LOCAL HAZARD MITIGATION PLAN

TOWN OF GRAFTON, VERMONT

2025

FEMA Approval Pending Adoption Date

Municipal Adoption Date:

FEMA Formal Approval Date:

Local Hazard Mitigation Planning Committee for the Town of Grafton	
Morgan Wilbur Town Administrator	Bill Kearns Deputy EMD & Administrative Officer
Kim Record Town Clerk/Treasurer	Cathy Siano-Goodwin Selectboard
Buzz Fisher Planning Commission	Amber Stevens EMC
Colby Record Road Foreman	Robbie Sprague Fire Chief
Matt Siano Town Health Officer	Patsy Ellis Grafton Resident
Eric Stevens, Deputy EMD & Energy Coordinator	

Technical Assistance by SEAM Solutions LLC

Key Partners	
Agency of Natural Resources – River Engineers	Agency of Natural Resources – Department of Environmental Conservation Southern Region Floodplain Manager
Green Mountain Power	Windham Regional Commission
Windham County Natural Resource Conservation District	VT Agency of Transportation - Maintenance District 2
Saxtons River Watershed Collaborative	

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1 INTRODUCTION

The impact of expected, but unpredictable natural events can be reduced through community planning and action. The goal of this Plan is to advance mitigation investment to reduce risks posed by natural hazards and to increase the Town of Grafton's resilience to natural hazard impacts.

Hazard mitigation is any sustained action or policy that reduces or eliminates long-term risk to people and property from natural hazards and their effects. Natural and human-caused hazards may affect a community at any time; they are not usually avoidable, however, their impact on human life and property can be reduced through community planning. The goal of this Plan is to help the community identify risks and provide local mitigation strategies it can take to make Grafton more disaster resilient.

2 PURPOSE

The purpose of this Plan is to assist the town in identifying hazards that affect the town, assessing the risk and vulnerability to these hazards. Identify strategies to reduce or eliminate these hazard risks and to create a more resilient town. This plan will focus on the hazards and mitigation programs best suited for the town.

The Town of Grafton seeks to be in accordance with the strategies, goals, and objectives of the 2023 Vermont State Hazard Mitigation Plan. This updated Plan has been reorganized and updated to meet this goal.

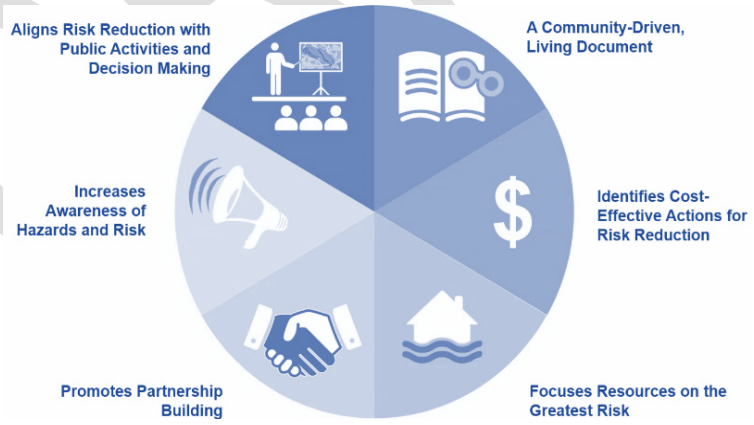


Figure 1- Source FEMA LHMP Skill Share Workshop 2021

3 COMMUNITY PROFILE

Land Use – Land Features - Development Patterns

Grafton is a small rural historic New England town located in the northcentral part of Windham County, in southern Vermont. It is bounded on the north by Chester in Windsor County, on the east by Rockingham, on the south by Townshend and Athens, and on the west by Windham. The Town of Grafton has a total area of 36 square miles and is still relatively undeveloped, with most of its land in resource-related or low-intensity uses. Rugged topography and distance from commercial and resort areas have influenced the Town's quiet rural character and New England charm. It has a centrally located historic village surrounded by predominantly rural single-family residential development, both permanent and vacation. Residential dwellings lie along winding secondary roads, most of them narrow and unpaved.

Because of its rough topography, Grafton is still relatively undeveloped, with most development being residential homesteads established long ago. With a few exceptions, the off-road backlands have remained undeveloped since the middle of the nineteenth century.

Figure 2 – State Map locating Grafton

Current data shows that residential land use is mostly single-family, both permanent and vacation. Commercial and agricultural land is quite limited. Comparable to the agricultural downtrend in most southern Vermont hill towns, Grafton's commercial agricultural land use has declined, thus making it very important to keep what agricultural land there is available. Grafton's remaining land is mostly forested or open. Forest-related land use is a significant part of Grafton life, including commercial and non-commercial logging, hunting, fishing, hiking, horseback riding, bicycling, and winter sports, or just for general recreation and scenic pleasure.

Grafton Village is the only area designated as a Village Area in the Town. The Village is the most densely settled part of the Town. The current mix of retail uses, public facilities and institutions, and residential uses should be continued and supported as much as possible. A major portion of Grafton's economic development should occur in the Village, as it is centrally located, and historically has been the Town's economic center. Appropriate reuse of vacant or underused existing structures or infill development is the preferred means by which new growth should be accommodated. Infill development should respect the historic character and function of the area. Efforts to enhance the pedestrian-friendly character are encouraged. The existing density should be maintained or even increased to support its function as the heart of the Town.

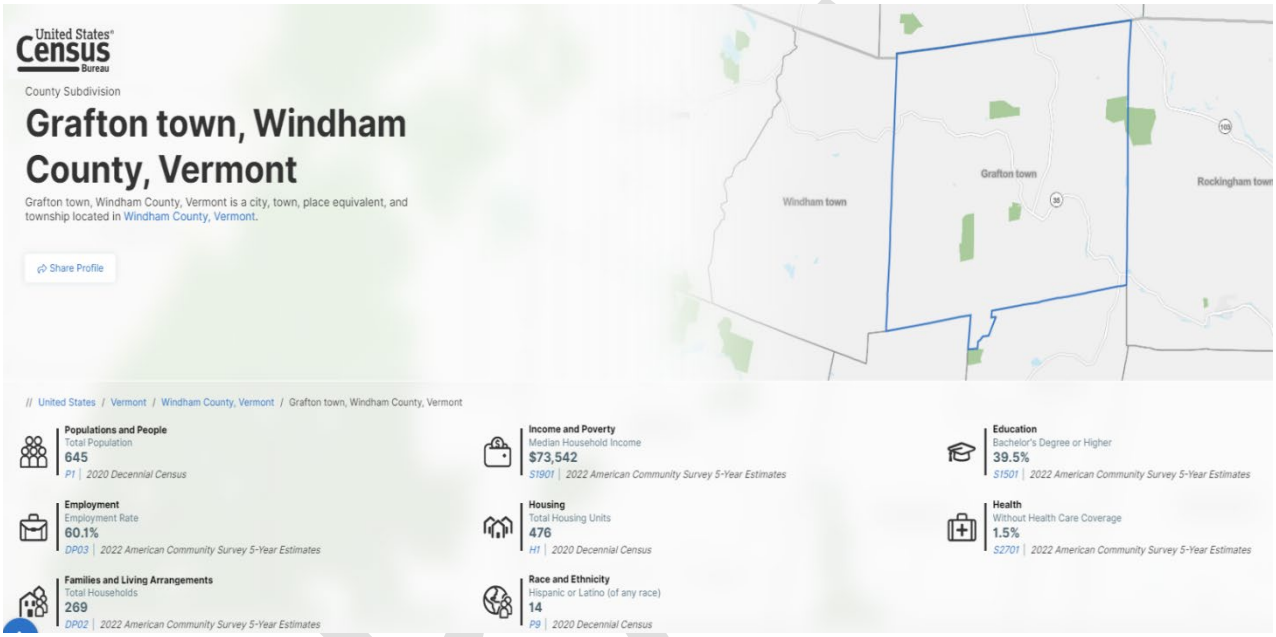
The Village looks today much like it did 150 years ago with most circa. 1850 structures restored to their natural beauty. There are 90 structures throughout the town that are listed on the Vermont State Register of Historical Sites. Some notable structures include the Grafton Inn, the Community Church, the Brick Meeting House, the Kidder Hill Covered Bridge, the library, Town Hall, and many of the residential homes. The Grafton Village Cheese Company has earned a name beyond the town borders.

In addition to Grafton Village, there are two hamlets: Cambridgeport in the Southeast, and Houghtonville in the Northwest. These are less densely populated than the Village, but more densely populated than the

rest of the town. With a few exceptions, the off-road backlands have remained undeveloped since the middle of the nineteenth century.

Demographics and Growth Potential

The population of Grafton has grown slowly over the past forty years, however the 2020 U.S. Census Bureau indicated a population of 645, a decrease of 5% from the 2010 census. Prior there had been a 4.2 % increase from the 2000 census. As is true for the state, the overall population for the region is aging. The fastest growing age group is 55 to 64 years of age. Median age of residents in Grafton has also risen over that period from 51 to 57 years, while Windham County median age is younger at 47 years.



Precipitation and Water Features

As in the rest of Vermont, the climate in Grafton is generally temperate with moderately cool summers and cold winters. Average annual precipitation is around 40 inches and annual snowfall, averaging 80 inches, can be as much as 200 inches in a single winter. However, as is true throughout the state, the town is experiencing more extreme climate conditions. The weather is unpredictable, and large variations in temperature, precipitation, and other conditions may occur both within and between seasons.

Much of the Town's terrain is rugged and forested with 25% slopes draining the headwaters of the Saxton's River. The vast majority of the town lies within the Saxtons River watershed with its major tributaries converging with the mainstem in the village center on its way to the Connecticut to the east. The northeast corner of the town lies within the Williams River watershed.

Water and Wastewater

Essentially all Town parcels are served by their own on-site water supply wells. The Town also has an existing 10-inch and 8-inch diameter non-potable water distribution system from the Fire Pond to most of the Village. In the absence of a public sewer system, domestic waste disposal is dependent on private parcel waste water disposal systems. There is a limited capability of existing systems in the Town to handle additional septic capacity. This will restrict future growth in the Village area and force development into

the surrounding rural areas. Consideration of a water supply and or centralized wastewater disposal system for the Village may still be necessary in the future.

Transportation

Grafton has just under 50 miles of maintained Town roads. There are no State Roads, but State aid is available for Class 2 and Class 3 roads. In general, Class 2 roads are paved and Class 3 roads are gravel. Footpaths exist throughout the Village and Village Park. The Grafton Selectboard and State Assistant District Engineer classify current Grafton roads as follows:

- Travelled Highways (maintained and in use)
  - Class 2 Roads 18.3 miles
  - Class 3 Roads 30.6 miles
  - Total Travelled Highways 48.9 Miles
- Untraveled Highways (discontinued or unmaintained roads, legal trails)
  - Class 4 Roads 9.16 miles
  - Legal Trails 5.02 miles

There are four access corridors into Grafton Village: Route 121 heading west from Bellows Falls or heading east from Windham, Townshend Road from the south, and Chester Road from the north. All four of these corridors are extremely rural with acres of open land and no public services or private business.

Grafton has 43 bridges, many of which were built in 1939 after the 1938 hurricane known as the Great Long Island – New England Hurricane or the Long Island Express Hurricane. Eighteen bridges within Grafton have a span of 20 feet or more and are inspected by the State every two years. There are 25 bridges between 6 and 20 feet. Under new Federal regulations, any bridge 20 feet or over is eligible for Federal funding assistance. This funding is necessary, particularly when emergency flood events critically damage these structures. Grafton has one functioning covered bridge, the Kidder Hill Bridge, spanning 66 feet. This bridge is on the National Register of Historic Places. The original bridge, built in 1870, was replaced with a new wooden covered structure in April 1995.

Electric Utility Distribution

Table 1: Green Mountain Power Average Annual Outage Data for 2019-2023

Average Annual Outage Data (2019-2023)	
Average number of outages per customer per year	**7.68 outages per year**
Total outage duration per customer	**48.99 hours per year**
Average length of each outage	**6.38 hours per outage**

Green Mountain Power reports there are 552 meters within the Town of Grafton. Based on the above data, this represents an annual amount of 27,044 Customer Hours without power over the five-year interval between 2019-2023.

Public Safety

Fire Department

The intent of the Grafton Firefighter's Association is to provide the Town and the Town of Athens, with the best level of fire protection that its resources will allow. First it protects lives and then property. It will work with any and all other emergency services in or out of Grafton to mitigate any emergency to which it is called. The Village of Grafton has a fire pond and a gravity-fed system of hydrants that service the Village area. The Fire Department is a small, totally volunteer department consisting of two fire trucks and approximately 17 firefighters. They own the fire station building and the land it is on. The Fire Department is funded by allocations from Town taxes and by private contributions. Squad members are on call 24 hours a day and dispatched by the Southwestern N.H. District Fire Mutual Dispatch Center in Keene, N.H. In 2023, Grafton Firefighter's Association started to include the Town of Athens in their service area.

EMS

The Grafton Rescue Squad is an organization of about 15 volunteers that provides emergency medical services to the Town of Grafton and other surrounding communities when called for mutual aid. The service is licensed by the Vermont State Department of Health and staffed by unpaid volunteers trained to standards and certified by the State of Vermont. The service is a first response unit that performs initial patient treatment. Squad members are on call 24 hours a day and dispatched by the Southwestern N.H. District Fire Mutual Dispatch Center in Keene, N.H.

Patient transport to the hospital is provided by Golden Cross, a commercial ambulance service under contract with the Town of Grafton. Squad members also play a key role in public education for the care and prevention of illness and injury (e.g. CPR training). In 2023, Grafton Rescue Squad started to include the Town of Athens in their service area.

Law Enforcement

Grafton is served by an appointed part-time constable that is non-carrying. This is the law enforcement officer for the Town (24 VSA § 1031). The State Police are on call for emergencies from the Westminster Barracks. Additionally, the Town has contracted with Windham County Sheriff's Department for speed enforcement and other law enforcement.

Emergency Management

Grafton has a Town Emergency Planning Committee. As stated in the 2015 emergency management ordinance the Selectboard appoints the Emergency Management Director (EMD), and a deputy, however, there are two Deputies that currently assist the EMD and Emergency Management Coordinator. Preparation for disasters also continues in local organizations such as the fire department, search and rescue, Vermont Agency of Transportation, the County Sheriff, and the State Police. These are strong

organizations, and as responders they continue to provide excellent service; however, preparedness is not only about response to emergencies, but preparing for emergencies, recovering from emergencies, and finding ways to successfully mitigate the impact of future emergencies and disasters.

Essential Facilities are identified in the Local Emergency Management Plan including the Town Hall or Town garage as the emergency operations centers and Elementary School and Town Hall as potential community shelters but also recommends the area Red Cross Shelter as needed, however, based on experience, Grafton Residents will not go to a shelter.

Critical Facilities

The planning committee identified several critical facilities in Grafton. These facilities provide important services to the community, such as basic government functions, water and power services, and schools. Some of these facilities can also serve additional roles during an emergency, including as a shelter for displaced residents, a staging area for emergency response and recovery activities, or a location for important Town administration functions. Damage to these facilities can impair response and recovery operations and may lead to a disruption of vital services for Grafton residents.

Dams

According to the Vermont Dam Inventory (VDI), Grafton has no high hazard potential dams but does have 1 privately owned low hazard recreational earthen dam on the Weaver Brook within the Saxtons River basin. The Holbrook dam is a 397 x 14-foot earthen recreation dam has been in fair condition, with no change after the 2023 flood event. See **Figure 3** for location.

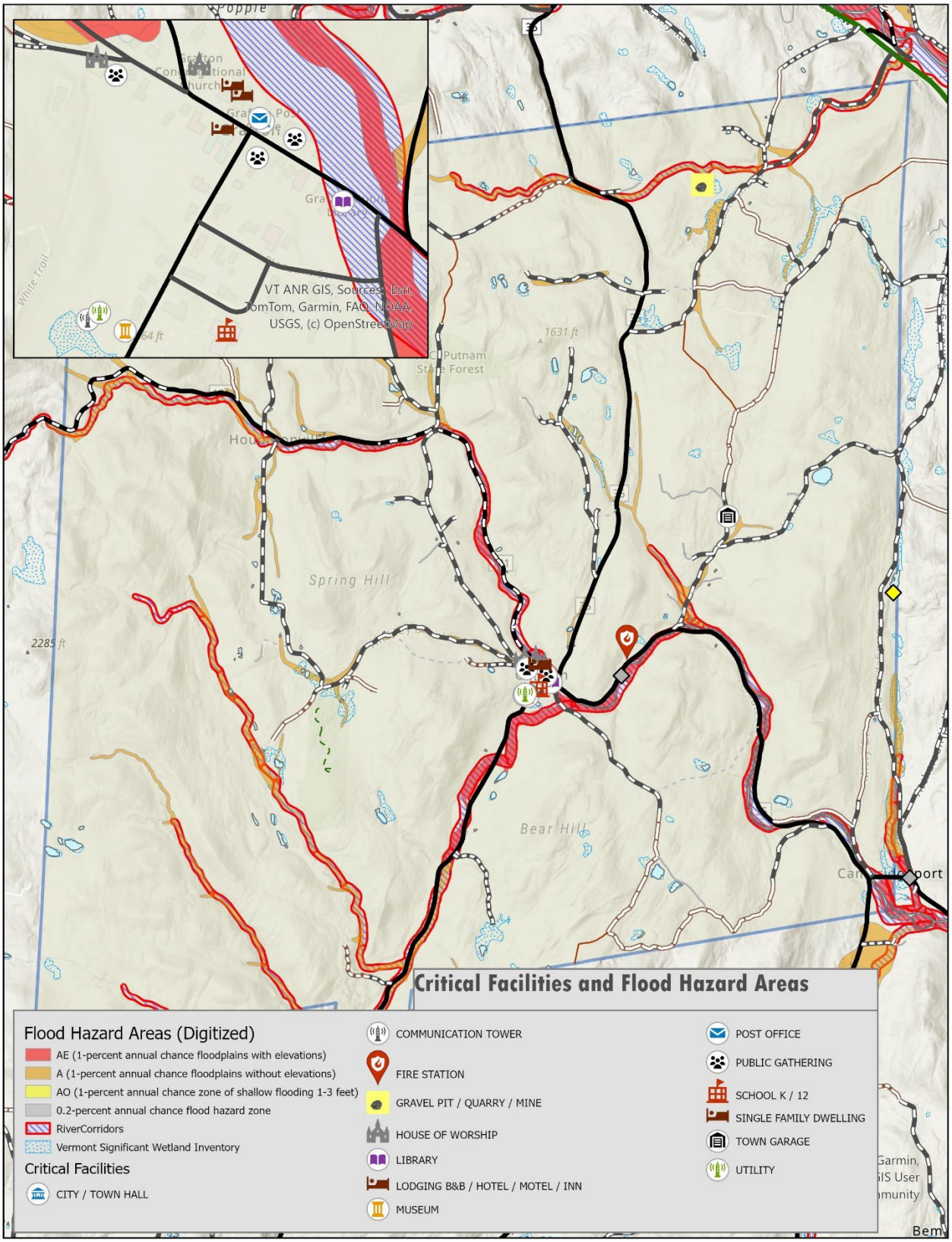


Figure 3- Critical Facilities and Flood Hazard Area

4 PLANNING PROCESS

Plan Developers

The Town assembled a Hazard Mitigation Planning Team to participate in updating the Plan. Team members included: Town Administrator, Deputy Emergency Management Directors, Fire Chief, Road Foreman, Planning Commission, Town Health Officer, Selectboard members, EMC, Town Clerk, and residents.

The Town hired SEAM Solutions to assist with this Plan update. FEMA Building Resilient Infrastructure and Communities (BRIC) funds supported this process.

Plan Development Process

The 2025 Local Hazard Mitigation Plan is an update to the 2019 single jurisdiction mitigation plan. A summary of the process taken to develop the 2025 update is provided in **Table 2**.

Table 2 - Plan Development Timeline and Process

May 9-29, 2024 – Worked with Town Administrator to develop planning committee members, initial community outreach and set a date and time for the kick off meeting.
June 13, 2024 - Kickoff Meeting – Thirteen people attended included residents, members of the selectboard, planning commission, Town Clerk/Treasurer, Administrator, EMD and representatives of the school board and local church. Attendees were provided with an overview of what hazard mitigation is, the plan update process. Discussion of current plan and what can be added to improve the new plan. Green Mountain Power will be contacted to generate information relative to power outages since the existing plan was adopted. Fire and Rescue will be contacted to provide input for the new LHMP. Meeting schedule was set and the task of updating the first three sections was identified and was sent out to the committee to review.
June 2024 – Announcement in the Grafton News of the LHMP update and encourage committee participation along with posting on the Town's website and Town bulletin boards.
July 18, 2024 – Discussion and updates on Public Outreach methodologies to be all inclusive, especially toward the vulnerable population. Conversations relative to the Community Profile including confirmation there are no public water/wastewater utilities, response to Town by local Sheriff and/or Vermont State Police. A list of critical facilities was reviewed to be included in the new LHMP. The committee identified a list of community stakeholders to include; Grafton Community Church, The Grafton Inn/Phelps Barn, Grafton General Store, Windham Foundation, Grafton Outing Club, the elementary school, Grafton Cares, fire and rescue departments, Grafton Improvement Association.
August 15, 2024 – Discussed and identified list of critical facilities. Reviewed the community survey questions and performed the ranking of hazards.
September 4, 2024 – Community survey sent to residents – received 12 responses An email was received from a concerned resident regarding under spent FEMA community wide disaster prevention funds.
September 26, 2024 – Final review of critical facilities and hazard rankings, as well as reviewed actions and goals from the previous LHMP. The committee is looking at the capabilities of local response teams as well as areas for improvement in the areas of policy and planning, administration, financial along with education and outreach.

September 30, 2024 – Plan update notification sent out to surrounding towns.
October 17, 2024 - Looked at the Town Plan and any new zoning regulations and how they need to be incorporated into the new LHMP and other plans. Started considering future actions to be included in updated plan. Received feedback from a member of the selectboard concerning the money spent on response versus prevention and focus on river bank stabilization.
November 21, 2024 – Continued work on identifying future actions as they apply to the ranked hazards, along with assigning lead, cost and prioritization.
January 23, 2025 – Reviewed community survey to ensure the plan aligns with the communities' thoughts and concerns. Finalized future actions, lead party, cost, and prioritization.
May 29, 2025 -
August 28, 2025 -
TBD – Present draft plan publicly – selectboard meeting
TBD – Present draft plan to surrounding communities and stakeholders
TBD – Make revisions and present draft to VEM/FEMA

In addition to the local knowledge of the Planning Committee members and other relevant parties, several existing plans, studies, reports, and technical information were utilized in the preparation of this Plan. A summary of these is provided in **Table 3.**

2020 Town Plan Referenced to develop the Community Profile, Capabilities, Integrating into Existing Plans and Procedures, Mitigation Strategy Updates – Changes Since 2018 Plan in Section 6.
2024 Local Emergency Management Plan Primarily used to identify local organizations that support vulnerable populations to ensure these organizations are invited to participate in the plan update along with updating the Section 3.
2007 Flood Damage Prevention Regulations (Rev 2020) Referenced to develop the Community Profile, Capabilities, Integrating into Existing Plans and Procedures, Mitigation Strategy Updates – Changes Since 2018 Plan in Section 6, NFIP participation and regulation.
2009 Subdivision Regulations (Rev 2018) Referenced to develop the Community Profile, Capabilities, Integrating into Existing Plans and Procedures, Mitigation Strategy Updates – Changes Since 2018 Plan in Section 6, NFIP participation and regulation.
2024 Annual Report Referenced to develop the Community Profile, Capabilities, Integrating into Existing Plans and Procedures, Mitigation Strategy Updates – Changes Since 2018 Plan in Section 6, NFIP participation and regulation.
2019-2023 Green Mountain Power Outage Data Used to develop Table 2 in the Community Profile Section and identify potential vulnerabilities.
2020 US Census Data Used to develop the Demographics and Growth Potential information in Section 3.
2021 American Community Survey Five-Year Estimate Used to develop the Demographics and Growth Potential information in Section 3.
2023 State of Vermont Hazard Mitigation Plan Primarily referenced to develop the risk assessment and profiles in Section 5.
2023 FEMA Local Mitigation Planning Handbook Used to ensure plan meets the Federal mitigation planning requirements, including those for addressing climate change.

2023 FEMA Hazard Mitigation Assistance Program Policy Guide Used to ensure plan meets the Federal mitigation planning requirements, including those for addressing climate change.
2021 Vermont Climate Assessment Referenced to develop the flood risk profile in Section 5.
FEMA NFIP Insurance Reports Used to determine how many structures are insured and describe NFIP compliance in Section 6. NOTE: Due to FEMA Region I concerns related to personally identifiable information (PII), NFIP repetitive loss and severe repetitive loss information is unavailable for this plan update.
2017 FEMA Region I Mitigation Ideas for Natural Hazards Used to develop mitigation actions to address impacts from severe winter storms, high winds and floods.
2019 Road Erosion Inventory Referenced to develop the risk profile in Section 5 and mitigation actions to address floods in Section 6.
VTrans Transportation Resilience Planning Tool Referenced to develop the risk profile in Section 5 and mitigation actions to address floods in Section 6.
Vermont Dam Inventory (VDI) Referenced to develop the risk profile in Section 5 and mitigation actions to address floods in Section 6.
National Oceanic and Atmospheric (NOAA) National Climatic Data Center's Storm Events Database Referenced to develop the risk profile and hazard history in Section 5.
FEMA Disaster Declarations for Vermont Referenced to develop the risk profile and hazard history in Section 5.
OpenFEMA Dataset: Public Assistance Funded Project Summaries for Vermont Referenced to develop the risk profile and hazard history in Section 5.
Vermont Department of Health Referenced to develop the risk profile in Section 5.
Vermont Agency of Natural of Resources Referenced to develop the risk profile in Section 5.
Vermont Agency of Natural of Resources Watershed Projects Referenced to identifying completed and develop mitigation actions to address floods in Section 6

Table 3 - Existing Plans, Studies, Reports and Technical Information

Changes since the 2019 Plan

The 2019 local hazard mitigation planning effort analyzed natural and manmade hazards and the risk they posed to the Town of Grafton. The risk assessment resulted in the categorization based similarly to the current form of hazard ranking; probability and impact, however the list of hazards deviated somewhat from what was recognized in the 2018 State Hazard Mitigation Plan. In the 2019 plan; High winds, brush fire, wildland fire, structure fire, severe winter weather, erosion, hurricane/tropical storm, flood and ice jams were ranked as the community's higher priority risk natural hazards. Actions proposed in 2019 focused on mitigating risks from flooding, erosion, wildland and structure fire along with actions that apply to all hazards.

While there has been a change in hazard priorities from the 2019 plan, the prior actions are reflective of the priorities identified in the 2025 plan. There were no specific actions identified for wind or ice jams and based on the last five years of historical weather data, the Town chose to reduce the priority of wind and include ice jams under flooding. The 2019 plan also did not include invasive species or infectious disease, which have been included and ranked in the 2025 plan

The 2025 hazard ranking aligns with the State Hazard Mitigation Plan's identified hazards that consolidate many of the hazards identified in the previous plan. Grafton recognizes that man-made events exist such as structure fire, hazmat spills, and highway crashes. Crucial to recognizing their threat to the community,

however, there are other mechanisms such as the LEMP annexes that are better to deal with most short-term risks.

As the Town has sought to implement the 2019 mitigation strategy, they have looked for opportunities to incorporate information and recommendations from the 2019 Plan into other plans, programs, and procedures. They were successful in doing so in the Town Plan and Flood Damage Prevention Regulations were undergoing updates at the same timeframe.

The Grafton Town Plan, adopted in 2020, serves as the Town's framework and guide for reaching community goals, including those for how future growth and development should proceed. It includes flood resilience and land use policies and actions to support the goal of mitigating risks to public safety, critical infrastructure, historic structures, and municipal investments posed by flooding and fluvial erosion.

The Town Plan is the basis for local land use controls such as those in the Grafton Subdivision Regulations, adopted in 2009 and revised in 2018. Grafton's Flood Damage Prevention Regulations, adopted in 2007 and revised in 2020 includes Flood Hazard Area to ensure the selection, design, creation, and use of development in these hazard areas is reasonably safe and accomplished in a manner that is consistent with public wellbeing, does not impair stream equilibrium, flood plain services, or the stream corridor.

In addition, Grafton made significant progress in completing other mitigation actions identified in the 2019 Plan – see **Appendix B**.

Generators have been installed at both Town's designated shelters, the town office which also serves as the EOC and the elementary school. More recently an automatic transfer switch was installed at the Town Hall so that backup power does not need to be manually turned on.

The Kidder Hill dam was removed to reduce upstream erosion and flooding. The Town upsized five culverts to better accommodate stormwater and make the town roads more resilient to flash flooding and fluvial erosion that achieved the intended results and performed well during the July 2023 and 2024 storms. Other road improvements have been ongoing with the Municipal Roads General Permit projects. These mitigation investments have 1) strengthened the community's Transportation lifeline; 2) reduced risk to infrastructure; and 3) supported Town efforts to comply with the Municipal Roads General Stormwater Discharge Permit and protect water quality by controlling erosion and stormwater runoff from municipal roads.

As described in the Community Profile above, Grafton's population has been in slow decline since its peak in 2010 and growth potential is believed to be limited by a lack of developable land and public water and sewer utilities.

Changes in population and development since 2019 have not made Grafton more vulnerable to natural hazards and therefore are not the primary drivers for a shift in the Town's mitigation priorities in 2025. Rather changing weather conditions due to climate change most influenced the Town's current mitigation strategy.

The primary mitigation goal in the 2025 Plan is to increase the Town's resilience to natural hazards by advancing mitigation investment to reduce or avoid long-term risk to people, homes, neighborhoods, the local economy, cultural and historic resources, ecosystems, and Community Lifelines.

When evaluating mitigation actions, the Town selected actions that support the mitigation goal and are acceptable and practical for the community to implement. Actions that directly benefit a vulnerable population were assigned a high prioritization score – see **Table 8**.

5 HAZARD IDENTIFICATION AND RISK ASSESSMENT

Local Vulnerabilities and Risk Assessment

One of the most significant changes from the 2019 Plan is the way hazards are assessed. To be consistent with the approach to hazard assessment in the 2023 State Hazard Mitigation Plan, the Hazard Mitigation Planning Team conducted an initial analysis of known natural hazard events in the Town of Grafton. While there have been 16 FEMA disasters, and two emergencies declared in Windham County since 2000 only 5 have (one emergency declaration) affected the Town of Grafton **(see Table 4**). This analysis aided in determining their probability of occurring in the future (high probability events are **in a darker shade of blue** in **Table 5**).

Bold Disasters are specific to Grafton

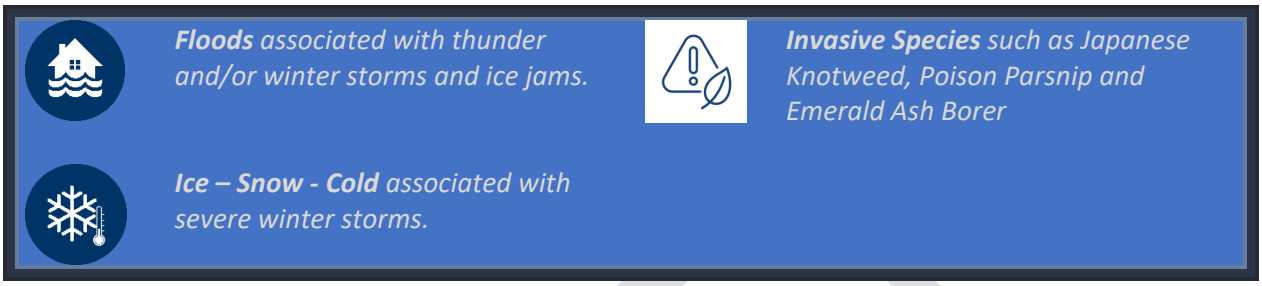
Federal Disaster Declarations: Windham County 1970 – 2024(current)		
FEMA Disaster Number	**Date of Declaration**	**Description**
4762	March 2, 2024	Severe Storms and Flooding
4720	**July 14, 2023**	**Severe Storms, Flooding, Landslides, and Mudslides**
4621	**September 29, 2021**	**Severe Storm and Flooding**
4532	April 8, 2020	COVID – 19 Pandemic
4356	January 2, 2018	Severe Storms and Flooding
4043	November 8, 2011	Severe Storms and Flooding
4022	**September 1, 2011**	**Tropical Storm Irene**
EM -3338	August 29, 2011	Hurricane Irene
EM - 3167	April 10, 2001	Snowstorm
1816	January 14, 2009	Severe Winter Storm
1698	**May 4, 2007**	**Severe Storms and Flooding**
1559	September 23, 2004	Severe Storms and Flooding
1488	**September 12, 2003**	**Severe Storms and Flooding**
EM-3167	**April 10, 2001**	**Snow**
1336	July 27, 2000	Severe Storms and Flooding
1307	November 10, 1999	Tropical Storm Floyd
1124	June 27, 1996	Extreme Rainfall and Flooding
1101	February 13,1996	Ice Jams and Flooding
518	August 5, 1976	Severe Storms, High Winds and Flooding
397	July 6, 1973	Severe Storms, Flooding and Landslides
277	August 30, 1969	Severe Storms and Flooding

Table 4 - Federally declared disasters in Windham County

The Team then ranked the impacts associated with the natural hazard events based on 1) probability of occurrence and 2) potential impact to people, infrastructure, the environment, and local economy.

This assessment considered the effects of future conditions, like climate change, on the type, location, and range of intensities of identified hazards.

The ranking results are presented in **Table 5** and reflect the following **highest risk hazard impacts** that the Town believes they are most vulnerable to:



Each of the **highest risk hazard impacts** are profiled in this section. Lower risk hazards impacts do justify mitigation but to a lesser extent due to a low probability of occurrence and/or low impact. See the 2023 State Hazard Mitigation Plan if you are interested in more information on the lower risk hazards.

Hail and Earthquakes were decided by the planning team to be outside of the realm of justification within our region for mitigation actions. Hail being that the historic record of damage being primarily minimal and to vehicles. Earthquakes even though experienced also are historically small in Vermont do occur but were deemed to be of minimal threat and with no building codes basically impossible for a town to develop effective mitigation strategies. See the State Hazard Mitigation Plan for information on these and other lower risk hazards.

High Winds ranked as number one in the 2019 plan dropped into the lower risk category in the 2025 plan. This was based on the lack of declared disasters for wind, the lack of events since 2002 in the VTSHMP Disaster History Table, NOAAs recording one wind event in the last five years and the lack of actions identified in the 2019 for wind mitigation. However, the addition of invasive species hazard in 2025 and the associated actions, many of which align and benefit wind mitigation activities.

Similarly, brush, wildland and structure fires ranked high in the 2019 plan, however the lack of events also places, the currently recognized hazard of, wildfires into the lower risk hazard category and many of the actions pertained to structure fires. No less important but tend to be isolated incidents that are unlikely expand to the level of a declaration.

Table 5 - Community Hazard Risk Assessment

PROPOSED 2025 Hazard Mitigation Plan Hazard Assessment								
Hazard Impact	Probability	Potential Impact					Score	Rank
		Infrastructure	Life	Economy	Environment	Average		
Flash flooding	**4**	**3**	**1**	**3**	**3**	**3.5**	**14**	**1**
Fluvial Erosion	**4**	**3**	**1**	**2**	**3**	**3.25**	**13**	**2**
Inundation Flooding	**4**	**3**	**1**	**3**	**2**	**3.25**	**13**	**2**
Ice	**4**	**2**	**1**	**2**	**2**	**2.75**	**11**	**3**
Snow	**4**	**2**	**1**	**1**	**2**	**2.5**	**10**	**4**
Cold	**4**	**1**	**1**	**2**	**1**	**2.25**	**9**	**5**
Invasive Species	**4**	**1**	**1**	**1**	**2**	**2.25**	**9**	**5**
Drought	3	1	1	3	3	2.75	8.25	6
Heat	3	1	1	2	1	2	6	7
Wildfire	2	1	1	1	3	2	4	8
Infectious Disease	2	1	1	2	1	1.75	3.5	9
Wind	2	1	1	1	1	1.5	3	10
Landslide/slope failure	2	1	1	1	1	1.5	3	10
Earthquake	1	3	1	3	2	2.5	2.5	11
Hail	1	1	1	1	1	1.25	1.25	12

*Score = Probability x Average Potential Impact

	Frequency of Occurrence: Probability of plausibly significant event	**Potential Impact:** Severity and extent of damage and disruption to population, property, environment, and the economy
1	**Unlikely**: < 1% probability of occurrence per year	**Negligible:** Isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	**Occasionally**: 1% to 10% probability of occurrence per year, or at least one chance in the next 100 years	**Minor:** Isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
3	**Likely:** >10% but <75% probability per year, at least one chance in the next 10 years	**Moderate**: Severe property and environmental damage on a community scale, injuries or fatalities, short-term impact
4	**Highly Likely:** > 75% probability in a year	**Major:** Severe property and environmental damage on a community or regional scale, multiple injuries or fatalities, significant economic impact

Highest Risk Hazard Profiles

Flooding

Hazard Description: Both Flood and Erosion are profiled here as these hazards are intrinsically linked. **Flooding,** including **flash flooding, fluvial erosion** and overbank or **inundation flooding**, are significant natural hazard events for Windham County and Grafton. In the past plan flash flooding was characterized by intense, high velocity torrent of water that occurs in an existing river channel with little or no notice. This plan has been expanded to include both fluvial erosion and flash flooding. Flash flooding includes rivers streams, intermittent streams and roadway drainage.

The town is particularly susceptible to inundation flooding in lower lying areas of the Village and also to flash flooding and fluvial erosion in higher elevation areas.

This type of flooding threatens high-elevation drainage areas and typically occurs during summer when a single or series of weather events result in excessive rainfall over a short period of time on already saturated soils from a spring melt. Flash floods can also be triggered by a dam breach causing further damage downstream. The damage from spring flooding events can vary greatly depending upon the amount of precipitation, snow cover, spring melt, soil saturation, existing erosion and topography.

Road infrastructure within the narrow stream valleys receive drainage from the higher elevations and are often the most vulnerable to damage from flash flooding.

Although these are not frequent events, hazards posed can be significant as seen with the state-wide flooding from Tropical Storm Irene in the summer of 2011.

Inundation or overbank flooding occurs in lower lying areas when water levels rise overflowing the banks of a river or stream. In hilly or mountainous areas, drainage from higher elevations flows to the lower reaches or valleys of a watershed. These waters often carry with it debris which can block culverts or a bridge underpass. Instances of inundation type flooding can occur long after precipitation has ended or when no precipitation has occurred, such as an extreme winter warming event causing river ice to melt resulting in ice jams obstructing the flow of river waters.

Fluvial Erosion, which often accompanies flood events, is the predominant form of flood damage in Vermont and in mountain valley towns like Grafton. Rivers are dynamic and move both water and sediment. As a result, river channels may move vertically or horizontally. High flows can cause sediment to become detached from a riverbed or riverbank, which can range from gradual bank erosion or massive slope failure to catastrophic changes in river channel location and dimension. The sediment and stone that is dislodged can expose tree roots and wash away vegetative buffers which are carried downstream blocking culverts and bridges causing further flood damage.

Fluvial Erosion along rivers and streams is the predominant form of flood damage in Vermont. The area's most vulnerable to fluvial erosion are those that were triggered by Tropical Storm Irene and exacerbated by subsequent storms.

In Grafton, the Saxtons River mainstem riverbanks have been armored to protect against erosion over the years. However, these practices have destabilized these river reaches making them more prone to the development of temporary flood chutes or a dramatic avulsion which is the rapid abandonment of an established river channel and the formation of a new permanent river course in the adjacent floodplain. A severe channel migration outside of the river corridor and valley wall occurred at the intersection Houghtonville Rd. and Cabell Rd. during Tropical Storm Irene.

Many areas impacted by Tropical Storm Irene continue to be problem areas vulnerable to recurring minor flooding during a hard rain. Floodwaters overwhelmed road infrastructure at these sites, within and outside of the SFHA, and washed away a house located upstream of the Howland Mill bridge, and a garage upstream of the Fire House. Several Grafton homes were damaged or destroyed; three of which received FEMA funding for property buyouts. The Town Garage was also damaged and was relocated out of the flood zone.

Given the historic social and economic function of river valleys it is no surprise that the majority of the town community assets would be located in or near these flood prone areas.

The flood map below of Grafton Village in **Figure 4** shows structural assets (white squares) located in flood hazard areas (highlighted in red) and river corridor areas (highlighted in yellow). Most of the structures, residential, public, and commerce, are concentrated along the Saxtons River which runs through the center of the village. Development in these areas is vulnerable to flood and erosion with the risk of re-channelization during high flow events.

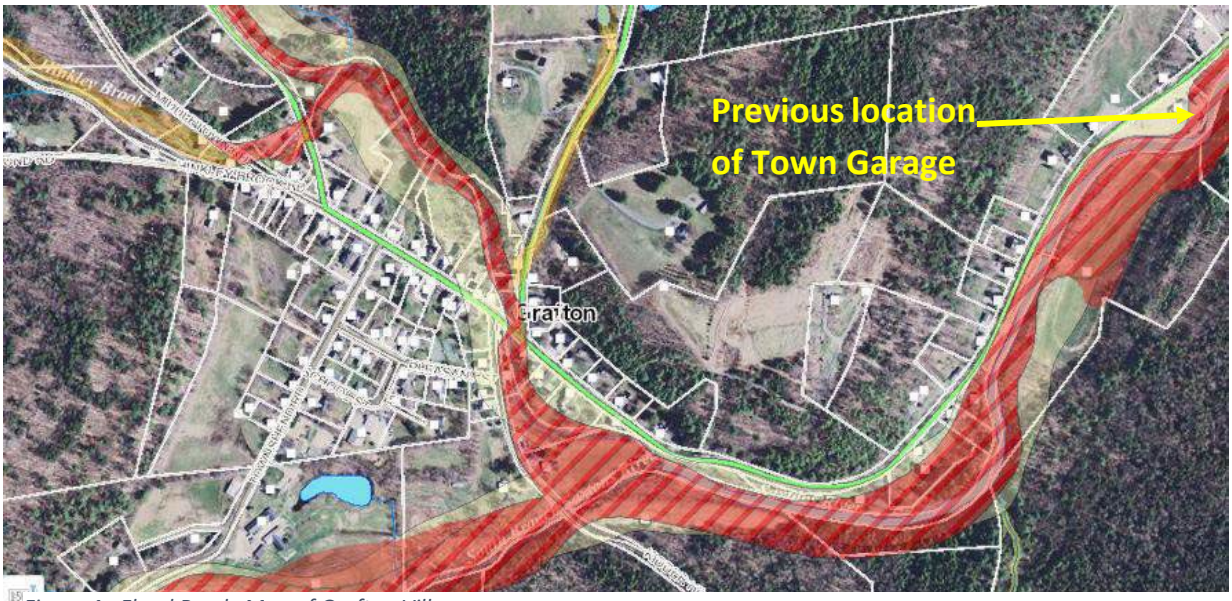


Figure 4 - Flood Ready Map of Grafton Village

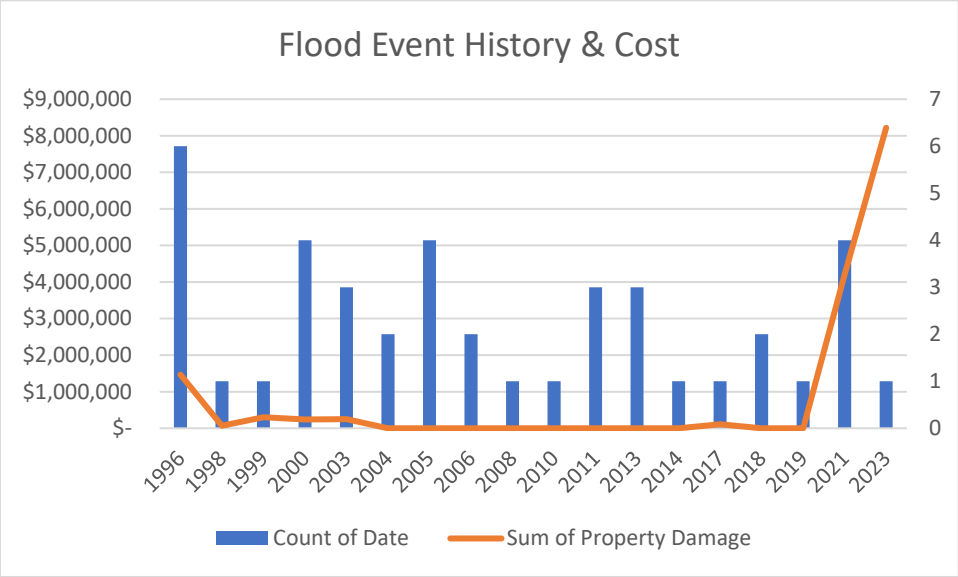
Hazard Location: Vermont Agency of Natural Resources has mapped River Corridors for the Saxtons River stream segments along with SFHA which are shown in **Figure 3** and can be found on-line. Special flood hazard areas are currently being modified to more closely reflect the valley topography, history of flood events and will allow for improved identification of hazard areas.

Grafton has the Saxton's River which is approximately a 20 mile waterflow that sends the watershed easterly to the Connecticut River. The Saxton's River has had extremely high water velocities during the recent flood events of July 2023 and July 2024. During the July 2024 event, there were bridges crossing the Saxton's River that were closed for fear of a water level breech or potential catastrophic damage caused to the structures.

Hazard Extent: Rain events going back to the 1927 flood have been occurring more frequently due to climate change. The volume of rainfall in recent years has increased dramatically per event. Tropical Storm Irene hit Vermont in August of 2011, some areas seeing up to 11 inches of rain. Windham County averaged 4-8 inches of rain. The Saxtons River within the town boundaries of Grafton and reaches of the Williams River outside of Grafton's jurisdiction are susceptible to fluvial erosion however, actual loss has not been calculated from historic events.

Hazard History: The Town of Grafton has experienced five presidentially declared disasters the past 25 years due to flooding along with other occurrences identified in the table below.

Table 6 - History of Flood Events and Costs



Future Probability and Potential Impacts: Predicted climate changes include higher frequency and severity of rainstorms. With severe rainstorms as Grafton's highest concern, taking no action for this predicted future condition could be catastrophic.

Climate Change: Climate change has profound effects on weather patterns, precipitation, and temperature, all of which significantly impact fluvial erosion and flooding. Increased river flows, earlier and rapid snowmelt, more severe storms, vegetation loss and soil saturation, as a result of climate change, may impact fluvial erosion and flooding event frequency and intensity.

Change in Land Use/Development: The town has adopted flood hazard area regulations and participates in the national flood insurance program. Grafton's regulations prohibit new structures in the Special Flood Hazard Area. Therefore change in development and land use is not expected to increase impacts of fluvial erosion, inundation flooding or flooding on current or future assets.

Change in Demographics: Grafton's population demographics are not expected to change significantly in the next five years, though an increase in the average age of the population may increase the vulnerabilities of the population.

Vulnerability Summary: Grafton is vulnerable to both **Inundation** and **Flash Flooding** as described above. Both flood hazard types rely on natural floodplains to disperse flood waters and reduce their potentially disastrous impact. Floodplains provide important social, economic and ecological functions. They are areas where human structures and critical transportation infrastructure are at risk. River Corridors are dynamic areas where a great deal of damage can also occur during flooding disasters.

Built Environment: The most damages to date have occurred to the town highway infrastructure in the form of washouts and culvert failures. Fortunately, a progressive road crew monitors trends and proactively installs culverts and repairs ditching in anticipation of ever worsening rainfall/flooding events. Fortunately, the community understands this vulnerability and supports the road crew's efforts to prepare against future risk.

People: Fluvial erosion and flooding events can cause injuries or fatalities to people who do not evacuate in time. Delayed evacuation can be caused by no-noticed events, or by individuals who are hesitant to leave their houses. The elderly, the homeless, residents with special needs and those without proper transportation may potentially be impacted more than other residents.

Natural environment: Fluvial erosion and flooding events can cause damage to the environment and fragile ecosystems. Vulnerabilities and impacts include algae blooms (harmful to the environment, and toxic to animals/people), transportation of invasive species, soil and bank erosion, and pollution.

Economy: Fluvial erosion and flooding events can cause major economic impacts to the town. Impacts include disruption or closure of impacted businesses, homelessness due to house damage, and recovery costs, including employee overtime, time and equipment spent on the repairs.

Ice - Snow – Cold

Hazard Description: Ice events include ice storms, freezing rain, sleet, and ice accumulation on surfaces. Ice accumulation occurs when rain falls through a layer of subfreezing air near the surface, causing it to freeze on contact with surfaces. Sleet involves small ice pellets that bounce upon hitting the ground, while freezing rain creates a glaze of ice.

Snow hazards include heavy snowfall, blizzards, and snowdrifts. Snow events vary in intensity and duration, from light snowfalls to severe blizzards with high winds and significant accumulation. Cold temperature hazards result from prolonged periods of frigid weather, often accompanied by snowfall, ice accumulation, and strong winds. Cold snaps and extreme cold events can pose significant risks to human health, infrastructure, agriculture, and ecosystems.

Cold temperature hazards are characterized by below-freezing temperatures, with daytime highs and nighttime lows falling well below normal seasonal averages.

Hazard Location: All areas of Grafton can be affected by ice, snow and cold events, particularly higher elevations and exposed locations.

Hazard Extent: A winter storm is considered severe when there is a possibility of:

- Six or more inches of snow fall at a given location within 48 hours,
- Property damage, injuries or deaths, or
- An ice/glaze storm which causes property damage, injuries or death.

At levels exceeding ½ inch of ice accumulation Grafton can experience power outages. Depending on the severity of the damage, power losses often continue for days. These conditions occur often enough that many town residents have a back-up power system installed.

In the region, extreme cold can still be an issue. Historic cold extremes in Grafton have reached as low as -35° F, with wind chill values dropping below -50° F during severe Artic outbreaks, as documented in NOAA regional data. These conditions pose risks of frostbite within minutes, freezing of uninsulated water lines, and have historically resulted in school closures and increased emergency heating needs in Windham County. If it is a long-lasting cold without snow cover, frost can migrate deep into the ground, freezing pipes and heaving roadways. Most of this would be dealt with by the town either through their utility contracts or by the town road crew in keeping the transportation infrastructure in usable condition. Loss of power during one of these cold snaps may require the use of the town shelter and is planned for in the town's Local Emergency Management Plan.

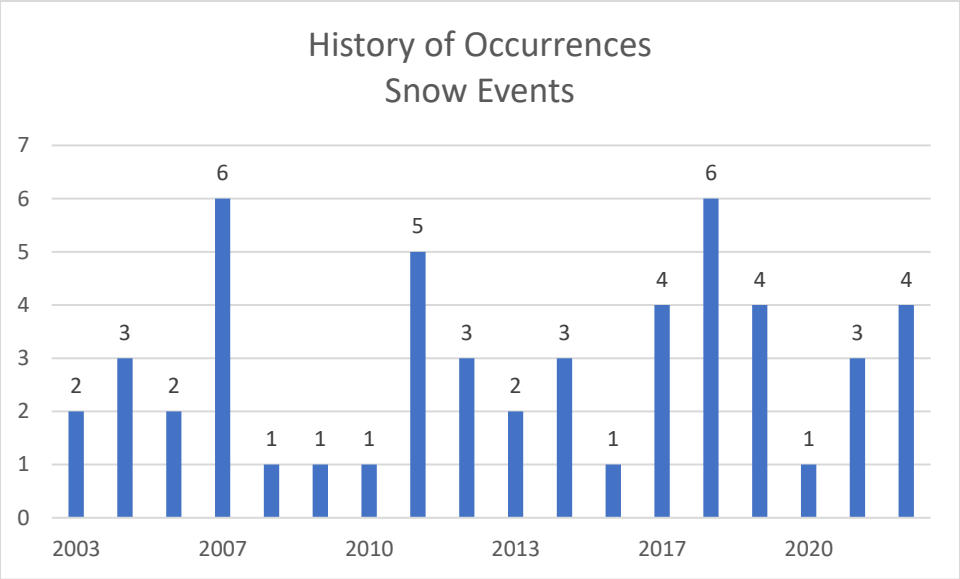
What constitutes "extreme cold" can vary across different areas of the country based on what the population is accustomed to in their respective climates. Vermont is adapted to cold conditions; however very cold temperatures remain a threat despite their commonality during Vermont winters.

Hazard History: According to the Vermont Disaster History by Event Table located in the 2023 SHMP and NOAA Storm Events Database there have been 4 ice events since 2000.

Windham 1/15/2007	Western Windham 3/4/2008
Western Windham 3/18/2008	Windham 12/11/2008

There have been over 50 recorded winter storm/weather events in Windham County since 2010 as recorded by NOAA National Centers for Environmental Information (NCEI). The descriptions of the winter events include type of precipitation, snow totals, ice accumulations, exceptional cold and wind speed data, and the extent of impact on the community where available. Unlike neighboring Windsor County to the north, which incurred close to $800,000 in property damages due to winter storm events over the same period, there were little or no damages recorded in Windham County as a result of any of these noted winter events. Grafton had one declared event in 2000 that resulted in over $12,000 in public assistance.

Table 7 - History of Snow Events



For cold weather events the Town uses their shelters the same as associated with a power outage. Below are the 10 cold related listing from the SHMP of 2023.

Windham 1/14/2022 Cold
Windham 1/20/2019 Cold
Windham 1/1/2018 Cold
Windham 1/19/2015 Cold
Windham 1/7/2015 Cold
Windham 1/30/2019 Cold
Windham 1/5/2018 Cold
Windham 2/13/2016 Cold
Windham 2/15/2015 Cold
Windham 1/23/2011 Cold

Future Probability and Potential Impact

According to the 2023 National Climate Assessment "Changes in some types of storms are also apparent. Over the past three decades, heavy snowfalls have been more frequent over the Northeast, a trend consistent with warming in the western Atlantic Ocean and increasingly frequent Arctic air outbreaks from polar vortex disruptions. Atmospheric rivers along the Pacific Coast have become warmer over the past several decades and have transported larger amounts of moisture into the West because of increases in Pacific Ocean temperatures. "

Climate Change: Climate change significantly affects weather patterns, including the frequency, intensity, and geographic distribution of ice, snow, and extreme cold events. These changes can increase frequency and intensity of snow and ice storms, change snowfall patterns, lead to more ice accumulation, and reduce snowpack.

Change in Land Use/Development: No changes to asset impacts due to ice, snow and extreme cold events as a result of development or land use changes could be identified.

Change in Demographics: Grafton's population demographics are not expected to change significantly in the next five years, though an increase in the average age of the population may increase the vulnerabilities of the population.

Town Vulnerability

Potential losses from winter storms are mostly indirect and can be difficult to quantify or predict. Damage from snow and ice storms can vary depending upon snow or ice accumulation, wind speeds, storm duration, tree cover, and structural conditions.

For example, large, flat roofed structures or aged structures in deteriorating conditions are most vulnerable to collapse under heavy snow and/or ice accumulation.

Most roofs can withstand 20 pd/sf of snow which equates to approximately 3 to 4 feet of fresh snow or a foot of heavy wet snow. A season's worth of snowfall, however, can be well above what a typical roof will support, particularly if there have been layers of old snow and ice.

In addition to accumulating snow, drifting snow and low visibility during high intensity snow and ice storms can become extremely hazardous for pedestrians and motorists. Also, warming trends have led to a greater frequency of freezing rain followed by flash freezing causing black ice to form on paved roadways which are typically the major thoroughfares in the region.

One of the greatest impacts on infrastructure from snow and ice storms is typically the loss of power due to downed powerlines caused by the weight of either heavy wet snow or ice load.

Vermont communities and municipal road crews are generally well prepared to handle heavy snowfall. However, it is typically the secondary hazards that are most concerning to the town. Depending on the event, particularly with heavy, wet snow or ice, electricity may be knocked out for a few hours or days due to downed powerlines from falling trees. This is a time when residents are most vulnerable to structure fire hazards. Many residents heat their homes with open flame heating sources including fireplaces and wood or pellet stoves and will supplement with electric or kerosene space heaters.

People: Ice, snow and extreme cold weather events can cause injuries or fatalities to people who do not shelter-in-place, or who do not have adequate shelter. Delayed sheltering-in-place can be caused by no-noticed events, or by individuals who do not heed the warning. The elderly, the homeless, residents with special needs and those without proper transportation may potentially be impacted more than other residents.

Built environment: Ice, snow and extreme cold weather events can cause damage to town and private property, including buildings (roof collapse), blocked egress routes, blocked evacuation routes, frozen pipes, and downed powerlines.

Natural environment: Ice, snow and extreme cold weather events can cause damage to the environment with downed trees.

Economy: Ice, snow and extreme cold weather events can cause economic impacts to the town. Impacts include disruption or closure of impacted businesses, and recovery costs, including employee overtime, time and equipment spent on the repairs.

Extended periods of extreme cold or loss of power during the winter months require continued vigilance on the safety of

heating to reduce the risk of a structure fire as a secondary hazard.

Invasive Species

Hazard Description: Widespread establishment of Wild or Poison Parsnip (*Pastinaca sativa*) along roadsides and/or open fields can effectively remove those areas for recreational purposes through much of the summer months. Once contracted, many are quite hesitant to venture far from cleared paths and given the non-developed nature of much of Vermont's attraction for tourists, could heavily impact future visits.

Ash trees are the source for hardwood that can bend and withstand considerable stress. Historically, ash has been the source for axe handles, hockey sticks, and baseball bats. It is a component of timber harvesting in Vermont and provides that industry with a moneymaking product. Spread of the Emerald Ash Borer (*Agrilus planipennis*) (EAB) into Vermont's forests would have a significant impact on timber values. The Emerald Ash Borer Strategic Plan Committee was established in 2020 by the Selectboard with the mission to update and broaden the 2014 street tree inventory to identify the location and condition of all ash trees on public properties, including along neighborhood streets, within public parks, and along roadways. This committee also identified locations, established priorities, and timelines for the removal of ash trees.

A third invasive of immediate concern to Vermont is the Asian Longhorned Beetle (*Anoplophora glabripennis*) (ALB) which attacks and kills maple trees. Vermont is famous for its maple syrup and is the largest producer of maple products in the United States. Widespread loss of maple trees could result in the collapse of this iconic industry and a severe impact to the state's economy.

Other invasives include Purple Loosestrife, Japanese Knotweed, Rock Snot and many others which all have a detrimental impact on the state's native populations and the state's ecological balance.

The most noticeable impact of invasives in Vermont began when a load of elm lumber was imported into this country from Europe in the early 1900s. Embedded in this load were spores of what we now call Dutch elm disease. At the time, the elm was the most popular street tree in the US due to its hardiness in many

types of conditions. The loss of these trees which were liberally planted as shade trees in many village greens and along roadsides had an extreme impact both aesthetically and due to the loss of shade, in the overall use of electricity in summer months. Now, elms are uncommon in most of the northeast and the disease continues to spread westward.

Other examples include the importation of gypsy moth in an attempt to create locally grown silk, the spread of zebra mussels which threaten water intakes on infested water bodies and the unintentional importation of the Norway Rat in ships holds with early colonists. Each of these has had its own impacts on the economy and ecological stability of the US and Vermont.

Hazard Extent: The extent of impact can vary from localized infestations to widespread ecological disruption. Damages range from skin blistering and scarring in the case of poison parsnip, to the devastating effect the Asian Longhorn Beetle (ALB) or Emerald Ash Borer (EAB) could have on Grafton's Forest products industry and village landscape**.**

Hazard Location: All ecosystems in Graftonl, including forests, wetlands, agricultural lands, and waterways, are susceptible to invasion by non-native species.

Hazard History: are becoming a widespread problem throughout Grafton and the rest of Vermont. Damages range from skin blistering and scarring in the case of poison parsnip, to the devastating effect the Asian Longhorn Beetle (ALB) or Emerald Ash Borer (EAB) could have on Grafton's Forest products industry and village landscape**.**
The Grafton Hazard Mitigation Committee (GHMC) pointed out that much of the spread of unwanted invasive plants is along roadsides and has entered the town via state highways. Flying insect invasives will be far more widespread due to the mobility of these pests and could strike anywhere in the community where their hosts live (Ash for Emerald Ash Borer and Maple for Asian Longhorned Beetle). From small woodlots to large-tract forests, all forested land is susceptible.

Hazard Vulnerability: Grafton is extremely vulnerable to the economic impacts of invasives and is limited in its ability to combat their spread. The community does what it can but is highly dependent on State and Federal agencies to slow down the spread of invasives. With a local economy highly focused on the forests and forest products, the community is highly at risk. From the 2023 State Hazard Mitigation Plan, "A compounding hazard can impact the occurrence of other hazards days, weeks, or months later. Invasive species and extreme heat are two hazards which have been noted to cause major compounding and cross-cutting impacts. Invasive species can accelerate the frequency of landslides, wildfires, and infectious disease outbreaks."

People: People may be injured or made ill by invasive species events (e.g., blisters from poison parsnip

Built environment: Invasive species may cause overgrowth or damage to various built environments, such as, powerlines and culverts. The damage can be minor to catastrophic.

Natural environment: Invasive species can wipe out an entire local ecosystem, causing complete devastation to the local natural environment. Bodies of water may become uninhabitable, and forests can see complete devastation.

Economy: Invasive species can impact the tourism industry with the closure of outdoor recreation trails.

Potential Future Impacts: With an increasing global economy, new and unknown invasives are sure to be imported from other countries in the future. In recognition of the inevitable spread of EAB and ALB into Vermont, trapping is being conducted by foresters and biologists along the border areas of Vermont. ALB is expected in Vermont within the next few years and damage caused by their spread is already anticipated by the Vermont Agency of Natural Resources. EAB was reported in the State of Vermont for the first time in early 2018 and State plans have been put into action.

Climate Change: Warmer temperatures and altered precipitation patterns can create more favorable conditions for invasive species to thrive and expand their range. Species that were previously limited by cold temperatures may be able to establish populations in new areas, including higher elevations and latitudes. Climate change can influence the distribution and abundance of vectors (e.g., mosquitoes, ticks) that transmit invasive species and vector-borne diseases. Warmer temperatures and changes in precipitation patterns can expand the geographic range of these vectors, increasing the risk of invasive species introductions and disease transmission. Invasive species themselves can contribute to climate change through various mechanisms, such as altering carbon cycling, disrupting ecosystem services, and promoting changes in land cover and vegetation dynamics. These feedback loops can further exacerbate the impacts of climate change on ecosystems.

Change in Land Use/Development: Increased recreational use or development in forest reserve districts can lead to habitat modification, fragmentation of natural habitats, altered disturbance regimes, changes in hydrology and drainage and loss of native biodiversity.

Change in Demographics: Grafton's population demographics are not expected to change significantly in the next five years, though an increase in the average age of the population may increase the vulnerabilities of the population.

Drought

Hazard Description: Taking from the 2023 State Hazard Mitigation Plan, "Drought is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area (NOAA National Weather Service) or a period of abnormally dry weather sufficiently long enough to cause a serious hydrological imbalance (American Meteorological Society)."

Droughts in the Northeast tend to be, what are referred to as "flash" droughts, defined as rapid onset of intense dry periods that can follow periods of normal or above normal precipitation. These may last from 2-6 months, and can have profound impacts within the region, on agricultural losses, shortages of water supply and very low stream flows. This pendulum often swings from a dry year to a wet year.

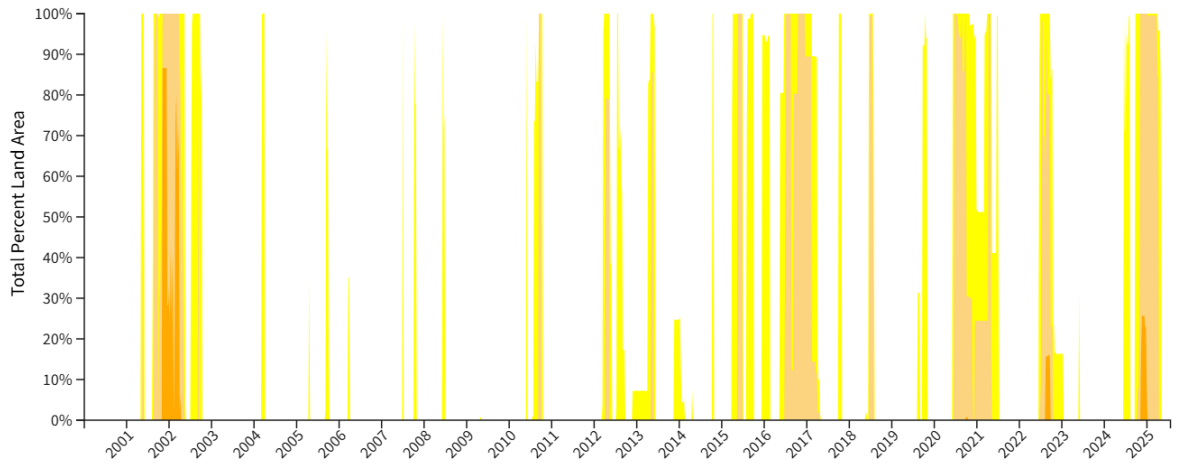
Hazard Extent: Droughts can affect large geographic regions, including urban and rural areas, agricultural lands, forests, and waterways. Drought severity is often categorized based on indicators such as precipitation deficits, soil moisture levels, streamflow, and water storage reservoir levels. Severe droughts can lead to significant water shortages, ecological disturbances, and socio-economic impacts. Severe droughts can result in reduced water availability for drinking, irrigation, and industrial uses, leading to economic losses, environmental degradation, and social disruption.

Hazard Location: All areas of Grafton, Windham County and the State are susceptible to drought events.

Hazard History: There have been 4 instances of D2 (Severe Drought) level droughts in southern Windham County Vt since 2000. Two in the Fall of 2022 and two in 2024, all of them lasting around a month. Even though there is a level of risk to the Town, the committee chose not to detail the hazard any further or identify any mitigation measures other than identified in the category of all hazards.

Historical Conditions for Windham County

2000–Present | 1895–Present | 0 –2017



Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures Coming out of drought: some lingering water deficits pastures or crops not fully recovered
D1	Moderate Drought	Some damage to crops, pastures Streams, reservoirs, or wells low, some water shortages developing or imminent Voluntary water-use restrictions requested
D2	Severe Drought	Crop or pasture losses likely Water shortages common Water restrictions imposed
D3	Extreme Drought	Major crop/pasture losses Widespread water shortages or restrictions
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses Shortages of water in reservoirs, streams, and wells creating water emergencies

Town Vulnerability:

People: Droughts can cause issues to homeowner's wells, leading to compromised drinking water, which could result in health issues.

Built environment: Droughts are not likely to cause new well or replace well parts.

Natural environment: Droughts can cause minor to catastrophic issues for the natural environment. Local wild plants and crops may be lost during a prolonged drought event.

Additionally, a drought can lead to streams and groundwater being depleted, which impacts wild and domesticated animals.

Economy: Droughts can impact the tourism industry, with depleted streams or areas for water activity. Additionally, droughts may impact 'leaf peeping season.'

Potential Future Impacts:

Climate Change: Climate change has the potential to increase extreme heat occurrences, therefore there is an increased likelihood of future drought events, both in frequency and magnitude.

Change in Land Use/Development: No changes to asset impacts due to drought events because of development or land use changes could be identified.

Change in Demographics: Grafton's population demographics are not expected to change significantly in the next five years, though an increase in the average age of the population may increase the vulnerabilities of the population.

Heat

Hazard Description: Heat hazards result from prolonged periods of high temperatures, often accompanied by high humidity levels. Heatwaves can pose significant risks to human health, infrastructure, agriculture, and ecosystems. Heatwaves are characterized by extended periods of unusually hot weather, with daytime temperatures exceeding normal seasonal averages and limited relief during the nighttime hours.

Consecutive days of hot weather with warm overnight temperatures further increase the risk of experiencing severe heat-related health impacts. Risk also depends on the "normal" level of heat experienced in an area – places that are relatively cooler will typically experience health impacts at lower heat index values than a place that is relatively warmer.

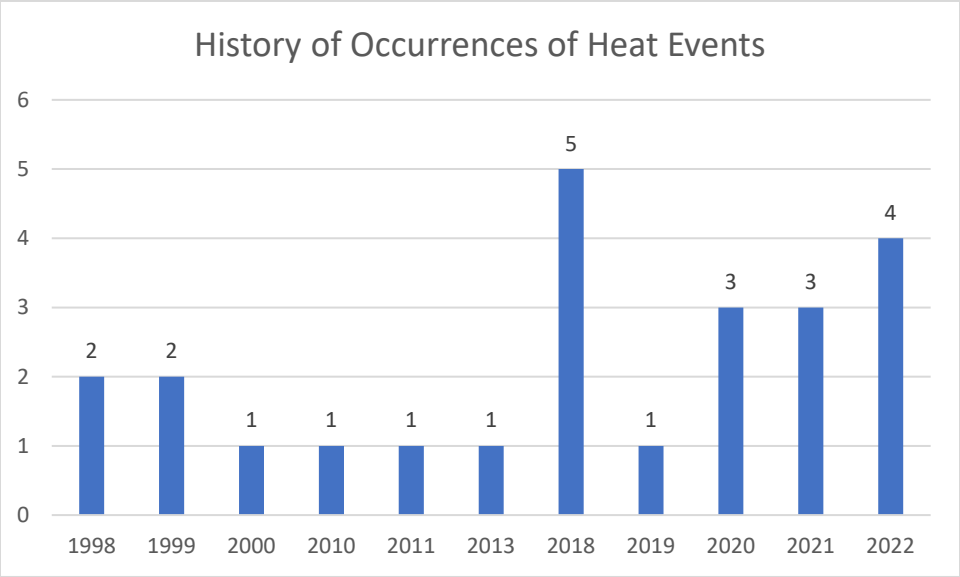
Hazard Extent: Heat advisories, watches, and warnings are issued by the National Weather Service and local authorities to alert residents to the risks of impending heatwaves. Grafton may experience a heat advisory, watch of warning, however given historical data, it's likely that Grafton would be issued with a heat advisory.

Epidemiological analyses completed by the Vermont Department of Health indicate that Vermonters are five times as likely to visit the emergency department for heat-related illnesses when the heat index reaches the 80s, 10 times as likely when the heat index reaches the low 90s, and over 20 times as likely when the heat index reaches the upper 90s or hotter. These risks are greatly modified by how acclimated a person is to hot weather – the risk for heat-related health impacts is higher early in the heat season, and lower if it has been consistently hot over the past week or more.

Hazard Location: All areas of Grafton, Windham County and statewide are susceptible to extreme heat events.

Hazard History: Consecutive days of hot weather with warm overnight temperatures further increase the risk of experiencing severe heat-related health impacts. Risk also depends on the "normal" level of heat experienced in an area – places that are relatively cooler will typically experience health impacts at lower heat index values than a place that is relatively warmer. June of 2024, Vermont saw forecasted heat index of 102. Below is the chart for the 19-heat related listing from the SHMP of 2023.

Table 8 - History of Heat Events in Windham County



Town Vulnerability:

People: Older adults, people with chronic health conditions, and people with disabilities are at particularly high risk, especially if they live in housing without air conditioning or are unhoused and cannot access cooling facilities and other support resources. The unhoused may not be or feel welcomed at cooling centers, sleep in hot tents, and carry heavy loads of their possessions in the heat. There is increasing risk to multiday heat events in Grafton with a greater increase in heat warning. With there being at least 1 multiday heat advisory on average per year.

Built environment: Heat events can cause a strain on the town's electrical system, leading to brown or blackout events.

Natural environment: Heat events can increase the occurrences of droughts and wildfires.

Economy: Heat events can cause economic impacts to the town. Impacts include disruption or closure of impacted businesses and the costs to operate a cooling shelter.

Potential Future Impacts: Heat warnings are becoming increasingly more prevalent due to our shifting climate. Vermont has been seeing an increase in 90+ degree temperature days. This trend is expected to continue. Most of our housing stock and individuals are well adapted to dealing with cold temperatures, but the quick swings to higher temperatures do not allow for acclimation, and many of our structures are designed to retain, rather than shed, heat.

Climate Change: Climate change has the potential to increase extreme heat occurrences, therefore there is an increased likelihood of future drought events, both in frequency and magnitude.

Change in Land Use/Development: No changes to asset impacts due to extreme heat and drought events because of development or land use changes could be identified.

Change in Demographics: Grafton's population demographics are not expected to change significantly in the next five years, though an increase in the average age of the population may increase the vulnerabilities of the population

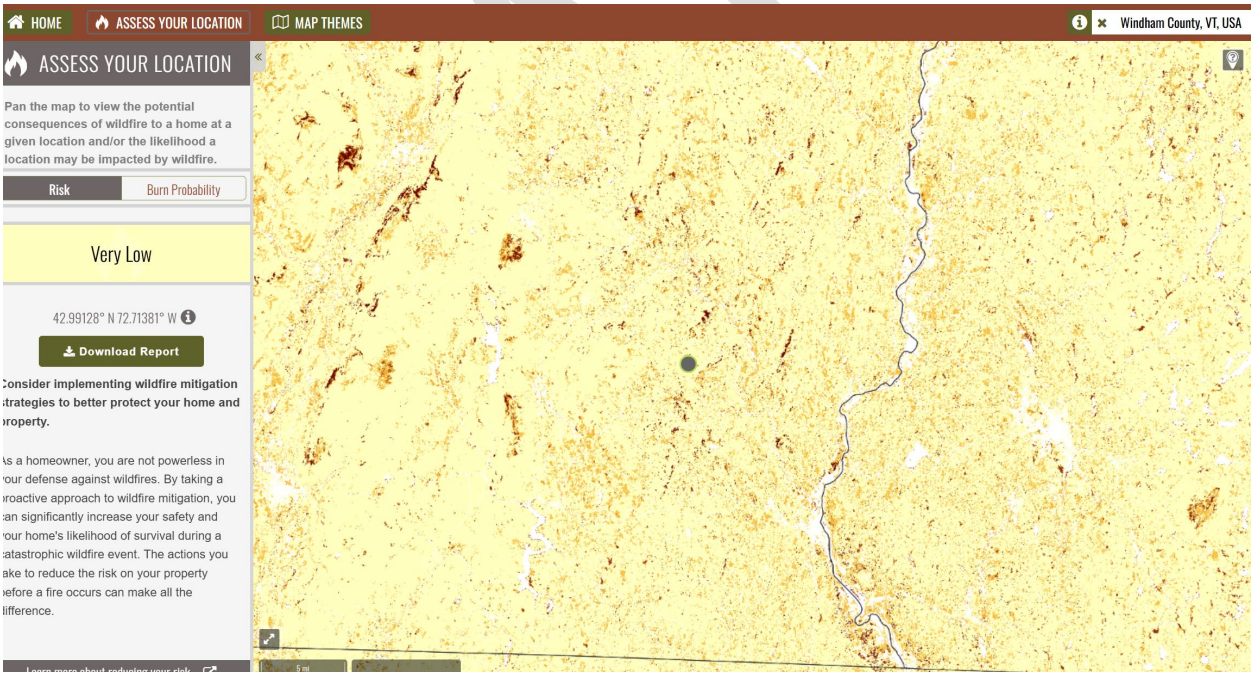
Wildfire

Hazard Description: Wildfires are uncontrolled fires in natural areas. While Grafton benefits from the relatively moist conditions of Northeastern forests, drought periods in spring and fall elevate wildfire risk. Leaf litter and dry brush in these seasons increase fuel load, and wind can cause rapid fire spread. Forest closures have occurred three times statewide in the past 50 years due to extreme fire risk.

Hazard Extent: Wildfires in Vermont can spread quickly through dense forests, particularly in dry conditions. Wildfires can last from several hours to several days depending on conditions and response efforts. There is a higher risk of wildfires during late spring, summer, and early fall when vegetation is driest. The National Weather Service (NWS) issues a "Red Flag Warning" when conditions are conducive for wildfires. A Red Flag Warning means warm temperatures, very low humidities, and stronger winds are expected to combine to produce an increased risk of fire danger.

Hazard Location: Throughout Grafton, there are large tracks of forested land in the southwest portion of Town that could be at risk during sustained dry periods. times when dry hazardous conditions exist.

Hazard History: There have only been small, isolated wildfires within the last 50 years within Windham County, but statewide closures of public lands have occurred three times in that period of time due to extreme fire danger. Extent Due to a lack of recent historical occurrences, extent data is unavailable for Grafton.



Hazard History: No major fires reported in Grafton in the last 50 years, but statewide closures of public lands have occurred three times in that period of time due to extreme fire danger.

Probability of Future Events and Impacts

Wildfire events in Grafton are considered Occasional in Grafton, defined as a 1% to 10% probability of occurrence per year, or at least one chance in the next 100 years. Although Grafton has not experienced

major wildfire events recently, increasing periods of drought and regional trends in fire weather raise the likelihood.

Expected townwide intensities range from: Small ground fires during dry leaf-litter seasons to potential moderate canopy fires during extended drought conditions.

With climate variability and predicted increases in dry weather during spring and fall, wildfire probability is expected to rise. Extended droughts may increase the frequency and intensity of future events, especially given the dense forest cover and topography.

> **Climate Change:** Climate change has the potential to increase the frequency and intensity of wildfires due to rising temperatures and changing precipitation patterns.
> **Change in Land Use/Development:** Development within the Forest Reserve District could increase assets vulnerable to wildfire, however no known development is anticipated.
> **Change in Demographics:** Grafton's population demographics are not expected to change significantly in the next five years, though an increase in the average age of the population may increase the vulnerabilities of the population.

Town Vulnerability

People: Wildfire events can cause injuries or fatalities to people who do not evacuate in time. Delayed evacuation can be caused by no-noticed events, or by individuals who do not heed the warning. The elderly, the homeless, residents with special needs and those without proper transportation may potentially be impacted more than other residents.
Built environment: Wildfire events can cause damage to town and private property, including buildings (burn damage), blocked egress routes, blocked evacuation routes, and loss of electrical power.
Natural environment: Wildfire events can cause damage to the environment with acres of forests and farmlands being burned.
Economy: Wildfire events can cause economic impacts to the town. Impacts include disruption or closure of impacted businesses, and recovery costs, including employee overtime, time and equipment spent on the repairs.

Mitigation Measures

- Continue tree trimming and debris clearing on town rights-of-way.
- Encourage defensible space around structures.
- Provide community wildfire education via Conservation Commission events.
- Train the fire department on forest fire response.
- Monitor drought and fire risk via Vermont's Fire Danger Rating system.

Infectious Disease

Hazard Description: Infectious disease outbreaks refer to the occurrence of cases of disease more than what is normally expected in a population or geographic area. These diseases are typically caused by bacteria, viruses, fungi, or parasites.

Hazard Extent: Outbreaks can last from days to years, influenced by factors such as the nature of the pathogen, public health response, and population immunity. Some diseases have seasonal patterns (e.g., influenza in winter, vector-borne diseases in warmer months).

Hazard Location: Infectious disease outbreaks can occur anywhere in Grafton. Recently, Grafton, as did the entire United States, saw direct impacts from the COVID-19 pandemic.

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: People with disabilities, access and functional needs may be most vulnerable to disease outbreak events. A disease outbreak event can impact any person.

Built environment: A disease outbreak can cause a strain on local health care facilities. Additionally, facilities may need to be modified to respond to the crisis (e.g., school turned into a triage center).

Natural environment: Infectious disease outbreak events can originate from local environments (e.g., farms, lakes, etc.) and mitigative measures may need to be taken to prevent future spread (e.g., treatment of a body of water).

Economy: Infectious disease outbreak events can cause economic impacts to the town. Impacts include disruption or closure of impacted businesses, and costs to operate immunization clinics.

Potential Future Impacts:

Climate Change: Climate change has the potential to increase the frequency and intensity of disease outbreak events through various mechanisms. Temperature changes may increase vector-borne disease and pathogen survival. Extreme weather events (e.g., hurricanes) can disrupt infrastructure, leading to breakdowns in sanitation, clean water supply, and healthcare services. Climate-induced displacement and migration can lead to overcrowded living conditions, which can facilitate the spread of infectious diseases.

Change in Land

Use/Development: No changes to asset impacts due to infectious disease outbreak events because of development or land use changes could be identified.

Change in Demographics: Grafton's population demographics are not expected to change significantly in the next five years, though an increase in the average age of the population may increase the vulnerabilities of the population.

Wind

Hazard Description: High Winds can be generated from a thunderstorm, hurricane or tropical depression, a localized microburst, or simply just a windstorm. Any of these events can produce wind gusts up to 50 mph or greater causing property damage and disruption in electric and telecommunication utilities,

transportation, and commercial businesses. Although difficult to predict, these events also pose a high risk of injuries and loss of life.

National Weather Service warnings include:

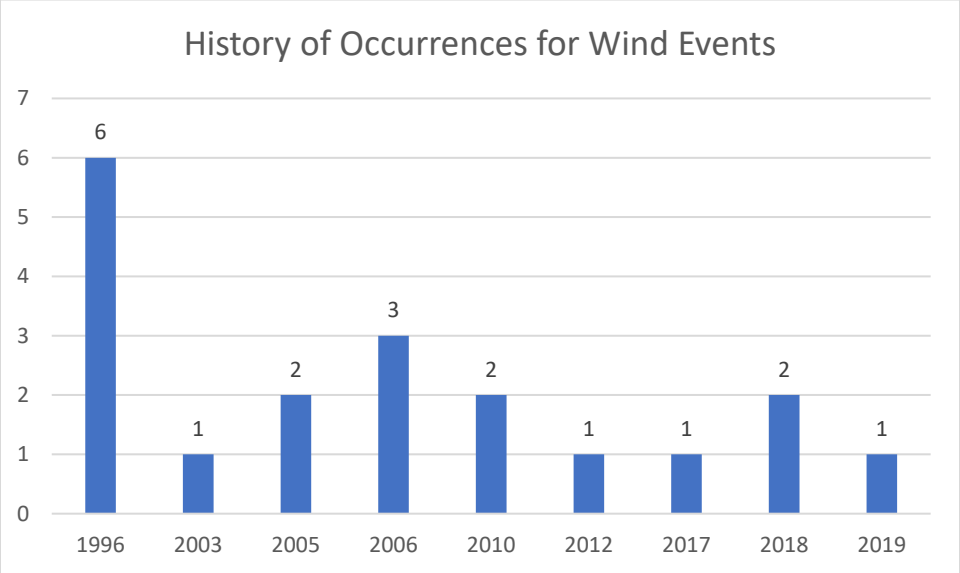
- High Wind Warning: Take Action! Sustained, strong winds with even stronger gusts are happening. Seek shelter. If you are driving, keep both hands on the wheel and slow down.
- High Wind Watch: Be Prepared! Sustained, strong winds are possible. Secure loose outdoor items and adjust plans as necessary so you're not caught outside.
- Wind Advisory: Take Action! Strong winds are occurring but are not so strong as to warrant a High Wind Warning. Objects that are outdoors should be secured and caution should be taken if driving.

Hazard Location: Townwide. Heavily tree-lined roads. Buildings that are surrounded by trees. Power lines are located near tree lines.

Hazard Extent: 19 wind events in Windham County have been recorded since 2000, which typically range from 40 to 60 mph. With one recorded event in 2006, where Stratton Mountain Ski Resort personnel recorded a wind gust of 143mph.

Hazard History: According to the 2023 VSHMP there were 19 recorded events in Windham County from 1997 – 2002 totaling $268,000 in damage, along with a few tornado events, none of which affected the Town of Grafton.

Table 9 - History of Wind Events in Windham County



Probability of Future Events and Potential Impacts

While many other regions have been experiencing an increased frequency of microbursts, straight line winds and reported tornadoes, Windham County has stayed consistent with wind events. The severity of all types of weather events usually comes with a component of high winds. However, climate change predictions would indicate that this type of wind event will potentially increase over the next few decades.

Climate Change: Climate change has significant effects on weather patterns and atmospheric dynamics, which in turn influence wind events. These changes can alter the frequency, intensity, and geographic distribution of wind-related hazards.
Change in Land Use/Development: No changes to asset impacts due to wind events as a result of development or land use changes could be identified.
Change in Demographics: Grafton's population demographics are not expected to change significantly in the next five years, though an increase in the average age of the population may increase the vulnerabilities of the population.

Town Vulnerability
People: Wind events can cause injuries or fatalities to people who do not shelter-in-place in time, or who do not have adequate shelter. Delayed sheltering-in-place can be caused by no-noticed events, or by individuals who do not heed the warning. The elderly, the homeless, residents with special needs and those without proper transportation may potentially be impacted more than other residents. Emergency operations may be disrupted due to blocked roads.
Built environment: Wind events can cause damage to town and private property, including buildings (windows and roofs), downed road signs, utility poles and power lines and overturned vehicles. Roads may become impassable. Power outages can occur from downed trees. Older buildings' roofs may be vulnerable.
Natural environment: Wind events can cause damage to the environment with downed trees, and uprooted trees and plants.
Economy: Wind events can cause major economic impacts to the town. Impacts include disruption or closure of impacted businesses, homelessness due to house damage, and recovery costs, including employee overtime, time and equipment spent on the repairs.

Mitigation Measures
- Keep limbs and trees trimmed around power lines and buildings.
- Continue to partner with Green Mountain Power on alternative power initiatives.
- Continue upgrading the roofing.
- Promote backup power options.

Landslide/slope failure

Hazard Description: A landslide is the sliding of a large mass of rock, earth, or debris, down a sloped section of land. Landslides can be caused by rainstorms, fires, alternate freezing or thawing and/or by the steepening of slopes by erosion or human modification. In Grafton, landslides tend to occur or are exacerbated by fluvial erosion as most of the landslides occur on or near a stream bank, or during extreme wet conditions in areas of clay substrate.

Landslides have three major causes: geology, morphology, and human activity. Geology refers to characteristics of the material itself. The earth or rock might be weak or fractured, or different layers may have different strengths and stiffness.

Morphology refers to the structure of the land. For example, slopes that lose their vegetation to fire or drought are more vulnerable to landslides. Vegetation holds soil in place, and without the root systems of trees, bushes, and other plants, the land is more likely to slide away. Human activity, such as

agriculture and construction, can increase the risk of a landslide. Irrigation, deforestation, excavation, and water leakage are some of the common activities that can help destabilize, or weaken, a slope.

Hazard Location, Extent and History: The Town of Grafton has 6 landslide locations within the town that occurred in the 2008-2009 time frame, as listed on the Vermont Agency of Natural Resources Landslide map that was last updated in 2020. However, only two appear in the map along streams.

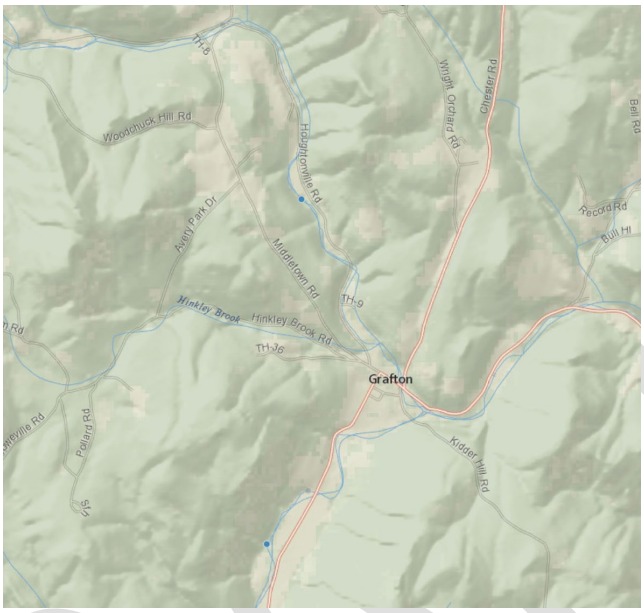


Figure 5 - VTANR Landslide Locations

Total damages for landslides are not tracked well within the State of Vermont since often landslides are in association with Fluvial Erosion the damages are often lumped together there. With the increase in precipitation trends due to climate change the risk from landslides is increasing. This can be addressed through land use regulations and mitigation of surface runoff from human actions and development. Historically landslides in Grafton have been small at ~0.2 of an acre or less.

Town Vulnerability:

People: Residents living in or near steep slopes may face increased risks of property damage and loss of life. Landslides can impact hikers and other people engaged in outdoor recreation.

Built environment: Transportation networks, utilities, buildings, and critical infrastructure located in landslide-prone areas may be exposed to damage or disruption during landslide events.

Natural environment: Landslides can have ecological impacts, including habitat destruction, soil erosion, sedimentation of waterways, and loss of biodiversity in affected areas.

Economy: Landslides can damage or destroy buildings, roads, bridges, utilities, and other infrastructure in their path, leading to economic losses and disruption of services.

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 as a result of development or land use changes could be identified.

Change in Demographics: Grafton's population demographics are not expected to change significantly in the next five years, though an increase in the average age of the population may increase the vulnerabilities of the population.

The Hazard Identification and Risk Assessment is the foundation for the Mitigation Strategy to reduce future risk.

1. Law Enforcement 2. Fire Service 3. Search & Rescue 4. Government Service 5. Community Safety	1. Highway/Road/Motor Vehicle 2. Mass Transit 3. Railway 4. Aviation 5. Maritime	1. Medical Care 2. Public Health 3. Patient Movement 4. Medical Supply Chain 5. Fatality Management	1. Infrastructure 2. Responder Communications 3. Alerts, Warnings, & Messages 4. Finance 5. 911 & Dispatch

1. Food
2. Water
3. Shelter
4. Agriculture

1. Power Grid
2. Fuel

1. Facilities HAZMAT, Pollutants, Contaminants

Community Capabilities

Each community has a unique set of capabilities, including authorities, programs, staff, funding, and other resources available to accomplish mitigation and reduce long-term vulnerability. Grafton's

mitigation capabilities that reduce hazard impacts or that could be used to implement hazard mitigation activities are listed below.

Administrative and Technical

This capability refers to the Town's staff and their skills and tools that can be used for mitigation planning and to implement actions. In addition to the Emergency Management staff described in Section 3, municipal staff that can be used for mitigation planning and to implement specific mitigation actions include: Town Administrator, Town Treasurer, Town Clerk, Assistant Town Clerk, and Administrative Officer. The Selectboard acts as the Road Commissioner. Grafton also has a 4-person road crew which includes a working Road Foreman.

In addition to paid staff, there is a 5-member Selectboard, 5-member Planning Commission, Fire Warden, Town Health Officer, and Constable.

To augment local resources, the Town has formal mutual aid agreements for emergency response – fire and public works. Technical support is available through the WRC in the areas of land use planning, emergency management, transportation, GIS mapping, and grant writing. Technical support is also available through the State ANR for floodplain bylaw administration and VTrans Districts for hydraulic analyses.

Strengths community with a family atmosphere committed small core of volunteers involved in several committees and groups strong interdepartmental communication and cooperation

Areas for Improvement potential candidates for volunteering are limited and a small pool of volunteers creates burnout and limited time commitments. Communications need to be improved.

Planning and Regulatory

These capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Examples of planning capabilities that can either enable or inhibit mitigation include land use plans, capital improvement programs, transportation plans, stormwater management plans, disaster recovery and reconstruction plans, and emergency preparedness and response plans. Examples of regulatory capabilities include the enforcement of zoning ordinances, subdivision regulations, and building codes that regulate how and where land is developed, and structures are built.

Town Plan: 2020-2028
Description: A framework and guide for how future growth and development should proceed.

Relationship to Natural Hazard Mitigation Planning: Includes goals and policies related to flood resilience and land use.

Subdivision Regulation: January 2009 Revised March 2020
Description: Provides for orderly community growth promoting the health, safety, and general welfare of the community.

Relationship to Natural Hazard Mitigation Planning: Establish site plan review requirements and areas, including water pollution into rivers and streams along with runoff and erosion regulation compliance. Requirements are designed to prevent overdevelopment; to mitigate negative impacts to the natural and human environment; minimize effects to the historical and aesthetic character of the community.

Flood Damage Prevention Regulations: August 2007 Revised March 2020
Description: Provides for orderly community growth promoting the health, safety, and general welfare of the community.

Relationship to Natural Hazard Mitigation Planning: Establish site plan review requirements and areas, including Flood Hazard and River Corridor Overlay Districts, with specific standards for proposed development. Ensure design and construction of development in flood and other hazard areas are accomplished in a manner that minimizes or eliminates the potential for flood loss or damage to life and property.

Road and Bridge Standards: July 2019
Description: Provide minimum codes and standards for construction, repair, and maintenance of town roads and bridges.

Relationship to Natural Hazard Mitigation Planning: Standards include management practices and are designed to ensure travel safety, minimize damage to road infrastructure during flood events, and enhance water quality protections.

Road Erosion Inventory Report: 2017
Description: Prioritizes those infrastructure projects necessary to improve transportation network resiliency and water quality.

Relationship to Natural Hazard Mitigation Planning: Improvements are designed to minimize or eliminate flood impacts on hydrologically connected road segments.

Local Emergency Management Plan: April 2024
Description: Establishes lines of responsibility and procedures to be implemented during a disaster and identifies high risk populations, hazard sites, and available resources.

Relationship to Natural Hazard Mitigation Planning: Includes actions for tracking events and response actions including damage reports to facilitate funding requests during recovery. This type of information can be essential to preparing hazard mitigation applications for FEMA funding.

Strengths plans and regulations in place are being executed; keep plans and regulations up to date strong local partners in implementing plans; ensure plans are integrated appropriately. LEMP and Roads and Bridge Standard are updated annually
Areas for Improvement policies and ordinances could be looked at more frequently and evaluated for ways to integrate more

Financial
These capabilities are the resources that a community has access to or is eligible to use to fund mitigation actions.

Grafton's 2024 Budget is $1,340,201 total budget, with $847,086 for the Highway Department for operating expenses and retreatment of roads. The Capital Budget is $200,000 for equipment, culverts, buildings, computers, etc. Grafton also applies for grants when they are made available, primarily from VTrans.

Strengths well-funded budgets; line item budget including capital improvement

Areas for Improvement Increase Grant applications

Education and Outreach
Grafton has several outreach and education opportunities that could be used to implement mitigation activities and communicate hazard-related information:

Information is put out during Town Meeting Day such as Windham Regional Planning Commission providing flyers. There is a calendar on the Town's website, postings at the Town Office, Facebook page and public library, the Grafton News, and the town also utilizes VT-Alert when necessary.

Grafton Promotional Association and town officials are always available and reachable for discussions or to answer questions.

Strengths multiple programs/organizations are already in place in the community particularly strong online and social media presence

Areas for Improvement Utilize VT-Alert more frequently to inform the residents of activities such as road work in order to become more familiar and outreach through nonprofits such as Grafton Cares.

National Flood Insurance Program
Grafton currently participates in the NFIP program and will continue to regulate floodplain use through the Grafton Flood Damage and Prevention Regulations (adopted in May 2007 and to be updated during this 5-year Hazard Mitigation planning period). The town has adopted the FEMA floodplain maps (last amended by FEMA in 2007).

Continued enforcement of these regulations by the Grafton Administrative Officer will maintain Grafton's compliance with the NFIP. The Administrative Officer is charged with implementing these regulations and, in concert with the Development Review Board, advising residents on floodplain development.

These resources help to reduce damage to existing buildings and new development, town infrastructure, and critical facilities by encouraging or regulating development location, building design, environmental conservation, and best management practices to reduce flooding and erosion.

According to the VT ERAF report, 55 buildings are in the Special Flood Hazard Area; mostly single family dwellings and manufactured homes

According to FEMA, 9% of these properties have flood insurance.

According to FEMA NFIP Multiple Loss Properties there are 0 repetitive loss properties in Grafton

Grafton's regulations outline detailed minimum standards in the Flood Damage and Prevention Regulations for development in flood hazard areas defined as FEMA Special Flood Hazard Areas and Floodway Areas according to "10 V.S.A. Chapter 32 and in accord with the Vermont Planning and

Development Act, Act 24 V.S.A., Chapter 117 Section 4424, 4411, and 4414, there are hereby established zoning regulation for areas of special flood hazard". The regulations also require administering Substantial Improvement and Substantial Damage (SI/SD) requirements in accordance with FEMA P-758 SI/SD Desk Reference, May 2010: in accordance with 24 V.S.A. § 1972 and 24 V.S.A. § 4461 and shall be used to determine the appropriate development standards for repair and rebuilding.

The Town discussed the following as possible actions to continue NFIP compliance:
1) Prepare, distribute, or make available NFIP insurance explanatory pamphlets or booklets.
2) Participate in NFIP training offered by the State and/or FEMA.
3) Establish mutual aid agreements with neighboring communities to address administering the NFIP following a major storm.

State Incentives for Flood Mitigation

Vermont's Emergency Relief Assistance Funding (ERAF) provides state funding to match FEMA Public Assistance after federally declared disasters. Eligible public costs are generally reimbursed by FEMA at 75% with a 7.5% State match. The State will increase its match to 12.5% or 17.5% if communities take steps to reduce flood risk as described below.
12.5% funding for communities that have adopted four (4) mitigation measures:
1) NFIP participation;
2) Town Road and Bridge Standards;
3) Local Emergency Plan; and
4) Local Hazard Mitigation Plan.

17.5% funding for communities that also participate in FEMA's Community Rating System OR adopt Fluvial Erosion Hazard or other river corridor protection bylaw that meets or exceeds the Vermont ANR model regulations.

Grafton's current ERAF rate is 12.5%. Upon adoption of the 2024 Local Hazard Mitigation Plan, ERAF Rate Actions 1-4 will be up to date and therefore their ERAF rate will remain at 12.5%.

Mitigation Action Identification

The Hazard Mitigation Planning Team discussed the mitigation strategy, reviewed projects from the 2017 Plan, and identified possible new actions from the following categories for each of the highest risk natural hazards identified in Section 5.

Local Plans & Regulations These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.

Structure & Infrastructure Projects These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This applies to public or private structures as well as critical facilities.

Natural Systems Protection These actions minimize damage and losses and preserve or restore the functions of natural systems.

Outreach & Education Programs These actions inform and educate the public about hazards and potential ways to mitigate them. Although this type of action reduces risk less directly than structure projects or

regulation, it is an important foundation. Greater awareness is more likely to lead to community support for direct actions.

Local Plans & Regulations Examples

Integrate Mitigation into Capital Improvement Programs: Incorporate risk assessment and hazard mitigation principles into capital planning.

Reduce Impacts to Roadways: The leading cause of death and injury during winter storms is automobile accidents, so it is important to plan for and maintain adequate road and debris clearing capabilities.

Develop a Road Right-of-Way Vegetation Management Plan: Identify community priorities and plan of action for site-specific tree and roadside forest management to increase roadside resilience.

Improve Flood Resilience with a Flood Study: The aim of a flood study is to define existing flood behavior for a particular catchment, river, or creek. The study helps inform building, land use planning, community awareness and disaster management.

Improve Stormwater Management Planning: Rain and snowmelt can cause flooding and erosion in developed areas. A community-wide stormwater management plan can address stormwater runoff-related flooding.

Manage Development in Erosion Hazard Areas: The intent of River Corridor Bylaws is to allow for wise use of property within river corridors that minimizes potential damage to existing structures and development from flood-related erosion.

Structure & Infrastructure Project Examples

Protect Power Lines: Protect power lines by 1) inspecting and maintaining hazardous trees in the road right-of-way and 2) burying power lines.

Protect Critical Roadways: Use snow fences or living snow fences (e.g., rows of trees) to limit blowing and drifting of snow.

Retrofit Critical Facilities: Critical facilities can be protected from the impacts of high winds and winter storms by 1) retrofitting them to strengthen structural frames to withstand wind and snow loads; 2) anchoring roof-mounted mechanical equipment; and 3) installing back-up generators or quick connect wiring for a portable generator.

Remove Existing Structures from Flood Hazard Areas: FEMA policy encourages the removal of structures from flood-prone areas to minimize future flood losses and preserve lands subject to repetitive flooding.

Improve Stormwater Drainage Capacity: Minimize flooding and fluvial erosion by 1) increasing drainage/absorption capacities with green stormwater management practices; 2) increasing dimensions of undersized drainage culverts in flood-prone areas; 3) stabilizing outfalls with riprap and other slope stabilization techniques; and 4) re-establishing roadside ditches.

Conduct Regular Maintenance for Drainage Systems: Help drainage systems and flood control structures function properly with 1) routine cleaning and repair; 2) cleaning debris from support bracing underneath low-lying bridges; and 3) inspecting bridges and identifying if any repairs are needed to maintain integrity or prevent scour.

Protect Infrastructure and Critical Facilities: Minimize infrastructure losses and protect critical facilities from flooding by 1) elevating roads above base flood elevation to maintain dry access; 2) armoring streambanks near roadways to prevent washouts; 3) rerouting a stream away from a vulnerable roadway; and 4) floodproofing facilities.

Natural Systems Protection Examples

Protect and Restore Natural Flood Mitigation Features: Natural conditions can provide floodplain protection, riparian buffers, groundwater infiltration, and other ecosystem services that mitigate flooding. Preserving such functionality is important. Examples include 1) adding riparian buffers; 2) stabilizing stream banks; 3) removing berms; 4) minimizing impervious area development; 5) restore floodplain; and 6) restore incision areas.

Outreach & Education Program Examples

Educate Residents about Extreme Winter Weather: Winter storms create a higher risk of car accidents, hypothermia, frostbite, carbon monoxide poisoning, and heart attacks from overexertion. Educational outreach can help minimize these risks.

Assist Vulnerable Populations: Measures can be taken to protect vulnerable populations from natural hazards, such as 1) organizing outreach and 2) establishing and promoting accessible heating or cooling centers in the community.

Mitigation Action Evaluation

After careful evaluation, the Planning Team agreed on a list of actions that support the Mitigation Goals of this Plan and are acceptable and practical for the community to implement.

Actions without overall public support/political will were not selected for implementation. Actions whose costs were not reasonable compared to probable benefits were also not selected.

For the selected actions, the Planning Team then 1) assigned a responsible party to lead the completion of each action; 2) identified potential grant funding; 3) defined a timeframe for implementation; and ranked each action's priority (high, medium, low).

Natural hazards pose a unique threat to the Town's vulnerable populations. Data has shown that underserved and marginalized populations tend to live in at-risk hazard-prone areas or in homes with substandard construction. The data also suggests that this segment of the community is less likely to fully recover after a disaster. When ranking an action's priority, those that directly benefit a vulnerable population were ranked high.

The action plan is presented in **Table 11**.

Table 10 - Mitigation Action Evaluation and Prioritization

	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
Local Plans & Regulations									
Recommended for Implementation									

Review new state flood plain regulations and ensure town regulations comply or exceed	1	1	1	1	1	1	6	1	Yes
Update Road Erosion (MRGP) inventory	1	1	1	1	1	1	6	1	Yes
Culvert Inventories - is maintained as there are improvements	1	1	1	1	1	1	6	1	Yes
Review and update subdivision regulation as needed	1	1	1	1	1	1	6	1	Yes
Capital plan to upgrade trucks from every 7 years to 5 years	1	1	1	1	1	1	6	1	Yes
Consider a drainage study assess to see if culvert from Ball Field to Saxtons River on Townshend Road should be removed or upgraded	1	1	1	1	1	1	6	1	Yes
Conduct monitoring and formal review of the LHMP in annual capital budgeting process and incorporate projects from this plan and keep residence informed of progress during Town Meeting Day	1	1	1	1	1	1	6	1	Yes
Review and Update Continuity Plans for Government and Operations	1	1	1	1	1	1	6	1	Yes
Maintain agreement to work with home health nurses, Grafton Cares and Meals on Wheels who work with "At-Risk Residents", that could provide information during an event	1	1	1	1	1	1	6	1	Yes
Consider developing a cost-effective inspection program for short term rental properties for fire and building safety standards to mitigate potential fire hazards and implement	1	1	1	1	1	1	6	1	Yes
Consider strengthening stormwater infiltration practices/recommendations for new development to improve flood resiliency and minimize erosion	1	1	1	1	1	1	6	1	Yes
Pursue funding for hydrology study and preliminary design to upgrade/retrofit beneath Townshend Rd on Howe Brook	1	1	1	1	1	1	6	1	Yes
Update LEMP to include line of communication annex	1	1	1	1	1	1	6	1	Yes
Not Recommended for Implementation									

Structure & Infrastructure Projects

Recommended for Implementation

Protect Power Lines and Roads by Inspecting and Removing Hazardous Trees in Road ROW	1	1	1	1	1	1	6	1	Yes
2 large culverts on Fisher Hill Rd #1 (#10 & #13)	1	1	1	1	1	1	6	3	Yes
1 large culvert on Stage Coach Rd	1	1	1	1	1	1	6	3	Yes
Replace Eastman Rd culvert (#13)	1	1	1	1	1	1	6	3	Yes
Replace Hinkley Brook 1 culvert (#33)	1	1	1	1	1	1	6	3	Yes
GMP Power company to install line redundancy and separate 3 phase power lines VT 121 east ,coming from Westminster	1	1	1	1	1	1	6	3	Yes
Upgrade/retrofit bridge #18 on Cabell Rd.	1	1	1	1	1	1	6	3	Yes
Continuing to Implement MRGP Plan each year on prioritized road segments as funding becomes available									
Continue to communicate with GMP on ongoing battery bank program for areas with numerous outages	1	1	1	1	1	1	6	1	Yes
Not Recommended for Implementation									
Natural Systems Protection									
Recommended for Implementation									
Research the feasibility of adopting the Community Rating System	1	1	1	1	1	1	6	1	Yes
Further investigate and prioritize long-term stream corridor protection in areas identified in RCP through passive restoration, such as easements and buffer restorations to reduce property loss from erosion and potentially improve floodplain access to reduce risk of flooding downstream.	1	1	1	1	1	1	6	1	Yes
Further investigate and proactively seek viable options and funding for conservation easements and buffer restoration to improve floodplain access; particularly in the Willie and Styles Brook area west of Townshend Rd. Riprap and berming have reduced floodplain access west of Townshend Rd. putting homes and the road at risk. Passive restoration is recommended to restore floodplain access.	1	1	1	1	1	1	6	1	Yes
Not Recommended for Implementation									
Outreach & Education Programs									

Recommended for Implementation									
Research the feasibility of adopting the Community Rating System	1	1	1	1	1	1	6	1	Yes
Identify property owners located within Special Flood Hazard Areas or River Corridor and develop an outreach plan to educate them on flood and erosion risks, mitigation ideas, local by-laws and NFIP.	1	1	1	1	1	1	6	1	Yes
Educate and Inform property owners of ways they can mitigate damage to their properties (from survey)	1	1	1	1	1	1	6	1	Yes
Not Recommended for Implementation									

Table 7 Evaluation Criteria:
Life Safety –Will the action be effective at protecting lives and preventing injuries?
Property Protection –Will the action be effective at eliminating or reducing damage to structures and infrastructure?
Technical – Is the action a long-term, technically feasible solution?
Political – Is there overall public support/political will for the action?
Administrative – Does the community have the administrative capacity to implement the action?
Other Community Objectives – Does the action advance other community objectives, such as capital improvements, economic development, benefit a vulnerable population, environmental quality, or open space preservation?
Rank each of the above criteria in Table 5 with a -1, 0, or 1 using the following table:
1 = Highly effective or feasible
0 = Neutral
-1 = Ineffective or not feasible
Estimated Cost – 1 = less than $50,000; 2 = $50,000 to $100,000; 3 = more than $100,000
C/B – Are the costs reasonable compared to the probable benefits? Yes or No

Mitigation

Table 11: Mitigation Action Plan

Review new state flood plain regulations and ensure town regulations comply or exceed: The Town will review new state flood plain model regulations and ensure town regulations comply or exceed according to 10 VSA 755

Addressed Hazards: Flooding
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security
Area of Impact: Town-wide flood hazard areas and river corridors
Lead Party: Floodplain Manager
Grant Funding Source: Town Administrative fund - VEM Grant if available
Partnerships: Planning Commission
Project Timeframe: 2028
Prioritization: High

Update Road Erosion Inventory (MRGP)

Addressed Hazards: Flooding

Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Town-wide flood hazard areas and river corridors
Lead Party: Highway Supervisor
Grant Funding Source: Highway fund/VTRANS Better Roads Grant
Partnerships:
Project Timeframe: 2027
Prioritization: High

Update Culvert Inventories

Addressed Hazards: Flooding
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Town-wide roads
Lead Party: Highway Supervisor
Grant Funding Source: Highway fund
Partnerships: WRC
Project Timeframe: Ongoing: maintained as there are improvements
Prioritization: High

Review and update subdivision regulation

Addressed Hazards: Flooding
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Food, Water, Shelter
Area of Impact: Town-wide
Lead Party: Administrative Officer
Grant Funding Source: Town General fund and volunteer time
Partnerships: Planning Commission Chair
Project Timeframe: 2030
Prioritization: Medium

Capital plans to upgrade trucks from every 7 years to 5 years

Addressed Hazards: Flooding; Ice; Snow; Wind; Landslide/slope failure
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Town-wide
Lead Party: Capital Budget Committee Chair (LEAD)/ Highway Supervisor
Grant Funding Source: Capital Budget Equipment Fund
Partnerships: Selectboard
Project Timeframe: 2025
Prioritization: Low

Consider a drainage study assessing if culvert from Ball Field to Saxtons River on Townshend Road should be removed or upgraded

Addressed Hazards: Floods
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Transportation

Area of Impact: Southern branch of Saxton's River corridor
Lead Party: Floodplain Manager
Grant Funding Source: Town Administrative/General fund and volunteer time
Partnerships: Planning Commission Chair/Highway Department
Project Timeframe: 2029
Prioritization: Medium

Conduct monitoring and formal review of the LHMP in annual capital budgeting process and incorporate projects from this plan and keep residence informed of progress during Town Meeting Day

Addressed Hazards: Flooding; Ice; Snow; Cold; Invasive Species; Drought; Heat; Wildfire; Infectious Disease; Wind; Landslide/slope failure
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Townwide projects
Lead Party: Highway Supervisor
Grant Funding Source: Highway Fund
Partnerships: Capital Budget Committee/EMD
Project Timeframe: 2029
Prioritization: High

Review and Update Continuity Plans for Government and Operations (COOP & COG)

Addressed Hazards: Flooding; Ice; Snow; Cold; Invasive Species; Drought; Heat; Wildfire; Infectious Disease; Wind; Landslide/slope failure
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Communications
Area of Impact: Townwide ; continuity of government
Lead Party: Town Clerk/Treasurer
Grant Funding Source: Town Administrative/General fund and volunteer time
Partnerships: Selectboard/ Town Administrator
Project Timeframe: Annually
Prioritization: High

Maintain agreement to work with home health nurses, Grafton Cares and Meals on Wheels who work with "At-Risk Residents", that could provide information during an event

Addressed Hazards: Flooding; Ice; Snow; Cold; Invasive Species; Drought; Heat; Wildfire; Infectious Disease; Wind; Landslide/slope failure
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Health and Medical
Area of Impact: Town-wide residents
Lead Party: Emergency Management Director
Grant Funding Source: Volunteer time
Partnerships: EMS/Fire and Grafton Cares
Project Timeframe: Annually as LEMP is updated
Prioritization: High

Consider developing a cost-effective inspection program for short term rental properties for fire and building safety standards to mitigate potential fire hazards and implement

Addressed Hazards: Structure Fires
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security
Area of Impact: Town-wide residential housing
Lead Party: Selectboard
Grant Funding Source: Town General fund and volunteer time
Partnerships:
Project Timeframe: 2029
Prioritization: High

Consider strengthening stormwater infiltration practices/recommendations for new development to improve flood resiliency and minimize erosion

Addressed Hazards: Flooding
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Townwide
Lead Party: Planning Commission
Grant Funding Source: Town General fund and volunteer time
Partnerships:
Project Timeframe: 2028
Prioritization: High

Pursue funding for hydrology study and preliminary design to upgrade/retrofit beneath Townshend Rd on Howe Brook

Addressed Hazards: Flooding
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Howe Brook under Townshend Road
Lead Party: Selectboard
Grant Funding Source: Town General fund and volunteer time
Partnerships: WRC, Planning Commission, Development Review Board
Project Timeframe: 2029
Prioritization: High

Update LEMP to include line of communication annex – Steps for EOC activation

Addressed Hazards: Flooding; Ice; Snow; Cold; Invasive Species; Drought; Heat; Wildfire; Infectious Disease; Wind; Landslide/slope failure
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Communications
Area of Impact: Town-wide
Lead Party: EMD
Grant Funding Source: Town Administrative/General fund and volunteer time
Partnerships:
Project Timeframe: 2025
Prioritization: High

Protect Power Lines and Roads by Inspecting and Removing Hazardous Trees in Road ROW

Addressed Hazards: Ice; Snow; Invasive Species; Wind
Type of project: Structure & Infrastructure
Community Lifelines Targeted: Safety & Security; Transportation; Communications; Power Grid
Area of Impact: Town-wide Road ROW
Lead Party: Highway Supervisor
Grant Funding Source: Highway fund and volunteer time
Partnerships: GMP, Tree Warden
Project Timeframe: 2029
Prioritization: High

Replace 2 large culverts on Fisher Hill Rd culvert #10 and #13

Addressed Hazards: Flooding
Type of project: Structure & Infrastructure
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Fisher Hill Rd
Lead Party: Highway Supervisor
Grant Funding Source: Highway fund/Capital Budget / VTrans Grants
Partnerships: Emergency Management Director
Project Timeframe: 2030
Prioritization: High

Replace 1 large culvert (#2) on Stagecoach Rd

Addressed Hazards: Flooding
Type of project: Structure & Infrastructure
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Stagecoach Rd
Lead Party: Highway Supervisor
Grant Funding Source: Highway fund/ Capital Budget / VTrans Grants
Partnerships: Emergency Management Director
Project Timeframe: 2030
Prioritization: High

Replace Eastman Road Culvert (#13)

Addressed Hazards: Flooding
Type of project: Structure & Infrastructure
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Eastman Rd
Lead Party: Highway Supervisor
Grant Funding Source: Highway fund/Capital Budget/ VTrans Grants
Partnerships: Emergency Management Director
Project Timeframe: 2030
Prioritization: High

Replace Hinkley Brook Rd Culvert (#33)

Addressed Hazards: Flooding

Type of project: Structure & Infrastructure
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Hinkley Brook Rd
Lead Party: Highway Supervisor
Grant Funding Source: Highway fund/ Capital Budget / VTrans Grants
Partnerships: Emergency Management Director
Project Timeframe: 2030
Prioritization: High

GMP Power company to install line redundancy and separate 3 phase power lines VT 121 east, coming from Westminster

Addressed Hazards: Ice; Snow; Invasive species; Wind
Type of project: Structure & Infrastructure
Community Lifelines Targeted: Safety & Security; Energy
Area of Impact: Town-wide
Lead Party: Green Mountain Power
Grant Funding Source: Green Mountain Power Corp.
Partnerships: Town of Grafton
Project Timeframe: 2027
Prioritization: High

Upgrade/retrofit bridge #18 on Cabell Rd.

Addressed Hazards: Flooding
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Cabell Rd
Lead Party: Highway Supervisor
Grant Funding Source: Town General fund and volunteer time/ VTrans Grant
Partnerships: Selectboard, Planning Commission, VTrans
Project Timeframe: 2029
Prioritization: High

Continuing to Implement MRGP Plan each year on prioritized road segments as funding becomes available

Addressed Hazards: Flooding
Type of project: Local Plans & Regulations
Community Lifelines Targeted: Safety & Security; Transportation
Area of Impact: Hydrologically connected road segments townwide
Lead Party: Selectboard (LEAD) / Highway Supervisor
Grant Funding Source: Town General and highway fund/VTrans Grant
Partnerships: Capital Budget Committee
Project Timeframe: Ongoing - 2035
Prioritization: High

Continue to communicate with GMP on ongoing battery bank program for areas with numerous outages

Addressed Hazards: Flooding; Ice; Snow; Cold; Invasive Species; Drought; Heat; Wildfire; Infectious Disease; Wind; Landslide/slope failure

Type of project: Structure & Infrastructure
Community Lifelines Targeted: Safety & Security; Energy; Communications
Area of Impact: Targeted areas with numerous outages
Lead Party: Green Mountain Power
Grant Funding Source: Resident funding / Green Mountain Power program
Partnerships: Town Administrator
Project Timeframe: Ongoing
Prioritization: High

Research the feasibility of adopting the Community Rating System

Addressed Hazards: Flooding
Type of project: Local Plans & Regulations; Outreach & Education
Community Lifelines Targeted: Safety & Security
Area of Impact: Town-wide flood hazard areas and river corridors
Lead Party: Floodplain Manager
Grant Funding Source: Town General fund and volunteer time
Partnerships: State of Vermont NFIP Coordinator
Project Timeframe: 2029
Prioritization: Medium

Further investigate and prioritize long-term stream corridor protection in areas identified in RCP through passive restoration, such as easements and buffer restorations to reduce property loss from erosion and potentially improve floodplain access to reduce risk of flooding downstream.

Addressed Hazards: Flooding
Type of project: Natural Systems Protection
Community Lifelines Targeted: Safety & Security
Area of Impact: Townwide
Lead Party: Planning Commission
Grant Funding Source: Town Administrative/General fund and volunteer time
Partnerships: Selectboard
Project Timeframe: 2029
Prioritization: High

Further investigate and proactively seek viable options and funding for conservation easements and buffer restoration to improve floodplain access; particularly in the Willie and Styles Brook area west of Townshend Rd. Riprap and berming have reduced floodplain access west of Townshend Rd. putting homes and the road at risk. Passive restoration is recommended to restore floodplain access.

Addressed Hazards: Flooding
Type of project: Natural Systems Protection
Community Lifelines Targeted: Safety & Security
Area of Impact: Townshend Rd and townwide
Lead Party: Selectboard
Grant Funding Source: Town Administrative/General fund and volunteer time
Partnerships: Floodplain Manager/ VTANR River Engineer / DEC Floodplain Manager
Project Timeframe: 2029
Prioritization: High

Identify property owners located within Special Flood Hazard Areas or River Corridor and develop an outreach plan to educate them on flood and erosion risks, mitigation ideas, local by-laws and NFIP

Addressed Hazards: Flooding
Type of project: Outreach & Education
Community Lifelines Targeted: Safety & Security
Area of Impact: Townwide property owners with SFHA
Lead Party: Floodplain Manager
Grant Funding Source: Town Administrative/General fund and volunteer time
Partnerships: Town Administrator/Selectboard
Project Timeframe: 2026
Prioritization: High

Educate and Inform property owners of ways they can mitigate damage to their properties from all hazards

Addressed Hazards: Flooding; Ice; Snow; Cold; Invasive Species; Drought; Heat; Wildfire; Infectious Disease; Wind; Landslide/slope failure
Type of project: Outreach & Education
Community Lifelines Targeted: Safety & Security
Area of Impact: Town-wide property owners
Lead Party: EMD
Grant Funding Source: Town General fund and volunteer time
Partnerships: VLCT/WRC
Project Timeframe: 2029
Prioritization: High

7 PLAN MAINTENANCE

This Plan is dynamic. To ensure it remains current and relevant, it should be annually evaluated and monitored and updated every five years, in accordance with FEMA guidelines in effect at the time.

Annual Evaluation and Monitoring

Within 12 months of FEMA Final Approval, the Plan will be annually evaluated and monitored as follows:

1. The Selectboard will assemble a Review/Update Committee to evaluate the effectiveness of the Plan in meeting the stated goals. Things to consider during this evaluation:

- What disasters has the town (or region) experienced?
- Should the list of highest risk natural hazard impacts be modified?
- Are new data sources, maps, plans, or reports available? If so, what have they revealed, and should the information be incorporated into this plan?
- Has development in the region occurred and could it create or reduce risk?
- Has the town adopted new policies or regulations that could be incorporated into this plan?
- Have elements of this plan been incorporated into new plans, reports, policies, or regulations?
- Are there different or additional community capabilities available for mitigation implementation?

2. Next, the Review/Update Committee will monitor mitigation action progress. Things to consider:

- Is the mitigation strategy being implemented as anticipated?
- Were the cost and timeline estimates accurate?
- Should new mitigation actions be added?
- Should proposed actions be revised or removed?
- Are there new funding sources to consider?

The status (e.g., in progress, complete) of each action should be recorded in **Table 8**. If the status is "in progress" note whether the action is on schedule. If not, describe any problems, delays, or adverse conditions that will impair the ability to complete the action.

3. The Selectboard will seek public comment from the Whole Community on plan implementation. Things to consider:

- Are there any new stakeholders to include?
- What public outreach activities have occurred?
- How can public involvement be improved?

4. Based on input received, the mitigation strategy and/or actions will be modified, if needed.

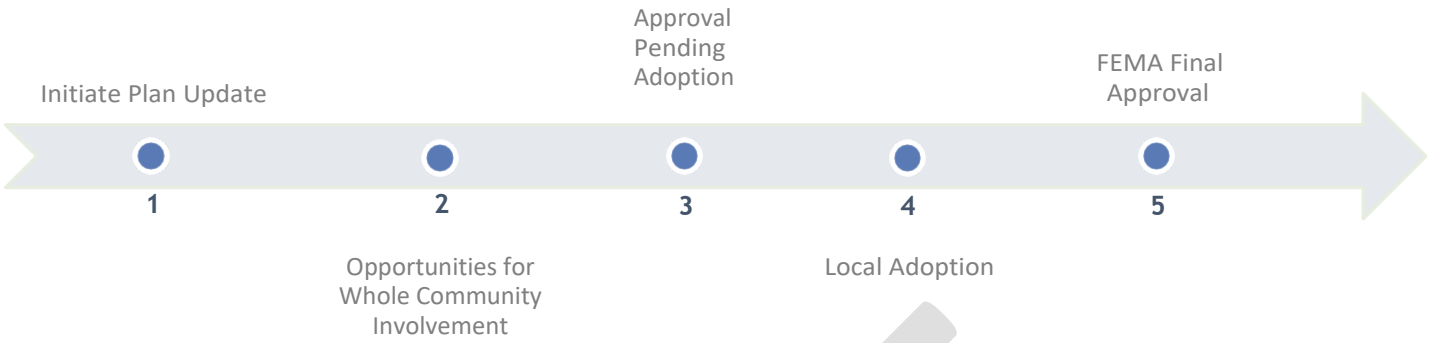
5. A report (or record in the form of meeting minutes) of the annual evaluation and monitoring will be made available to the public.

Table X: Mitigation Action Status

Mitigation Action	2024	2025	2026	2027	2028
Local Plans & Regulations					
Structure & Infrastructure Projects					
Natural Systems Protection					
Outreach & Education Programs					

5-Year Updates

This Plan will be updated at a minimum every five (5) years as follows:



1. Currently, funding to assist municipalities in paying for planning services to update the Local Hazard Mitigation Plan is available through FEMA's Building Resilient Infrastructure and Communities (BRIC) grant program. If using this grant, Town of Wilmington should contact Vermont Emergency Management (VEM) to apply for funding in 2027 – approximately 2 years before the Plan expires.

   Once funding is secured and the grant agreement between the Town and State is in place, the Town Manager can issue a request for proposals (RFP) to procure planning services in accordance with the grant agreement. The RFP should be issued approximately 14 months before the Plan expires.

   Once a consultant is procured, the Plan update can begin with a kick-off meeting including the consultant and local hazard mitigation planning team. The kick-off meeting should be scheduled approximately 12 months before the Plan expires. The Town should allot approximately 8 months for the Plan update process.

2. Opportunities for Whole Community involvement throughout the Plan update process need to be factored into the schedule. These opportunities may include a community survey, planning workshop, and public meetings at critical milestones agreed to at the project kick-off meeting.

3. Once the local hazard mitigation planning team has prepared a final draft, they can seek authorization from the Selectboard to submit the Plan for VEM/FEMA approval. Plan approval is accomplished in two steps – the first is Approval Pending Adoption. The Town should submit for Approval Pending Adoption approximately 4 months before the Plan expires to allow for time to respond to any review comments received from VEM/FEMA.

4. Once the Town receives Approval Pending Adoption, the Selectboard should adopt the Plan as soon as their next regular meeting.

5. Once adopted, the Town can submit the Plan for VEM/FEMA Final Approval. The Town should submit for Final Approval approximately 1 month before the Plan expires to ensure there is no gap in coverage between updates. The plan will expire 5 years from the FEMA Final Approval.

APPENDIX A – Community Outreach

As Published in the Grafton News:

The Selectboard has hired Seam Solutions to assist the town in updating the Local Hazard Mitigation Plan. As part of the grant, we can use meetings and volunteer hours as part of the town's match. We are in the early stages of developing a committee to help update the plan. If you are interested in assisting with this project, please contact Morgan Wilbur at townadmin@graftonvt.org or 802-843-2552 and she will share more information! Stay tuned for more details in the coming months.

Outlook

Town of Grafton Local Hazard Mitigation Plan Update

From Grafton Administrator <townadmin@graftonvt.org>
Date Mon 9/30/2024 4:05 PM
To townoffice@athensvt.gov <townoffice@athensvt.gov>; brook763@comcast.net <brook763@comcast.net>; cholt@townshendvt.gov <cholt@townshendvt.gov>; Kord Scott <kordscott@vermontel.net>; julie.hance@chestervt.gov <julie.hance@chestervt.gov>; manager@rockbf.org <manager@rockbf.org>
Cc Stephanie Magnan <steph.magnan@seamsolutionsvermont.com>

Good afternoon,

The Town of Grafton is looking for assistance in identifying local hazards to aid in updating the Local Hazard Mitigation Plan (LHMP).

The Town of Grafton has begun the plan update process and is looking for input from surrounding towns to help identify hazards that impact the community. If you are aware of any sites or problematic areas that should be considered in this plan update, please contact Stephanie Magnan with Seam Solutions at steph.magnan@seamsolutionsvermont.com or myself with any input or questions.

Thank you!
Morgan

Sent to the Town's of: Athens, Brookline, Chester, Rockingham, Townshend, and Windham

Morgan Wilbur
Town Administrator
Town of Grafton
PO Box 180
Grafton, VT 05146
(802)843-2552

Outlook

RE: Hazard Mitigation Planning Community Survey

From Grafton Administrator <townadmin@graftonvt.org>
Date Mon 9/9/2024 10:23 AM
To Bruce Jones <bruce_jones@icloud.com>
Cc Stephanie Magnan <steph.magnan@seamsolutionsvermont.com>; Grafton Emergency Management <emd@graftonvt.org>

Hi Bruce,

We meet on Thursday, September 19th at 1:00p.m., if you're available, feel free to join the Zoom call!

I appreciate you mentioning this. We don't often hear about under-spent money! There is funding under the Hazard Mitigation Grant Program that is available to towns right now. They anticipate a total of around $90 million to be available state-wide under this program. The best news is that 75% is being covered by FEMA and the remaining 25% is covered by Vermont Emergency Management, given no cost to the Towns. Grafton has put in pre-applications for a total of 7 projects and hope to get approved for at least 1-2.

I've copied Stephanie Magnon with Seam Solutions, she has been hired as a consultant to help us update the Local Hazard Mitigation Plan. I've also copied Bill Kearns our Deputy Emergency Management Direction; both are great resources for all things FEMA related!

Again, I appreciate you reaching out to me. If you stumble upon any further information, please don't hesitate to pass it along to me!

Morgan Wilbur
Town Administrator
(802)843-2552

From: Bruce Jones <bruce_jones@icloud.com>
Sent: Thursday, September 5, 2024 7:49 PM
To: Grafton Administrator <townadmin@graftonvt.org>
Subject: Re: Hazard Mitigation Planning Community Survey

Morgan —

I'm sorry I couldn't come to today's meeting. Hopefully a future one.

An issue that might we worth some attention in due course. In DC, I have close colleagues who work a lot with FEMA. One of them alerted me to the point that there is a large *under-spent* fund at FEMA for community-wide disaster prevention (versus recovery.) The fund provides communities with money for not just individual property or city property damage, but community-wide efforts to prepare for and prevent flood and storm damage.

This strikes as useful because it solves for the big flaw with FEMA — that household A can't get FEMA support to do work that would prevent damage to household B. But with this fund, you can.

The one major wrinkle here is that it has to be the State not the township that applies; but it would be possible of course to talk to folks in Burlington about putting in an application.

Anyway if this might be of interest to the Committee I can get more details in due course.

Very best

Bruce

On Sep 4, 2024, at 14:13, Grafton Administrator <townadmin@graftonvt.org> wrote:

Hi all!

We are updating our Local Hazard Mitigation Plan; a small committee meets on the third Thursday of each month at 1:00 p.m. at the Town Hall, anyone is welcome (and encouraged) to join. Our next meeting will be on Thursday, September 19th.

As mandated by the Disaster Mitigation Act of 2000, all municipalities are required to complete a Local Hazard Mitigation Plan update every five years in order to qualify for FMEA funding should a disaster occur. The plan aids in identifying threats and hazards such as flooding, winter storms, power failures, pandemics, cyberattacks, etc. and then determine mitigation efforts that can aid municipalities in reducing risk and recovery from natural, technological, and human-caused hazards.

Given all of that, we are now looking for input from Grafton residents! If you don't mind, please help us by filling out this survey: Survey Linked Here. The survey shouldn't take more than 10-15 minutes. We greatly appreciate all of your help with this! It is designed to help us in our planning efforts.

Thank you so much!
Morgan

Morgan Wilbur
Town Administrator
Town of Grafton
PO Box 180
Grafton, VT 05146
(802)843-2552

RE: mitigation meeting today

From Grafton Administrator <townadmin@graftonvt.org>
Date Thu 10/17/2024 10:02 AM
To dini <dini@vermontel.net>
Cc Stephanie Magnan <steph.magnan@seamsolutionsvermont.com>; Bill Kearns <graftonic@vermontel.net>

Hi Cathy,

Thank you for sending this email. I hear you! I'm glad we are talking about this and it will be important to continue the discussion which hopefully will lead to preventative measures that we can implement. I think streambank erosion, mudslides, etc. are all part of the LHMP and should be discussed. We touched on it a bit last meeting but I'm hopeful that the conversations will continue.

Thank you for letting me know you may not be able to attend. I really do appreciate you putting efforts towards this. It's so important that members of our Selectboard, specifically, are involved in these discussions.

Morgan Wilbur
Town Administrator
Office: (802)843-2552
Mobile: (802)289-4376

From: dini <dini@vermontel.net>
Sent: Thursday, October 17, 2024 9:54 AM
To: Grafton Administrator <townadmin@graftonvt.org>
Subject: mitigation meeting today

Hi Morgan,

Nor sure I can make the meeting at 4pm today. Have a dental appointment earlier and then a meeting in Londonderry.

I've read through the information and I'm still concerned about the areas that seem to flood and create damage are always the same areas that we pour extreme amount of money for bigger culverts. Opening the highways and roads seem to be our focus of the damage. Where is the prevention happening? There's so many rules thrown at us it's a continuation of the same problems we as a small town have to deal with. Very discouraging and frustrating.

With the resent destruction in NC with mudslides in the mountain areas, we need to be more concerned for the river banks that are pushing into the river. There's a tremendous amount of water coming off those hillside areas when we get lots of rainfall. Are there any homes where a landslide would occur? Just a thought.

Thanks for all you do Morgan with this mitigation plan for Grafton. Wanted to give you some of my concerns here.

Cathy

APPENDIX B – Past Mitigation Actions Updates

TABLE 10: 2019-2023 Town of Grafton Mitigation/Preparedness Strategies and Actions

High Priority
Moderate Priority
Low Priority

MITIGATION ACTION OR STRATEGY	TYPE[1]	HAZARD ADDRESSED	RELATED GOAL/ OBJECTIVE[2]	RESPONSIBLE PARTY[3]	TIME FRAME	FUNDING SOURCE/ COST TO TOWN[4]	2025 Update
INFRASTRUCTURE PROJECTS[6]							
Upgrade deteriorated culvert #1 on Chester Rd.	M	Flood, Erosion	1a, 2c, 3c	SB, HD	3Q/2019 – 3Q/2020	BRGP, MRGIA, ERGP, CWBG HMGP, FMA, VTrans, TAP, THC2RP, THSGP,Town Match, Town Capital	Completed
Assess and repair or upgrade culvert #10 on Fisher Hill Rd.	M	Flood, Erosion	1a, 2c, 3c	SB, HD	3Q/2020 - 3Q/2021	BRGP, MRGIA, ERGP, CWBG, HMGP, FMA, VTrans, TAP, THC2RP, THSGP, Town Match, Town Capital	On the list to be replaced - in process, has been assessed – Carried forward to this plan
Re-assess priority and determine cost to design & upgrade culvert #13 on Fisher Hill Rd. should opportunity arise given historic restrictions.	M	Flood, Erosion	1a, 2c, 3c, 4a	SB, HD	Beyond Plan Period – unless washed out	Moderate Town Personnel, BRGP, MRGIA, ERGP, CWBG, HMGP, FMA, VTrans, TAP, THC2RP, THSGP, Town Match, Town Capital to Implement	On the list to be replaced - in process, has been assessed – Carried forward to this plan

Conduct hydrology study and engineering for replacement/upgrade of culvert/bridge at intersection of Fisher Hill Rd. and Bell Rd.	M	Flood, Erosion	1a, 2c, 3c	SB, HD	Beyond Plan Period – unless washed out	BRGP, MRGIA, ERGP, CWBG, HMGP, FMA, VTrans, TAP, THC2RP, THSGP, Town Match, Town Capital	Completed - 2024
Upgrade culvert #1 on Bell Rd.	M	Flood, Erosion	1a, 2c, 3c	SB, HD	2Q/2022 - 2023/3Q	BRGP, MRGIA, ERGP, CWBG, HMGP, FMA, VTrans, TAP, THC2RP, THSGP, Town Match, Town Capital	Completed - 2024
Upgrade culvert from the Ball Field to Saxtons River on Townshend Road.	M	Flood, Erosion	1a, 2c, 3c	SB, HD	Next Plan Period	Town Capital, Moderate Town Personnel	Windham foundation and Grafton improvement association - under review but no plan at the moment - maybe a town wide drainage study to see if this culvert can actually removed Carried forward to this plan

MITIGATION ACTION OR STRATEGY	TYPE[1]	HAZARD ADDRESSED	RELATED GOAL/ OBJECTIVE[2]	RESPONSIBLE PARTY[3]	TIME FRAME	FUNDING SOURCE/ COST TO TOWN[4]	2025 Update
Upgrade culvert #13 on Eastman Rd.	M	Flood, Erosion	1a, 2c, 3c	SB, HD	2Q/2022 - 2023/3Q	BRGP, MRGIA, ERGP, CWBG, HMGP, FMA, VTrans, TAP, THC2RP, THSGP, Town Match, Town Capital	Not completed but application in for HMGP grant Carried forward to this plan
Assess cost, prioritize and establish a capital plan to upgrade of 7 culverts on Hinkley Brook Rd.	M	Flood, Erosion	1a, 2c, 3c, 4a	SB, HD, PC, DRB, WRC, HMC	4Q/2020 – 4Q/2021	BRGP, MRGIA, ERGP, CWBG, HMGP, FMA, VTrans, TAP, THC2RP, THSGP, Town Match, Town Capital	#24 will be upgraded July 2025 - plan to put out to bid #33 - HMGP grant app submitted 3 were upsized and completed the other two are considered as impactful but #43 could be replaced Carried forward to this plan
Pursue funding for a hydrology study and preliminary design to upgrade/retrofit bridge #18 on Cabell Rd. Bridge is undersized causing downstream erosion with debris catchment this can be a severe flooding risk to upstream properties. (See **Appendix F**: Project #18 in RCP, and a priority in RCMR) [2]	M	Flood, Erosion	1a, 2c, 3c	SB, HD, PC, DRB, WRC	1Q/2023 – 4Q/2023	BRGP, MRGIA, ERGP, CWBG, HMGP, FMA, VTrans, TAP, THC2RP, THSGP, Town Match, Town Capital	Br 18 - its on current list of hmgp grant app Carried forward to this plan

Pursue funding for a hydrology study and preliminary design to upgrade/retrofit bridge beneath Townshend Rd. on Howe Brook. Bridge is undersized causing upstream bank erosion and is threatening erosion and flooding of adjacent home and roads. (See **Appendix F**: Project #29 in RCP, and a priority in RCMR) [2]	M	Flood, Erosion	1a, 2c, 3c	SB, HD, PC, DRB, WRC	1Q/2023 – 4Q/2023	BRGP, MRGIA, ERGP, CWBG, HMGP, FMA, VTrans, TAP, THC2RP, THSGP, Town Match, Town Capital	Floodplain restoration would be a more permanent solution but has not been done yet Added to current action list
Include a review of the Hazard Mitigation Plan in annual capital budgeting process and incorporate projects from this plan.	M	All Hazards	2a, 2c, 3a, 3c	SB, PC, DRB, HMC, EM	Each Year-3Q	Town, Low Town personnel time, WRC	Completed and ongoing Incorporate projects and prioritize because of the plan as the budget allows Carried forward to this plan
Develop a long-term plan to address new Municipal Roads General Permit (MRGP) standards for prioritizing hydrologically- connected road segments.	M	Erosion	2a, 2c, 3a, 3c, 4a	SB, HD, PC, DRB, HMC, WRC	2Q/2019-4Q/2020	Town, High Town personnel time, WRC	Ongoing as funded opportunities present themselves Carried forward to this plan
Implement MRGP Plan each year on prioritized	M	Erosion	1a, 2c, 3c, 4a, 4c	SB, HD, WRC	Each Year 2Q & 3Q	BRGP, MRGIA, ERGP, CWBG, HMGP, FMA, VTrans, TAP, THC2RP, THSGP,	REI of 2025 will ensure to meet all requirements of ACT 64 Carried forward as Update REI

MITIGATION ACTION OR STRATEGY	TYPE[1]	HAZARD ADDRESSED	RELATED GOAL/ OBJECTIVE[2]	RESPONSIBLE PARTY[3]	TIME FRAME	FUNDING SOURCE/ COST TO TOWN[4]	2025 Update
Remove Kidder Hill Dam to reduce upstream erosion and flooding. (See **Appendix F**: Project #27 in RCP, and a priority in RCMR) [2]	M	Flood, Erosion	1a, 2c, 3c	SB, CRC	3Q/2019 – 4Q/2019	ERGP, CWBG, Town Match	Completed in 2021
PLANNING, PROGRAMS AND STRATEGIES							
Evaluate the feasibility of a local limited emergency shelter and plan for effective location of generator.	P	All Hazards	1a, 1b, 3a, 3b	EM, FD, TA, HMC	3Q/2021	HMGP, EMPG, PDM	Completed
Review and Update Continuity Plans for Government and Operations	M, P	All Hazards	1b, 2a, 3a, 3b	SB, TA	1Q/2021 - 4Q/2021	Moderate Town Personnel Time	Carried forward to this plan
Incorporate hazard mitigation planning into current municipal Town Plan update and other town planning, discussions, and activities to increase project visibility, municipal awareness, and support for funding.	M	All Hazards	2a, 3a	SB, HMC, PC, DRB, WRC	3Q/2019 – 1Q/2020	Moderate Town Personnel Time, WRC	Completed in 2020 with the Town plan update
Conduct formal monitoring of this HMP prior to the annual budgeting process and inform the public on progress made to increase community awareness.	M, P	All Hazards	2b, 4c	SB, HMC, TA	3Q-4Q Each Year	Moderate Town Personnel Time	Completed and ongoing - Town meeting - town report Carried forward to this plan

Explore the development of a workable "At-Risk Resident Registry" program and/or outreach effort to identify vulnerable community members eligible for registration with C.A.R.E. to more effectively respond to those in need should a disaster occur.	P	All Hazards	1a, 1b, 3a, 3b, 4a	SB, FD, EM, TA, HMC, HA, SRWC	1Q/2021 – 4Q/2021	High Town Personnel Time, HMGP, C.A.R.E., Private Funders (Ames/Holt)	Completed and ongoing - Have a list of all home health nurses that work with residents - informal mutual aid Visiting nurses association Ongoing along with Grafton Cares - Meals on Wheels has the info also. Carried forward to this plan
Review recommended activities from Vermont's "Fire Safe 802 Program" and National Fire Protection Association's "Firewise Program" for outreach ideas to educate community on how to reduce structure fire risk.	M	Wildland & Structure Fire	1a, 1b, 3a-c	SB, FD	1Q/2021 – 4Q/2021	Moderate Town Personnel Time, FPSG, VDFS	Fire Department does conduct fire safety education opportunites at the schools Ongoing but not relevant to current list of hazards - smoke trailer training also (state funded trailier) along with CPR training.

MITIGATION ACTION OR STRATEGY	TYPE[1]	HAZARD ADDRESSED	RELATED GOAL/ OBJECTIVE[2]	RESPONSIBLE PARTY[3]	TIME FRAME	FUNDING SOURCE/ COST TO TOWN[4]	2025 Update
Annually review the Vermont Division of Fire Safety's Public Education webpage for new outreach ideas to maintain fire risk awareness. Implement if feasible.	M, P	Wildland & Structure Fire	1a, 1b, 3a-c	SB, FD, HMC	2Q Each Year	Moderate Town Personnel Time, FPSG, VDFS	Ongoing but not relevant to current list of hazards
Enhance current seasonal fire safety awareness program for residents, landowners, and rental properties on Fire Hazards to increase fire awareness during most vulnerable seasonal periods, winter and early spring.	M, P	Wildland & Structure Fire	1a, 1b, 3a-c	SB, FD, HMC	2Q/2022 – 4Q/2022	High Town Personnel Time, FPSG, VDFS	Ongoing but not relevant to current list of hazards Member of the FD has a column in the local paper and writes articles regarding fire safety FB posts about training and a fire levels
Develop a cost-effective inspection program for Air B&B rental properties for fire and building safety standards to mitigate potential fire hazards and implement, if plausible.	M, P	Structure Fire	1a, 1b, 3a-c	SB, FD, Town Listers, DRB, HA	3Q/2022	High Town Personnel Time, FPSG, VDFS	in the process of an Airbnb survey in process - working on a short term rental ordinance Dept of fire , health and taxes needs to be posted in the rentals - requirement Carried forward to this plan

Pursue activities to attain criteria thresholds under FEMA's NFIP Community Rating System to raise community awareness and increasing available reimbursement funding.	M	Flood, Erosion	1a, 2a, 2c, 3a-c, 4a	SB, PC, TA, DRB, EM, SRWC	1Q/2020 - 3Q/2023	High Town Personnel Time, PDM, HMGP	Carried forward to this plan
Review and Update Flood Damage Prevention Regulations (FDPR) to consider extending provisions to upland development if stormwater runoff could impact flood/erosion hazard.	M	Flood, Erosion	1a, 2a, 3c, 4a	SB, PC, TA, DRB, WRC	Next Update of FDPR	Moderate Town Personnel Time, HMGP, PDM, WRC	REMOVED – not relevant to the intent of the FDPR
Consider strengthening stormwater infiltration practices/recommendations for new development to improve flood resiliency and minimize erosion	M	Flood, Erosion	1a, 2a, 3c, 4a	SB, PC, DRB, WRC	To discuss during next Update of FDPR	Moderate Town Personnel Time, HMGP, PDM, WRC	Some is currently in the Town Plan and will be ongoing - as stated above a town wide stormwater study needs to be done Carried forward to this plan

MITIGATION ACTION OR STRATEGY	TYPE[1]	HAZARD ADDRESSED	RELATED GOAL/ OBJECTIVE[2]	RESPONSIBLE PARTY[3]	TIME FRAME	FUNDING SOURCE/ COST TO TOWN[4]	2025 Update
Identify property owners located within Special Flood Hazard Areas or River Corridor and develop an outreach plan to educate them on flood and erosion risks, mitigation ideas, local by-laws and NFIP.	M, P	Flood, Erosion	1a, 3a-c, 4a	HMC, PC, DRB, WRC, SRWC	1Q/2021 – 1Q/2023	High Town Personnel Time, HMGP, PDM, WRC, VWG	Response to people who ask but should be ongoing Carried forward to this plan
Expand outreach to residents and developers on the State Standard Building Codes and Safety Regulations for fire prevention.	M	Structure Fire	1a, 3a-c, 4a	FD, HA	1Q/2022-2Q/2022	Moderate Town Personnel Time	building permit - does the division of fire safety have handouts for building recommendations? – ongoing but not relevant to current list of hazards
Further investigate and proactively seek viable options and funding for conservation easements and buffer restoration to improve floodplain access; particularly in the Willie and Styles Brook area west of Townshend Rd. Riprap and berming have reduced floodplain access west of Townshend Rd. putting homes and the road at risk. Passive restoration is recommended to restore floodplain access. (See **Appendix F**: Project #31 in RCP, and a priority in RCMR) [2]	M	Flood, Erosion	1a, 3a-c, 4a	SB, PC, DRB, WRC, SRWC	2Q/2020 – 2Q/2021	RCCEG, CRC, VLT, Private Funds, VRC, PDM, FMA, Moderate Town personnel cost to explore, Town Match	Saxtons River Corridor Protection - after Irene there was significant work done but not as much in the recent flooding Carried forward to this plan

Further investigate and prioritize long-term stream corridor protection in areas identified in RCP through passive restoration, such as easements and buffer restorations to reduce property loss from erosion and potentially improve floodplain access to reduce risk of flooding downstream. (See **Appendix F**: Project #11, 12, 13, 15, 17, 28, and 30 in RCP, and a priority in RCMR) [2]	M	Flood, Erosion	1a, 3a-c, 4a	SB, PC, DRB, WRC, SRWC	2Q/2020 – 2Q/2023	RCCEG, CRC, VLT, Private Funds, VRC, PDM, FMA, Moderate Town personnel cost to explore, Town Match	

[1] **M – Mitigation, P – Preparedness**
[2] **As identified in the Saxtons River Corridor Mapping Report (RCMR) and/or the Saxtons River Corridor Plan (RCP)**
[3] See Related Goal/Objective in **Section 6.1**

[4] **Responsible Party:**

HMC – Hazard Mitigation
Committee SB - Selectboard
DRB – Development Review Board
EM – Emergency Management
PC – Planning Commission
HD - Highway Department
HA – Health Administrator
TA – Town Administrator
FD - Fire Department/Rescue
WRC – Windham Regional Commission
SRWC – Saxtons River Watershed Collaborative

[5] **Funding Source:**

HMGP - Hazard Mitigation Grant Program (VT State Department of Emergency Management)
EMPG – Emergency Management Performance Grant (VT State Department of Emergency Management)
BRGP – Better Roads Grant Program
MRGIA – Municipal Roads Grants-In-Aid Program
ERGP - Ecosystem Restoration Grant Program
CWBG – Clean Water Block Grant Program
CDBG – VT ACCD Community Development Block
Program THSGP – Town Highway Structures Grant
Program THC2RP – Town Highway Class 2 Road Program
MHSMP – Municipal Highway Stormwater Mitigation Program
TAP – Transportation Alternatives Program
VMG – Vermont Watershed Grant
VLT – Vermont Land Trust
VTrans – Vermont Transportation Agency
RCCEG – River Corridor Conservation Easement Grant (ERPG)
CRC – Connecticut River Conservancy
VRC – Vermont River Conservancy

HBP – FEMA Home Buyout Program
FMA – FEMA Flood Mitigation Assistance Program PDM – FEMA Pre-Disaster Mitigation Program
FPSG – FEMA Fire Prevention & Safety Grant VDFS – Vermont Division of Fire & Safety

[6] **Infrastructure projects from Grafton Road Erosion Inventory Report unless stated otherwise. These projects have been identified by the Windham Regional Commission to reduce road or streambank erosion and potentially reduce the risk of flooding.**

APPENDIX C – Meetings Agendas and Notes

APPENDIX D – Community Survey Questions

APPENDIX E – Certificate of Adoption

CERTIFICATE OF ADOPTION
Town of Grafton, Vermont Selectboard
A Resolution Adopting the Local Hazard Mitigation Plan Town of Grafton, Vermont 2025

WHEREAS the Grafton Selectboard recognizes the threat that natural hazards pose to people and property within the Town of TOWN Grafton; and

WHEREAS the Grafton Selectboard has prepared a natural hazard mitigation plan, hereby known as the Local Hazard Mitigation Plan Town of Grafton, Vermont 2025 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 Local Hazard Mitigation Plan Town of Grafton, Vermont 2025 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Town of Grafton from the impacts of future hazards and disasters; and

WHEREAS adoption by the Grafton Selectboard demonstrates its commitment to hazard mitigation and achieving the goals outlined in the Local Hazard Mitigation Plan Town of Grafton, Vermont 2025.

NOW THEREFORE, BE IT RESOLVED BY THE TOWN GRAFTON, VERMONT, THAT:

Section 1. In accordance with 24 VSA §872, the Grafton Selectboard adopts the Local Hazard Mitigation Plan Town of Grafton, Vermont 2025. While content related to the Town of Grafton may require revisions to meet the plan approval requirements, changes occurring after adoption will not require the Town of Grafton to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

ADOPTED by a vote of_____ in favor and____ against, and____ abstaining, this _____ day of_____, 2024.

By:_____(print name)
Selectboard Chair

ATTEST: By:_____(print name)