightning strikes.						

## Appendix H Hail Size Description Chart

Hailstone size	Measurement							
Hallstone size	in.	cm.						
bb	< 1/4	< 0.64						
реа	1/4	0.64						
dime	7/10	1.8						
penny	3/4	1.9						
nickel	7/8	2.2						
quarter	1	2.5						
half dollar	1 1/4	3.2						
golf ball	1 3/4	4.4						
billiard ball	2 1/8	5.4						
tennis ball	2 1/2	6.4						
baseball	2 3/4	7.0						
softball	3.8	9.7						
Compact disc / DVD	4 3/4	12.1						

## Appendix I Sperry-Pitz Ice Accumulation Index

ICE DAMAGE INDEX	DAMAGE AND IMPACT DESCRIPTIONS
0	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
2	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
3	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
4	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
5	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

## Appendix J NOAA U.S. Drought Monitor Scale

## Intensity:

D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional

### Appendix K **Glossary Size Class of Wildfire** Size Class of Fire As to size of wildfire:

- Class A one-fourth acre or less;
- 0 Class B - more than one-fourth acre, but less than 10 acres; 0
- Class C 10 acres or more, but less than 100 acres; 0
- Class D 100 acres or more, but less than 300 acres;
- Class E 300 acres or more, but less than 1,000 acres;
- Class F 1,000 acres or more, but less than 5,000 acres;
- Class G 5,000 acres or more. 0

WUI	Building	Ignition	Building Construction and
scale	Construction	Vulnerabilities	Landscaping Attributes for
	Class	from Embers	Protection against Embers
		and Fire	
E1 or F1	WUI 1	None	<ul> <li>Normal Construction Requirements:</li> <li>Maintained Landscaping</li> <li>Local AHJ-Approved Access for firefighting equipment</li> </ul>
E2 or F2	WUI 2	In this area, highly volatile fuels could be ignited by embers. Weathered, dry combustibles with large surface areas can become targets for ignition fro m embers.	<ul> <li>Low Construction Hardening Requirements:</li> <li>Treated combustibles allowed on structure</li> <li>Attached treated combustibles allowed</li> <li>Treated combustibles allowed around structure</li> </ul>
E3 or F3	WUI 3	Exposed combustibles are likely to ignite in this area from high ember flux or high heat flux	Intermediate Construction Hardening Requirements: - No exposed combustibles on structure - Combustibles placed well away from structure - Low flammability plants - Irrigated and well maintained landscaping - Local AHJ-Approved Access for firefighting equipment
E4 or F4	WUI 4	Ignition of combustibles from direct flame contact is likely.	<ul> <li>High Construction Hardening Requirements:</li> <li>No exposed combustibles</li> <li>All vents, opening must be closed</li> <li>Windows and doors must be covered with insulated non-combustible coverings.</li> <li>Irrigated and well maintained low flammability landscaping</li> <li>Local AHJ-Approved Access for firefighting equipment</li> </ul>

Table 4: E-Scale Building Construction Classes and Attributes

	NWS	Не	at Ir	ndex		Temperature (°F)											
		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		
Humidity (%)	55	81	84	86	89	93	97	101	106	112	117	124	130	137			
idit	60	82	84	88	91	95	100	105	110	116	123	129	137				
E	65	82	85	89	93	98	103	108	114	121	128	136					
	70	83	86	90	95	100	105	112	119	126	134						
ve	75	84	88	92	97	103	109	116	124	132							
Relative	80	84	89	94	100	106	113	121	129								
Re	85	85	90	96	102	110	117	126	135								
_	90	86	91	98	105	113	122	131								n	RR
	95 86 93 100 108					117	127										<u> </u>
	100	87	95	103	112	121	132										MELE
	Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity																
			Cautio	n		Ex	treme	Cautio	on			Danger		E)	dreme	Dange	er

Appendix L Extreme Temperatures Heat Index

								A	ppe	ndix	M								
					NORR	V	Vir	ıd	Cł	nill	C	ha	rt	Č					
									Tem	pera	ture	(°F)							
	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
3	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
(dam) bailt	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
111	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
	Frostbite Times 🗾 30 minutes 🗾 10 minutes 🗾 5 minutes																		
			w	ind (	Chill (	(°F) =	= 35.	74 +	0.62	15T ·	- 35.	75(V	0.16).	+ 0.4	2751	(V <sup>0.1</sup>	16)		
												Wind S						ctive 1	1/01/01

#### Appendix N Definition of Infectious Diseases – Mayo Clinic

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 insects or other animals. And you may get others by consuming contaminated food or water or being exposed to organisms in the environment.

Signs and symptoms vary depending on the organism causing the infection, but often include fever and fatigue. Mild infections may respond to rest and home remedies, while some life-threatening infections may need hospitalization.

Many infectious diseases, such as measles and chickenpox, can be prevented by vaccines. Frequent and thorough hand-washing also helps protect you from most infectious diseases.

#### Appendix O Documentation of Planning Process

The Emergency Management Director and Town Administrator invited Department Heads from all the Town's departments to participate in the Plan Update process. As a result, the Plan Update Committee included the Town's Emergency Management Director/Fire Chief, Town Administrator, Assistant Town Administrator, Police Chief, Road Agent, Building Inspector/Health Officer, Library Director, and Fire Lieutenant/EMT. All Town staff were aware of the Plan Update and had the opportunity to participate.

Plan Update	Plan Update Committee Member Title
Committee Member	
J.D. Bernardy	State Representative and Zoning Board of Adjustment, Town of South
	Hampton
Kate Blunt	Chair, Planning Board, Town of South Hampton
Becky Burdick	School Board, Town of South Hampton
Lee Knapp	Health Officer and Selectman, Town of South Hampton
Lori Laverty	Library Director, Town of South Hampton
April Melo	Library Trustee, Town of South Hampton
Bob Moore	Fire Chief, Town of South Hampton
Tyler Morrill	Emergency Management Director, Town of South Hampton
Meredith Nadeau	Superintendent, SAU 21

Pam Noon	Council on Aging Representative, Town of South Hampton	
Brenda Oldak	Council on Aging Representative, Town of South Hampton	
Ron Preston	Selectman, Town of South Hampton	
Angela Racine	Town Administrator, Town of South Hampton	
Eric Vichill	Police Lieutenant, Town of South Hampton	
Michelle Witt	Principal, Barnard School, Town of South Hampton	
Eric Worthem	Selectman, Town of South Hampton	

Rockingham Planning Commission (RPC) staff worked with the South Hampton Town Administrator and Emergency Management Director to directly seek input from residents, local businesses, academia, organizations supporting socially vulnerable populations, and Emergency Management Directors in the abutting municipalities of Seabrook, NH, Kensington, NH, East Kingston, NH, Newton, NH, and Amesbury, MA. The Emergency Management Director and Town Administrator maintain a list of businesses in South Hampton and a list of human resource organizations serving socially vulnerable and underrepresented residents and these organizations were invited to review and comment on the Plan Update.

Social Service Organization	Contact Person
Southern New Hampshire Services - Provides social service programs for economically disadvantaged elderly, youth, and other vulnerable populations in Rockingham and Hillsborough County.	Ryan Clouthier, Chief Operating Officer
Greater Seacoast Community Health/Families First Health and Support Center – Not-for- profit community health and family resource center	Jessica Garlough, Director of Family and Social Services
Seacoast Region Public Health Network – Provides multiple public health services, including public health emergency preparedness	Julia Meuse, Public Health Network Manager
Abutting Communities	Contact Person
Town of East Kingston, NH	Michell Cotton-Miller, EMD
Town of Seabrook, NH	Joseph Titone, EMD
Town of Kensington, NH	Jonathon True, Fire Chief/EMD
Town of Newton, NH	Trisha McCarthy, EMD
Town of Amesbury, MA	James Nolan, EMD
Business Community	Contact Person
Town maintains an email list of all local	Angela Racine, Town Administrator
businesses	

Public notices about the Plan Update meetings were posted on the Town website and social media accounts to inform viewers and followers about meetings and opportunities to comment on the Plan. Notice about the Plan Update process was also posted on the Rockingham Planning Commission's website and published in the RPC's monthly newsletter. The newsletter is distributed to local officials in

the 27-town RPC region. All Plan Update meetings were open to the public. RPC staff facilitated the Plan Update Committee meetings, guided the plan update process, and prepared the Plan Update.

Meeting Date	Plan Update Committee Meeting Agenda	
August 16, 2024	Review Plan Update process and 2016 Plan with Hazard Mitigation Plan Update	
	Committee	
September 16,	Review and update community profile and natural hazards impacting town;	
2024	update past and future hazards map review and update list of critical facilities	
	and existing hazard mitigation programs	
December 9, 2024	Review and update newly identified mitigation strategies and actions; prioritize	
	proposed mitigation strategies; complete implementation schedule for priority	
	mitigation strategies; discuss monitoring, evaluating and update the Plan	
April 14, 2025	Public Hearing on Draft Plan	

# Town of South Hampton NH

#### Natural Hazard Mitigation Plan.

The Town has begun an update to the South Hampton Natural Hazard Mitigation Plan and welcomes resident feedback on how natural hazards such as flooding, winter storms, and extreme temperatures are impacting the community. FEMA requires every municipality in the country to have a plan for mitigating natural hazard events. Town department heads and board and commission members are working with the Rockingham Planning Commission to update the 2016 Hazard Mitigation Plan. You can view the current plan below.For more information or to share information, please email Angela Racine, admin@southhamptonnh.org

Plan <u>SoHampton\_HazMit\_August2016.pdf</u>

Map 1 Map 9L - 2005 Landuse\_South Hampton.pdf

Map 2 SouthHampton\_PastandFutureHazardsv2.pdf

Map 3 SouthHampton PastandFutureHazardsv2.pdf

Appendix P Approval Letter from FEMA