

Town of New Castle, NH



Hazard Mitigation Plan Update 2022

Town Adopted: February 7, 2022
FEMA Approved: February 23, 2022

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Last Edition: 2014
Updated Edition: February 7, 2022

Chapter 1 INTRODUCTION

Authority

This Hazard Mitigation Plan was prepared in accordance with the Disaster Mitigation Act of 2000 (DMA), Section 322, Mitigation Planning. Accordingly, this Hazard Mitigation Plan will be referred to as the “Plan”.

Funding Source

This Plan was funded by the NH Homeland Security and Emergency Management (HSEM) through an Pre Disaster Mitigation (PDM) Grant, with in-kind matching funds by the Town of New Castle.

Purpose

This Hazard Mitigation Plan is a planning tool to be used by the Town of New Castle, as well as other local, state and federal governments, in their effort to reduce the effects from natural and man-made hazards.

Introduction

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

- Establish a national disaster hazard mitigation program that will reduce loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from disasters, and
- Provide a source of pre-disaster hazard mitigation funding that will assist State and local governments in accomplishing that purpose.

DMA 2000 amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act by, among other things, adding a new section, 322 – Mitigation Planning. This places new emphasis on local mitigation planning. **It requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans as a condition of receiving Hazard Mitigation Assistance (HMA) grants.** Local governments must review and if necessary, update the mitigation plan every five years to continue program eligibility. However, it is recommended that this Plan be reviewed/updated annually or after a hazard event to be consistent with Chapter 7.

Why Develop a Mitigation Plan?

The full cost of the damage resulting from natural hazards – personal suffering, loss of lives, disruption of the economy, loss of tax base – is difficult to measure. Our State is subject to many types of natural hazards: floods, hurricanes, severe winter weather, earthquakes, tornadoes, downbursts, and wildfires, all of which can have significant economic and social impacts. Some, such as hurricanes, are seasonal and strike in predictable locations. Others, such as floods, can occur anytime of the year and almost anywhere in the State.

Scope of the Plan

The scope of this Plan includes the identification of natural hazards affecting the town, as identified by the Hazard Mitigation Planning Committee. The hazards reviewed under the scope of this plan include those that are outlined in the State of New Hampshire's Multi-Hazard Mitigation Plan Update 2018. Due to no history or risk of avalanche or landslide in the Town, the Committee chose not to recognize the risk of these hazards in this Plan.

Coastal Storms
Drought
Earthquake
Erosion (Coastal)
Extreme Temps

Flooding
Hail
Human Caused
Hurricane
Lightning

Public Health Emergency
Severe Wind
Solar Storms
Winter Weather
Wildfire

Methodology

In the 2021 and 2022, the Hazard Mitigation Planning Committee, with the assistance of Hubbard Consulting LLC, met to review and update the Plan. A total of four meetings on September 15, 2021, September 29, 2021, October 20, 2021 and November 24, 2021. Public notices were posted at the Town Hall and Post Office inviting members of all town departments and boards, surrounding communities, businesses, academia, State agencies and non-profit agencies. In addition, email notifications were sent to adjacent communities, the Rockingham Planning Commission, the NH Office of Strategic Initiatives and the NH HSEM. There were no members of the public that attended the Committee meetings. The Emergency Management Directors from surrounding towns were notified of the Plan Update and asked to comment on the Plan (see Appendix B).

The committee analyzed and revised all Chapters of the Plan and provided input to update them. Noteworthy updates from the 2016 Plan include:

- After review of the updated State Hazard Mitigation Plan 2018, the committee included climate change and public education on disaster preparedness and climate change to the Goals in Chapter 1;
- Added Public Health Emergency and Solar Storms as new hazards, and revised Extreme Heat to by Extreme Temperatures in Chapters 2 and 3.

After acceptance by the committee, the Plan was submitted to the NH HSEM and FEMA Region 1 for formal Approval. The Board of Selectmen formally adopted the Plan on February 7, 2022. FEMA formally approved the Plan on February 23, 2022.

The committee developed this Plan as a result of the above meetings and the following planning process.

Step 1: Form a Hazard Mitigation Planning Committee

Prior to the first public information meeting the Town contacted town department heads and posted public notices to residents, business owners and neighboring towns, requesting that they consider serving on the Committee (See Appendix B).

The Committee Members consisted of town staff, New Castle Village Water District and the New Castle School District. A press release was published in the local newspaper and town office inviting residents, businesses, neighboring communities, academia and other private non-profit interests to participate in the planning process.

Step 2: Set Hazard Mitigation Goals and Objectives

At the first working meeting the committee reviewed and made minor revisions to the town's Hazard Mitigation Goals. The Hazard Mitigation Goals were adapted from the State of New Hampshire's Natural Hazards Mitigation Plan. This first step is extremely important in helping the committee understand the purpose of the Plan and the direction it should go. (See the end of this chapter for the "Hazard Mitigation Goals of the Town of New Castle, NH".)

Step 3: Hazard Identification

The Committee members identified natural hazards and human-caused hazards that have or could potentially affect the Town of New Castle. The results of this step can be found in Chapters 2 and 3.

Step 4: Critical Facilities Analysis

The committee members updated the Critical Facilities List for the town. The Critical Facilities List is divided into 3 sections: Facilities needed for Emergency Response; Facilities not necessary for emergency response; and places and populations to protect in the event of a disaster. The results of this step can be found in Chapter 4.

Step 5: Capability Assessment

The committee members identified what plans and policies are already in place to reduce the effects of hazards. The results of this step can be found in Chapter 5. Many of these plans and technical reports were reviewed and incorporated during the planning process, including the New Castle Emergency Operations Plan and New Castle Master Plan.

Step 6: Develop Objectives

The Committee identified "Problem Statements" for each of the hazards identified earlier in the planning process. All of the hazards have at least one problem statement associated with them (See Problem Statement in Appendix B). These problem statements were then utilized as objectives in developing mitigation projects, as described in the next step.

Step 7: Develop Specific Mitigation Measures

As a result of the problem statements identified in step 6, the committee brainstormed specific projects or mitigation measures to address each hazard. The Committee Members used the "*Mitigation Project Identification Worksheet*", as shown in Appendix B, to identify mitigation projects that directly address the hazards affecting the community. Finally, the committee prioritized the top priority

projects and listed them in the Mitigation Action Plan found at the end of Chapter 6.

Step 8: Adopt and Implement the Plan

After acceptance by the committee the Plan was submitted to the NH Homeland Security and Emergency Management and FEMA Region 1 for formal Approval. The Board of Selectmen formally adopted the Plan on February 7, 2022. The letter of approval from FEMA Region 1 can be found in Appendix C.

With respect to any ongoing mitigation projects, the lead and support agencies/people for such activity will be tasked with implementing the Plan's mitigation projects. The committee approved the "Prioritized Mitigation Projects" list, which identifies responsibility, funding/support and a timeframe for each of the prioritized projects. The Emergency Management Director should be tasked with requesting annual reports as to the progress of each project.

Step 9: Monitor and Update the Plan

It is important that this plan be monitored and updated annually or after a presidentially declared disaster. Chapter 7 specifically addresses this issue.

Summary of Changes

For the most part, the overall content of the Plan has not changed since the last edition in 2016. However, there are a few notable additions in this 2022 edition. Specifically, Public Health Emergencies and Solar Storms were added for consideration and Extreme Heat was modified to Extreme Temperatures to include severe cold. These three hazards were added to be consistent with the 2018 State of NH Hazard Mitigation Plan.

Mitigation Goals

During the 2022 update, the Committee reviewed the 2016 New Castle Hazard Mitigation Plan goals and made only minor revisions. The Goals were not modified for any substantial content, as there has not been any substantial change in development. The goals for the Town of New Castle are as follows:

1. To improve upon the protection of the general population, the citizens of the Town of New Castle and guests, from all natural and human caused hazards.
2. To reduce the potential impact of natural and human caused disasters on the Town of New Castle's:
 - Emergency Response
 - Critical Facilities
 - Infrastructure
 - Private Property
 - Economy
 - Natural Environment
 - Historic Treasures
3. To improve the Town of New Castle's emergency preparedness network.
4. To improve the Town of New Castle's disaster response and recovery capability.
5. To reduce the Town of New Castle's potential liability with respect to natural and human caused hazards.
6. Enhance protection of the general population, citizens, and guests of the Town of New Castle before, during, and after a hazard event through public education about disaster preparedness and resilience, and expanded awareness of the threats and hazards which face the State
7. Address the challenges posed by climate change as they pertain to increasing the risk and impacts of the hazards identified within this plan.
8. To identify, introduce and implement cost effective Hazard Mitigation measures so as to accomplish the Town's Goals and Objectives.
9. To work in conjunction and cooperation with the State of New Hampshire's Hazard Mitigation Goals.

2022 Hazard Mitigation Planning Committee

Name	Title/Affiliation
Chris Robillard	New Castle Public Works Supervisor
Conni White	New Castle Conservation Commission
Darcy Horgan	New Castle Planning Board
David Latchaw	New Castle Trefethen Elementary School
David McGurkin	New Castle Board of Selectmen
Don White	New Castle Police Chief
Heather Dunkerly	NH Homeland Security & Emergency Mgmt.
Jane Hubbard	Hubbard Consulting LLC
Jennifer Rowden	Rockingham Planning Commission
Jim Cerny	New Castle Historical Society
Kevin McGee	New Castle Police Officer
Mark Wooley	New Castle Deputy Fire Chief/Deputy EMD
Russ Bookholz	New Castle Building Inspector
Ted Hartmann	New Castle Fire Chief/EMD

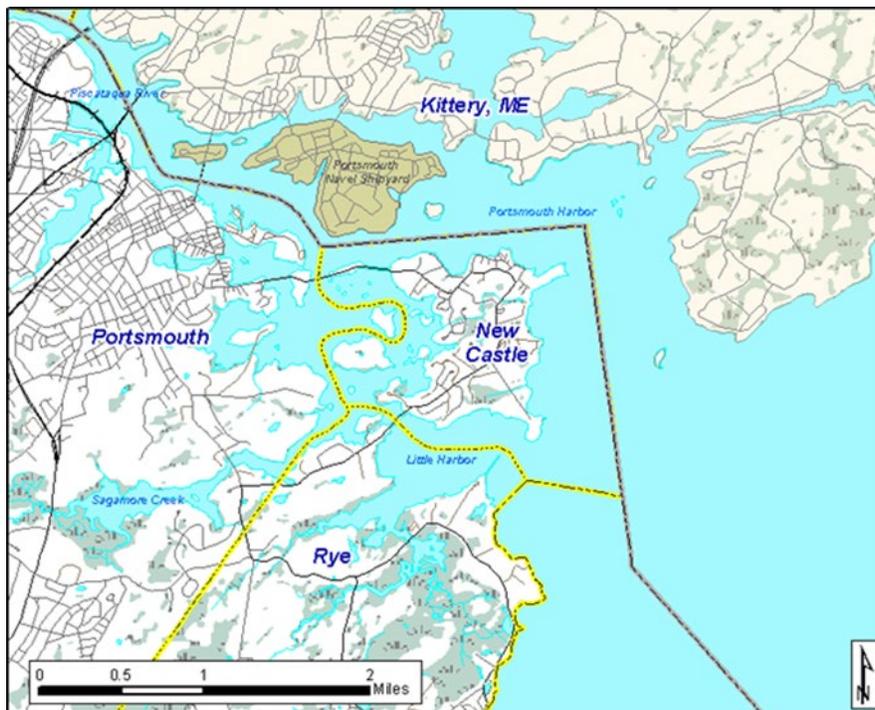
The committee members listed above participated in monthly committee meetings, provided departmental information, contributed in their field of expertise, reviewed and commented on committee meeting minutes, reviewed drafts of the Plan and worked together to identify and prioritize mitigation projects.

*Many thanks to all the hard work and effort from each and every one of you.
This plan would not exist without your knowledge and experience.
Thank you!*

Chapter 2 COMMUNITY PROFILE

Community Description

The Town of New Castle is a coastal community located at the mouth of the Piscataqua River, which divides New Hampshire with Maine. New Castle is made up entirely of islands and is only connected to the mainland by bridges. The islands total 0.8 square miles of land and 7.5 miles of coastline. Natural features in the Town include beaches, marine grasses, salt marshes, and wetlands. New Castle encompasses 504 acres across one main island and two much smaller, uninhabited islands. One hundred and five acres (21%) of land is conserved from development. All of the conserved land is owned and managed by state agencies and state-based organizations in New Hampshire, including NH Fish and Game, NH Department of Resources and Economic Development, and the Audubon Society of NH.



National Flood Insurance Program (NFIP)

Floodplains for this Plan are defined as the 100-year and 500-year flood hazard zones, as depicted on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM). New Castle has participated in the National Flood Insurance Program (NFIP) since August 5, 1986. In order to enable landowners to qualify for federally insured flood insurance, the Town, in its administration of site plan review, subdivision regulations and zoning, must regulate development in the floodplain using federal standards.

The Town's existing ordinance meets the minimum requirements of the NFIP, according to the latest Community Assistance Visit. The Town will continue to maintain procedures and regulations that are in compliance with the NFIP by conducting Community Assistance Visits (CAVs) and Community Assistance

Contacts (CAC) with the Office of Strategic Initiatives and updating the Floodplain Ordinance as federal requirements are updated. The last CAC was conducted on July 8, 2010 and the last CAV was conducted on July 29, 2009.

The community has Digital Flood Insurance Rate Maps (DFIRM) and a Flood Insurance Study dated January 29, 2021. According to the NFIP Policy and Claims report by FEMA, there are currently 42 NFIP policies. There have been 11 claims made since 1975. There are currently 8 active Letters of Map Amendment (LOMA) which amends the map to reflect that the structure is above the 100-year floodplain. There has been a total of 5 losses with a total of \$19,741 total payments. There are no repetitive losses.

Type	Policies in Force	Total Insurance in Force	Number of Paid Losses	\$ Amount of Paid Losses
Single Family	33			
2-4 Family	7			
Non-Residential	2			
Total	42	\$13,141,700	5	\$19,741

Disaster Risk

New Castle is prone to a variety of natural hazards. These include: flooding, severe wind events (downbursts, hurricanes, and tornadic activity), severe winter weather, wildfire, drought, earthquake, lightning, hail, extreme temperatures, public health emergencies, solar storms and human caused hazards. During the 2021 Update, the Committee added Public Health Emergencies and Solar Storms to the hazard risk, to be consistent with the State of NH Hazard Mitigation Plan 2018. The Committee came to a consensus to not include Avalanche, Dam Failure or Landslide as there is no real threat of these hazards. The following table summarize the impact and probability of natural and human caused hazards.

Hazards	Severity	Probability* In 25 years	Risk Severity x Probability
	Impact on Human / Property/ Business 1: Low 2: Moderate 3: High	Likelihood this will occur 1: Remote 2: Occasional 3: Probable 4: Frequent	0-3: Low 4-6: Moderate 7-9 High 10-12: Severe
Natural Hazards			
Coastal Storms & Sea Level Rise	3	4	12
Flood	3	4	12
Public Health Emergencies	3	4	12
Severe Wind (Tornado/Downburst)	3	4	12
Hurricane	3	3	9
Extreme Temperatures	2	4	8
Lightning	2	4	8
Winter Weather	2	4	8
Earthquake	2	2	4
Erosion coastal	2	2	4
Wild/Forest Fire	2	2	4
Drought	1	3	3
Solar Storms	1	1	1
Human Caused Hazards			
Utility Interruption	3	4	12
Haz Mat (Transport)	3	2	6
Transport Incident (<i>plane, boat, cars, etc.</i>)	3	2	6
Armed Attack (assault, sniper)	3	1	3
Conflagration	3	1	3
Haz Mat (Fixed)	3	1	3
Terrorist Attack (WMD)	3	1	3
0-3 Low Risk; 4-6 Moderate Risk; 7-9 High Risk 10-12 Severe Risk			

*Probability Terms are defined as:

- Improbable: Not likely to occur in any 25 year period.
- Remote: Less than 1% probability in the next 25 year period.
- Occasional: Between 1% and 50% probability in the next 25 year period.
- Probable: Between 50% and 99% probability in the next 25 year period.
- Frequent: Near 100% probability in the next year.

CALCULATING POTENTIAL LOSS

It is difficult to determine the amount of damage that could be caused by natural or human-caused hazards because the damage will depend on the hazard’s extent and severity, making each hazard event somewhat unique. Therefore, to calculate potential economic loss, we have assumed that structures impacted by hazards could result in damage of either 1% or 5% of the assessed value.

Based on this assumption, the potential loss from any of the identified hazards would range from \$7,837,978(1%) or \$39,189,890 (5%) based on the 2020 town valuations which lists the assessed value of all structures in New Castle to be \$783,797,800. (See table below). Human loss of life was not included in the potential loss estimates, but could be expected to occur, depending on the severity and type of the hazard.

ASSESSED VALUE OF ALL STRUCTURES			
Type	2020 Value	1% Damage	5% Damage
Residential	\$304,531,501	\$3,045,315	\$15,226,57
Manufactured Housing	\$0	\$0	\$0
Commercial	\$74,220,200	\$742,20	\$3,711,010
Tax Exempt	\$14,022,300	\$140,22	\$701,115
Utilities	\$1,449,200	\$14,49	\$72,460
Total	\$394,223,20	\$3,942,232	\$19,711,160
<i>Source: NH DRA 2021 MS-1</i>			

CURRENT DEVELOPMENT TRENDS ¹

Population, Housing Stock, and Growth Patterns

According to the NH Employment Security website, “Population change for New Castle totaled four over 49 years, from 975 in 1970 to 979 in 2019. The largest decennial percent change was a 20 percent increase between 1990 and 2000, which followed a ten percent decrease over the previous decade.” The 2020 US Census identifies the Town’s population at 1,000.

Table 1: New Castle Population

Year	Population
2020	1,000
2019	979
2010	968
2000	1,012
1990	843
1980	936
1970	975
<i>Source: http://www.nhes.nh.gov/elmi/products/cp/profiles-htm/NewCastle.htm</i>	

Current projections from the New Hampshire Office of Strategic Initiatives (NH OSI) show the population growth rate will continue increasing at a similar rate in New Castle over the next twenty-five years, where the year-round population in 2040 is projected to decrease to 958 (Table 2).²

Table 2: New Castle Population Projection

Year	Population
2020	949
2025	933
2030	954
2035	966
2040	958

¹ <https://www.nhes.nh.gov/elmi/products/cp/profiles-htm/newcastle.htm>

² Municipal Population Projections 2010 to 2040. NH Office of Strategic Initiatives, <https://www.nh.gov/osi/data-center/documents/2016-subcounty-projections-final-report.pdf>

FUTURE DEVELOPMENT

Evidence of the low rate of growth can be seen by the number of building permits issued annually (Table 3). Due to no substantial changes in development or population growth, there were no changes in priorities made to the Plan.

Table 3: Residential Building Permits Issued

Time Period	# of Permits
2016	3
2017	2
2018	2
2019	3
2020	3

Chapter 3 HAZARD IDENTIFICATION

This Chapter includes a description of the natural hazards that the Committee considered to be a risk to the Town. They are ranked in accordance with their overall risk, as identified in the Risk Matrix in Chapter 2 of this Plan.

COASTAL FLOODING & SEA LEVEL RISE

Probability: Frequent

Definition:

According to FEMA'S *Coastal Hazards & Flood Mapping*, sea level rise is "An increase in sea level caused by a change in the volume of the world's oceans and changes in local ground elevations. Sea level rise leads to increased frequency and depth of flooding in coastal areas." Sea level rise is defined as the relative average rise in mean sea level. Generally, sea level rise is categorized into Global Mean Sea Level (GMSL) rise and Relative Sea Level (RSL) rise. GMSL is the areal mean of sea-surface height (as measured from satellites) or relative sea level (as measured with tide gauges) over the global ocean. RSL is the difference in elevation between the land and the sea surface at particular locations. RSL differs from GMSL due to processes operating on more regional scales, including vertical land motion, atmosphere/ocean dynamics, and changes in the height of the geoid (the gravitationally determined surface of the ocean in the absence of tides and ocean currents).

Location:

The Town of New Castle is made up entirely of islands and is only connected to the mainland by bridges. These islands make up 7.5 miles of coastline within the Town.

Impact:

According to the *New Hampshire Coastal Flood Risk Summary Part 1: Science* (2019), "Coastal flooding is already occurring in New Hampshire and is expected to increase in frequency and severity in the future.... New Hampshire's coastal property, public infrastructure, human health, public safety, economy, and natural resources are already experiencing the impacts of rising seas, including more extensive coastal flooding during nor'easters and high astronomical tides."

Sea level rise contributes to increased coastal flooding and more frequent and severe tidal inundation because there is less of a buffer between the ocean and coastal areas and infrastructure within these areas. Tidal inundation and sea level rise combined with coastal storm events could also occur and result in greater impacts. Unlike flooding caused by severe storms, tidal inundation when combined with sea level rise would occur with predictable high tides and with some regularity. Over time, existing low-lying areas can be expected to be semi-permanently inundated as a result of sea level rise.

The impact of storm surge and waves depends on the timing of the storm with the tides. As RSL rises, inundation, erosion, and damage associated with storm surge and wave impacts are expected to worsen over the next century, with economic consequences felt by an increasing number of people and communities (*New Hampshire Coastal Flood Risk Summary Part 1: Science* 2019).

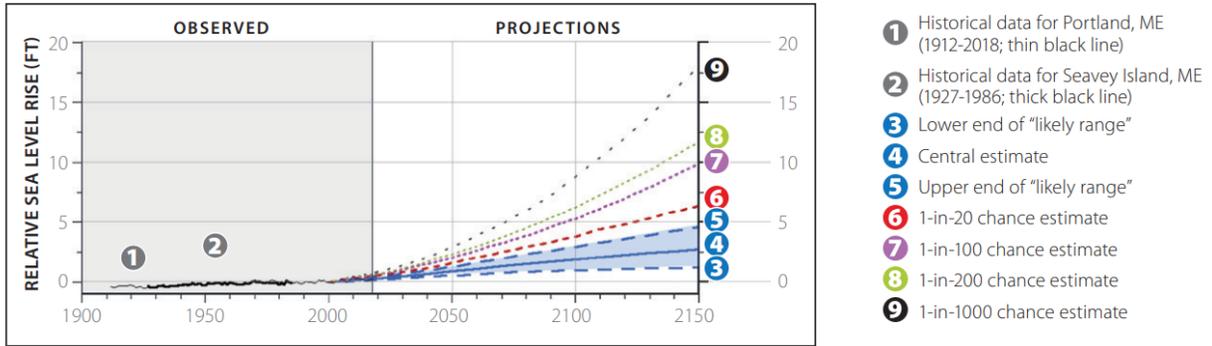


Figure 3-1: Observed and relative sea-level rise for the Seavey Island, ME, tide gauge based on Kopp et al. 2014 and the stabilized greenhouse gas concentration scenario.

Extent:

The magnitude and severity of sea level rise is dependent by its speed of onset. The most direct way to measure sea level rise is tide gauge observations—simply measuring the height of a tide on a fixed marker. As the tide marker is attached to land, this provides a measurement of sea level relative to land.

Previous Occurrence:

According to the *New Hampshire Coastal Flood Risk Summary Part 1: Science* (2019), Relative Sea Level rise in coastal New Hampshire/southern Maine has risen approximately 7.5 – 8.0 inches from 1912 – 2018, based on tide-gauge data from Seavey Island and Portland, Maine.

FLOODING

Probability: Frequent

Definition:

Flooding is the temporary overflow of water onto land that is not normally covered by water. Flooding results from the overflow of major rivers and tributaries, storm surges, and/or inadequate local drainage. Flooding events considered in this Plan include 100-year and 500-year floodplain events, rapid snowpack melt and ice jams. Coastal flooding is discussed previously.

Location:

Generally, the Town of New Castle is at risk within the Flood Zones identified by FEMA on Digital Flood Insurance Rate Maps (DFIRM). New Castle has three major flood zones: VE, AE and X. These flood zones correspond to the Special Flood Hazard Areas and the 500-year flood zone. Areas that see frequent flooding are River Road and the sewer lift station, Route 1B Causeway, Pit Lane/Route 1B.

Impact:

The extent of damage caused by any flood depends on the depth and duration of flooding, the topography of the area flooded, velocity of flow, rate of rise, and the amount and form of development in the floodplain. Most of the past flooding events result in damage to road infrastructure throughout town, as well as residential and non-residential buildings.

The 7.5 miles of coastline in Town is vulnerable to both coastal flooding from storm surge, groundwater flooding and flooding from other causes including heavy rain.

One other significant impact from both flooding and sea level rise is the potential for limited or no access on and off the island. The Rt 1B Causeway and the New Castle/Rye Bridge (a.k.a. Wentworth Bridge) are the north and south access points which are at risk to flooding.



New Castle/Rye Bridge



Rte 1B Causeway

Extent:

FEMA defines flood hazards by the 100-year and 500-year flood events. A 100-year flood event is defined as flood event having a 1% chance of being equaled or exceeded in any given year. The 500-year flood event is defined as flood event having a .2% chance of being equaled or exceeded in any given year. The Town of New Castle Flood Insurance Rate Maps (FIRM) identify VE, AE and X zones. The AE zones are subject to the 100-year flood and have Base Flood Elevations (BFE) delineated on the FIRM. VE zones are corresponds to areas within the 100-year flood coastal floodplain that have additional hazards associated with storm waves. The X zones are the areas outside the 100 year flood zone and there are no BFEs delineated.

Previous Occurrence:

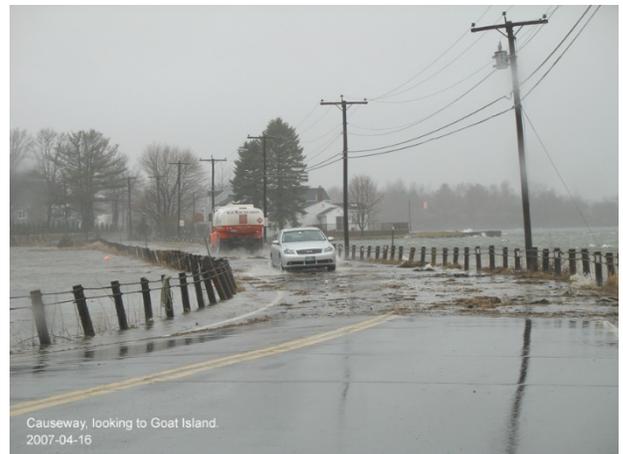
August 19, 1991 (FEMA DR-917): Statewide, Hurricane Bob Primarily Rockingham and Strafford Counties Road Network; effects felt statewide; counties to east hardest hit.

October 28, 1997: Rockingham County. Typically structures and infrastructure in the floodplain sustained damage.

June – July 1998 (FEMA DR-1231): Rockingham County Heavy damage to secondary roads occurred due to a series of rainfall events.

May 12, 2006 (FEMA-DR-1643) Central and Southern Regions. 100 yr – 500 yr : Severe storms and flooding. Counties Declared: Belknap, Carroll, Grafton, Hillsborough, Merrimack, Rockingham, and Strafford

April 15 – 23, 2007 (FEMA-1695-DR,) Statewide 100 yr – 500 yr : Severe storms and flooding associated with a Nor'easter. Counties Declared: Belknap, Carroll, Cheshire, Coos, Grafton, Hillsborough, Merrimack, Rockingham, Strafford, and Sullivan. (See photo)



July 24 2008 (FEMA-1782-DR) Central and Southern Regions 100 yr – 500 yr Severe storms, tornado and flooding. Counties Declared: Belknap, Carroll, Merrimack, Rockingham, and Strafford

March 14 – 31, 2010 (FEMA-1913-DR) Southeastern Region 100 yr – 500 yr Flood. Severe storms and flooding. Counties Declared: Hillsborough and Rockingham County

March 2-3, 2018: A Low pressure developed off the New Jersey coast on March 2nd before rapidly intensifying well offshore on March 3rd. Major flooding occurred along the New Hampshire seacoast where up to 3 feet of water covered some roadways in the Back Bay area of Hampton. Route 1A was shut down at Wallis Sands Beach. Ocean Boulevard was also closed in Rye as large rocks, the size of beach balls, were tossed across the road during subsequent high tides. The Piscataqua River rose until it reached the decks of water front restaurants. North Mill Pond overflowed onto neighboring streets and properties. New Castle did not have any significant damage to road infrastructure from this storm, however the sewer lift station on River Road was flooded (see photo).



March 8, 2018: A Low pressure intensified off the mid-Atlantic coast on March 7th and moved to just off the northern New England coast by March 8th. The low produced storm-force wind gusts over the outer waters. The storm then tracked in a small loop and retrograded back towards the Maine coast. Although this event occurred during a period of low astronomical tides, tides were still running high from a large ocean storm several days earlier. The impact from this system was enhanced because much of the coastal armor such as dune systems and rocky revetments had been compromised or destroyed from the storm earlier in the month. Beach erosion and splash-over were reported in Hampton as 20 foot waves coincided with the time of high tide. New Castle did not have any significant damage to road infrastructure from this storm.

PUBLIC HEALTH EMERGENCIES

Probability: Frequent

Definition:

Infectious diseases are illnesses caused by organisms—such as bacteria, viruses, fungi or parasites. 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.

Location:

The entire State of New Hampshire, including the entire Town of New Castle, is at risk for Infectious Diseases. The prevalent diseases can change based on the time of year, such as the influenza virus in the winter and foodborne disease in the summer.

Impact:

Public health incidents and infectious diseases may occur suddenly or with a slow onset. Incidents that occur suddenly may have extraordinary and/or overwhelming medical resource needs. Incidents may occur with a slow onset and/or with advance warning will allow for a more coordinated response. During sudden onset incidents, many victims may reach healthcare facilities on their own without the use of Emergency Medical Services (EMS), which means that victims may arrive to find unprepared or inadequate facilities. According to NH DHHS's 2007 Influenza Pandemic Public Health Preparedness and Response Plan, it is estimated that an influenza pandemic will cause nearly 16,000 hospitalizations and nearly 4,000 deaths.

Covid-19 has also had a corresponding impact to town functions (i.e. electrical upgrade delays, supply chain shortages, generator for a well site was delayed almost a year, contracted personnel). The direct and indirect impacts of Covid-19 will continue for months and years to come.

Extent:

The magnitude and severity of infectious diseases 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 – The 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

Previous Occurrence:

March 13, 2020 to present (DR-4516): The State of New Hampshire declared a State of Emergency on March 13, 2020 due to Covid-19. From March 1 through November 1, 2020, the State had 11,290 cases of Covid and by March 1, 2021 there were 75,504 cases of Covid-19. The Town of New Castle has had over a dozen confirmed cases. Actual case count is difficult to determine based on administrative challenges.

On March 13, 2020 the Selectboard voted to close the town offices on 3/17/20. Covid protection guidelines were implemented for town hall operations. The police and fire departments were operational but closed to the public and eventually opened by appointment only. All town meetings were remote until 2021. Currently the Selectboard meet in hybrid (as long as quorum in physical place). Town Clerk was appointment only and online in 2020; now they are open to the public but encouraging public to use online services. The Town conducted contact tracing for town employees, in accordance with quarantine and testing guidelines. The assisted a vaccine clinic at the senior center and the High School, in coordination with the Seacoast Public Health Network.

SEVERE WIND

Probability: Frequent

Definition:

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. These events are spawned by thunderstorms and occasionally by hurricanes. They may also occur singularly or in multiples. A downburst is a severe, localized wind blasting down from a thunderstorm. These "straight line" winds are distinguishable from tornadic activity by the pattern of destruction and debris. Downbursts fall into two categories: Microburst which covers an area less than 2.5 miles in diameter; and Macroburst which covers an area at least 2.5 miles in diameter.

Location:

Severe wind events (downburst, tornadoes or high winds associated with thunderstorms) can occur anywhere in New Castle. Generally the higher elevations are more susceptible as well as more vulnerable due to the fact that they are home to emergency response/mutual aid towers. Due to the sporadic nature of tornados and severe wind events, they could occur anywhere in the Town of New Castle.

Impact:

Depending on the size and location of these events, the destruction to property may be devastating. Several of the more significant and recent events within southern New Hampshire have caused several millions of dollars in damage and at least 5 fatalities. An F-2 Tornado, according to the Fujita scale, maintains wind speeds from 13-157 mph. A tornado occurring in New Castle would cause considerable damage. Roofs could be torn off frame houses; mobile homes demolished; large trees snapped or uprooted; and light object missiles would be generated as a result of an F-2 Tornado.

Extent:

According to the Enhanced Fujita scale, which rates tornado intensity, an EF-2 tornado maintains wind speeds from 111-135 mph and can cause considerable damage. Roofs could be torn off frame houses; mobile homes demolished; large trees snapped or uprooted; and light object missiles would be generated as a result of an EF-2 Tornado.

EF 0	65-85 mph
EF 1	86-110 mph
EF 2	111-135 mph
EF 3	136-165 mph
EF 4	166-200 mph
EF 5	Over 200 mph

Previous Occurrence:

September 11, 2016: A line of strong to severe thunderstorms formed ahead of a strong and fast-moving cold front on the morning of September 11th. Numerous reports of wind damage were associated with these storms as they raced through New Hampshire during the mid to late morning hours. A severe thunderstorm downed multiple trees on Pierce Island. Trees blocked the new castle commons near Beach Hill Road and there was extended power outages.

February 25, 2019: A strong low pressure system moved through the Great Lakes on the 24th and 25th. As strong high pressure built down through the Canadian Prairies an intense pressure gradient developed between the two features. This led to strong winds and wind gusts all across the Northeast, with the mountains and southern New Hampshire hit hardest locally. Winds began to increase early in the morning of the 25th as cold air advection developed behind a cold front. After daybreak winds increased sharply and continued through the day. The most intense burst of winds came in the late afternoon and early evening. This is when Portsmouth International Airport at Pease measured a 61 mph gust. In addition, trees and wires were down as well as some minor structural damage to roofs and siding occurred.

July 13, 2020: A short wave trough aloft with an accompanying cold front moved in from the west during the afternoon hours of the 13th. Ahead of the front, a moderately unstable air mass was in place over New Hampshire as surface dewpoint values rose well into the 60s. The result was a few strong to locally severe thunderstorms. A 60 MPH wind gust was measured at Port City Air.

HURRICANE

Probability: Probable

Definition:

A hurricane is a tropical cyclone in which winds reach speeds of 74 miles per hour or more and blow in a large spiral around a relatively calm center. The eye of the storm is usually 20-30 miles wide and the storm may extend over 400 miles. High winds are a primary cause of hurricane-inflicted loss of life and property damage. The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures.

Location:

When hurricane events occur in New Castle they affect the entire town. Certainly, the heavy rainfall associated with hurricanes will impact the 100-year floodplain but the high winds can have an impact on the whole town.

Impact:

New Hampshire’s exposure to direct and indirect impacts from hurricanes is real, but modest, as compared to other states in the region. That being said, the probability of hurricanes occurring in New Castle is possible. The largest impact is on the floodplain areas due to heavy rains. High winds cause trees to fall down thereby causing power outages, structural damage to buildings, road closures and debris management issues.

Extent:

Wind speeds within hurricanes may reach 250 miles per hour in a Category 5 hurricane, as measured on the Saffir-Simpson Hurricane Scale. Tropical depressions are considered to be of hurricane force when winds reach 74 miles per hour. Damage resulting from winds of this force can be substantial, especially considering the duration of the event, which may last for many hours.

Category	Wind Speed (mph)	Damage at Landfall
1	74-95	Minimal
2	96-110	Moderate
3	111-130	Extensive
4	131-155	Extreme
5	> 155	Catastrophic

Previous Occurrence:

September 21, 1938: The Great New England Hurricane affected southern New England, resulted in 13 Deaths and 1,363 families received assistance. Disruption of electric and telephone services for weeks. 2 Billion feet of marketable lumber blown down. Flooding throughout the State, in some cases equaling and surpassing the Flood of 1936. Total Direct Losses were \$12,337,643.

August 31, 1954: Hurricane Carol affected southern New England. Extensive amount of trees blown down and property damage. Large crop loss. Localized flooding.

October 29-31, 2012 Hurricane Sandy DR-4095: On Monday, October 29th, A band of heavy rain and high winds associated with Sandy moved northward into New Hampshire. The high winds associated with this band of heavy rain downed numerous trees and caused widespread power outages. These strong and persistent winds combined with the powerful gusts to down numerous trees throughout the State and caused widespread power outages, especially across southern New Hampshire.

October 30, 2017 (DR-4355): An area of low pressure intensified rapidly on Monday, October 30, as it moved northward and moisture and energy from the remnants of Tropical Storm Philippe merged with the storm. The combined system brought high winds to much of New Hampshire Sunday night into Monday morning, with the highest winds in southern and central sections of the State. Observed wind gusts across the hardest hit areas generally ranged from 55 to 60 mph. Rainfall amounts generally ranged from 2 to 5 inches across New Hampshire. New Castle was without power and numerous trees wires down.

August 4, 2020: Tropical Storm Isaias center of the storm tracked west of the state, keeping the flooding rain associated with the storm across New York. Overall storm impacts were brief with a period of gusty winds from the south to southeast on the evening of August 4th causing most of the damage. No flooding was reported.

EXTREME TEMPERATURES

Probability: Probable

Definition:

Extreme Heat: A Heat Wave is a “Prolonged period of excessive heat, often combined with excessive humidity.” Heat kills by pushing the human body beyond its limits. In extreme heat and high humidity, evaporation is slowed and the body must work extra hard to maintain a normal temperature.

Extreme Cold: Low temperatures and wind chill can reduce the body’s core temperature. Cold disorders can include frostbite and hypothermia.. Extreme cold can also damage or kill crops and animals (wild, farm, or domesticated), potentially presenting a risk to the economy.

Location:

Extreme temperature events are difficult to define geographically. Due to their widespread nature, periods of extreme heat or cold would affect the entire town.

Impact:

Extreme heat conditions may impact the health of residents and visitors. Facilities without generators and air-conditioners that house the elderly and disabled are very susceptible to human health issues. Transportation infrastructure and utilities are also vulnerable as the demand for air-conditioning rises. Extreme cold conditions may also impact the health of residents and visitors. Facilities without generators and back-up sources of heat are very susceptible to human health issues. Transportation infrastructure and energy utilities are also vulnerable.

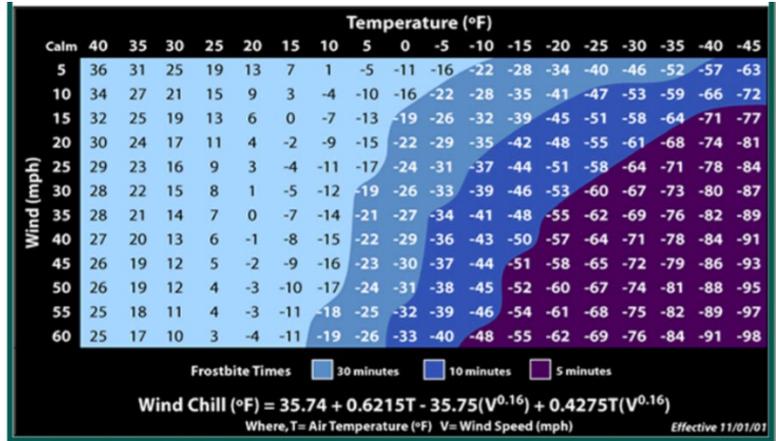
Extent:

According to OSHA, The risk of heat-related illness becomes greater as the weather gets hotter and more humid. This situation is particularly serious when hot weather arrives suddenly early in the season, before workers have had a chance to adapt to warm weather. This table provides guidelines for the risk related to extreme heat.

Heat Index	Risk Level	Protective Measures
Less than 91°F	Lower (Caution)	Basic heat safety and planning
91° to 103°F	Moderate	Implement precautions and heighten awareness
103° to 115°F	High	Additional precautions to protect workers
Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures

Previous Occurrence:

The Town of New Castle has experienced frequent periods of extreme heat and cold. However, the impact upon the town and its residents is minimal. There have been no significant extreme temperature events in the Town of New Castle since the last Plan update.



Wind chill chart. (Source-NOAA)

LIGHTNING

Probability: Probable

Definition:

By definition, all thunderstorms contain lightning. Lightning is a giant spark of electricity that occurs within the atmosphere, or between the atmosphere and the ground. As lightning passes through the air, it heats the air to a temperature of 50,000 F, considerably hotter than the surface of the Sun.

Location:

The entire town. Including critical facilities, are at moderate risk to lightning hazard, however lightning strikes can occur anywhere in the Town.

Impact:

Residents and visitors to the New Hampshire area are more vulnerable to being struck by lightning because of the activities with which they are involved, particularly on those warm summer days when lightning is most likely to occur. Often, many people are outside enjoying the variety of recreational activities that attract people to New England during the summer when the vulnerability to lightning strike is highest. More likely to be affected are structures and utilities, often resulting in structure fires and power outages.

Extent:

The National Oceanographic Atmospheric Administration (NOAA) defines the extent of lightning activity with a LAL scale as shown in the table below.

LAL 1	No Thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent. 1 to 5 cloud ground strikes in a 5 minute period.
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5 minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a 5 minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.

Previous Occurrence:

There have been no significant lightning strikes in the Town of New Castle since the last Plan update.

WINTER WEATHER

Probability: Probable

Definition:

Heavy Snow Storms: A winter storm can range from moderate snow to blizzard conditions. Blizzard conditions are considered blinding wind-driven snow over 35 mph that lasts several days. A severe winter storm deposits four or more inches of snow during a 12-hour period or six inches of snow during a 24-hour period. **Ice Storms:** An ice storm involves rain that freezes upon impact. Ice coating at least one-fourth inch in thickness is heavy enough to damage trees, overhead wires and similar objects.

Blizzard: A blizzard is a violent snowstorm with winds blowing at a minimum speed of 35 miles (56 kilometers) per hour and visibility of less than one-quarter mile (400 meters) for three hours. **Nor’Easter:** A Nor’easter is a large weather system traveling from south to north, passing along the coast. As the storm’s intensity increases, the resulting counterclockwise winds impacted the coast and inland areas in a Northeasterly direction. Winds from a Nor’easter can meet or exceed hurricane force winds.

Location:

There is a town-wide vulnerability to severe winter weather. Nor’easters (wind), Ice Storms, Heavy Snow Accumulations and Severe Cold can occur at any place within the town and generally affect the entire town when it happens.

Impact:

Heavy snow accumulations (generally considered one that deposits six or more inches of snow in a 12-hour period) especially those associated with nor’easters can have a significant effect on the Town, including extended power outages, road closures, collapsed roofs and increased snow removal costs. During ice storms, ice forms on cold surfaces, such as trees and power lines, and may continue to form until the ice is quite deep, as much as several inches thick. Ice damage results in power outages, road closures and forest damage. Ice on the roads can be the most difficult for a rapid emergency response.

Functional needs populations are at risk during prolonged power outages. Private roads are difficult for emergency response vehicles due to restricted access during winter.

A particular vulnerability to the Town is that there are only 2 access points on or off the island. Severe weather with trees and wires down can block access to and from the Island. The Elementary School temporarily loses power 3 or 4 times a year. When the School is without power, the telephones and internet go down as well; leaving only cell phone communications with people outside the school.

Extent:

NOAA's National Climatic Data Center produced the Regional Snowfall Index (RSI) for significant snowstorms that impact the eastern two thirds of the U.S. The RSI ranks snowstorm

CATEGORY	RSI VALUE	DESCRIPTION
1	1-3	Notable
2	3-6	Significant
3	6-10	Major
4	10-18	Crippling
5	18.0+	Extreme

impacts on a scale from 1 to 5, similar to the Fujita scale for tornadoes or the Saffir-Simpson scale for hurricanes. In addition, the National Weather Service developed and utilizes the Sperry-Piltz Ice Accumulation Index (SPIA) to forecast the impact of an ice storm. The index below ranges from an ice storm rated as "0" which has little impact, to an index rating of 5 that has catastrophic damage to exposed utility systems.

Previous Occurrence:

January of 1923: 4 storms within a week left over 30 inches of snow.

February 8-10, 1969: Accumulations up to 27" in southeastern New Hampshire

February 22-28, 1969: Accumulations of 34" in coastal areas.

January 20, 1978: 20-inch snowstorm leaving 20' high snowdrifts

February 5-7, 1978: Accumulations up to 33" along coastal New Hampshire. Hurricane-force winds and record-breaking snowfall made this storm one of the more intense to occur this century across parts of the northeastern United States.

March 2001: Late winter snowstorm.

March 13, 2018: Low pressure off the Southeast U.S. coast on the morning of the 12th intensified rapidly as it moved slowly northeast by the morning of the 13th. The storm brought snowfall amounts ranged from about 6 inches across Coos County to more than 24 inches across portions of Hillsborough, Rockingham, Belknap, and Carroll Counties. The heavy wet snow caused short term power outages in New Castle.

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.

EARTHQUAKE

Probability: Occasional

Definition:

An earthquake is a rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface. 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 magnitude and intensity of an earthquake is determined by the use of scales such as the Richter scale and Mercalli scale.

Location:

According to the State of New Hampshire Multi-Hazard Mitigation Plan Update 2018, New Hampshire is considered to lie in an area of "Moderate" seismic activity with respect to other areas of the United States and is bordered to the North and Southwest by areas of "Major" activity. Generally, the entire Town is at risk to earthquakes.

Impact:

Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric and phone lines, and often cause landslides, flash floods, fires, and avalanches. It is assumed that all of the buildings in the Town have not been designed to withstand seismic activity. More specifically, the older historic buildings that are constructed of non-reinforced masonry are especially vulnerable to any moderate sized earthquake. In addition, utilities (water, gas, etc) are susceptible to earthquake damage. . For a more detailed review of the impact of earthquakes refer to the New Castle Essential Facilities Report, published in 2002 by Klotz Consultants Group. The report identifies, locates, collects and records the structural and general building data of the Essential Facilities and analyzes the functionality of these facilities based on various sized earthquakes. New Castle has experienced the effect of small to moderate earthquakes that had minor to no effect on the town's infrastructure.

Extent:

Earthquakes with a magnitude of 2.0 to 4.9 on the Richter scale are considered minor to light, and those 5.0 to 6.9 are considered moderate to strong. However, if a large (6+ on the Richter Scale) occurred in or around the town, it is assumed that structural damage would be moderate to severe.

Richter Scale	Magnitude Earthquake Effects
2.5 or less	Usually not felt, but can be recorded by seismograph.
2.5 to 5.4	Often felt, but only causes minor damage.
5.5 to 6.0	Slight damage to buildings and other structures.
6.1 to 6.9	May cause a lot of damage in very populated areas.
7.0 to 7.9	Major earthquake. Serious damage.
8.0 or greater	Great earthquake. Can totally destroy communities near the epicenter.

Previous Occurrence:

There have been no occurrences of earthquake impact to the Town of New Castle since the last Plan update. However, NH and New England have experienced earthquakes of 2.5 magnitude or greater, as shown in the following table:

Location	Date	Magnitude
Ossipee, NH	December 20, 1940	5.5
Ossipee, NH	December 24, 1940	5.5
Dover-Foxcroft, ME	December 28, 1947	4.5
Kingston, RI	June 10, 1951	4.6
Portland, ME	April 26, 1957	4.7
Middlebury, VT	April 10, 1962	4.2
Near NH Quebec Border, NH	June 15, 1973	4.8
West of Laconia, NH	Jan. 19, 1982	4.5
Ontario-Quebec Border	June 23, 2010	5.0
Boscawen, NH	September 26, 2010	3.1
Virginia	August 23, 2011	5.8
Southern Maine	October 16, 2012	4.0
Contoocook, NH	March 21, 2016	2.9
East Kingston, NH	February 15, 2018	2.7

EROSION (COASTAL)

Probability: Occasional

Definition

Coastal erosion is the loss or displacement of land along the coastline from the interaction of oceans, waves, and beaches, often coupled with the impact of human activity. Coastal erosion occurs when wind, waves, longshore currents, tides, runoff of surface water, or groundwater seepage move sand and sediment from a shoreline location.

Location

Areas of concern are along the Causeway on Route 1B and the end of Ocean Street.

Impact

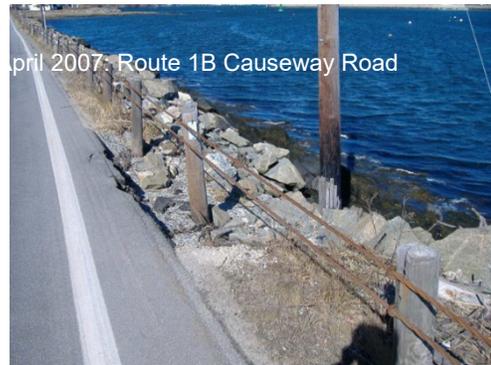
Coastal erosion threatens public infrastructure, houses, businesses, and other private investments.

Extent

Coastal erosion is measured at the rate of change in the position or horizontal displacement of a shoreline over a period of time. A number of factors determine whether a community exhibits greater long-term erosion or accretion: Exposure to high-energy storm waves; Sediment size and composition of eroding coastal landforms feeding adjacent beaches; Near-shore bathymetric variations which direct wave approach; Alongshore variations in wave energy and sediment transport rates, Relative sea level rise; Frequency and severity of storm events; and Human interference with sediment supply (e.g. revetments, seawalls, jetties). Such erosion may be exacerbated by activities such as boat wakes, shoreline hardening or dredging.

Previous Occurrence

Erosion is a long duration (over years) event in New Castle. In 2018, the end of Ocean Street experienced some minor erosion, rip rap was added and the road repaved. In addition, the breakwater/jetty at New Castle Commons has experienced periodic erosion where the riprap/slabs have moved and need to be repaired on occasion.



WILDFIRE

Probability: Occasional

Definition:

Any free burning uncontrollable wild land fire not prescribed for the area which consumes the natural fuels and spreads in response to its environment.

Location:

The Committee identified no particular areas of New Castle as having higher risk of wildfire than any other.

Impact:

Fires in New Hampshire are predominantly human-caused, and roughly half of the total fire activity is in the most populous three southern counties. The proximity of many populated areas to the forested lands exposes these areas and their populations to the potential impact of wildfire. The estimated impact to structures could be derived from the information included in the critical facilities in Chapter 4.

Extent:

The extent of damage to structures and the general populations will vary depending on climate, warning, and the time of year. Even the time of day could affect the extent, as there is an increase of recreational hikers and tourists during the daytime. The National Wildfire Coordinating Group (NWCG) classifies a wildfire into one of several ranges of fire, based upon the number of acres burned. The following list provides NWCG's scale for wildfire values:

Value	Description
A	Up to .25 acres
B	0.26 to 9.9 Acres
C	10.0 to 99.9 Acres
D	100 to 299 Acres
E	300 to 999 Acres
F	1000 to 4999 Acres
G	5000 to 9999 Acres
H	10000 to 49999 Acres
I	50000 to 99999 Acres
J	100000 to 499999 Acres
K	500000 to 999999 Acres
L	1000000 + Acres

Previous Occurrence:

There is no record of large wildfires in New Castle in recent memory.

DROUGHT

Probability: Probable

Definition:

Drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people.

Location:

Droughts are difficult to define geographically. Due to their widespread nature a drought would affect the entire Town.

Impact:

A drought is defined as a long period of abnormally low precipitation, especially one that adversely affects growing or living conditions. Droughts are not as damaging to the Town as floods or winter weather. However a severe drought can affect public water supply, increase the probability of fires, and impede fire suppression. Those areas with minimal fire protection are at a higher risk as a result of a prolonged drought. Additionally, the Town of New Castle gets all of its public water supply from the City of Portsmouth, which relies on water supply sources from three nearby Towns. Any impact to those water sources or to the City of Portsmouth water infrastructure would ultimately affect the Town’s water supply.

Extent:

The Palmer Drought Severity Index (PDSI) was devised in 1965, and was the first drought indicator to assess moisture status comprehensively. It uses temperature and precipitation data to calculate water supply and demand, incorporates soil moisture, and is considered most effective for un-irrigated cropland. The U.S. Drought Monitor provides a consistent big-picture look at drought conditions in the United States. The Drought Monitor map identifies areas of drought and labels them by intensity. D1 is the least intense level and D4 the most intense.

Category	Description	Possible Impacts	Ranges				
			Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: <ul style="list-style-type: none"> • short-term dryness slowing planting, growth of crops or pastures Coming out of drought: <ul style="list-style-type: none"> • some lingering water deficits • pastures or crops not fully recovered 	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
D1	Moderate Drought	<ul style="list-style-type: none"> • Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested 	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	<ul style="list-style-type: none"> • Crop or pasture losses likely • Water shortages common • Water restrictions imposed 	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	<ul style="list-style-type: none"> • Major crop/pasture losses • Widespread water shortages or restrictions 	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4	Exceptional Drought	<ul style="list-style-type: none"> • Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies 	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

Previous Occurrence:

According to the U.S. Drought Monitor, this table below shows the periods of Drought for Rockingham County since the last edition of this Plan.

2020-21: Dry conditions developed rapidly across New Hampshire starting in the middle of May 2020. The period May 16 to June 25 was exceedingly dry. By the middle of August, dry conditions set in again with September being exceedingly dry with some locations reporting their driest September on record. The drought peaked in intensity during the first week of October before beneficial widespread rains impacted the state towards the middle of October of 2020. Even with some rainfall in November the deficits remained in a large portion of the State.

Rockingham County Drought History		
Year	Month	Drought Category
2015	May-July	D0/D1
2015-2016	Aug - Feb	D0
2016	Aug-Dec	D3
2020	June-Dec	D0/D1
2021	March-July	D0

SOLAR STORMS

Probability: Remote

Definition:

Solar activity (solar storms) refers to solar flares, coronal mass ejections, high-speed solar wind, and energetic solar particles. Any of these events may occur for a few minutes to several hours, have the ability to affect Earth for days to weeks. All solar activity is driven by the solar magnetic field. A solar flare is an intense burst of radiation resulting from the release of sunspot magnetic energy, which can occur for minutes to hours. Solar prominence is a large, bright feature that extends outward from the sun's surfaces. Solar wind travels at 800,000 to 5 million miles per hour and carries mass the size of Utah's Great Salt Lake into space every second; however, solar wind is 1000 million times weaker than the winds that we experience on Earth.

Location:

The entire State, including the entire Town of New Castle, is at risk for solar storms.

Impact:

As society becomes increasingly reliant on electronics and technology, the hazards presented by space weather are not to be underestimated. The magnetic disturbances that solar storms can bring can disrupt communications, dispatch centers, damage or destroy electronic components, corrode gas and oil pipelines, and cause significant damage to spacecraft and satellites outside the Earth's protective atmosphere.

Extent:

Scale	Description	Effect	Avg Frequency (1 cycle = 11 yrs)
S 5	Extreme	<p>Biological: Unavoidable high radiation hazard to astronauts on Extra Vehicular Activity; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.</p> <p>Satellite operations: Satellites may be rendered useless, memory impacts can cause loss of control, may cause serious noise in image data, star trackers may be unable to locate sources; permanent damage to solar panels possible.</p> <p>Other systems: Complete blackout of High Frequency (HF) communications possible through the polar regions, and position errors make navigation operations extremely difficult.</p>	Fewer than 1 per cycle
S 4	Severe	<p>Biological: Unavoidable radiation to astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.</p> <p>Satellite operations: May experience memory device problems and noise on imaging systems, star tracker problems may cause orientation problems and solar panel efficiency can be degraded..</p> <p>Other systems: Blackout of HF radio communications through the polar regions and increase navigation errors over several days are likely.</p>	3 per cycle
S 3	Strong	<p>Biological: Radiation avoidance recommended for astronauts on EVA; passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.</p> <p>Satellite operations: Single-event upsets, noise in imaging systems and slight reduction of efficiency in solar panel are likely.</p> <p>Other systems: Degraded HF radio propagation through the polar regions and navigation position errors likely.</p>	10 per cycle
S 2	Moderate	<p>Biological: Passengers and crew in high-flying aircraft at high latitudes may be exposed to radiation risk.</p> <p>Satellite operations: Infrequent single event upsets possible.</p> <p>Other systems: Small effects on HF propagation through the polar regions and navigation at polar cap locations possibly affected.</p>	25 per cycle
S 1	None	<p>Biological: None</p> <p>Satellite operations: None</p> <p>Other systems: Minor impacts on HF radio in the polar regions.</p>	50 per cycle

Previous Occurrence:

While no significant, damaging solar storms or space weather have impacted the State of New Hampshire, or the Town of New Castle, in recent years, HF radio communications routinely experience minor impacts or disruptions. Occasionally, when there is a particular large storm where the aurora borealis is visible in areas of New Hampshire. Nearby events include Quebec, Canada, which experienced a 9-hour blackout in March of 1989 when solar winds caused a fluctuation in the Earth’s magnetic field and caused Hydro-Quebec’s transmission to go down. There have been no occurrences of solar storm impact to the Town of New Castle since the last Plan update.

HUMAN CAUSED HAZARDS

The Town of New Castle is also vulnerable to human caused hazards, such as:

- Hazardous Materials incidents on the Piscataqua River and Routes 1 and 1B. Propane tankers are frequently transiting the river. In addition, LP gas and fuel accidents from businesses or residential properties can pollute the river.
- Increased Seasonal Population, which can create traffic back up at exit points.
- Close proximity to Pease International Airport.

AVALANCHE & LANDSLIDE

Due to no history or risk of avalanche or landslide within the Town of New Castle, the Committee chose not to recognize the risk of this hazard in this Plan.

Chapter 4

CRITICAL FACILITIES

The Critical Facilities List for the Town of New Castle has been identified by the 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 New Castle. 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. In addition, the Inventory of Critical Facilities table assesses the value of these structures.

Estimating Potential Losses to Critical Facilities

The Category 1 Critical Facilities identified in New Castle are estimated to be worth over \$86,000,000. The Table below provides an estimate of the current monetary value for each of the Critical facilities in New Castle. These values can also be used to determine potential loss estimates in the event a natural or manmade hazard damages a portion of, or the entire facility. The estimates were generated by the town assessor and are based on property tax documentation.

Inventory of Critical Facilities and Assets New Castle, NH								
Facility	Name	Owner	Category 1	Category 2	Category 3	Category 4	Assessed Value	Hazards Addressed
			✓	✓	✓	✓		
Town Offices	New Castle Town Hall	Municipal	✓				\$905,200	All Hazards
EOC Primary Secondary	New Castle Public Safety Building - Primary	Municipal	✓				\$1,401,700	All Hazards
	Recreation Center – Secondary	Municipal	✓				\$10,456,200	All Hazards
Police Dept.	New Castle Public Safety building	Municipal	✓				\$1,401,700	All Hazards
Fire Station	New Castle Public Safety Building	Municipal	✓				\$1,401,700	All Hazards
	Wentworth Marina (seasonal berth for NCFD boat)		✓				N/A	Human Caused, Hurricane, Lightning Severe Wind, Storm Surge, Winter Weather
Public Works	Public Works Garage	Municipal	✓				In the Rec Center	All Hazards
Bridges	Sawtelle Bridge on primary evacuation route.	State	✓				N/A	Coastal Storms Earthquake, Flood, Human Caused, Hurricane, Sea Level Rise
	New Castle/Rye Bridge (Wentworth) Red listed	State	✓				N/A	Coastal Storms Earthquake, Flood, Human Caused, Hurricane, Sea Level Rise
Causeway	Portsmouth Ave Bridge/connector on primary evacuation route.	State	✓				N/A	Coastal Storms Earthquake, Flood, Human Caused, Hurricane, Sea Level Rise
Shelter	Recreation Center Building	Municipal	✓				\$10,456,200	All Hazards
Warning	Seabrook Siren (behind the Library)	State	✓				N/A	Human Caused, Hurricane, Severe Wind
Water & Sewer Infrastructure	Culverts for water flow	Municipal		✓			Varies	Coastal Storm, Flood, Human Caused, Hurricane
	Sewer Pump Stations (3 municipal Steamboat Lane, Qtrdeck lane and River Road)	Municipal		✓			\$303,600	Coastal Storm, Flood, Human Caused, Hurricane, Sea Level Raise
	Breakwater (Ft. Stark) (wave mitigation)	State			✓		N/A	Coastal Storm, Flood, Hurricane, Sea Level Rise
	Breakwater at New Castle Commons jetty and foot bridge. (Jetty is state owned and bridges is town owned)	State			✓		N/A	Coastal Storm, Flood, Hurricane, Sea Level Rise
Schools	Trefethen Elementary School	Municipal			✓		\$2,863,700	All Hazards

Inventory of Critical Facilities and Assets New Castle, NH								
Facility	Name	Owner	Category 1	Category 2	Category 3	Category 4	Assessed Value	Hazards Addressed
			✓	✓	✓	✓		
High Population Areas	Wentworth by the Sea	Private			✓		\$61,334,700	Coastal Storm, Flood, Human Caused, Hurricane
	Great Island Common				✓		\$10,456,200	Coastal Storm, Flood, Human Caused, Hurricane
Postal Service	U.S. Post Office	Federal			✓		\$148,800	All Hazard
	Postal Annex at Wentworth Development	Federal			✓		Part of Wentworth	All Hazards
Recreation areas	Great Island Common	Municipal			✓		\$10,456,200	Coastal Storm, Flood, Human Caused, Hurricane, Lightning, Severe Wind, Sea Level Rise
	Fort Stark State Park	State			✓		\$5,477,700	Coastal Storm, Flood, Human Caused, Hurricane, Lightning, Severe Wind, Sea Level Rise
	Fort Constitution State Park	State			✓		\$3,246,400	Coastal Storm, Flood, Human Caused, Hurricane, Lightning, Severe Wind, Sea Level Rise

Chapter 5 CAPABILITY ASSESSMENT

The following table lists the current policies and regulations adopted by the Town of New Castle that protect people and property from natural and man-made hazards. Below is a summary list of these policies and programs.

Integration of Mitigation Priorities into Planning and Regulatory Tools

Many of the existing regulations as noted above can and should be regularly reviewed. This review process can lead to revisions that will incorporate mechanisms to assist in the implementation of the hazard mitigation priorities as defined in this *Plan*. This review should continue to be a priority of the New Castle Selectmen and Planning Board and will likely include yearly requests in the annual budget process. Moreover, as suggested in the onset of this document, this *Plan* is a planning tool to be used by the Town of New Castle, as well as other local, state, and federal governments, in their effort to reduce future losses from natural and/or man-made hazardous events before they occur. That being said, the New Castle Planning Board also has the authority, under RSA 674:2 to incorporate this Plan as a new section of the New Castle Master Plan. This integration would serve well for any future zoning updates that relate to hazard mitigation, and for the future implementation of the hazard mitigation priorities as defined in this *Plan*.

Under the Prioritized Mitigation Projects *Action Plan* (found in Chapter 6), all parties listed under the Responsibility/Oversight category shall also review this listing annually and consider the listed (and updated) mitigation projects within their annual budget requests.

Type of Existing Protection	Description	Responsibility	Effectiveness (Poor/Avg/Exc.)	Improvements or Changes Needed
Emergency Operations Plan	The Town maintains an EOP that meets the recommendations by the NH Homeland Security Emergency Management. This plan identifies the response procedures and capabilities of the Town of New Castle in the event of a natural or man-made disaster.	Emergency Management Director (EMD)	Excellent	Update in 2026
National Flood Insurance Program Ordinance	Floodplain Ordinance applies to all lands designated as special flood hazard areas by FEMA. Building Inspector reviews all building permit applications for new construction or substantial improvements.	Planning Board / Building Inspector	Excellent	Review annually
Town-Adopted Building Codes	Regulates construction of buildings, per State and Federal standards, to set a minimum standard of protection for building occupants. All commercial and 1 & 2 family construction.	Building Inspector	Excellent	Review annually
Wetlands Ordinance	Enacted to regulate the uses of lands subject to standing water or extended periods of high-water table.	Planning Board / Code Enforcement Officer	Excellent	Review annually
Sensitive Area Overlay Zone	Development proposals are reviewed when submitted for compliance with this ordinance overlay and ensures development will not happen in areas of flood impact.	Planning Board / Code Enforcement Officer	Excellent	Review annually
25-year storm drainage plans.	Subdivision and Site Plan proposal must include 25-year storm drainage plan in order to meet best management practice requirements.	Planning Board	Average	MS4 is not required unless the Town's census data goes over 1,000,

Type of Existing Protection	Description	Responsibility	Effectiveness (Poor/Avg/Exc.)	Improvements or Changes Needed
Culvert/Stormwater Management Plan	The Conservation Commission and Road Agent monitor and evaluate culvert and stormwater effectiveness to ensure water flow is maintained.	Road Agent / Conservation Commission	Average	Review annually
Emergency Back-up Power	The Public Safety Building, Town Hall, Public Works and Recreation Center all have emergency back-up generators.	Department Heads	Excellent	Investigate installation of generator at Elementary School (sprinklers are prone to freezing with no power).
Emergency Brochure	The town provides emergency brochures in public places. This brochure is updated annually to ensure citizens know of the best possible way to respond to a hazard situation.	EMD	Excellent	Update annually
Police and Fire Mutual Aid and Training	The Fire Department is a member of Seacoast Chief Fire Officers Mutual Aid and the Police Department maintains mutual aid agreements with surrounding communities. Both Departments train and participate in exercises.	Fire Chief / Police Chief	Excellent	Include Inter-department training and exercises with DPW.
School Emergency Response Plan	The New Castle Trefethen School Emergency Response Plan identifies the procedures for events that occur during school and off-hour. School staff and town responders train and exercise the plan.	School Principal	Excellent	Update annually
Master Plan	The Master Plan serves as a guiding document for future development in New Castle; and it serves as the guiding document to assist the Planning Board as it updates the Town Zoning Subdivision Regulations	Planning	Excellent	Update in 2022

*Effectiveness terms are defined as:

Poor: Outdated and/or ineffective and needs to be reviewed/updated.

Average: Meets minimum requirements and may require potential reviews/updates.

Excellent: Regulations meets all requirements and requires no reviews/updates.

N/A: Not applicable to rate effectiveness because the Town does not currently participate in the program.

Chapter 6 MITIGATION PROJECTS

Hazard Identification

The Committee utilized the *Hazard Identification Worksheet*, as shown in Appendix B, to identify potential hazards, the historical occurrence, locations, assets at risk and the probability of each hazard. The results of this process can be found in Chapter 3.

Problem Statements

From the Hazard Identification process the Committee developed a list of Problem Statements for each Hazard (see Appendix B). Based on the hazards and risks within the town, the Committee summarized the ‘problems’ associated for every hazard identified. These problem statements allowed the Committee to identify mitigation alternatives during the project identification step described below.

Goals Identified

During the 2022 update, the Committee reviewed the 2016 New Castle Hazard Mitigation Plan goals and made only minor revisions. The Goals were not modified for any substantial content, as there has not been any substantial change in development

Project Identification

Using the *Mitigation Project Identification Worksheet* (see Appendix B) as a guide, the Committee members identified mitigation projects for each problem Statement. Specific objectives included: Prevention, Property Protection, Public Education, Natural Resource Protection, Emergency Services and Structural Projects. In total, there were 21 projects identified.

This process resulted in the *Mitigation Project Identification Matrix*. For illustrative purposes the table below is an excerpt from the *Matrix* included in Appendix B. In this *Matrix*, the committee was able to determine a basic benefit/cost by using the STAPLEE method. For each project identified, the committee considered the STAPLEE Criteria (Social, Technical, Administrative, Political, Legal, Economic and Environmental) to guide their decision in prioritizing the projects. One component of STAPLEE is the Economic criteria which aided the committee in determining whether the benefits outweigh the costs.

Mitigation Project Identification Matrix									
Hazard	Problem Statement	Projects <i>Prevention /Property Protection/ Public Educ./ Nat.Resources /Emerg.Serv / Structural</i>	Social	Technical	Administrative	Political	Legal	Economic	Environment
Flood	Heavy and prolonged rain events cause flood damage to roads and culverts and bridges and has the potential for residential flooding.	Continue enforcement of National Flood Insurance Program (NFIP) regulations and educate the public on the NFIP program.	+	+	+	+	+	+	+

Completed Projects since 2016

The Town of New Castle completed the earlier version of this plan in 2016. Since that time the town has completed several mitigation projects and those are listed in Appendix B. In addition, the Committee added new projects to the Mitigation Action Plan, all of which are included in the Action Plan. The 'Mitigation Project Status Crosswalk' Table in the Appendix B describes what projects were completed, deleted, reworded or continued.

2022 Prioritized Mitigation Projects:

In 2022, each committee member reviewed the updated list of Mitigation Projects. After careful evaluation, the committee ranked the projects by voting for half of the projects. The projects that received the most votes was ranked as the highest priority and the projects receiving the least amount of votes received the lowest priority. (See Prioritized Mitigation Projects in Appendix B.) The committee was able to determine a basic benefit/cost by using the STAPLEE method. For each project identified, the committee considered the STAPLEE Criteria (Social, Technical, Administrative, Political, Legal, Economic and Environmental) to guide their decision in prioritizing the projects. The prioritized projects are identified in the Mitigation Action Plan.

There have been no significant changes to mitigation priorities for the Town of New Castle. The Town has not experienced any changes in resources, new hazard impacts, or development patterns that merit changes to mitigation priorities. The Hazard Mitigation Committee identified new projects as described below and prioritized them as discussed above.

Incorporating Mitigation into Local Planning

In order for the requirements of this plan to be effective, it is essential that the Town of New Castle incorporate the strategies and actions into its planning process. Educating employees working within the Town Agencies along with members of the various Boards on the provisions of the plan is critical for ensuring that disaster preparedness and risk mitigation become part of their planning process when holding discussions, making decisions, and developing plans and Standard Operating Procedures (SOPs). As noted above, information outreach is a high priority action item that will impact more than just Town employees and Board members. Since interested citizens attend various Town meetings where decisions are made, having a community base that understands the importance of disaster mitigation planning will also assist in ensuring that future plans and actions integrate the requirements found in this plan.

The Board of Selectmen will instruct Town Department Heads to review their SOPs and ensure that where appropriate, the requirements of this plan are integrated into those procedures. They will also coordinate with both the Zoning Board and the Planning Board to ensure that risk mitigation planning continues to be a part of their recommendation/decision process in order to fulfill the goals and objectives outlined in this plan.

Since the last update of this Plan in 2016, the Town incorporated Hazard Mitigation Planning into the following documents:

- New Castle Emergency Operations Plan (EOP) – The EOP is designed to allow the Town to respond more effectively to disasters as well as mitigate the risk to people and property. The EOP was updated in 2020 and was reviewed to ensure that where appropriate, specific mitigation actions outlined in the HMP were also addressed in the EOP.

Mitigation Action Plan

The mitigation projects are compiled in the Mitigation Action Plan found on the following page, which identifies Responsibility, Funding, Time frame, Hazards Addressed and the Priority for each mitigation project.

MITIGATION ACTION PLAN

The following is the completed list of projects, recommended by the Committee. The following action plan identifies Responsibility, Funding and a Time frame for the mitigation projects for each objective. The actions will begin as soon as the plan is approved and the community is eligible for funding, unless otherwise stated, and will be completed as noted in the implementation date column in the table below.

Mitigation Action Plan – New Castle, NH						
Mitigation Action	Responsibility/ Oversight	Funding/ Support	Timeframe*	Hazards Addressed	Estimated Cost	Priority
1. Advocate the importance and elevation of the New Castle/Rye Bridge project and the Rt. 1B causeway (i.e. congressional support, town list serve mailing list, reach out to stakeholders, NH DOT commissioners, a quick 5 minute video with town/school partners.)	Board of Selectmen/ EMD / DPW Director / State Rep	Staff Time / Town Budget	Medium	Coastal Storms, Flood, Hurricane, Sea Level Rise	\$5,000 - \$10,000	High
2. Ensure town buildings have adequate lightning strike protection(s) in place.	Building Department / DPW Director	Town Budget / Grants	Short	Lightning	To Be Determined	High
3. Work with Portsmouth to update Wentworth Road water line and water main for fire suppression activities.	Board of Selectmen / Fire Department / Water Commission	Town Budget / Grants	Short	Drought, Wildfire	TBD	High
4. Evaluate floodproofing and long-term functionality of generators at the 3 sewer lift stations to ensure operability during flood conditions.	DPW / Water & Sewer Commission	Staff Time	Short	Coastal Storms, Flood, Hurricane, Sea Level Rise	Minimal	High
5. Provide adequate Fire, Police and Public Works staffing to cover shifts to fulfill Department obligations.	Board of Selectmen / Department Head	Town Budget / Grants	Short	All Hazards	Est. \$144,700 Full Time Equivalent	High
6. Purchase a cache of traffic control devices (i.e. portable digital road sign, signage, barricades, etc.) and a self-contained trailer to be utilized for emergency response.	EMD	Town Budget / Grants	Medium	All Hazards	\$30,000	High
7. Include Hazard Mitigation information in the Town’s newsletter and social media including information on where imagery and flood maps can be found.	Conservation Commission/Town Administration	Staff Time	Short	Coastal Storms, Flood, Hurricane, Sea Level Rise	Minimal	Medium

Mitigation Action Plan – New Castle, NH						
Mitigation Action	Responsibility/ Oversight	Funding/ Support	Timeframe*	Hazards Addressed	Estimated Cost	Priority
8. Post a link to the NH Coastal Flood Risk Summary (Parts 1 and 2) on the town website.	Town Administration / Conservation Commission	Staff Time	Short	Coastal Storms, Flood, Hurricane, Sea Level Rise	Minimal	Medium
9. Educate Town Residents about the location of Flood Hazard Zones and Storm Surge Inundation Zone through Town Imagery and separate maps.	Conservation Commission/Town Administration	Staff Time	Short Term	Coastal Storms, Flood, Hurricane, Sea Level Rise	Minimal	Medium
10. Conduct an assessment of Critical Facilities to prioritize retrofiting.	DPW / Building Department	Staff Time	Short	Earthquake, Human Caused	Minimal	Medium
11. Evaluate the sea walls on Beach Hill Road near (beach hill is private) and the rip rap on Ocean Street (near Coast Guard beach access), ensure structural integrity in the case of major storms, unusually high tides and potential sea level rise. Continue to advocate sea wall integrity with private property owners along the shoreline and Wentworth A wetland.	DPW / Building Department	Staff Time	Medium	Coastal Storms, Erosion (coastal), Flood, Hurricane, Sea Level Rise	Minimal	Medium
12. Purchase and install a generator at the School, which can also be utilized as a local emergency shelter. (NOTE: no heat, water or phones when power is out, also no busses on site to evacuate people if roads are closed to outside access.)	School Principal / School Board / EMD	School Budget / Grants	Medium	All Hazards	To Be Determined	Medium
13. Investigate Culverts at Pit Lane, Route 1B and all town culverts and stream crossings to allow water to pass and retreat, as well as flood impacts to sewer lift station.	Conservation Commission / Rockingham Conservation District	NH DES	Short	Coastal Storms, Flood, Hurricane, Sea Level Rise	\$50,000	Medium
14. Continue to update emergency plans, safety plans, Continuity of Operations Plan, Cyber Security for the Town and School.	All Department Heads	Town & School Budget / Grants	Short	All Hazards	Varies	Medium
15. Include in the Master Plan Community Survey, a question on priority of mitigation and specifically implementation of projects identified in the Hazard Mitigation Plan and other studies.	Planning Board	Staff Time	Short	All Hazards	Minimal	Medium

Mitigation Action Plan – New Castle, NH						
Mitigation Action	Responsibility/ Oversight	Funding/ Support	Timeframe*	Hazards Addressed	Estimated Cost	Priority
16. The jetty at New Castle Commons should be evaluated for needed repairs.	DPW / Building Department	Staff Time	Medium	Coastal Storms, Erosion (coastal), Flood, Hurricane, Sea Level Rise	Minimal	Medium
17. Emergency communications infrastructure upgrade.	EMD	Grants / CIP	Medium	All Hazards	TBD	Medium
18. Work with the Rockingham Planning Commission and UNH to further evaluate impacts of sea level rise and storm surge and review potential adaptation strategies to help mitigate those impacts (with special attention to access on and off the island).	Town RPC Representative / EMD	Staff Time	Medium	Coastal Storms, Flood, Hurricane, Sea Level Rise	Minimal	Low
19. Develop/install a mechanism for real-time water use monitoring.	DPW Director / Water & Sewer Commissioners	Town Budget / Trust Fund	Short	Drought	\$60,000	Low
20. Update Floodplain Ordinance to include a cumulative substantial improvement back to 5 years.	Planning Board / Conservation Commission	Staff Time	Short	Coastal Storms, Flood, Hurricane, Sea Level Rise	Minimal	Low
21. Implement a multi-hazard public awareness program and provide information on preparedness and mitigation activities.	EMD	Staff Time / EMD Budget	Medium	All Hazards	\$1,000	Low

*Timeframe: Short Term=1 year or less Medium Term=2-3 years Long Term=4-5 years

Chapter 7 ADOPTION, IMPLEMENTATION, MONITORING

Adoption

The New Castle Selectmen by majority vote officially adopted the *New Castle Hazard Mitigation Plan 2021 Update* on February 7, 2022. This plan identified Mitigation Actions to be implemented as outlined in Chapter 6.

Implementation

There were 22 mitigation projects that were prioritized by the Committee. For each project the Committee identified who, when and how they would be implemented. Please refer to the “Action Plan” in Chapter 6 for a description of the timeframe and persons or departments responsible for implementation of the Prioritized Projects.

It will be the future responsibility of the Emergency Management Director to ensure implementation of these Prioritized Projects.

Monitoring & Updates

The *New Castle Hazard Mitigation Plan 2021 Update* must be reviewed, evaluated and updated at least once every five years. The Emergency Management Director is responsible for initiating this review and needs to consult with members of the New Castle Emergency Management Committee, in order to track progress and update the Prioritized List in Chapter 6. The EMD will ensure the following:

- The Hazard Analysis will be evaluated for accuracy.
- Projects completed will be evaluated to determine if they met their objective.
- Projects not completed since the last updated will be reviewed to determine feasibility of future implementation.
- New projects will be identified and included in future updates as needed.
- The public, members of the Committee and State and non-profit agencies, will continue to be invited and involved during this process.
- In keeping with the process of adopting the 2021 New Castle Hazard Mitigation Plan, a public hearing to receive public comment will be held. This will require the posting of two public notices, and where appropriate by posting a notice on the town’s Web Site.
- Updates to the *Plan* may be adopted subsequent to a public meeting or hearing by the New Castle Board of Selectmen.
- Once every five years, the EMD will submit an updated plan to HSEM for approval.

Annual Hazard Mitigation Plan Update, Monitor & Evaluate Schedule and Public Involvement			
Meeting Schedule	Task	Town of New Castle Responsibilities	Public Involvement (neighboring communities)
Annually or as needed	Assess current status of funding for mitigation projects. Discuss any new projects/plans that should be obtained for your community.	Dept. heads and Board of Selectmen to locate and apply for sources of funding and implement the proposed strategies and plans.	Residents, businesses, and neighboring / watershed communities.
Annually or as needed	Meet to discuss the Hazard Mitigation Plan content and any updates needed for the plan	Department Heads or other agencies.	Residents, businesses, and neighboring / watershed communities.
Annually or as needed	Discussion and evaluation of Training Programs and public outreach efforts. New public outreach methods discussed.	Department Heads or other agencies.	Residents, businesses, and neighboring / watershed communities.

CERTIFICATION OF ADOPTION

TOWN OF NEW CASTLE, NH

Date: February 7, 2022

A RESOLUTION ADOPTING THE TOWN OF NEW CASTLE, NH HAZARD MITIGATION PLAN UPDATE 2021

WHEREAS, the Town of New Castle, NH has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of - only those natural hazards profiled in the plan (i.e. *flooding, thunderstorm, severe wind, winter storms, earthquakes, and dam failure*), resulting in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of New Castle, NH, has developed and received conditional approval from the NH Homeland Security and Emergency Management for its Hazard Mitigation Plan Update 2021 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held between September 2021 and November 2021 regarding the development and review of the Hazard Mitigation Plan Update 2021; and

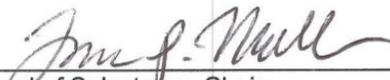
WHEREAS, the Plan specifically addresses hazard mitigation strategies and Plan maintenance procedure for the Town of New Castle, NH; and

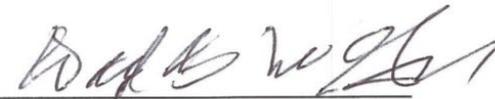
WHEREAS, the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural hazards that impact the Town of New Castle, NH, with the effect of protecting people and property from loss associated with those hazards; and

WHEREAS, adoption of this Plan will make the Town of New Castle, NH eligible for funding to alleviate the impacts of future hazards; now therefore be it RESOLVED by the Board of Selectmen: The Plan is hereby adopted as an official plan of the Town of New Castle, NH

1. The respective official identified in the mitigation strategy of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;
2. Future revisions and Plan maintenance required by 44 CFR 201.6, FEMA and NH HSEM are hereby adopted as part of this resolution for a period of five (5) years from the date of this resolution.
3. An annual report on the progress of the implementation elements of the Plan shall be presented to the Board of Selectmen by April 1st of each year.

Adopted this 7th day of February, 2021 02


Board of Selectmen, Chair


Board of Selectmen


Board of Selectmen

ACRONYMNS

BMP – Best Management Practices
CDBG - Community Development Block Grant
CRS – Community Rating System
DES – Department of Environmental Services
DHS – Department of Homeland Security
DMA – Disaster Mitigation Act
DOT – Department of Transportation
EAP – Emergency Action Plan
EMD – Emergency Management Director
EMPG – Emergency Management Performance Grant
EMS – Emergency Medical Services
EOC – Emergency Operations Center
EOP – Emergency Operations Plan
FEMA – Federal Emergency Management Agency
FIRM – Flood Insurance Related Maps
FMA – Flood Mitigation Assistance Program
GIS – Geographic Information System
HAZMAT – Hazardous Material
HMGP – Hazard Mitigation Grant Program
HSEM – Homeland Security and Emergency Management
ICC – International Code Council
LOMA – Letter of Map Amendment
NFIP – National Flood Insurance Program
NH HSEM – NH Homeland Security and Emergency Management
PDM – Pre-Disaster Mitigation
OEP – Office of Energy Planning
RC&D – Resource Conservation and Development
USGS – United State Geological Survey

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2018 NH State Hazard Mitigation Plan

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

Federal Emergency Management Agency (FEMA)

<http://www.fema.gov>

New Castle, NH Hazard Mitigation Plan 2014

National Flood Insurance Program (NFIP)

<http://www.fema.gov/national-flood-insurance-program>

New Hampshire Coastal Flood Risk Summary – Part I: Science. Prepared for the New Hampshire Coastal Flood Risk Science and Technical Advisory Panel. Report published by the University of New Hampshire, Durham, NH.

NH Coastal Flood Risk Science and Technical Advisory Panel (2020). New Hampshire Coastal Flood Risk Summary, Part II: Guidance for Using Scientific Projections. Report published by the University of New Hampshire, Durham, NH.

NH Homeland Security and Emergency Management (HSEM)

<http://www.nh.gov/safety>

NOAA National Weather Service

<http://www.websites.noaa.gov>

NOAA National Climactic Data Center

<http://lwf.ncdc.noaa.gov/oa/ncdc.html>

APPENDICES

Appendix A
Appendix B
Appendix C

Hazard Mitigation Resources
Documentation of Planning Process
Approval Letter from FEMA

APPENDIX A

Hazard Mitigation Resources

Type	Resource	Link
Hazard Assessment	FEMA Disaster Declarations	https://www.fema.gov/disasters
	National Oceanic and Atmospheric Administration Storm Events Database	https://www.ncdc.noaa.gov/stormevents/
	United States Geological Survey (USGS) Earthquake Archives	http://earthquake.usgs.gov/earthquakes/search
	National Geophysical Data Center / World Data Service (NGDC/WDS): Significant Earthquake Database	https://www.ngdc.noaa.gov/nndc/struts/form?t=101650&s=1&d=1
NESEC	The Northeast States Emergency Consortium (NESEC) to provides free assistance to help local, state, regional and other organizations	http://nesec.org/mapyourrisk/
Funding Possibilities	Hazard Mitigation Grant Program (HMGP)	http://www.fema.gov/hazard-mitigation-grant-program
	Flood Mitigation Assistance Grant Program (FMA)	https://www.fema.gov/flood-mitigation-assistance-grant-program
	Pre-Disaster Mitigation Grant Program (PDM)	http://www.fema.gov/pre-disaster-mitigation-grant-program
	HMA grant programs – eligible activities by grant program	https://www.fema.gov/hazard-mitigation-assistance-mitigation-activity-chart
	Flood Mitigation Assistance (FMA) Grant Program	https://www.fema.gov/flood-mitigation-assistance-grant-program
	U.S. Economic Development Administration: Road and water infrastructure upgrades and potential projects.	http://www.eda.gov/funding-opportunities/
	FEMA; USGS National Earthquake Hazards Reduction: Technical program assistance under grants to states and local jurisdictions	http://www.fema.gov/national-earthquake-hazards-reduction-program
Technical Assistance	State Hazard Mitigation Officers	http://www.fema.gov/state-hazard-mitigation-officers
	USDA, Natural Resources Conservation Service (NRCS) Conservation Technical Assistance	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/cta
Publications	FEMA Region I Webliography	http://www.fema.gov/about-region-i/about-region-i/hazard-mitigation-planning-webliography
	Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards	http://www.fema.gov/media-library/assets/documents/30627?id=6938
	FEMA B-797, Hazard Mitigation Field Book – Roadways	http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4271
	Flood Hazard Mitigation Handbook for Public Facilities	http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=3724
	FEMA 386-6, Mitigation Planning How To #6: Integrating Historic Property & Cultural Resource into Hazard Mitigation Planning	http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=1892
	FEMA P-787 Catalog of FEMA Building Science Branch: Publications and Training Courses (2015)	http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=3184
	Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials (2013)	http://www.fema.gov/media-library/assets/documents/31372
	Local Mitigation Planning Handbook (2013)	https://www.fema.gov/media-library/assets/documents/31598

APPENDIX B

Documentation of Planning Process

Including:

Agendas

Attendance Sheets

Public Notices

Problem Statements

Mitigation Project Status Crosswalk

Problem Statements to Projects

New Castle, NH Hazard Mitigation Plan

September 15, 2021 Committee/Public Meeting AGENDA

1. Introductions
2. Overview of Hazard Mitigation
3. Review/Update Goals
4. Review/Update Hazard History
5. Review/Update Risk Matrix
6. Review/Update Problem Statements
7. Review for next meeting:
 - Update Critical Facilities (Chap. 4)
 - Update Capability Assessment (Chap.5)
 - Distribute Sample Mitigation Projects

Name	Title/Affiliation
Chris Robillard	New Castle Public Works Supervisor
Conni White	New Castle Conservation Commission
David Latchaw	New Castle Trefethen Elementary School
David McGuckin	New Caste Board of Selectmen
Don White	New Castle Police Chief
Jane Hubbard	Hubbard Consulting LLC
Jill Piwoski	NH Homeland Security Emergency Management
Jim Cerny	New Castle Historical Society
Kevin McGee	New Castle Police Officer
Kim Castle	NH Homeland Security Emergency Management
Mark Wooley	New Castle Deputy Fire Chief/Deputy EMD
Russ Bookholz	New Castle Building Inspector
Ted Hartmann	New Castle Fire Chief/EMD

New Castle, NH Hazard Mitigation Plan

September 29, 2021

Committee/Public Meeting AGENDA

1. Update Chapter 4 and 5
2. Update completed mitigation projects
3. Sample Mitigation Projects
4. Review for next meeting:

Identify NEW Mitigation Projects

Name	Title/Affiliation
Chris Robillard	New Castle Public Works Supervisor
Darcy Horgan	New Castle Planning Board
David McGuckin	New Castle Board of Selectmen
Don White	New Castle Police Chief
Jane Hubbard	Hubbard Consulting LLC
Jennifer Rowden	Rockingham Planning Commission
Jim Cerny	New Castle Historical Society
Mark Wooley	New Castle Deputy Fire Chief/Deputy EMD
Russ Bookholz	New Castle Building Inspector
Ted Hartmann	New Castle Fire Chief/EMD

New Castle, NH Hazard Mitigation Plan

October 20, 2021

Committee/Public Meeting AGENDA

1. Identify NEW mitigation projects

2. Review for next meeting:

Prioritize Mitigation Projects
Complete the Mitigation Action Plan

Name	Title/Affiliation
Chris Robillard	New Castle Public Works Supervisor
Conni White	New Castle Conservation Commission
David McGuckin	New Castle Board of Selectmen
Don White	New Castle Police Chief
Jane Hubbard	Hubbard Consulting LLC
Jennifer Rowden	Rockingham Planning Commission
Jim Cerny	New Castle Historical Society
Mark Wooley	New Castle Deputy Fire Chief/Deputy EMD
Russ Bookholz	New Castle Building Inspector
Ted Hartmann	New Castle Fire Chief/EMD

New Castle, NH Hazard Mitigation Plan

November 24, 2021

Committee/Public Meeting AGENDA

1. Review and Confirm Prioritized Projects

2. Complete the Mitigation Action Plan

3. Next Steps:

Review Draft and submit to HSEM

Name	Title/Affiliation
Conni White	New Castle Conservation Commission
David Latchaw	New Castle Trefethen Elementary School
David McGuckin	New Caste Board of Selectmen
Don White	New Castle Police Chief
Jane Hubbard	Hubbard Consulting LLC
Jim Cerny	New Castle Historical Society
Derek Poirier	New Castle Police Officer
Mark Wooley	New Castle Deputy Fire Chief/Deputy EMD
Russ Bookholz	New Castle Building Inspector
Ted Hartmann	New Castle Fire Chief/EMD

The Town placed public notices (shown below) in the town office and post office. These notices reach local residents, business, and organizations.

**PUBLIC NOTICE TO THE
RESIDENTS OF NEW CASTLE, NH**

HAZARD MITIGATION PLAN UPDATE

DATE

9:00am – 10:30pm

Zoom

The Town of New Castle, with the Hazard Mitigation Planning Committee, is currently working to update New Castle's Hazard Mitigation Plan. The Plan identifies potential natural and man-made hazards throughout the town and various projects and/or strategies to mitigate their effects. The President signed into law, the Disaster Mitigation Act of 2000 (DMA), Section 322-Mitigation Planning. It requires all local governments to prepare and adopt jurisdiction-wide hazard mitigation plans as a condition of receiving Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) project grants.

All residents, neighboring communities, businesses, and interested parties are formally invited to review a draft of the Updated Plan and publicly comment on their concerns regarding the Plan. The meeting will be held **DATE**

For more information please contact Jane Hubbard at jhubb_99@yahoo.com.

EMAIL NOTICE:

The Town of New Castle, NH is in the process of updating its Hazard Mitigation Plan. This Plan is a tool to be used by the Town, as well as other local, state and federal governments, to reduce the effects of natural and man-made hazards. Our communities and organizations share common hazards which do not respect governmental boundaries. Therefore, we are personally inviting you to participate in the planning process to update the Town's Hazard Mitigation Plan.

We encourage you to attend the Committee meeting on _____. If you are unable to attend this meeting you may access a copy of the planning documents and/or comment on hazard mitigation issues by emailing Jane Hubbard with Hubbard Consulting LLC at jhubb_99@yahoo.com or at [603-848-8801](tel:603-848-8801).

For further information on mitigation planning, we are attaching a fact sheet. We look forward to hearing your ideas on how to mitigate future hazards for the community.

The above email was sent to the following individuals:

Chief Germain, Portsmouth EMD

Chief Walsh, Rye EMD

The Chamber Collaborative of Greater Portsmouth

Tim Roache, Exec. Dir. Rockingham Planning Commission

NH HSEM State Hazard Mitigation Officer

Jill Piwoski, NH HSEM Field Rep

Samara Ebinger, NFIP Coord., Office of Strategic Initiatives

Hazard	Problem Statements
Coastal Storms & Hazards	1. Storm surge, coupled with astronomical high tides and sea level rise, is a threat to infrastructure and land areas adjacent to the marine environment. 2. Limiting access and closure of Rt. 1B and other roads due to flooding.
Drought	3. Public and Private water sources would be affected in an extended drought. 4. An extended drought increases the probability of fires and may complicate fire suppression in minimal fire protection areas.
Earthquake	5. Critical facilities and utilities, are susceptible to earthquake damage.
Erosion (Coastal)	6. The coastal shoreline is prone to short-term and long-term erosion as a result of hurricanes, storm surge and sea level rise.
Extreme Temperatures	7. Special populations would be at risk during an extended period of extreme heat or cold.
Flood	8. Heavy and prolonged rain events can damage roadway infrastructure and sewer lift stations.
Hail	9. Hail can cause minor to moderate damage to property and people.
Hurricane	10. Power outages from downed utilities, minor structural damage, limited access and flooding can affect the town as a result of a hurricane.
Lightning	11. Populations involved in outdoor activities are at risk from lightning strikes. 12. Critical facilities and utilities (i.e. communication towers) are at risk to lightning strikes.
Public Health Emergencies	13. Public health emergencies have and will occur in New Hampshire; continue to work with the Seacoast Region Public Health Network.
Severe Wind (Tornado /Downburst)	14. Wind damage can result in downed utilities causing power outages and limited access. 15. Populations involved in activities in outdoor recreation areas are at high risk in severe wind events.
Solar Storms	16. Geomagnetic solar storms can impact radio and cell phone, satellite navigation and electric power grid.
Wild/Forest Fire	17. A wildfire in the Town of New Castle is unlikely, but if a crown fire were to occur it could be very damaging to structures abutting wooded areas of Town.
Winter Weather	18. Extended power outages due to winter storms may require activation of a shelter. 19. Special populations would be at risk during an extended period of extreme cold.
Human Caused Hazards	20. Transportation (land or water) related hazardous materials related incidents are likely to occur. 21. Governmental buildings, including schools, are at risk to human caused hazards.

MITIGATION PROJECT STATUS CROSSWALK			
2014 MITIGATION ACTIONS	Completed	2021 Project #	Delete
1. Educate Town Residents of location of Flood Hazard Zones and Storm Surge Inundation Zone through Town Imagery and separate maps.		#9	
2. Include Hazard Mitigation Updates information in the Town's newsletter and social media including information on where imagery and flood maps can be found.		#7	
3. Provide Residents with NFIP information regarding Flood and Storm Surge Zones.		#9	Combine with project #1
4. Work with NHDOT to evaluate the New Castle/Rye Bridge (by Wentworth by the Sea) and the RTE 1B Causeway to evaluate the impacts that storm surge and sea level rise and the risks that these hazards may pose on this main evacuation route/thruway. REWORDED: Advocate the importance and elevation of the New Castle/Rye Bridge project (i.e. congressional support, town list serve mailing list, reach out to stakeholders, NH DOT commissioners, a quick 5 minute video with town/school partners.)		#1	
5. Evaluate the use of controlled burns and/or tree removal in areas delineated to be within the wildfire zones on the Hazards Map.			Delete: No longer consistent with best practices.
6. Work with RPC and UNH to evaluate impacts from sea level rise and storm surge and review potential adaptation strategies to help mitigate those impacts (with special attention to access on and off the island).		#18	
7. Ensure town buildings have adequate lightning strike protection(s) in place.		#2	
8. Investigate Culverts at Pit Lane, Route 1B and all town culverts and stream crossings to allow water to pass and retreat. as well as flood impacts to sewer lift station.		#13	
9. Formalize an annual tree clearing/trimming program in town.			Delete: Town has a brush trimming policy.
10. Evaluate the sea walls on Beach Hill Road near (beach hill is private) and the rip rap on Ocean Street, ensure structural integrity in the case of major storms, unusually high tides and potential sea level rise. Continue to advocate sea wall integrity with private property owners.		#11	HOA got a permit from DES to repair the beach hill.
11. Work with Portsmouth to update Wild Rose and Wentworth Road water lines and water mains for fire suppression activities	Wild rose lane is done.	#3	

Hazard	Problem Statements	Projects <i>BOLD are existing projects from last edition of plan</i>	Social	Technical	Administrativ	Political	Legal	Economic	Environment
Coastal Storms & Hazards	1. Storm surge, coupled with astronomical high tides and sea level rise, is a threat to infrastructure and land areas adjacent to the marine environment.	Educate Town Residents of location of Flood Hazard Zones and Storm Surge Inundation Zone through Town Imagery and separate maps.	-	+	+	+	+	+	+
		Include Hazard Mitigation information in the Town’s newsletter and social media including information on where imagery and maps can be found.	+	+	+	+	+	+	+
		Work with RPC and UNH to evaluate impacts from sea level rise and storm surge and review potential adaptation strategies to help mitigate those impacts.	+	+	+	+	+	+	+
		Include in the Master Plan community survey a question on priority of mitigation and specifically implementation of projects identified in the HMP and other studies.	+	+	+	+	+	+	+
		Post a link to the NH Coastal Flood Risk Summary (Parts 1 and 2) on the town website.	+	+	+	+	+	+	+
	2. Limiting access and closure of Rt. 1B and other roads due to flooding	Work with NHDOT to evaluate the New Castle/Rye Bridge (by Wentworth by the Sea) and the RTE 1B Causeway to evaluate the impacts that storm surge and sea level rise and the risks that these hazards may pose on this main evacuation route/thruway. REWORDED: Advocate the importance and elevation of the New Castle/Rye Bridge project (i.e. congressional	+	+	-	+	+	-	+

Hazard	Problem Statements	Projects <i>BOLD are existing projects from last edition of plan</i>	Social	Technical	Administrativ	Political	Legal	Economic	Environment
		support, town list serve mailing list, reach out to stakeholders, NH DOT commissioners, a quick 5 minute video with town/school partners.)							
Drought	3. Public and Private water sources would be affected in an extended drought.	Implement a multi-hazard public awareness program and provide information on preparedness and mitigation activities.	+	+	+	+	+	+	+
	4. An extended drought increases the probability of fires and may complicate fire suppression in minimal fire protection areas.	Develop/install a mechanism for real-time water use monitoring.	+	+	+	+	+	+	+
Earthquake	5. Critical facilities and utilities, are susceptible to earthquake damage.	Conduct an assessment of Critical Facilities to prioritize retrofiting.	+	+	+	+	+	+	+
Erosion (Coastal)	6. The coastal shoreline is prone to short-term and long-term erosion as a result of hurricanes, storm surge and sea level rise.	Evaluate the sea walls on Beach Hill Road near (beach hill is private) and the rip rap on Ocean Street (near Coast Guard beach access), ensure structural integrity in the case of major storms, unusually high tides and potential sea level rise. Continue to advocate sea wall integrity with private property owners along the shoreline and Wentworth A wetland.	+	+	+	+	+	+	+
		The jetty at New Castle Commons should be evaluated for needed repairs.	+	+	+	+	+	+	+
Extreme Temps	7. Special populations would be at risk during an extended period of extreme heat or cold.	Implement a multi-hazard public awareness program and provide information on preparedness and mitigation activities. <i>REPEAT</i>	+	+	+	+	+	+	+
		Purchase and install a generator at the School, which can also be utilized as a local emergency	+	+	+	+	+	+	+

Hazard	Problem Statements	Projects <i>BOLD are existing projects from last edition of plan</i>	Social	Technical	Administrativ	Political	Legal	Economic	Environment
		shelter. (NOTE: no heat, water or phones when power out, also no busses on site to evacuate people if roads are closed to outside access)							
Flood	8. Heavy and prolonged rain events can damage roadway infrastructure and sewer lift stations.	Investigate Culverts at Pit Lane, Route 1B and all town culverts and stream crossings to allow water to pass and retreat, as well as flood impacts to sewer lift station.	+	+	+	+	+	+	+
		Evaluate floodproofing and long-term functionality of generators at the 3 sewer lift stations to ensure operability during flood conditions.	+	+	+	+	+	+	+
		Update Floodplain Ordinance to include a cumulative substantial improvement back to 5 years.	+	+	+	+	+	+	+
Hail	9. Hail can cause minor to moderate damage to property and people.	See Public education project							
Hurricane	10. Power outages from downed utilities, minor structural damage, limited access and flooding can affect the town as a result of a hurricane.	See generator project							
	11. Critical facilities and utilities, are susceptible to hurricane damage.								
Lightning	12. Populations involved in outdoor activities are at risk from lightning strikes.	See public education							
	13. Critical facilities and utilities (i.e. communication towers) are at risk to lightning strikes.	Ensure town buildings have adequate lightning strike protection(s) in place. Also, see generator project	+	+	+	+	+	+	+

Hazard	Problem Statements	Projects <i>BOLD are existing projects from last edition of plan</i>	Social	Technical	Administrativ	Political	Legal	Economic	Environment
Public Health Emergency	14. Public health emergencies have and will occur in New Hampshire; continue to work with the Seacoast Region Public Health Network.	Provide adequate Fire, Police and Public Works staffing to cover shifts to fulfill Department obligations.	-	+	+	-	+	-	+
Severe Wind (Tornado /Downburst)	15. Wind damage can result in downed utilities causing power outages and limited access.	Purchase a cache of traffic control devices (i.e. portable digital road sign, signage, barricades, etc.) and a self-contained trailer to be utilized for emergency response.	+	+	+	+	+	+	+
	16. Populations involved in activities in outdoor recreation areas are at high risk in severe wind events.								
Solar Storms	17. Geomagnetic solar storms can impact radio and cell phone, satellite navigation and electric power grid.								
Wild/Forest Fire	18. A wildfire in the Town of New Castle is unlikely, but if a crown fire were to occur it could be very damaging to structures abutting wooded areas of Town.	Work with Portsmouth to update Wentworth Road water line and water main for fire suppression activities.	+	+	+	+	+	+	+
Winter Weather	19. Extended power outages due to winter storms may require activation of a shelter.	See generator project							
	20. Special populations would be at risk during an extended period of extreme cold.								

Hazard	Problem Statements	Projects <i>BOLD are existing projects from last edition of plan</i>	S ocial	T echnical	A dministrativ	P olitical	L egal	E conomic	E nvironment
Human Caused Hazards	21. Transportation (land or water) related hazardous materials related incidents are likely to occur.								
	22. Governmental buildings, including schools, are at risk to human caused hazards.	Emergency communications infrastructure upgrade.	+	+	+	+	+	+	+
		Continue to update emergency plans, safety plans, Continuity of Operations Plan, Cyber Security for the Town and School.	+	+	+	+	+	+	+

For purposes of prioritizing the mitigation projects listed in the table below, each committee member should vote for half of the projects (a total of 11 votes in this table) by placing a check mark in the "# of votes" column. ALL OF THE PROJECTS WILL BE PRIORITIZED BASED UPON THE TOTAL NUMBER OF VOTES RECEIVED FOR EACH PROJECT.

PRIORITIZED MITIGATION PROJECTS	# OF VOTES
1. Educate Town Residents about the location of Flood Hazard Zones and Storm Surge Inundation Zone through Town Imagery and separate maps.	4
2. Include Hazard Mitigation information in the Town's newsletter and social media including information on where imagery and flood maps can be found.	5
3. Work with the Rockingham Planning Commission and UNH to further evaluate impacts of sea level rise and storm surge and review potential adaptation strategies to help mitigate those impacts.	2
4. Include in the Master Plan Community Survey, a question on priority of mitigation and specifically implementation of projects identified in the Hazard Mitigation Plan and other studies.	3
5. Post a link to the NH Coastal Flood Risk Summary (Parts 1 and 2) on the town website.	5
6. Advocate the importance and elevation of the New Castle/Rye Bridge project (i.e. congressional support, town list serve mailing list, reach out to stakeholders, NH DOT commissioners, a quick 5 minute video with town/school partners.)	7
7. Implement a multi-hazard public awareness program and provide information on preparedness and mitigation activities.	0
8. Develop/install a mechanism for real-time water use monitoring.	2
9. Conduct an assessment of Critical Facilities to prioritize retrofitting.	4
10. Evaluate the sea walls on Beach Hill Road near (beach hill is private) and the rip rap on Ocean Street (near Coast Guard beach access), ensure structural integrity in the case of major storms, unusually high tides and potential sea level rise. Continue to advocate sea wall integrity with private property owners along the shoreline and Wentworth A wetland.	4
11. The jetty at New Castle Commons should be evaluated for needed repairs.	3
12. Purchase and install a generator at the School, which can also be utilized as a local emergency shelter. (NOTE: no heat, water or phones when power out, also no busses on site to evacuate people if roads are closed to outside access)	4
13. Investigate Culverts at Pit Lane, Route 1B and all town culverts and stream crossings to allow water to pass and retreat, as well as flood impacts to sewer lift station.	4
14. Evaluate floodproofing and long-term functionality of generators at the 3 sewer lift stations to ensure operability during flood conditions.	6
15. Update Floodplain Ordinance to include a cumulative substantial improvement back to 5 years.	1

16. Ensure town buildings have adequate lightning strike protection(s) in place.	7
17. Provide adequate Fire, Police and Public Works staffing to cover shifts to fulfill Department obligations.	6
18. Purchase a cache of traffic control devices (i.e. portable digital road sign, signage, barricades, etc.) and a self-contained trailer to be utilized for emergency response.	6
19. Work with Portsmouth to update Wentworth Road water line and water main for fire suppression activities.	7
20. Emergency communications infrastructure upgrade.	3
21. Continue to update emergency plans, safety plans, Continuity of Operations Plan, Cyber Security for the Town and School.	4

Priority: 0-2 Low 3-5 Medium 6-8 High

8 voters total

APPENDIX C

Approval Letter from FEMA



U.S. Department of Homeland Security
FEMA Region I
99 High Street, Sixth Floor
Boston, MA 02110-2132

FEMA

February 23, 2022

Brian Eaton, State Hazard Mitigation Officer
New Hampshire Department of Safety, Homeland Security and Emergency Management
33 Hazen Drive
Concord, New Hampshire 03303

Dear Mr. Eaton:

As outlined in the FEMA-State Agreement for FEMA-DR-4457, your office has been delegated the authority to review and approve local mitigation plans under the Program Administration by States Pilot Program. Our Agency has been notified that your office completed its review of the Town of New Castle, NH Hazard Mitigation Plan Update 2022 and approved it effective **February 8, 2022** through **February 7, 2027** in accordance with the planning requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended, the National Flood Insurance Act of 1968, as amended, and Title 44 Code of Federal Regulations (CFR) Part 201.

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

The plan must be updated and resubmitted to the FEMA Region I Mitigation Division for approval every five years to remain eligible for FEMA mitigation grant funding.

Thank you for your continued commitment and dedication to risk reduction demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please contact Jay Neiderbach at (617) 832-4926 or Josiah.Neiderbach@fema.dhs.gov.

Sincerely,

**PAUL F
FORD**

Digitally signed by
PAUL F FORD
Date: 2022.02.23
17:55:40 -05'00'

Paul F. Ford
Acting Regional Administrator
DHS, FEMA Region I

PFF:jn

cc: Fallon Reed, Chief of Planning, New Hampshire