LOCAL HAZARD MITIGATION PLAN

TOWN OF MORETOWN, VERMONT 2025

FEMA Approval Pending Adoption Date

Municipal Adoption Date:

FEMA Formal Approval Date:

Prepared by the Moretown Local Hazard Mitigation Planning Committee	
John Schmeltzer **Planning Commission**	Carol Chamberlain **Zoning Administrator**
Karen Horn **Planning Commission Chair**	Bob Blodgett **Planning Commission, alternate**

Technical Assistance by SEAM Solutions LLC

Key Partners	
VT Agency of Transportation - Maintenance District 6	Agency of Natural Resources –Central Region Floodplain Manager
VT Department of Health	Central Vermont Regional Planning Commission
Green Mountain Power	Agency of Natural Resources – Department of Environmental Conservation River Engineer
Other	

1 INTRODUCTION

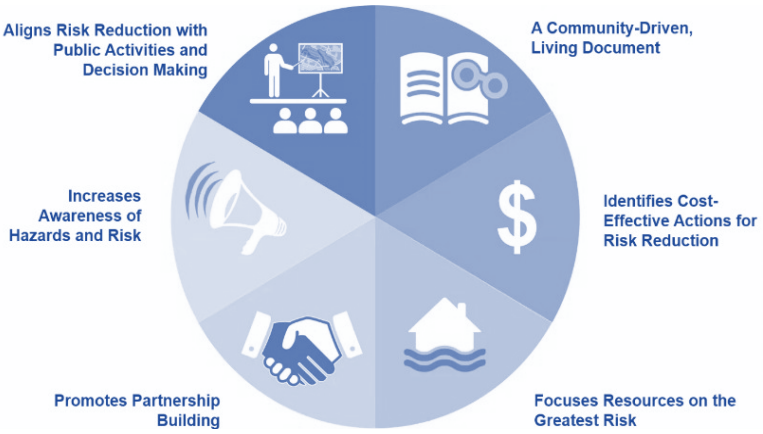
The impact of anticipated, but unpredictable natural and human-caused events can be reduced through community planning. The goal of this updated plan is to provide an all-hazards local mitigation strategy that makes Moretown more disaster resistant.

Hazard mitigation is any sustained action that reduces or eliminates long-term risk to people and property from natural and human-caused hazards and their effects. Based on the results of previous projects, the Federal Emergency Management Agency (FEMA), State agencies, and Towns have come to recognize that it is less expensive to prevent disasters than to repeatedly repair damage after a disaster has struck. This plan recognizes that communities may identify mitigation strategies and measures during all of the other phases of emergency management – preparedness, response, and recovery. Hazards cannot be eliminated, but it is possible to determine what the hazards are, where the hazards are most severe, and to identify local actions that can be taken to reduce the severity of many hazards.

Hazard mitigation strategies and measures alter the impact of a hazard by eliminating or reducing the frequency of occurrence, averting the hazard by implementing a structure or land treatment, adapting to the likelihood of a hazard by modifying structures or standards, or avoiding the hazard by preventing or limiting new development in hazard areas.

2 PURPOSE

The purpose of this Plan is to assist the Town in identifying all natural hazards facing the community, ranking them according to local vulnerabilities, and developing strategies to reduce risks from those hazards. Once adopted, this Plan is not legally binding; instead, it outlines goals and actions to prevent future loss of life and property. The intent is to create a short-term, 5-year pathway of actions while thinking more long-term resilience to mitigating hazards within the community. The benefits of mitigation planning include:



Source: FEMA LHMP Skill Share Workshop 2021

3 COMMUNITY PROFILE

Land Use – Land Features - Development Patterns

The Town of Moretown is a small (40.2 square miles), rural, and residential, community located in west-central Washington County. It is bounded to the east by Berlin, to the south by Waitsfield and Northfield, to the west by Duxbury, and to the north by Waterbury and Middlesex.

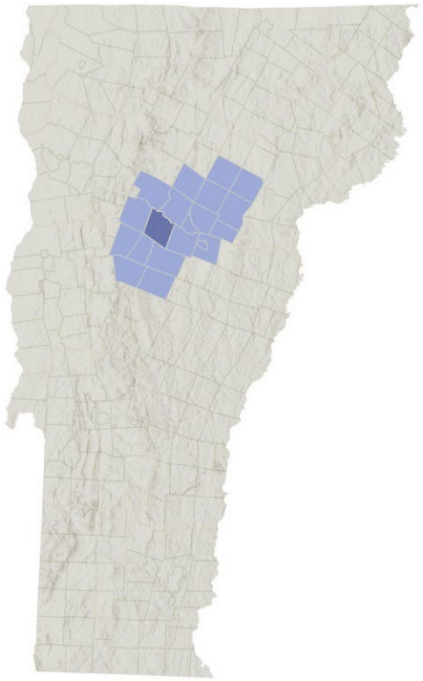


Figure 1 – State map locating Moretown (dark blue) in Washington County (lighter blue).

To the east of the village rises Chase Mountain to an elevation of 2,080 feet, and to the northwest Mt Cobb, elevation 1,592 feet. As stated in the Moretown Town Plan "historically, the town's settlement patterns have been influenced by natural landforms and the distribution of natural features." Moretown is bisected by Route 100B which traverses a valley formed by the Mad River, running northeast to southwest. It is within this valley, in the southwestern region of the town, that the Village of Moretown was settled in the late 1700's. The town garage, the town hall, the general store, the town office, and the local elementary school are all located within the village, amongst a cluster of historic and contemporary homes. However, most of the private residences are widely dispersed throughout the Town's rural lands. Commercial development is located largely along Route 2.

Demographics and Growth Potential

According to the 2020 U.S. Decennial Census, Moretown has an estimated total population of 1,753 people living in 854 housing units. According to the Moretown Town Plan, Moretown has a relatively dispersed population and is a rural community comprised of approximately 797 homes, nearly 90% of which are occupied on a year-round basis. The Town's population has increased by less than 1% from the 2000 Census. The number of housing units has increased by 9.1% since 2000. In the last five years, there have been 65 single family residences built in Moretown (according to zoning information in Town Meeting Annual reports). Most development in Moretown is not occurring within the floodplain, so this development is not increasing vulnerability within the Town.

Water Features

Moretown is within the Winooski River watershed, which is part of the larger Lake Champlain watershed. Most of the town drains to either the Mad River or the Dog River (two of the Winooski's seven major tributaries). A small amount of land drains directly to the Winooski River. The 1,080- square-mile Winooski River watershed includes all of Washington County and portions of Chittenden, Lamoille and Orange counties – approximately 10% of Vermont's land area.

Drinking Water and Wastewater

Groundwater is one of Moretown's most essential resources. Almost all residents and businesses rely on groundwater as their drinking water source which can include drilled wells, dug wells or springs. The Town of Moretown does not provide municipal water service; however, the Edward Farrar Utility District has 136 water service connections in northwestern Moretown and extends into northeastern Duxbury. There is no sewer service in Moretown. Currently all development is dependent on septic systems, including the

Village. There had been a funded planning effort to investigate the possibility of a community wastewater system for the village, however due to lack of community support to determine a suitable treatment site, this was not pursued.

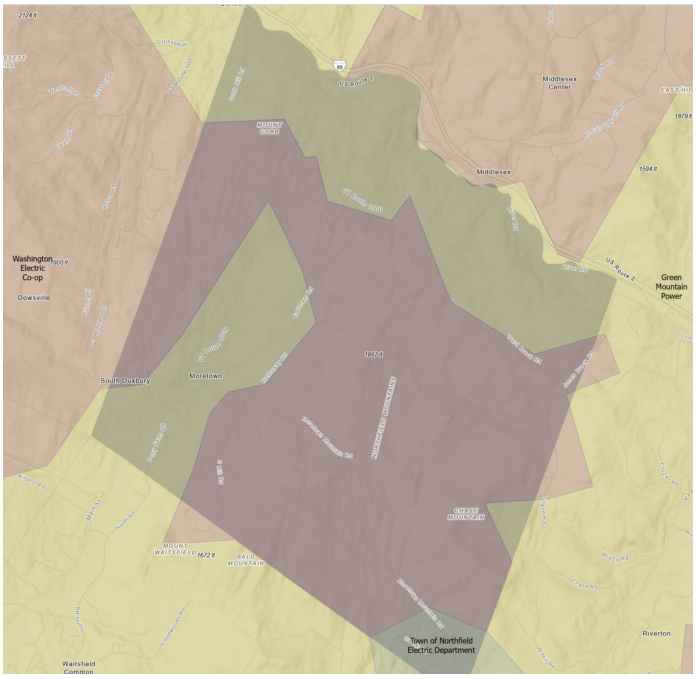
Transportation

Vermont Route 100B is the primary transportation corridor through Moretown. This state highway travels approximately 8 miles from the intersection with Route 100 south of Moretown village to the intersection with U.S. Route 2 in Middlesex. Route 100B largely parallels the Mad River, creating a scenic corridor designated by the Federal Highway Administration in 2007 as a Scenic Byway. That proximity to the river has also resulted in the highway sustaining damage during major floods, most recently during Tropical Storm Irene. U.S. Route 2 travels more than 3 miles through North Moretown from the Duxbury to Middlesex town lines. Route 2 follows the Winooski River and, similar to Route 100B, it is located within or adjacent to the flood hazard area. Two segments of Route 100 pass through Moretown. The southern segment travels slightly more than one mile from the Waitsfield town line to the Duxbury town line. The northern segment runs less than 400 ft from the Duxbury town line to Route 2.

Besides the state highways, the Town maintains about 36 miles of town highways for year-round vehicular travel (Class 2 and Class 3 roads) See Appendix XX for the VTrans highway map. These town highways are gravel, except for short, paved sections on Moretown Mountain Road and River Road. Our Highway Department, with the support of the Central Vermont Regional Planning Commission, maintains a detailed inventory of town roads and their condition using a Road Surface Management System (RSMS). The Department uses this system to more effectively manage town roads and prioritize improvements. Approximately 11 miles of our roads are Class 2 town highways (Moretown Mountain Road, Pony Farm Road and River Road). These roads are local collectors that provide access to adjoining development and connections to neighboring communities. They are the most heavily traveled town roads. Another 25 miles are Class 3 town highways. These roads primarily provide access to adjoining development and are not typically used by through access to adjoining development and are not typically used by traffic. The remaining Town highway system consists of about 28 miles of Class 4 town highways or legal trails, which are not maintained for year-round vehicular traffic.

Electric and Telecommunications Utility Distribution

In Moretown, electricity is primarily provided by Washington Electric with Green Mountain Power servicing clients along the northern, eastern and western town boundaries and Northfield Electric in the southeast corner of town.



Broadband service is provided at high speeds to part of the Town by Waitsfield and Champlain Valley Telecom, and at lower speeds by Consolidated Communications in the remaining parts of town. Cell telephone service is lacking in multiple locations in town. [NOTE: some parts of Moretown along the northern boundary have internet service provided by Comcast.]

Table 1: Green Mountain Power Average Annual Outage Data for Moretown

Average Annual Outage Data (2019-2023) for Green Mountain Power	
Average number of outages per customer per year	1.84 times per year
Total outage duration per customer	2.8 hours per year
Average length of each outage	5.16 hours per year

*data was not available from Washington and Northfield Electric

Public Safety

The Town's principal fire coverage is provided by the Moretown Volunteer Fire Department (MVFD), which also provides support to portions of the Town of Duxbury, including Harwood High School. Other nearby Fire Departments, such as Middlesex, Waterbury, and Northfield, provide initial fire coverage, through mutual aid to those Moretown areas in which a respective Fire Department is closest. Moretown is part of the 27-Town mutual aid agreement, known as Capital Fire Mutual Aid. Ambulance services in Moretown are provided by multiple ambulance services (Mad River Valley Ambulance Services, Waterbury Ambulance Services, Northfield Fire Department and Montpelier Ambulance) depending on which ambulance service is closest. The Washington County Sheriff's Department and the Vermont State Police provide law enforcement for the Town of Moretown. The Moretown Elementary School has an emergency evacuation plan, which was updated recently, and a few pertinent sections have been shared with the local first responders.

Emergency Management

The Town of Moretown has a designated Emergency Management Coordinator and an approved Local Emergency Management Plan (LEMP) that is updated and adopted annually, after Town Meeting Day and before May 1st. The current LEMP was adopted in 2025 and is due for renewal in March/April 2026. The town coordinates with the Central Vermont Regional Planning Commission who provides technical support and guidance with the LEMP plan update. In 2012, the town adopted the National Incident Management System (NIMS) as the standard approach for managing all threats and hazards, regardless of cause, size, location, or complexity, to reduce loss of life, property, and harm to the environment.

Critical Facilities

The LHMP planning committee identified a number of critical facilities in Moretown. These facilities provide important services to the community, such as basic government functions, communication and power services, and schools. Some of these facilities can also serve additional roles during an emergency, such as a shelter for displaced residents, a staging area for emergency response and recovery activities, or a location for important Town administrative functions. Damage to these facilities can impair response and recovery operations and may lead to a disruption of vital services for Moretown's residents. See Figure XX for more details.

CRITICAL FACILITY LOCATION	FACILITY DESCRIPTION
1320 VT ROUTE 100B	TOWN GARAGE
1115 VT ROUTE 100B	POST OFFICE
226 MORETOWN MOUNTAIN RD	POWER SUBSTATION
413 CONTI CT	COMMUNICATION TOWER
1049 VT ROUTE 100B	FIRE STATION
187 PALISADES PARK	LANDFILL
2714 US ROUTE 2	LANDFILL LEACHATE PUMP STATION
183 HENNING RD	POWER SUBSTATION
333 HOOVER HL	COMMUNICATION TOWER
79 SCHOOL ST	TOWN OFFICE
2988 US ROUTE 2	COMMUNICATION TOWER
7517 VT ROUTE 100B	HYDROELECTRIC FACILITY
1147 VT ROUTE 100B	TOWN HALL
940 VT ROUTE 100B	SCHOOL Pre K - 6
55 DICKERSON RD	COMMUNICATION BOX
5594 VT ROUTE 100B	HYDROELECTRIC FACILITY

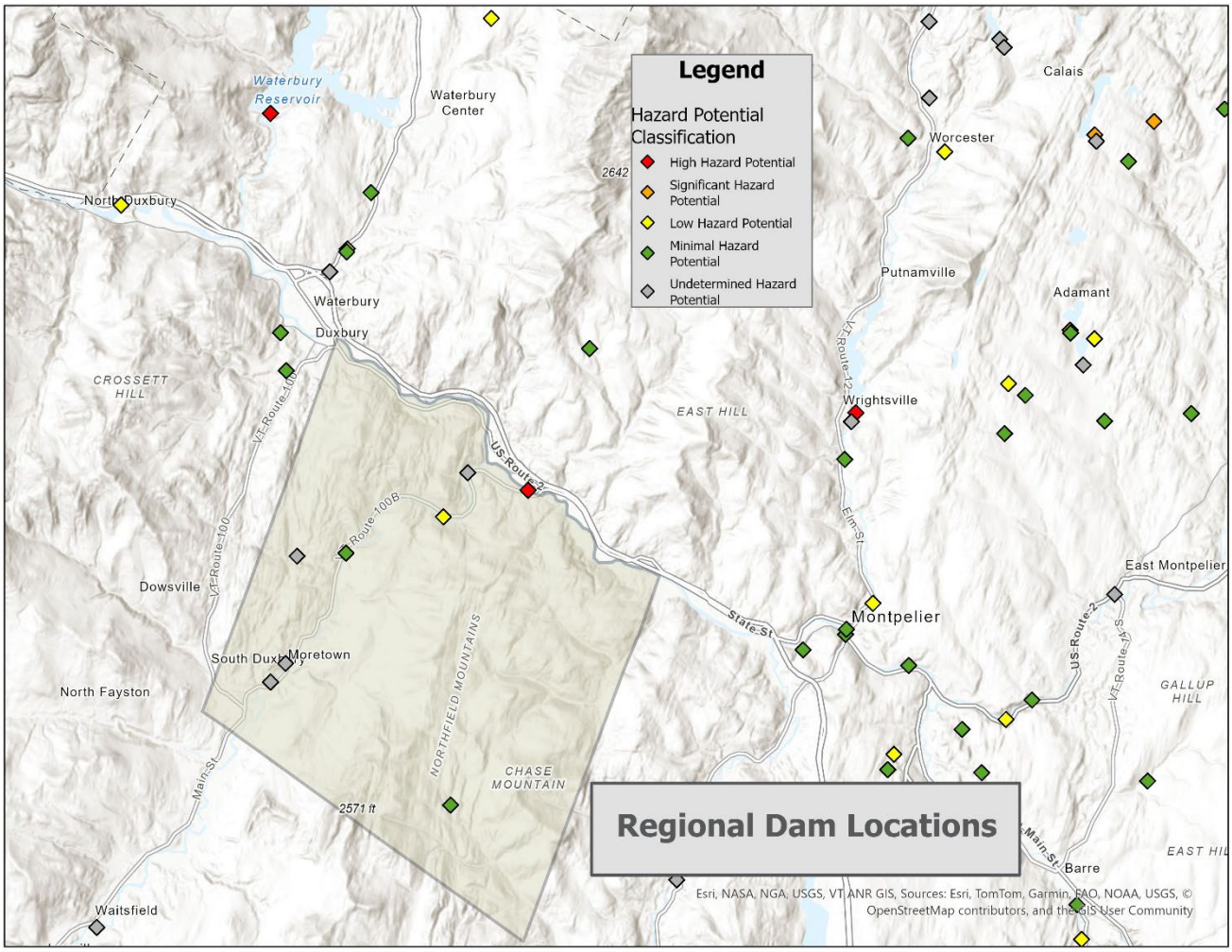
3136 MORETOWN COMMON RD	POWER SUBSTATION
1080 MORETOWN MOUNTAIN RD	COMMUNICATION BOX
7510 VT ROUTE 100B	POWER SUBSTATION
2687 RIVER RD	COMMUNICATION BOX
1114 VT ROUTE 100B	GENERAL STORE AND GAS STATION
1320 VT ROUTE 100B	TOWN SAND PILE

Dams

There are eight dams in Moretown listed in the Vermont Dam Inventory (a database managed by the VT Dam Safety Program containing spatial, structural, historic, and regulatory information on dams in the state). There is one high hazard dam, one low hazard dam, and two with minimal hazard potential. The remaining four dams are breached and out of service.

The high hazard potential dam is on the Moretown/Middlesex town line along the Winooski River and is a hydroelectric dam owned by Green Mountain Power (GMP) known as Middlesex No. 2. In late 2024, the LHMP consultant met with a team of dam experts from GMP to discuss this dam and its current high hazard status. The Emergency Action Plan for this dam is currently being updated, and the updated inundation maps indicate that, other than 1 home, only farm fields would be impacted in a dam failure. As a result, GMP will be submitting a hazard reclassification for this dam to the Public Utilities Commission based on this recent analysis.

The dam that is classified as low hazard potential is also a hydroelectric dam and is located on the Mad River. Known as Moretown Dam No. 8, this dam is owned by Ampersand Moretown Hydro, LLC, a supplier to Washington Electric Coop. The two dams that have a minimal hazard potential are a dam on Cox Brook and the USGS Gage 2880 dam on the Mad River. The four remaining dams, which are breached and out of service, include Ward Upper and Lower, and Moretown-6 on the Mad River and the Eight Trout Club dam on Welder Brook.



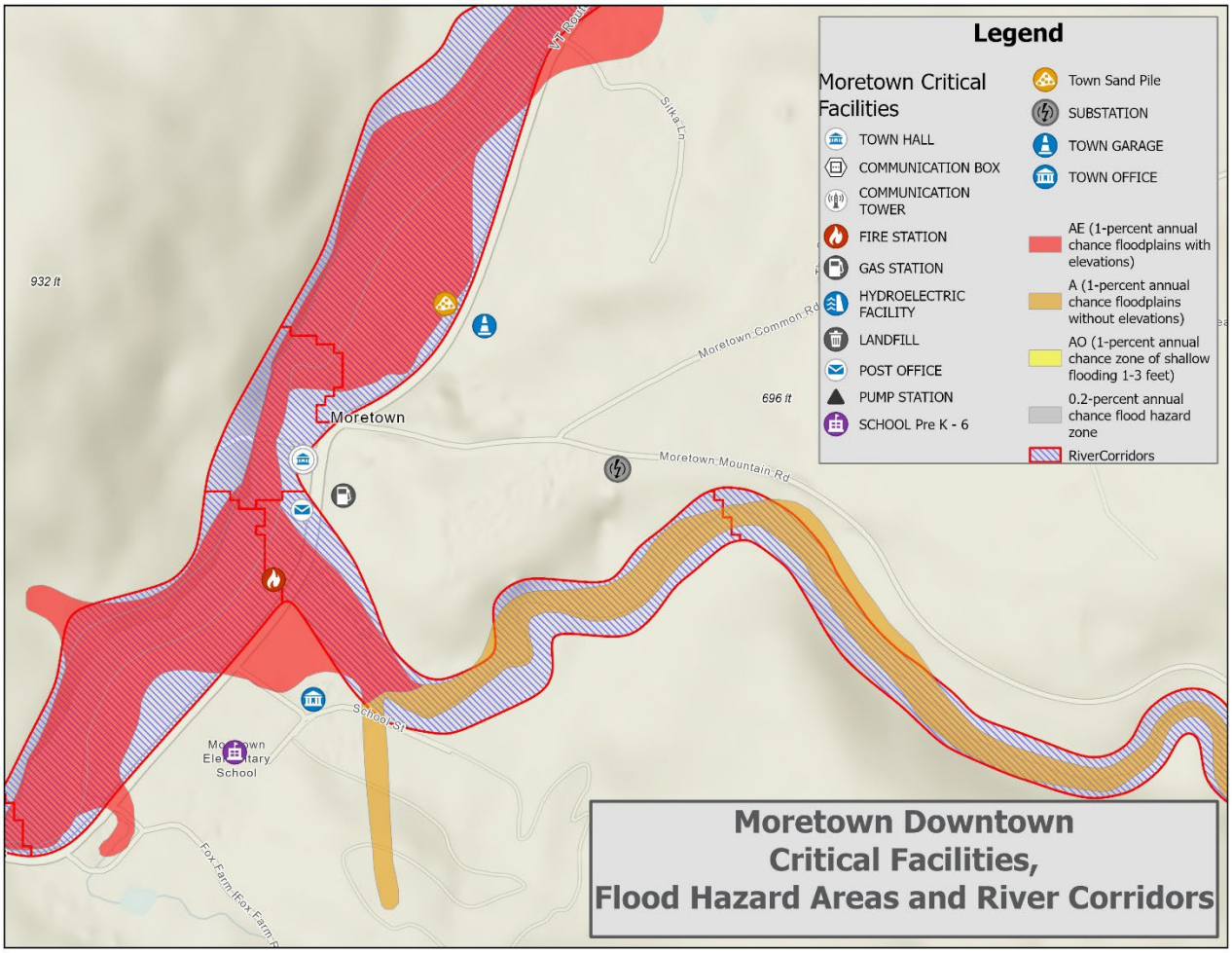
Three earthen dams on Winooski River tributaries are potentially hazardous to Moretown: Waterbury Dam on Little River in Waterbury, Wrightsville Dam on North Branch in Montpelier, and East Barre Dam on Jail Branch in Barre Town. These dams, owned by the State of Vermont, are considered High Hazard dams by the Vermont Department of Environmental Conservation (DEC). The High Hazard designation indicates that the failure or mis-operation of the dam will probably or certainly cause a direct loss of life, and the designation is not an indication of the condition of the dam.

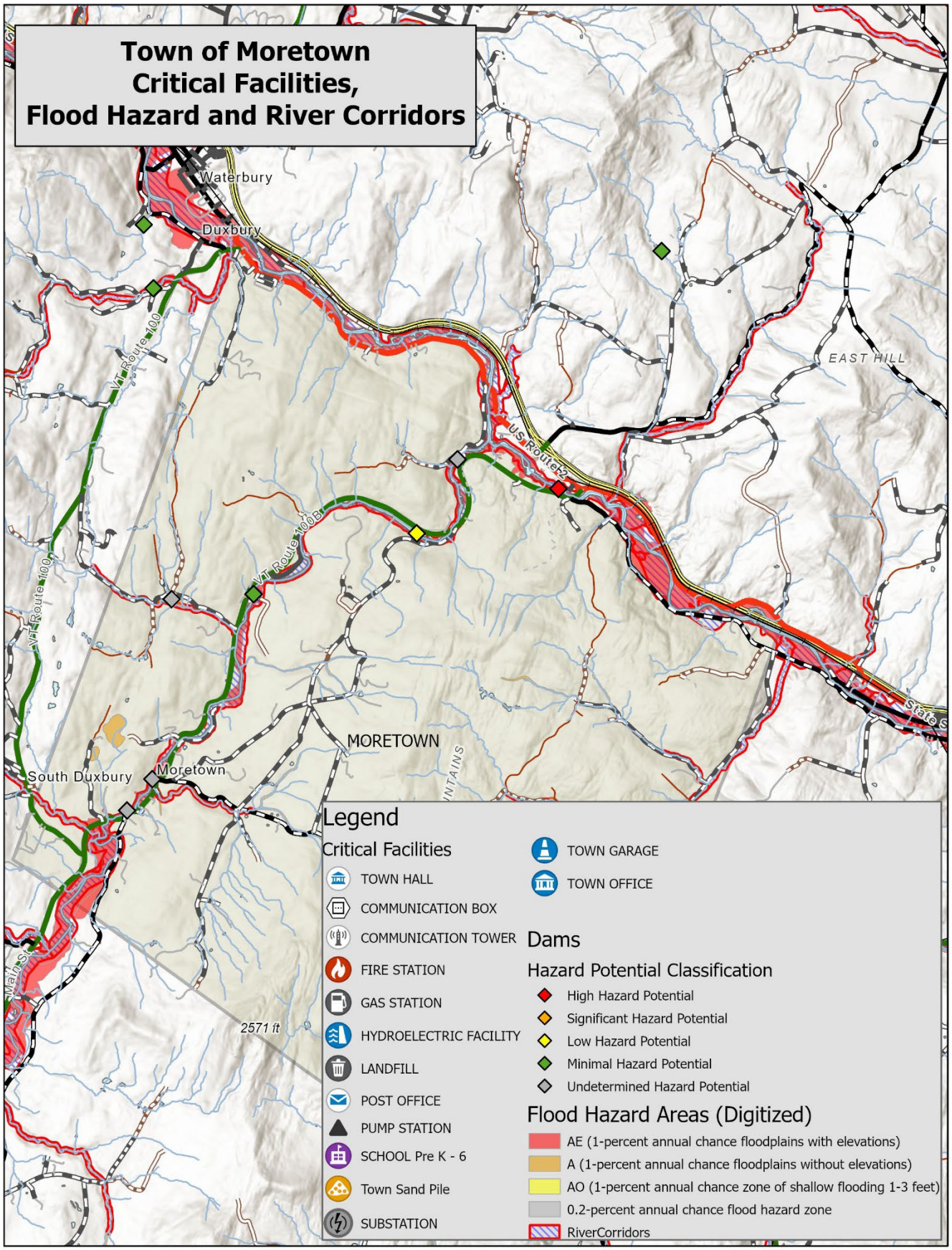
Inundation flooding could occur if one or more of the dams fail, overtop, or release water through their spillways. The Waterbury Dam, because of its proximity to Moretown, presents the greatest hazard from uncontrolled releases of water. Uncontrolled releases from the Waterbury Dam could present a flooding hazard along low-lying areas of Route 2 adjacent to the Winooski River, and in part of the Fairground Road/Gallagher Acres neighborhood. Uncontrolled releases from Wrightsville and East Barre Dams could also present a flood hazard along the low-lying areas of Route 2, as well as River Road.

Updated (2024) and detailed Emergency Action Plans (EAPs) for the three dams can be accessed through the online DEC Vermont Dam Inventory. The EAPs contain aerial photographs showing the

areas of Moretown which could be flooded, explain how emergency notifications would be made, and indicate the probable warning times for an inundation.

Annual inspections of the three dams are conducted by the U.S. Army Corps of Engineers and/or the DEC. The DEC Dam Safety Program is the lead agency related to emergency management and hazard mitigation actions for the dams. The Dam Safety Program will notify the Moretown Emergency Management Director of any emergency conditions for the three dams. The public will receive emergency notices through VT Alert, broadcast radio and television, and if required, directly on all cell phones in the affected area through a Wireless Emergency Alert.




Town of Moretown
Critical Facilities,
Flood Hazard and River Corridors
Waterbury
Duxbury
Vt Route 100
EAST HILL
US Route 2
Vt Route 100B
MORETOWN
South Duxbury
Moretown
2571 ft
Legend
Critical Facilities
TOWN HALL
COMMUNICATION BOX
COMMUNICATION TOWER
FIRE STATION
GAS STATION
HYDROELECTRIC FACILITY
LANDFILL
POST OFFICE
PUMP STATION
SCHOOL Pre K - 6
Town Sand Pile
SUBSTATION
TOWN GARAGE
TOWN OFFICE
Dams
Hazard Potential Classification
High Hazard Potential
Significant Hazard Potential
Low Hazard Potential
Minimal Hazard Potential
Undetermined Hazard Potential
Flood Hazard Areas (Digitized)
AE (1-percent annual chance floodplains with elevations)
A (1-percent annual chance floodplains without elevations)
AO (1-percent annual chance zone of shallow flooding 1-3 feet)
0.2-percent annual chance flood hazard zone
RiverCorridors

4 PLANNING PROCESS

Plan Developers

The Planning Commission assembled a Hazard Mitigation Planning Committee to participate in updating the Plan. Committee members included the: Members of the Planning Commission, and the Zoning Administrator. The Road Foreman, the Health Officer, Fire Warden/Fire Chief and the Selectboard also participated in Plan development with input as needed.

SEAM Solutions assisted the Town 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 Plan written in 2019 and approved in 2020.

Table 2- Plan Development Timeline and Process

August 9, 2024 – Kick off meeting. Discussed current plan status; planning process; update to plan sections; outreach strategy. Committee meetings were held online and in person and not made available to the public.
September 5, 2024 – Working group met to work through event history and damages, review past actions for completeness
September 20, 2024 – Committee met to work on Introduction, Purpose, and Community Profile. Discuss critical facilities and review the hazard ranking template.
October 25, 2024 - Committee met to discuss the high hazard dam, developed outreach list to surrounding towns and community stakeholders, and revisions to the critical facilities list and map. Worked on ranking the hazards using the hazard ranking template
November 15, 2024 – Met with key partners at Green Mountain Power to discuss high hazard dam, the emergency action plan that is in process of being revised that includes updated inundation analysis.
December 6, 2024 – Committee met to review past plan mitigation actions, the hazard ranking template, finalize outreach list, finalized critical facilities list and map.
January 31, 2025 – Committee met and discussed future actions and gaps that need to be addressed and how to address the dam risks
February 28, 2025 – Committee met to identify mitigation actions that could be implemented in the next five years and discussed Community Capabilities.
March 11, 2025 – Working group met to finalize future mitigation actions.
April 11, 2025 – Discussed roadway mitigation actions, buyouts, possible EWP projects.
May 9, 2025 – Discussed Town Plan update and future zoning update, identified mitigation action support information, prioritization and plan maintenance.
August 29, 2025 – Discussed needed revisions and feedback of the current draft plan.
TBD - Selectboard meeting to present an overview of hazard mitigation and the rough draft of the plan in a public forum and get feedback from the Selectboard and the public. Received feedback from Selectboard member and incorporated into the draft plan.

TBD – Presented the draft plan to the Planning Commission. Received feedback from members and incorporated into the draft Plan.
TBD – Sent outreach email to surrounding communities, VTrans district office, regional floodplain manager, regional river engineer, Central Vermont Regional Planning Commission emergency manager, transit, School, VT Visiting Nurses and Hospice, and the Vermont State Police regional barracks. coordinator for meals on wheels, refer to initial outreach list
TBD – Announcement of draft posted on the Town's website along with the physically posted at the local store and Town Office
TBD – Presented draft to VEM for their review

In addition to the local knowledge of Planning Team 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.

Existing Plans, Studies, Reports and Technical Information
2016 Town Plan Referenced to develop the Community Profile, Capabilities, Integrating into Existing Plans and Procedures, Mitigation Strategy Updates – Changes Since 2019 Plan in Section 6.
2019 Moretown Local Hazard Mitigation Plan Referenced to develop the Community Profile, Capabilities, Integrating into Existing Plans and Procedures, Mitigation Strategy Updates – Changes Since 2019 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 LHMP plan update and review process along with updating Section 3.
Town of Moretown, Vermont Zoning & Subdivision Regulations - adopted in 1976 last revised in 2023 Referenced to develop Community Capabilities, Integrating into Existing Plans and Procedures, Mitigation Strategy Updates in Section 6
2016 Central Vermont Regional Planning Commission Regional Plan – Readopted 2024 Used to ensure the town plan and hazard mitigation elements align with the regional vision.
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.

FEMA Flood Insurance Study – Town of Moretown, Vermont – Washington County Effective date 3/19/2013 Used to update existing floodplain regulations as part of the regular phase of the National Flood Insurance Program to further promote sound land use and floodplain development.
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.
2020 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
Vtrans town highway map link

Changes since the 2019 plan

The 2019 local hazard mitigation planning effort analyzed natural hazards and the risk they posed to the Town of Moretown The risk assessment resulted in the categorization of High, Medium and Low risk level hazards. Flash floods and fluvial erosion; ice; wind; and snow were ranked as the community's High-risk natural hazards. Actions proposed in 2019 focused on mitigating risks from flooding due to their frequency and severe nature.

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 recent Zoning regulation revisions.

The Moretown Town Plan was adopted in 2016 and is currently in the process of being updated, The Plan 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 Moretown Zoning & Subdivision Regulations. These regulations were amended in 2023 and will be amended again once the new Town Plan has been adopted. Moretown Zoning & Subdivision Regulations includes Flood Hazard Area Development Standards to ensure that the selection, design, creation, and use of development in these hazard areas is reasonably safe and is accomplished in a manner consistent with public wellbeing, and does not impair stream equilibrium, flood plain services, or the stream corridor.

In addition, Moretown made significant progress in completing other mitigation actions identified in the 2019 Plan – see **Appendix B**. The Town also undertook many infrastructure projects such as replacing culverts to reduce future fluvial erosion damage, improve stormwater drainage and reduce the impact of hydraulically connected road segments.

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

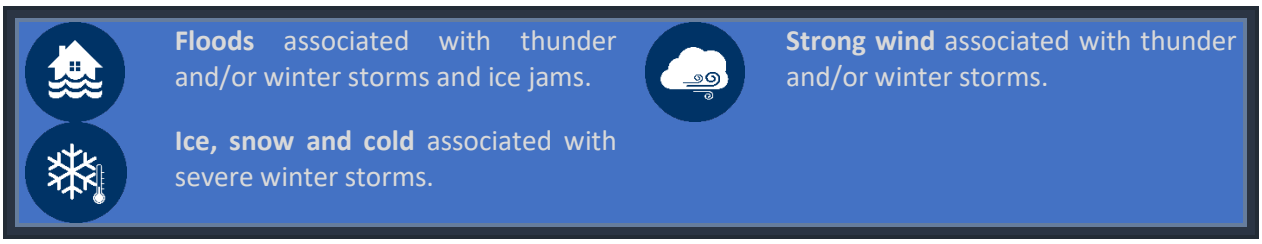
5 HAZARD IDENTIFICATION AND RISK ASSESSMENT

Local Vulnerabilities and Risk Assessment

To be consistent with the approach to hazard assessment in the 2023 State Hazard Mitigation Plan, the Hazard Mitigation Planning Committee conducted an initial analysis of known natural hazard events to determine their probability of occurring in the future and their potential impacts on the people, infrastructure, the environment, and local economy.

This assessment considered the effects of future conditions, such as climate change, on the type, location, and intensity of the identified hazards.

The ranking results are presented (in bold and darker blue) 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 do not justify mitigation because of their low probability of occurrence and/or low impact. However, mitigation recommendations were identified in the profiles. See the State Hazard Mitigation Plan for information on the lower risk hazards.

Hail and Earthquakes were decided by the planning team to be outside of the realm of justification for mitigation actions. Hail because the historic record of damage has been minimal and primarily to vehicles. Earthquakes have occurred; however, the damage has been historically small and thus they were deemed to be of minimal threat. Also, without residential and commercial building codes, it was virtually impossible for a town to develop effective mitigation strategies. See the State Hazard Mitigation Plan for information on these and other lower risk hazards.

Table 3- Federally declared disasters affecting Washington County and Moretown

Date	Description	Declaration #	County Estimates*	Moretown*
9/16-9/21-1999	Tropical Storm Floyd	DR1307	$118,777	-

4/15-4/21/2007	Severe Storms and Flooding	DR1698	$82,861	-
7/9-7/11/2007	Severe Storms and Flooding	DR1715	$1,149,010	-
7/21-8/12/2008	Severe Storms and Flooding	DR1790	$705,427	$216,691
4/23-5/9/2011	Severe Storms and Flooding	DR 1995	$6,799,058	-
5/26-5/27/2011	Severe Storms and Flooding	DR4001	$5,633,487	$22,692
8/27- 9/2/2011	Tropical Storm Irene	DR4022	$9,115,274	$2,114,202
5/20/2011	Severe Storms and Flooding	DR 4043	$241,066	-
5/29/2012	Severe Storm, Tornado, Flooding	DR 4066	$22,132	-
5/22-5/26/2013	Severe Storms and Flooding	DR 4120	$44,018	-
6/25-7/11/2013	Severe Storms and Flooding	DR4140	$2,113,577	-
12/20/-12/2013	Severe Winter Storm	DR 4163	$715,983	-
4/15- 4/18/2014	Severe Storms and Flooding	DR4178	$740,567	-
12/9-12/12/2014	Severe Winter Storm	DR4207	$683,998	-
6/29- 7/1/2017	Severe Storms and Flooding	DR4330	$2,587,175	-
10/2-10/30/2017	Severe Storms and Flooding	DR4356	$797,556	-
5/4-5/5/2018	Severe Storms and Flooding	DR 4380	$115,962	-
4/15/2019	Severe Storms and Flooding	DR4445	$2,566,916	-
10/31-11/1/2019	Severe Storms and Flooding	DR4474	$1,856,573	-
1/20-5/11/2020	Biological – COVID -19	DR4532	$351,111,727	-
7/29-7/30/2021	Severe Storms and Flooding	DR 4621	$214,176	
12/22-12/24/2022	Severe Storms and Flooding	DR4695	$1,401,103	-
7/7- 7/21/2023	Severe Storms and Flooding	DR 4720	$51,043,871	$992,717
8/3-8/5/2023	Severe Storms and Flooding	DR 4744	$52,535	-
12/18-12/19/2023	Severe Storms and Flooding	DR 4762	$169,151	-
1/9-1/13/2024	Severe Winter Storm	DR 4770	$40,319	-
7/9-7/11/2024	Severe Storms, Flooding, Landslides, and Mudslides	DR 4810	$3,964,972	$114,974

*Federal dollars obligated to date as of October 2025

Hazard Impact	Probability	Potential Impact					Score	Rank
		Infrastructure	Life	Economy	Environment	Average		

Fluvial Erosion	**4**	**4**	**3**	**4**	**4**	**4.75**	**19**	**1**
Indundation Flooding	**4**	**4**	**3**	**4**	**2**	**4.25**	**17**	**2**
Wind	**4**	**3**	**2**	**2**	**2**	**3.25**	**13**	**3**
Snow	**4**	**2**	**3**	**2**	**2**	**3.25**	**13**	**4**
Heat	4	1	3	2	2	3	12	5
Ice	3	3	3	3	2	3.5	10.5	6
Invasive Species	4	1	1	1	3	2.5	10	7
Wildfire	3	2	2	3	3	3.25	9.75	8
Drought	3	1	2	3	3	3	9	9
Cold	3	2	3	2	1	2.75	8.25	10
Landslide/slope failure	3	2	2	2	1	2.5	7.5	11
Infectious Disease	2	1	3	3	1	2.5	5	13
Hail	3	1	1	1	1	1.75	5.25	12
Earthquake	2	1	1	1	2	1.75	3.5	14

*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: Inundation/Fluvial Erosion/ Ice Jams

Hazard Description: Floods (fluvial erosion, inundation, and ice jams) can damage or destroy property; disable utilities; destroy or make impassable roads and bridges; destroy crops and agricultural lands; cause disruption to emergency services; and result in fatalities**.**

People may be stranded in their homes for a time without power, heat, or communication or they may be unable to reach their homes. Long-term collateral dangers include the outbreak of disease, loss of livestock, broken sewer lines or wash out of septic and wastewater systems causing water supply pollution, downed power lines, loss of fuel storage tanks, fires, and release of hazardous materials.

As noted in the 2023 State Hazard Mitigation Plan and 2021 Vermont Climate Assessment, the most common recurring hazard event impacting Vermont communities is flooding. The two most common types of flooding are inundation and fluvial erosion. Inundation is when water rises onto low lying land. Fluvial erosion is caused by intense and rapidly flowing floodwaters in brooks, rivers, drainage ditches, and along unpaved roads and private drives. It can occur suddenly, referred to as flash flooding, and as the flow of floodwaters increase in velocity. Fluvial erosion includes stream bank erosion and the development of gullies in areas where there is minimal or no plant cover.

Whereas inundation-related flood loss can be a significant component of flood disasters, the more common mode of damage in Vermont is fluvial erosion, often associated with physical adjustment of stream channel dimensions and location during flood events. These dynamic, and often catastrophic, adjustments are due to bed and bank erosion of naturally occurring, unstable stream banks, debris and ice jams, or to the structural failure of, or flow diversion by, human-made structures**.** Fluvial erosion can cause severe undermining of bridge abutments and wingwalls, drainage ditches, and unpaved driveways/private roads. These were significant and widespread effects of the flash flooding in 2024 in Moretown and resulted in the disruption of the transportation network for many days.

Flooding is one of the worst threats to Moretown's residents and infrastructure. Past instances of flooding in Moretown have included rain and/or snowmelt events that cause flooding in the major rivers' floodplains, and intense rainstorms over a small area that caused localized flash-flooding. Both types of events can be worsened by the build-up of ice or debris, which can contribute to the failure of important infrastructure (such as culverts, bridges, and dams).

Hazard Extent: Major floods occur periodically in Moretown on the Mad and Winooski rivers. Along with the Great Flood of 1927, there was also major flooding of one or both rivers in 1830, 1869. Some of the worst flooding has come in recent years, The 2024 flooding closed most of the major roads in Moretown (e.g. Routes 100 and 100B, Moretown Mountain Road, Moretown Common Road, Stevens Brook Road), the flood crest on the Mad River in Moretown was nearly 4 feet higher in July, 2024 than in July, 2023, Moretown Elementary School and the Village flooded in 2024, and fluvial erosion on Town roads, private roads, and driveways was more widespread in 2024.

The most widespread and significant flood damage occurred as a result of prolonged heavy rainfall during the 10-11 July 2023 period, when rainfall amounts of 3 to 9 inches were observed across the state over 48 hours. The highest 48-hour rainfall total was 9.20" in Calais, Vermont and rainfall reports of 4 to 8 inches were commonplace along the spine of the Green Mountains and adjacent communities. East

Moretown saw 7.4 inches according to the NWS. Catastrophic flash flooding and river flooding occurred across much of Vermont from early to mid-July 2023. Extensive flooding to communities, washouts of numerous roads and bridges, and even the occurrence of land and mudslides resulted in significant property losses and two deaths were reported. To date, over 26.2 million dollars have been obligated for individual assistance and 61.2 million dollars in public assistance from this flood event.

Many of the inundation flood events in Washington County have been caused by ice jams and or rain events causing rivers to back up and flood roads by as much as two feet of water, closing the roads for as much as a day.

Hazard Location: Moretown recognizes the importance of identifying those areas most vulnerable to inundation flooding and fluvial erosion. These areas surround the following waterways:

Winooski River Mad River

Welder Brook (a.k.a. Stevens Brook) Herring Brook

Kelley Brook (a.k.a. Ward Brook) Crossett Brook

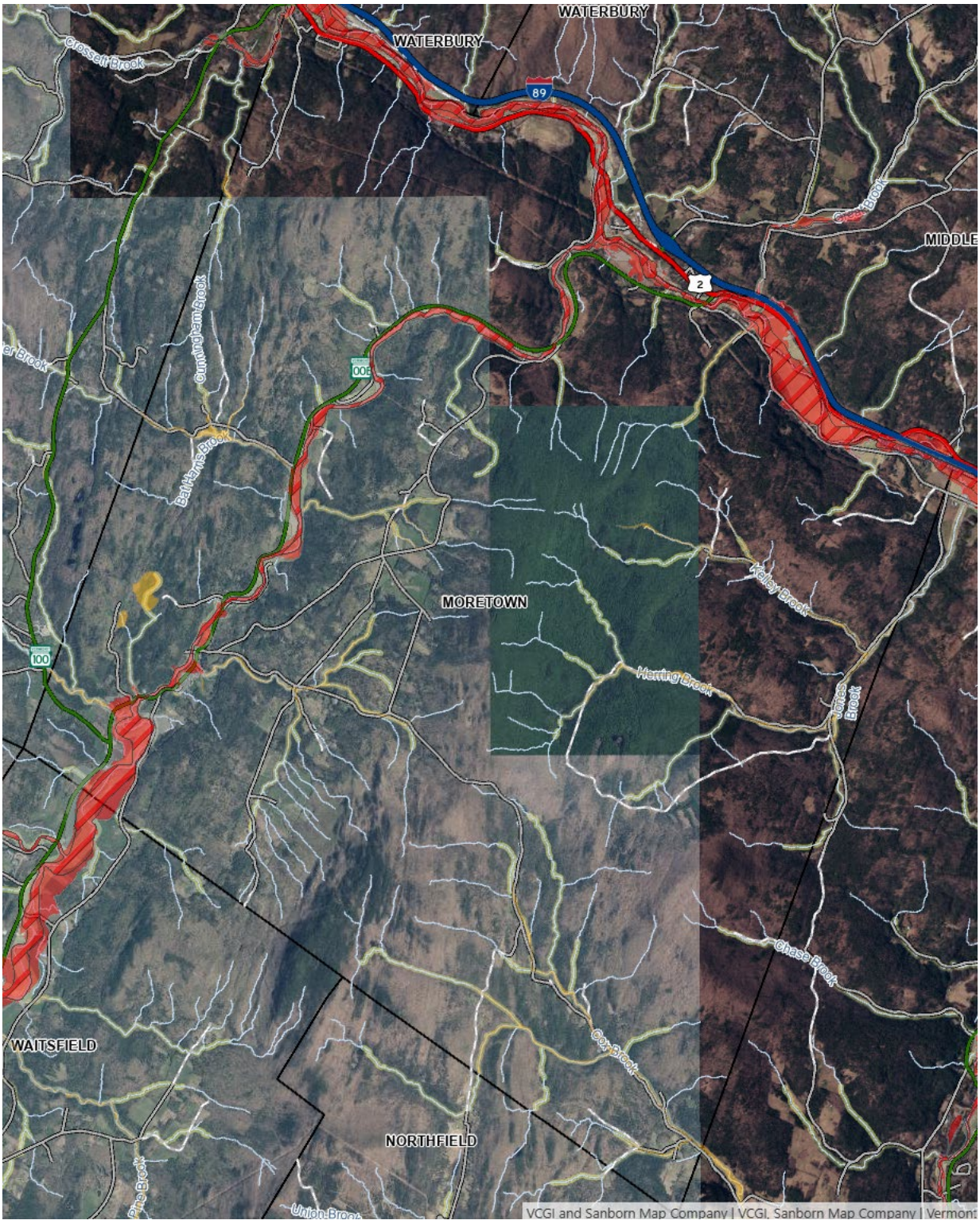
Doctors Brook Jones Brook

Cox Brook

Moretown is vulnerable to inundation flooding primarily along the Mad River in low-lying areas. According to the Moretown U.S.G.S. gauge on the Mad River just north of the Welder Brook, at the following water levels, the impact to the surrounding areas will be:

Water level (feet)	Impact
13.5	ABOUT 4 FEET OF WATER WILL COVER ROUTE 100 SOUTH OF MORETOWN AND INUNDATION WILL NEARLY REACH A MANUFACTURED HOME PARK IN WAITSFIELD
12	ROUTE 100 WILL BE COVERED WITH WATER IN MORETOWN, ROUTE 100B WILL BE PARTIALLY COVERED. WATER WILL INUNDATE TELEPHONE FLATS NEAR WAITSFIELD
9	THE MAD RIVER BEGINS TO LEAVE ITS BANKS. FIELD FLOODING OCCURS BETWEEN WAITSFIELD AND MORETOWN, AND SOME LOCAL ROADS WILL FLOOD

The figure below is the current version (3/19/2013) of the Flood Insurance Rate Map (FIRM) for the Town of Moretown, which defines both the current special flood hazard areas and the ANR river corridors.



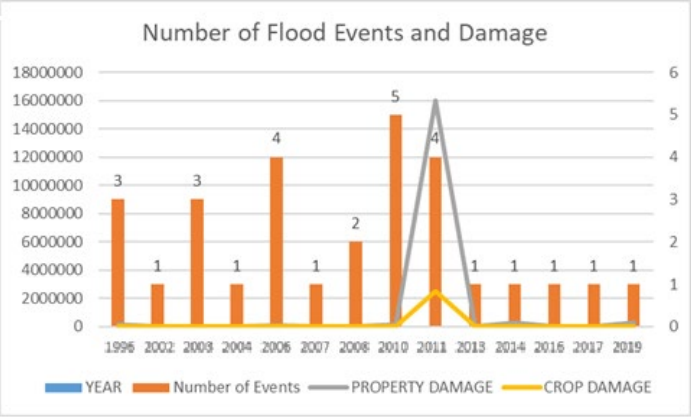
Fluvial erosion data has been provided to Moretown by the Phase 2 Stream Geomorphic Assessment & River Corridor Plan conducted by Bear Creek Environmental, LLC. This report provided fluvial erosion data for part of Moretown. The study was limited to 13 reaches of brooks and the Mad River in the Mad River and Jones Brook watersheds. It was not comprehensive for the perennial streams

in Moretown. The study did not include Cox Brook, the Winooski River, the reach of Crossett Brook in Moretown, or the upper reaches of most streams, especially Doctors Brook and its tributaries. This report did span 11 miles of stream channel and identified stream channel straightening as well as encroachment from development as the biggest stressors of these streams. The Vermont Agency of Natural Resources (ANR) has delineated areas that are likely to see more substantial erosion as the river changes course, at a magnitude that could cause significant property damage. These are called River Corridors and are highlighted in yellow in figure XX above.

The town is also concerned that climate change will fuel more extreme and rapid runoff. This could result from increased winter temperatures, more extreme temperature fluctuations in the winter, and more intense rain and snow events. In mountainous areas, such as Moretown, the increase in temperature fluctuations and precipitation is especially worrisome. The snowpack can become hazardous with rapid melting from rain on snow and sudden warming fueling extreme and rapid runoff.

Moretown is primarily vulnerable to inundation flooding along the Mad River and the Winooski River A wide range of assets are at risk from inundation flooding in these areas. There are 14 buildings in the current FEMA floodway; as well as roads, culverts, bridges, and two water wells for public establishments.

Hazard History: The table below identifies a history of occurrences, with associated property and crop damage, in Moretown and the Mad River Valley. Please refer to the 2023 State Hazard Mitigation Plan Appendix to Section 4 for more details.



(Mad River Valley is located in the towns of Waitsfield, Warren, Fayston and about half of Moretown. The Mad River flood gauge is located in Moretown. Information from NCDC website)

Recent Crests of the Mad River	
Crest Height (feet)	**Date**
9.18 (P)	5/18/2025
13.49 (P)	7/11/2024
8.99 (P)	3/7/2024

13.02	12/18/2023
9.62	7/11/2023
9.02	12/23/2022
12.21	1/24/2019
10.02	4/16/2014
9.33	7/4/2013

(P) – Preliminary flood peak

Date	Event	Location	Extent
8/28/2011	Flash Flood (TS Irene)	Moretown, Washington County	Mad River flood gauge at 19.07 feet; 10.07 feet above flood stage (flood stage is 9 feet) DR 4022
5/20/2011	Flash Flood	Washington County, Moretown	4" of rain, not a historical crest - DR 1995
3/6/2011	Flood; ice jams	Moretown; Washington County	1-2" of rain followed by ~15" of snow
10/1/2010	Flood	Moretown, Washington County	4-5" of rain, Mad river gauge at 10.39 ft
8/2/2008	Flash Flood	Washington County (Mad River Valley)	Mad River gauge at 7.89 feet – DR 1790
3/15/2007	Flood; ice jams	Mad River Valley	Mad River Gauge at 13.5 ft
12/24/2003	Flood	Mad River Valley	Mad River flood gauge at 14.17 feet DR 1448
12/17/2000	Flood	Mad River Valley	3" of rain; no data for Mad River
6/27/1998	Flash Flood	Mad River Valley	3-6" of rain over 2 day period – Mad River flood gauge at 14.13 feet, 2-3 ft of water on Rte 100b through Moretown Village - DR1228
8/6/1995	Flood	Mad River Valley	Mad River flood gauge at 8.12 feet DR 1063
3/31/1987	Flood	Mad River Valley	Mad River flood gauge at 11.97 feet
3/13/1977	Flood; ice jams	Mad River Valley	Mad River flood gauge at 13.72 feet
8/5/1976	Flood	Washington County	Mad River flood gauge at 13.47 feet DR 518
9/22/1938	Flood	Washington County	Mad River flood gauge at 16.34 feet
9/22/1938	Flood	Washington County	Mad River flood gauge at 16.34 feet
11/03/1927	Flood	Washington County	Mad River flood gauge at 19.40 feet

Town Vulnerability:

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.

Built environment: Fluvial erosion and flooding events can cause damage to town and private property, including roads, culverts, driveways, bridges, wells, sewage facilities/septic systems, and buildings.

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.

Future Probability and Potential Future Impacts:

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 inundation hazard area regulations and participates in the National Flood Insurance Program. Moretown'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. If most of the currently approved FEMA buyouts are accepted, the change in land use will reduce the town's tax base.

Change in Demographics: Moretown'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.

Windstorm/High Winds

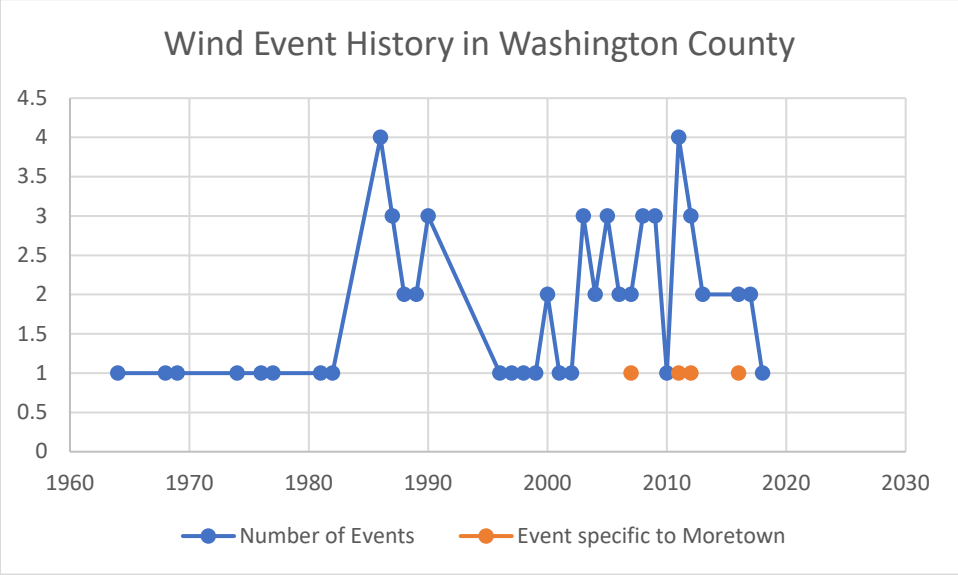
Hazard Description: High winds have caused damage in Washington County and in the Town of Moretown specifically. Damage caused by high winds has included downed trees and power lines, and, as a result, power outages during or after severe weather, hurricanes, or tropical storm events. Power outages can be particularly serious for "power critical customers" that do not have the luxury of having a generator,

particularly vulnerable population segments (i.e., the elderly or disabled). However, in general, high winds cause relatively minor damage on a town-wide scale.

Hazard Location: Wind events impacts in Moretown have been townwide. Unlike flooding and fluvial erosion, which typically follow bodies of water, wind events can occur and have occurred throughout the town.

Hazard Extent: Wind speeds can vary significantly, with gusts reaching 45-60+ mph during severe thunderstorms and higher during hurricanes or tropical storms. Wind advisories and warnings are issued by the National Weather Service, often providing several hours to days of advance notice. Wind events can last from a few minutes during thunderstorms to several days during hurricanes and nor'easters. High wind events occur several times a year, particularly during hurricane season (June to November) and winter months. Significant wind events in Moretown have been associated with hurricanes, tropical storms, and nor'easters. Notable events include the impacts from the 1938 Great New England Hurricane, Tropical Storm Irene in 2011 and various nor'easters. A wet microburst from a severe thunderstorm in June of 2018 caused significant property damage in the Mad River Valley with winds recorded in upwards of 63 mph.

Hazard History: The below table identifies a history of occurrences. Please refer to the 2023 State Hazard Mitigation Plan Appendix to Section 4 for more details.



Future Probability and Impacts:

Over the past 15-20 years there has been an observable increase in the severity and frequency of storms with high winds in Washington County. . Extremes in warming and cooling which we have seen in recent years lead to high winds as convective forces meet cooling forces. It is probable that in the future, we will not see a lessening in winds or wind producing storms. Certainly, if climatologists' predictions are true, this trend is expected to continue into the future. Since, by nature, severe storms are accompanied by high winds, damage due to wind are expected to increase as well.

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: Moretown'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:

Exceptionally high winds found in cyclonic storms and microbursts from severe thunderstorms would likely result in damage to roofs in town and result in the collapse of some structures. Power outages are the main reason for disrupting communications, which are crucial in times of crisis. Telecommunications are also needed for warning systems before a disaster, as well as for response during and recovery after, as shown recently by Hurricane Helene in North Carolina that high winds in mountainous areas can significantly disrupt cell phone communication. In addition to power and communication outages, downed trees during strong wind (and heavy snow/ice) events can damage buildings and other property.

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.

Built environment: Wind events can cause damage to town and private property, including buildings (windows and roofs), downed road signs, utility poles, telecommunication and power lines, cell phone towers, and overturned vehicles.

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.

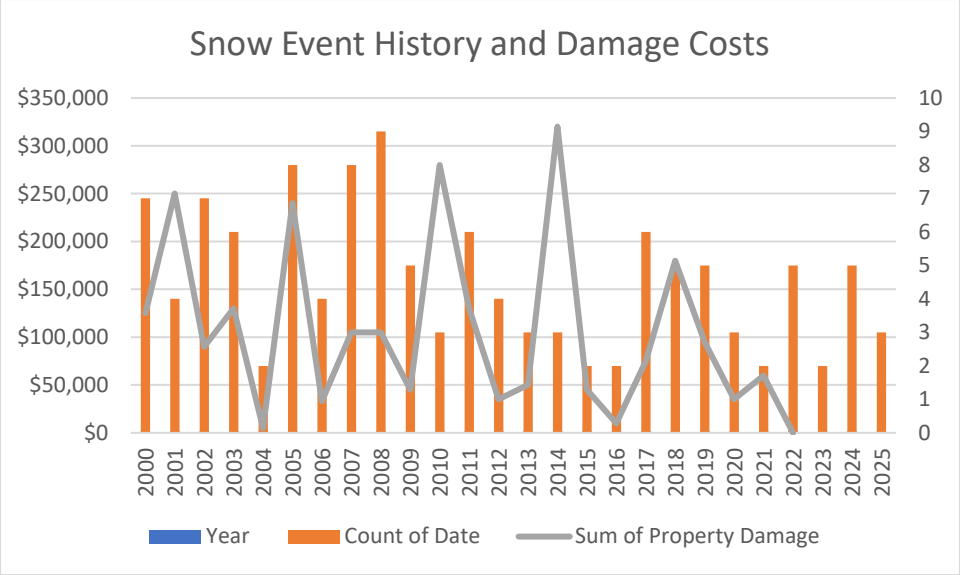
Snow

Hazard Description: Winter storms are a regular occurrence in Vermont. They can consist of extremely low temperatures, intense wind chills, and high snow and/or ice accumulation. However, severe winter storms can cause serious damage, including collapse of buildings due to overloading with snow, downed trees and power lines, and harm to stranded vehicles. People can be at risk of freezing in extended power outages if they lack wood heat or backup power, and individuals shoveling large accumulations of snow can also be at risk from frostbite, hypothermia, and heart attacks caused by cold and overexertion. While snow removal from the transportation system is standard fare in Vermont winters, extreme snow can close rail and road systems, further jeopardizing any stranded persons that are in danger of freezing or needing medical assistance.

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

Hazard Extent: Snow events occur several times each winter , with major storms happening every few years. Moretown has experienced numerous significant snow events, with notable occurrences causing widespread disruptions and damage. For example, the Blizzard of 1978 and the Valentine's Day Blizzard of 2007. Snowfall accumulation can range from a few inches to several feet during severe storms. Blizzards can produce wind speeds exceeding 35 mph, causing whiteout conditions and significant snowdrifts. Snowstorm warnings and advisories are issued by the National Weather Service, typically providing 24-48 hours of advance notice. Snow events can last from a few hours to several days, with lingering effects due to ice accumulation and cold temperatures.

Hazard History: The below table identifies a history of occurrences. Please refer to the 2023 State Hazard Mitigation Plan Appendix to Section 4 for more details.



Town Vulnerability:

People: Ice and snow 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 and snow 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 and snow events can cause damage to the environment with downed trees.

Economy: Ice and snow 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

Future Probability and Potential Impacts:

Climate Change: Climate change significantly affects weather patterns, including the frequency, intensity, and geographic distribution of ice and snow 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 and snow events as a result of development or land use changes could be identified.

Change in Demographics: Moretown'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.

Extreme 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. Increased humidity can also result in a higher heat index for summer heat waves. 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. Moretown may experience a heat advisory, watch or warning., 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 Moretown, Washington County and statewide are susceptible to extreme heat events.

Hazard History: Although Moretown and the State of Vermont have a low historical occurrence of extreme heat events, the threat is increasing due to climate change. Per the State Hazard Mitigation Plan, the following extreme heat events have occurred:

Date	Episode Narrative
12/1/1998	During the early morning hours, the temperature at Knapp State Airport (Montpelier-Barre Airport) reached 61 degrees setting a new record high temperature. The previous record being 59 degrees, set in 1991.
12/7/1998	During the morning hours, the temperature at Knapp State Airport (Montpelier-Barre Airport) reached 67 degrees setting a new record high temperature. The previous record being 61 degrees set in 1951. In addition, this also set an all-time record high temperature

	for the month of December, previously the record monthly high temperature was 64 degrees set on December 4th, 1982.
8/1/2006	A heat ridge" moved into Vermont during the early morning hours. This "heat ridge" was part of a strong upper-level area of high pressure that brought record heat to a large majority of the country since mid-July.
8/2/2006	The heat ridge" that delivered some of the warmest combined heat and humidity in years to all of Vermont on the 1st shifted across central and southern Vermont on the 2nd as a cold front drifted into northern Vermont. Afternoon heat indices reached 100 to 105 degrees in central and southern Vermont due to temperatures in the 90s and dewpoints in the lower to middle 70s. Some observed maximum temperatures on the 2nd included; Union Village at 97 degrees Rutland at 95 degrees Springfield at 94 degrees Cornwall at 93 degrees Middlebury and Northfield at 92 degrees Montpelier at 91 degrees and North Clarendon at 90 degrees."
7/21/2011	A portion of the heat ridge that brought record setting heat across much of the eastern two-thirds of the lower 48 states, delivered record heat as well as oppressive dew points to portions of Vermont on July 21st. This was the 2nd day of a three-to-four day heat wave across a large portion of Vermont. Maximum temperatures in the mid to upper 90s with dew points in the lower to mid-70s created heat index values of 100-108 degrees across the Champlain and Connecticut valleys as well as some interior valleys.
3/17/2012	The Winter of 2011-12 was largely abnormal with temperatures that averaged 4-5 degrees above normal and snowfall that was 40-60 percent of normal. This combination accounted for snow packs across the region to be largely below normal or even non-existent by mid-March. Maple sugar producers started tapping trees by late February-early March. In Mid-March, a huge, upper atmospheric ridge dominated the eastern half of the lower 48 states, which allowed for unprecedented record heat from the northern Plains and Mississippi River Valley to the Atlantic coast. Thousands of daily maximum temperature records were broken during this time frame In Vermont, temperatures reached the mid 50s to lower 60s on March 17th, then climbed into the 70s on the 18th with 70s and lower 80s on the 19th through 22nd. The normal high temperature during this period is the mid 30s to lower 40s. These record temperatures combined with Winter 2011-12 conditions accounted for the Maple Sugaring industry to end by the last week of March. Preliminary estimates of a 30 percent loss in the maple sugaring industry or approximately 250,000 gallons at a market rate of $40/gallon or approximately a $10 Million loss statewide. http://www.nass.usda.gov/Statistics_by_State/New_England_includes/Publications/0605mpl.pdf||In addition, but not accounted for in damage estimates, is the loss revenue of the ski industry during the winter due to a 25-50 percent snow drought and early spring closures.||Climatological records available in Vermont are Burlington, Montpelier and St. Johnsbury and are included in their corresponding zones.
7/1/2018	A dangerous heat wave, one of which likely hasn't impacted the North Country in decades occurred between June 30th and July 5th. High temperatures exceeded 90 degrees for at least 5 of the six days in many locations were above 85 degrees for 7 days. |Heat indices, the combination of temperature and humidity, were recorded in the 100 to 110 range considered excessive and very dangerous. A substantial increase in hospitalizations occurred due to the excessive heat and duration and at least 4 deaths were attributed to the heat.||Burlington VT witnessed the warmest 5- and 6-day consecutive stretch since

	record keeping began in 1892. Also, the all-time warmest minimum temperature was recorded on July 2nd of 80 degrees, breaking the old record of 78 degrees.

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 Moretown with a greater increase in Heat Warnings. 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 and population 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: Moretown'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

Ice Profile

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 ground, 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.

Hazard Extent: Ice events occur several times each winter , with major storms happening every few years. Significant ice storms have occurred in Moretown, with notable events causing widespread power outages and transportation disruptions. For example, the Ice Storm of 1998 heavily impacted the region. Ice accumulation can range from a light glaze (less than 0.25 inches) to significant buildup (greater than 0.50 inches). Severe ice storms can lead to widespread damage.

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

Hazard History: According to NOAA storm history (1950 to present) there has been only one event reported for Washington County and that was on February 7, 2020, which was a combined snow and ice event where there was a ¼" of ice buildup and there was $20,000 recorded county wide damage.

Town Vulnerability:

People: Ice and snow events can cause injuries or fatalities to people who do not shelter-in-place, or 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 and snow events can cause damage to town and private property, including buildings (roof collapse), blocked egress routes, blocked evacuation routes, frozen pipes, and downed power and telecommunication lines.

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

Economy: Ice and snow 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

Potential Future Impacts:

Climate Change: Climate change significantly affects weather patterns, including the frequency, intensity, and geographic distribution of ice and snow 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 and snow events as a result of development or land use changes could be identified.

Change in Demographics: Roxbury'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.

Invasive Species

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

Hazard 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 that the Asian Longhorn Beetle (ALB) or Emerald Ash Borer (EAB) could have on Moretown's forest products industry and village landscape**. Japanese knotweed has taken over river banks and other areas with which it comes in contact and is easily transported to new areas by water and flooding events.**

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

Hazard History:
The Moretown Hazard Mitigation Committee 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.

Widespread establishment of Wild or Poison Parsnip (*Pastinaca sativa*) along roadsides and/or open fields can effectively remove those areas for summer recreation . 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, this could heavily impact future visits.

Ash trees are the source for hardwood that can bend and withstand considerable stress. Historically, ash has been used 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 has not been found in Moretown, however the surrounding towns have it is only a matter of time before the town starts to see the borer. Japanese Knotweed lines both banks of the Mad River in Moretown, is also found in several of its tributaries, and in both lowland and upland areas in town. Currently there is a major effort upstream in Warren and Waitsfield to remove this invasive.

A third invasive of immediate concern 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 the state's economy.

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

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.

Moretown is potentially extremely vulnerable to the economic impacts of invasives and is limited in its ability to combat their spread. The Town generally will follow the State of Vermont guidance from the Agency of Natural Resources on how to deal with invasives and work with partners to mitigate their damage. 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 potentially accelerate the frequency of landslides, wildfires, and infectious disease outbreaks."

Town Vulnerability:

People: People may be infected or made ill by invasive species events (e.g., walking trails where Poison Parsnip is found).

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. Ash trees are of particular concern. Invasives can out competing trees, stream banks are more susceptible to erosion and water temperature increases without shade. Increased water temperatures affects fish and other aquatic life.

Economy: Invasive species can impact the recreation industry with adverse effects to fisheries, ithe closure or difficult access to local bodies of waters and outdoor recreation trails.

Potential Future Impacts:

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: Moretown'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.

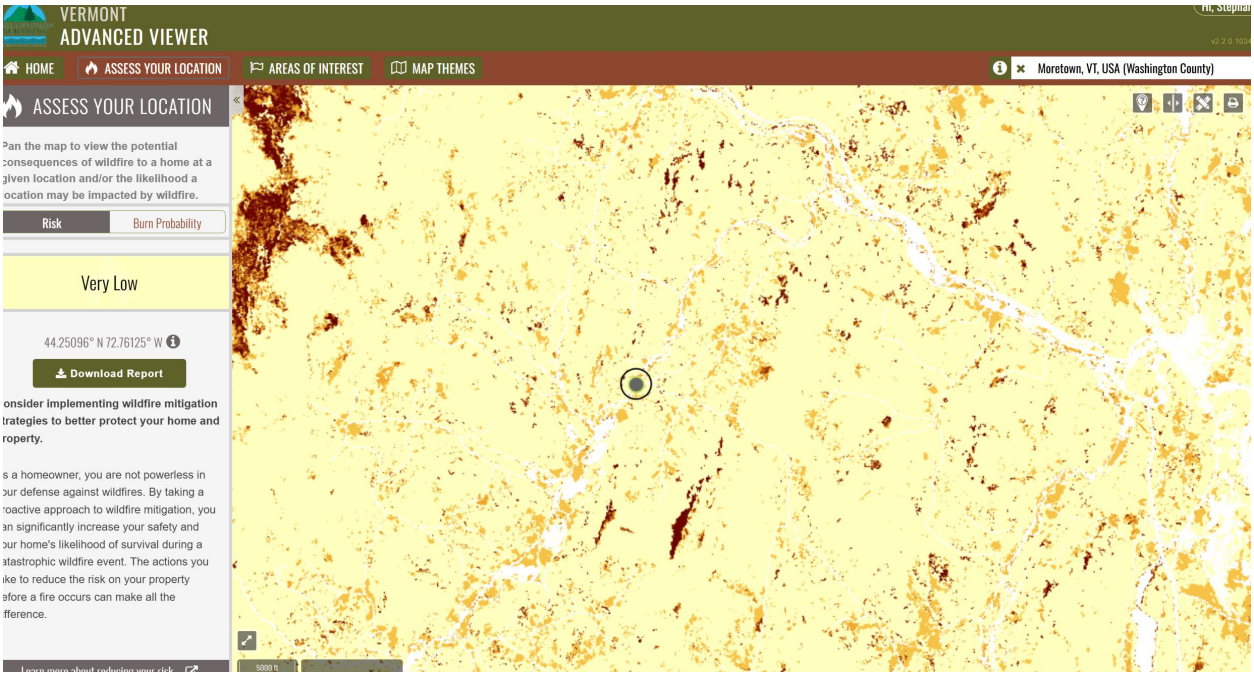
Wildfire

Hazard Description: Wildfires are uncontrolled fires that spread rapidly through vegetation, forests, grasslands, and other flammable materials. Wildfire in Vermont results from ignition by lightning, human activities (arson, campfires, machinery sparks), and weather conditions (high temperatures, drought, strong winds).

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 Moretown, there are large tracks of forested land in the eastern and northwestern portion of Town that could be at risk during sustained dry periods times when dry hazardous conditions exist.

Hazard History: Per the Vermont Hazard Mitigation Plan and NOAA event history, there has not been a major wildfire in Vermont history in the past 50 years. There have only been small isolated (0.5 acre) wildfires within the last 50 years within Washington County but due to the shifting weather patterns due to climate change the potential is there for spring and fall risk with flash droughts that occur statewide.



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. Smoke from wildfires can have a huge impact people.

Built environment: Wildfire events can cause damage to town and private property, including buildings (burn damage), blocked egress routes, blocked evacuation routes, loss of electrical power, internet access, and roads. These impacts could cause disruption of the transportation system to and from the community and county.

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.

Potential Future Impacts:

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: Moretown'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 are closely linked to heat waves and wildfires, as prolonged dry conditions intensify heat and create the perfect environment for fires to ignite and spread.

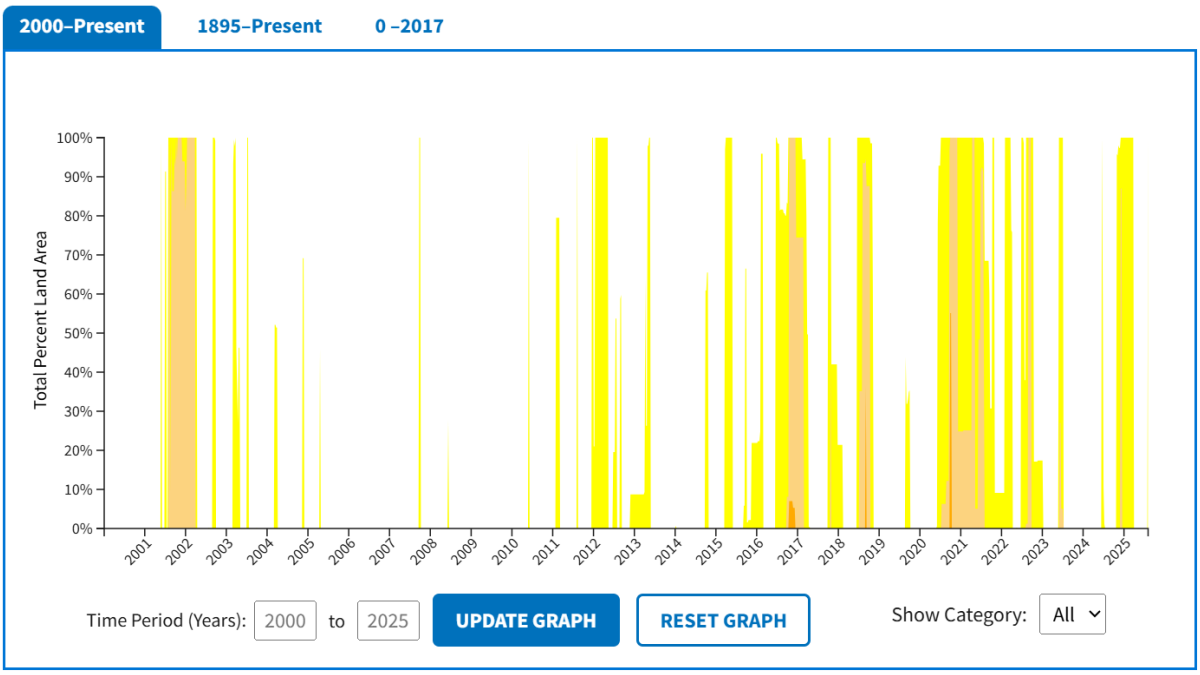
Droughts in the Northeast tend to be, what are referred to as "flash" droughts, defined as rapid onset of intense dry periods that can follow periods of normal or above normal precipitation. These may last from 2-6 months, and can have profound impacts within the region, on agricultural losses, shortages 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 Moretown, Washington County and the State are susceptible to drought events.

Hazard History: There have been 3 instances of D3 (Severe Drought) level droughts in Washington County VT since 2000. All of which were less than a month in length and most less than a week. Even though there is a level of risk to the Town of Moretown, the committee chose not to detail the hazard any further or identify any mitigation measures.

Historical Conditions for Washington County



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 and spring flow, leading to compromised drinking water, which could result in health issues.

Built environment: Moat droughts are not likely to cause the drilling new wellsor replacement of well parts. Extended droughts may require the deepening of wells or the location of new water sources.

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: Moretown'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.

Extreme Cold

Hazard Description: Winter storms are a regular occurrence in Vermont. They can consist of extremely low temperatures, intense wind chills, high snow accumulation levels, and/or ice accumulation. People can be at risk of freezing in extended power outages if they lack wood heat or backup power, and individuals shoveling large accumulations of snow can also be at risk from frostbite, hypothermia, and heart attacks caused by cold and overexertion.

Extent: 2015 tied the coldest winter (January to March) on record (1923) for Vermont as a whole according to the NOAA's National Climatic Data Center whose dataset dates to 1895. In January, 1923, temperatures plummeted lower than 20 to 30 below zero and wind chills were recorded at 25 to 40 degrees below zero. Even with climate change cold temperatures are expected and will continue in the Northeast and they can and will pose a serious threat to health and safety, especially as the severity and duration increases in conjunction with other technological (e.g. power outage, fuel oil delivery disruption) and societal (ability to purchase heating fuel access to food and water) factors. Maintaining a safe living environment for livestock during extreme temperatures, especially cold extremes, is a real concern for Moretown and the rest of the state. A more recent event in 2023, Washington County saw temperatures dip even lower to -39 degrees F.

Hazard Location: All areas of Moretown, Washington County and the State can be affected by snow, ice, and cold events, particularly higher elevations and exposed locations.

Hazard History: 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. Below are the 7 cold related listing from the SHMP of 2023 and one additional cold event since then.

Washington 1/25/2007 Cold (0 to -20 degrees F) Washington 1/7/2015 Cold (-25 degrees F)

Washington 3/6/2007 Cold (-5 to -20 degrees F) Washington 1/11/2022 Cold (-10 to -20 degrees F)

Washington 3/9/2007 Cold (-10 to -34 degrees F) Washington 1/14/2022 Cold (-10 to -25 degrees F)

Washington 1/14/2009 Cold (-10 to -30 degrees F) Washington 2/3/2023 Cold (-27 degrees F)

Town Vulnerability:

People: 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: Cold weather events can cause damage to town and private property, most likely from frozen and burst pipes. Batteries may lose their charge and disable equipment usage.

Natural environment: Cold weather events can potentially cause damage to certain crops such as fruit trees or less cold tolerant vegetation.

Economy: 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.

Potential Future Impacts:

Climate Change: Climate change significantly affects weather patterns, including the frequency, intensity, and geographic distribution of extreme cold events.

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

Change in Demographics: Moretown'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.

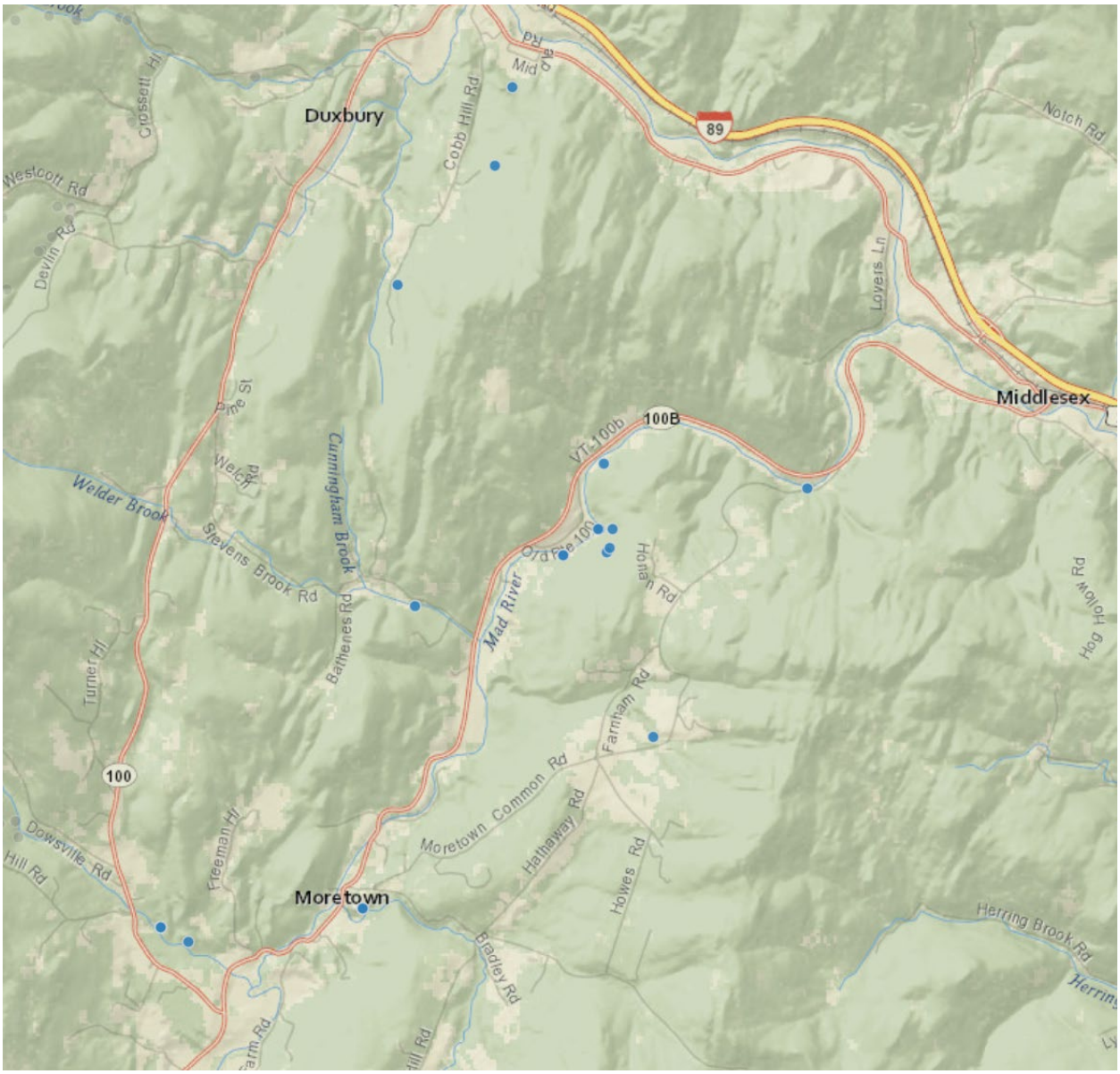
Landslide/Slope Failure

Hazard Description: A landslide is a large mass of Earth material that has moved down a slope under the influence of gravity. The mass can consist of soil, mud, sand, gravel, and large boulders, as well as living and dead trees and smaller plants. Entire buildings, utility lines, and other infrastructure can move with, or be buried by, a landslide. In Vermont, most landslides take place following heavy rains or when slopes are undercut and steepened by fluvial erosion or human construction. Slope failure can also take place as rock falls. These are most common where highways have been cut into bedrock (ledge), and repetitive freezing and thawing has loosened the rock.

Hazard Extent: Landslides may occur on any sloping land in Moretown, however they are most likely where stream bank erosion has cut into slopes along the Mad and Winooski rivers and their tributaries. Rock falls are limited to bedrock (ledge) outcrops, and are most likely to occur in the Middlesex Narrows of the Winooski River, along the Mad River gorge in the Village, and in road cuts into ledge along Routes 2 and 100B.

Hazard Location: In 2018, the Vermont Geological Survey established a statewide landslide database which includes 15 landslides in Moretown. Most of these landslides were identified in a 2017 Washington County survey using aerial photographs and limited field investigations (Springston, 2017). Since 2017, four additional landslides have been mapped along the east side of Jones Brook valley (Wright and others, 2023). Another unmapped landslide along the Winooski River bank damaged Lovers Lane, just south of Route 2, in 2023 and 2024. The U.S. Geological Survey has mapped areas with a moderate potential for

future landslides on the north side of the Kelley Brook valley between Hog Hollow and Jones Brook roads, on the eastern side of the Cox Brook valley approximately one mile east of Moretown Mountain Gap, on the south-facing hillslope between Old Gulf Road and Moretown Village, and in an area north of Dowsville Brook along the Duxbury town line (Baskerville and Ohlmacher, 2001).



Hazard History:

The recorded history of landslides in Moretown is very limited. The earliest recorded landslide in the Mad River Valley is the 1812 Slide Brook slide in Fayston (Marsh, 1997). The Vermont State Archives contain an Agency of Transportation photograph of a 1973 landslide on the east side of Route 100B, just north of the Route 100 intersection (Wiedenmayer, 1973). Although the Vermont Geological Society database shows only five active landslides in Moretown, many of the landslides in the database have not been evaluated, and those categorized as “inactive” can reactivate. Once a landslide slip surface develops in earth material, that surface is a weakness on which continued movement can occur years, decades, or centuries after the

first slide. Thus, any area where geologists have identified landslides should be viewed as potentially hazardous.

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 may lead to increased frequency and intensity of flooding events, fluvial erosion, rain/snow events and changes to material's strength through weathering, resulting in a higher probability of future landslides.

Change in Land Use/Development: Increased recreational use or development in landslide or fluvial erosion prone areas may lead to increased impacts of landslides.

Change in Demographics: Moretown'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.

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 Moretown. Recently, Moretown, 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 influenza strain

2015 – Zika virus

2020 – COVID-19

Town Vulnerability:

People: People with disabilities, access and functional needs and elderly people 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).

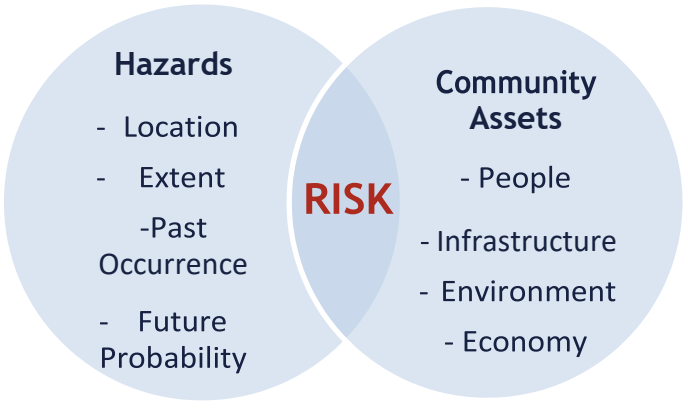
Economy: Infectious disease outbreak events can cause economic impacts to the town. Impacts include disruption or closure of impacted businesses, and costs to operate immunization clinics.

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: Moretown'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.



-NOAA 2022 Vermont Climate summary

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

6 HAZARD MITIGATION STRATEGY

The highest risk natural hazards and vulnerabilities identified in the previous section of this Plan directly inform the hazard mitigation strategy outlined below, which the community will strive to accomplish over the coming years. The mitigation strategy chosen by the Town includes the most appropriate activities to reduce future risk from potential hazards.

Mitigation Goals

The Hazard Mitigation Planning Team identified the following as the community's primary mitigation goal:

The Town of Moretown has identified that its goals for hazard mitigation are to reduce and/or avoid all long and short-term vulnerabilities to the hazards by protecting the health and safety of the public; protect existing and new properties and structures; Reduce impacts to residents and local industry and provide for the outdoor recreational safety of the public. By increasing the Town of Moretown's resilience to natural hazards in 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 such as transportation, water, wastewater, energy, and communications.

Community Lifelines

Community Lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. The goal of the lifeline concept is to focus response efforts on stabilizing or re-establishing these most fundamental services during and after a disaster. Mitigating lifelines should reduce cascading impacts across government and business functions and lessen system-wide damage.

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 and areas for improvement

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. Moretown'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 Treasurer, Town Clerk, Assistant Town Clerk, and Zoning Administrator.

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

To augment local resources, the Town has formal mutual aid agreements for emergency response – fire, emergency medical services, and public works. Technical support is available through the CVRPC in the areas of land use planning, housing, emergency management, water quality, wastewater and flood resiliency, transportation, GIS mapping, and grant writing. Technical support is also available through the State Agency of Natural Resources (ANR) for floodplain bylaw administration and VTrans Districts for hydraulic analyses.
https://centralvtplanning.org/wp-content/uploads/2025/01/FY24-Moretown-Final.pdf

Strengths Moretown is a small community (1753 population at the 2020 Census) between the larger communities of Waterbury, Montpelier, and the Mad River Valley. Many Moretown residents work in those adjacent communities, and as far afield as Middlebury and Burlington. Moretown boasts a strong community spirit, best experienced at the annual fall Morefest. A growing core of committed volunteers is involved in committees, departments, and groups. Strong interdepartmental communication and cooperation exists among staff in the municipal buildings, all of which are located in Moretown Village on Rt. 100 B.

Areas for Improvement Moretown is actively expanding its stable of potential candidates for volunteering on committees. The historically small pool of volunteers has potential to generate burn out and the fact that many also have jobs, ability to commit time to significant projects is frequently limited.

Planning and Regulatory

Moretown's plans, policies, codes, and ordinances are designed to prevent and reduce adverse outcomes within their various areas of jurisdiction as well as the impacts of both built and natural hazards. Examples of planning capabilities that can affect mitigation efforts include land use plans, capital improvement programs, transportation plans, stormwater management plans, disaster recovery, resiliency and reconstruction plans, and emergency preparedness and response plans. Examples of regulatory capabilities include the enforcement of zoning ordinances and subdivision regulations that regulate how and where land is developed, and structures are built. Moretown frequently relies on state law and regulation to augment local areas of regulation. Examples include:

VT Residential Building Energy Standards (RBES)and Division of Fire Safety State Building Permits (RBES)
https://publicservice.vermont.gov/efficiency/building-energy-standards/residential-building-energy-standards

State Building Permits – FireSafety
https://firesafety.vermont.gov/sites/firesafety/files/documents/dfs_codesheet_state%20permits%20poster.pdf

Town Plan: 2016
Description: A vision, framework and guide for future growth and development in Moretown. Moretown's municipal plan is in the process of being updated.

Relationship to Natural Hazard Mitigation Planning: Includes goals and policies related to flood resilience and location, amount, intensity and character of land use. The municipal plan addresses transportation, utilities and facilities, energy, housing, natural and historic areas. Flood resilience is mentioned in the plan, referencing the existing local hazard mitigation plan. (24 V.S.A. section 4382, Plan for a Municipality)

Zoning & Subdivision Regulations: March 2023
Description: Provides for orderly community growth promoting the health, safety, and general welfare of the community pursuant to an adopted municipal land use plan.

Relationship to Natural Hazard Mitigation Planning: Establish site plan review requirements and zoning districts, including Flood Hazard and River Corridor Overlay Districts, with specific standards for proposed development. Requirements are designed to provide for housing in locations that are not at risk for natural disasters; to mitigate negative impacts to the natural and human environment; minimize effects to the historical and aesthetic character of the community; and 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 29, 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: October 2020
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: May 2025
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 project 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
Areas for Improvement The Town is in a good place with plans and regulations, however, will continue to review state statutes and policy to stay in compliance. Developing fire ordinances would be proactive measure.

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

Strengths well-funded budgets

Areas for Improvement Local Budgets stressed with many demands, rebuilding projects from previous storms

Education and Outreach
Local Community events such as Morefest and expanded Town Meeting
Town website, Front Porch Forum, and postings at the Town Office, Post Office, Moretown Store

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

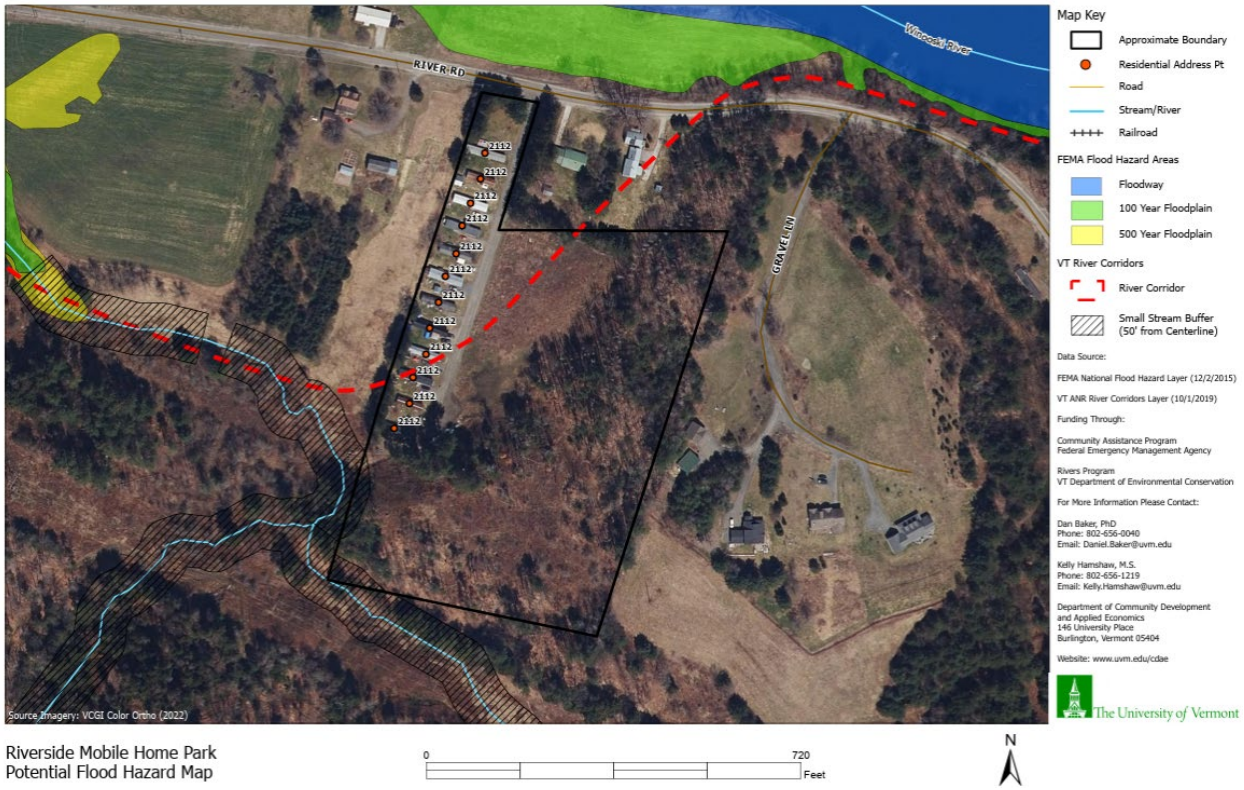
Areas for Improvement

National Flood Insurance Program

The Town joined the National Flood Insurance Program (NFIP) in September of 1978. The effective date of the current Flood Insurance Rate Map (FIRM) is March 2013. As stated previously there are draft SFHA maps in development but are in draft at this time. The administration of the zoning bylaws and the NFIP in Moretown is the responsibility of the town's zoning administrator who reviews all applications and refers to the Development Review Board as appropriate. Moretown's regulations outline detailed minimum standards for development in flood hazard areas defined as FEMA Special Flood Hazard Areas and Floodway Areas.

Using 2025 data, there are 105 structures in the FEMA Special Flood Hazard Area (SFHA), Within the SFHA, there are 11 active NFIP policies. A change from the 2019 plan is there are now 7 repetitive loss properties in Moretown and a few of them are currently going through the buyout process, they may be eligible for participation in the Community Rating System (CRS) if they choose. The administrative resources necessary for enrollment and ongoing program maintenance are likely to be a significant challenge for Moretown and a deterrent for participation.

There is a manufactured home community, Riverside, that is potentially vulnerable to flooding according to the analysis completed by UVM.



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 Management 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.

Hazard Mitigation Action Identification

The Hazard Mitigation Planning Team discussed the mitigation strategy, reviewed projects from the 2020 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 and Plan for Implementation

For each mitigation action identified, the Planning Team evaluated its potential benefits and/or likelihood of successful implementation. Actions were evaluated against a range of criteria, including a planning level assessment of whether the costs are reasonable compared to the probable benefits. Results of this evaluation are presented in **Table 9**.

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.

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 following strategies will be incorporated into the Town of Moretown's long-term land use and development planning documents. In addition, the Town will review and incorporate elements of this Local Hazard Mitigation Plan into updates for the municipal plan and flood hazard/river corridor bylaws. The incorporation of the goals and strategies listed in the Local Hazard Mitigation Plan into the municipal plan and flood hazard/Fluvial Erosion Hazard Program (FEH) bylaws will also be considered after declared or local disasters. The Town shall also consider reviewing any future CVRPC planning documents for ideas on future mitigation projects and hazard areas.

Proposed Mitigation Actions	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
Local Plans & Regulations									
Recommended for Implementation									
Work with electrical utilities (Green Mountain Power, Washington Electric, and Northfield Electric), as applicable, for maintenance of trees in the municipal Right of Way -	0	1	1	1	1	0	4	1	Y
Coordinate with State on permit requirements when a State-wide River Corridor Rule is adopted per Act 121. Anticipate occurring within the next 3 to 5 years.	1	1	1	-1	-1	1	2	1	Y
Inventory and assess the vulnerability of Town highways to damage by natural hazards, in accordance with the Municipal Roads General Permit (MRGP).	1	1	1	1	1	1	6	1	Y
Update subdivision regulations as needed to comply with state water quality and flood management requirements	1	1	1	1	1	1	6	1	Y
Encourage residential property owners to participate in the Storm Smart Programs of the Friends of the Mad River or the Friends of the Winooski	0	1	1	0	1	0	3	1	Y
Update/Understand procurement policies for emergency repairs	1	1	1	1	1	1	6	1	Y

FEMA 214 / Daily work order tracking for easier implementation after event	1	1	1	1	1	1	6	1	Y
Not Recommended for Implementation									
Structure & Infrastructure Projects									
Recommended for Implementation									
Lover's Lane Mitigation Project to address bank failure along road next to Winooski River	1	1	1	1	1	1	6	1	Y
Moretown Common Road: upgrade damaged crossing to applicable state codes and standard (72-inch CMP)	1	1	1	1	1	1	6	1	Y
Moretown Common Road: upgrade damaged crossing to applicable state codes and standard (60-inch CMP)	1	1	1	1	1	1	6	1	Y
Moretown Mountain Road: upgrade damaged crossing (48-inch CMP) to applicable state codes and standards (7-foot by 6-foot concrete box)	1	1	1	1	1	1	6	1	Y
Moretown Mountain Road: replace undersized bridge (21.5-ft span with 32-ft span) to meet applicable state codes and standards	1	1	1	1	1	1	6	1	Y
Moretown Mountain Road: replace undersized box culvert with bridge to meet applicable state codes and standards	1	1	1	1	1	1	6	1	Y
Jones Brook Road: replace undersized 24-in CMP to meet applicable codes and standards (43-inch by 64-inch metal squash pipe)	1	1	1	1	1	1	6	1	Y
Jones Brook Road: replace undersized box culvert to meet applicable state codes and standards (17-ft by 8-ft box culvert)	1	1	1	1	1	1	6	1	Y

River Road crossing near Hog Hollow Road; replace undersized culvert	1	1	1	1	1	1	6	1	Y
Continue ongoing MRGP upgrades of vulnerable roads identified in MRGP inventory	1	1	1	1	1	1	6	1	Y
Sponsor two eligible Natural Resources Conservation Service (NRCS) Emergency Watershed Protection (EWP) protection projects, if property owners decide to go forward.	1	1	1	1	1	1	6	1	Y
Serve as local sponsor for future EWP projects as needed.	1	1	1	1	1	1	6	1	Y
Encourage and support the floodproofing of buildings in flood zones	1	1	1	1	1	1	6	1	Y
Remove trees in Town highway Right of Ways not affecting utilities	1	1	1	1	1	0	5	1	y
Remove trees in utility Right of Ways	1	1	1	1	0	0	4	1	Y
Maintain warming and cooling shelters as needed.	1	1	1	1	1	1	6	1	Y
Not Recommended for Implementation									
Natural Systems Protection									
Recommended for Implementation									
Coordinate with State on executing a $4.5M FEMA authorization to buyout 11 homes, which will include the Town restricting these properties to open space once the structures have been removed	1	1	1	1	1	1	6	1	Y
Support local efforts, such as steward MRV, to eradicate Japanese Knotweed in the Mad River watershed	0	1	0	1	0	1	3	1	Y
Not Recommended for Implementation									
Outreach & Education Programs									

Recommended for Implementation									
Post this plan and other FEMA informational materials to the Moretown Town website	1	1	1	1	1	1	6	1	Y
Encourage residents to sign up to VTAlert for local hazard warning and communication.	1	1	1	1	1	1	6	1	Y
Support flood preparedness, resilience, and education efforts of local non-profits, such as Community Resilience for the Waterbury Area (CReW), Friends of the Mad River, and Friends of the Winooski River	1	1	1	1	1	1	6	1	Y
Reach out to owners on protecting homes and businesses from wildfires	1	1	1	1	1	1	6	1	Y
Support fire department in their efforts in wildland fire training and either acquiring, or having access to, wildland fire equipment	1	1	1	1	1	1	6		Y
Monitor fire weather conditions, issue burn bans, and warn the public of wildfire hazards	1	1	1	1	1	1	6	1	Y
Educate private landowners on best management practices for maintaining private roads and culverts	1	1	1	1	1	1	6	1	Y
Not Recommended for Implementation									

Table 6 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

Table 7: Mitigation Action Plan (to be completed)

Maintain Utility Corridor: Communicate with Washington Electric Coop to clear and maintain utility corridors, which will protect the town and utility infrastructure. (Carried forward from 2017 LHMP Plan)

Addressed Hazards: Invasive species; Wind; Ice; Snow

Type of project: Local Plans & Regulations

Community Lifelines Targeted: Safety & Security; Transportation; Communication; Energy

Area of Impact: Town wide roads

Lead Party: Emergency Management Director

Grant Funding Source: Town General Operating Budget; Washington Electric Cooperative

Partnerships: Washington Electric Cooperative

Project Timeframe: Ongoing annually

Prioritization: Medium

Integrating Into Existing Plans and Procedures

For Moretown to succeed in reducing long-term risk, information from this Plan should be integrated throughout government operations. When activities are connected, they can not only reduce risk and increase resilience, but also accomplish other objectives such as environmental protection, economic development, financial stability, and land use planning.

There are several ways the Town can achieve integration into existing plans and procedures to support risk-informed community planning. They can include the community's primary mitigation goal as stated on page XX, information from the risk assessment, and mitigation actions as follows:

- Funding for mitigation actions can be prioritized in the annual budget process.
- The mitigation goal and risk assessment information can support the Town's interest in expanding local capacity to enforce State building codes as part of the development review process.
- The mitigation goal and risk assessment information can be incorporated into the next Town Plan update (Land Use and Flood Resilience chapters in particular) to help steer growth and redevelopment away from high-risk locations.
- The mitigation goal and risk assessment information can be incorporated into future zoning ordinance updates.
- Several flood-related mitigation actions for increasing road resiliency can be implemented under the existing Municipal Road General Permit (8273-9040) for controlling stormwater discharges from town roads.

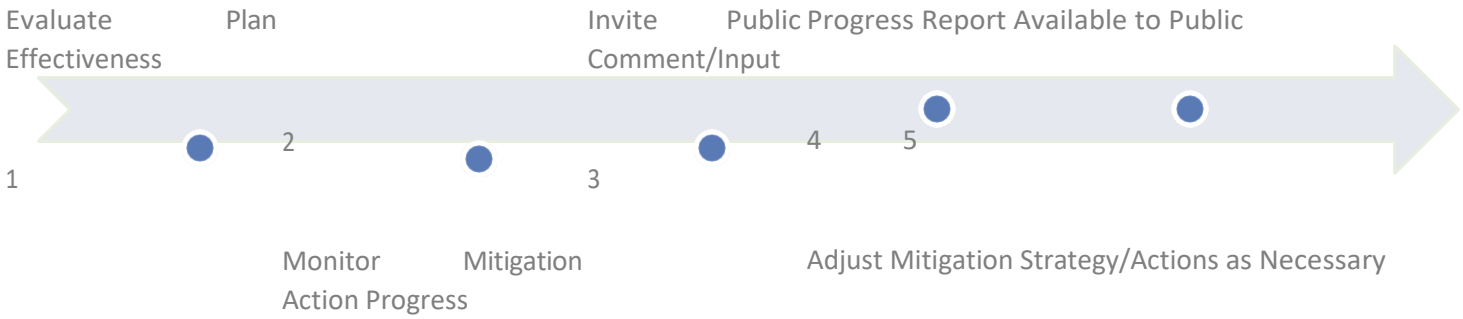
7 PLAN MAINTENANCE

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:

Make Annual



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?

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 11**. 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.

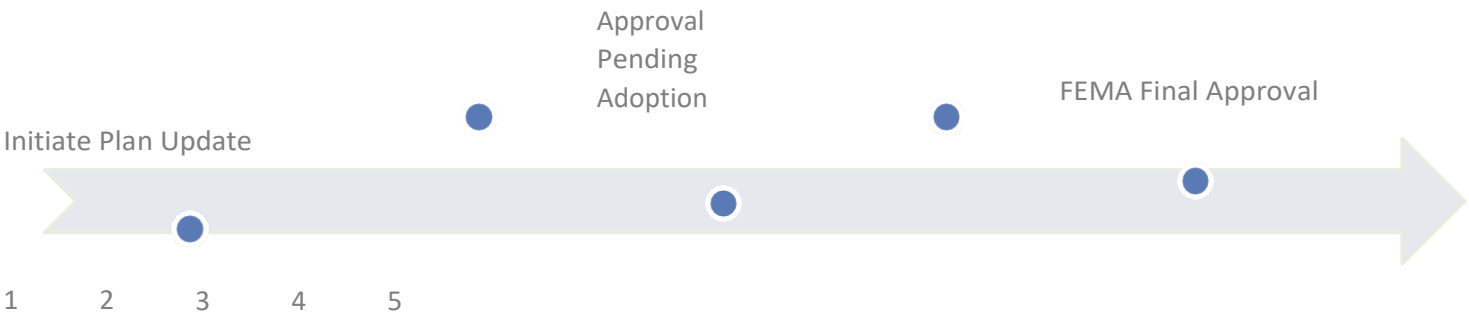
A report (or record in the form of meeting minutes) of the annual evaluation and monitoring will be made available to the public.

Table 11: Mitigation Action Status

Mitigation Action	2025	2026	2027	2028	2029
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:



Currently, funding to assist municipalities in paying for planning services to update the Local Hazard Mitigation Plan through FEMA is unknown. The Town of Moretown should contact Vermont Emergency Management (VEM) to apply for any available funding grants in 2028 – approximately 2 years before the Plan expires.

Once funding is secured and the grant agreement between the Town and State is in place, the designated representative 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.

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.

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.

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

APPENDIX B – Past Mitigation Actions Updates

APPENDIX C – Meeting Agendas and Notes

APPENDIX D – Community Survey Questions

APPENDIX E – Certificate of Adoption

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

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

WHEREAS the Town of Moretown Selectboard has prepared a natural hazard mitigation plan, hereby known as the Town of Moretown, Vermont 2024 Local Hazard Mitigation Plan in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS the Town of Moretown, Vermont 2024 Local Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Town of Moretown from the impacts of future hazards and disasters; and

WHEREAS adoption by the Town of Moretown Selectboard demonstrates its commitment to hazard mitigation and achieving the goals outlined in the Town of Moretown, Vermont 2024 Local Hazard Mitigation Plan.

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

Section 1. In accordance with 24 VSA §872, the Town of Moretown Selectboard adopts the Town of Moretown, Vermont 2024 Local Hazard Mitigation Plan. While content related to the Town of Moretown may require revisions to meet the plan approval requirements, changes occurring after adoption will not require the Town of Town of Moretown 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)