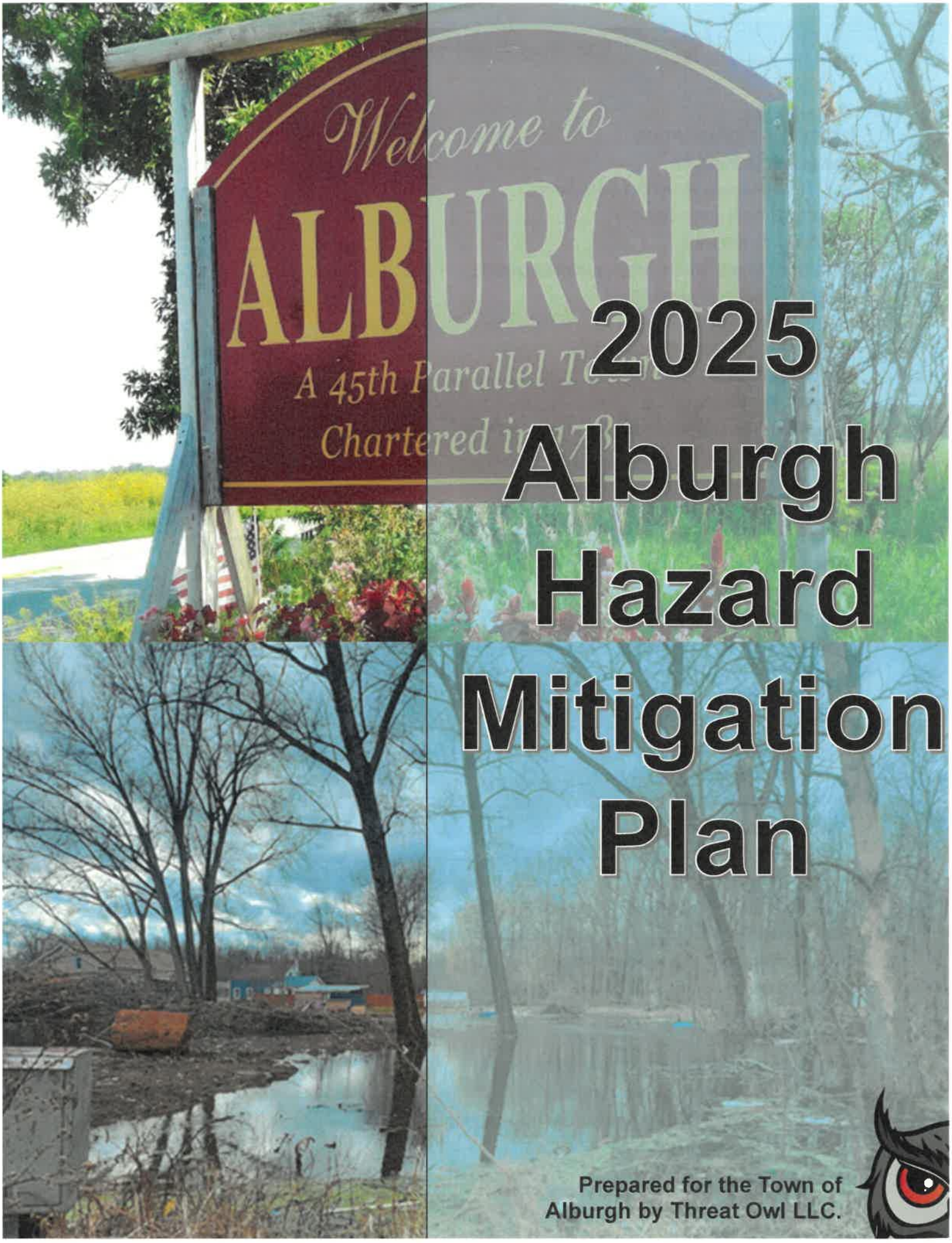

2025 Alburgh Hazard Mitigation Plan

Prepared for the Town of
Alburgh by Threat Owl LLC.

Contents

CERTIFICATE OF ADOPTION

Town of Alburgh, Vermont Selectboard
A Joint Resolution Adopting the 2025 Alburgh Hazard Mitigation Plan

WHEREAS the Alburgh Selectboard and the Village of Alburgh Board of Trustees recognize the threat that natural hazards pose to people and property within the Town and Village of Alburgh; and

WHEREAS Alburgh and the Village of Alburgh has worked with Threat Owl LLC to prepare a multi-hazard mitigation plan, hereby known as the 2025 Alburgh Hazard Mitigation Plan in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS the 2025 Alburgh Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Alburgh from the impacts of future hazards and disasters; and

WHEREAS adoption by the Alburgh Selectboard and the Village of Alburgh Board of Trustees demonstrates a shared commitment to hazard mitigation and achieving the goals outlined in the 2025 Alburgh Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED BY the Alburgh Selectboard and the Village of Alburgh Board of Trustees, THAT:

Section 1. The Alburgh Selectboard and the Village of Alburgh Board of Trustees jointly adopt the 2025 Alburgh Hazard Mitigation Plan.

Section 2. While content related to Alburgh may require revisions to meet the plan approval requirements, changes occurring after adoption will not require Alburgh to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

Town of Alburgh Selectboard

ADOPTED by a vote of 3 in favor and Ø against, and Ø abstaining, this 8th day of December, 2025.

By: Town of Alburgh (print name)
ATTEST: Amanda Costello (print name)
APPROVED AS TO FORM: Amanda Costello (print name)

Village of Alburgh Board of Trustees

ADOPTED by a vote of 3 in favor and Ø against, and Ø abstaining, this 7 day of January, 2026.

By: Village of Alburgh (print name)
ATTEST: Cheryl Dunn (print name)
APPROVED AS TO FORM: Cheryl Dunn (print name)

EXECUTIVE SUMMARY

The Town and Village of Alburgh, hereby referred to as Alburgh, has prepared this Hazard Mitigation Plan to reduce the long-term risks to life, property, and community well-being from natural hazards. This plan serves as a proactive strategy to identify potential vulnerabilities and outline actions the town can take to minimize future impacts.

Hazard mitigation is any sustained effort to reduce or eliminate the effects of disasters before they occur. By focusing on prevention and long-term solutions, the plan strengthens Alburgh's ability to withstand and recover from natural events such as severe storms, flooding, and other weather-related impacts that have historically affected the region.

The development of this plan involved collaboration among local officials, regional partners, and residents. It reflects the town's commitment to building resilience, protecting critical resources and infrastructure, and safeguarding public health and safety. The planning process also ensures that Alburgh remains eligible for federal mitigation funding and disaster recovery assistance.

This plan will be reviewed annually and fully updated every five years, ensuring that it remains a relevant and effective tool to guide community decision-making. Through this ongoing effort, Alburgh continues to invest in a safer, more prepared future for its residents and environment.

PLAN REVIEW AND REVISION SUMMARY

The table below should be utilized to document any review and revision of the plan, including the annual plan maintenance process.

Section(s) Reviewed	Summary of Changes	Person Making Changes	Date of Change(s)

Figure 1- Plan Review and Revision Summary

INTRODUCTION AND PURPOSE

Introduction
The Town and Village of Alburgh, located in the northwestern corner of Vermont along the shores of Lake Champlain, faces a variety of natural and human-caused hazards that can disrupt daily life, threaten public safety, and damage critical infrastructure. Flooding, severe storms, ice events, and other hazards—compounded by the town's unique geography—pose ongoing risks to the community's well-being, economy, and environment.

In response to these challenges, the Town and Village of Alburgh, in partnership with Threat Owl LLC, has developed this Local Hazard Mitigation Plan (LHMP). This plan serves as a proactive tool to help the community anticipate, reduce, and prepare for the impacts of future hazard events. It outlines a path forward for increasing resilience and reducing long-term vulnerability through coordinated, forward-looking strategies.

Purpose
The purpose of this LHMP is to guide the Town and Village of Alburgh in reducing the risks posed by hazards and strengthening the town's ability to protect lives, property, and natural resources. The plan is designed to:

1. Identify Hazards: Provide a comprehensive assessment of natural hazards that could affect Alburgh and evaluate their likelihood and potential impacts.
2. Assess Vulnerabilities: Analyze the exposure of critical infrastructure, essential services, environmental assets, and at-risk populations to identify areas of greatest concern.
3. Engage Stakeholders: Foster collaboration among local officials, emergency services, regional agencies, residents, and businesses to ensure shared understanding and commitment to mitigation.
4. Develop Mitigation Strategies: Recommend actionable, community-specific mitigation strategies that reduce risk, improve preparedness, and build long-term resilience.
5. Integrate with Planning Efforts: Align hazard mitigation with existing planning processes, including land use, development, emergency management, and infrastructure planning.
6. Access Funding Opportunities: Position the Town to pursue federal, state, and private funding sources to support the implementation of priority mitigation actions.
7. Monitor and Update: Establish a process for tracking progress, evaluating effectiveness, and updating the plan as conditions, data, and community needs evolve.

In summary, the Local Hazard Mitigation Plan serves as a roadmap for building a safer, more resilient community, by systematically identifying risks, reducing vulnerabilities, and enhancing our collective capacity to withstand and recover from hazardous events. By working together and taking proactive measures today, we can better protect the well-being and prosperity of current and future generations.

COMMUNITY PROFILE

Location and Geography
Alburgh is located in northwestern Vermont within Grand Isle County. Uniquely situated on a peninsula that extends into Lake Champlain, the town is bordered by the Canadian province of Québec to the north and is connected to mainland Vermont and New York by bridges and causeways. Alburgh's geography contributes to its distinct character, shaped by both its lakeshore setting and rural landscape. The town covers approximately 48 square miles, with about one-third consisting of water. U.S. Route 2 is the primary transportation corridor, linking the town to nearby communities such as Swanton, Isle La Motte, and Rouses Point, New York.

Topography and Land Use
Alburgh's landscape is relatively flat to gently rolling, with low-lying terrain that makes it especially susceptible to flooding and shoreline erosion. Much of the land is used for agriculture, open fields, or low-density residential development, while extensive shoreline areas are occupied by seasonal and year-round homes. Forested areas and wetlands are interspersed throughout the town, contributing to habitat value and flood storage. Large portions of the shoreline are privately owned, with some areas vulnerable to lake level fluctuations and ice damage.

Water Resources
Water is a defining feature of Alburgh's geography. The town is surrounded on three sides by Lake Champlain, which influences local ecology, recreation, transportation, and hazard exposure. Numerous wetlands, small streams, and drainage corridors flow into the lake. While the proximity to water offers scenic and recreational benefits, it also increases the town's vulnerability to flooding, storm surge, and ice-related hazards.

Climate
Alburgh experiences a temperate northern climate, with cold winters, moderate summers, and significant seasonal variability. Snowfall is common in the winter, while spring and fall often bring rainstorms and wind events. Lake Champlain moderates temperature extremes but can amplify local weather effects, particularly wind and ice storms. Like much of Vermont, Alburgh faces unpredictable weather patterns and the increasing influence of climate change.

Community Layout
Alburgh's community layout is dispersed, with a village center located near the junction of U.S. Route 2 and VT Route 129, serving as the civic and administrative hub. This area includes the Town Office, Post Office, Fire Department, Library, and other municipal facilities. Residential development is spread throughout the town, with higher densities along lakeshore roads and historic corridors.

Education and Schools
Alburgh Community Education Center (ACEC) serves local students from pre-kindergarten through eighth grade. The school also functions as the town's designated emergency shelter and is equipped with backup power, reinforcing Alburgh's preparedness capacity during prolonged outages or hazard events.

Public Services and Emergency Preparedness
The Town Office serves as the Local Emergency Operations Center (LEOC) during emergencies, coordinating response efforts in collaboration with the fire department, school personnel, and regional emergency management partners. The Alburgh Volunteer Fire Department and Grand Isle County Sheriff's Department provide emergency response and public safety services.

Demographics

- **Population & Age**
  Alburgh is home to approximately 2,100 year-round residents. The town also hosts a large seasonal population during warmer months, which significantly increases the number of people present and the demand on infrastructure and emergency services.

The median age in Alburgh is higher than the state average, with a significant proportion of residents aged 55 and older.

- **Households & Housing**
  Alburgh has over 1,000 housing units, a substantial portion of which are seasonal or second homes. The community has a mix of owner-occupied and rental housing, with a growing number of year-round residences replacing seasonal camps along the lake.
- **Income & Poverty**
  Median household income in Alburgh is estimated at approximately $65,000–$72,000 (based on recent ACS data), with poverty levels slightly above the state average in some years. Seasonal employment and limited access to regional services can contribute to economic vulnerability.

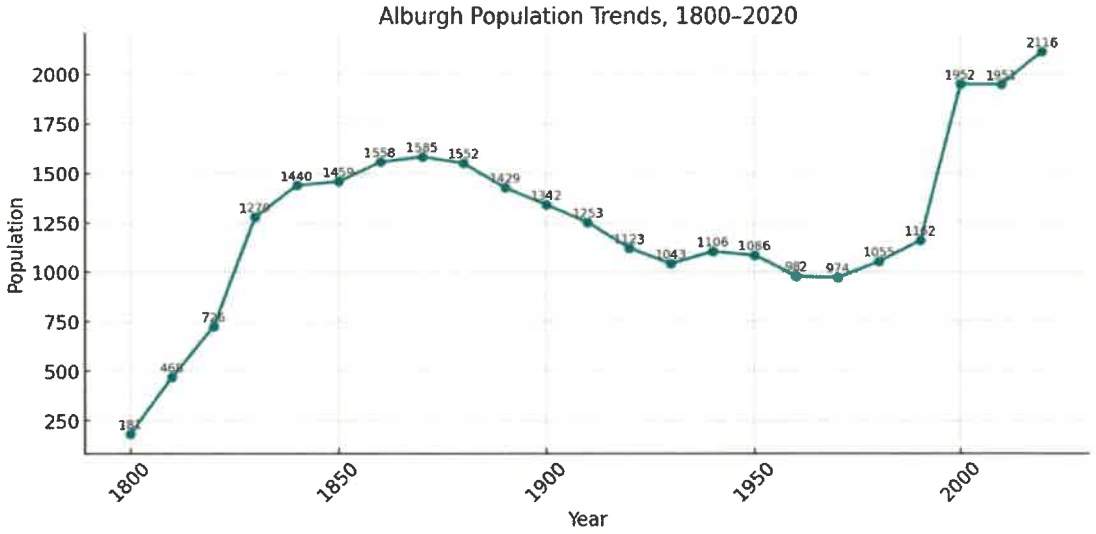

Figure 2 - Alburgh Population Trends

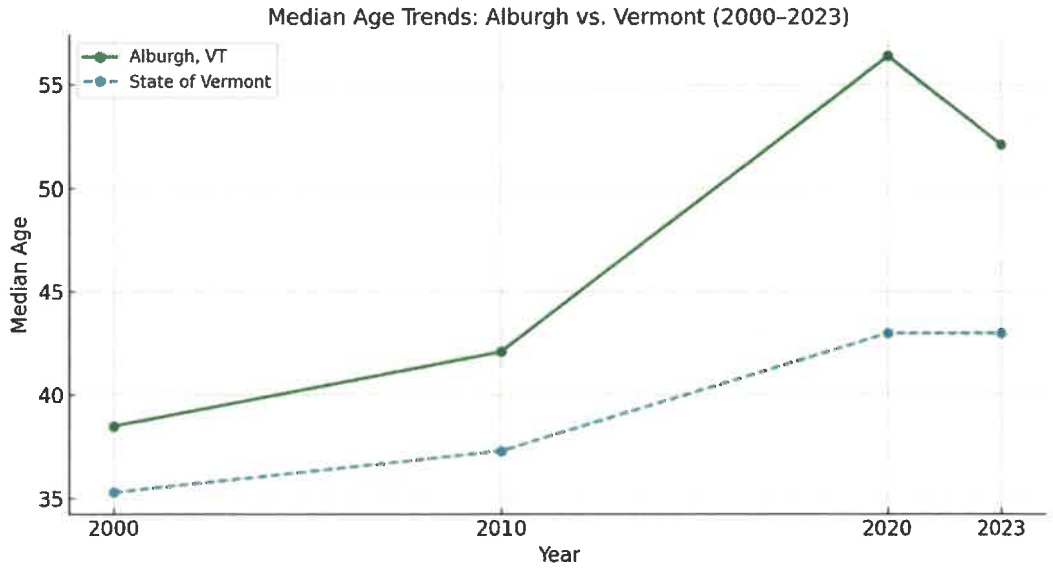

Figure 3 - Median Age Trends: Alburgh vs. Vermont

PLANNING MILESTONES, AREA, AND RESOURCES

Planning Milestones
The Town and Village of Alburgh, in partnership with Threat Owl LLC, undertook the development of the municipality's first Local Hazard Mitigation Plan (LHMP). Threat Owl LLC managed the overall planning process, including data collection, risk assessment, and development of the Plan. The Town and Village of Alburgh led local coordination efforts, including stakeholder engagement, public outreach, participation in planning meetings, review of community-specific data, and feedback on the draft Plan. Their collaboration ensured the LHMP reflects both local priorities and compliance with state and federal guidance. Figure 4, below, outlines the planning milestones that guided the development of this first-time Local Hazard Mitigation Plan.

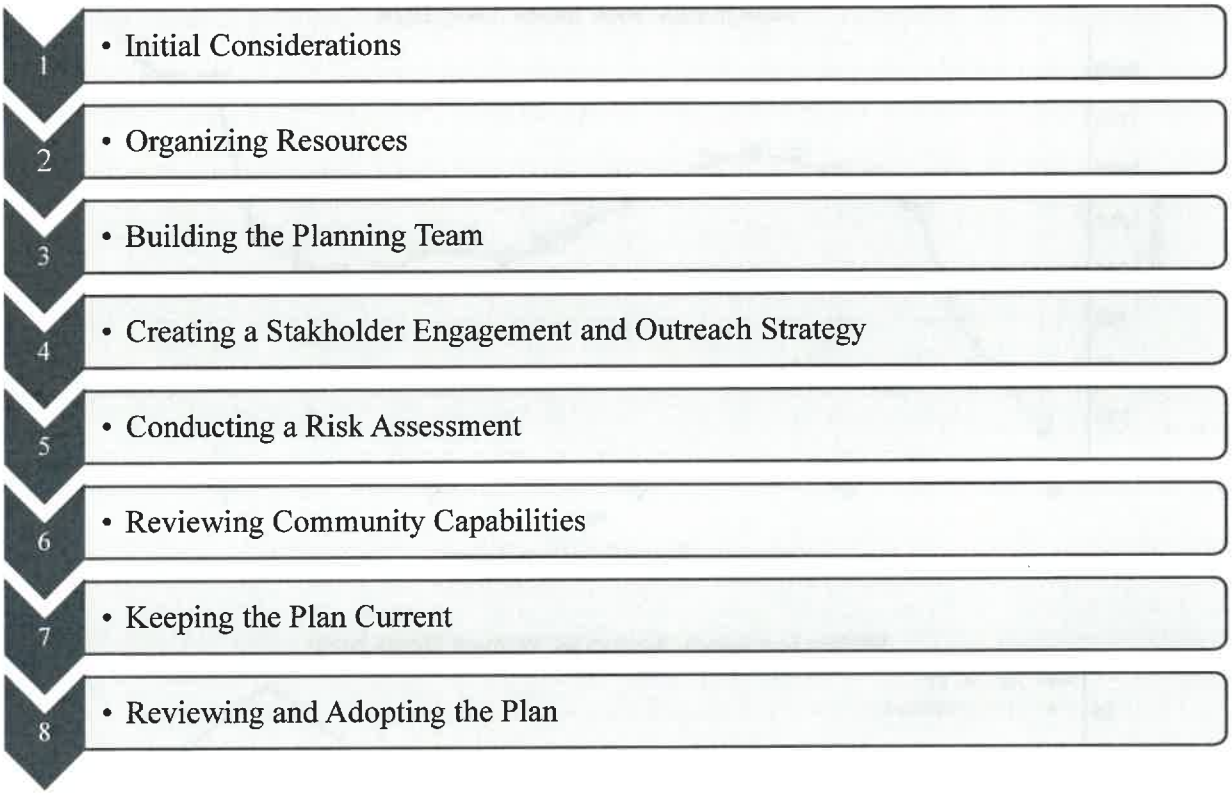

Figure 4 - Planning Process Overview

Initial Considerations
The 2025 Local Hazard Mitigation Plan represents the first-ever hazard mitigation plan developed for the Town and Village of Alburgh. Prior to this effort, Alburgh did not have a formal, FEMA-compliant hazard mitigation plan in place. In creating this plan, the Town and Village of Alburgh worked closely with Threat Owl LLC to gather and analyze hazard data, assess local vulnerabilities, and engage community stakeholders. Because no previous plan existed, this process required building foundational knowledge, compiling historical and current hazard information, and identifying priority mitigation strategies from the ground up. Like many rural Vermont communities, Alburgh has experienced gradual changes in population, housing trends, infrastructure investment, and environmental stressors. While these changes have not significantly altered the town's core vulnerability profile, they were carefully considered and incorporated into this plan's risk assessment and strategy development. A key consideration in the creation of this plan is the increasing influence of climate change, which is altering the frequency, intensity, and distribution of natural hazards across the region. The 2025 Local Hazard Mitigation Plan includes a forward-looking focus on climate impacts and integrates adaptive strategies aimed at reducing long-term risks and enhancing community resilience.

Organizing Planning Resources
Hazard mitigation planning, and emergency management planning in general, does not occur in a vacuum. The 2025 Alburgh Hazard Mitigation Plan supports and is supported by other local plans and policies. Local, regional, state, and federal plans, studies, data, and technical information are important inputs for the planning process. Figure 5, below, outlines the various documents that were reviewed, referenced, and incorporated into the planning process.

Plan / Study / Data / Technical Information	Review and Incorporation
2024 – 2032 Draft Town Plan	The chapters reviewed in depth include existing land use, land use zoning districts, public facilities and services, preservation plan, and flood resilience. The plan was referenced throughout the planning process.
2024 Local Emergency Operations Plan	The entire plan was reviewed and referenced throughout the planning process.
Alburgh Land Use and Development Regulations	Reviewed land use and development regulations. Reviewed subdivision regulations, and flood hazard bylaws.
2013 Bridges and Roads Standards	This document was referenced during the capabilities and mitigation projects meetings.
2025 Emergency Relief Assistance Fund (ERAF) Score	This data was referenced throughout the planning process.
Northwest Regional Planning Commission Website	Various resources, publications and data posted on the website were referenced throughout the planning process.
Natural Resources Atlas	This tool was referenced throughout the planning process.
Vermont Dam Inventory	This tool was referenced during the hazard profile chapter development.
Vermont Agency of Natural Resources	The VANR map hub was referenced during the hazard profile chapter development.
State of Vermont Hazard Mitigation Plan	The entire plan was reviewed and referenced throughout the planning process.
State of Vermont Hazard Mitigation Website	Various resources, publications and data posted on the website were referenced throughout the planning process.
FEMA Local Mitigation Planning Handbook	The entire handbook was reviewed and referenced throughout the planning process.
FEMA Flood Insurance Study	The FEMA Flood Insurance Study was referenced during the hazard profile, mitigation actions and town capabilities chapters development.
FEMA Local Mitigation Plan Review Tool	The entire review tool was reviewed and referenced throughout the planning process.
FEMA Disaster and Other Declarations Website	The data posted on the website was referenced during the hazard profile chapter development.
FEMA Risk Mapping, Assessment and Planning (Risk Map) Products	The FEMA Risk Maps were referenced during the hazard profile and town capabilities chapters development.
FEMA Repetitive Loss Structure Website	The FEMA Repetitive Loss database was referenced during the hazard profile and town capabilities chapters development.

NOAA Storm Events Database Website	The data posted on the website was referenced during the hazard profile chapter development.
U.S. Census Bureau Community Profile Website	The data posted on the website was referenced during the community profile chapter development.
FEMA Disaster Declarations Website	A database of declared disasters in Washington County, Vermont.

Figure 5 - Planning Resources

BUILDING THE PLANNING TEAM

Bringing together a diverse and inclusive planning team is an essential task in the planning process. The Town actively invited and involved various stakeholders, including residents, local business, and local and regional government agencies in the planning process. Figure 6, below, details individuals that were members of the 2025 planning team, or stakeholders of the planning process.

Name	Affiliation	Role
Shawna Pinette	Threat Owl LLC.	Planning Team – Plan Developer
Rodney James	Alburgh/Village Highway	Planning Team – Member
Danielle James Choiniere	Alburgh Planning Commission	Planning Team – Member
Margret Brescia	Alburgh Treasurer	Planning Team – Member
Danielle James Choiniere	Alburgh Town Clerk	Planning Team – Member
Josie Henry	Interim Town Administrator (former)	Planning Team – Member
Alex Goddard	Alburgh/Village Emergency Management Director and Health Officer (former)	Planning Team – Member
Amanda Costello	Alburgh Town Administrator and Alburgh/Village Emergency Management Director	Planning Team – Member
Elliot Knight	Alburgh Selectboard and Alburgh/Village Health Officer	Planning Team – Member
Ron Kumetz; Chuck Pease	Alburgh/Village Fire Department / EMS	Planning Team – Member
Sandy Ladd	Alburgh/Village Rescue	Planning Team – Member
Pete Brescia	Alburgh/Village Rescue and Emergency Management Director	Planning Team – Member
Cheryl Dunn	Village Clerk / Treasurer	Planning Team – Member
Ray Allen	Grand Isle County Sherrif's Dept. (Alburgh/Village)	Planning Team – Member
Patricia Vincent	Shelburne Dispatch	Planning Team – Member
Shaun Coleman	Northwest Vermont Regional Planning Commission	Planning Team – Member
Wendy Savage	Alburgh Community Education Center	Planning Team – Member

Name	Affiliation	Role
North Hero		Planning Team – Stakeholder (Neighboring Communities)
Ise La Motte		Planning Team – Stakeholder (Neighboring Communities)
Swanton		Planning Team – Stakeholder (Neighboring Communities)
Grand Isle		Planning Team – Stakeholder (Neighboring Communities)
Vermont Electric Co-Op		Planning Team – Stakeholder (Energy Lifeline)
Islands in the Sun Senior Center		Planning Team – Stakeholder (Food, Water, Shelter Lifeline)
Vermont Cares		Planning Team – Stakeholder (Health and Medical Lifeline)
Senior Meals on Wheels		Planning Team – Stakeholder (Food, Water, Shelter Lifeline)
Support and Services at Home		Planning Team – Stakeholder (Health and Medical Lifeline)
Visiting Nurse VT and NH		Planning Team – Stakeholder (Health and Medical Lifeline)

Figure 6 - Planning Team Members and Stakeholders

Planning Team Roles and Responsibilities

- **Planning Team Member:**
  - Attend planning meetings
  - Develop and review drafts of the plan
  - Inform the risk assessment
  - Develop the mitigation goals and strategies

- **Planning Team Stakeholder:**
  - Advise the planning team on specific topics (areas of expertise)
  - Increase awareness of hazard mitigation to area of expertise (e.g., shelters)
  - Help the planning team members understand vulnerability in the community
  - Share pertinent information and data

STAKEHOLDER ENGAGEMENT AND OUTREACH

To ensure the 2025 Alburgh Local Hazard Mitigation Plan reflects the priorities, concerns, and knowledge of the community, a comprehensive stakeholder engagement and public outreach process was conducted in accordance with FEMA's Local Mitigation Planning requirements. Given that this is Alburgh's first Hazard Mitigation Plan, significant emphasis was placed on building awareness, encouraging participation, and fostering collaboration throughout the planning process.

The Planning Team worked together to engage local officials, emergency responders, residents, regional partners, and other stakeholders through planning meetings, outreach materials, and opportunities for public comment. Feedback received helped shape the risk assessment, identify vulnerabilities, and prioritize mitigation strategies that align with community values.

Figure 7, below, summarizes the actions taken to:

- Solicit stakeholder involvement
- Incorporate community feedback
- Offer public comment opportunities
- Coordinate with regional and state agencies
- Document the full engagement and outreach process

Requirement	Action Taken
Public involvement in planning process	✅ Public meetings were held and open to the community
Outreach through public notice	✅ Notices were posted on the Town website, Town Office bulletin board, and Post Office
Stakeholder and planning team notification	✅ Planning Team and key stakeholders were invited and provided with meeting slides and minutes
Opportunity for public comment/input	✅ A community survey was distributed to collect feedback on hazard concerns and priorities
Incorporation of feedback into plan	✅ Survey and meeting feedback were used to inform hazard profiles and mitigation actions
Coordination with other agencies and regional entities	✅ Input from Northwest Vermont Regional Planning Commission, State agencies, and others was included
Documentation of engagement process	✅ Records of notices, meeting agendas, and participation were maintained for plan documentation

Figure 7 - Stakeholder Engagement and Outreach Process

Stakeholder input directly informed the hazard identification process, vulnerability assessments, and the development of mitigation strategies. This inclusive process helped ensure that the updated plan reflects both technical data and local knowledge, including the needs of vulnerable populations, seasonal residents, and underserved groups.

PLAN DEVELOPMENT PROCESS

Updating a hazard mitigation plan is a comprehensive process that involves several key steps to ensure the plan remains relevant and effective. Figure 8, below, is a record of how the Local Hazard Mitigation Plan was developed:

#	Action Name	Date	Action Details (Goal, location, etc.)	Public/Stakeholder Opportunity
1	Request for Proposal (RFP) Published	12/27/23	Town public RFP soliciting proposals to update LHMP.	N/A
2	RFP Submitted	12/27/23	Threat Owl submitted a response to RFP	N/A
3	RFP Awarded	01/08/24	Proposal awarded to Threat Owl LLC	Yes – public meeting
4	LHMP Contract Agreement	02/12/24	Threat Owl LLC and Alburgh entered into a contract	N/A
5	Planning Team Developed	04/09/24	Threat Owl LLC and Alburgh developed planning team	N/A
6	Stakeholder Engagement and Outreach Plan Developed	04/09/24	Threat Owl LLC and Alburgh developed a stakeholder engagement and outreach plan	N/A
7	Hazard Mitigation Kickoff Meeting	08/01/24	Threat Owl facilitated hazard mitigation kickoff meeting	Yes – public meeting Planning Team and Stakeholders Attended
8	Hazard Mitigation Kick Off Meeting Notes	08/01/24	Threat Owl developed and distributed meeting notes	N/A
9	Hazard Assessment Review Meeting	09/26/24	Threat Owl facilitated hazard review / risk assessment meeting	Yes – public meeting Planning Team and Stakeholders Attended
10	Hazard Assessment Review Meeting Notes	09/26/24	Threat Owl developed and distributed meeting notes	N/A
11	Hazard Mitigation Survey	10/05/24	Threat Owl developed and sent survey to community for posting	N/A
12	Grand Isle Regional Emergency Management Committee Meeting	10/07/24	Threat Owl provided a briefing on the Alburgh LHMP planning process to attendees	Yes – public meeting Public comment received and implemented Planning Team and Stakeholders Attended
13	Town Capabilities Review Meeting	12/11/24	Threat Owl facilitated town capabilities meeting	Yes – public meeting Planning Team and Stakeholders Attended
14	Hazard Mitigation Sync Meeting	05/02/25	Threat Owl provided an update to the new LHMP POCs	N/A
15	Hazard Mitigation Briefing – Selectboard Meeting	05/12/25	Threat Owl provided a briefing on the Alburgh LHMP planning process at a Selectboard Meeting	Yes – public meeting Planning Team and Stakeholders Attended

#	Action Name	Date	Action Details (Goal, location, etc.)	Public/Stakeholder Opportunity
16	Mitigation Projects Meeting	6/26/25	Threat Owl facilitated hazard mitigation projects meeting	Yes – public meeting Planning Team and Stakeholders Attended
17	Draft Plan Developed and Request for Review	6/27/25 – `0/6/25	Draft plan was reviewed by the planning team, stakeholders, selectboard and the public was given time for public comment. Edits/comments were received from Alburgh local officials, the publicsto and a neighboring community.	Yes – public meeting Planning Team and Stakeholders Attended

Figure 8 - Plan Development Process

RISK ASSESSMENT

A risk assessment in hazard mitigation is a systematic process used to evaluate the potential impacts of natural and human-caused hazards on a community. For the Town and Village of Alburgh, this assessment provides a foundational understanding of how hazards could affect residents, infrastructure, the environment, and the local economy.

Methodology
The risk assessment for Alburgh began with an inventory of relevant natural hazards and an evaluation of the risks they pose to the community. Given that this is Alburgh's first Local Hazard Mitigation Plan, special emphasis was placed on compiling historical data, identifying vulnerable assets, and incorporating local insight.

The following key questions guided this assessment:

- What natural hazards can affect Alburgh?
- How severe can those hazards become?
- What is the likelihood of those hazards occurring in the future?
- What areas of Alburgh are most vulnerable to those hazards?
- How is Alburgh currently experiencing the effects of climate change, and what future changes are of greatest concern?

To answer these questions, the planning team—led by Threat Owl LLC in collaboration with local officials—reviewed federal and state disaster data, hazard maps (Appendix A), scientific research, and community knowledge. The findings were used to determine which hazards pose the greatest threat and to identify critical assets, populations, and infrastructure at risk.
Input from municipal leaders, emergency personnel, and residents helped shape Alburgh's understanding of both present vulnerabilities and emerging risks. The following evolving conditions were given special consideration:

- Increased frequency and intensity of lake-effect storms and wind events;
- Development pressure along vulnerable lakeshore areas;
- A growing population of older residents, particularly in seasonal homes converting to year-round use;
- And the broader impacts of climate change, which may intensify flooding, shoreline erosion, and winter storm activity.

This risk assessment directly informs the prioritization of mitigation strategies in the plan and ensures that future actions are targeted, feasible, and aligned with the most pressing risks facing the Town and Village of Alburgh.

Risk Assessment Calculation
The risk assessment calculation is determined by multiplying the probability of occurrence by an average score for potential impact to the Built and Natural Environments, People, and Economy (see below table).

	Frequency of Occurrence: The probability of a plausibly significant event impacting the community or regional scale is based on previous occurrences and climate change projections.	**Potential Impact:** Severity and extent of damage and disruption to built and natural environments, people, and the economy
1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor built or natural environmental damage, potential for minor injuries, health, or well-being impacts, or minimal economic disruption.
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe built or natural environmental damage, potential for injuries or health or well-being impacts, minor economic disruption.
3	Likely: >10% but <75% probability per year, at least 1 chance in next 10 years	Moderate: severe built or natural environmental damage on a community scale, injuries, fatalities or impacts to individual and community well-being, short-term economic impact.
4	Highly Likely: >75% probability in a year	Major: severe built or natural environmental damage on a community or regional scale, multiple injuries or fatalities or severe long-term impacts to individual and community well-being, significant long-term economic impact.

Figure 9 - Risk Assessment Calculation

Definitions for Built and Natural Environments, People and Economy can be found below:

- **The Built Environment** is comprised of the human-caused structures and infrastructure in our communities, including municipal water systems, dams, homes, bridges, roads, wastewater treatment plants, electrical and communication systems, libraries, medical facilities, fire stations, and town halls. Features of the built environment can be both functionally and culturally valuable to the people living there. After a disaster, the impacts to the built environment are some of the most visible.

- **Natural Environment** encompasses natural resources and ecosystems, but also the natural features integrated with our communities including urban trees and agricultural land. Water, soil, air, forest products, fish and wildlife are all natural resources. Ecosystems include lakes, forests, meadows, and rivers. Ecosystem services are the processes of the natural environment producing benefits to humans such as flood control and water filtration by wetlands. In the absence of human intervention, the natural environment can withstand natural disturbances and depends on natural hazards to maintain normal ecosystem function. It is due to human dependence on the natural environment for food, water quality, and other natural resources, and human influence on the natural environment, particularly climate change impacts on ecosystem health, that we are concerned with hazard impacts to the environment.

- **People** refers to both the life and well-being of those who live in, work in, or visit Vermont. Hazard mitigation planning centers around protecting life and property. Hazards can be deadly, but there are many other impacts of hazards that need to be accounted for. A few examples of potential hazard impacts to people are loss of housing, loss of childcare, displacement, food insecurity, unemployment, illness, psychological trauma, depression, and loss of life.

- **Economy** captures the economic impacts of hazards that can lead to short and long-term financial hardships. Hazards can cause agricultural losses, decline in tourism, damages to storefronts and goods for sale, loss of employers and jobs, and disruption in supply chains. There is also the substantial cost of paying for recovery from hazard events for the state, municipalities, individuals, nongovernmental organizations, and businesses.

Risk Assessment Ranking

Hazard	Probability	Potential Impacts					Total Score
		Infrastructure	Life	Economy	Environment	Average	
Fluvial Erosion / Lakeshore Erosion	4	4	3	4	4	3.75	15
Flooding	4	4	3	4	2	3.25	13
Wind	4	3	2	2	2	2.25	9
Ice	3	3	3	3	2	2.75	8.25
Drought	3	2	2	3	3	2.5	7.5
Snow	4	1	2	3	1	1.75	7
Invasive Species	3	1	2	2	3	2	6
Heat	3	1	3	2	2	2	6
Cold	3	1	3	2	2	2	6
Earthquake	2	3	2	3	2	2.5	5
Wildfire	2	2	2	2	2	2	4
Infectious Disease Outbreak	2	1	3	2	2	2	4
Hail	3	1	1	1	1	1	3
Landslides	1	1	1	1	1	1	1

Figure 10 - Risk Assessment Ranking

HAZARD PROFILES

A hazard profile is a detailed description and analysis of a specific hazard that could potentially impact a community. The purpose of a hazard profile is to provide comprehensive information about the nature, history, and potential future occurrences of a hazard, as well as its impacts on the community. This information is crucial for developing effective hazard mitigation strategies. Key components of a hazard profile include:

- Hazard Description
- Hazard Location
- Hazard Extent
- Hazard History
- Town Vulnerability
    - People
    - Built Environment
    - Natural Environment
    - Economy
- Potential Future Impacts
    - Climate Change
    - Change in Land Use/Development
    - Change in Demographics

Each hazard identified in the Risk Assessment is individually profiled in this chapter. Due to similar descriptions, extent, impact, location vulnerability, hazard history and potential future impacts, some hazards are combined in the hazard profiling

Fluvial erosion / Lakeshore Erosion / Flooding Profile

Hazard Description:
Flooding and erosion hazards include a range of water-related impacts that result in land loss, infrastructure damage, and public safety threats. In Alburgh, these hazards typically arise from three primary sources:

- **Fluvial erosion**: channel and ditch scouring from intense rainfall and runoff;
- **Lakeshore erosion**: progressive loss of shoreline from wave action, ice movement, and fluctuating lake levels;
- **Flooding**: overbank or overland flow from lake surges, localized drainage failures, and heavy precipitation events.

While these hazards may occur separately, they are often interconnected and influenced by similar factors such as climate variability, land use changes, and aging infrastructure.

Hazard Location:
As a peninsula surrounded by Lake Champlain, Alburgh has extensive shoreline exposure and low-lying terrain prone to surface water accumulation. Vulnerable areas include:

- Residential properties along Lake Street, Poor Farm Road, and West Shore Road;
- Road segments adjacent to undersized or aging culverts;
- Agricultural land near shallow ditches or poorly drained areas;
- Developed shoreline parcels lacking natural buffers or stabilization.

FEMA Flood Insurance Rate Maps (FIRMs) identify special flood hazard areas (SFHAs) primarily along the shoreline. Informal flooding and erosion reports also point to risk in areas not formally mapped. As mapped in the Alburgh Town Plan, Mud Creek is the *only* stream in town with a formally designated River Corridor area by VT ANR.

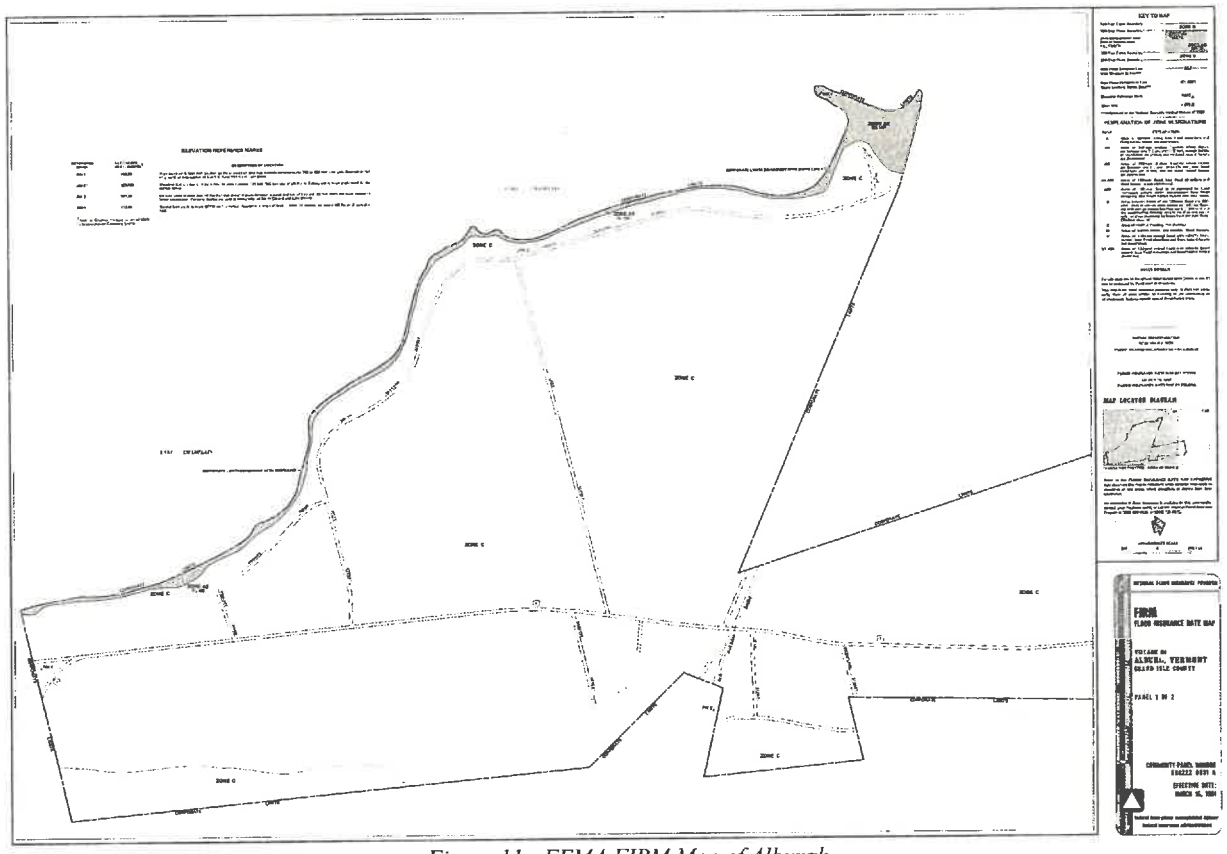

Figure 11 - FEMA FIRM Map of Alburgh

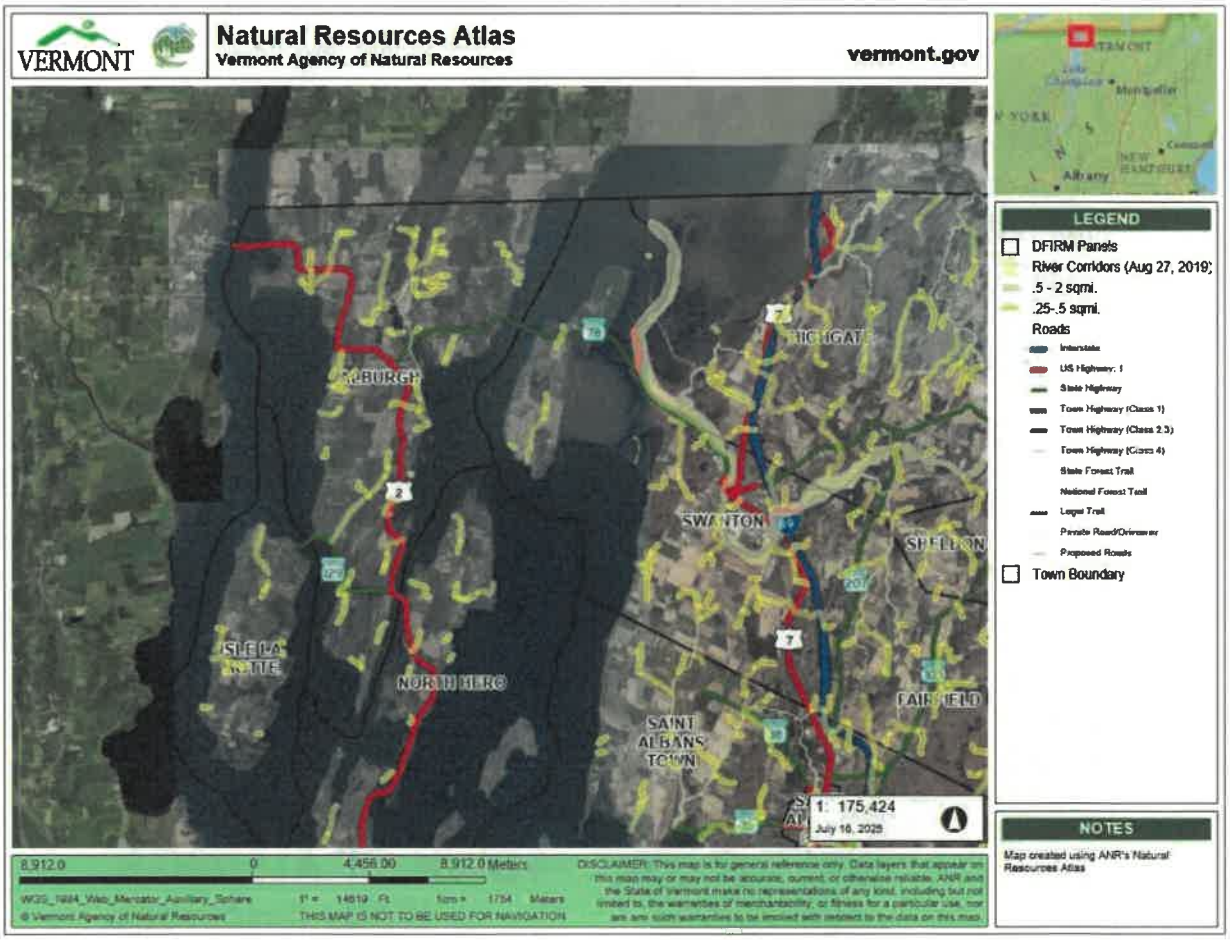

Figure 12 - Flood Ready Map - VANR

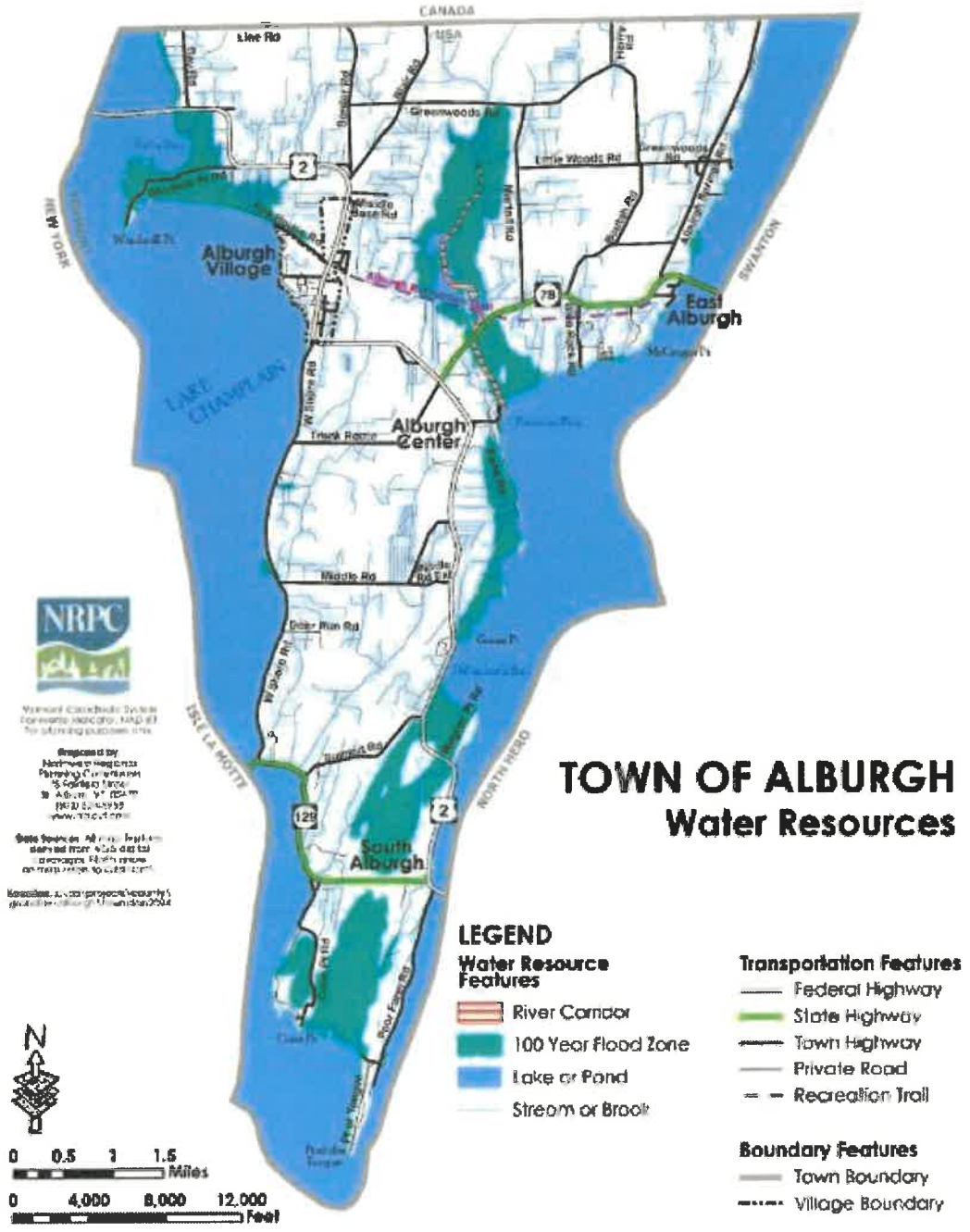

Figure 13 - Alburgh Tow Plan - Water Resources (NRPC)

Hazard Extent: Lakeshore erosion events can cause loss of land at rates of 0.5–3 feet per year in high-risk areas, with faster rates during high lake level years or severe ice shove events. Fluvial erosion may wash out road shoulders or culverts during intense rain events, especially where infrastructure is aging or undersized. Flooding in Alburgh typically involves 1–3 feet of water depth in localized areas and prolonged lake inundation during Lake Champlain high-water years. The closest USGS (U.S. Geological Survey) stream gauge to Alburgh is located on the Missisquoi River at Swanton, VT (USGS station *04294000*), which lies just downstream from Alburgh in Franklin County. The highest ever streamflow recorded at this site was 37,700 ft^3/s, with a corresponding gage height of 9.50 ft, both on January 20,

1996. The highest recorded lake stage near Alburgh occurred at USGS Gaging Station No. 04295000 on the Richelieu River at Rouses Point, NY, where Lake Champlain reached 103.20 feet (NGVD 29) on May 6, 2011—a historic flood event representing the maximum extent of inundation likely to impact Alburgh during a 500-year lake flooding scenario.

Hazard History: The figure below identifies a history of occurrences. Please refer to Appendix B for additional information.

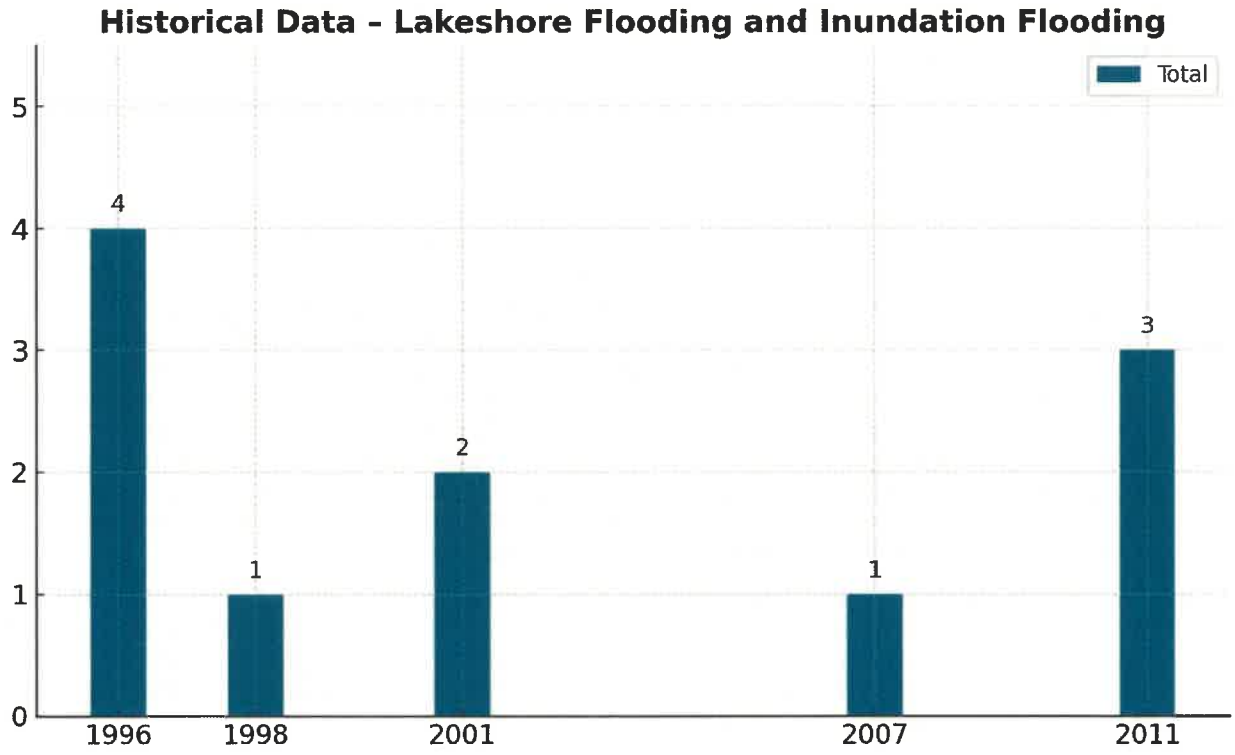

Figure 14 - Lakeshore Flooding and Inundation Flooding

Vulnerability Summary

- **People:** Flooding and erosion events in Alburgh can pose serious risks to public safety, particularly during no-notice events such as flash flooding or lake-related ice damage. Vulnerable populations include older adults, residents without access to transportation, people with mobility or medical needs, and seasonal residents who may not be present or adequately informed during emergencies. The town's older demographic and dispersed rural layout may contribute to delayed evacuation or response in isolated areas.
- **Built Environment:** Roads, culverts, seasonal homes, septic systems, and private wells are particularly vulnerable to flood and erosion damage in Alburgh. Lakeshore roads such as West Shore Road and Lake Street are susceptible to shoreline undermining, while inland culverts may be overwhelmed during high-intensity storms. Seasonal homes transitioning to year-round occupancy may lack adequate floodproofing or shoreline protection.
- **Natural Environment:** Shoreline and inland flooding can severely impact Alburgh's natural environment. Lakeshore erosion can contribute to sedimentation, habitat loss, and shoreline retreat. Floodwaters may transport invasive species or pollutants into Lake Champlain, and heavy runoff can lead to nutrient loading, promoting algal blooms harmful to fish, wildlife, pets, and people. Loss of vegetated buffers along the lake also increases erosion risk and reduces ecological resilience.

- **Economy:** Flooding and erosion may disrupt local economic activity—especially tourism and lakeside property markets. Damage to seasonal homes and infrastructure may impose financial burdens on homeowners and the town. Public recovery costs, including road and culvert repairs, emergency response, and staff overtime, represent recurring economic vulnerabilities. The loss of lake access or negative environmental publicity could also affect regional tourism and property values.

Potential Future Impacts

- **Climate Change:** Alburgh is likely to experience more frequent and intense precipitation events, earlier spring snowmelt, and rising lake levels due to climate change. These conditions increase the likelihood of both lakeshore erosion and overland flooding. Warming temperatures may also contribute to shoreline instability due to thaw cycles and more frequent ice-out events. Together, these trends increase the potential for infrastructure damage, environmental stress, and emergency response demands.
- **Changes in Land Use/Development:** Alburgh does not currently enforce local zoning for River Corridors but participates in the National Flood Insurance Program (NFIP). Most new development remains low-density and outside of mapped Special Flood Hazard Areas (SFHAs), which limits increased exposure in the short term. However, continued residential development along vulnerable lakeshore areas—particularly seasonal camps converting to year-round homes—may gradually increase risk to property and municipal infrastructure if not accompanied by shoreline stabilization measures. Additionally, the State of Vermont has recently implemented a statewide buffer regulation on all Lakes greater than 10 acres (including Lake Champlain). The Shoreland Protection Act prohibits new clearing and development within 100 feet of the mean water level of the Lake (95.5 feet above sea level) and places limits on clearing and development from 100 to 250 feet from the mean water level. The intent of the regulation is to limit bank erosion, to protect shoreland habitat, and to improve water quality.
- **Changes in Demographics:** Alburgh's population is not expected to grow significantly in the next five years, but the town's aging population and number of seasonal residents converting to year-round occupancy may increase vulnerability. Older residents may face greater challenges during evacuation or utility disruptions, and limited access to broadband or emergency alerts may affect situational awareness and response times in outlying areas.

Wind Profile

Hazard Description
Wind hazards in Alburgh include damaging winds associated with severe thunderstorms, winter storms, nor'easters, tropical storms, and the occasional tornado. These events can cause widespread damage to trees, utility lines, buildings, and transportation infrastructure. Alburgh's location along Lake Champlain exposes the town to enhanced wind effects, including lake-enhanced wind gusts and ice-related wind damage along the shoreline.

Although rare, tornadoes have occurred in northern Vermont, and while typically weak (EF0–EF2), they are capable of causing localized structural damage and tree loss. Wind hazards often coincide with other severe weather conditions such as heavy rain, snow, ice storms, and lake-effect squalls, compounding impacts to the community.

Hazard Extent
Wind speeds in Alburgh can range from 30–50 mph during routine weather systems to gusts exceeding 60 mph during severe thunderstorms and coastal systems. Hurricanes and tropical storms, while rare in northwest Vermont, have delivered sustained winds above 50 mph and stronger gusts, particularly during remnants of southern storms traveling up the Champlain Valley.

- Tornadoes, though infrequent, are measured using the Enhanced Fujita (EF) Scale, ranging from EF0 (65–85 mph winds) to EF5 (>200 mph). Most Vermont tornadoes fall within the EF0 to EF1 range.
- The National Weather Service (NWS) issues wind advisories and warnings for the region, typically offering several hours to days of advance notice, depending on the system.
- Wind events may be brief (minutes) during summer thunderstorms or sustained (12–48+ hours) during nor'easters or post-tropical systems.
- High wind events are most common from late fall through early spring, although thunderstorm winds are also possible during summer months.

Hazard Location
Wind hazards affect Alburgh town-wide, with higher exposure along the Lake Champlain shoreline where open water and flat terrain allow winds to accelerate. Properties along Lake Street, West Shore Road, and other exposed areas experience increased risk of tree falls, utility disruptions, and shoreline damage. Because the town's landscape is largely open and rural, wind-driven impacts can occur across both developed and agricultural areas.

Hazard History: Figure below identifies a history of occurrences. Please refer to Appendix B for additional information.

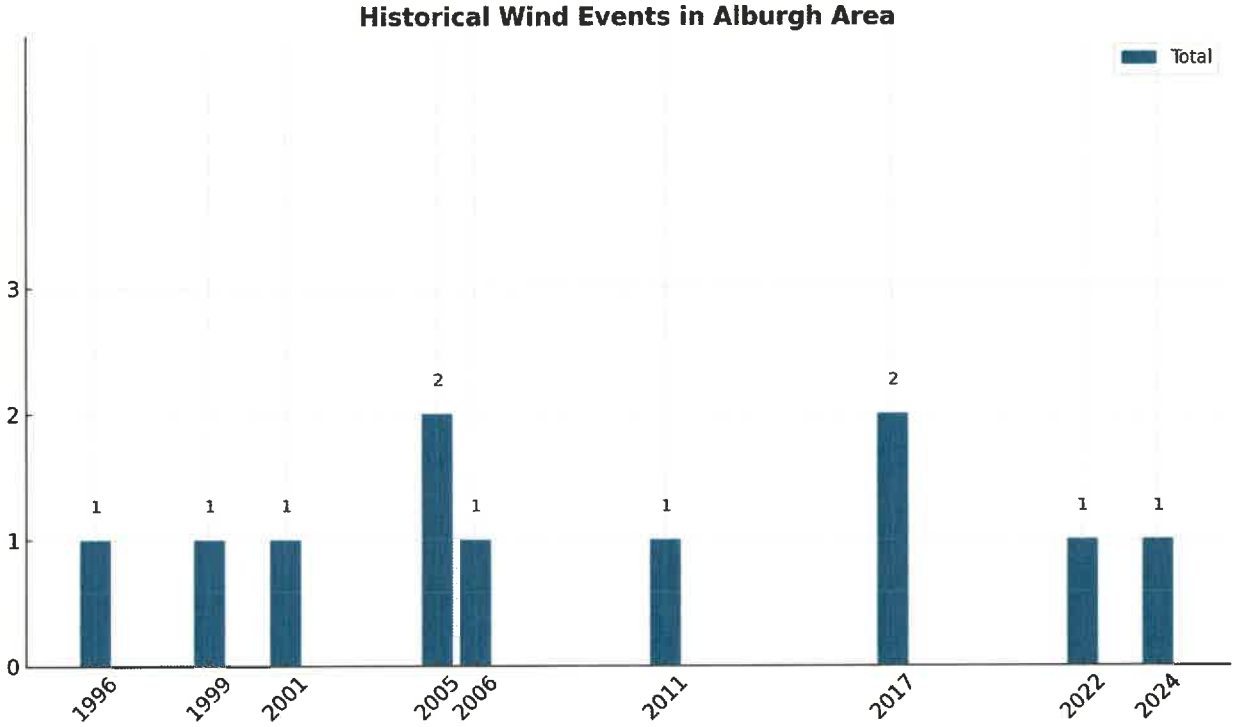

Figure 15 - High Wind Events

Town Vulnerability

- **People:** Wind events in Alburgh pose risks to public safety, especially for individuals without access to safe shelter during high wind warnings or no-notice events. Vulnerable groups include older adults, residents with disabilities, people without reliable transportation, and seasonal residents who may be unaware of or unprepared for local wind hazards. Downed trees or power lines may isolate residents in rural areas, further increasing vulnerability during severe storms.
- **Built Environment:** Wind hazards can damage both public and private infrastructure, particularly roofs, windows, outbuildings, and mobile homes. Utility poles, signs, and power lines are especially vulnerable in open, exposed areas such as along Lake Street, Route 2, and other lakeside roads. Prolonged power outages may affect heating systems, water pumps, and emergency communication, especially for residents reliant on electricity for medical equipment or well water.
- **Natural Environment:** High wind events frequently cause tree damage, especially among shallow-rooted trees along the lakeshore and in poorly drained soils. Uprooted trees and broken limbs can block roads, damage wildlife habitat, and increase wildfire risk during dry seasons. Wind-driven waves and ice can also accelerate shoreline erosion and harm aquatic vegetation.
- **Economy:** Wind events can lead to business interruptions, especially for tourism-related operations and seasonal services. Damage to private homes may displace residents or reduce property values. Recovery efforts—such as clearing roads, restoring utilities, and repairing municipal infrastructure—can impose substantial costs on the town, especially in the absence of federal or state disaster declarations.

Potential Future Impacts

- **Climate Change:** Climate change is expected to alter atmospheric patterns, potentially leading to stronger and more frequent wind events in Vermont. This includes more intense winter storms, stronger lake-effect systems, and increased storm variability. Alburgh's exposure to Lake

Champlain may amplify the local impacts of these events, particularly in terms of shoreline damage and ice shove.

- **Change in Land Use/Development:** Most development in Alburgh is low-density and scattered, with continued growth expected along shoreline roads and rural corridors. No significant changes in land use are anticipated that would alter vulnerability to wind events in the short term. However, additional development in exposed areas without adequate wind-resistant design could increase risk over time.
- **Change in Demographics:** Alburgh's population is not projected to change substantially in the next five years, though the trend toward an **older year-round population** and **conversion of seasonal homes to full-time residences** may increase the town's sensitivity to prolonged power outages and sheltering challenges during wind events.

Ice / Snow / Cold Profile

Hazard Description:
Alburgh is vulnerable to a variety of winter-related hazards, including ice storms, freezing rain, sleet, heavy snowfall, blizzards, and extreme cold temperatures.

- Ice hazards occur when rain freezes on contact with cold surfaces, creating hazardous conditions on roads, power lines, and trees. Sleet consists of frozen pellets that bounce on impact, while freezing rain coats surfaces with a glaze of ice.
- Snow hazards include moderate to severe snowstorms, producing varying accumulations and often accompanied by strong winds, whiteout conditions, and drifting snow.
- Cold temperature hazards arise from prolonged exposure to below-freezing temperatures, especially during cold snaps and arctic outbreaks. These periods may be accompanied by strong wind chills, increasing the risk of frostbite, hypothermia, heating system failure, and infrastructure stress.

These hazards may occur individually or in combination, particularly during Nor'easters or major winter storm systems affecting the Champlain Valley and northern Vermont.

Hazard Extent:
Winter weather impacts Alburgh annually, with moderate ice and snow events occurring multiple times each season, and major storms occurring every few years.

- Ice accumulation can range from light glazing to over 1 inch, capable of downing trees and power lines. Alburgh is especially vulnerable to ice storms and wind-driven icing along the Lake Champlain shoreline.
- Snowfall events can result in 6–24 inches of accumulation, with higher totals during regional blizzards. Snowdrifts may form in open areas due to high wind exposure across the lake and agricultural fields.
- Blizzards can bring wind speeds over 35 mph, producing hazardous whiteout conditions and snowdrifts several feet deep.
- Cold snaps in Alburgh routinely produce temperatures below 0°F, with wind chills reaching -20°F to -40°F during extreme conditions.

Notable past events impacting the region include:

- The Ice Storm of January 1998, which deposited over an inch of ice, caused widespread power outages across northwestern Vermont and New York.
- The February 2013 blizzard, which brought high snow totals and strong winds throughout the Champlain Valley.
- The Winter of 2017–2018, marked by extended periods of sub-zero temperatures.

The National Weather Service typically provides 24–48 hours of advance warning for winter storm watches and advisories. Events may last from several hours to multiple days, with residual impacts from lingering cold and ice accumulation.

Hazard History: Figure below identifies a history of occurrences. Please refer to Appendix B for additional information.

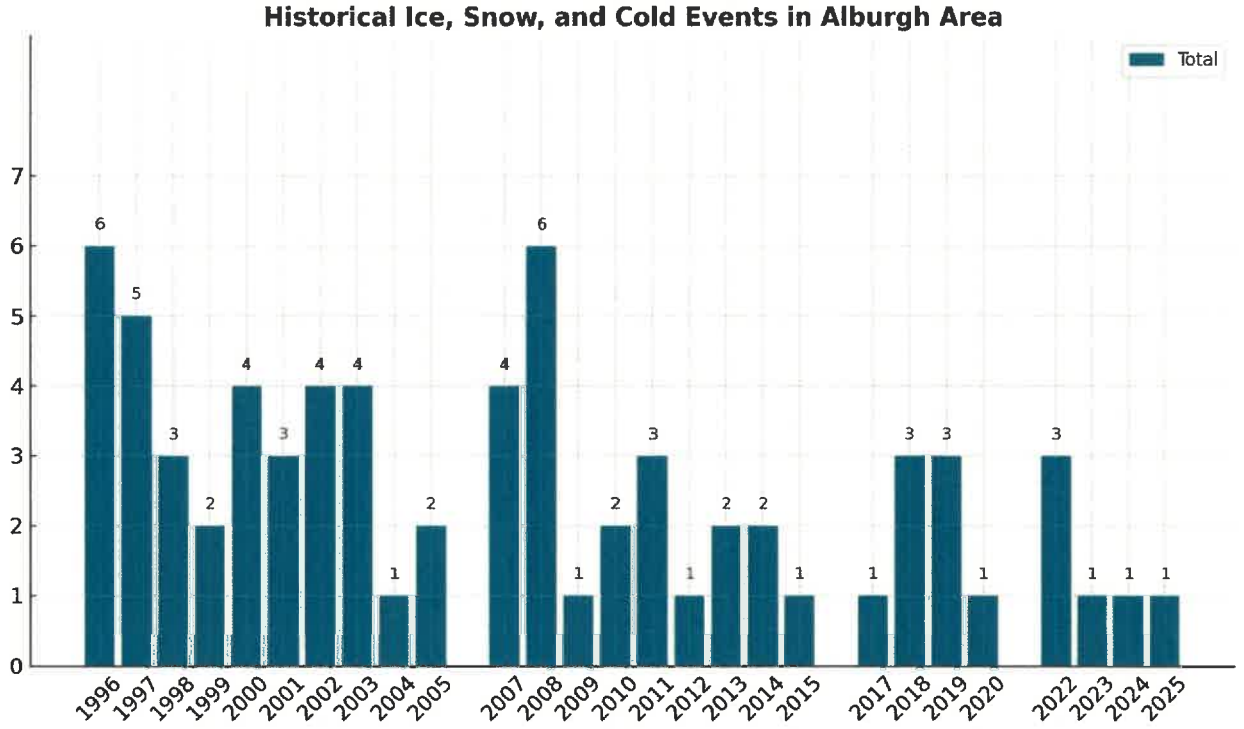

Figure 16 - Ice, Snow and Cold Events

Town Vulnerability

- **People:** Ice, snow, and extreme cold events pose significant risks to public safety in Alburgh, particularly for residents without reliable heating, mobility, or transportation. Individuals who do not or cannot shelter in place—due to lack of information, isolation, or limited resources—are especially vulnerable. Elderly residents, individuals with disabilities or medical needs, low-income households, and seasonal or part-time residents who remain in Alburgh during winter months may face heightened risks of hypothermia, frostbite, or injury from slips and falls.
- **Built Environment:** Winter storms can severely impact Alburgh's infrastructure and buildings. Risks include roof collapses from heavy snow, blocked roads from snow drifts or fallen trees, frozen or burst water pipes, and downed utility lines leading to extended power outages. Older homes and seasonal structures may be less equipped to withstand prolonged cold temperatures or heavy snow loads. Roads such as Route 2, Lake Street, and remote shoreline areas may become inaccessible during major storms.
- **Natural Environment:** Heavy snow and ice accumulation can damage Alburgh's natural environment, particularly through tree breakage and canopy loss, which in turn increases debris hazards and cleanup needs. Winter storms may also disrupt local ecosystems and wildlife movement, particularly in shoreline forests and open agricultural landscapes.
- **Economy:** Ice, snow, and cold events can interrupt economic activity, especially for local services, small businesses, and tourism-related enterprises. Costs related to snow removal, utility restoration, and emergency operations place added financial pressure on municipal resources. Prolonged outages or impassable roads may also delay business recovery and services.

Potential Future Impacts

- **Climate Change:** Climate change is expected to shift the frequency and intensity of winter storms in Vermont. While total snowfall may fluctuate, Alburgh could see more frequent and intense ice storms, longer cold snaps, and increased variability in snowpack conditions. Warmer

winters may also increase freeze-thaw cycles, leading to more icing hazards, unstable snow loads, and infrastructure stress.

- **Change in Land Use/Development:** Most of Alburgh's development is low-density and rural, with limited growth anticipated in areas vulnerable to winter hazards. No significant land use changes are expected to alter the community's overall exposure to ice, snow, or cold events at this time. However, as seasonal homes are increasingly converted to year-round residences, there may be a gradual rise in winter vulnerability if those properties are not winterized appropriately.
- **Change in Demographics:** Alburgh's population is not projected to grow significantly in the next five years. However, the trend toward an older, year-round population may increase sensitivity to winter hazards. Older adults are more susceptible to cold-related health impacts, and may face challenges accessing emergency services, staying warm during outages, or maintaining safe egress during snow or ice events.

Drought Profile

Hazard Description: Drought is a prolonged period of below-average precipitation that leads to reduced soil moisture, lower surface and groundwater levels, and increased stress on water-dependent systems. Droughts develop gradually and can persist for weeks, months, or even years, depending on climate conditions and human land and water use. In Vermont, drought is typically seasonal and linked to shifts in regional precipitation patterns, atmospheric circulation, and climate variability. Although droughts are less dramatic than storms or floods, their long-term impacts on agriculture, drinking water supply, natural habitats, and fire risk can be significant.

Hazard Extent: Drought conditions can affect wide geographic areas, including urban centers, rural communities, agricultural lands, and forests. In Alburgh, drought may impact private wells, crop production, lakeshore vegetation, and local water-dependent systems. Drought severity is tracked using tools such as the U.S. Drought Monitor, which categorizes drought from D0 (Abnormally Dry) to D4 (Exceptional Drought), and the Palmer Drought Severity Index (PDSI), which reflects long-term moisture deficits. Drought extent is generally regional, often affecting the entire Champlain Valley during prolonged dry periods. Effects may be compounded by high temperatures, reduced snowpack, and increased evaporation, especially in warmer months.

Hazard Location: Alburgh is susceptible to drought conditions, particularly given its reliance on private wells, shallow groundwater sources, and agricultural land. The town's flat topography, sandy soils in some areas, and open cropland make it more vulnerable to water stress during extended dry periods. Shoreline vegetation and ecosystems may also experience degradation during drought, especially when combined with receding lake levels or invasive plant expansion. While drought may not pose an immediate safety risk like floods or wind events, its cumulative impacts on water supply, land productivity, and ecological health can be widespread and long-lasting.

Hazard History: Per the Vermont Hazard Mitigation Plan:
"The droughts in the mid-1960s were the most severe in Vermont. Every county in the
The state experienced Exceptional Drought (D4) conditions in May of 1965. Since the 1960s Vermont has experienced several less severe periods of drought. There were two declared statewide droughts in June and July 1995. The drought persisted through the summer of 1995, and a third, more severe drought affected Southern Vermont in August of that year. In 2001-2002, Vermont was affected by a Severe Drought (D2), which peaked at over 14% of the State at the D2 level between November and December of 2001 and nearly 100% of the State in at least Moderate Drought (D1). Portions of Vermont were in Severe Drought (D2) from October 2016 through April 2017, peaking at 29.15% of Vermont in October and November 2016 and 80% of the State was in at least Moderate Drought (D1). Moderate Drought conditions returned in October of 2017 and again in June 2018. From September to November of 2018 the State experienced another Severe Drought. Then from June 2020 to October 2021 much of the State was under Moderate Drought to Abnormally Dry conditions. From September to October of 2020 29.4% of the State was under Severe Drought conditions."

Town Vulnerability

- **People:** Drought conditions in Alburgh can impact residents who rely on private wells for drinking water, especially during prolonged dry periods. Depleted or contaminated well water supplies can lead to health concerns, reduced hygiene, and increased reliance on bottled or hauled water—creating additional hardship for low-income households, older adults, and residents without transportation.
- **Built Environment:** While drought does not typically cause direct structural damage, it can affect water infrastructure. Dried-up wells may require drilling deeper, replacing well pumps, or installing temporary water storage systems. Seasonal camps and lakeside homes converted to year-round use may experience unexpected strain on their aging or shallow water systems during extended drought periods.

- **Natural Environment:** Drought can severely affect the local environment, reducing stream flow, lowering groundwater tables, and stressing forests, wetlands, and agricultural lands. Native vegetation and crops may decline, and wildlife habitat may degrade due to reduced food and water availability. Prolonged dry conditions can also lead to an increased wildfire risk in Alburgh's rural and forested areas, especially if tree cover is stressed by both drought and pest activity.
- **Economy:** Drought may impact agriculture, tourism, and seasonal events in Alburgh. Lower lake levels or stagnant conditions can affect recreational boating and fishing, while stressed foliage may reduce the aesthetic appeal of leaf peeping season, which draws visitors to the region.

Potential Future Impacts

- **Climate Change:** Climate models project more frequent extreme heat and precipitation variability in Vermont, which may lead to more intense and frequent drought conditions. Warmer temperatures can increase evapotranspiration, reduce soil moisture, and accelerate groundwater depletion, especially during dry summers. Alburgh's shallow water table and well reliance may amplify impacts.
- **Change in Land Use/Development:** No major changes in land use or development have been identified that would substantially alter Alburgh's vulnerability to drought. However, increased conversion of seasonal homes to permanent residences, and expansion of irrigated land, could gradually increase demand on limited groundwater resources.
- **Change in Demographics:** Alburgh's population is not expected to grow substantially in the near term. However, the trend toward an older, full-time population may increase sensitivity to water shortages, especially during extreme heat or emergency situations. Residents with fixed incomes may struggle to afford costly well upgrades or water deliveries.

Invasive Species Profile

Hazard Description: Invasive species are non-native organisms that, when introduced to an area, cause harm to the environment, economy, or human health. These species can outcompete native species, disrupt ecosystems, and cause significant ecological and economic damage. Invasive species can be plants, animals, fungi, or microorganisms. They often have high reproductive rates, few natural predators in their new environment, and the ability to thrive in a wide range of conditions.

Hazard Location: All ecosystems in Alburgh—including lakeshore areas, forests, wetlands, agricultural fields, and roadside corridors—are susceptible to invasion by non-native species. The town's proximity to Lake Champlain increases vulnerability to aquatic invasives, particularly in coves, bays, and boat launch sites where watercraft movement can accelerate spread. Forested areas and roadside rights-of-way may also serve as vectors for terrestrial invasives and tree pests.

Hazard Extent: The extent of impact can vary from localized infestations to widespread ecological disruption.

Hazard History: Alburgh is concerned about the following due to historical occurrences in Vermont and surrounding states:

- Japanese Knotweed (*Fallopia japonica*)
- Wild Chervil (*Anthriscus sylvestris*)
- Glossy Buckthorn (*Frangula alnus*)
- Common Buckthorn (*Rhamnus cathartica*)
- Purple Loosestrife (*Lythrum salicaria*)
- Garlic Mustard (*Alliaria petiolata*)
- Phragmites (Common Reed) (*Phragmites australis*)
- Japanese Barberry (*Berberis thunbergii*)
- Oriental Bittersweet (*Celastrus orbiculatus*)
- Norway Maple (*Acer platanoides*)
- Eurasian Watermilfoil (*Myriophyllum spicatum*)
- Hydrilla (*Hydrilla verticillata*)
- Water Chestnut (*Trapa natans*)
- Zebra Mussel (*Dreissena polymorpha*)
- Spiny Waterflea (*Bythotrephes longimanus*)
- Rusty Crayfish (*Faxonius rusticus*)
- Chinese Mystery Snail (*Cipangopaludina chinensis*)
- Emerald Ash Borer (*Agrilus planipennis*)
- Asian Longhorned Beetle (*Anoplophora glabripennis*)
- Hemlock Woolly Adelgid (*Adelges tsugae*)
- Spotted Lanternfly (*Lycorma delicatula*)
- European Gypsy Moth (*Lymantria dispar dispar*)
- Feral Swine (*Sus scrofa*) – rare but a growing concern
- Mute Swan (*Cygnus olor*) – aggressive, displaces native waterfowl
- European Starling (*Sturnus vulgaris*) – displaces native birds

Town Vulnerability – Invasive Species

- **People:** Invasive species can pose direct and indirect health risks to residents and visitors in Alburgh. While most invasive plants and animals are not harmful to humans directly, some—such as cyanobacteria (blue-green algae) or aquatic invasives like Eurasian watermilfoil—can affect recreational water quality. Swimmers, anglers, and pet owners may be exposed to toxins or physical hazards, especially during bloom events or dense aquatic infestations. Additionally, the presence of ticks and other disease vectors may increase exposure to vector-borne illnesses such as Lyme disease.

- **Built Environment:** Invasive species can damage infrastructure and alter the function of drainage systems, culverts, and rights-of-way. For example, dense plant growth can obstruct culverts and ditches, while aggressive vines or climbing plants may damage utility poles, fences, or buildings. These impacts, while often gradual, may require significant maintenance or replacement of affected systems.
- **Natural Environment:** Alburgh's forests, wetlands, and Lake Champlain shoreline are highly susceptible to invasive species impacts. Aquatic invasives like milfoil or zebra mussels can degrade water quality and outcompete native vegetation and aquatic life. Terrestrial threats, such as the emerald ash borer, have already caused widespread ash tree mortality across Vermont and may significantly alter local forest structure. Left unmanaged, invasive species can cause ecosystem collapse, resulting in the loss of native biodiversity and long-term ecological imbalance.
- **Economy:** Invasive species can negatively affect Alburgh's tourism and outdoor recreation economy, particularly activities tied to boating, fishing, hiking, and leaf peeping. Dense aquatic plant growth may lead to closure of public access points, while forest infestations may reduce trail quality or accessibility. The cost of invasive species management—whether by private landowners or the town—also imposes a growing financial burden.

Potential Future Impacts

- **Climate Change:** Climate change is expected to create more favorable conditions for invasive species in Vermont, particularly as warmer winters and longer growing seasons allow non-native species to expand their range. Species previously limited by cold temperatures may now thrive in Alburgh. Changing precipitation patterns may also enable invasives to colonize wetlands, ditches, and roadsides more easily. Climate change may also increase the abundance of ticks, mosquitoes, and other vectors of invasive or disease-carrying species, compounding health and ecological risks.
- **Change in Land Use/Development:**
  Increased residential development and recreational pressure along the lake and in natural areas can contribute to the spread of invasive species. Landscaping, firewood movement, watercraft use, and trail construction can all serve as unintentional vectors for invasives. Fragmentation of forests and shoreline habitats may reduce the natural resistance of these systems to invasion.
- **Change in Demographics:** Alburgh's demographics are not expected to shift significantly in the near future, but the continued trend toward an older, year-round population may increase vulnerability to environmental degradation, particularly if residents rely on natural spaces for recreation or if invasive species affect private land or water access.

Heat Profile

Hazard Description: Heat hazards result from prolonged periods of high temperatures, often intensified by high humidity levels. These conditions can lead to heatwaves, which pose significant risks to human health, critical infrastructure, agriculture, and natural ecosystems. Heatwaves are defined by sustained, unusually hot weather, often with limited relief at night. Vulnerable populations—including the elderly, young children, and people with chronic illnesses or without access to air conditioning—are at particular risk of heat exhaustion and heat stroke.

Hazard Extent:
Alburgh and the surrounding Champlain Valley region have experienced periods of extreme heat, particularly in recent years as Vermont's climate warms. While Alburgh does not experience the intensity or frequency of heatwaves seen in more urbanized areas, the town has seen increasing summer temperature spikes, leading to higher instances of:

- Heat-related illness
- Increased residential energy demand
- Stress on electrical infrastructure
- Reduced air and water quality

The National Weather Service (NWS) issues heat alerts based on heat index values (which combine temperature and humidity). Thresholds are:

- Heat Advisory: Heat Index 95–104°F
- Excessive Heat Warning: Heat Index ≥ 105°F

While Excessive Heat Warnings are rare in Vermont, Heat Advisories have become more frequent, including in Grand Isle County. Due to Alburgh's low elevation, open landscape, and limited tree canopy in some areas, localized high heat conditions can develop quickly, particularly in developed or paved areas and open fields.

Hazard Location: All areas of Vermont are susceptible to heat hazards, with urban areas typically experiencing higher temperatures due to the urban heat island effect.

Hazard History: Per the State Hazard Mitigation Plan, the following extreme heat events had occurred:

- **Hazard History: August 1-2, 2006:** A heat ridge moved into Vermont during the early morning of August 1. Temperatures soared into the 90s but significantly more important were dewpoints that reached the middle to upper 70s to produce excessive heat index values of 100°F to 105°F, some of the highest values in nearly a decade.
- **July 21, 2011:** Temperatures across much of southern Vermont warmed into 90s with dew points in the 70s, combined with the hot temperatures and resulted in heat indices of 100°F to 104°F. This was the 2nd day of a 3 to 4-day heat wave across a large portion of Vermont with heat index values of 100°F to 108°F across the Champlain and Connecticut valleys as well as some interior valleys. One death is attributed to this event in Windsor County.
- **March 17, 2012:** Winter of 2011-12 had temperatures that averaged 4-5°F above normal and snowfall 40-60% of normal. This combination accounted for snow pack across the region to be below normal or even non-existent by mid-March. In Vermont, temperatures climbed into the 70s March 18 and low-80s March 19-22. Record heat was recorded across all of Vermont with maximum temperatures 30-40°F above normal and some daily records being broken by 10°F or more. This event caused an estimated reduction of 30% of maple sugar production, resulting in an estimated impact of nearly $10 million. In addition, there was a significant loss of ski industry revenue due to a 25-50% reduction in snow loading.
- **July 1, 2018:** High temperatures affected zones in all 14 of Vermont's counties through Independence Day. Temperatures reached the mid-90s, and heat indices were recorded within the range of 95 -110 degrees. The heat wave continued for 6 consecutive days, and Burlington, VT saw the warmest 5 day stretch since 1892. It is important to note that the all-time minimum temperature also broke a previous record of 78 degrees, on July 2nd, 2018, at 80 degrees. Four

deaths were attributed to this event, one recorded in Washington County and three in Chittenden County, all related to excessive indoor residential temperatures. Nearly 100 heat-related emergency department visits occurred state-wide during this heat wave, and more than 10 percent of Emergency Medical Service calls on July 1st were heat related.

- **June 18, 2020:** Areas of Vermont and New York experienced the 2nd longest heatwave duration with temperatures in the 90s for six days straight in northwestern Vermont. Burlington recorded the highest temperature in its history on June 22nd and 23rd with a reading of 96 degrees. Zones in 8/14 of Vermont's counties recorded high temperatures during this period of time. One death in Orleans County was associated with this heat wave.

Additionally, areas of Vermont and other states in New England experienced a heatwave with temperatures in the 90s for three days starting on June 17, 2024.

Town Vulnerability

- **People:** Heat events in Alburgh can pose significant health risks, particularly for elderly residents, individuals with disabilities or chronic health conditions, and those lacking access to cooling systems or transportation to cooling centers. Residents who do not heed heat advisories may be at greater risk for heat-related illnesses such as heat exhaustion or heat stroke.
- **Built Environment:** Extreme heat can strain Alburgh's electric grid, especially during high-demand periods for air conditioning and refrigeration. This can lead to brownouts or blackouts, particularly in areas served by older infrastructure. Prolonged heat may also cause thermal expansion in bridges, roads, and other public infrastructure, leading to cracking or joint damage. Any roadways constructed with dark or aging asphalt may contribute to localized heat buildup.
- **Natural Environment:** High temperatures can exacerbate drought conditions, lower water levels in Lake Champlain, and increase the risk of wildfires in forested or brushy areas. Local agriculture—including maple sugaring, small-scale farming, and gardening—may suffer yield losses or early-season stress due to prolonged heat or moisture evaporation.
- **Economy:** Heat events may disrupt local businesses, especially those without air conditioning or climate control. Energy costs for municipal buildings and residents may rise, and the town may incur additional expenses if required to open or operate cooling shelters. Impacts to outdoor tourism, including lake recreation, fishing, and festivals, could also result in seasonal revenue loss.

Potential Future Impacts

- **Climate Change:** While historically rare, extreme heat events are projected to become more frequent in Vermont due to climate change. Alburgh is likely to experience higher average annual temperatures, longer summer heat periods, and more days exceeding 90°F, especially in low-lying areas near the lake.
- **Change in Land Use/Development:** At present, no significant land use or development trends have been identified in Alburgh that would notably change heat vulnerability. However, any increase in impervious surfaces or reduction of tree cover in residential or commercial areas may worsen urban heat island effects, particularly in the village center.
- **Change in Demographics:** Alburgh's population is not expected to change substantially in the short term, but continued aging of the year-round population may heighten community sensitivity to heat events. This trend underscores the need for accessible cooling shelters, targeted outreach, and community support networks during extreme weather events.

Earthquake Profile

Hazard Description: An earthquake is the shaking of the surface of the Earth resulting from a sudden release of energy in the Earth's lithosphere that creates seismic waves.

Hazard Extent: An earthquake is measured by magnitude, energy released by an earthquake, and intensity, effect and damage caused by the earthquake. The most used scale is the Richter Scale. Although difficult to predict, given the State's historical earthquake data, Alburgh may anticipate an earthquake measuring very low on the Richter Scale.

Hazard Location: While earthquakes occur on fault lines, the entire town of Alburgh is susceptible to an earthquake.

Hazard History: Per the Vermont Hazard Mitigation Plan, since 1900, Vermont has only experienced three earthquakes registering 2.5 or greater of the Richter Scale.

Town Vulnerability:

- **People:** People could become injured or trapped during an earthquake. However, given the situation in Vermont, this is a low possibility.
- **Built environment:** Buildings could become damaged or collapse during an earthquake. However, given the situation in Vermont, this is a low possibility.
- **Natural environment:** An earthquake could trigger secondary hazards, such as landslides, dam failures and flooding. However, given the situation in Vermont, this is a low possibility.
- **Economy:** Earthquakes could result in the closure (temporary or permanent) of local businesses due to damage sustained during the earthquake. However, given the situation in Vermont, this is a low possibility.

Potential Future Impacts:

- **Climate Change:** Climate change primarily affects atmospheric and oceanic processes, but there is emerging evidence suggesting that it can indirectly influence seismic activity, including earthquakes. It is not currently possible to predict when or where an earthquake may occur.
- **Change in Land Use/Development:** No changes to asset impacts due to earthquakes because of development or land use changes could be identified.
- **Change in Demographics:** Alburgh's demographic profile is not expected to shift significantly in the next five years. However, a **gradually aging population** may experience increased vulnerability during any emergency event, including earthquakes, due to potential **mobility challenges** and increased need for assistance.

Wildfire Profile

Hazard Description: Wildfires are uncontrolled fires that spread rapidly through vegetation, brush, grasslands, and forested areas. They can be caused by natural factors such as lightning strikes, or by human activities including unattended campfires, discarded cigarettes, outdoor burning, or sparks from equipment. Weather conditions such as prolonged drought, high temperatures, low humidity, and strong winds significantly increase wildfire risk. Although large-scale wildfires are rare in Vermont, localized brush fires and grassland fires are possible and can threaten life, property, and critical infrastructure.

Hazard Extent: In Vermont, wildfires generally occur during late spring, summer, and early fall when vegetation is driest. Fires may last from a few hours to several days, depending on local conditions and response time. The National Weather Service (NWS) issues Red Flag Warnings when weather conditions—warm temperatures, low humidity, and gusty winds—are conducive to rapid fire spread. In Alburgh, dense brush, grassy fields, and patches of mixed woodlands present moderate wildfire fuel loads, particularly during dry spells or following periods of vegetation dieback. While the community is not as heavily forested as parts of southern Vermont, the presence of seasonal homes, outbuildings, and infrequently maintained rural roads may increase response time during fire events.

Hazard Location: Alburgh is not heavily forested, but several areas of the town fall within a wildland-urban interface (WUI), where residential or agricultural properties border brush and woodland areas. High-risk wildfire areas in Alburgh include:

- Lakeshore properties with significant overgrowth and limited access roads
- Seasonal camps and rural residences with adjacent unmanaged vegetation
- Open fields and pastures with dry grass during summer and early fall
- Roadside corridors and utility easements, especially those with invasive brush species

Hazard History: Per the Vermont Hazard Mitigation Plan, there has not been a major wildfire in Grand Isle history, or in Vermont history in the past 50 years.

- **Wildfire Smoke, July 5 – 7, 2002:** Smoke, from many forest fires across the Nemiscau region of northern Quebec, became trapped under a subsidence inversion, and was transported south across southern Vermont from the evening hours of July 5, to the late evening of July 7. The forest fires were sparked by exceptionally hot and dry weather over that part of Canada followed by an unusual amount of thunderstorm activity, resulting in many lightning strikes. The circulation between high pressure over Hudsons Bay and a low pressure off the Canadian Maritimes transported the smoke southward. The smoke obscured the sky, and even reduced surface visibilities to as low as one mile, especially on the early morning of July 7. Advisories were issued warning people with respiratory problems to remain indoors and all individuals to curb outside activity. No major problems were reported to the National Weather Service because of this smoke. By late Sunday, July 7, the low pressure weakened and moved further east, allowing the wind to back into more of a westerly direction, finally dissipating the smoke.
- **Wildfire Air Quality Alert, June 5 – 8, 2023:** The entire state experienced poor air quality, especially in the southwestern corner of the state from wildfires in Canada.

Vulnerability Summary:

- **People:** Wildfire events in Alburgh, while historically infrequent, have the potential to threaten residents in rural or isolated areas, particularly if evacuation routes are limited or fire conditions escalate quickly. Individuals most at risk include the elderly, people with access and functional needs, those without vehicles, and residents in seasonal camps that may not receive timely warnings. In areas with dense brush or unmanaged vegetation, fire can spread rapidly, reducing the time available for safe evacuation.

- **Built Environment:**
  Wildfires can cause direct damage to homes, outbuildings, and utility infrastructure. Properties located near woodlots, overgrown lots, or along narrow, unpaved roads may be especially vulnerable. Blocked egress or emergency access routes due to fire or fallen debris can delay emergency response and hinder evacuation efforts. Downed utility lines may result in localized power outages, increasing risks for residents who rely on electric medical devices or well systems.
- **Natural Environment:** Alburgh's natural environment, including brushlands, open fields, and pockets of forested land, can be significantly affected by wildfire. A fast-moving grass or brush fire could result in the loss of native vegetation, wildlife habitat, and agricultural productivity. The risk is elevated during extended dry periods, particularly in the summer and early fall. Burn scars may also increase erosion risk in lakeshore areas.
- **Economy:** Wildfires can have economic impacts on Alburgh through the disruption or closure of small businesses, particularly those that rely on outdoor recreation, tourism, or agriculture. Recovery costs, including fire suppression, cleanup, and infrastructure repair, can strain municipal budgets. Seasonal closures due to fire risk can also reduce visitor revenue in lakeside areas.

Potential Future Impacts

- **Climate Change:** Warmer temperatures, less predictable precipitation, and longer dry spells associated with climate change are expected to increase the frequency and intensity of wildfires in Vermont. While Alburgh is not heavily forested, its grassland and brush areas may become more susceptible to quick-burning surface fires, particularly during extended drought conditions.
- **Change in Land Use/Development:** Although large-scale development is not currently anticipated, any increase in residential expansion into brushland or agricultural areas—especially those with limited access or fire breaks—could increase the town's vulnerability. Continued use of firewood, burning practices, or recreational land clearing also contributes to fire ignition risk in undeveloped parcels.
- **Change in Demographics:** Alburgh's population is projected to remain relatively stable, but a continued trend toward an aging population may increase the community's overall vulnerability during fire emergencies. This may necessitate greater support for evacuation planning, communication systems, and emergency shelter readiness during high-risk periods.

Infectious Disease Outbreak

Hazard Description: Infectious disease outbreaks occur when cases of disease exceed normal expectations within a population or geographic area. These diseases are caused by bacteria, viruses, fungi, or parasites, and can be transmitted person-to-person, through contaminated food or water, or via animal or insect vectors. Outbreaks can impact public health, essential services, economic activity, and community function.

Hazard Extent:
The duration and severity of an outbreak depends on several factors, including the type of pathogen, the public health response, population density, and community immunity levels. Outbreaks can span days to years, with repeated waves or seasonal cycles. For example:

- Influenza typically peaks in the winter months.
- Tick-borne diseases are more common during spring, summer, and early fall.
- Respiratory viruses like COVID-19 may vary seasonally and mutate, leading to new waves.

Healthcare access, vaccination rates, and community compliance with public health guidance also influence outcomes.

Hazard Location: Infectious disease outbreaks can occur throughout the Town and Village of Alburgh. The COVID-19 pandemic demonstrated that rural communities like Alburgh are not immune to global health emergencies. While Alburgh's low population density may limit initial spread, challenges such as limited healthcare access, elderly population, and interconnectedness through tourism and commuting can increase vulnerability. Localized outbreaks may affect:

- **Schools**, where close contact facilitates spread
- **Congregate settings**, such as long-term care homes or group housing
- **Public events**, particularly during peak recreational seasons
- **Workplaces** with essential employees or seasonal labor

Hazard History: Per the State Hazard Mitigation Plan, the following disease outbreak events have occurred in Vermont:

- 1918, 1957, 1968 – Pandemic Influenza
- 2009 – H1N1 strain
- 2015 – Sika virus
- 2020 – COVID-19

Town Vulnerability:

- **People:** Infectious disease outbreaks can affect individuals of all ages and backgrounds, but people with disabilities, access and functional needs, chronic illnesses, and limited healthcare access may be especially vulnerable. In Alburgh, a higher-than-average proportion of elderly residents and limited local healthcare infrastructure increase the community's sensitivity to public health emergencies. Households without transportation may also struggle to access medical treatment, testing, or vaccination clinics during widespread outbreaks.
- **Built Environment:** Widespread outbreaks can place significant strain on local and regional healthcare systems. In smaller rural towns like Alburgh, existing facilities may need to be modified or repurposed during a public health crisis—for example, using schools, fire stations, or community centers as testing or triage sites. Essential public facilities may also experience staffing shortages or supply disruptions, affecting service delivery.

- **Natural Environment:** Some infectious diseases originate or spread through environmental sources such as contaminated water bodies, agricultural runoff, or vector habitats. Mitigation may require monitoring and management of local lakes, fields, and recreational areas to prevent future transmission (e.g., treatment of milfoil blooms or algae-associated illness vectors in Lake Champlain).
- **Economy**: Disease outbreaks can significantly impact Alburgh's economy, particularly through the closure of local businesses, interruption of tourism activity, and the cost of emergency response efforts, such as vaccination or testing clinics. Seasonal businesses may be especially vulnerable to shutdowns during peak times. Outbreaks can also increase absenteeism among essential workers, impacting town services and infrastructure.

Potential Future Impacts

- **Climate Change:** Warming temperatures, changing precipitation patterns, and extreme weather events linked to climate change are expected to increase the frequency and spread of infectious diseases. This includes vector-borne illnesses such as Lyme disease and anaplasmosis, which are already on the rise in Vermont. In addition, more intense storms or flooding can lead to disruptions in clean water supply, sanitation systems, and healthcare services, all of which raise the risk of disease transmission. Climate-related displacement or temporary overcrowding (e.g., following a flood) may also exacerbate public health risks.
- **Change in Land Use/Development:** There are currently no anticipated changes in development or land use in Alburgh that would significantly alter vulnerability to disease outbreaks.
- **Change in Demographics:** Alburgh's demographics are projected to remain relatively stable over the next five years. However, the aging population trend may increase community vulnerability, as older adults tend to experience more severe outcomes from many infectious diseases and may require more intensive healthcare services during outbreaks.

Hail Profile

Hazard Description: Hail is a form of solid precipitation consisting of ice balls or lumps (hailstones) that form inside strong thunderstorm systems with intense updrafts. As raindrops are lifted into the upper atmosphere, they freeze and accumulate additional layers of ice, growing larger before falling to the ground once they become too heavy for the updrafts to support. Hail events can be accompanied by strong winds, lightning, and heavy rain, making them dangerous and potentially damaging.

Hazard Extent: Hailstorms can occur throughout the year, but they are most frequent in late spring and summer during intense thunderstorms. Hailstone sizes can range from pea-sized (~0.25 inches) to golf ball-sized (~1.75 inches) or larger. While Vermont generally experiences smaller hailstones (under 2 inches), isolated larger hail events have been recorded. Even small hailstones can damage crops, vehicles, windows, roofs, and siding. Larger hail poses increased risk to infrastructure, livestock, and public safety.

Hazard Location: Hail can impact anywhere in the Town and Village of Alburgh. As a low-lying and open landscape, especially along Lake Champlain, Alburgh may be vulnerable to hail-producing storm systems that develop over or move across the lake. Hail impacts are not confined to specific areas and can affect residential areas, agricultural fields, transportation routes, and recreational facilities.

Hazard History: The figure below identifies a history of occurrences. Please refer to Appendix B for additional information.

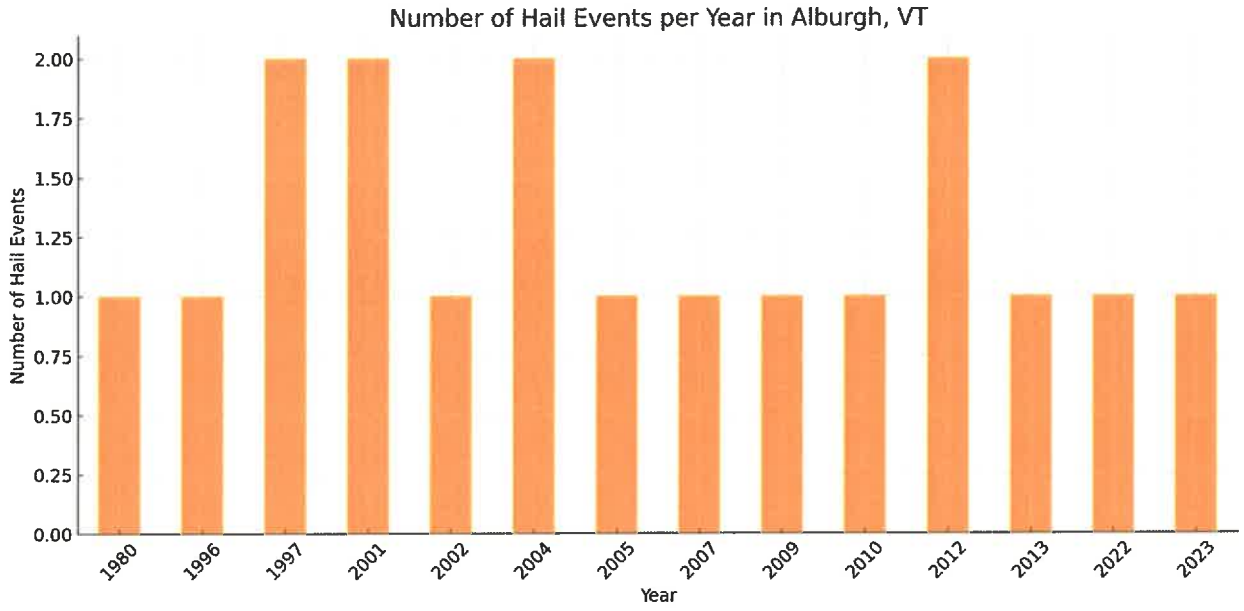

Figure 17 - Hail Events

Town Vulnerability:

- **People:** Hailstorms pose a risk of injury or fatality to individuals caught outdoors or without adequate shelter during the event. Residents without timely access to alerts or those who are unable to shelter-in-place quickly—including the elderly, people with disabilities or mobility limitations, individuals without access to transportation, and unhoused individuals—are at increased risk during hail events.
- **Built Environment:** Hail can cause substantial damage to the built environment, particularly to roofs, windows, vehicles, and exterior siding. Repeated hail impacts can compromise building

envelopes and lead to water infiltration. Public infrastructure such as vehicles, park structures, and agricultural buildings are also vulnerable.

- **Natural Environment:** Hail events can damage crops, gardens, and wild vegetation, impacting the ecological balance of the region. Sudden, intense hailstorms may also strip foliage from trees and shrubs, disrupt pollinator activity, and damage community or private agricultural operations.
- **Economy:** The economic impacts of hail events in Alburgh may include loss of crops, damage to local farms, costs of cleanup and repair, and potential temporary closures of businesses due to property damage. Emergency response and public works personnel may require overtime or equipment mobilization, creating additional costs for the Town and Village.

Potential Future Impacts

- **Climate Change:** Climate change may influence the frequency, intensity, and geographic distribution of hail-producing thunderstorms. As warming temperatures impact atmospheric instability, hailstorms may become more frequent or occur in previously less-affected areas like northern Vermont. While predictive models are evolving, hail risk in Alburgh may increase, especially during the late spring and summer months.
- **Change in Land Use/Development:** At this time, no anticipated land use or development changes in Alburgh are expected to increase vulnerability to hail events. However, any future increases in greenhouse crop infrastructure or solar installations should consider hail protection in their design.
- **Change in Demographics:** Alburgh's population is projected to remain relatively stable in the near term, though a gradual aging trend may increase vulnerability to weather-related events like hailstorms. Older residents may have greater difficulty securing shelter or recovering from storm-related damage.

Landslide Profile

Hazard Description: Landslides involve the downward movement of rock, soil, and debris on a slope, often triggered by heavy rainfall, rapid snowmelt, shoreline erosion, ground saturation, or human activities such as road cuts or poor drainage design. While less common in flat or low-relief areas, landslides may still occur in localized areas where steep banks, unstable soils, or saturated ground conditions exist. Landslides in Vermont are often associated with fluvial erosion, road embankment failure, and lake shoreline instability. They can pose risks to property, infrastructure, ecosystems, and public safety.

Hazard Location: Alburgh's generally flat topography makes large-scale landslides rare, but localized slope erosion does occur, which can make an area prone to landslide/slope failure. Areas of concern include:

- Lake Champlain shoreline bluffs – vulnerable to wave action and shoreline erosion, particularly during high water events, ice scouring, or after heavy precipitation
- Road embankments and roadside ditches – especially along Route 2 and smaller local roads where ditch failure or undercutting may trigger slope instability
- Areas with poor drainage or over-steepened manmade slopes, such as culvert outfalls, ditch lines, or fill slopes near residential areas

Figure 18 - Alburgh Landslide Risk

Hazard Extent: Landslide severity in Alburgh is generally low, due to its low-relief topography. However, localized slope erosion, particularly along the Lake Champlain shoreline, are vulnerable to landslides/slope failure. While not technically

Hazard History – Alburgh, VT:
While Alburgh has not experienced large-scale landslides like mountainous areas of Vermont, localized related incidents have been reported:

- **Spring 2023:** Heavy precipitation and high lake levels caused minor shoreline bluff erosion and sloughing in several locations along Lake Champlain.
- **July 2023 Storm:** Regional flooding contributed to saturated soils and minor embankment slumps along local roads.
- **Ongoing:** Progressive shoreline erosion along portions of Lake Street and other low-elevation areas has resulted in periodic small-scale slope failures.
- **May 2011:** High water on Lake Champlain led to approximately five feet of bank face exposed to active wave undercutting above the static lake level

Vulnerability Summary:

- **People:** Residents living near shoreline bluffs or manmade embankments may be at risk from localized slope failures or rapid erosion. Recreationists using waterfront trails or lake access areas may also face exposure, particularly after storms or freeze-thaw cycles.
- **Built Environment:** Transportation infrastructure such as roads built along raised embankments or near shorelines may be vulnerable to washouts or slumps. Shoreline homes may experience foundation instability or loss of land due to progressive erosion or shallow slides.
- **Natural Environment:** Landslides and bluff failures can cause sedimentation of Lake Champlain, harming aquatic habitats and nearshore ecosystems. Native vegetation loss can also increase long-term erosion potential.
- **Economy:** Impacts to private property, public roads, and shoreline access points may lead to economic burdens for homeowners and the Town/Village, particularly in areas dependent on tourism or lake access. Maintenance and repair costs following slope failure events can be significant.

Potential Future Impacts:

- **Climate Change:** Climate change is expected to increase the frequency of heavy rainfall events and cause higher lake levels, both of which can accelerate shoreline erosion and increase the risk of slope failure in vulnerable areas.
- **Change in Land Use/Development:** Any new shoreline development or expansion of road infrastructure on fill or steep slopes may increase the town's exposure to landslide-related impacts.
- **Change in Demographics:** Alburgh's population is not expected to grow significantly, but a potential aging trend could increase vulnerabilities, especially among those living near high-risk slopes or with limited mobility during emergencies.

COMMUNITY CAPABILITIES

A hazard mitigation capabilities assessment evaluates a community's ability to reduce and manage risks associated with natural hazards. This assessment involves analyzing existing policies, programs, and resources to identify strengths and areas for improvement in mitigating hazards. The four key types of mitigation capabilities include planning and regulatory, administrative, and technical, financial and education and outreach. Below are the definitions of each key type:

- **Planning and regulatory:** Planning and regulatory capabilities are the codes, ordinances, policies, laws, plans and programs that guide growth and development.
- **Administrative and Technical:** Administrative and technical capabilities are the participant's staff, skills, and tools. These capabilities can be used for mitigation planning and to carry out specific mitigation actions.
- **Financial:** Financial capabilities are the resources to fund mitigation actions.
- **Education and Outreach:** Education and outreach capabilities are programs and methods that can communicate about and encourage risk reduction.

Capability Assessment

Planning and Regulatory Capabilities			
Capability	**Description**	**Authority**	**Area for Improvement**
Municipal Hazard Mitigation Plan	Identifies risks and mitigation strategies	Local / FEMA	Ensure plan is updated prior to plan expiration
Town Plan	A comprehensive plan guiding land use and community development	Local	Incorporate hazard mitigation goals into the Goals and Objectives section in future updates
Land Use and Development Regulations	Regulates land use and development (controls how land can be used in different ways)	Local	Add River Corridor Protection Bylaw during current review and update cycle. Formally adopt the regulations.
Subdivision Regulations	Governs the division of land parcels	Local	Ensure new development avoids high-risk areas and is built with resilience in mind. Formally adopt the regulations.
Flood Hazard Bylaws	Regulates development in flood-prone areas (special flood hazard area)	Local	Promote sustainable development practices that consider long-term flood risks and environmental impacts.
Road and Bridge Standards	Defines construction standards for infrastructure	Local / State	Adopt the most up-to-date Vermont Road and Bridge Standards
Local Emergency Operations Plan (LEOP)	Plan for response and recovery	Local	Ensure the plan is reviewed on an annual basis and submitted to VEM
Building Code (State/Local)	Standards for construction and safety	State	The Town does not have Town specific building codes. All buildings are expected to conform to State mandated

			standards applicable in the year(s) they are built. The town may consider adopting building codes in the future.
Maintenance Programs	Bridge & Culvert Inventory	Local	Ensure inventory is updated on an annual basis, or as needed
Administrative and Technical Capabilities			
Capability	**Description**	**Staffing**	**Area for Improvement**
Selectboard	Governing body responsible for decision-making	3 members	Provide additional hazard mitigation and emergency preparedness training to elected officials
Planning Commission	Advises on land use and community planning	5 appointed volunteers	Increase training on resilient land use planning and integration of hazard data into subdivision review
Road Foreman / Highway Department	Manages public works and roads	full-time – 2 members	Consider staff in FEMA preliminary damage assessments and documentation requirements
Emergency Management Director	Coordinates emergency preparedness	1 appointed volunteer	Consider professional development and designate a deputy to improve coverage
Town Clerk / Treasurer	Manages records and funding	2 full-time	Implement continuity of operations planning (COOP) and cross-training for backup capacity
Northwest Regional Planning Commission	Regional planning and technical support	Shared	Ensure close coordination on regional hazard mitigation planning
Floodplain Administrator	Oversees NFIP compliance and floodplain permits	Zoning Administrator	Provide training on updated floodplain regulations and digital flood mapping tools
Fire Department	Emergency response and public safety	12 volunteers	mprove recruitment, etention, and training on ll-hazard incident esponse
Zoning Administrator	Enforces zoning bylaws and supports land use planning	1 full-time	Increase coordination with emergency management and integration of hazard risk in permit reviews
Health Officer	Enforces public health regulations	1 appointed	Develop emergency health protocols and participate in hazard-specific exercises

Tree Warden	Oversees town trees and roadside vegetation |	1 appointed	Create a town-wide tree hazard inventory and expand capacity for post-storm clearing and risk reduction
Grand Isle County Mutual Aid Association	Services Agreement for regional coordinated emergency services	Local	Assist with bylaw review and ensure information is up to date
Financial Capabilities			
Capability	**Description**	**Staffing**	**Area for Improvement**
Annual Town Budget	Alburgh's annual town budget is approved by residents at Town Meeting and is primarily funded through property taxes, with additional support from state aid, grants, and other local revenue sources. The budget supports essential municipal services, including road maintenance, emergency services, municipal office operations, solid waste management, and the maintenance of public facilities and infrastructure.	Local	Consider creating a specific line in the annual budget for hazard mitigation planning and implementation
Capital Improvement Plan	Long-term planning for infrastructure investments	Local	Consider developing an evacuation and ranking criteria: Evaluate and rank projects based not only on cost and age, but also vulnerability to hazards
Donations/Volunteer Time	In-kind support from residents	Local	Better document donations and volunteer time for in-kind match
Emergency Relief and Assistance Fund (ERAF)	The Emergency Relief and Assistance Fund (ERAF) provides State funding to match Federal Public Assistance after federally-declared disasters.	State	Ensure highest score possible
Education and Outreach Capabilities			
Capability	**Description**	**Staffing**	**Area for Improvement**
Social Media Emergency Preparedness Messages	Educational campaigns	Local	Include updated information and best practices

Figure 19 - Capabilities Assessment

National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a federal program that provides property owners in flood-prone areas with access to affordable flood insurance and encourages communities to adopt and enforce floodplain management regulations. Established by the National Flood Insurance Act of 1968, the NFIP reduces the financial burden of flood disasters on taxpayers and promotes sound land use planning.

NFIP Participation and Adoption of NFIP Standards and Maps
The Town of Alburgh has been an active participant in the NFIP since June 14, 1974. This enrollment enables eligible property owners to purchase federally-backed flood insurance, and makes the town eligible for federal disaster recovery assistance related to flooding, mudflows, or erosion hazards. Alburgh administers floodplain development in accordance with its Flood Hazard Area Regulations, which are based on FEMA's Digital Flood Insurance Rate Maps (DFIRMs). The effective Flood Insurance Rate Maps (FIRMs) for Alburgh were issued on May 4, 1981, and delineate the Special Flood Hazard Area (SFHA), including areas along Lake Champlain and low-lying inland zones subject to flood risk.

Staffing, Enforcement, and Continued Compliance in the NFIP
Alburgh's Zoning Administrator currently serves as the Floodplain Administrator, responsible for:

- All permits issued for development in areas of special flood hazard;
- The elevation (consistent with the datum of the elevation on the NFIP maps for the community) of the lowest floor, including basement, of all new or substantially improved buildings;
- The elevation (consistent with the datum of the elevation on the NFIP maps for the community) to which buildings have been floodproofed;
- All floodproofing certifications required under this regulation; and
- All variance actions, including justification for their issuance.

If the Zoning Administrator is unavailable, the Selectboard may designate an alternate official to perform these duties to ensure regulatory continuity. Appeals of decisions made by the Zoning Administrator are handled by the Development Review Board (DRB), the community's designated Appropriate Municipal Panel under 24 V.S.A. § 4461.

Enforcement of the flood regulations is carried out pursuant to 24 V.S.A. §§ 4451 and 4452, including the issuance of warning notices, enforcement actions, and where applicable, a declaration of non-compliance under Section 1316 of the National Flood Insurance Act to request denial of flood insurance.

Substantial Damage and Substantial Improvement
Alburgh's Flood Hazard Area Regulations incorporate definitions of Substantial Damage and Substantial Improvement that are consistent with FEMA standards (44 CFR § 59.1 and § 60.3):

- Substantial Damage is defined as damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damage condition would equal or exceed 50 percent of the structure's market value prior to the damage.
- Substantial Improvement is defined as any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction."

For all substantial improvements or new construction proposed within the Special Flood Hazard Area (SFHA), the Zoning Administrator must submit the application and all supporting documentation to the State NFIP Coordinator at the Vermont Agency of Natural Resources (ANR), Department of Environmental Conservation, River Management Section, in accordance with 24 V.S.A. § 4424.

A permit may be issued only after:

- Written comments are received from ANR, or
- 30 days have passed since the submission date, whichever occurs first.

These measures ensure development within flood hazard areas complies with local, state, and federal requirements and protects Alburgh's continued participation in the NFIP.

Repetitive Loss
According to the most recent data available from FEMA and Vermont's Flood Ready Database, Alburgh has no recorded Repetitive Loss Properties (RLPs)—properties with two or more NFIP flood insurance claims within a rolling ten-year period.

Structures in the Special Flood Hazard Area and River Corridor
According the Flood Hazard Summary Report, the Town of Alburgh has 338 structures located within the Special Flood Hazard Area (SFHA).

MITIGATION STRATEGY

The mitigation strategy section of the Alburgh Local Hazard Mitigation Plan outlines a coordinated approach to reducing long-term risks from natural hazards. Through the identification of threats, assessment of local vulnerabilities, and development of targeted actions, Alburgh aims to strengthen community resilience, safeguard life and property, and promote responsible, hazard-aware development across the town and village.

Mitigation Goals

- Protect life and reduce the risk of injury from all natural hazards.
- Minimize the impact of hazard events on Alburgh's natural resources, shorelines, and historically significant properties.
- Reduce the economic consequences of disasters by:
    - Maintaining access to critical roadways and transportation routes,
    - Limiting financial losses to residential, agricultural, commercial, and municipal assets,
    - Protecting public infrastructure, including roads, bridges, culverts, and public buildings—from severe hazard damage,
    - Implementing mitigation projects proactively to reduce long-term recovery costs.
- Integrate hazard mitigation into broader local planning efforts, including the Town Plan, zoning and subdivision regulations, and the Local Emergency Management Plan (LEMP).
- Promote continued public involvement in hazard mitigation through outreach, education, and opportunities to participate in plan development and project implementation.

Mitigation Action Prioritization

Mitigation actions for Alburgh are prioritized using a structured process that weighs both technical and community-based considerations. This approach helps the town allocate limited resources effectively and ensures selected actions offer the greatest benefit for reducing risk and supporting long-term resilience. Key criteria considered during action prioritization include:

- Will the action significantly reduce risk or damage?
- Does the action align with local goals and planning objectives?
- Is the action consistent with existing regulations or policies?
- Does the action help protect critical facilities or historic properties?
- Can the action be implemented within a reasonable timeframe?
- Is the action supported by the community?
- Is the action technically sound and feasible?
- Can the town administer and manage the project effectively?
- Is the action politically and publicly acceptable?
- Is the action legally permissible under local, state, and federal law?
- Does the action provide benefits that outweigh its cost?
- Is the action environmentally responsible and sustainable?

This prioritization framework supports thoughtful decision-making and helps the Town and Village of Alburgh implement the most practical and impactful mitigation strategies possible.

The mitigation action prioritization calculation is determined by multiplying the cost by the benefit (see table below). Please note that cost is considered after grant funding opportunities.

			Score
Cost	High	Greater than $100,000	1
	Medium	$25,000 - $100,000	2
	Low	Less than $25,000	3
Benefit	High	Public Safety	3
	Medium	Infrastructure / Functionality	2
	Low	Aesthetics / General Maintenance	1

Hazard Prioritization	High	7 – 9
	Medium	4 – 6
	Low	1 – 3

Figure 20 - Mitigation Action Prioritization Calculation

2025 Mitigation Actions

Hazard Addressed	Hazard Mitigation Action	Responsible Party	Estimated Timeline for Completed	Funding Source	Action Prioritization Cost/Benefit (C/B)
Fluvial/Shoreline Erosion and Flooding	Route 129 / West Shore Road Shoreline Erosion Mitigation – Outer Peninsula Roadways: This two-part mitigation project aims to reduce shoreline erosion risks and preserve critical infrastructure along Route 129 and West Shore Road **Phase 1: Inventory, Assessment, and Prioritization** • Conduct a field-based assessment and GIS mapping to document shoreline conditions along Route 129 and West Shore Road. • Identify priority erosion zones based on: ○ Degree of bank retreat or road encroachment ○ Presence of critical infrastructure or at-risk homes ○ Historical damage and repair needs • Rank locations by risk level and urgency of intervention. **Phase 2: Mitigation Design and Implementation** • Implement site-specific shoreline stabilization measures at priority locations. Potential solutions may include: ○ Riprap or bioengineered shoreline stabilization ○ Vegetated buffers and slope reinforcement ○ Culvert or drainage upgrades to prevent undermining from runoff ○ Road relocation or realignment (if cost-effective and feasible for high-risk segments)	Selectboard with Highway Crew Support	September 2025 – September 2027	Town General Fund and grants (EMA HMGP, Building Resilient Infrastructure and Communities (BRIC), Lake Champlain Basin Program, or VTrans Better Roads grants)	MEDIUM (6) C/B: Med/Hi
Flooding	East Alburgh Flooding Mitigation – Railroad Corridor Coordination Project: In East Alburgh, persistent flooding and standing water occur near the railroad corridor, where a culvert or drainage channel appears to have been filled in or blocked. The location is not on a town-maintained road, and the issue lies within or adjacent to the railroad right-of-way, potentially under the jurisdiction of the railroad operator and/or the U.S. Army Corps of Engineers (USACE).This project aims to initiate coordination and formal engagement with relevant external agencies to assess the issue, confirm ownership and responsibility, and develop a viable drainage solution to mitigate flood and water retention in this low-lying area. **Phase 1: Investigation and Stakeholder Engagement** • Conduct site visits and mapping to confirm source, extent, and hydrologic dynamics of standing water. • Review historic drainage or culvert records (town, railroad, or USACE files if available). • Identify responsible parties • Initiate contact with: ○ Railroad operator	Town Administrator with Support from Local Hazard Mitigation Planning Team Members	September 2025 – September 2028	Town General Funds and grants (FEMA HMGP or FMA, USACE Continuing Authorities Program (CAP), State clean water grant)	HIGH (9) C/B: Low/Hi

Hazard Addressed	Hazard Mitigation Action	Responsible Party	Estimated Timeline for Completed	Funding Source	Action Prioritization Cost/Benefit (C/B)
	○ U.S. Army Corps of Engineers ○ Vermont Agency of Transportation (VTrans) ○ VT DEC Rivers Program for permitting and hydrologic review **Phase 2: Planning and Design** • Develop a collaborative drainage improvement plan (e.g., culvert restoration, ditching, or pumping). • Explore right-of-entry, permitting, and environmental review requirements. • Coordinate with affected property owners and nearby infrastructure.				
Wind, Ice, Snow, Heat, Cold, Wildfire, Earthquake, Hail	Backup Power for Emergency Shelters – Alburgh School and Bingo Hall: This project addresses the need for reliable backup power at designated emergency shelters in the Town and Village of Alburgh, specifically the Alburgh Community Education Center (ACEC) and the Alburgh Volunteer Fire Department's Bingo Hall. **Phase 1: Assessment** • Evaluate current generator capacity at the school and Bingo Hall • Assess electrical needs during full shelter operation **Phase 2: Design and Procurement** • Develop specifications for adequate standby generators • Procure equipment, transfer switches, and any required electrical upgrades • Ensure systems are appropriately sized, code-compliant, and climate-resilient **Phase 3: Installation and Testing** • Coordinate with local contractors for installation • Ensure permanent, automatic transfer switch systems • Conduct system testing and training for shelter staff **Phase 4: Operations and Maintenance** • Develop a maintenance schedule • Secure a fuel supply plan for prolonged outages • Train shelter managers on startup and safety procedures	Selectboard with Emergency Management Director Support	September 2025 – September 2027	Town General Funds and grants (USDA Rural Development Community Facilities Grants, Vermont Emergency Management or DPS grants)	MEDIUM (6) C/B: Med/Hi
Flooding	Flood and Stormwater Mitigation & Emergency Response Coordination – Mapping, Prioritization, and Intervention: This project addresses recurring localized flooding and stormwater runoff issues in the Town and Village of	Selectboard with Support from Local Hazard Mitigation	September 2025 – September 2028	Town General Funds and Grants (Vermont Clean Water Initiative grant, VTrans Better	MEDIUM (6) C/B: Med/Hi

Hazard Addressed	Hazard Mitigation Action	Responsible Party	Estimated Timeline for Completed	Funding Source	Action Prioritization Cost/Benefit (C/B)

	Alburgh, which frequently result in residential flooding, standing water, and the need for fire department response to pump out homes.
	
	Phase 1: Flood Mapping and Prioritization
	• Conduct a town-wide mapping effort to:
	  ○ Identify flood-prone areas, including public infrastructure, residential zones, village center areas, and historically flooded parcels
	  ○ Distinguish between public and private property where flooding occurs
	• Engage stakeholders (e.g., FD, residents, Selectboard, Zoning, and highway department) to rank locations by:
	  ○ Frequency of response
	  ○ Population vulnerability
	  ○ Drainage system failure points
	  ○ Access or egress issues
	
	Phase 2: Determine and Design Mitigation Solutions
	• For priority sites, develop site-specific fixes such as:
	  ○ Drainage improvements (e.g., ditching, culvert upgrades, check valves)
	  ○ Green infrastructure solutions (e.g., rain gardens, vegetated swales, infiltration trenches)
	  ○ Culvert and pipe upsizing in areas prone to overflow
	  ○ Backflow prevention devices in areas where lake or storm surge enters developed areas
	  ○ Retrofits or elevation options for frequently flooded private structures (pending homeowner coordination)
	
	Phase 3: Implementation and Coordination
	• Implement selected solutions at the highest priority locations first
	• Continue coordination with the Fire Department to document flood response areas and reduce dependence on emergency pumping over time
	• Educate residents on flood preparedness, maintenance of ditches and culverts, and the availability of mitigation grants for private property retrofits
		Planning Team Members		Roads Program, USDA NRCS for agricultural land runoff, Lake Champlain Basin Program (LCBP) for green stormwater infrastructure)	

Hazard Addressed	Hazard Mitigation Action	Responsible Party	Estimated Timeline for Completed	Funding Source	Action Prioritization Cost/Benefit (C/B)

Flooding, Ice, Landslides, Wildfire, Wind, Snow, Earthquake	Evacuation Route Assessment and Improvement Planning – Town and Village of Alburgh: This project aims to identify, assess, and improve evacuation routes and critical access corridors across the Town and Village of Alburgh.
	Phase 1: Route Identification and Risk Assessment
	• Identify all **primary and secondary evacuation routes**
	• Map all routes and evaluate conditions based on:
	  ○ Flooding or shoreline erosion risks
	  ○ Narrow roads or dead ends
	Phase 2: Coordination and Prioritization
	• Develop a list of high-priority evacuation improvement areas based on risk, population serviced, and emergency response needs
		Selectboard with Support from Local Hazard Mitigation Planning Team Members	September 2025 – September 2028	Town General Funds and grants (VTrans Better Roads, Vermont Local Roads / Clean Water Initiative, USDA Rural Development Community Facilities Program)	HIGH (9)
					C/B: Low/Hi

Wind, Ice, Earthquake, Wildfire	Hazard Tree Identification and Removal Program – Public Rights-of-Way and Private Property Coordination: This project seeks to reduce risks posed by hazard trees along town rights-of-way and adjacent private properties
	Phase 1: Inventory and Assessment
	• Work with the Tree Warden and Highway Department to conduct or update a town-wide hazard tree inventory, focusing on:
	• Classify trees by risk level, species, and potential targets (road, building, etc.)
	Phase 2: Public Outreach and Coordination
	• Notify and coordinate with private property owners where hazardous trees on private land threaten the public ROW or infrastructure
	• Educate residents about tree hazards, safe removal, and eligibility for state or federal assistance
	• Coordinate with utility companies (e.g., Vermont Electric Coop) where tree threats involve power infrastructure
	Phase 3: Removal and Mitigation
	• Prioritize areas with:
	  ○ History of outages or road closures
	  ○ Narrow ROWs or limited detour options
	  ○ High public use (school zones, village center, evacuation routes)
	• Track removals and maintain a living hazard tree inventory for future maintenance
		Selectboard with support from Local Hazard Mitigation Planning Team Members	September 2025 – September 2030	Town general funds and grants (VT Urban & Community Forestry Grant Program, USDA Community Forest Assistance)	HIGH (9)
					C/B: Low/Hi

All hazards (listed in the hazard assessment)	Community Education and Outreach Initiative – Natural Hazards and Hazard Mitigation Awareness: This project aims to increase public awareness and engagement around natural hazards, climate change	Emergency Management Director with	September 2025 – September 2030 (eventually	Town general funds	HIGH (9) C/B: Low/Hi

Hazard Addressed	Hazard Mitigation Action	Responsible Party	Estimated Timeline for Completed	Funding Source	Action Prioritization Cost/Benefit (C/B)
	risks, and local hazard mitigation strategies in the Town and Village of Alburgh. **Phase 1: Develop Outreach Materials** • Create hazard-specific educational materials **Phase 2: Host Community Events** • Coordinate public presentations, workshops, or open houses during: ○ Town Meeting ○ School functions ○ Alburgh Day and other local events **Phase 3: School and Youth Engagement** • Work with Alburgh Community Education Center to introduce: ○ Age-appropriate hazard education ○ Emergency preparedness activities (e.g., safety kits, climate awareness projects) **Phase 4: Maintain Online Presence** • Create a dedicated hazard mitigation page on the town website • Post emergency alerts, grant opportunities, preparedness checklists, and links to state/federal resources	support from Local Hazard Mitigation Planning Team Members	will be a capability)		
Fluvial/Shoreline Erosion and Flooding	Road and Bridge Standards Update This project involves reviewing and updating the Town and Village of Alburgh's Road and Bridge Standards to meet or exceed the Vermont Agency of Transportation's (VTrans) 2019 "Road and Bridge Standards", a requirement for receiving the maximum 17.5% state cost share under the Emergency Relief and Assistance Fund (ERAF). **Phase 1: Review and Gap Assessment** • Compare Alburgh's current 2013 standards with the 2019 VTrans Road and Bridge Standards **Phase 2: Adoption and Local Approval** • Update and officially adopt the latest VTrans-compliant standards • File signed copies with VTrans and Vermont Emergency Management (VEM) to document ERAF compliance **Phase 3: Implementation** • Apply updated standards to future road and culvert projects • Train town road crew on standard changes (e.g., slope requirements, culvert diameters) • Integrate updated standards into the Capital Improvement Plan (CIP) and local development regulations	Selectboard with support from the Highway Crew	September 2025 – September 2027	Town general funds	MEDIUM (6) Low / Medium
Fluvial/Shoreline Erosion and Flooding	Adopt River Corridor Protection Language: This project proposes the adoption of River Corridor Protection regulations into Alburgh's local land use bylaws or flood hazard area regulations.	Selectboard	September 2025 – September 2027	Town General Funds	MEDIUM (6) Low / Medium

Hazard Addressed	Hazard Mitigation Action	Responsible Party	Estimated Timeline for Completed	Funding Source	Action Prioritization Cost/Benefit (C/B)
	Phase 1: Policy Review and Technical Assistance • Coordinate with VT DEC Rivers Program to obtain model River Corridor language and mapping • Review Alburgh's existing Flood Hazard Area Regulations and zoning bylaws • Identify where the River Corridor Protection language can be integrated or added **Phase 2: Draft and Adoption Process** • Draft proposed amendments with support from regional planning commission (RPC) and VT ANR • Present to Planning Commission and Selectboard for public hearing and formal adoption • Submit adopted language to VEM and VT DEC for ERAF compliance verification **Phase 3: Outreach and Implementation** • Educate property owners along Mud Creek and other mapped corridors about the purpose and benefits of River Corridor protection • Update permit review procedures to include River Corridor assessment • Maintain compliance by referencing ANR's River Corridor Base Layer in permit reviews				

Mitigation action Integrated into Plans and Procedures

For Alburgh to succeed in reducing long-term risk, the goals, strategies, and findings of this Local Hazard Mitigation Plan (LHMP) should be fully integrated into town and village operations, planning documents, and emergency protocols. Integration of this Plan's content will ensure that hazard mitigation remains a living, proactive process embedded across municipal functions.

Key integration strategies include:

- The mitigation goals and risk assessment data from this Plan can be incorporated into future updates of the Alburgh Town Plan and any inundation or flood hazard area regulations.
- Mitigation project funding can be prioritized during the town's annual budgeting process, particularly for infrastructure improvements and shelter resilience.
- Mitigation actions can be elevated during grant research and application efforts, including FEMA, VEM, and regional planning initiatives.
- Risk information from this Plan can be used to inform future training budgets for departments such as emergency management, fire, highway, and school preparedness.
- The findings and prioritized actions in this Plan should be embedded into the Local Emergency Management Plan (LEMP) and referenced during emergency planning efforts.
- Alburgh may consider incorporating this Plan's risk data into a future Continuity of Operations Plan (COOP) to ensure government continuity in a disaster scenario.
- The Plan's goals and risk awareness materials can be used during community education events, including Alburgh Day, school programs, or public outreach initiatives.
- Information from the Plan should be included in tabletop exercises, drills, and response training conducted by the town, fire department, and mutual aid partners.

By integrating mitigation principles across municipal governance, Alburgh can better protect residents, infrastructure, and essential services from current and future hazard events.

PLAN MAINTENANCE

This section outlines the procedures and responsibilities for maintaining and updating the Alburgh Hazard Mitigation Plan in accordance with local, state, and federal requirements. Regular maintenance ensures that the plan remains current, relevant, and effective in reducing the risks associated with natural hazards and enhancing the resilience of the community. Key components of this process includes:

- Monitoring: Tracking implementation of the plan over time.
- Evaluating: Assessing how well the plan meets its stated purpose and goals.
- Updating: Reviewing and revising the plan at least once every five years.

The table below provides an overview of the plan maintenance process:

Plan Maintenance Step	When	Action	Who
Monitoring	Once per year – April Selectboard Meeting	Get status updates on mitigation actions, compile progress reports and identify mid-course corrections.	Selectboard & Emergency Management Director
Evaluating	Once per year – April Selectboard Meeting or after a disaster event.		
Updating	Plan – Year 3	Obtain grant for plan update	Selectboard, Emergency Management Director & Planning Committee
	Plan – Year 4	Engage a consultant and begin plan update	
	Plan – Year 5	Review and update the plan. Submit to VEM/FEMA for review and approval	

Figure 21 - Plan Maintenance Overview

Annual Plan Monitoring and Evaluation

Plan monitoring means tracking how the plan is carried out over time. This includes any progress made on goals, actions, plan integration and public involvement. Plan evaluating means looking at how well the plan is meeting its goal. Plan monitoring and evaluation may also take place after a disaster event. During the annual plan monitoring and evaluation process, the below planning cycle should be followed.

Step 1: Plan Review Preparation

- Approximately three months before the April Selectboard meeting, the Emergency Management Director (EMD) and the Selectboard should review with the town's LHMP planning committee members and update as necessary.
- Approximately two months before the April Selectboard meeting, the EMD, with assistance from the LHMP planning committee, should review, evaluate, and status the plan. The EMD should consider:
    - Progress on Mitigation Actions – Determine if the projects and policies identified in the plan are being implemented as scheduled, and evaluate their effectiveness in reducing risk.
    - Relevance of Risk Assessment – Assess whether the hazards profiled in the plan remain accurate based on recent events, emerging threats, and updated hazard data from the Vermont Agency of Natural Resources (ANR), FEMA, and other authoritative sources.
    - Changes in Development and Vulnerability – Review new development, redevelopment, or land use changes to assess if vulnerability to hazards has increased or decreased.

- Community Engagement and Support – Evaluate public outreach efforts, feedback received, and level of community participation in mitigation activities.
- Compliance with State and Federal Requirements – Ensure the plan continues to meet the standards of 44 CFR § 201.6, the Vermont Emergency Management requirements, and maintains eligibility for the National Flood Insurance Program (NFIP) and related federal funding opportunities.
- Post-Disaster Performance – After a disaster, analyze the performance of mitigation measures, the adequacy of response capabilities, and any unanticipated vulnerabilities.

Step 2: Public Input

- The public should be allowed an opportunity to review the plan and provide updates prior to the April Selectboard meeting. This should be done approximately one month before the April Selectboard meeting.

Step 3: April Selectboard Meeting

- The status plan and any public input should be reviewed at the April Selectboard meeting.
- Documentation of the annual plan monitoring and evaluation should be captured in the 'Plan Review and Revision' section of the plan.

Plan Updating

Plan updating means reviewing and revising the plan at least once every five years. During the update process, the following planning cycle should be followed:

Step 1: Funding

- Approximately 24 months prior to plan expiration, the town's EMD should contact VEM to apply for grant funding to update their LHMP.

Step 2: Requests for Proposals

- Once funding is secured and the grant agreement between the Town and the State is in place, the town can issue a request for proposal (RFP) to procure planning services in accordance with the grant agreement. The RFP should be issued approximately 20 months prior to the plan expiration.

Step 3: Contractor Selection

- Once RFPs are received, the Selectboard, or designated person/committee, should review proposals and provide recommendation to the Selectboard. The contractor should be selected approximately 18 months prior to the plan expiration.

Step 4: Building the Planning Team

- A Planning Team made up of local, regional and state resources should be assembled to assist with the plan update.

Step 5: Stakeholder Engagement and Outreach Strategy

- The consultant, in conjunction with the Planning Team, should develop a comprehensive stakeholder engagement and outreach strategy plan to solicit input from the public.

Step 6: Planning Meetings

- A series of planning meetings, facilitated by the consultant, should be held to solicit input from the planning team and the public.

Step 7: Draft Plan Development

- The consultant, with input from the Planning Team and the public, will develop a draft plan. The plan should be reviewed by the planning team and Selectboard prior to submission to VEM. The draft plan should also be made available for public comment and input.

Step 8: Draft Plan Submission

- After the local review, the consultant shall submit the draft plan, along with supporting documentation (e.g., FEMA Crosswalk) to VEM. The consultant shall be responsible for incorporating all edits from VEM.

Step 9: Plan Adoption

- Upon plan approval pending adoption (APA) from VEM, the Selectboard shall adopt the plan. The Plan shall also be distributed to interested parties (e.g., posting on webpage, final copy submitted to VEM and FEMA).

Step 10: Plan Monitoring and Evaluating

- The town will then be responsible for the annual plan monitoring and evaluating.

Public Involvement

The public will be given numerous opportunities to be involved in keeping the plan current. The public will be kept involved through the following methods:

- Public meetings
- Website postings
- Hard copy notices
- Social media postings

APPENDIX A: DECLARED DISASTERS

femaDeclarationString	declarationType	declarationDate	incidentType	declarationTitle	incidentBeginDate	incidentEndDate	designatedArea
DR-4695-VT	DR	2023-03-20T00:00:00.000Z	Severe Storm	SEVERE STORM AND FLOODING	2022-12-22T00:00:00.000Z	2022-12-24T00:00:00.000Z	Grand Isle (County)
DR-4532-VT	DR	2020-04-08T00:00:00.000Z	Biological	COVID-19 PANDEMIC	2020-01-20T00:00:00.000Z	2023-05-11T00:00:00.000Z	Grand Isle (County)
DR-4380-VT	DR	2018-07-30T00:00:00.000Z	Severe Storm	SEVERE STORM AND FLOODING	2018-05-04T00:00:00.000Z	2018-05-05T00:00:00.000Z	Grand Isle (County)
DR-4356-VT	DR	2018-01-02T00:00:00.000Z	Severe Storm	SEVERE STORM AND FLOODING	2017-10-29T00:00:00.000Z	2017-10-30T00:00:00.000Z	Grand Isle (County)
DR-4163-VT	DR	2014-01-29T00:00:00.000Z	Severe Ice Storm	SEVERE WINTER STORMS	2013-12-20T00:00:00.000Z	2013-12-26T00:00:00.000Z	Grand Isle (County)
DR-4022-VT	DR	2011-09-01T00:00:00.000Z	Hurricane	TROPICAL STORM IRENE	2011-08-27T00:00:00.000Z	2011-09-02T00:00:00.000Z	Grand Isle (County)
DR-1995-VT	DR	2011-06-15T00:00:00.000Z	Severe Storm	SEVERE STORMS AND FLOODING	2011-04-23T00:00:00.000Z	2011-05-09T00:00:00.000Z	Grand Isle (County)
DR-1784-VT	DR	2008-08-15T00:00:00.000Z	Severe Storm	SEVERE STORMS, A TORNADO, AND FLOODING	2008-07-18T00:00:00.000Z	2008-07-18T00:00:00.000Z	Grand Isle (County)
DR-1201-VT	DR	1998-01-15T00:00:00.000Z	Severe Storm	SEVERE ICE STORMS, RAIN, HIGH WINDS AND FLOODING	1998-01-06T00:00:00.000Z	1998-01-16T00:00:00.000Z	Grand Isle (County)
DR-990-VT	DR	1993-05-12T00:00:00.000Z	Flood	HEAVY RAIN, SNOWM	1993-04-24T00:00:00.000Z	1993-05-26T00:00:00.000Z	Grand Isle (County)

				ELT & FLOODING			
DR-4720-VT	DR	2023-07-14T00:00:00.000Z	Flood	SEVERE STORMS, FLOODING, LANDSLIDES, AND MUDSLIDES	2023-07-07T00:00:00.000Z	2023-07-21T00:00:00.000Z	Grand Isle (County)
DR-397-VT	DR	1973-07-06T00:00:00.000Z	Flood	SEVERE STORMS, FLOODING, & LANDSLIDES	1973-07-06T00:00:00.000Z	1973-07-06T00:00:00.000Z	Grand Isle (County)

APPENDIX B: HISTORICAL OCCURRENCES

Flooding and Inundation Flooding History

Begin Date	End Date	Event Description and Extent
1/19/1996	1/20/1996	A strong storm system moved into the Great Lakes on Thursday (1/18/96) and then moved into Canada thereafter on Friday (1/19/96) and Saturday (1/20/96). The circulation associated with this storm resulted in above normal temperatures, strong winds and flooding due to snow melt and rainfall. Two deaths were attributed to the flooding. A young girl drowned (1/19/96) trying to rescue her father when car was swept by water. The father died 2 days later (1/21/96) from injuries and hypothermia suffered from the accident on 1/19/96. Numerous roads were washed out due to the flooding statewide. Water was reported up to the level of car doors in Berlin (Washington County). Strong winds buffeted the state during Friday and Friday evening (1/19/96). A few of the higher gusts were: 79 mph at Pleasant Valley, 70 mph at Underhill and 63 mph at Jericho all located in Chittenden County. Numerous power outages across the state were reported.
5/2/1996	5/8/1996	Runoff from melting snow and rainfall resulted in the Lake Champlain Lake level reaching or exceeding 100 feet. There was some minor flooding along the lake shore during this period.
5/12/1996	5/24/1996	Continued runoff into Lake Champlain resulted in the lake level rising above the 100 foot mark with minor lake shore flooding. The highest level recorded during this period in May of 1996 was 100.90 feet on May 16, 1996.
11/9/1996	11/9/1996	A strong cold front moved slowly across New York State Friday and Friday night (11/8/96) and across Vermont Saturday (11/9/96). Periods of heavy rain resulted from late Friday night into Saturday. Culvert and field flooding was reported in Vermont's Grand Isle County Saturday morning (11/9/96). South Hero, Vermont reported a storm total rainfall of 4.46 inches.
4/1/1998	4/13/1998	Spring runoff and flood waters resulting in the lake level of Lake Champlain rising to equal or exceed the 101 foot level during this period. The maximum level reached this year was 101.82 feet on April 5. Flooding of lake shore areas became widespread with water closing some roads and flooding some private property. Due to the high lake level water back flowed up the rivers that flow into the lake. Some residents were forced to sandbag to protect property.
4/23/2001	4/30/2001	Snow melting and associated runoff due to the spring melt resulted in flooding along the shores of Lake Champlain. Lake levels reached the 100.99 foot level (flood stage is 100 feet). Lakeshore flooding continued into the month of May.
5/1/2001	5/9/2001	Snow melting and associated runoff due to the spring melt continued to result in flooding along the shores of Lake Champlain into May 2001. Lake levels remained above flood stage (100 feet) through May 9th, with minor flooding reported.
4/20/2007	4/30/2007	The melting of snow from an above normal snow pack established in February, March, and early April, as well as several rain events during the latter half of April, contributed to a significant run-off into streams and rivers of the Lake Champlain basin, which eventually deposited into Lake Champlain. Lake Champlain had been rising steadily since mid-month, and at 7:15 pm LST on April 20th, finally exceeded its flood stage of 100.0 feet. Primarily...only minor shoreline flooding but was occasionally exasperated due to strong winds and wave action along the Vermont shoreline. Several summer camps and cottages experienced flooding as well as a few docks damaged as well. The lake would remain above flood stage through the end of April.
4/13/2011	4/30/2011	Record Flooding occurred along the shores of Lake Champlain from mid-April to mid-June. NWS Flood Stages for the United States Geological Survey (USGS) gages on Lake Champlain at the ECHO Center in Burlington, VT and Rouses Point, NY are 100.0 feet and were surpassed on April 13th and finally receded below flood stage on June 18th. Major flooding occurs with lake levels at or above 101.5 feet, which were surpassed from April 27th to June 8th as the lake level exceeded its flood stage of 100 feet from April 13th to June 18th. Further, the lake level exceeded its previous flood of record of 102.1 feet on April 28th and crested at 103.26 feet on May 6th, before eventually receding below the previous record on June 5th.||In addition, strong south to southeast winds of 25 to 35 mph (greater at times) caused extensive damage due to 3 to 5 foot wave action as well as 0.5-1 foot seiches on windward facing shores (New York and Vermont). These episodes occurred on April 23rd, May 2nd, May 22-23rd and June 1st. North to northwest winds of 20 to 30 mph caused extensive damage due to 2 to 4 foot waves and seiches around a half foot on windward shorelines (Vermont) on May 9-10th and June 1st-2nd. These record lake levels were attributed to a combination of a 125-150 percent of normal winter snowfall, subsequent melting of that snow pack and an abnormally wet meteorological spring (March, April, and May). Normal precipitation for meteorological spring within the Lake Champlain basin is 8.5-10 inches, yet observed precipitation was 16 to 26 inches (> 200 percent). Serious and extensive flooding to dozens of lake shore roads, 500-1000 houses and dozens of businesses. In addition, the periodic closing of the Lake Champlain ferry from Grand Isle, Vermont to Plattsburgh, New York, and the delayed opening of two additional ferry crossings. Damage estimates will be incorporated into the May storm data, representing the crest of the flood waters, thus the time of the most significant impact and damage.
5/1/2011	5/31/2011	Record Flooding occurred along the shores of Lake Champlain from mid-April to mid-June. NWS Flood Stages for the United States Geological Survey (USGS) gages on Lake Champlain at the ECHO Center in Burlington, VT and Rouses Point, NY are 100.0 feet and were surpassed on April

		13th and finally receded below flood stage on June 18th. Major flooding occurs with lake levels at or above 101.5 feet, which were surpassed from April 27th to June 8th as the lake level exceeded its flood stage of 100 feet from April 13th to June 18th. Further, the lake level exceeded its previous flood record of 102.1 feet on April 28th and crested at 103.26 feet on May 6th, before eventually receding below the previous record on June 5th. In addition, strong south to southeast winds of 25 to 35 mph (greater at times) caused extensive damage due to 3 to 5 foot wave action as well as 0.5-1 foot seiches on windward facing shores (New York and Vermont). These episodes occurred on April 23rd, May 2nd, May 22-23rd and June 1st. North to northwest winds of 20 to 30 mph caused extensive damage due to 2 to 4 foot waves and seiches around a half foot on windward shorelines (Vermont) on May 9-10th and June 1st-2nd. These record lake levels were attributed to a combination of a 125-150 percent of normal winter snowfall, subsequent melting of that snow pack and an abnormally wet meteorological spring (March, April, and May). Normal precipitation for meteorological spring within the Lake Champlain basin is 8.5-10 inches, yet observed precipitation was 16 to 26 inches (> 200 percent). Serious and extensive flooding to dozens of lake shore roads, 500-1000 houses and dozens of businesses. In addition, the periodic closing of the Lake Champlain ferry from Grand Isle, Vermont to Plattsburgh, New York, and the delayed opening of two additional ferry crossings. Damage estimates will be incorporated into the May storm data, representing the crest of the flood waters, thus the time of the most significant impact and damage.
6/1/2011	6/18/2011	Record Flooding occurred along the shores of Lake Champlain from mid-April to mid-June. NWS Flood Stages for the United States Geological Survey (USGS) gages on Lake Champlain at the ECHO Center in Burlington, VT and Rouses Point, NY are 100.0 feet and were surpassed on April 13th and finally receded below flood stage on June 18th. ||Major flooding occurs with lake levels at or above 101.5 feet, which were surpassed from April 27th to June 8th as the lake level exceeded its flood stage of 100 feet from April 13th to June 18th. Further, the lake level exceeded its previous flood of record of 102.1 feet on April 28th and crested at 103.26 feet on May 6th, before eventually receding below the previous record on June 5th.||In addition, strong south to southeast winds of 25 to 35 mph (greater at times) caused extensive damage due to 3 to 5 foot wave action as well as 0.5-1 foot seiches on windward facing shores (New York and Vermont). These episodes occurred on April 23rd, May 2nd, May 22-23rd and June 1st. North to northwest winds of 20 to 30 mph caused extensive damage due to 2 to 4 foot waves and seiches around an half foot on windward shorelines (Vermont) on May 9-10th and June 1st-2nd.||These record lake levels were attributed to a combination of a 125-150 percent of normal winter snowfall, subsequent melting of that snow pack and an abnormally wet meteorological spring (March, April and May). Normal precipitation for meteorological spring within the Lake Champlain basin is 8.5-10 inches, yet observed precipitation was 16 to 26 inches (> 200 percent). Serious and extensive flooding to dozens of lake shore roads, 500-1000 houses and dozens of businesses. In addition, the periodic closing of the Lake Champlain ferry from Grand Isle, Vermont to Plattsburgh, New York, and the delayed opening of two additional ferry crossings. Damage estimates will be incorporated into the May storm data, representing the crest of the flood waters, thus the time of the most significant impact and damage.

Severe Thunderstorm (Lightning, High Wind, Hail) History

Begin Date	End Date	Event Description and Extent
6/5/1996	6/5/1996	A cold front moved across Vermont during the late morning and afternoon hours of Wednesday, June 5, 1996. Scattered thunderstorms were accompanied by small hail at several locations including. Sutton, Vermont (Caledonia County) pea size hail at 1030 am Est, North Hero, Vermont (Grand Isle County) 1/4 inch hail at 1055 am Est with gusty winds. Burlington, Vermont (Chittenden County) pea size hail at 11 am est.
8/22/1997	8/22/1997	An unstable atmosphere across the region associated with an upper level low over the Great Lakes resulted in numerous thunderstorms with reports of some hail.
8/28/1997	8/28/1997	A cold front moved across Vermont during the afternoon hours. Heavy rain and locally large hail accompanied a few of the thunderstorms with this front. The Grand Isle ferry reported wind gust to 43 knots and nickel size hail in the Vermont waters of Lake Champlain, approximately 2 miles Southwest of Grand Isle Station, Vt.
6/22/1998	6/22/1998	Lightning struck and damaged a barn in South Hero, Vermont (Grand Isle County).
9/6/1998	9/6/1998	A cold front moved southeast from Canada across Vermont during the night of Sunday, September 6th, and triggered thunderstorms. Locally strong winds and hail accompanied a few of the storms. Specifically, near Alburg (Grand Isle County), strong winds blew down power lines.
7/5/1999	7/5/1999	A mesoscale convective system consisting of a cluster of thunderstorms moved across northern NY and northern Vermont during the early morning hours of Monday, July 5th. There were numerous reports of trees and power lines blown down. For example, in Grand Isle County of Vermont, trees and large branches were blown down in Alburg Springs.
6/16/2001	6/16/2001	A cold front moved from west to east across Vermont Saturday evening. Thunderstorms preceded and accompanied the front with heavy rain and gusty winds across the county. In North Hero, the wind gusted to 28 mph (24 knots) between 6 and 630 PM EDT (5 and 530 PM EST).
7/9/2001	7/9/2001	A moist unstable air mass was in place across Vermont, as an area of weak low pressure moved across southern New England and triggered late afternoon and evening thunderstorms. A thunderstorm produced nickel size hail in the town of Alburg.
7/10/2001	7/10/2001	Thunderstorms developed in an unstable airmass ahead of a surface trough during the afternoon and evening hours. Large hail was reported with locally gusty winds.
8/10/2001	8/10/2001	Early morning thunderstorms resulted in a lightning strike which set fire to and destroyed a garage attached to a house.
6/23/2002	6/23/2002	A cold front moved southeast from Canada, and triggered thunderstorms during the evening hours. A few storms reached severe criteria. Thunderstorms in North Hero, VT resulted in wind gust to 60 mph (52 kts) while thunderstorm winds blew down trees in the town of Grand Isle, VT.
6/23/2002	6/23/2002	A cold front moved southeast from Canada, and triggered thunderstorms during the evening hours. A few storms reached severe criteria. Thunderstorms in North Hero, VT resulted in wind gust to 60 mph (52 kts) while thunderstorm winds blew down trees in the town of Grand Isle, VT.
7/3/2002	7/3/2002	A cold front along the Canadian-United States border triggered locally severe thunderstorms Wednesday night, July 3rd.
6/9/2004	6/9/2004	A low pressure system moved across southern Quebec on Wednesday, June 9th. The associated trailing cold front tracked slowly across northern New York and Vermont during the morning and afternoon hours. This front was preceded and accompanied by thunderstorms with damaging winds. In Grand Isle (Grand Isle County) trees were blown down, while in Chittenden County, trees and limbs were blown down with one tree on a house in the town of Milton, and in the town of Hinesburg trees were snapped. In Fairfax (Franklin County), trees and power lines were blown down.
7/8/2004	7/8/2004	An area of low pressure moved across Quebec, Canada during Thursday, July 8th. The associated cold front moved across the area in the afternoon, preceded and accompanied by thunderstorms. In Vermont's Grand Isle County , the towns of Grand Isle and Alburg both reported nickel size hail from late afternoon thunderstorms. In addition, trees and branches were blown down in Alburg.
7/8/2004	7/8/2004	An area of low pressure moved across Quebec, Canada during Thursday, July 8th. The associated cold front moved across the area in the afternoon, preceded and accompanied by thunderstorms. In Vermont's Grand Isle County , the towns of Grand Isle and Alburg both reported nickel size hail from late afternoon thunderstorms. In addition, trees and branches were blown down in Alburg.
7/8/2004	7/8/2004	An area of low pressure moved across Quebec, Canada during Thursday, July 8th. The associated cold front moved across the area in the afternoon, preceded and accompanied by thunderstorms. In Vermont's Grand Isle County , the towns of Grand Isle and Alburg both reported nickel size hail from late afternoon thunderstorms. In addition, trees and branches were blown down in Alburg.
8/29/2004	8/29/2004	A frontal boundary across northern Vermont and northern New York helped focus thunderstorms across this area. The airmass was very humid along and south of the front. Very heavy rainfall accompanied the thunderstorms. A few thunderstorms were severe, with trees blown down across roads in both Alburg and South Alburg. In addition, a trailer was blown over in Alburg.
8/29/2004	8/29/2004	A frontal boundary across northern Vermont and northern New York helped focus thunderstorms across this area. The airmass was very humid along and south of the front. Very heavy rainfall accompanied the thunderstorms. A few thunderstorms were severe, with trees blown down across roads in both Alburg and South Alburg. In addition, a trailer was blown over in Alburg.
7/5/2005	7/5/2005	Thunderstorms resulted in strong winds which blew down trees in the Vermont town of North Hero.

7/22/2005	7/22/2005	A cold front extended from northern Maine to extreme northern New York and then into Pennsylvania early on Friday, July 22. The front helped trigger thunderstorms as it moved across northern NY by early afternoon, and across Vermont during the afternoon. Thunderstorms developed along a boundary in northeast NY in the late morning and they quickly intensified into severe thunderstorms with strong winds and large hail as they moved east and southeast across the area. In the Vermont town of North Hero, hail up to 1 3/4 inch in diameter fell, with power outages reported. Lightning struck a boat on Lake Champlain near Grand Isle Station, with extensive damage resulting.
7/22/2005	7/22/2005	A cold front extended from northern Maine to extreme northern New York and then into Pennsylvania early on Friday, July 22. The front helped trigger thunderstorms as it moved across northern NY by early afternoon, and across Vermont during the afternoon. Thunderstorms developed along a boundary in northeast NY in the late morning and they quickly intensified into severe thunderstorms with strong winds and large hail as they moved east and southeast across the area. In the Vermont town of North Hero, hail up to 1 3/4 inch in diameter fell, with power outages reported. Lightning struck a boat on Lake Champlain near Grand Isle Station, with extensive damage resulting.
8/2/2005	8/2/2005	A humid airmass was in place with dew points 65 to 70 as an upper level disturbance contributed to thunderstorm development. Thunderstorms were severe in the northwest Vermont county of Grand Isle where trees were blown down across Rte. 2 in Alburg.
6/19/2006	6/19/2006	A surface trough and mid-level atmospheric disturbance encountered a very warm and humid airmass across northern New York around midday on the 19th and developed a line of thunderstorms, which intensified as they moved into the Champlain Valley by early afternoon. These thunderstorms produced severe weather, in the form of wind damage, across Grand Isle County, Vermont with numerous trees down in Isle LaMotte as well as large branches and trees down in Grand Isle and North Hero.
6/19/2006	6/19/2006	A surface trough and mid-level atmospheric disturbance encountered a very warm and humid airmass across northern New York around midday on the 19th and developed a line of thunderstorms, which intensified as they moved into the Champlain Valley by early afternoon. These thunderstorms produced severe weather, in the form of wind damage, across Grand Isle County, Vermont with numerous trees down in Isle LaMotte as well as large branches and trees down in Grand Isle and North Hero.
6/19/2006	6/19/2006	A surface trough and mid-level atmospheric disturbance encountered a very warm and humid airmass across northern New York around midday on the 19th and developed a line of thunderstorms, which intensified as they moved into the Champlain Valley by early afternoon. These thunderstorms produced severe weather, in the form of wind damage, across Grand Isle County, Vermont with numerous trees down in Isle LaMotte as well as large branches and trees down in Grand Isle and North Hero.
8/7/2006	8/7/2006	A strong westerly low-level flow interacted with a moderately unstable airmass across northern New York and northern Vermont on the afternoon of the 7th. The result was scattered thunderstorms across the region, including a supercell structure that developed over Clinton County, New York and crossed Lake Champlain into Isle LaMotte in Grand Isle County, Vermont. Numerous trees were downed, uprooted, and snapped and powerlines were downed by damaging winds along West Shore Road, Main Street and School Street. There was some property damage due to trees falling on structures and vehicles, but also a garage door was partially blown in due to excessive winds.
7/13/2007	7/13/2007	An unseasonably cool and strong upper level trough moved across northern New York and Vermont during the late morning and early afternoon hours of the 13th. A few thunderstorms developed in northern New York and moved into northwest Vermont. A few thunderstorms became locally severe and caused wind damage in the form of a few downed trees in Milton (Chittenden County) and Isle La Motte (Grand Isle County).
8/16/2007	8/16/2007	Scattered thunderstorms developed in a moderately unstable airmass across the Champlain Valley of New York during the afternoon of the 16th. One thunderstorm developed in a favorable, highly sheared wind environment which eventually intensified into a supercell thunderstorm in Clinton County, NY. This supercell then proceeded to travel into Vermont affecting numerous communities between Grand Isle (Grand Isle County) and Concord (Essex County). Significant straight-line wind damage (estimated between 60 and 80 mph) in the form of snapped, uprooted and downed trees, downed power lines and some structural damage occurred in Grand Isle, Georgia (Franklin county), Westford (Chittenden county) and Hardwick (Caledonia county).||Also, there were several thunderstorms, including a supercell that developed in the northern Hudson Valley of New York and moved across Rutland and Windsor counties in southern Vermont. Significant straight-line wind damage (estimated between 60 and 80 mph) in the form of snapped, uprooted, and downed trees, downed power lines and some structural damage occurred as well in Rutland (Rutland County) and surrounding communities.
8/16/2007	8/16/2007	Scattered thunderstorms developed in a moderately unstable airmass across the Champlain Valley of New York during the afternoon of the 16th. One thunderstorm developed in a favorable, highly sheared wind environment which eventually intensified into a supercell thunderstorm in Clinton County, NY. This supercell then proceeded to travel into Vermont affecting numerous communities between Grand Isle (Grand Isle County) and Concord (Essex County). Significant straight-line wind damage (estimated between 60 and 80 mph) in the form of snapped, uprooted and downed trees, downed power lines and some structural damage occurred in Grand Isle, Georgia (Franklin county),

		Westford (Chittenden county) and Hardwick (Caledonia county).||Also, there were several thunderstorms, including a supercell that developed in the northern Hudson Valley of New York and moved across Rutland and Windsor counties in southern Vermont. Significant straight-line wind damage (estimated between 60 and 80 mph) in the form of snapped, uprooted, and downed trees, downed power lines and some structural damage occurred as well in Rutland (Rutland County) and surrounding communities.
6/10/2008	6/10/2008	A very energetic mid-atmospheric disturbance moved across the Great Lakes during the afternoon and evening of June 10th. This developed a surface low along a cold front, which moved across Vermont during the afternoon and evening hours. These features moved into a very warm, humid, and unstable airmass draped across Vermont that resulted in two rounds of widespread severe thunderstorms. The first round moved across Vermont during the early to midafternoon hours and the second round occurred during the evening. In Vermont...hundreds to thousands of trees were damaged, downed or uprooted which caused downed power lines and structural damage to numerous buildings and vehicles. Tens of thousands of customers lost power due to the storms, with some outages that lasted several days.
6/10/2008	6/10/2008	A very energetic mid-atmospheric disturbance moved across the Great Lakes during the afternoon and evening of June 10th. This developed a surface low along a cold front, which moved across Vermont during the afternoon and evening hours. These features moved into a very warm, humid, and unstable airmass draped across Vermont that resulted in two rounds of widespread severe thunderstorms. The first round moved across Vermont during the early to midafternoon hours and the second round occurred during the evening. In Vermont...hundreds to thousands of trees were damaged, downed or uprooted which caused downed power lines and structural damage to numerous buildings and vehicles. Tens of thousands of customers lost power due to the storms, with some outages that lasted several days.
7/18/2008	7/18/2008	Several mid-atmospheric impulses traveled along a stationary boundary across northern Vermont during the early afternoon and evening hours of July 18th. This stationary boundary separated warm, humid air across much of Vermont from cooler, drier air across the international border with Canada. Several rounds of thunderstorms moved across northern Vermont during the afternoon of July 18th. A developing squall line across the Champlain Valley of New York moved into northwest Vermont by mid-afternoon and continued across the state. Widespread tree and structural damage occurred with this system in Grand Isle, Franklin, Lamoille, and Orleans counties. This squall line interacted with an individual thunderstorm near Fletcher, that eventually produced an extensive damage path around 7 miles in length between North Cambridge and Waterville (Lamoille County), caused by straight-line winds of 60 to 80 mph. However, within this greater damage field was a tornadic storm with two very brief touchdown with EF0 and EF1 damage.||Another area of thunderstorms moved across central Vermont with pockets of significant damage across Addison, Washington, and Orange counties.
7/18/2008	7/18/2008	Several mid-atmospheric impulses traveled along a stationary boundary across northern Vermont during the early afternoon and evening hours of July 18th. This stationary boundary separated warm, humid air across much of Vermont from cooler, drier air across the international border with Canada. Several rounds of thunderstorms moved across northern Vermont during the afternoon of July 18th. A developing squall line across the Champlain Valley of New York moved into northwest Vermont by mid-afternoon and continued across the state. Widespread tree and structural damage occurred with this system in Grand Isle, Franklin, Lamoille, and Orleans counties. This squall line interacted with an individual thunderstorm near Fletcher, that eventually produced an extensive damage path around 7 miles in length between North Cambridge and Waterville (Lamoille County), caused by straight-line winds of 60 to 80 mph. However, within this greater damage field was a tornadic storm with two very brief touchdowns with EF0 and EF1 damage. Another area of thunderstorms moved across central Vermont with pockets of significant damage across Addison, Washington, and Orange counties.
7/26/2008	7/26/2008	A mid-atmospheric disturbance moved across northern New York and the northern Champlain Valley of Vermont during the afternoon of July 26th. Scattered thunderstorms developed in the Adirondacks and moved across the northern Champlain Valley of Vermont. There were some isolated reports of wind damage in Grand Isle, Chittenden, and Franklin counties in Vermont.
6/26/2009	6/26/2009	On the afternoon of June 26th, an unseasonably cold and strong upper level low pressure system was located across eastern Canada. Mid-level shortwave energy rotated around this upper low into a moderately unstable air mass across northern New York and Vermont. This resulted in widespread thunderstorm activity, some of which produced large hail and brief strong winds across portions of Vermont.
7/21/2010	7/21/2010	On July 21st, a developing surface low across the Great Lakes traveled along a stationary boundary draped across the North Country. Surface conditions became increasingly unstable during the afternoon with temperatures in the 80s and dewpoints in the 60s and lower 70s. More importantly, an unseasonably strong mid-atmospheric shortwave and winds aloft tracked across this region as well, which allowed for thunderstorms to develop rapidly, intensify, and maintain longevity.||During the afternoon and evening, scattered to numerous thunderstorms developed traveled across northern New York and through Vermont. Several storms strengthened into supercells that produced widespread wind damage to trees, power poles and structures as well as large hail more than golf ball size in diameter.||Some of the communities affected were Milton, Colchester, Essex, Jericho, Stowe, Brookfield, Chelsea, and Rutland. In addition, very heavy

		localized rains caused some temporary problems in many communities, but did result in washed out roads, culverts in Chelsea.
5/16/2012	5/16/2012	A cold front and mid-atmospheric disturbance moved across Vermont during the afternoon of May 16th. Scattered thunderstorms developed with a few of them containing hail up to one inch in diameter.
5/29/2012	5/29/2012	A warm front moved across Vermont during the morning hours of May 29th, which lead to numerous thunderstorms with heavy rain, damaging lightning and some isolated large hail and strong winds. Some of these thunderstorms deposited up to 2 inches of rainfall in portions of north-central and northeast Vermont.||A warm, humid, and unstable air mass was draped across the region in the afternoon with an approaching cold front from Ontario, Canada. Numerous thunderstorms developed ahead of the cold front during the afternoon crossing New York into Vermont. There were numerous reports of hail greater than an inch in diameter, damaging winds, along with a confirmed EF0 tornado in West Glover VT. ||Some of these storms trained across the same areas, including those that witnessed two inches of rain earlier in the day. The result was flash flooding in portions of north-central, northeast Vermont and Addison County with radar estimated storm total rainfall of 3 to 5 inches.
5/29/2012	5/29/2012	A warm front moved across Vermont during the morning hours of May 29th, which lead to numerous thunderstorms with heavy rain, damaging lightning and some isolated large hail and strong winds. Some of these thunderstorms deposited up to 2 inches of rainfall in portions of north-central and northeast Vermont.||A warm, humid, and unstable air mass was draped across the region in the afternoon with an approaching cold front from Ontario, Canada. Numerous thunderstorms developed ahead of the cold front during the afternoon crossing New York into Vermont. There were numerous reports of hail greater than an inch in diameter, damaging winds, along with a confirmed EF0 tornado in West Glover VT. ||Some of these storms trained across the same areas, including those that witnessed two inches of rain earlier in the day. The result was flash flooding in portions of north-central, northeast Vermont and Addison County with radar estimated storm total rainfall of 3 to 5 inches.
7/4/2012	7/4/2012	A moderately strong upper level disturbance ahead of a surface cold front moved across southern Quebec during the afternoon and evening hours of July 4th. These disturbances moved into a warm and unstable air mass and developed thunderstorms in southern Quebec, which moved across northeast Vermont during the afternoon hours and the Champlain Valley during the evening. ||Both episodes contained widespread wind damage and frequent lightning. In the afternoon, the communities of Walden, Cabot, West Danville, and Danville were most affected. During the evening storms, significant damage occurred in the Champlain Valley in communities like Colchester, Burlington, South Burlington, Essex, and Hinesburg. A wind gust of 65 knots was observed at Diamond Island on Lake Champlain and 55 knots was observed at the NWS office at Burlington Int'l airport. ||Despite the holiday festivities, no serious injuries were reported.
7/4/2012	7/4/2012	A moderately strong upper level disturbance ahead of a surface cold front moved across southern Quebec during the afternoon and evening hours of July 4th. These disturbances moved into a warm and unstable air mass and developed thunderstorms in southern Quebec, which moved across northeast Vermont during the afternoon hours and the Champlain Valley during the evening. ||Both episodes contained widespread wind damage and frequent lightning. In the afternoon, the communities of Walden, Cabot, West Danville, and Danville were most affected. During the evening storms, significant damage occurred in the Champlain Valley in communities like Colchester, Burlington, South Burlington, Essex, and Hinesburg. A wind gust of 65 knots was observed at Diamond Island on Lake Champlain and 55 knots was observed at the NWS office at Burlington Int'l airport. ||Despite the holiday festivities, no serious injuries were reported.
7/23/2012	7/23/2012	A quick moving disturbance across Ontario and Quebec provinces in Canada pushed a warm front across the region during the morning and early afternoon of the 23rd, followed by a cold front during the night. Numerous thunderstorms developed ahead of the cold front in northern New York and intensified as they moved into Vermont during the late afternoon and evening hours. There were numerous reports of damaging winds and large hail.
9/8/2012	9/8/2012	A rapidly intensifying area of low pressure moved from the eastern Great Lakes across Quebec province Canada during the afternoon and evening hours of September 8th. A tight pressure gradient created strong surface southerly winds of 20 to 30 mph with frequent gusts more than 40 mph across the region. In addition, these strong winds delivered an abnormally warm and unstable air mass ahead of the surface low and cold front. As the cold front moved across New York during the afternoon, a squall line of severe thunderstorms developed and pushed east into Vermont.||There was isolated minor wind damage in the form of large tree branches or small trees prior to any thunderstorms. Wind damage associated with thunderstorms was more widespread and significant.
6/25/2013	6/25/2013	A warm moist airmass provided the fuel for severe storms and flash flooding on June 25, 2013.
9/11/2013	9/11/2013	A weak area of low pressure traveling along a stationary front, draped across NY and VT, embedded in an unseasonably warm and unstable air mass resulted in a series of thunderstorms that moved across Vermont during the late afternoon and evening. Some of these thunderstorms produced damaging winds of downed trees and utility lines.
6/28/2016	6/28/2016	A cold front moves across a marginally unstable air mass during the afternoon of June 28th developing thunderstorms in the Adirondacks of New York that eventually moved into the Champlain Valley and elsewhere in Vermont. A few isolated thunderstorms did deliver strong gusty

		winds and hail just under an inch in diameter. Some slow moving and training storms did deliver localized 2 to 4 inches of rain in north-central and northeast Vermont for some minor flash flooding. A lightning struck a large home in South Hero Vermont which caused a fire that destroyed the home.
7/22/2016	7/22/2016	A disturbance moved across the Canadian border during the overnight of July 22-23rd and developed some strong to severe thunderstorms with a few producing locally damaging winds.
7/22/2016	7/22/2016	A disturbance moved across the Canadian border during the overnight of July 22-23rd and developed some strong to severe thunderstorms with a few producing locally damaging winds.
7/23/2016	7/23/2016	A significant cold front and strong mid-level disturbance caused numerous thunderstorms to develop in Quebec province Canada by late morning then travel and intensify across VT during the afternoon. Significant and widespread damage occurred with more than 20,000 utility outages.
8/28/2016	8/28/2016	Scattered thunderstorms developed ahead of a cold front across northern VT during the afternoon of August 28th. A few of these storms did produce isolated wind damage to trees.
8/28/2016	8/28/2016	Scattered thunderstorms developed ahead of a cold front across northern VT during the afternoon of August 28th. A few of these storms did produce isolated wind damage to trees.
9/11/2016	9/11/2016	A cold front moved across New York during the early morning hours and Vermont during the morning hours of September 11th. Preceding this cold front was a solid line of showers and thunderstorms that stretched from the Canadian border south to the Massachusetts border that moved across VT in the pre-dawn hours. Scattered severe thunderstorms knocked down numerous trees and caused subsequent power outages. In addition, numerous clouds to ground lightning strikes caused power outages and caused a fire that destroyed an historic dairy barn at the Shelburne Farms in Shelburne.
5/4/2018	5/4/2018	An energetic storm system moved from the Great Lakes across the St. Lawrence Valley into Ontario/Quebec during the afternoon and evening hours of May 4th. Instability was marginal for thunderstorm development during the evening hours with thunderstorms ahead of a cold front. However, winds were unseasonably strong in the atmosphere, accounting for some thunderstorms to produce damaging winds and there was some localized damage in non-thunderstorm winds accompanying the arrival of colder air.||Very brief heavy rainfall of up to 2 inches in less than an hour accounted for localized flash flooding and a mudslide. Strong winds and a lake level at/above flood stage caused for 4 to 6 foot waves to batter a causeway between Colchester and Grand Isle on Lake Champlain, resulting in numerous washouts and a closure of the causeway.
6/30/2018	6/30/2018	Vermont and northern NY influenced by heat ridge but just on the periphery, thus thunderstorm clusters riding over the ridge across Ontario/Quebec into VT/NY along the international border. Thunderstorms moved into VT/NY just around midnight on July 1st.
7/30/2019	7/30/2019	A weak upper level disturbance moving through a very warm, humid, and unstable air mass lead to scattered thunderstorms, including several severe storms in the Champlain Valley of Vermont. Severe storms caused damaging winds in the form of downed tree limbs, trees, and utility lines. An elderly couple drowned while kayaking on Mallets Bay as the storm moved through.
7/30/2019	7/30/2019	A weak upper level disturbance moving through a very warm, humid, and unstable air mass lead to scattered thunderstorms, including several severe storms in the Champlain Valley of Vermont. Severe storms caused damaging winds in the form of downed tree limbs, trees, and utility lines. An elderly couple drowned while kayaking on Mallets Bay as the storm moved through.
7/30/2019	7/30/2019	A weak upper level disturbance moving through a very warm, humid, and unstable air mass lead to scattered thunderstorms, including several severe storms in the Champlain Valley of Vermont. Severe storms caused damaging winds in the form of downed tree limbs, trees, and utility lines. An elderly couple drowned while kayaking on Mallets Bay as the storm moved through.
8/24/2020	8/24/2020	A mid-level disturbance moved through a moderately unstable air mass across eastern NY and western VT during the afternoon of August 24th. Scattered thunderstorms developed with a few producing localized damaging winds and large hail.
7/20/2021	7/20/2021	A healthy upper level trough and frontal boundary moved from Ontario into VT during the overnight hours of July 20th. Ahead of this system, a vigorous squall line of thunderstorms that developed in Ontario during the early afternoon hours moved across northern NY from mid-afternoon into the evening hours and evening hours across VT with numerous reports of damaging winds.
5/21/2022	5/21/2022	A mid-level disturbance moved into a moderately unstable airmass across Vermont during the late afternoon/early evening of May 21st. Scattered thunderstorms developed in NY and southern Quebec and intensified as they moved east into VT. Several reports of damaging winds and a few observations of hail greater than one inch in diameter were reported.
7/12/2022	7/12/2022	A strong mid-level disturbance moved into a moderately unstable airmass across VT during the afternoon of July 12th. Scattered showers and thunderstorms developed across the state with scattered damage in southern-eastern VT and some isolated damage near the Canadian border. Some more organized wind damage occurred in the communities of Chester, Wood stock-Hartford, and White River Junction.
7/4/2023	7/4/2023	A mid atmospheric disturbance moved over an unstable airmass across northern Vermont during the afternoon hours of July 4th. Scattered thunderstorms rotated north to southeast across the region, some of them providing localized damaging winds.
7/4/2023	7/4/2023	A mid atmospheric disturbance moved over an unstable airmass across northern Vermont during the afternoon hours of July 4th. Scattered thunderstorms rotated north to southeast across the region, some of them providing localized damaging winds.

7/21/2023	7/21/2023	A weak area of low pressure moved across a marginally unstable air mass across Vermont on July 21st. Scattered thunderstorms developed and moved across Vermont, some of these storms brought damaging winds.
7/21/2023	7/21/2023	A weak area of low pressure moved across a marginally unstable air mass across Vermont on July 21st. Scattered thunderstorms developed and moved across Vermont, some of these storms brought damaging winds.

Severe Winter Storm and Ice Storm History

Begin Date	End Date	Event Description and Extent
1/22/1997	1/22/1997	Cold air was entrenched at the surface as a warm front moved north across the region into Canada. A mixture of light snow, sleet and freezing rain fell across the area. There were numerous automobile and truck accidents. Portions of Interstate 89 were closed in Washington and Chittenden Counties due to extremely slippery conditions. Burlington International Airport was closed during part of the morning with numerous flight delays.
3/21/1997	3/22/1997	An area of low pressure moved across the Great Lakes late Friday (3/21/97) and reached the New England coast near Cape Cod, Massachusetts Saturday morning (3/22/97). Snow fell across the area during Friday night ending early Saturday morning. Between 3 and 5 inches of snow fell across the area...with the greatest amounts in the mountains.
12/1/1997	12/2/1997	An area of low pressure off the Middle Atlantic coast Sunday night (11/30/97) moved to near Cape Cod early Monday (12/01/97) and continued to move northeast thereafter. Snow and freezing rain developed during late Sunday night (11/30/97) and continued in the form of periods of snow Monday (12/01/97) into early Tuesday (12/02/97) with up to 5 inches accumulating.
1/4/1998	1/6/1998	A cold front moved south out of Canada Sunday (January 4) and Monday (January 5). This front resulted in a low level flow of cold air across northern Vermont. Moist air riding over this front resulted in freezing rain across the area Sunday night and Monday with freezing drizzle Monday night into Tuesday morning. Power failures due to down trees and power lines resulted with numerous traffic accidents and several roads closed due to icy conditions.
1/6/1998	1/9/1998	A storm system moved from the Tennessee Valley on Wednesday (January 7) and Thursday (January 8) into New England thereafter. A cold front across New England and New York associated with an Arctic High Pressure system across Canada resulted in a flow of low level cold air into northern Vermont. Warm moist air riding over this low level cold air resulted in a major ice storm across northwest Vermont. During Friday afternoon (January 9), a few thunderstorms with gusty winds and small hail moved across the Champlain Valley of Vermont. Ice accumulations during this event were between 1 and 2 inches with locally greater accumulations over portions of Grand Isle County Vermont. The impact on the region was dramatic. The ice accumulations resulted in damage to tens of thousands of trees. Trees and power lines snapped due to the weight of the ice with 60 to 80 thousand without power for several days. Damage to the utility companies ran in the millions. The economic impact ranged from stores and shopping malls closed, banks closed with ATMs not working due to lack of power. With no electricity, the agricultural community was unable to milk cows with loss of income and damage to cows. Automobile and air travel was dramatically impacted with Burlington International Airport closed and many roads and bridges closed due to ice and fallen trees. There were numerous traffic accidents. Several radio stations were knocked off the air. There was one DIRECT injury when an ice laden tree fell on a pickup truck, in Chittenden County on Thursday, January 8. Other INDIRECT injuries were due to carbon monoxide poisoning while improperly using generators. One person died from a heart attack after the storm while cleaning up debris. The National Guard assisted with cleanup operations after the storm. Falling tree limbs and other debris was a significant hazard during and following the storm.
3/14/1998	3/15/1998	An area of low pressure moved across northern New York and northern New England during Saturday (March 14) and then into the Canadian Maritimes Sunday (March 15). A complex pattern of snowfall resulted in accumulations of 3 to 6 inches in the Champlain Valley of Vermont. Several traffic accidents were reported in Addison County.
1/13/1999	1/13/1999	An area of low pressure moved from Tennessee Valley Tuesday afternoon (January 12) into southern New England Wednesday (January 13). Light snow accumulating to between 3 and 6 inches and colder air accompanied this system. A few snowfall reports were: Springfield (Windsor County).....6 inches Orwell (Addison County).....4 inches East Berkshire (Franklin County)...3.5 inches Rutland (Rutland County).....3 inches Colchester (Chittenden County)....3 inches South Newbury (Orange County)...3 inches

1/27/1999	1/29/1999	During the period from late Wednesday (1/27/99) through early Friday (1/29/99) a series of low pressure systems moved to the south of New England. During this extended period of several episodes of snowfall, accumulations ranged from as little as 3 inches in northeast Vermont up to around 9 inches in Rutland County. A few specific accumulations were: Rutland (Rutland county).....9.0 inches Ludlow (Windsor county).....8.3 inches Waitsfield (Washington county)...8.0 inches Hanksville (Chittenden county).....7.9 inches Chelsea (Orange county).....7.5 inches So. Lincoln (Addison county).....6.6 inches W. Danville (Caledonia county).....6.5 inches St. Albans (Franklin county).....5.0 inches Morrisville (Lamoille county).....4.7 inches Albany (Orleans county).....4.0 inches Island Pond (Essex county).....3.0 inches
12/14/1999	12/15/1999	A complex storm system moved across the region Tuesday night, December 14th and into Quebec on Wednesday, December 15th. A mixture of rain, snow, and sleet during the evening of December 14th changed to light snow overnight . Between 2 and 4 inches of snow fell across the area. A few reports included: 3 inches in Orwell (Addison County), 3 inches in Worcester (Washington county), 3 inches in St Albans (Franklin County) with around 2 inches reported in the Burlington area (Chittenden County). Throughout the state roads were reported slippery.
1/3/2000	1/4/2000	A storm system moved through the eastern Great Lakes Monday night, January 3rd and then into Canada on Tuesday, January 4th. Across the area, between 2 and 3 inches of snow fell with up to 1/4 inch of ice in some areas from freezing rain. The precipitation changed to rain Tuesday.
1/30/2000	1/31/2000	A complex storm pattern with one system over the Ohio Valley and another one over the southeast US Sunday, January 30th organized into one system off the mid-Atlantic coast Sunday night, January 30th. It then moved northeast across southern New England on Monday, January 31st. Snowfall in these areas was between 3 and 6 inches. A few specific reports included: Burlington (Chittenden County) 5.6 inches, Bethel (Windsor County) 6.2 inches, South Hero (Grand Isle County) 4 1/2 to 5 inches and St Albans (Franklin County) 3 inches.
2/18/2000	2/19/2000	A storm system moved from Ohio Valley Friday afternoon, February 18th and moved to the southern New England coast Saturday morning before reorganizing and moving out to sea. In general, between 3 and 6 inches fell across the area.
4/11/2000	4/12/2000	An area of low pressure moved across central and southern New England Tuesday night (April 11th) and early Wednesday (April 12th) then into the Canadian Maritimes. Light snow fell across the area with accumulations of 3 to 6 inches. Specifically, the following accumulations were reported: Sutton (Caledonia county) 6.3 inches, Greensboro (Orleans county) 5.8 inches, Morrisville (Lamoille county) 5.5 inches, Essex Jct. (Chittenden county) 5.2 inches, Enosburg Falls (Franklin county) 5 inches, Brookfield (Orange county) 5 inches, Waitsfield (Washington county) 5 inches, South Lincoln (Addison county) 4.2 inches, East Haven (Essex county) 4 inches, and South Hero (Grand Isle county) 2.5 inches. There were a few higher amounts in the mountains, such as: Jay Peak (Orleans County) with 7 inches.
10/29/2000	10/29/2000	A storm system over the Canadian Maritimes resulted in wrap around moisture with precipitation falling in the form of snow. Between 1 and 3 inches of snow fell in these areas.
11/26/2000	11/26/2000	A complex area of low pressure with one center that moved along the New England coast and the other center through the Great Lakes region spread freezing rain, mixed at times with sleet, across the area. Roads became slippery and several accidents were reported on roadways. In Pittsfield (Rutland County) a bus overturned on an icy road.
12/19/2000	12/20/2000	A storm system developed along the Atlantic coast Tuesday night, December 19th and moved northeast to Cape Cod Wednesday morning, December 20th. Snow fell across the area Tuesday evening into Wednesday morning. The amounts were between 3 and 6 inches. A few reports included: Burlington in Chittenden County...6.1 inches, Castleton in Rutland County 6 inches, South Lincoln in Addison County 5.8 inches, Springfield in Windsor County 5 inches and Brookfield in Orange County 5 inches.
1/30/2001	1/30/2001	A large sprawling area of low pressure over the Great Lakes region spread moisture across the area. The low level temperatures were at or below freezing. Thus, there was a mixture of light freezing rain, snow, and sleet. Roads were reported as slippery by Vermont State Police.
2/5/2001	2/6/2001	A storm system developed off the coast of Virginia early Monday, February 5, 2001, and moved northeast . It moved across extreme southeast coastal New England late Monday night and into the Gulf of Maine early Tuesday, February 6th. Steady snow spread across the area during the afternoon and evening hours of Monday, February 5th, with the heavier snow later Monday night before it tapered off to flurries early Tuesday, February 6th. Across the counties, 4 to 6 inches of snow fell.
2/9/2001	2/9/2001	A storm system moved from the Great Lakes region Friday, February 8th and into Canada Friday night. Mixed precipitation spread across the area with less than 2 inches of snow. Roads became slippery with numerous minor accidents reported. Northern portions of I-89 and I-91 were closed at times.
2/25/2001	2/25/2001	A storm system moved from the northern Great Lakes into and across southern Canada during Sunday, February 25th. Snow spread across the area during the early morning then mixed with it

		and changed to sleet, freezing rain, and just plain rain. Roads did become icy after between 1 and 3 inches of snow fell...with a few higher amounts.
3/9/2001	3/10/2001	A low pressure system reorganized off New England during Friday, March 9th. It then moved northeast away from the area on Saturday, March 10th. Snowfall accumulations were 2 to 4 inches with locally higher amounts in the mountains. Slippery roads were reported.
11/29/2001	11/29/2001	A mixture of light snow, sleet and freezing rain changed to all light freezing rain. There were slippery spots reported across the area. Across the northern third of Vermont, 1 to 3 inches of snow fell before the changeover...with the greatest snowfall in the mountains.
12/14/2001	12/15/2001	An area of low pressure over the Ohio Valley Friday morning, December 14th, moved northeast and reorganized over southern New England the night of the 14th. The storm system then continued east and moved offshore by Saturday morning, December 15th. Light rain quickly changed to wet snow across the area Friday evening (December 14th) and tapered off to flurries Saturday morning. Accumulations were 2 to 5 inches. A few reports included: Sutton (Caledonia County) 5.4 inches while Enosburg Falls (Franklin County) received 4 inches. Waitsfield (Washington county) reported 4 inches. It was very wet snow. A few minor automobile accidents were reported in Addison and Caledonia counties.
12/17/2001	12/18/2001	An area of low pressure over the Ohio Valley Monday, December 17th moved to the New Jersey coast the night of the 17th and then to off the southern New England coast Tuesday morning, December 18th. Light snow spread north across the area during the afternoon...mixing with freezing rain during the evening hours then back to all snow. Accumulations were 3 to 6 inches. A few reports included: In Addison County, Cornwall reported 5.8 inches while in Chittenden County, Hanksville reported 4.8 inches. In Orleans County, Newport reported 5.5 inches with 5 inches in Waitsfield (Washington county). Numerous minor automobile accidents were reported across the entire area.
2/17/2002	2/17/2002	A storm system over western New York combined with another system which reorganized off the southern New England coast and then moved east. These systems spread light snow across the area from the early morning hours into the afternoon of February 17th. Accumulations were 3 to 6 inches regionwide. There were a few isolated higher amounts with : Jay Peak 11.8 inches, and 7 inches locally reported in the towns of Springfield, East Albany, and Brookfield. Several automobile accidents were reported in both Chittenden and Washington counties.
12/27/2004	12/27/2004	A storm system off the southeast US coast Sunday morning, December 26th moved northeast to a position south of Nova Scotia, Canada Monday morning, December 27th. Brisk north winds pulled down cold air from Canada. This resulted in a band of steady snow in portions of central Vermont. Snow developed Sunday night, December 26th and continued into the morning of December 27th. By the morning of December 27th, between 3 and 6 inches of snow fell in both Grand Isle and Lamoille counties, and between 3 and 4 inches in Washington and Eastern Franklin counties.
1/2/2005	1/2/2005	An area of low pressure over the northern Great Lakes region early Sunday, January 2, 2005, moved northeast into southern Canada. It reached the James Bay area of Canada the night of January 2nd. High pressure across southern and eastern Canada resulted in a low level flow of cold air. Freezing rain and sleet spread across western Vermont by mid-afternoon ending later at night. Roads became very slippery with several accidents reported. Portions of I-89 were closed in Chittenden County and portions of Rte. 4 in Rutland County were closed. Burlington International Airport was closed for a few hours due to icy runways.
1/6/2005	1/6/2005	An area of low pressure moved across western New York during the afternoon of Thursday, January 6, 2005. This system continued to move northeast down the St Lawrence Valley and into southern Canada the night of January 6th. Light snow overspread the Champlain Valley of Vermont around noon and continued through the evening. Accumulations were 2 to 4 inches. A few minor accidents were reported.
1/12/2005	1/12/2005	Warm air associated with a warm front gradually over ran a shallow layer of cold surface air. This resulted in light snow during the morning of January 12th changing to light freezing rain and sleet during the afternoon. Eventually the precipitation changed to plain rain during the evening. A few minor accidents were reported.
2/16/2005	2/16/2005	An area of low pressure over the Ohio Valley late Tuesday afternoon, February 15th moved northeast during the night of February 15th. This system passed across Vermont during the day of Wednesday, February 16th and east of the area by the evening of the 16th. A mixture of rain and snow developed during the late morning of the 16th and changed to steady snow by early afternoon. Snow accumulations were between 3 and 6 inches across the counties of Chittenden and Franklin. Across the counties of Grand Isle, Lamoille and eastern Addison, snow accumulations were 2 to 4 inches. Roads and walkways were very slippery with the wet snow. Several cars were off the road in eastern Chittenden County.
12/16/2005	12/16/2005	A storm system developed over the lower Mississippi Valley early on the 15th of December and moved northeast to western Long Island of New York early on the 16th of December. The storm continued northeast into the Gulf of Maine by the evening of December 16th. Snow, sleet, and freezing rain overspread the area during the late night of December 15th and early morning of December 16th. During the morning of the 16th, a mixture of snow and sleet fell as warm air moved in aloft. Accumulations of snow and sleet across much of the Champlain Valley region of Vermont was between 2 1/2 and 5 inches. Winds were gusty.
1/15/2006	1/15/2006	An arctic cold front moved across Vermont during the night of the 14th and early morning of the 15th. Record warm temperatures in the 40s and 50s on Saturday (14th), were replaced with

		temperatures in the single numbers and teens Sunday. Low pressure moved along this arctic front and across eastern New England with rain changing to snow across the region late Saturday night through Sunday morning. It was quite blustery with Northwest winds 20 to 30 mph and gusts to 40 mph causing blowing and drifting snow. Snowfall amounts of 1 to 3 inches were common across western Vermont.
1/25/2006	1/26/2006	An Alberta Clipper moved across northern Vermont during the early morning hours of the 25th depositing a dusting to locally up to 2 inches of snow. A significant upper level disturbance and cold, unstable air aloft redeveloped snow showers and localized snow squalls during the evening and continued until early morning on the 26th. Total snowfall was 3 to 6 inches across the northern Champlain Valley of Vermont. Snowfall amounts include Milton and Saint Albans with 4 inches and South Burlington with 6 inches.
2/6/2006	2/6/2006	Low pressure moved into the eastern Great Lakes on the 5th and then moved northeast across Quebec province on the 6th. On the 6th, a cold polar vortex located across Quebec created a persistent west-southwest cold flow over the mild lake waters of the eastern Great Lakes. A series of Lake effect snowbands developed off Lake Ontario during the evening of the 5th, reaching northern Vermont overnight and continued until the late evening of the 6th. Some of the heaviest snowbands moved across Grand Isle and Franklin counties around 3 pm on the 6th of February. An 18 vehicle accident occurred on Interstate 89 near Exit 21 (Highgate) due to the slippery roads. General snowfall was 1 to 3 inches in the valleys but favored upslope regions witnessed 4 to 6 inches. Snowfall amounts included: 2 inches in South Burlington (Chittenden County), East Haven (Essex County), St. Albans (Franklin County), Waitsfield (Washington county), while 3 inches of snow fell in Newport (Orleans County), Waterbury Center (Washington county) and Island Pond (Essex County). Snowfall of 4 inches was reported in Jericho (Chittenden county), Morrisville (Lamoille county), and Greensboro (Orleans county), while 5 inches accumulated in Westford (Chittenden county), Sutton (Caledonia county), and 6 inches was reported in North Underhill (Chittenden county), Jeffersonville and Eden (Lamoille county) and a localized 12 inches at Jay Peak.
2/25/2006	2/25/2006	An unusually strong Alberta clipper moved across southern Vermont during the afternoon of the 25th. Snow started across northern Vermont by midday and continued into the evening, then tapered off before midnight. Snowfall was much more limited, the further away from the storm track. Snowfall amounts ranged from an inch to 4 inches across portions of northern Vermont. Some specific snowfall totals included: 1 inch in Underhill (Chittenden county), Island Pond (Essex county) and Newport (Orleans county)...2 inches in Greensboro (Orleans county) and Sutton (Caledonia county)...3 inches in South Burlington (Chittenden county), Morrisville (Lamoille county) and East Albany (Orleans county) with 4 inches in Enosburg Falls (Franklin county). Several traffic accidents were reported due to slippery roads.
1/1/2007	1/1/2007	A weak area of low pressure moved across Ontario and Quebec provinces in Canada during the morning and afternoon of the 1st. Mild, moist air traveled over a seasonably cool airmass across Vermont and this resulted in a period of freezing rain from shortly after Midnight to mid-morning on the 1st. Freezing rain accumulated to between 1/4 to 3/8 of an inch across Vermont, resulting in slick roads and several vehicle accidents.
1/15/2007	1/15/2007	Surface low pressure traveled along a stationary boundary draped across New England on the 15th. Snow began across the Champlain Valley and Washington county during the early morning hours of the 15th and eventually changed to sleet and freezing rain during the morning and continued through the afternoon. Total snow and sleet accumulations ranged from 2 to 4 inches with an additional 1/4 inch or less of ice accumulation.
2/2/2007	2/3/2007	A significant surface low traveled along an arctic cold front that moved across northern Vermont during the late night of the 2nd and into the early morning hours of the 3rd. This clipper system delivered snow to Vermont by late afternoon/evening on the 2nd and continued at night, before it tapered off to snow showers early morning of the 3rd. Snowfall accumulations ranged from 2 to 6 inches, with the lighter amounts within the Champlain Valley and the heaviest amounts in the hilly terrain of North Central and Northeast Vermont. Some specific snowfall totals included; 6 inches in Sutton (Caledonia), Island Pond (Essex) and Eden (Lamoille), 5 inches in Walden (Caledonia), Canaan (Essex), Corinth (Orange), Newport (Orleans) and Springfield (Windsor), 4 inches in Jerusalem and South Lincoln (Addison), North Underhill (Chittenden), Highgate (Franklin), Rutland (Rutland), Waitsfield and Northfield (Washington) and Chester (Windsor).
4/4/2007	4/4/2007	A complex storm system moved across Ontario and Quebec on the 4th with a frontal boundary that moved across Vermont during the afternoon. Meanwhile, a coastal low developed off the New Jersey coast during the late afternoon and evening of the 4th, which maintained the precipitation across the area through the evening hours. Rain mixed with and then changed to sleet and snow across the Champlain Valley during the afternoon and evening hours of the 4th before ending around Midnight. |Combined snow and sleet accumulations in the immediate Champlain Valley was generally a few inches. This caused some treacherous travel for the late afternoon and evening commute with numerous motor vehicle accidents reported. Some specific snowfall accumulations included 3 inches in Bridport (Addison County), South Burlington (Chittenden County) and Swanton (Franklin County) with 4 inches in Enosburg Falls (Franklin County) and 6 inches in Rutland (Rutland County).
4/12/2007	4/12/2007	Strong low pressure moved into the Great Lakes on the morning of the 12th. Meanwhile, a secondary area of low pressure developed off the Delmarva peninsula during the afternoon of the

		12th. Both systems eventually moved into the Gulf of Maine during the early morning hours of the 13th.|Precipitation was a wintry mix of heavy wet snow, sleet, and rain with the most persistent snows in the higher elevations and during the hours after sunset with the loss of solar insolation. Snowfall totals in the Champlain Valley of Vermont were 2 to 5 inches. Some specific snowfall totals include; 2 inches in Cornwall (Addison county), Swanton (Franklin county) and Rutland (Rutland county)...3 inches in Charlotte (Chittenden county), St. Albans (Franklin county) and Danby Four Corners (Rutland county)...4 inches in Grand Isle (Grand Isle county) and Richford (Franklin county) with 5 inches in Hanksville (Chittenden county).
4/15/2007	4/16/2007	A storm system initiated across the southern Rockies on the 12th and moved across the southern Plains on the 13th into the Gulf coast states on the 14th. On the 14th, this storm intensified rapidly across the southeast United States and continued to intensify rapidly as it moved along the Eastern seaboard on the 15th to the western tip of Long Island, NY on the morning of the 16th. Thereafter, this powerful Nor'easter drifted east of New England. In the Champlain Valley of Vermont, snow overspread the area by late morning on the 15th, but mixed with and changed to sleet and rain several times from early afternoon through the night of the 15th, before gradually ending during the morning of the 16th.|Strong east to southeast winds, down-sloping, off the Green Mountains accounted for less precipitation and milder temperatures within the Champlain Valley. Snowfall totals were 3 to 5 inches in the Champlain Valley. This was a heavy, wet snow that caused scattered power outages, as well as extremely slick and treacherous roads that resulted in numerous vehicle accidents. Some specific snowfall totals included: 3 inches in Highgate Center (western Franklin County) and Pawlet (western Rutland County) with 4 inches in St. Albans (western Franklin County), North Hero (Grand Isle County) as well as Burlington and Colchester (western Chittenden County).
12/11/2007	12/12/2007	An upper level disturbance helped initiate the development of a weak surface low along a frontal boundary, all of which moved across Vermont during the night of December 11th and into the morning hours of the 12th. A wintry mix of snow, sleet and freezing rain overspread Vermont during the evening hours of the 11th but changed to accumulating snow during the early morning hours of the 12th before ending by mid-morning. Combined snow and sleet accumulations across Vermont were 2 to 5 inches. Some specific accumulations included 5 inches in North Underhill (Chittenden County), 4 inches in Wheelock (Caledonia County), St. Albans (Franklin County), Morrisville (Lamoille County) and East Albany (Orleans County) with 3 inches in Marshfield (Washington county), West Topsham (Orange County) and South Lincoln (Addison County).
12/13/2007	12/13/2007	An upper level disturbance moved across northern New York and southeast Canada, while a weak surface low moved across southeast Canada during the evening of December 13th. Meanwhile, a surface low tracked from the southeast United States to just south of southern New England on the night of the 13th. Snow overspread Vermont during the early to midafternoon of the 13th and ended prior to midnight. Snow accumulations across Vermont were 3 to 6 inches. ||Some specific snowfall accumulations included; 5 inches in Eden (Lamoille county), Newport (Orleans county), Brookfield (Orange county) and Springfield (Windsor county) with 4 inches in New Haven (Addison county), St. Johnsbury (Caledonia county), North Underhill (Chittenden county), Morrisville (Lamoille county), Rutland (Rutland county), Northfield (Washington county) and Woodstock (Windsor county).
12/19/2007	12/20/2007	An upper level disturbance and weak area of low pressure moved east from the Great Lakes and then across Vermont during the night of December 19th into the morning hours of the 20th. Light snow overspread Vermont by late afternoon on the 19th and exited the region by early afternoon on the 20th. Snowfall accumulations from this system was 2 to 4 inches across Vermont.
12/31/2007	12/31/2007	An upper level disturbance moved across northern New York and Quebec during the early morning hours of December 31st. At the same time, a surface low moved north along the mid-Atlantic coast to southeast of Cape Cod by daybreak on the 31st. ||Snow overspread Vermont around Midnight on the 31st and ended around daybreak on the 31st, with snowfall amounts 3 to 6 inches across the region. Some specific snowfall totals included; 7 inches in South Burlington (Chittenden county) 6 inches in Jericho (eastern Chittenden county), Corinth (Orange county)...5 inches in Bridport (Addison county), Essex (Chittenden county), Chelsea (Orange county), Moretown (Washington county) and 4 inches in Berkshire (Franklin county), Eden (Lamoille county), Sutton (Caledonia county) and Island Pond (Essex county).
1/1/2008	1/2/2008	Low pressure across the Great Lakes on the morning of January 1st moved across New York and New England during the late afternoon and evening hours. Meanwhile, a secondary area of low pressure developed across southern New England during the afternoon of the 1st and moved into the Gulf of Maine during the night. Snow overspread Vermont by early afternoon on the 1st and continued into the early morning hours of the 2nd.||Snowfall amounts with this storm were 3 to 7 inches across the Champlain Valley of Vermont. Some specific snowfall amounts included 7 inches in Shoreham (Addison County), 6 inches in Burlington (western Chittenden County), 5 inches in St. Albans (western Franklin County) and 3 inches in New Haven (Addison County) and Rutland (Rutland County).
1/14/2008	1/14/2008	An upper atmospheric disturbance moved across northern New York, while a developing surface low moved well southeast of southern New England and Cape Cod during the morning hours of January 14th. Snow overspread Vermont during the early morning hours of the 14th and continued until the early afternoon. Snowfall amounts ranged from 2 inches along the Canadian border to 4 to 6 inches in the Connecticut River Valley.

2/1/2008	2/2/2008	An arctic high pressure system was located across New England and New York on January 31st into the morning hours of February 1st. Meanwhile, a powerful storm system moved from the southern Plains on the morning of January 31st into the Ohio River Valley by the morning of February 1st and then across New England during the night of February 1st. This storm system transported a great deal of moisture and milder air above a surface that had a cold, dry airmass established across the region. ||This resulted in a wintry mix of snow, sleet, freezing rain, and rain across portions of Vermont. Snow began by late morning on February 1st across Vermont and changed to sleet, freezing rain and rain during the afternoon, which continued during the night before changing back to snow showers prior to ending during the early morning hours of the 2nd. ||Combined snow and sleet accumulations across portions of north central and northeast Vermont was 2 to 5 inches along with accumulating ice around one quarter of an inch. This wintry mix accounted for hazardous road conditions, vehicle accidents and multiple school, civic and government closings on February 1st. In addition, very strong winds along the exposed hilltops in eastern Rutland, eastern Addison and eastern Chittenden counties resulted in scattered wind gusts more than 50 mph and isolated power outages.
2/12/2008	2/13/2008	Low pressure across the southern Mississippi River Valley on the morning of February 12th moved across the Ohio River Valley during the 12th and into New York and New England on the 13th. Snow overspread Vermont during the late evening hours of the 12th and continued into the morning hours of the 13th, where it mixed with and changed to sleet and freezing rain before it tapered to snow showers during the evening of the 13th. ||Combined snow and sleet accumulations of 3 to 6 inches, along with icing around 1/4 inch thick was found across much of Vermont. Power outages were recorded across southern Vermont and a two vehicle accident resulted in three fatalities near Middlebury (Addison County).
3/1/2008	3/1/2008	A fast moving storm system raced across the eastern Great Lakes on February 29th and New England on March 1st. Snow overspread Vermont just after midnight on March 1st and continued until midday. Snowfall accumulations of 3 to 7 inches were observed throughout much of western Vermont.
12/17/2008	12/17/2008	A weak surface low developed across the Great Lakes on December 16th and moved into northern New York by the morning of December 17th. A secondary low formed south of New England during the early morning hours of December 17th and moved east of New England by the evening.||Snow overspread Vermont after midnight on the 17th and accumulated 3 to 6 inches before tapering to snow showers and ending by early afternoon.
12/19/2008	12/20/2008	On the morning of December 19th, low pressure was located across the mid-Mississippi River Valley. This low moved across the Ohio River Valley during the afternoon of the 19th and then offshore south of New England during the evening.||Snow overspread Vermont by early afternoon on December 19th and ended just after midnight on the 20th. Snowfall accumulations of 3 to 6 inches were common across the Vermont counties along the Canadian border.
1/7/2009	1/8/2009	Primary low pressure traveled from the Great Lakes across the Vermont/Canadian border on January 7th. Meanwhile, a coastal low slowly developed south of New England during the late afternoon of the 7th and eventually intensified as it moved into the Gulf of Maine during the night. ||Snow overspread Vermont during the early morning hours of the 7th but changed to a prolonged period of sleet and freezing rain as milder air aloft dominated due to the slow development of the coastal low. Precipitation changed back to light snow and snow showers before ending during the early morning hours of the 8th. ||Total snowfall accumulations were 3 to 6 inches along with sleet and freezing rain with little to no ice accretion. Nonetheless, there were numerous motor vehicle accidents due to the wintry conditions that occurred both during the morning and evening commutes.
12/9/2009	12/9/2009	A very powerful low pressure system (980mb) moved across the Great Lakes into Ontario province Canada on December 9th.||Snow overspread the region before dawn with snowfall rates more than an inch per hour during the morning commute along with brisk winds of 15 to 25 mph with higher gusts. The snowfall ended by early to midafternoon. Snowfall amounts ranged from a few inches in the northern Champlain Valley and along the western slopes of the Green Mountains to 6 to 12 inches in favored up slope communities along and east of the Green Mountains. Some specific snow totals; 14 inches in Chester, 12 inches in Cavendish and Springfield, 9 inches in Bridport, 8 inches in Moretown, Rutland and Walden. This was the first widespread snow event for the 2009-10 winter season with numerous vehicle accidents throughout Vermont.||More importantly, this powerful storm delivered a low-level jet stream of 80 to 100 mph around 3000 feet that flowed across the Green Mountains and downsloped into the communities along the western slopes of the Green Mountains. Surface wind gusts of 60 to 85 mph during the afternoon downed numerous tree branches and trees which knocked down power lines and caused some structural damage to several homes as well. More than 10,000 residents lost power in the peak of the storm.||Some observed peak wind gusts included 108 mph atop of Mount Mansfield (4000 feet), 87 mph in Huntington, 74 mph in Cambridge, 66 mph in Nashville, 65 mph in East Clarendon, 62 mph in Bolton and 52 mph in Rutland.
12/28/2009	12/29/2009	An upper atmospheric area of low pressure and weak surface low moved across Vermont on the morning of December 28th. Periods of light snow occurred from daybreak through the late afternoon hours on December 28th which resulted in 2 to 4 inches of snow accumulation with localized higher amounts.||An arctic cold front and upper atmospheric disturbance moved across Vermont during the morning commute of December 29th with snow showers and localized snow

		squalls. Widespread snowfall accumulations of 1 to 3 inches occurred with localized amounts up to 4 inches.||Two-day storm totals were 4 to 12 inches across much of Vermont. Some specific higher snowfall totals included; 12 inches in Killington (Rutland county), 11 inches in Westfield (Orleans county) and North Underhill (Chittenden county), 10 inches in Lincoln (Addison county), 9 inches in Jay (Orleans county) and Richmond (Chittenden county), 7 inches in Sutton (Caledonia county), South Burlington (Chittenden county), Eden (Lamoille county), Rutland (Rutland county), Northfield (Washington county) and Sheldon Springs (Franklin county) with 6 inches in Stowe (Lamoille county), Newport (Orleans county), Waterbury (Washington county) and Bethel (Windsor county).||Rapidly falling temperatures to the single digits above zero degrees along with falling and blowing snow during the morning commute of December 29th accounted for roads to flash freeze that resulted in numerous vehicle accidents, especially along Interstate 89 between Montpelier and St. Albans.
4/27/2010	4/28/2010	Surface low pressure across the Ohio River Valley on April 26th slowly moved across the southern New England coast into the Gulf of Maine on the 27th and 28th. Meanwhile, a cold, strong upper atmospheric area of low pressure moved from Quebec across northern New England.||This resulted in an abnormally cold, unstable and moist air mass across northern New York and northern Vermont which produced largely orthographically enhanced snowfall across the Vermont-Canadian border as well as the higher terrain of the northern Green Mountains, northern Champlain Valley and northern Connecticut River Valley.||The snow began in western Vermont by mid-morning of the 27th and across eastern Vermont during the afternoon and continued overnight before it slowly diminished during the late morning and afternoon hours of the 28th. Accumulations of heavy, wet snow ranged from 4 to 12 inches in the valleys with 10 to 24 inches above 800 feet elevation in favored northwest facing slope communities. This heavy wet snowfall resulted in numerous downed tree limbs, branches and trees which caused scattered power outages that affected over 20,000 customers.||Some specific snowfall totals included; 4 inches in Cornwall (Addison county), Isle La Motte (Grand Isle county), Chelsea (Orange county), 6 inches in Swanton (Franklin county), NWS Burlington in South Burlington (Chittenden county), 8 inches in Essex Junction (Chittenden county), Stowe (Lamoille county), Newport (Orleans county) and Waterbury (Washington county) with 12 inches in South Lincoln (Addison county), Lyndonville (Caledonia county), Enosburg Falls (Franklin county), Brownington (Orleans county) and Marshfield (Washington county), 16 inches in Hardwick (Caledonia county), Sheldon Springs (Franklin county) and North Calais (Washington county), 20 inches in Walden (Caledonia county) and 24 inches in Jeffersonville (Lamoille county), Nashville and North Underhill (Chittenden county).
12/13/2010	12/14/2010	A deep and strong low pressure system traveled across the central United States into the lower Great Lakes on December 12th. Meanwhile, low pressure developed along the frontal boundary of the Great Lakes storm in the mid-Atlantic states and strengthened as it moved north across New York and western New England late on the 12th and 13th.||Rain that had fallen on December 12th changed to snow during the afternoon on the 13th as the cold front swept across Vermont accounting for rapidly falling temperatures and a quick freeze. Numerous vehicle accidents occurred due to wet roads that quickly became snow covered and icy. ||Snowfall accumulations across Vermont were 3 to 7 inches with localized higher amounts in the mountains. Some specific snowfall amounts include 8 inches in Cornwall (Addison County), Jericho (Chittenden County) Pittsford (Rutland County), 7 inches in Westford (Chittenden County), Morses Mills (Lamoille County), 6 inches in Georgia Center (Franklin County), 5 inches in Eden (Lamoille County) and Cabot (Washington county).
2/7/2011	2/8/2011	A weak surface low across the Great Lakes moved across New York and New England on the night of February 7th and morning of February 8th. At the same time, a coastal low that originated in the lower Mississippi, moved well southeast of Cape Cod. ||Snow overspread the region during the late evening of February 7th and tapered off during the midday hours of February 8th. Snowfall amounts across Vermont were 4 to 7 inches with locally 8 inches along some communities immediately along the western slopes of the Green Mountains like Lincoln, Underhill, and Jericho.
2/25/2011	2/25/2011	A storm that brought severe weather to portions of the Mississippi River Valley on February 24th was located in the Ohio River Valley on the morning of the 25th and into the Gulf of Maine by that evening.||Snow overspread southern Vermont before daybreak on the 25th and reached the Canadian border by mid-morning and fell heavy at times. Snowfall rates of 2-3 inches an hour were observed across much of central and southern Vermont. Snowfall totals ranged from 3 to 6 inches along the Canadian border with 8 to 12 inches in the central and southern Vermont. Some specific totals include 14 inches in Springfield (Windsor County), 12 inches in Chester (Windsor County), 10 inches in Sutton (Caledonia County and at the NWS office in South Burlington (Chittenden County). ||There were numerous vehicle accidents but most schools in the state were already closed due to vacation week.||NWS Burlington office set a new February monthly snowfall record with 43.1 inches, surpassing the old mark of 42.3 inches in 2008.
11/23/2011	11/23/2011	A storm system in the Mid-Mississippi Valley on November 22nd tracked just south of the New England shoreline on November 23rd. ||Snow began across Vermont before midnight on the 23rd and reached its maximum intensity prior and during the morning commute, then dissipated by midday. Snow mixed with freezing rain and rain at times, accounting for a heavy, wet accumulation. Snowfall accumulations in Vermont ranged from several inches in the Champlain Valley to 6 to 12 inches across central and eastern Vermont.||This snowfall accounted for

		numerous vehicle accidents during the morning commute as well as isolated to scattered power outages due to wet, heavy snow bending or breaking tree limbs onto power lines.
2/24/2012	2/25/2012	A dual, elongated area of low pressure moved across the Great Lakes into New England during the afternoon and night of February 24th. A secondary area of low pressure significantly developed across Cape Cod and the Gulf of Maine during the early morning hours of February 25th.||The first part of this system deposited 2 to 5 inches of snow across much of Vermont during the late afternoon and evening hours of the 24th, then the wrap-around, orographically enhanced snowfall across the Green Mountains continued overnight into Saturday with total storm snowfall accumulations ranging from 3 to 36 inches. The heaviest orographic snowfalls fell across the higher terrain in the northern third of Vermont, especially along the Green Mountains. The greatest impacted locations included eastern Franklin, Orleans, Lamoille, and eastern Chittenden counties.
2/29/2012	2/29/2012	A powerful winter storm that brought blizzard conditions to portions of Wisconsin and Minnesota and severe weather to portions of the Tennessee River Valley on February 29th weakened as it moved across the Northeast on March 1st.||There were two rounds of snowfall that moved across the North Country, the first during the evening and overnight of February 29th and the second during the daylight hours of March 1st. The first round delivered widespread 1-3 inches across much of Vermont with 6 to 10 inches along the east slopes of the central and southern Green Mountains. The second round delivered another 1-3 inches with some areas that witnessed 3 to 5 inches additional accumulation.
3/1/2012	3/1/2012	A powerful winter storm that brought blizzard conditions to portions of Wisconsin and Minnesota and severe weather to portions of the Tennessee River Valley on February 29th weakened as it moved across the Northeast on March 1st. ||There were two rounds of snowfall that moved across the North Country, the first during the evening and overnight of February 29th and the second during the daylight hours of March 1st. The first round delivered widespread 1-3 inches across much of Vermont with 6 to 10 inches along the east slopes of the central and southern Green Mountains. The second round delivered another 1-3 inches with some areas that witnessed 3 to 5 inches additional accumulation.
12/14/2013	12/15/2013	A dual area of low pressure moved across New York and just south of New England on December 15th to bring the first widespread snowfall of the 2013-14 winter season. The coastal storm became the most dominate system and delivered 10 to 15 inches across southeast Vermont with 3 to 6 inches across northwest Vermont. The typical impacts associated with this storm were the numerous vehicle accidents, especially being the first storm of the season.
12/20/2013	12/22/2013	A stationary boundary was draped across the Adirondacks of New York into portions of central and northern New England from December 20th through 22nd with several disturbances delivering precipitation. An impressive battle between mild to warm moist air, south of the boundary with temperatures in the 50s, overriding a very cold, dense shallow air mass with temperatures in the teens and 20s in northwest Vermont but single digits just north across the border into Canada.||First round of wintry precipitation fell across northwest Vermont, especially along the Canadian border during Friday afternoon and evening (December 20th). Most of the precipitation fell as freezing rain, 1/4 to 1/3 of ice accumulation, along with some sleet. The second round began during the early afternoon hours of December 21st and peaked during the evening and overnight hours. An additional 1/2 to 3/4 inch of ice accumulation as well as 1 to 2 inches of sleet occurred in portions of northern Vermont. Very cold temperatures (-10 to teens) followed the event with no melting, thus ice stayed on trees and utility lines through December 28th-29th, thus prolonging recovering efforts.||The greatest impact was in northwest Vermont, especially along the Canadian border, with widespread tree and utility line damage as well as numerous vehicle accidents. More than 75,000 customers were without power from hours to days across the region. The areas impacted were like the Ice Storm of January 1998, but not the severity as precipitation and ice accumulation were half of the 1998 storm.||Ice jams also developed during this time as runoff from melting snow and rainfall swelled area rivers. River rises were enough to break up and move ice cover, resulting in scattered ice jams.
1/3/2015	1/4/2015	A series of weak low pressure systems and frontal boundaries delivered a mix of snow, sleet, and freezing rain during the evening of January 3rd and eventually changed to rain during the morning of January 4th. Widespread snowfall of 2 to 4 inches was common along with up to a tenth of an inch of icing. In Northeast Vermont, widespread snowfall was 3 to 7 inches with up to one-quarter of an inch of ice.
1/27/2015	1/27/2015	A powerful nor'easter brought blizzard conditions to much of southern and eastern New England on January 26-27th. However, in Vermont, snowfall was moderate across the region with snowfall totals ranging from a few inches in much of western and northern Vermont to 6 to 10 inches in southeast Vermont.
1/30/2015	1/30/2015	A vigorous clipper with decent snowfall followed by a deep arctic air mass moved across Vermont during the early morning hours of January 30th and ended by early afternoon. Snowfall amounts across Vermont were 2 to 6 inches with some isolated higher amounts in northern Vermont.
12/29/2015	12/29/2015	The remnants of a powerful winter storm that brought blizzard conditions to New Mexico and Texas, tornadoes in Texas and record flooding rains to portions of the Mississippi River Valley moved into the Great Lakes on December 29th bringing the first winter storm of the 2015-16 season to northern New York.||Snow overspread Vermont around Midnight on December 29th and ended by mid to late afternoon, changing to sleet and freezing rain before ending. Snowfall amounts across the area was 3 to 7 inches with limited icing. Routine impacts of vehicle accidents

		across the region occurred except for a tractor-trailer, SUV crash along Route 4 near Killington, VT during the afternoon of December 29th that resulted in 3 indirect fatalities.
2/15/2016	2/16/2016	A coastal low across the Carolinas on the morning of February 16th raced northward across the Champlain Valley of VT/NY during the day. This allowed for a wintry mix of snow, sleet, freezing rain and rain across the region and a strong east-southeast wind across portions of Vermont. Snowfall averaged 2 to 4 inches across much of Vermont with only 1 to 2 inches in the immediate Champlain Valley. Ice accretion was a tenth of an inch or less. Main impacts were slick, sloppy roads but some isolated power outages due to wind gusts more than 40 mph along the western slopes of the green mountains.
4/6/2016	4/7/2016	A slow moving storm in the Great Lakes region delivered mild, moist air into an unseasonably cold, dry airmass across Vermont during the afternoon and evening of April 6th. Snow developed during the afternoon hours and remained stationary across the Canadian border through the evening and night hours. Snowfall ranged from less than an inch across the southern Champlain Valley and southern Vermont to 4 to 6 inches along the Canadian border.
3/31/2017	3/31/2017	A storm system moved from the Ohio River Valley on March 31st to south of New England and then out to sea on April 1st. Wet snow, occasionally mixed with rain began across Vermont by midday on the 31st, but accumulations were limited due to above freezing temperatures and March solar radiation. The increase in snow intensity and lack of solar radiation, along with temperatures near freezing allowed for significant snowfall accumulations above 1000-1200 feet, especially in eastern and central parts of Vermont. ||Snowfall totals were 3 to 6 inches in the Champlain Valley and a. g the Canadian border with 6 to 12 inches elsewhere. The snow load of the heavy, wet snow did allow for some scattered power outages and numerous vehicle mishaps as well.
4/1/2017	4/1/2017	A storm system moved from the Ohio River Valley on March 31st to south of New England and then out to sea on April 1st. Wet snow, occasionally mixed with rain began across Vermont by midday on the 31st, but accumulations were limited due to above freezing temperatures and March solar radiation. The increase in snow intensity and lack of solar radiation, along with temperatures near freezing allowed for significant snowfall accumulations above 1000-1200 feet, especially in eastern and central parts of Vermont. ||Snowfall totals were 3 to 6 inches in the Champlain Valley and along the Canadian border with 6 to 12 inches elsewhere. The snow load of the heavy, wet snow did allow for some scattered power outages and numerous vehicle mishaps as well.
12/12/2017	12/13/2017	An energetic clipper system with abundant moisture moved across the eastern Great Lakes, NY, and New England during the afternoon/evening of December 12th. A coastal storm developed in the Gulf of Maine that help deliver more precipitation westward into eastern VT. A widespread 4 to 8 inches of snow fell across Vermont with areas of 8 to 12 inches and localized amounts more than 12 inches. Snow arrived during the morning commute on December 12th and impacted travel through the evening commute and beyond. Brisk winds caused considerable blowing snow.
12/22/2017	12/22/2017	A quick moving storm system moved from the Ohio River Valley across southern New England and brought snow to Vermont during the morning commute on December 22nd and ending shortly after the evening commute. A widespread 5 to 10 inches of snow fell across central VT. The timing and intensity of the snowfall lead to hundreds of vehicle accidents and blocked highways for several hours.
12/25/2017	12/25/2017	A clipper storm system moved from the northern Great Lakes on December 24th to New England on Christmas Day with a secondary development off the New England coast. A widespread 4 to 8 inches of snow fell across Vermont.
1/4/2018	1/5/2018	A powerful Nor'easter developed off the SE CONUS on January 3rd and proceeded to move on shore between eastern Maine and western Nova Scotia late on the day of January 4th. Widespread snow moved across Vermont during the morning hours, becoming steadier/heavier for much of eastern VT during the 4th. Wraparound snowfall during the night of the 4th and the day of the 5th added snowfall to Vermont's northern peaks and western slope communities. Overall snowfall statewide was 3 to 7 inches with upwards of 8-12 inches along the northern western slopes of the Green Mountains.
3/7/2018	3/9/2018	A coastal low developed off the Mid-Atlantic coast by the morning of March 7th and moved into the Gulf of Maine on March 8th, then closed and filled with the upper level low across New England. snow began by midday on March 7th and lingered with mountain snow showers on the 9th. Snowfall intensities were light to moderate with some heavy snow across eastern and southern Vermont, closer to the coastal storm. Impacts were mainly travel related, especially eastern Vermont. Snowfall accumulations across the state ranged from 5 to 8 inches across northwest Vermont to 12 to 18 inches across eastern Vermont with southeast Vermont witnessing reports of more than 2 feet in the higher terrain. Some power outages were reported with the high amounts and denser snow across the lower Connecticut River valley.
3/13/2018	3/15/2018	Another Nor'easter swept across eastern New England on March 13th and remained stationary across eastern Quebec/Nova Scotia on the 14th-15th. This allowed a long duration snowfall event across Vermont with snow beginning during the morning of March 13th but the heaviest occurring during the night of March 13th through March 14th. The greatest snowfall occurred across the higher elevations of central and eastern VT with 1 to 2 feet, or more being reported. Elsewhere snowfall totals were 8 to 18 inches. Limited impact as accumulating snowfall on roadways was limited to nighttime hours.

11/27/2018	11/28/2018	A storm that brought blizzard conditions to parts of the Midwest on Sunday, November 25th moved into the Ohio River Valley - Southern Great Lakes on 11/26. The storm slowed considerably in the eastern Great Lakes, thus allowing a secondary low pressure system to develop near the Delmarva Peninsula during the evening of 11/26 and proceeded to move to near Boston by the morning of November 27th.||Precipitation moved into the North Country by the afternoon of November 26th, falling as snow at elevations above 1500 feet and rain at lower elevations. By the early morning of November 27th, the atmosphere cooled enough to allow for precipitation to changeover to snow. Highest snowfall totals at elevations above 1500 feet, where more than 12-15 inches fell. The heavy wet snow accounted for more than 40,000 outages, effecting 100,000 customers without power due to snow loading on power lines.
1/8/2019	1/9/2019	A weak surface low across the Great Lakes on January 8th received upper atmospheric support during the night of the 8th and developed a significant winter storm off the NH/ME coast by the morning of January 9th as it slowly moved into Newfoundland by January 10th.||Precipitation started as light rain, freezing rain and snow across Vermont during the evening of January 8th, changing to accumulating snow after midnight of January 9th. Snowfall was largely confined to mountain communities by midday of January 9th and continued until ending by late evening of January 10th.||Snowfall amounts varied greatly (3-18+ inches) with the highest amounts along the west-northwest facing higher elevation communities of the Green Mountains in northern VT, due to a prolonged and climatological wrap-around/northwest up slope event. The heavy wet nature of the initial snowfall, as well as mixed with freezing rain, accounted for hundreds of school closings for the morning of January 9th. Some scattered power outages were observed with the heavy, wet snow as well.
1/29/2019	1/30/2019	A storm system across the Great Lakes on the morning of January 29th traversed across NY and Northern New England during the afternoon and nighttime hours. A widespread 3 to 6 inches were observed across much of northern VT with 5 to 10 inches across central and southern VT.
3/22/2019	3/23/2019	Low pressure moved from the mid-Atlantic coast on March 21st and intensified rapidly as it moved to just off the Maine-New Hampshire coast on the 22nd. Precipitation started as rain in the valleys and wet snow in higher elevations during the overnight of the 21st/22nd and changed to wet snow for much of the 22nd before ending around daybreak Saturday (23rd) in the mountains. ||Snowfall totals ranged from 3 to 6 inches in the valleys below 500 feet, 6 to 12 inches around 1000 feet and 12 to 20+ inches in elevations above 1500 feet, especially in northern sections of the state.||These wet snow conditions and eventual brisk winds of 15 to 25 mph with higher gusts later Friday and Friday night combined with the snow weighted trees and power lines to cause thousands of power outages...approximately 10,000-15,000 customers.
12/29/2019	12/30/2019	A large, complex winter storm moved across the Great Lakes on December 29th and eventually stalled on December 30th and 31st. Meanwhile, secondary low pressure developed near Pennsylvania on December 30th and moved across southern New England on the 31st.||A wintry mix of freezing rain, sleet and some snow moved into Vermont by the evening of December 29th and continued steadily until midday on December 30th before tapering to showers of mixed precipitation and snow on the afternoon of the 30th.||Predominantly freezing rain and sleet fell across southern VT with sleet, freezing rain and some snow in central VT with snow and sleet in northern VT. Freezing rain accumulated 1/3 inch or less across Vermont's southern four counties with a sloppy 1-3 inches of snow, sleet, and freezing rain in the Champlain Valley and 3 to 7 inches across north-central and northeast Vermont.||Main impacts were hazardous road conditions Sunday night (29th) and Monday morning (30th). Strong wind gusts more than 40 mph occurred at times along the immediate western slope communities. Approximately 5000 customers without power for the event, a combination of ice and wind effects.
1/12/2020	1/12/2020	A moisture laden storm system tracked along an old cold front from the Gulf of Mexico up across NY and VT. On Saturday, January 11th, the front was positioned across southern Canada with temperatures in the 50s/60s across VT. As the front slowly progressed south into northwest VT during the late evening and overnight hours, moderate to heavy rain fell across the region. during the early morning hours of January 12th, the cold front slipped south into the southern portions of the Champlain Valley.||Widespread 1/4 to 1/2 inches of ice accretion with locally up to 3/4 inch was observed along the international border, resulting in hazardous travel and scattered power outages.
1/16/2020	1/16/2020	A clipper-like system quickly moved from the lower Great Lakes on the evening of January 15th, across central NY during the early morning hours of January 16th into the Gulf of Maine by midday.||A west to east band of moderate to occasionally heavy snow moved across the southern Adirondacks and central VT during the overnight and morning hours of January 16th, where 4 to 8 inches of snow was observed. Lesser snowfall totals were measured across northern NY, northern VT, and southern VT.
1/18/2020	1/19/2020	A quick moving area of low pressure, which originated in the Pacific northwest on January 15-16, moved across the central CONUS and eventually across New England on January 19th. ||Snow moved into northern NY during the afternoon of the 18th and exited by daybreak of the 19th. A widespread 2 to 4 inches fell across the central and southern Champlain Valley of VT, 4 to 7 inches across the rest of central and southern VT and 6 to 10 inches across portions of northern VT.
3/23/2020	3/24/2020	A late season weak area of low pressure moved across the Ohio River valley and developed a secondary area of low pressure south of New England during the afternoon and evening hours of

		March 23rd.||Snow moved into northern NY by early afternoon and across Vermont by mid-afternoon. Initially surface/ground temperatures were above freezing but fell below freezing with accumulating snow as the snowfall rates approached up to 3 inches per hour.||Total snowfall ranged from 2 to 4 inches in northwest VT to 4 to 7 inches across much of the state with pockets of 7 to 10 inches in eastern VT.
1/2/2021	1/2/2021	A weak to moderate upper level and surface storm system moved across the northeast, including New England late on New Year's into January 2nd. Snowfall was a general 4 to 8 inches across northern VT with the higher amounts across the counties bordering with Canada.
1/16/2021	1/16/2021	A winter storm in the Great Lakes on January 15th transferred energy to a developing coastal low of the NJ coast during the morning of the 16th. Precipitation began late evening on the 15th across VT with rain in the valleys and wet snow in the higher elevations. During the early morning hours and through midday on January 16th, rain changed to heavy, wet snow that accumulated 3 to 6 inches in the valleys with 8 to 18 inches in higher elevations, especially along the spine of Vermont's Green Mountains. The weight of the heavy wet snow led to scattered to numerous power outages across VT with more than 30,000 customers without power.
2/2/2021	2/2/2021	The same storm that brought 6+ inches of rainfall and flash flooding to California as well as 6+ feet to the Sierra Nevada late the previous week moved into the Great Lakes on January 31st and February 1st. This system joined with another system to develop a coastal low off the NJ coast during the night of February 1st and slowly moved across the Gulf of Maine on February 2nd. A Nor'easter with snowfall of 18 inches in NYC and more than 2 feet in parts of Northern NJ/Eastern PA during the 31st and 1st slowly spread snow northward into Vermont.||Snowfall developed during the late evening hours of February 1st in southern VT and didn't reach the Canadian border until the early morning hours of February 2nd.||The initial snow band delivered 5 to 10 inches with locally higher amounts in southern Vermont as it crawled northward. In the early morning hours, this band increased forward speed and only delivered 2 to 3 inches elsewhere before ending just after sunrise. A secondary band of snow, with snowfall rates of 1-2+ inches an hour, moved across sections of central and northern VT into the northern Champlain Valley during the later afternoon and early evening causing hazardous driving conditions during the evening commute. ||Snowfall amounts ranged from 5 to 12 inches in the southern Green Mountains and lower Connecticut Valley as well as the northern Champlain Valley. Elsewhere, snowfall amounts were 3 to 6 inches.
2/16/2021	2/16/2021	A cross country storm system, responsible for heavy snows in Seattle, snow, ice and report cold in the southern Plains and the Tennessee valley moved into New England during the overnight hours of February 15-16th. ||Snow overspread Vermont around midnight on the 16th, mixing with sleet and freezing rain before sunrise and ending by mid-morning. Combined snow and sleet accumulations were 3 to 6 inches with minimal icing from freezing rain. However, many roads were treacherous due to the wintry mix and many schools cancelled classes.
4/21/2021	4/21/2021	Surface low pressure developed along a frontal boundary and moved northeast across SE New York, western southern New England and central New England on the 21st. Precipitation developed in the morning and mostly in the form of snow or mixed snow and rain, then as the intensity of the precipitation increased during the afternoon and evening hours, fell primarily as wet snow. Snowfall amounts across Vermont ranged from 2 to 6 inches with a few localized amounts around 8 inches. In Rutland and Windsor counties south, it was primarily a rain event. Roads remained primarily wet, thus limited impacts.
11/26/2021	11/27/2021	Weak low pressure moved along a cold front that moved across NY/VT during November 26th. Rain and rain showers transitioned into wet snow beginning at higher elevations around noon and eventually into the Champlain Valley by early evening. Snowfall amounts ranged from a wet few inches in the Champlain Valley with 4 to 8 inches in the some of the higher elevations in the Green Mountains. The wet nature of the snow led to scattered power outages in the foothills.
12/18/2021	12/18/2021	A weak area of low pressure moved from the Ohio River Valley to southeast of New England on Saturday, December 11th. Snow moved into VT during the early afternoon and exited around midnight. Snow fell moderately at times, especially across central and southern VT. A widespread 4 to 6 inches fell across the northern third of the state with 5 to 8 inches in the central and south central VT with lesser amounts in extreme southern VT due to mixed precipitation. There was no major impacts, just the typical travel disruptions and accidents on the last shopping weekend before the Christmas holiday.
12/25/2021	12/26/2021	Low pressure across the Great Lakes on Christmas Eve (December 24th) slowly traveled and transferred energy to a new coastal low near Cape Cod during the night of December 25th. This delivered a wintry mix of mainly light freezing rain and freezing drizzle beginning the morning of December 25th and ending as freezing drizzle and light snow on the morning of December 26th.||Snow accumulations were an inch or two across the northern mountains and NE VT with ice accumulations generally a tenth of an inch or less, except locally up to 1/4 inch in the lower Connecticut River Valley with little activity along the Canadian border.||Significant travel issues across VT during Christmas morning, especially in central and eastern VT with numerous vehicle accidents and the closure of portions of Interstate 89/91 and other roads at times.
1/17/2022	1/17/2022	A long tracked and powerful winter storm, with a history from the Mississippi River valley through the southeast and north along the Appalachians into the northeast, impacted VT on January 17th. Snow moved into VT around midnight of January 17th with snowfall rates of 1-2 inches per hour at times during the morning, eventually ending by early afternoon with residual snow showers during the evening and night.||General snowfall accumulations in VT was 4 to 8 inches with the

		complexity of the storm due to its strength and strong low level jet accounted for mesoscale features of snowfall distribution with east-side upslope regions witnessing higher totals and west-side downwind communities witnessing less snowfall.||In addition these strong low-level easterly winds did cause some downslope wind gusts (in excess of 50 mph) in the foothills of the western slopes of the Green Mountains and in the higher terrain in northeast VT which resulted in scattered power outages.
2/18/2022	2/18/2022	An arctic front slowly moved from northwest to southeast across VT during the morning hours of February 18th, bringing much colder air. Meanwhile, a weak surface wave was traveling northeast along this boundary. The combination allowed for light rain to change to freezing rain and eventually sleet and snow through the midday hours of February 18th.||Ice accumulations were around a tenth (0.10) of an inch with sleet/snowfall totals of 1 to 2 inches that created hazardous travel.
3/12/2022	3/12/2022	A series of weak low pressure areas traversed along a cold front that moved across VT during the day of March 12th. Rain/snow mixed developed in the early morning hours changing to snow around sunrise and continuing until early to midafternoon. Snowfall amounts ranged from several inches in the lower Connecticut River Valley with 4 to 7 inches in the Champlain Valley with 6 to 12 inches elsewhere with the higher amounts in northern sections.||The initial wet nature of the snow led to numerous slick and icy roads accounting for numerous vehicle accidents.
1/12/2023	1/13/2023	Low pressure moved from the Ohio River Valley on January 12th across central/northern New England on January 13th. Snow overspread northwest Vermont during the evening of January 12th and continued overnight before exiting around midday on the 13th.||Snowfall totals across the region were 2 to 4 inches and restricted to northwest and northern Vermont due to milder temperatures and rain/snow mixed elsewhere across the state.
1/19/2023	1/20/2023	Low pressure moved from the mid-Mississippi Valley on January 19th into New York during by January 20th. In the meantime, an area of low pressure was developing across southeast Massachusetts and moving offshore. ||Snow and sleet overspread Vermont during the evening of January 19th, but then drier air allowed a lull in precipitation for much of the overnight hours before more snow and snow showers redeveloped and fell through the afternoon hours of the 20th.||Widespread snowfall totals of 4 to 7 inches were observed, the higher totals across the higher elevations of the Green Mountains.
1/25/2023	1/26/2023	Low pressure moved from the Ohio River Valley on Wednesday 1/25 to upstate New York and northern New England on Thursday 1/26. Meanwhile an area of low pressure developed along the associated boundary with the parent low across the tri-state region and moved across eastern New England.||Snow overspread Vermont during the afternoon and evening hours of January 25th, heaviest during the evening hours before a lull in the steadiest precipitation as well as a change to mixed sleet and rain occurred during the nighttime hours. Light snow and snow showers redeveloped and moved across Vermont Friday before ending by evening.||Snowfall amounts across Vermont ranged from 1 to 3 inches in southern VT, 3 to 6 inches in central Vermont with 6 to 12 inches in northern VT, especially in the higher elevations.
2/23/2023	2/23/2023	A weak area of low pressure tracked west to east along a stationary boundary, south of New England during the overnight of February 22nd into February 23rd. The storm was a quick mover with about 6-8 hours of snowfall that accumulated 3 to 8 inches across the region, the heaviest in the southern and central Green Mountains.
3/3/2023	3/4/2023	A double barreled low pressure system moved across southern New England on March 4th. Snow and snow/rain mixed developed late night on the 3rd and continued through the morning hours of the 4th.||Snowfall totals were 7 to 12 inches across Vermont with 3 to 6 inches across the central and northern Champlain Valley.
1/6/2024	1/7/2024	Low pressure developed across the northern Gulf of Mexico coast during the evening hours of January 5th and traveled along the east coast moving off the southeast coast of New England by the afternoon of January 7th.||Snow moved into Vermont during the evening hours of January 6th and exited by midafternoon of January 7th. Snowfall amounts across VT were 4 to 12+ inches with the lighter amounts in the northern Champlain Valley and Essex County with the higher snowfall totals *8-12+ inches) across the eastern slope communities of the southern and central Green Mountains. The main impacts from this storm were hazardous road conditions.
1/16/2024	1/16/2024	A weak coastal storm moved past southern New England on January 16th. Light snow overspread Vermont during the morning and ended during the evening. Snowfall totals ranged from 3 to 7 inches across the region with the higher totals in the higher terrain of central VT. The main impacts were numerous traffic accidents, despite the dryness of the snow.
1/24/2024	1/25/2024	A stationary surface boundary draped across northern NY/VT, during the evening and overnight hours of January 24th, was the focusing mechanism for moisture that entrained along the boundary and across the area. Temperatures were below freezing across much of central and eastern VT that allowed for several hours of light freezing rain during the evening and overnight hours. Flat ice accumulations were 0.1 to 0.2 inches with isolated amounts around 0.25 inches. The main impacts were icy, hazardous travel.
3/9/2024	3/11/2024	Low pressure across the Carolinas during the afternoon of March 9th moved slowly northeast along the coast across southeast Massachusetts during the morning of March 10th and lingered along the Maine/Nova Scotia border through the early morning hours of March 11th.||The impactful weather occurred in two phases. The first phase occurred during the evening and overnight hours of March 9th with valley rain and elevated mountain wet and heavy snowfall, especially in the

		central and southern Green Mountain communities. The heavy wet snow impacted the higher terrain and resulted in numerous tree damage, power outages (>30,000 outages) and travel disruptions. Snowfall was less prevalent in the valleys. The second phase occurred during the evening on March 10th through early afternoon on March 11th with northwest upslope enhanced snowfall across the northwest slopes of the central and northern Green Mountains as well as some interior valleys. This, combined with wind gusts of more than 30 mph led to numerous travel disruptions. During the afternoon hours as the snow waned, northwest winds increased with frequent gusts in excess of 40 mph which led to delays in power restoration.||Storm total snowfall from the evening of March 9th through the afternoon hours of March 11th ranged from 2 to 5 inches across the valley floors of the Champlain and the mid to lower Connecticut River valleys, 4 to 8 inches in elevations above 1000 feet and 10 to 18+ inches in the higher elevations (1500-2000+ feet), especially the northwest slopes.
3/23/2024	3/23/2024	An area of low pressure moved from the southeast United States on March 22nd up the eastern seaboard to the NJ/DE coast by midday on March 24th and offshore by Cape Cod late at night on March 24th. ||Snow overspread Vermont, south to north, during the early morning hours of March 23rd and then exiting from west to east during the evening hours of March 23rd. The higher snowfall accumulations were across south central and southern VT, except along the MA/VT border where some mixed precipitation types occurred.||Snowfall totals ranged from 3 to 6 inches in northwest VT, 6 to 12 inches across the rest of the Champlain Valley and northern VT, 12 to 18 inches in central VT with 18 to 24+ inches across south central VT with these higher totals mainly across Windsor and eastern Rutland counties.||Impacts were largely travel related.

Extreme Cold History

Begin Date	End Date	Event Description and Extent
1/25/2007	1/26/2007	An arctic cold front moved across Vermont on the 24th and delivered very cold temperatures of zero to 25 degrees below zero by the morning of the 25th. However, on the night of the 25th into the morning of the 26th, a secondary cold front combined with a strengthening area of low pressure near New Brunswick, accounted for the combination of brisk northwest winds of 10 to 15 mph and temperatures 5 to 20 degrees below zero for wind chill readings of 25 to 40 degrees below zero. Some morning lows on the 25th included: -29 degrees in Island Pond (Essex), -21 degrees in Sutton (Caledonia) and Morrisville (Lamoille), -19 degrees in East Haven (Essex), Canaan (Essex) and Enosburg Falls (Franklin), -15 degrees in Greensboro (Orleans), -14 degrees in Montpelier (Washington), East Albany and Newport (Orleans), -10 degrees in Bethel (Windsor), Westford (Chittenden) and Alburgh (Grand Isle).| |Some morning lows on the 26th included: -20 degrees in Island Pond, East Haven, Canaan (Essex) and Sutton (Caledonia), -16 degrees in East Albany (Orleans), -15 degrees in Montpelier (Washington), -14 degrees in St. Johnsbury (Caledonia) and Eden (Lamoille) with -11 degrees in South Lincoln (Addison), Woodstock (Windsor), Rutland (Rutland) and the NWS office in South Burlington (Chittenden). Northwest winds of 10 to 15 mph created wind chill values of 25 to 40 degrees below zero. The cold wave diminished slightly on the 27th-29th, due to a slight airmass modification and clouds across the region, but it remained some 10 to 20 degrees below normal. However, another arctic front pushed across the area on the 29th with a replenishment of arctic air that brought early morning low temperatures on the 30th of 10 to 30 degrees below zero. Some morning low temperatures on the 30th included -32 degrees at Island Pond (Essex), -27 degrees in Sutton (Caledonia), -25 degrees in East Haven (Essex), -24 degrees in Enosburg Falls (Franklin), -22 degrees in Morrisville (Lamoille) and -18 degrees in Hanksville (Chittenden) and Newport (Orleans).
3/6/2007	3/6/2007	An arctic cold front swept across Vermont during the afternoon and evening of the 5th and delivered frigid temperatures along with blustery winds. Temperatures plummeted to below zero just after midnight on the 6th and were 5 to 20 degrees below zero by dawn. These frigid temperatures, accompanied by winds of 15 to 30 mph created dangerously cold wind chills of 20 to 40 degrees below zero. Brisk winds with temperatures around zero continued through the daylight hours of the 6th with wind chill readings in the 20s to around 30 degrees below zero. The winds subsided after sunset on the 6th, but it remained extremely cold through the morning of the 7th with overnight minimum temperatures of 10 to 30 degrees below zero. Some morning lows on the 6th included: -20 degrees at East Albany (Orleans), -15 degrees at Sutton (Caledonia) and Eden (Lamoille), -12 degrees at Island Pond (Essex), Chelsea (Orange), Newport (Orleans) and Waitsfield (Washington) with -11 degrees at South Lincoln (Addison), Hanksville and Westford (Chittenden), -10 degrees at St. Albans (Franklin), Alburg (Grand Isle) and Danby (Rutland) and -8 degrees in Rochester (Windsor).|Some morning lows on the 7th included: -35 degrees in East Haven and Island Pond (Essex), -32 degrees in Gallup Mills (Essex), -30 degrees in Canaan (Essex), -27 degrees in Morrisville (Lamoille), -25 degrees in Waitsfield (Washington) and Bethel (Windsor), -24 degrees in St. Johnsbury (Caledonia) and Plainfield (Washington), -21 degrees in Sutton (Caledonia), Hanksville (Chittenden), Union Village (Orange), Newport (Orleans), Northfield (Washington) and Rochester (Windsor), -20 degrees in Cornwall and South Lincoln (Addison), Essex Junction (Chittenden), East Albany (Orleans) and Woodstock (Windsor), -19 degrees in Alburg (Grand Isle), Rutland (Rutland) and -18 degrees at the NWS office in South Burlington (Chittenden).

3/9/2007	3/9/2007	Arctic high pressure settled across New England during the night of the 8th and morning of the 9th with more frigid temperatures, like a few days earlier across Vermont. Morning lows on the 9th were 10 to 34 degrees below zero, which included record lows at the following three sites: Burlington, Montpelier, and St. Johnsbury. Some morning lows on the 9th included: -34 degrees at Island Pond (Essex), -31 degrees at Sutton (Caledonia), -30 degrees at East Haven (Essex), -28 degrees at Gallup Mills (Essex), -26 degrees in Morrisville (Lamoille), -23 degrees in St. Johnsbury (Caledonia) and Bethel (Windsor), -22 degrees in Newport (Orleans) and Montpelier (Washington), -21 degrees in Enosburg Falls (Franklin), -20 degrees in Plainsfield and Waitsfield (Washington), -19 degrees in Hanksville (Chittenden)and Northfield (Washington), -18 degrees in East Albany (Orleans), -17 degrees in Woodstock (Windsor), -16 degrees in New Haven (Addison) and Alburgh (Grand Isle), -15 degrees in Cornwall (Addison), Rutland (Rutland) and at the NWS office in South Burlington (Chittenden).
1/14/2009	1/18/2009	An arctic cold front moved across Vermont during the early morning hours of January 14th which delivered some of the coldest temperatures across the region in several years. As the arctic front passed across northern Vermont, temperatures dropped over 20 degrees within several hours. ||Temperatures averaged 20 to 25 degrees below normal values, which were already at climatological winter minimums. Daytime maximum temperatures ranged from single digits above and below zero during this stretch while nighttime minimums were 10 to 30 below zero with isolated readings colder than 40 below zero at times.||Some observed minimum temperatures for January 15th included: 32 degrees below zero at Island Pond (Essex county), 31 degrees below zero in Canaan (Essex county), 24 degrees below zero at North Troy (Orleans county), Granby and Gallup Mills (Essex county) with 22 degrees below zero at Plainfield and Marshfield (Washington county), 21 degrees below zero at Morrisville (Lamoille county) and 20 degrees below zero at Lyndonville (Caledonia county), Newport (Orleans county) and Waltham (Addison county).||Some observed minimum temperatures for January 16th included: 42 degrees below zero in Island Pond (Essex county), 37 below zero in Sutton (Caledonia county), 34 degrees below zero in Walden (Caledonia county), 32 degrees below zero in Gallup Mills (Essex county), 31 degrees below zero in East Berkshire (Franklin county), 30 degrees below zero in Granby (Essex county), Enosburg Falls (Franklin county), and St. Johnsbury (Caledonia county) and 29 degrees below zero at Plainfield and Waitsfield (Washington county) and Bethel (Windsor county).||Record cold daily temperatures were set on January 16th for the following sites; Morrisville-Stowe Airport with 32 degrees below zero, St. Johnsbury Fairbanks Museum with 30 degrees below zero, Montpelier-Barre Airport at 26 degrees below zero and Burlington International Airport at 21 degrees below zero.||These extremely cold temperatures led to numerous cold weather related problems including numerous dead vehicle batteries and broken home/business water pipes.
1/7/2015	1/8/2015	An arctic cold front pushed across Vermont during the afternoon hours of January 7th with plummeting temperatures and brisk, strong winds (15 to 30+ mph) causing dangerously cold wind chills of 25 to 40 degrees below zero during the evening of January 7th into the morning hours of January 8th. These dangerously cold wind chills lead to delayed school openings of 2 hours or cancelled classes on the morning of January 8th. Actual minimum ambient temperatures on the morning of January 8th were 15 to 30 below zero across northern New York. Observed wind chills in the mountains ranged from 40 to 70 below zero.
1/11/2022	1/12/2022	Arctic high pressure moving from central Canada across the Great Lakes into the northeast on January 11th. Brisk northwest winds of 10 to 20 mph delivered sub-zero air temperatures, which combined created apparent temperatures (wind chill) in the 20 to 35 below zero range across north-central and northeast VT and higher elevations with 15 to 25 below zero elsewhere by daybreak on January 11th. ||High temperatures on the 11th ranged from single numbers above and below zero with wind chills still in the teens below zero. Low temperatures during the early night of the 11th were sub-zero and began to rise overnight due to a south wind. However, brisk south winds of 15 to 25 mph created wind chills in the 10 to 20 below zero range.||Numerous school districts closed school and after school activities due to the cold and COVID related complications according to local media.
1/14/2022	1/15/2022	An arctic cold front moved across VT Friday night (1/14) with a strong area of high pressure across south-central Canada building into VT by late Saturday into Sunday delivering sub-zero temperatures Friday night through Sunday morning. Simultaneously, a powerful ocean storm was moving into Newfoundland Canada Friday afternoon that creating brisk north-northwest winds of 15 to 25 mph with higher gusts that combined with the arctic airmass created dangerously cold wind chills of 25 to 40 below zero overnight Friday night into Saturday morning.||Overnight air temperatures were 10 to 20 below zero Friday night-Saturday morning and 10 to 25 below zero Saturday night-Sunday morning.||These dangerously cold temperatures caused some postponements of outdoor activities, including festivals and some ski resorts.
2/3/2023	2/4/2023	An arctic airmass entered Vermont during the morning hours of February 3rd (Friday) and continued through the evening hours of February 4th (Saturday).||Daytime actual temperature readings fell during Friday to zero to 15 below zero and still falling by mid-afternoon with brisk west winds creating wind chills of 20 to 40 below zero. Overnight lows Friday night were 15 to 30 below zero with minimum wind chill values of 30 to 45 below zero and it wasn't until Saturday afternoon when actual air temperatures surpassed zero in spots but developing south winds still produced sub-zero wind chills.||The last occurrence of something this widespread and intense, although brief was in January 26-27, 1994.||Numerous schools and businesses closed as well as outdoor events, including ski resorts.

Hail History

Begin Date	End Date	Event Description and Extent
7/7/1997	7/7/1997	A cold front moved across Vermont during the afternoon and evening of Monday, July 7, 1997. Thunderstorms preceded and accompanied this front with heavy rain and many reports of hail. There were reports of large hail, and damage was reported to cars in Middlebury, VT (Addison County) due to the hail (1 1/4 inch diameter). There were reports of small hail in Essex County VT near East Haven (1/2 inch diameter) .
8/3/1997	8/3/1997	During the early morning hours of August 3, 1997, a cold front moved south from Canada into northern Vermont. Thunderstorms with very heavy rain, large hail and deadly lightning moved across the area. A store in Waitsfield, VT was struck by lightning and set on fire with considerable damage.
7/22/1999	7/22/1999	A large thunderstorm developed during the late afternoon and evening hours over the Green Mountains in Washington county Vermont. Large hail, 1 inch in diameter, was reported in North Fayston while hail 1 1/2 inches in diameter was reported in Waitsfield. In Moretown, Vermont hail was reported the size of marbles.
7/22/1999	7/22/1999	A large thunderstorm developed during the late afternoon and evening hours over the Green Mountains in Washington county Vermont. Large hail, 1 inch in diameter, was reported in North Fayston while hail 1 1/2 inches in diameter was reported in Waitsfield. In Moretown, Vermont hail was reported the size of marbles.
7/14/2000	7/14/2000	An upper level low and cold pool aloft along with a weak surface disturbance both moving across southern Canada resulted in scattered thunderstorms across Vermont. In Middlesex Vermont (Washington county), pea size hail (1/4 inch) was reported by the State Police along with brief heavy rain.
7/10/2001	7/10/2001	Thunderstorms developed in an unstable airmass ahead of a surface trough during the afternoon and evening hours. Large hail was reported with locally gusty winds.
7/4/2002	7/4/2002	A cold front moved across the area with thunderstorms during the afternoon and evening of July 4th. A few storms were severe.
7/4/2002	7/4/2002	A cold front moved across the area with thunderstorms during the afternoon and evening of July 4th. A few storms were severe.
6/9/2005	6/9/2005	A frontal boundary across southern Vermont moved slowly north and focused afternoon thunderstorms across Vermont. In the Washington county town of Calais, numerous large trees were blown down with hail reported in the East Montpelier area. Power outages were also reported. Very heavy rain also accompanied this storm.
8/1/2005	8/1/2005	A weak surface trough combined with surface dew points around 65 degrees and an upper level disturbance to produce severe thunderstorms across north central Vermont. In Washington county, a thunderstorm produced hail 1 inch in diameter in Waterbury Center.
7/1/2006	7/1/2006	A mid-level atmospheric disturbance and cold temperature pool aloft moved across the region during the late morning and early afternoon of the 1st. This caused the development of widely scattered thunderstorms across the Champlain Valley that moved into central Vermont with isolated, short-lived pulse type severe weather. Quarter size hail was reported in Waitsfield.
6/2/2007	6/2/2007	A backdoor cold front and mid-level disturbance moved into a moderately unstable airmass during the afternoon of the 2nd, which resulted in the development of showers and thunderstorms across northern New York that moved into Vermont. Some of these thunderstorms were locally severe, which produced damaging winds that knocked down trees and powerlines in South Burlington and Richmond (Chittenden County) as well as Barre (Washington county) and North Williamstown (Orange County). A tin barn collapsed by thunderstorm winds in Bradford (Orange County). In addition, some of these severe storms produced large hail of 3/4 inch in diameter or greater, including just shy of golf ball size in Moretown (Washington county), nickel size hail in South Burlington (Chittenden County) and East Barre (Washington). ||In addition, the bell tower of the Old Brick Church in Williston (Chittenden County) was struck by lightning that caused a fire to the structure. Also, lightning struck a home in South Burlington (Chittenden County) which resulted in a minor fire and structural damage.
6/2/2007	6/2/2007	A backdoor cold front and mid-level disturbance moved into a moderately unstable airmass during the afternoon of the 2nd, which resulted in the development of showers and thunderstorms across northern New York that moved into Vermont. Some of these thunderstorms were locally severe, which produced damaging winds that knocked down trees and powerlines in South Burlington and Richmond (Chittenden County) as well as Barre (Washington county) and North Williamstown (Orange County). A tin barn collapsed by thunderstorm winds in Bradford (Orange County). In addition, some of these severe storms produced large hail of 3/4 inch in diameter or greater, including just shy of golf ball size in Moretown (Washington county), nickel size hail in South Burlington (Chittenden County) and East Barre (Washington). ||In addition, the bell tower of the Old Brick Church in Williston (Chittenden County) was struck by lightning that caused a fire to the structure. Also, lightning struck a home in South Burlington (Chittenden County) which resulted in a minor fire and structural damage.
7/9/2007	7/9/2007	An area of low pressure moved across Ontario and Quebec provinces in Canada on the 9th, while its associated occluded frontal boundaries moved across Vermont during the late morning through early evening hours. Numerous areas of thunderstorms occurred across the region with a wide

		variety of weather conditions, which included very large hail, damaging winds and several structures struck by lightning. Baseball size hail was reported in Duxbury (Washington county). Lightning struck a house in Barre (Washington county), destroyed a barn in Bakersfield (Franklin County) as well as destroyed one camp and severely damaged another camp in Randolph (Orange County).
7/9/2007	7/9/2007	An area of low pressure moved across Ontario and Quebec provinces in Canada on the 9th, while its associated occluded frontal boundaries moved across Vermont during the late morning through early evening hours. Numerous areas of thunderstorms occurred across the region with a wide variety of weather conditions, which included very large hail, damaging winds and several structures struck by lightning. Baseball size hail was reported in Duxbury (Washington county). Lightning struck a house in Barre (Washington county), destroyed a barn in Bakersfield (Franklin County) as well as destroyed one camp and severely damaged another camp in Randolph (Orange County).
8/25/2007	8/25/2007	A very warm, humid, and unstable airmass was located across Vermont during the afternoon of the 25th, with temperatures in the upper 80s to lower 90s and dewpoints around 70 degrees. A surface cold front was located across Ontario and Quebec, with a mid-atmospheric disturbance that moved across the North Country during the afternoon and early evening. This triggered numerous thunderstorms in New York, which intensified as they moved across Vermont. An unseasonably strong wind field aloft fueled the development of severe thunderstorms that produced widespread damaging winds and some large hail across central, southern, and eastern Vermont. Some of the hardest hit communities included Barre (Washington county), Rutland and vicinity (Rutland County) and Woodstock (Windsor County).
7/18/2008	7/18/2008	Several mid-atmospheric impulses traveled along a stationary boundary across northern Vermont during the early afternoon and evening hours of July 18th. This stationary boundary separated warm, humid air across much of Vermont from cooler, drier air across the international border with Canada.||Several rounds of thunderstorms moved across northern Vermont during the afternoon of July 18th. A developing squall line across the Champlain Valley of New York moved into northwest Vermont by mid-afternoon and continued across the state. Widespread tree and structural damage occurred with this system in Grand Isle, Franklin, Lamoille, and Orleans counties. ||This squall line interacted with an individual thunderstorm near Fletcher, that eventually produced an extensive damage path around 7 miles in length between North Cambridge and Waterville (Lamoille County), caused by straight-line winds of 60 to 80 mph. However, within this greater damage field was a tornadic storm with two very brief touchdown with EF0 and EF1 damage.||Another area of thunderstorms moved across central Vermont with pockets of significant damage across Addison, Washington, and Orange counties.
7/18/2008	7/18/2008	Several mid-atmospheric impulses traveled along a stationary boundary across northern Vermont during the early afternoon and evening hours of July 18th. This stationary boundary separated warm, humid air across much of Vermont from cooler, drier air across the international border with Canada.||Several rounds of thunderstorms moved across northern Vermont during the afternoon of July 18th. A developing squall line across the Champlain Valley of New York moved into northwest Vermont by mid-afternoon and continued across the state. Widespread tree and structural damage occurred with this system in Grand Isle, Franklin, Lamoille, and Orleans counties. ||This squall line interacted with an individual thunderstorm near Fletcher, that eventually produced an extensive damage path around 7 miles in length between North Cambridge and Waterville (Lamoille County), caused by straight-line winds of 60 to 80 mph. However, within this greater damage field was a tornadic storm with two very brief touchdown with EF0 and EF1 damage.||Another area of thunderstorms moved across central Vermont with pockets of significant damage across Addison, Washington, and Orange counties.
5/9/2009	5/9/2009	On May 9th, a surface low and cold front moved from the Great Lakes across northern New York and Vermont, along a stationary boundary draped across the Adirondacks and central Vermont. This stationary boundary separated the cool, moist, and stable air to the north, from the warm, moist, and unstable air south. In addition a long-lived, strong mid-level shortwave and associated thunderstorm complex traveled across the Great Lakes and along this boundary across Vermont during the afternoon hours.||Severe thunderstorms and a developing squall line produced large hail up to an inch in diameter as well as damaging winds that knocked down trees and power lines to portions of central Vermont, especially the Middlebury vicinity. In addition, an EF1 tornado developed and briefly touched down in advance of the squall line in the town of Washington (Orange County). Some structural damage occurred to an apartment roof, school awning and destroyed a 60 foot hoop barn made of fabric and steel tubing.
7/21/2010	7/21/2010	On July 21st, a developing surface low across the Great Lakes traveled along a stationary boundary draped across the North Country. Surface conditions became increasingly unstable during the afternoon with temperatures in the 80s and dewpoints in the 60s and lower 70s. More importantly, an unseasonably strong mid-atmospheric shortwave and winds aloft tracked across this region as well, which allowed for thunderstorms to develop rapidly, intensify, and maintain longevity.||During the afternoon and evening, scattered to numerous thunderstorms developed traveled across northern New York and through Vermont. Several storms strengthened into supercells that produced widespread wind damage to trees, power poles and structures as well as large hail more than golf ball size in diameter.||Some of the communities affected were Milton, Colchester, Essex, Jericho, Stowe, Brookfield, Chelsea, and Rutland. In addition, very heavy

		localized rains caused some temporary problems in many communities, but did result in washed out roads, culverts in Chelsea.
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8/9/2010	8/9/2010	A mid atmospheric disturbance combined with a moderately unstable air mass to promote the development of scattered thunderstorms during the afternoon and evening of August 9th in Vermont. One isolated thunderstorm was strong enough to produce hail up to one inch in diameter as well as a brief wind gust that knocked down trees in Fayston.
5/26/2011	5/26/2011	A surface low as well as upper atmospheric energy traveled along a quasi-stationary boundary across northern New York and Vermont during the afternoon and evening of May 26th. The air mass ahead of this boundary was moderately to unstable and the combination led to numerous reports of damaging winds and very large hail (up to 2.5 inches in diameter). Some 25,000+ customers lost power during these storms. ||In addition, several rounds of thunderstorms traversed the same areas in central Vermont near the Route 2 corridor between Middlesex and Lunenburg. The result of 3 to 5+ inches of rainfall and severe flash flooding and resultant river flooding as well.
5/26/2011	5/26/2011	A surface low as well as upper atmospheric energy traveled along a quasi-stationary boundary across northern New York and Vermont during the afternoon and evening of May 26th. The air mass ahead of this boundary was moderately to unstable and the combination led to numerous reports of damaging winds and very large hail (up to 2.5 inches in diameter). Some 25,000+ customers lost power during these storms. ||In addition, several rounds of thunderstorms traversed the same areas in central Vermont near the Route 2 corridor between Middlesex and Lunenburg. The result of 3 to 5+ inches of rainfall and severe flash flooding and resultant river flooding as well.
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5/26/2011	5/26/2011	A surface low as well as upper atmospheric energy traveled along a quasi-stationary boundary across northern New York and Vermont during the afternoon and evening of May 26th. The air mass ahead of this boundary was moderately to unstable and the combination led to numerous reports of damaging winds and very large hail (up to 2.5 inches in diameter). Some 25,000+ customers lost power during these storms. ||In addition, several rounds of thunderstorms traversed the same areas in central Vermont near the Route 2 corridor between Middlesex and Lunenburg. The result of 3 to 5+ inches of rainfall and severe flash flooding and resultant river flooding as well.
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5/27/2011	5/27/2011	A surface low as well as upper atmospheric energy traveled along a quasi-stationary boundary across northern Vermont during the afternoon of May 27th, the same system responsible for the May 26th severe storms and flash flooding. The air mass ahead of this boundary was moderately unstable and lead to scattered severe thunderstorms and localized flash flooding in central and eastern Vermont.
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6/18/2011	6/18/2011	A cold front along with a cold upper level disturbance moved across a moderately unstable air mass across Vermont during the afternoon of June 18th. Thunderstorm activity was scattered, but a few of the stronger storms produced large hail greater than an inch diameter, including one report of near golf ball size near Enosburg in Franklin County.
5/29/2012	5/29/2012	A warm front moved across Vermont during the morning hours of May 29th, which lead to numerous thunderstorms with heavy rain, damaging lightning and some isolated large hail and strong winds. Some of these thunderstorms deposited up to 2 inches of rainfall in portions of north-central and northeast Vermont.||A warm, humid, and unstable air mass was draped across the region in the afternoon with an approaching cold front from Ontario, Canada. Numerous thunderstorms developed ahead of the cold front during the afternoon crossing New York into Vermont. There were numerous reports of hail greater than an inch in diameter, damaging winds, along with a confirmed EF0 tornado in West Glover VT. ||Some of these storms trained across the same areas, including those that witnessed two inches of rain earlier in the day. The result was flash flooding in portions of north-central, northeast Vermont and Addison County with radar estimated storm total rainfall of 3 to 5 inches.
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6/8/2012	6/8/2012	A strong mid-atmospheric and surface cold front moved across Vermont during the late afternoon and evening hours of June 8th. A series of thunderstorms developed and moved across the region with a few storms that produced damaging winds and large hail.
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7/4/2012	7/4/2012	A moderately strong upper level disturbance ahead of a surface cold front moved across southern Quebec during the afternoon and evening hours of July 4th. These disturbances moved into a warm and unstable air mass and developed thunderstorms in southern Quebec, which moved across northeast Vermont during the afternoon hours and the Champlain Valley during the evening. ||Both episodes contained widespread wind damage and frequent lightning. In the afternoon, the communities of Walden, Cabot, West Danville, and Danville were most affected. During the evening storms, significant damage occurred in the Champlain Valley in communities like Colchester, Burlington, South Burlington, Essex, and Hinesburg. A wind gust of 65 knots was observed at Diamond Island on Lake Champlain and 55 knots was observed at the NWS office at Burlington Int'l airport. ||Despite the holiday festivities, no serious injuries were reported.
7/23/2012	7/23/2012	A quick moving disturbance across Ontario and Quebec provinces in Canada pushed a warm front across the region during the morning and early afternoon of the 23rd, followed by a cold front during the night. Numerous thunderstorms developed ahead of the cold front in northern New York and intensified as they moved into Vermont during the late afternoon and evening hours. There were numerous reports of damaging winds and large hail.
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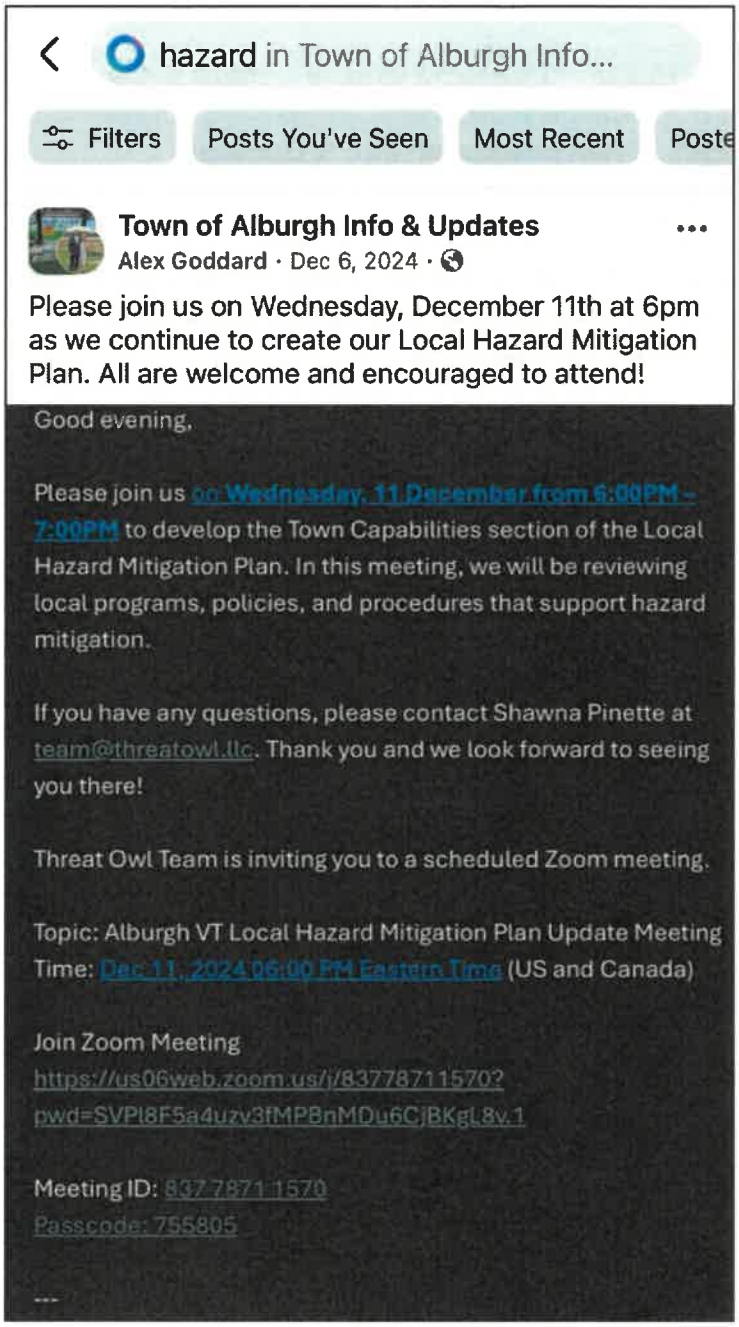
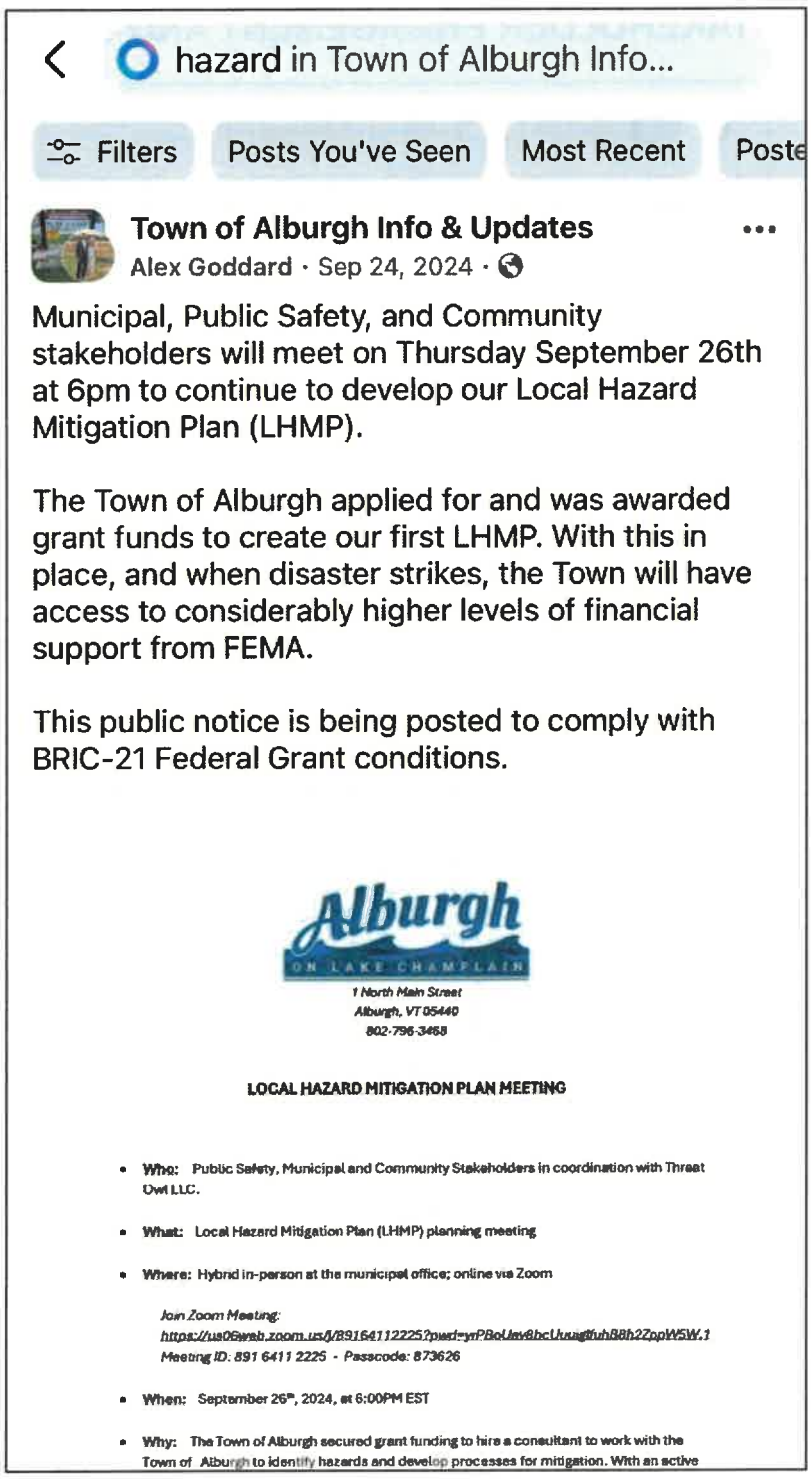
8/4/2015	8/4/2015	The last in a series of mid-atmospheric disturbances rotated across Vermont during the late morning-early afternoon hours of August 4th. Numerous showers and scattered thunderstorms occurred. There were numerous hail reports but only one isolated hail report of one inch diameter or greater.
8/4/2015	8/4/2015	The last in a series of mid-atmospheric disturbances rotated across Vermont during the late morning-early afternoon hours of August 4th. Numerous showers and scattered thunderstorms

		occurred. There were numerous hail reports but only one isolated hail report of one inch diameter or greater.
5/18/2017	5/18/2017	Record setting heat set the stage for an moderately unstable air mass, while a mid-level atmospheric disturbance provided the forcing and strong winds to develop scattered thunderstorms by late afternoon into early evening, some of which produced damaging winds and hail.||A strong micro-burst produced 80-100 mph winds and destructive hail in West Addison with a seasonal camp destroyed with one occupant receiving minor injuries. More than 15,000 customers were without power due to storms across VT.
6/27/2017	6/27/2017	The combination of an unseasonably cold air mass and moderately unstable atmosphere accounted for the development of showers and thunderstorms during the afternoon of June 27th across eastern NY into VT. Due to the cold air mass, a few of these thunderstorms produced hail with one report of one inch in diameter in Calais, VT.
6/27/2017	6/27/2017	The combination of an unseasonably cold air mass and moderately unstable atmosphere accounted for the development of showers and thunderstorms during the afternoon of June 27th across eastern NY into VT. Due to the cold air mass, a few of these thunderstorms produced hail with one report of one inch in diameter in Calais, VT.

APPENDIX C: STAKEHOLDER ENGAGEMENT AND OUTREACH





hazard in Town of Alburgh Info...

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Town of Alburgh Info & Updates

Alex Goddard · Sep 24, 2024 ·

Municipal, Public Safety, and Community stakeholders will meet on Thursday September 26th at 6pm to continue to develop our Local Hazard Mitigation Plan (LHMP).

The Town of Alburgh applied for and was awarded grant funds to create our first LHMP. With this in place, and when disaster strikes, the Town will have access to considerably higher levels of financial support from FEMA.

This public notice is being posted to comply with BRIC-21 Federal Grant conditions.

Alburgh
ON LAKE CHAMPLAIN

1 North Main Street
Alburgh, VT 05440
802-796-3468

LOCAL HAZARD MITIGATION PLAN MEETING

- **Who:** Public Safety, Municipal and Community Stakeholders in coordination with Threat Owl LLC.
- **What:** Local Hazard Mitigation Plan (LHMP) planning meeting
- **Where:** Hybrid in-person at the municipal office; online via Zoom

  Join Zoom Meeting:
  https://us06web.zoom.us/j/89164112225?pwd=yrPBoUav8bcUuugfuh88h2ZppW5W.1
  Meeting ID: 891 6411 2225 - Passcode: 873626

- **When:** September 26th, 2024, at 6:00PM EST
- **Why:** The Town of Alburgh secured grant funding to hire a consultant to work with the Town of Alburgh to identify hazards and develop processes for mitigation. With an active

LOCAL HAZARD MITIGATION PLAN PLANNING MEETING, Thursday, June 26th, 2025, at 6PM in the Alburgh Municipal Office Conference Room

Please join the Emergency Management Planning team to discuss the town's Local Hazard Mitigation Plan and to brainstorm hazard mitigation actions across the following categories:

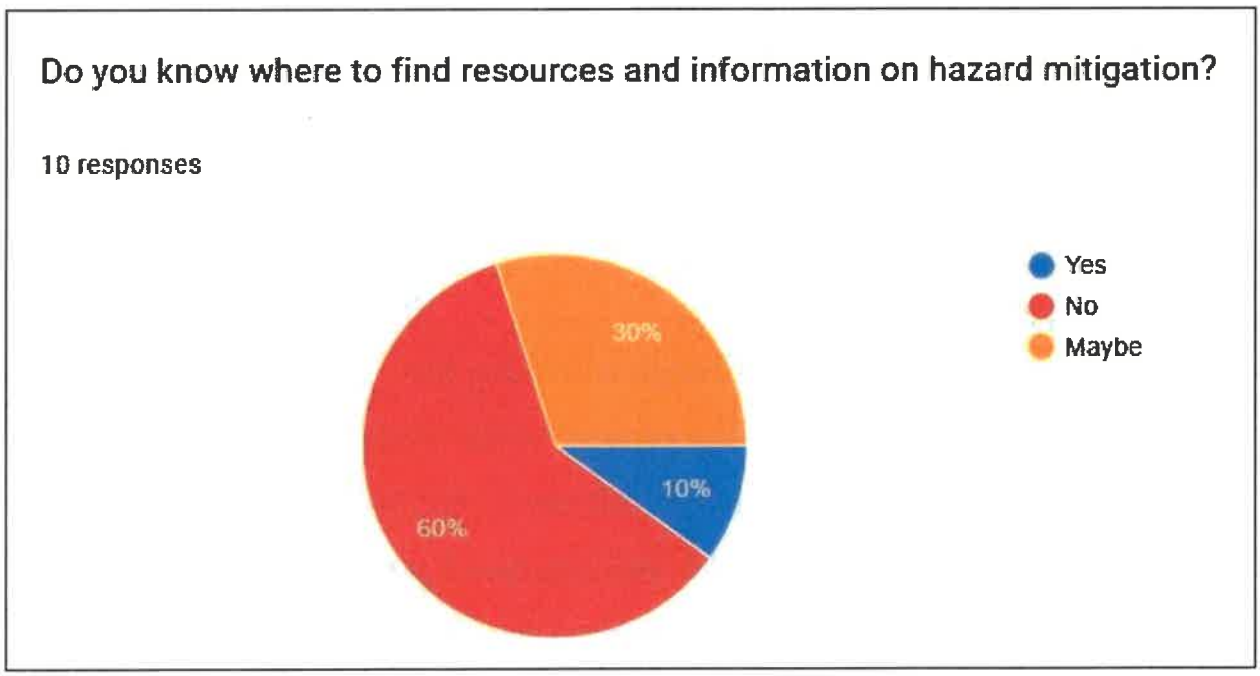
- Structure and Infrastructure Projects
- Natural Systems Protection
- Local Plans and Regulations
- Education and Awareness Programs

LISTER VACANCY

The Town of Alburgh is looking for candidates to fill a vacancy in the lister office. Listers are elected town officials who collect data on new and improved prop to create a defensible grand list. Listers

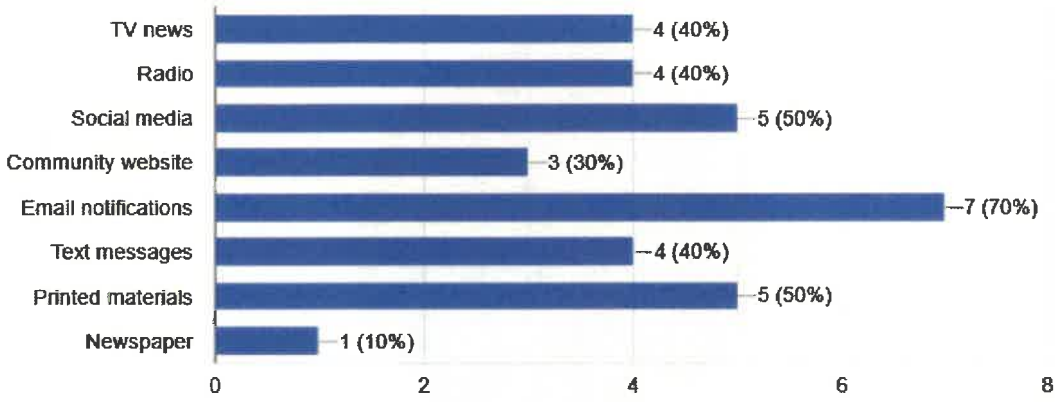
Survey Results

Ten people completed the hazard mitigation community survey. The results are as follows:



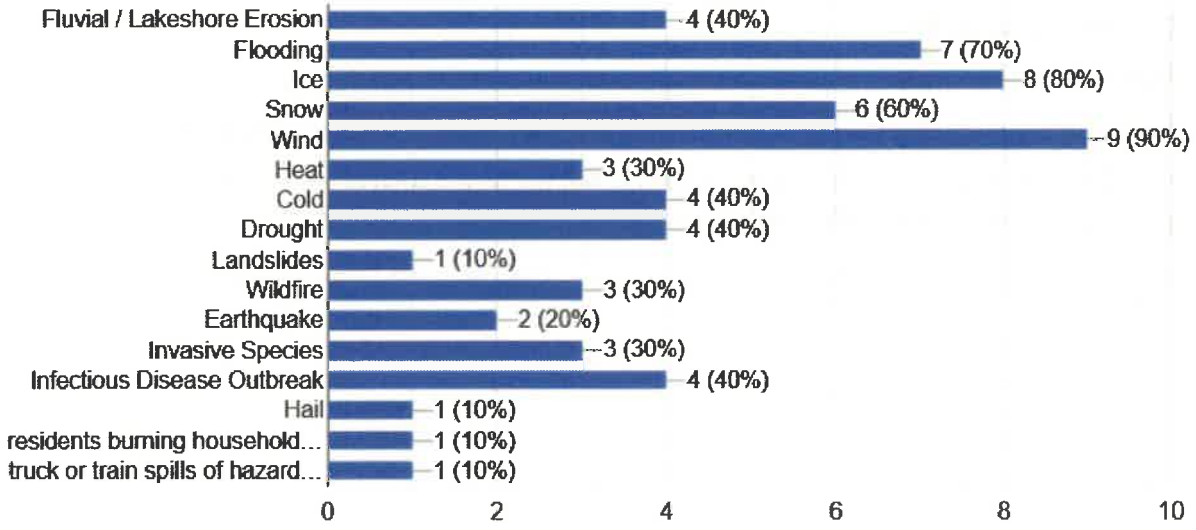
How do you prefer to receive information about hazard preparedness and emergency alerts? (Check all that apply)

10 responses



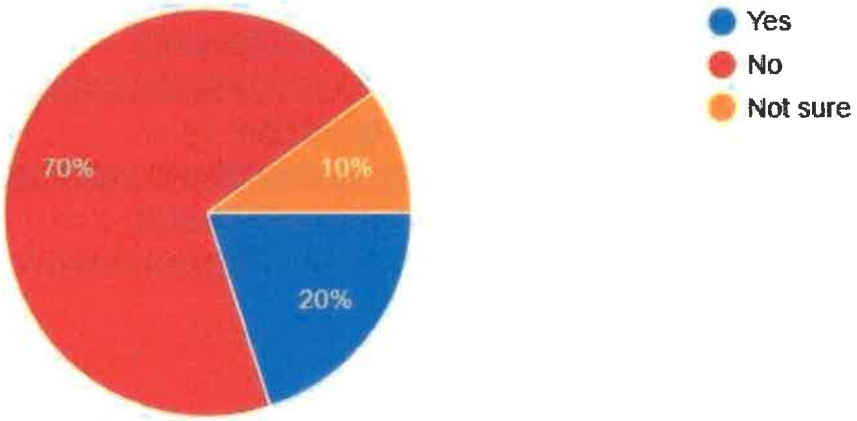
Which of the following hazards do you believe pose a risk to our community? (Check all that apply)

10 responses



Does your household have an emergency plan for natural disasters?

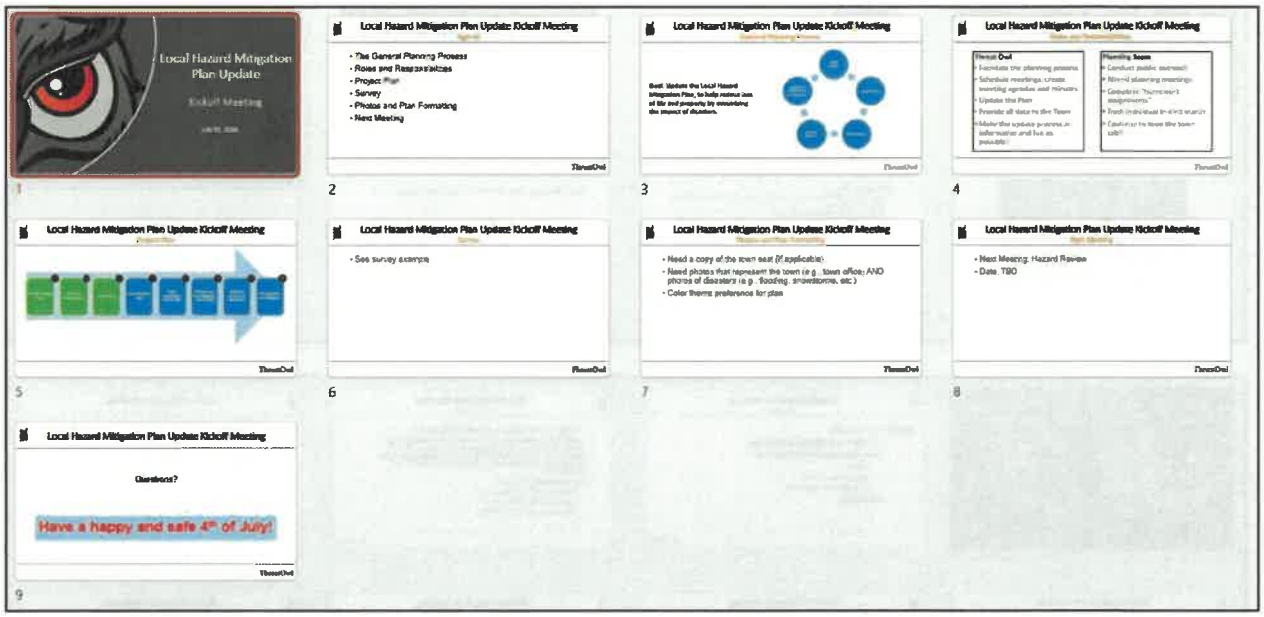
10 responses

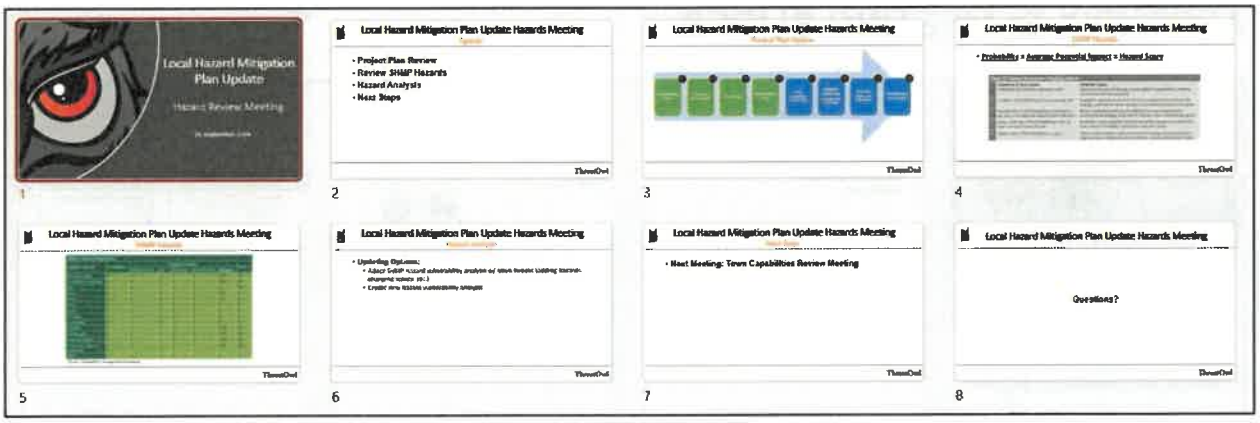


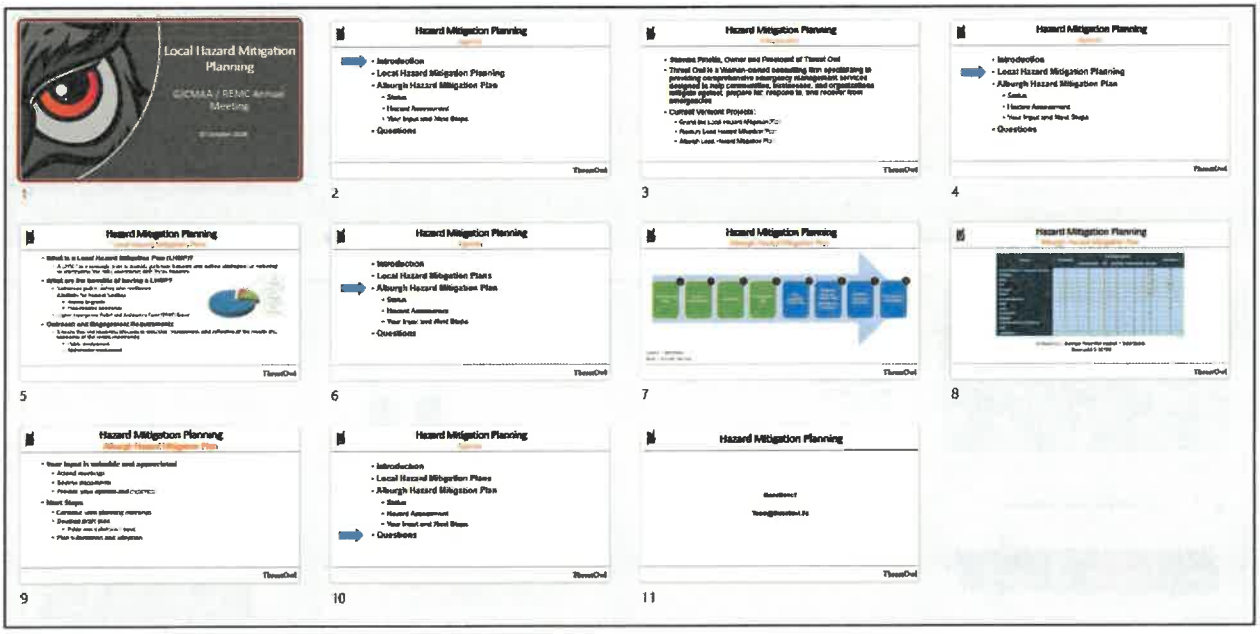
What suggestions do you have for improving our community's disaster preparedness?

- We are NOT familiar with any of the town plans for any of the possible disasters (natural or man made). We would love to get info from the town for all the rules, regs & particulars.
- Monthly notifications unless a municipal emergency is existing.
- Clear evacuation routes.
- Make known where help is available physically and online before and during
- Mailers on steps for preparedness. Also, what is the state doing as a whole - would like to know.
- Plain language concepts to understand materials and documentation of community disaster simplify. glossary/summaries of documentation of community disaster preparedness.

APPENDIX D: MEETING SLIDES




Local Hazard Mitigation Plan Update
Hazard Review Meeting
1
Local Hazard Mitigation Plan Update Hazards Meeting
• Project Plan Review
• Review SHMP Hazards
• Hazard Analysis
• Next Steps
2
Local Hazard Mitigation Plan Update Hazards Meeting
3
Local Hazard Mitigation Plan Update Hazards Meeting
4
Local Hazard Mitigation Plan Update Hazards Meeting
5
Local Hazard Mitigation Plan Update Hazards Meeting
6
Local Hazard Mitigation Plan Update Hazards Meeting
• Next Meeting: Town Capabilities Review Meeting
7
Local Hazard Mitigation Plan Update Hazards Meeting
Questions?
8


Local Hazard Mitigation Planning
GMDMAA / REMC Annual Meeting
1
Hazard Mitigation Planning
• Introduction
• Local Hazard Mitigation Planning
• Alburgh Hazard Mitigation Plan
• Status
• Hazard Assessment
• Your Input and Next Steps
• Questions
2
Hazard Mitigation Planning
3
Hazard Mitigation Planning
4
Hazard Mitigation Planning
5
Hazard Mitigation Planning
6
Hazard Mitigation Planning
7
Hazard Mitigation Planning
8
Hazard Mitigation Planning
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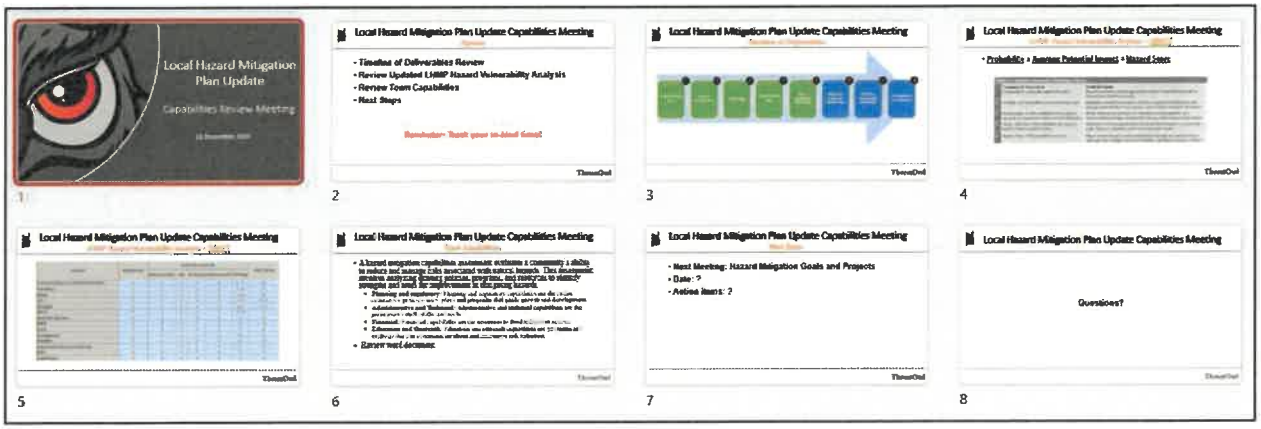
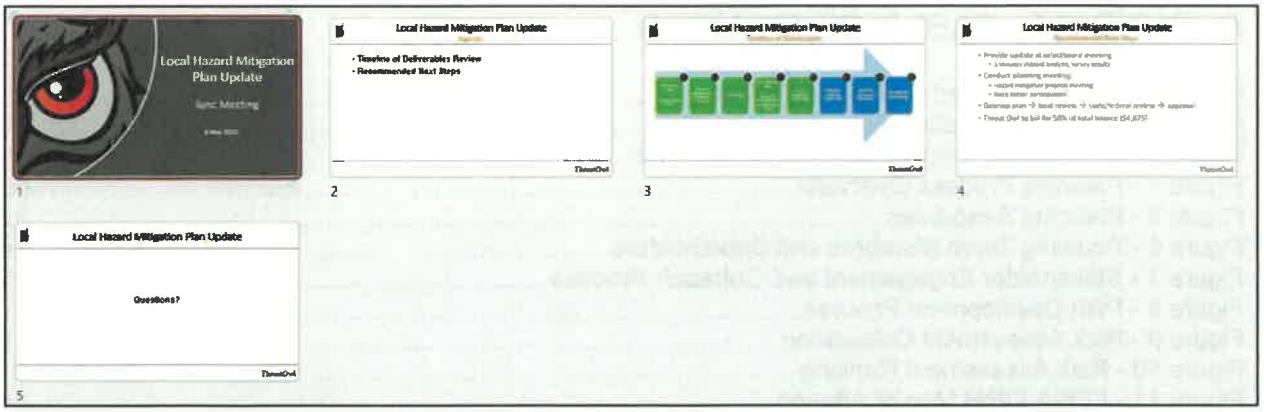
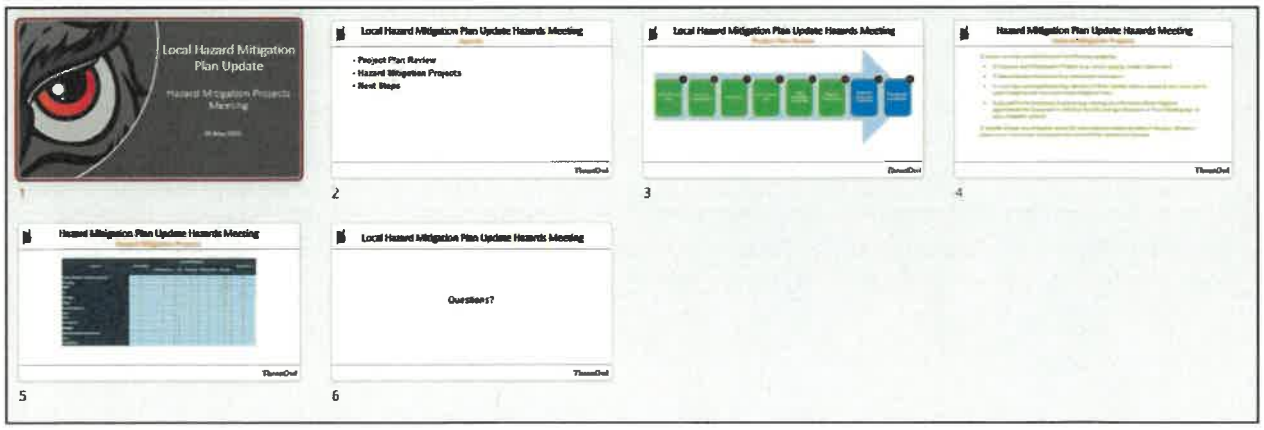
Hazard Mitigation Planning
10
Hazard Mitigation Planning
11


Local Hazard Mitigation Plan Update
Capabilities Review Meeting
1
Local Hazard Mitigation Plan Update Capabilities Meeting
• Timeline of Deliverables Review
• Review Updated LHMP Hazard Vulnerability Analysis
• Review Town Capabilities
• Next Steps
2
Local Hazard Mitigation Plan Update Capabilities Meeting
3
Local Hazard Mitigation Plan Update Capabilities Meeting
4
Local Hazard Mitigation Plan Update Capabilities Meeting
5
Local Hazard Mitigation Plan Update Capabilities Meeting
6
Local Hazard Mitigation Plan Update Capabilities Meeting
• Next Meeting: Hazard Mitigation Goals and Projects
• Date: ?
• Action Items: ?
7
Local Hazard Mitigation Plan Update Capabilities Meeting
Questions?
8


Local Hazard Mitigation Plan Update
Sync Meeting
Local Hazard Mitigation Plan Update
• Timeline of Deliverables Review
• Recommended Next Steps
Local Hazard Mitigation Plan Update
Local Hazard Mitigation Plan Update
Questions?


Local Hazard Mitigation Plan Update
Selectboard Meeting
Local Hazard Mitigation Plan Update
• Project Plan Update
• Community Survey Results
• Next Steps
• Questions?
Local Hazard Mitigation Plan Update
Local Hazard Mitigation Plan Update
Local Hazard Mitigation Plan Update
Local Hazard Mitigation Plan Update
Local Hazard Mitigation Plan Update
Local Hazard Mitigation Plan Update
Local Hazard Mitigation Plan Update
Local Hazard Mitigation Plan Update
Local Hazard Mitigation Plan Update
• Hazard Mitigation Goals and Project Meeting
Local Hazard Mitigation Plan Update
Questions?


Local Hazard Mitigation Plan Update
Hazard Mitigation Projects Meeting
Local Hazard Mitigation Plan Update Hazards Meeting
• Project Plan Review
• Hazard Mitigation Projects
• Next Steps
Local Hazard Mitigation Plan Update Hazards Meeting
Hazard Mitigation Plan Update Hazards Meeting
Local Hazard Mitigation Plan Update Hazards Meeting
Questions?

APPENDIX E: TABLE OF FIGURES