East Montpelier, Vermont

2025 Local Hazard Mitigation Plan

Route 2 bridge East Montpelier

FEMA Approval Pending Adoption Date:
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Prepared by the East Montpelier Hazard Mitigation Planning Team

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Central Vermont Regional Planning Commission

Cover photo by Terry Allen

1 INTRODUCTION

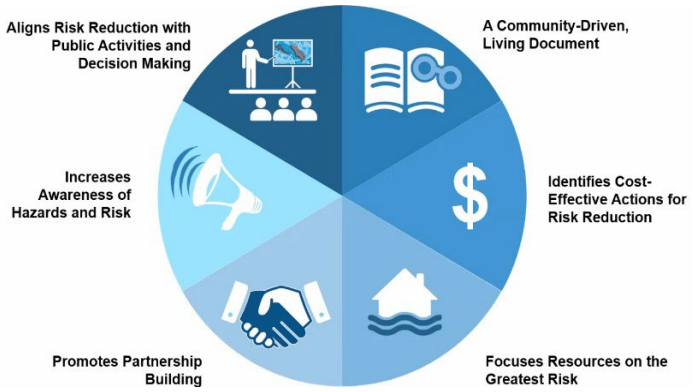
Mitigation planning provides an opportunity for local government to lessen the impact of the next natural disaster. The goal of this plan is to advance and prioritize mitigation investment to reduce risks posed by natural hazards and to increase the Town of East Montpelier's resilience to damages from natural hazard impacts.

Hazard Mitigation is any sustained policy or action that reduces or eliminates long-term risk to people and property from the effects of natural hazards. FEMA and state agencies 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 opportunities exist for communities to identify mitigation strategies and measures during all the other phases of Emergency Management- Preparedness, Response and Recovery. While the hazards can never be completely eliminated, it is possible to identify what the hazards are, where their impacts are most severe, and identify local actions and policies that can be implemented to reduce or eliminate the severity of the impacts.

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 multi-year pathway to mitigating hazards within the community.

The benefits of mitigation planning include:
Reduces loss of life, property, essential services, critical facilities, and economic hardship.



Source: FEMA LHMP Skill Share Workshop 2021

Furthermore, the Town seeks to be in accordance with the strategies, goals, and objectives of the 2023 State Hazard Mitigation Plan.

3 COMMUNITY PROFILE

Land Use and Development Patterns

The Town of East Montpelier is a small, rural, residential community located in the middle of Washington County. It is bordered by Calais and Worcester to the north, by Montpelier and Middlesex to the west, by Barre Town to the south, and Marshfield and Plainfield to the east.

According to the 2018 East Montpelier Town Plan, the town charter was granted in 1848. It was separated from the City of Montpelier by an act of the State legislature without consent of its residents.

At the time it was a small agricultural based community with a rail line on the Montpelier and Wells in the 1870s.

East Montpelier nestled between the North Branch of the Winooski and the drainage of the Kingsbury Branch with the Winooski River main stem passing through the south east corner of the town. Primarily made up of an upland plateau with rolling hills topographically. There are two State designated villages centers, those being the North Montpelier and the East Montpelier.

Outside of the villages, residential development in East Montpelier has a rural character. Much of the town still has active agricultural lands.. There are a diverise array of business dispersed throughout the town.

Land Features

East Montpelier's landscape is defined by forested mountains, the North and Kingsbury Branches and the Winooski River with many small tributaries. This varies from river bottom farm to the primary landtype of upland plateau. Elevation ranges from 580 feet at its lowest elevation to 1920 on Long Meadow Hill.

Several extensive land areas have been conserved in the town by the Vermont Land Trust. This helps the overall resilience to natural disasters especially with increased water retention to slow runoff.

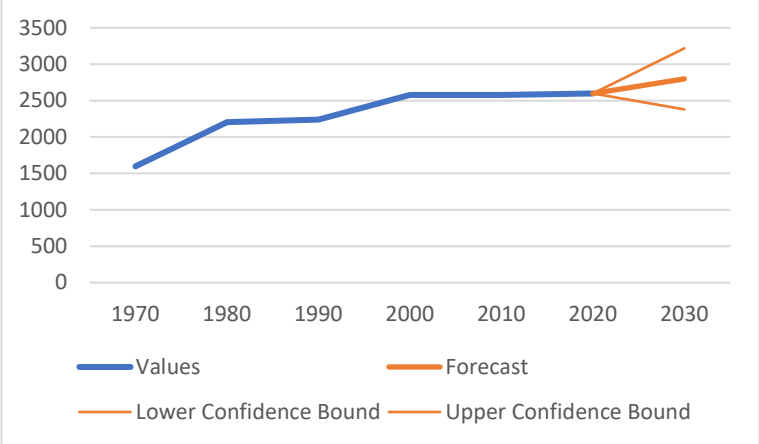
Demographics and Growth Potential

The 2020 Decennial Census prepared by the U.S. Census Bureau shows an estimated population of 2,598 and 1,201 housing units. Over 40 years of steady growth the trend within East Montpelier is expected to continue.

The median age of East Montpelier 47.9, higher than the Vermont median age of 43.2, this is an increase of 3.1 years. The portion of the population over 65 is 26.4%, compared to 21.6% in Vermont and 16% in the country. The population density of the town is 80.9 people per square mile compared to an overall state density of 68.

Population by age group from 2020 census

Age	Population	Percent
0-19	561	21.5935
20-34	287	11.0469
35-49	515	19.8229
50-64	574	22.0939
65 and older	661	25.4426
Total	2598	



Source: Census data with excel projection of expected growth

This population data does show a trend that the population of East Montpelier is aging. Being a small rural community this has direct implications on services and volunteerism. Since the town is served by both volunteer fire and ems services this may become harder to fill these roles as the population continues to age. This also increases the overall risk to the community of any hazards especially those that contribute to power outages with older residents having a higher likelihood of needing medical assistance devices. Older residents also can be more adversely impacted with evacuations during natural disasters.

We currently don't have good census data to show what level of influx of residents relocated to East Montpelier during the Covid 19 pandemic (DR-4532).

East Montpelier's growth potential isn't limited by a lack of developable land but is by access to water and wastewater utilities to allow greater density. Encouraging

build out of utilities mixed-use development, and repurposing underutilized spaces offer the greatest opportunities for growth in East Montpelier.

Of East Montpelier's two designated growth areas, East Montpelier Village and North Montpelier Village, the East Montpelier village center area has the most potential for new residential development due to having municipal water. This area though is constrained like the rest of the town due to no municipal wastewater. The rural countryside also lacks access to public water and wastewater utilities, due to this the density of development is limited due to requirements for suitable septic installations. This requires development to address this with any building projects within the town.

Climate change is anticipated to increase the frequency or hazards and the intensity, resulting in greater impacts to the community assets identified in the hazard profiles, including people. Land use changes can either increase or decrease the impacts of hazards. East Montpelier is actively engaged in updating their Town Plan and zoning to prevent development that may be vulnerable to hazards and climate change. As the population of the community ages, as discussed, overall vulnerability to all hazards may increase due to challenges in communication, preparing for or responding to hazards, mobility challenges, and greater susceptibility to hazards.

It is important as a community that we utilize appropriate preplanning for development to minimize future risk. This can be through bylaws and ordances to create pathways for smart development. With the real world impacts of climate change upon us making sure we address the increased risks of heavy snow, ice, high winds, and wildfire. As well as more invasive species migration directly impacting our communities. All these besides the greatest risk in Vermont as recognized in the State Hazard Mitigation Plan, fluvial erosion. Making sure that we have smart development and away from flood and erosional susceptible areas is paramount to a resilient future.

Precipitation and Water Features

Average annual precipitation is 32 inches of rain; with June being the wettest month. Average annual snowfall is 58.82 inches; with February being the snowiest month.

The Winooski River and its many tributaries (Kingsbury Branch, Sodom Pond Brook, Mallory Brook, and Long Meadow Brook) are the major water features in East Montpelier.

Drinking Water and Sanitary Sewer

The only Public drinking water in East Montpelier is supplied by Crystal Springs Water System which is privately owned. This system provides water to 130 connections. All other structures and residences are served either by private wells or springs.

There is no municipal sanitary sewer service in East Montpelier. Sewage is handled by on site individual septic systems.

Transportation

East Montpelier is ±32.1 square miles in size with primary access via Vermont Route 14, a north-south minor arterial route, and US Route 2, running East-West a principal arterial that connects Montpelier to St. Johnsbury.

The 2024 VTrans Town Highway data indicates that East Montpelier has 62.24 municipal road miles: no miles of Class 1; 19.14 miles of Class 2; 43.10 miles of Class 3; 1.57 miles of Class 4 (or functionally Class 4). Of the total municipal road miles, ±32% are paved and 68% are gravel. In addition, there are 12.092 miles of State highway in East Montpelier, for a total of ±75.90 traveled highways, including Class 4 roads.

According to the Town's 2023 road erosion inventory, 37% of East Montpelier's Road mileage is hydrologically connected - meaning it is within 100-feet of a water resource (i.e., stream, wetland, lake, or pond). Proximity to water resources can make these sections of road more vulnerable to flooding and fluvial erosion. These sections must be up to the standards created for the Municipal Roads General

Permit program with a requirement of 7.5% of non-compliant segments being upgraded per year.

According to the Town's 2024 bridge inventory, East Montpeleir has a total of 5 municipal bridges – 3 short structures (6'-20' length) and 2 long structures (>20' length). The town's 2 long structures are inspected every two years by VTrans through the Town Highway Bridge Program.

East Montpelier has a total of 460 culverts in the municipal road right-of-way; all were inventoried in 2024 by the Central Vermont Regional Planning Commission. Several culverts were listed in critical or poor condition and ideally will be considered for replacement and/or upgrade in accordance with Town Road and Bridge Standards. The local road network is maintained by the municipal highway department, whose garage is located on Templeton Road.

Electric Utility Distribution System

Electric service is provided by both Green Mountain Power and by Washington County Electric Cooperative. These utilities have been impacted by the changes in climate to the region both from increased heavy snow events and the increase in high wind events.

Public Safety

Fire protection is provided by the East Montpelier Volunteer Fire Department, an all-volunteer organization. The Fire Department is a member of the Capital Fire Mutual Aid Association. Law enforcement is provided by the Washington County Sheriff's department and the town constable, with support from Vermont State Police. The nearest hospital is the Central Vermont Medical Center which is an ~ 20 minute drive from the center of town. Ambulance services are provided by East Montpelier Fire Department as well. Continuing this model as the town grows and experiences demographic changes may present issues as far as long-term sustainability. Especially based on overall trends nationwide of securing volunteers.

Emergency Management

Per the Town's Local Emergency Management Plan (LEMP), currently the Emergency Management Director (EMD) is a member of the Selectboard and is assisted by the town Emergency Management Coordinator an appointed position. They work with others in town to keep the LEMP up to date and coordinate with nearby towns and regional emergency planning efforts.

Vulnerable Populations

East Montpelier has multiple vulnerable communities within the town's boundaries. Residents who have medical needs and are residing in their homes can choose to be listed in the CARES (citizen assistance registration for emergencies) program. The town Emergency Management director can access this list from the Vermont Emergency Management Watch officer. There is a facility that deals with Senior day care: Twin Valley Senior Center. The town also has the East Montpelier Elementary and U-32 Middle and High School and the Orchard Valley School. All Together Now!, Nature's Ninos Child Care, Tracy Cano-Scribner Child Care, Danielle Huston Child Care and Kidcare day cares. Finally, the Sandy Pines Mobile home park. At home individuals who may need assistance or on medically dependent devices may be regeisterd on the State Citizen Assistance Registration for Emergencies (CARES) list. These communities are all called out and addressed in the town Local Emergency Management Plan.

4 PLANNING PROCESS

Plan Developers

The Town assembled a Hazard Mitigation Planning Team to participate in updating the Plan. Team members included: Selectboard member (local EMD), representative of the Planning Commission, and town emergency preparedness committee.

The Central Vermont Regional Planning Commission (CVRPC) 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 2019 single jurisdiction mitigation plan. A summary of the process taken to develop the 2025 update is provided in **Table 2.**

Table 2: Plan Development Process

Oct 10, 2024: Kick-off meeting. Discussed what an LHMP is; benefits of hazard mitigation planning; current plan status; planning process; outreach strategy; and plan sections. Planning Team working meetings were open to the public. Section 4.Discussed outreach plan and plan for holding public forums. Reviewed possible locations for public forum and next steps.

Oct 2024: To notify the Whole Community* of the plan update, the Town posted physical and online notices. Physical notices were posted at the Town Office, East Montpelier Post Office, and Dudley'store. Online notices were posted on the Town website (eastmontpeliervt.org), and Front Porch Forum.

*Whole Community stakeholders include: 1) local and regional agencies involved in hazard mitigation; 2) entities with authority to regulate development; 3) neighboring towns; 4) representatives of business, schools/academia, and other private organizations that sustain community lifelines; and 5) representatives of nonprofit organizations that work directly with or provide support to vulnerable populations.

CVRPC posted online notices on the CVRPC website (centralvtplanning.org). CVRPC also direct emailed notice to 1) officials (Selectboard and Planning Commission chairs, Town Managers and Clerks, Emergency Management Directors) in neighboring towns of Plainfield, Calais, Montpelier, Berlin, Barre Town, Middlesex, and Marshfield. 2) Key Partners Mad River Planning District, Winooski Natural Resources Conservation District, Hardwood Unified School District, Central Vermont CWSP, VDH Regional Emergency Preparedness Specialist, VTrans District 6 Projects Manager, Central VT Floodplain Manager). Notice included CVRPC contact for information on planning process and opportunities for public input – see **Appendix C**.

Nov 14, 2024: To solicit input from the Whole Community, the Town utilized a survey (see **Appendix D**) and hosted an in- person Community Workshop on 11/14/24 with 7 town members in attendance. Comments where accepted and incorporated. Specifically mud season conditions and limited access to residents due to these conditions. The participants requested that Wildire probabilitiy score be increased. The Town provided notice of the survey and workshop by posting physical notices at the Physical notices were posted at the Town Office and Post Office. Online notices were posted on the Town website (eastmontpeliervt.org), and Front Porch Forum.

CVRPC posted online notices on the CVRPC website of the opportunity to provide input on where each hazard might impact the Town; assets most likely to be affected; and preferred types of mitigation actions (Sections 5 and 6). CVRPC also direct emailed notice of the survey and November Workshop to local officials in neighboring towns and Key Partners – see **Appendix C**.

Jan. 7, 2025: Planning Team working meeting discussing developing mitigation actions team will submit additions and will meet again to review (Section 6). Also discussed sections 1-3 drafts and work completed on section 5 drafts.

Feb. 6, 2025: Planning Team working meeting discussing mitigation actions and problem locations within the town. (Section 5&6). Discussion of process moving forward.

Mar. 5, 2025: Planning Team meeting with town road crew staff to discuss previous plan mitigation actions and problem locations in town. (Section5)

Mar. 26, 2025: Met with Planning Team to review mitigation actions and score for prioritization and cost benefits to the community in a public meeting with 8 residents in attendance. Comments were accepted and incorporated into the plan. Section 4, 5 and 6

April 17, 2025: Met with planning team and reviewed mitigation actions and capabilities.

June 2, 2025:Town posted final draft of plan to website with request for public comments and discussed at selectboard meeting.

June 16, 2025:Selectboard meeting to discuss public comments and make preliminary adoption of LHMP by selectboard.

June 27, 2025: Plan submitted to VEM for 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

Table 3: Existing Plans, Studies, Reports & Technical Information

2024 Zoning Ordinance Referenced to develop Community Capabilities, Integrating into Existing Plans and Procedures, Mitigation Strategy Updates – Changes Since 2017 Plan in Section 6.

2020 US Census Data 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.

2017 FEMA Region 1 Mitigation Ideas for Natural Hazards Used to develop mitigation actions to address impacts from severe winter storms, high wind, and floods.Section 6

2024 Road Erosion Inventory Referenced to develop the risk profile in Section 5 and mitigation actions to address floods in Section 6.

2019 Central Vermont Stormwater Master Plan Kingsbury Branch. 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.

Vermont Department of Health Referenced to develop the risk profile in Section 5.

Vermont Department of Conservation Stream Geomorphic Assessments-Structures Used to identify bridges and culverts that are undersized and prone to failure mitigation actions to address floods in Section 6.

Vermont Agency of Natural Resources Natural Resources Atlas Referenced to develop the risk profile in Section 5.

2021 Vermont Climate Assessment Referenced to develop the flood risk profile in Section 5.

2024 Local Emergency Management Plan Primarily used to identify local organizations that support vulnerable populations to ensure these organizations are invited to participate in the plan update.

2024 Structures Inventory (culverts and short structures) Referenced to develop the risk profile in Section 5 and mitigation actions to address floods in Section 6.

2024 FEMA NFIP Insurance Reports Used to determine how many structures are insured, number of repetitive loss properties, and describe NFIP compliance in Section 6.

Mitigation Assistance Program Policy Guide Used to ensure plan meets the Federal mitigation planning requirements, including those for addressing climate change.

Vermont Dam Inventory (VDI) Referenced to develop the risk profile in Section 5 and mitigation actions to address floods in Section 6.

2022 East Montpelier Town Plan Referenced to develop Community Capabilities, Integrating into Existing Plans and Procedures, Mitigation Strategy Updates – Changes Since 2019 Plan 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.

2023 FEMA Local Mitigation Planning Handbook Used to ensure plan meets the Federal mitigation planning requirements, including those for addressing climate change.

2013 FEMA Mitigation Ideas Resource for Reducing Risk to Natural Hazards Used to develop mitigation actions to address impacts from severe winter storms, high wind, and floods. Section 6

VTrans Town Highway Bridge Inspection Reports Referenced to develop the risk profile in Section 5 and mitigation actions to address floods in Section 6.

2019 Ash Tree Inventory Report Used to develop mitigation actions to address impacts of wind storms and invasive species section 6

Mitigation Strategy Update - Changes Since 2019

The 2019 local hazard mitigation planning effort analyzed natural hazards and the risk they posed to the Town of East Montpelier. The risk assessment resulted in the categorization of High, Medium and Low risk level hazards. Fluvial erosion, Inundation Flooding, Wind Storms, Ice Storms, and Invasive Species were ranked as the community's High-risk natural hazards. Actions proposed in 2019 focused on mitigating risks from fluvial erosion due to their frequency and severe nature and being the highest scored risk to the community.

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.

The East Montpelier Town Plan, amended in 2022, 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 East Montpelier Zoning Bylaws, amended in 2022 and currently being updated for 2026.

Town Plan: Goal 5.8: Minimize potential damage from natural disasters and strengthen the community's ability to anticipate, respond to, and recover from natural disasters.

East Montpelier Zoning Bylaws includes Flood Hazard Area Regulations to ensure the selection, design, creation, and use of development in these hazard areas is reasonably safe and accomplished in a manner that is consistent with public wellbeing, does not impair stream equilibrium, flood plain services, or the river corridor.

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

They have much to be proud of and noteworthy mitigation accomplishments are highlighted below.

Improvements to the town roads especially in culvert upsizing along County Road which serves as one of the main corridors in the town. The town has also worked on 2 sections of Horn of the Moon Road to stabilize the road and is currently working through the FEMA PA process for Long Meadow Brook culvert that was damaged in DR-4810 (July 2024). These mitigation investments have 1) strengthened the community's Transportation lifeline; 2) reduced risk to infrastructure; and 3) supported Town efforts to comply with the Municipal Roads General Stormwater Discharge Permit and protect water quality by controlling erosion and stormwater runoff from municipal roads.

Generators have been installed at the Town Office building; local shelter at the elementary school, and the East Montpelier Fire station. These mitigation investments have 1) strengthened the community's Communications; and Food, Water, Shelter lifelines; 2) provide continuity of emergency and vital town services during power outages. The town is currently in the process of building a new town garage and has designed a system to utilize a power take off of a

municipal owned tractor to power the building during outages.

Actions taken by East Montpelier since 2019 have made the community more prepared and less vulnerable to future natural hazard impacts.

As described in the Community Profile above, East Montpelier's population has been in a steady growth cycle and growth potential is believed to be limited by a lack of public sewer utilities that would allow a greater density.

Changes in population and development since 2019 have not made East Montpelier more vulnerable to natural hazards. Rather changing weather conditions most influenced the Town's current mitigation strategy.

Climate change is increasing the frequency, duration, and intensity of storms, floods, fires, and extreme temperatures across the nation. Local communities are feeling the impacts of climate change now, and these multi-hazard trends are expected to continue to increase in severity over the next century[1].

As a result, East Montpelier considered the effects of future conditions, like climate change, on the type, location, and range of intensities of identified hazards when they conducted the risk assessment in 2024. The highest risk hazard impacts that the Town believes they are most vulnerable to remained essentially the same as those from 2019:

Floods associated with thunder and/or winter storms and ice jams.-These continued as the main threat to the community and Vermont in general with the 3 floods between July 2023 -July 2024. With Fluvial erosion receiving the highest score and inundation flooding listed as number 2.

Snow and ice associated with severe winter storms; - This was ranked as the 3 and 4th greatest threat in 2024. Ice was listed as a top threat in 2019.

Invasive Species, plant and animal-Both these are profiled and have mitigation actions but are a lower ranked threat than in 2019 and weren't listed as a priority action.

In addition to the traditional natural hazards assessed in 2025, the Town also considered infectious disease to align with the hazards identified in the 2023 State Hazard Mitigation Plan.

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

When evaluating mitigation actions, the Town selected actions that support the mitigation goal and are acceptable and practical for the community to implement.

5 HAZARD IDENTIFICATION AND RISK ASSESSMENT

Local Vulnerabilities and Risk Assessment

One of the most significant changes from the 2019 Plan is the way hazards are assessed. To be consistent with the approach to hazard assessment in the 2023 State Hazard Mitigation Plan, the Hazard Mitigation Planning Team conducted an initial analysis of known natural hazard events* to determine their probability of occurring in the future (high probability events are **orange** in **Table4**).

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

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

[1] FEMA Hazard Mitigation Assistance Program and Policy Guide, March 23, 2023.

The ranking results are presented in **Table 4** and reflect the following **Primary Hazard Risks** that the Town believes they are most vulnerable to:

- ***Floods both Fluvial and Inundation:*** *associated with extreme rain events, rain on snow, or dam failures.*
- ***Ice Storms***

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

Based on historic occurrence, anticipated damages due to hail and earthquake hazards would not require recovery funding, as there are no documented asset damages related to past events. Hail and Earthquakes were decided by the planning team to be outside of the realm of justification within our region for mitigation actions. Hail being that the historic record of damage being primarily minimal and to vehicles. Earthquakes even though experienced also are historically small in Vermont do occur but were deemed to be of minimal threat and with no building codes, basically impossible for a town to develop effective mitigation strategies.

*This plan defines a natural hazard as a source of harm or difficulty created by a meteorological, environmental, or geological event.

FEMA Local Mitigation Planning Handbook, May 2023

Table 4: Community Hazard Risk Assessment

2024 Hazard Mitigation Plan- Hazard Assessment							
Hazard Impacts	Probability	Potential Impact					Score*:
		Infrastructure	Life	Economy	Environment	Average:	
Fluvial Erosion	4	4	2.6	3.6	3.3	3.375	**13.5**
Inundation Flooding	4	3	2.3	3	3	2.825	**11.3**
Ice	4	2.6	1.6	3	2.3	2.375	**9.5**
Snow	4	2.3	2	2.3	2	2.15	**8.6**
Wind	3	2.6	2	2.6	2.6	2.45	**7.35**
Heat	4	1.3	2.3	1.6	1.3	1.625	**6.5**
Cold	3	1.6	2	1.3	1.3	1.55	**4.65**
Drought	3	1.3	1.3	2.6	1.6	1.7	**5.1**
Landslides	2	3	2	3	2.6	2.65	**5.3**
Wildfire	3	2.6	2	2.3	2.6	2.375	**7.125**
Earthquake	2	2.6	2	3	3	2.65	**5.3**
Invasive Species	4	1.3	1.6	1.3	1.6	1.45	**5.8**
Infectious Disease Outbreak	3	1.6	4	2.3	1.3	2.3	**6.9**
Hail	3	2.6	1.6	2.3	2	2.125	**6.375**

*Score = Probability x Average Potential Impact

*Score = Probability x Average Potential Impact

	Frequency of Occurrence: Probability of a 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:** 1–10% probability of occurrence per year, or at least one chance in next 100 years	**Minor:** isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	**Likely:** >10% but <75% probability per year, at least 1 chance in next 10 years	**Moderate:** severe property and environmental damage on a community scale, injuries or fatalities, short-term economic 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

IMPACT DEFINITIONS

INFRASTRUCTURE IMPACTS: (Effects on Roads, Bridges, Structures, Homes)

- 1—Minor: Localized/Isolated impacts to Infrastructure (Temporary loss of use)

- 2—Moderate: Neighborhood level impacts (1-2-day loss of use)
- 3—Severe: Community-wide impacts (2-5-day Loss of use)
- 4—Disastrous: Regional losses of roads, bridges, homes (Extensive replacement/rebuild)

LIFE SAFETY ISSUES: (Health and Welfare of Population)

- 1—Minor scrapes/injuries
- 2—Occasional Hospitalization required due to injuries
- 3—Multiple hospitalizations required and/or fatality
- 4—Community-wide hospitalizations and/or fatalities

ECONOMIC IMPACTS: (Direct recovery costs to municipality and residents)

- 1— < $10,000 in damages (Can generally be handled within budget or via insurance)
- 2—$10,000-$100,000 (May require assistance for the uninsured or large impact on local budget)
- 3—$100,000-$1,000,000 (Requests of assistance/FEMA eligible)
- 4— > $1,000,000- (All resources used, Possible National Guard use)

ENVIRONMENTAL IMPACTS: (Effects to municipal operations and environment)

- 1 – Negligible: Short term impacts, low clean-up costs for spills
- 2 – Minor: Moderate clean-up costs, temporary redirection of municipal resources
- 3 – Moderate: Extended redirection of local resources/ impacts to normal operations, high clean-up costs
- 4 – Major: Long-term recovery efforts (could take years for full recovery or permanent loss of use)

Highest Risk Hazard Profiles

Floods (fluvial erosion, inundation, or dam failure) 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. There are two types of flooding: inundation and flash flooding . Inundation is when water rises onto low lying land. Flash flooding is a sudden, violent flood which often entails stream bank erosion (fluvial erosion).

Inundation flooding of land adjoining the normal course of a stream or river is a natural occurrence.

If these floodplain areas are in their natural state, floods likely would not cause significant damage. However, most business districts within Vermont are built within this floodplain due to the historical significance of water power. The locations within the community most susceptible to this are along the main stem of the Winooski in the East Montpelier village and the Coburn Road area.

While 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 structural failure of or flow diversion by human-made structures.

Damage from high flows is the single most costly type of disaster in Vermont, primarily due to the erosive power of water. Many roads and culverts conflict with the room needed by streams and rivers."
2021 Vermont Climate Assessment

Several major flooding events have affected the state in recent years, resulting in multiple Presidential Disaster Declarations. From 2003 to 2019, Washington County experienced roughly $88.82 million in municipal property damage due to flood events. The totals from the most recent July 2023 and 2024 flooding events are still being totaled at the time of this writing.

The worst flooding events in recent years to strike the town of East Montpelier came in July 10 of 2023 (DR4720), which dropped up to 5-7+ inches of rain in some areas of Washington County. Followed by July 10, 2024 (DR-4810) which dropped 3"-6" of rain and caused severe fluvial erosion of many water and road ways.

East Montpelier is vulnerable to inundation flooding primarily along the Winooski River and the Kingsbury Branch. A wide range of assets are at risk from inundation flooding in these areas. There are 36 buildings in the FEMA special flood hazard are or often referred to as the 100 year flood; as well as roads, culverts, bridges, and water wells. Much of this data can be viewed on the Vermont ANR map viewer.

The town is concerned with the increased temperatures in winter seasons brought on by climate change. The increase in temperature fluctuations and associated precipitation is worrisome. Rain on snow events impacting the region and specifically the town of East Montpelier due to its location and associated upland topography. The snowpack can become hazardous in these instances due to the rapid melting from rain on snow and sudden warming, fueling extreme and rapid runoff.

With inundation flooding, there are cascading impacts involving infectious disease as floodwater can contain numerous types of infectious agents and host insects that transmit disease. Mosquitos, for example, breed in standing water and when their population increases, so does the risk of diseases they transmit – such as West Nile Virus.

Flash flooding can occur any time the area has heavy rain. This is considered any rain event with greater than 2"per hour or 1" per hour for multiple hours. It can impact areas that are located outside of designated floodplains, including along streams confined by narrow valleys (also known as River Corridors). Again, a wide range of assets are at risk from flash flooding. (outside of designated floodplains); as well as roads, culverts, bridges, and dams. With these events ravines and low spots can form stream channels in a very short time. It is of

utmost importance to maintain awareness of your personal situation during an event as conditions can rapidly change and are extremely hyperlocal.

The most common type of flash flood damage is road washouts. When runoff volumes exceed the capacity of the stormwater collection system (ditching and culverts), washouts can occur.

The town's structures and road erosion inventories as well as VTrans highway flood vulnerability and risk tools were used to help identify locations and assets at risk from flash flooding.

Sections of several roads have a history of flash flooding – US 2 just east of the village, Route 14 North, Coburn Road, Center Road, Snow Hill Road, and Horn of the Moon Road. The locations all show as at risk of inundation or fluvial erosion in the Vermont Transportation Resiliency Planning Tool in a 2% or 50 year event.

Culvert failures and road washouts can have a significant negative impact on the Town. Especially if they occur on roads considered locally important routes for through-traffic, short-cuts, detours, and/or access to critical facilities – such as VT Route 14, US 2, County Road, Center Road, and Horn of the Moon Road.

When roads are impacted by flooding, the Town coordinates with the fire department, town road crew and State dispatch to close roads and set up detours. Road closures can create longer commute times and longer emergency service response times.

Road Storm Damage

In addition to stormwater runoff from roads, dam failures can result in flash flooding in East Montpelier.

Dams

There are eleven dams in East Montpelier 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). Three are classified as minimal hazard potential and four are breached dams. None of the dams are owned by the town and there are no high hazard potential dams in East Montpelier. There are three low hazard potential dams one is the Nelson Pond, and the others are the Montpelier # 4 dam which is owned and maintained by the Winooski Hydroelectric Company and North Montpelier Pond Dam which is owned by Kingsbury Branch Hydroelectric Company. These hydroelectric dams are also currently permitted and inspected by the Federal Energy Regulatory Commission.

Upstream of the town on the Winooski River is the a high hazard potential dam. The Marshfield #6 dam that is owned by Green Mountain Power (GMP). The town is included in the Emergency Action Plan (EAP) for notificiation in case of release. In the event of a release the impact would be primarily in the State designated river corridor area. Depending on the timing of a release if during a already occurring flood event this could drastically impact transportation infrastructure. Forwarning of any impending release would be vital to remove residents and motorists from the impact zone of a release. The town should take every opportunity to work with GMP on both the EAP and exercises that are coordinated by them.

Community survey respondents ranked damages to roads and bridges as particularly important (50 out of 59) to protect against future severe weather impacts.

Flash flooding often entails stream bank or fluvial erosion. Several existing studies were used to help identify locations and assets at risk from fluvial erosion, specifically, and the Central Vermont Kingsbury Branch Stormwater Master Plan completed in 2019.

Transportation Resiliency Planning Tool (TRPT) and the Functioning Floodplain Initiative provide information about the physical condition of streams and factors that influence their stability and transportation assets at risk of fluvial or inundation flooding. These both identify priority locations for river corridor protection, planting stream buffers, stabilizing stream banks, removing berms, and removing/replacing structures such as bridges, culverts, and roads).

Stormwater Master Planning (SWMP) involves identifying stormwater, sediment, nutrient, and septic inputs to waterways and designing projects to mitigate those inputs; either eliminating them at the source through green stormwater infrastructure, septic system improvements, road projects or improving floodplain access within the stream network to increase sediment attenuation.

The 2019 Central Vermont SWMP (Kingsbury Branch) recommended 20 projects to reduce environmental impacts of nutrient and sediment loading to the Kingsbury Branch, as well as mitigate flood vulnerability to municipal or state road and drainage infrastructure.

As demonstrated in the above referenced studies, environmental impacts from flooding can be significant, especially to the water quality in the Kingsbury and the North Branch and the Winooski River. This can in turn have an adverse impact on local tourism, agriculture, and recreation. Flood events with associated road closures can also have a short-term impact on the local economy due to fewer shopping trips and commuter delays and a long term impact to the entire community due to costs of rebuilding and financing while waiting on Federal and State reimbursements.

2024 Flood drone image from AOT.

Extent of risk

Primarily found in the special flood hazard area for inundation flooding this is the area around the confluence of the Kingsbury Branch and the Winooski River. Fluvial erosion is much more diverse and found near any stream channel either perennial or ephemeral/intermittent and damages can start to road infrastructure with as little as .5"/hour and increases with longer durations. There are a number of areas where these issues are present in the community. Following the back to back July 10th floods (DR-4720 & 4810) many of the town culverts have been upgraded. Currently there are culverts on Guyot Road, Coburn Road and Snow Hill Road that may need to be upgraded or studied to determine how to deal with overtopping or erosional issues. On the State of Vermont Road network US-2 between Codling Road and Vermont Country Campers has become an ox-bow in the Winooski River and may require armoring or some level of protection to prevent erosional failure during a large flow event in the Winooski.

Floods Hazard History

These are the most up to date significant events impacting East Montpelier. Federal declarations are depicted in **bold**.

7/10/2024: DR4810 4-7": $Still to be determined
12/18-19/23: 2" of rain on snow event
7/11/2023: DR4720 5-9"" rain: ~$388 million county damages
7/20/2021: Heavy rain: $50,000 county damages
7/14/2020: 3-4" rain: $5,000 town damages
11/1/2019: 2-4" rain: $250,000 county damages
6/20/2019: Heavy rain: $25,000 county damages
5/20/2019: Heavy rain: $25,000 county damages
4/15/2019: DR4445 1" rain with significant snow melt:
7/1/2017: DR4330 3-4" rain the previous 3-4 days with flash flooding on 7/1/17: $240,000 county damages
7/19/2015: Heavy rain: $1,000,000 county damages
4/15-18/2014: DR 4178 heavy rain on snow event $250,000 county damages
6/25-7/10/2013: DR4140 1-3" of heavy rain over a half hour: $625,000 county damages
8/28/2011: DR4022 Tropical Storm Irene with 3-7+" rain: $75,000,000 Public county damages
5/26-27/2011: DR4001 3-5+" rain on snow event: $5,500,000 county damages
5/20/2011: DR4043: Heavy rain: $400,000 county damages
4/23-5/9/2011: DR4043 rain on snow event: $1,000,000 county damages

36 buildings are in the Special Flood Hazard Area; mostly single family dwellings and businesses.

According to FEMA, 41.6% of these properties have flood insurance. In total, these 15 policies cover 3,284,200 in value.

There are no repetitive loss properties.

As weather patterns shift and we see larger storms and more frequent freeze-thaw cycles, the town will monitor for signs that rivers that have historically been stable becoming less stable, with increased erosion, widening, trees falling in from its banks, etc.

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

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

Morphology refers to the structure of the land. For example, slopes that lose their vegetation to fire or drought are more vulnerable to landslides.

Vegetation holds soil in place, and without the root systems of trees, bushes, and other plants, the land is more likely to slide away.

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

The Town of East Montpelier has 9 landslide locations with in the town as listed on the Vermont Agency of Natural Resources Landslide map that was last updated in 2020.

Total damages for landslides are not tracked well within the State of Vermont since often landslides are in association with Fluvial Erosion the damages are often lumped together there. With the increase in precipitation trends due to climate change the risk from landslides is increasing. This can be addressed through land use regulations and mitigation of surface runoff from human actions and development. Historically landslides in East Montpelier have been small at ~0.1 of an acre or less.

Currently the largest landslide within the boundaries of East Montpelier whick measures at 0.38 of an acre is on the bank of the Winooski River. This is located on the U-32 property and is found on the first bend upstream of the Cross Vermont Trail bridge.

Severe Storms with Snow and Ice events typically occur between the months of December and March in the Central Vermont Region. They can include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Events can also be associated with strong wind or floods, increasing the potential hazard.

Ice storms are characterized by ice accretion from freezing rain, which can weigh down trees and power lines, causing outages and potentially occurring in conjunction with flooding in rain on snow events. Ice storms can occur alone or in conjunction with snow storms, blizzards, and extreme cold. Significant accumulations of ice can cause hazardous conditions for travel, weigh down trees and power lines, and cause power outages. Freezing rain can also be combined with mixed precipitation and snowfall, hiding ice accumulation and further hindering travel. Ice accumulation on waterways is associated with the potential for ice jams and flooding

Extreme Cold, Snow, and Ice Hazard History

These are the most up to date significant events impacting. East Montpelier. Federal declarations are depicted in **bold**.

1/11-14/2022: 10-40 below zero with winds: no reported damages
12/18/2021: 5-7" snow $10,000 county damages
1/16/2021: 3-6" wet snow: $50,000 county damages
3/23/2020: 7-10" snow: $5,000 county damages
2/7/2020: 10-16"; ¼" ice: $20,000 county damages
1/16/2020: DR 4474 6-10" snow: $10,000 county damages
3/22/2019: 9" snow: $25,000 county damages
2/12/2019: 7-15" snow: $10,000 county damages
1/29/2019: 6-10" snow: $10,000 county damages
1/19/2019: 10-18" snow: $25,000 county damages
1/8/2019: 8-20+" snow: $25,000 county damages
11/26/2018: 6-14" heavy snow: $125,000 county damages
3/13/2018: 12-30" snow: $20,000 county damages
3/7/2018: 7-13" snow: $10,000 county damages
1/7/2015: 0-10 degrees with wind of 15-30 mph creating wind chills colder than 20-30 below zero: no reported local damage
12/9/2014: DR4207 10-20" snow: $250,000 county damages

The NOAA breakdown based off of light winds, under 10 mph for ice accumulation:

- .25 inch, isolated power outages
- .50 inch, widespread outages

- .75 inch, major damage
- 1.0 inch, devastating damage

Severe winter storms bring the threat of heavy accumulations of snow, cold/wind chills, strong winds, and power outages that result in high rates of damage and even higher rates of expenditures. A heavy accumulation of snow, especially when accompanied by high winds, causes drifting snow and very low visibility. Sidewalks, streets, and highways can become extremely hazardous for pedestrians and motorists. Severe winter storms develop through the combination of multiple meteorological factors. In Vermont and the northeastern United States, these factors include the moisture content of the air, direction of airflow, collision of warm air masses coming up from the Gulf Coast, and cold air moving southward from the Arctic.

The costs to the town of these storms come in the form of power outages due to heavy snow or ice, damaged trees, school closings, and traffic accidents. From 2014 to 2022, Washington County experienced $585,000 in property and crop damage from winter storms.

There have been two winter storm-related federally declared disasters in the county (the ice storm of January 2020 – DR 4474; and December 2014 DR 4207.

Extreme cold can have impacts on public health and safety, especially if extreme temperatures coincide with power outages, which can cut off heat and communication services. Severe winter storm impacts can put vulnerable populations (e.g., older adults, children, sick individuals, pets) at even greater risk.

See the strong wind profile below for more information about the town's vulnerability to power outages.

Snow accumulation typically does not result in loss of road accessibility. The town's fleet of snowplows ensures all roads are accessible, even in major accumulation events. Roads adjacent to critical facilities are well maintained and along with connector routes, are prioritized in winter storm events.

Environmental impacts are predominantly tree damage. Extreme snow and ice events typically have a short-term impact on the local economy – fewer shopping trips and commuter delays.

In the last 50 years the largest historical event was in 2014 DR4207 with up to 24" of wet snow that caused widespread power outages and vehicle accidents. Extent of Ice is harder to track but 0.5" of ice can add 500 lbs. of extra weight to power lines. Ice can cause a 30% increase to the weight of tree branches. Anything greater than a 0.25" of ice will start to cause power outages and greater than 0.50" causes widespread tree and power line damage with dangerous and impassable roads.

WSSI Descriptor	General Description of Expected Storm Severity Impacts
None	No snow or ice forecast. No potential for ground blizzard conditions.
Limited	Small accumulations of snow or ice forecast. Minimal impacts, if any, expected. In general, society goes about their normal routine.
Minor	Roughly equates to NWS Advisory Level criteria. Minor disruptions, primarily to those who were not prepared. None to minimal recovery time needed.
Moderate	Roughly equates to NWS Warning Level criteria. Definite impacts to those with little preparation. Perhaps a day or two of recovery time for snow and/or ice accumulation events.
Major	Significant impacts, even with preparation. Typically several days recovery time for snow and/or ice accumulation events.
Extreme	Historic. Widespread severe impacts. Many days to at least a week of recovery needed for snow and/or ice accumulation events.

Strong wind can occur alone, such as during straight-line wind events, or it can accompany other natural hazards, including severe thunder and/or winter storms.

High winds pose a threat to the safety of East Montpelier's citizens and property. The National Weather Service (NWS) issues a wind advisory when winds are sustained at 31 to 39 mph for at least one hour or any gusts 46 to 57 mph. Sustained winds of 40 to 73 mph or gusts of 58 mph or higher cause the NWS to issue a High Wind Warning.

FEMA's National Risk Index defines strong wind as damaging winds that exceed 58 mph. Strong wind poses a threat to lives, property, and vital utilities primarily because of flying debris or downed trees and power lines.

From 1996 to 2022, wind events caused more than $1.270 million in property damage in Washington County, with $450,000 due to one event in December 2022.

East Montpelier is susceptible to high directional winds town wide. Many storms with high winds result in downed trees as well as damaged phone and power lines, buildings, and other property.

Downed trees within the powerline right-of-way are the root cause of many power outages. Roads that pass through dense wooded areas are prone to downed trees and disrupt access, also they can often lead to fallen power lines..

Power outages are the main reason for disrupting communications, which are crucial in times of crisis. For example, the loss of phone service is of particular concern for East Montpelier's vulnerable populations and residents. Landline phones that have been converted from copper wire to fiber rely on an in- home battery back-up. The battery life is typically less than eight hours, whether the phone is used or not. Though many residents use cell phones, longer power outages and damage from high winds further complicating the problem of contacting emergency services during power outages.

Telecommunications are also needed for warning systems before a disaster, as well as for response during and recovery after. During a disaster, municipal response is managed by the local Emergency Operations Center (EOC), this would include all communications – from phone calls to internet browsing and 2-way radio.

To mitigate the impacts of power outages, the following public buildings/critical facilities have been equipped with backup power or generator hookup: Water supply pump house, fire station, Town office, and East Montpelier elementary school (as the emergency shelter).

The only public building lacking backup power is the town garage which will be addressed with the construction of the new town garage and installed equipment to utilize a large mowing tractor as the generator source for the building.

In addition to power outages, downed trees during strong wind (and heavy snow/ice) events can damage buildings and other property and in rare cases result in fatality. Ninety Six percent (96.5%) of community survey respondents reported having seen areas in the community damaged during a past severe weather event. The most common type of damage that survey respondents reported seeing was downed trees. Forty three percent (43.1%) of community survey respondents reported having experienced damage during a past severe weather event.

Environmental impacts are predominantly tree and roof damages. Strong wind events with associated power outages can have a short-term impact on the local economy due to business closures.

Vermont's Emerald Ash Borer infestation was first detected in 2018 in northern Orange County. The potential risk to public and private structures and impacts on the local economy have not been quantified. But the impact of invasive pests has a real economic effect on landowners and utilities in dealing with dead trees and their potential to cause damages.

Beaufort Scale

Beaufort number	Wind Speed (mph)	Seaman's term		Effects on Land
0	Under 1	Calm		Calm; smoke rises vertically.
1	1-3	Light Air		Smoke drift indicates wind direction; vanes do not move.
2	4-7	Light Breeze		Wind felt on face; leaves rustle; vanes begin to move.
3	8-12	Gentle Breeze		Leaves, small twigs in constant motion; light flags extended.
4	13-18	Moderate Breeze		Dust, leaves and loose paper raised up; small branches move.
5	19-24	Fresh Breeze		Small trees begin to sway.
6	25-31	Strong Breeze		Large branches of trees in motion; whistling heard in wires.
7	32-38	Moderate Gale		Whole trees in motion; resistance felt in walking against the wind.
8	39-46	Fresh Gale		Twigs and small branches broken off trees.
9	47-54	Strong Gale		Slight structural damage occurs; slate blown from roofs.
10	55-63	Whole Gale		Seldom experienced on land; trees broken; structural damage occurs.
11	64-72	Storm		Very rarely experienced on land; usually with widespread damage.
12	73 or higher	Hurricane Force		Violence and destruction.

Strong Wind Hazard History

These are the most up to date significant events impacting East Montpelier. Federal declarations are depicted in **bold**. Damages are to Washington County.

12/23/2022: 50-60+ wind gusts: $450,000
10/30/2017: 40 mph wind: $250,000
2/26/2010: 55 mph wind: $15,000
2/17/2006: 37 mph wind: $10,000
9/29/2005: 35 mph wind: $50,000
11/13/2003: 35 mph wind: $10,000
10/15/2003: 50 mph wind: $10,000
3/10/2002: strong wind: $5,000
12/12/2000: strong wind: $5,000
3/28/2000: strong wind: $5,000
9/17/1999: strong wind: $75,000
11/23/1998: strong wind: $10,000
2/22/1997: 50 mph wind: $15,000

Droughts in the Northeast. We frequently experience 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.

The Town's risk of drought is mainly is primarily on the residents and farms since most rely on their own water wells. As most residents of the Town are on private wells and bear the costs and risks of mitigation themselves. Crystal Springs Water company as a private entity also bears the same risk during a drought scenario.

There have been 3 instances of D3 level droughts in Washington County Vt since 2000. One longer event in 2016,2018 and then a short one in 2020

Wildfires are not often much of a concern within our region, although the spring and fall can be times when dry hazardous conditions exist. Opportunity for wildfires occurs due to the lack of foliage in these seasons, before spring green up or in the fall after foliage has died back when combined with dry conditions. Historically, Vermont has seen the most wildland fires between March and June. These are generally times when dry conditions exist for an extended period causing drought conditions. Ignition of wildfires is predominantly caused by human activity and mainly from debris fires that are not contained or not supervised. Thus, messaging when conditions exist is very important to convince individuals not to make mistakes in relation to ignition sources. This messaging is handled by the town fire warden in association with the fire department.

There have only been small isolated wildfires within the last 50 years within Washington county. But due to the shifting weather patterns and to climate change this should be planned for due to spring and fall risk with flash droughts. The largest wildfire/brush fire in East Montpelier records is ~4-6 acres. All town assets are at risk to wildfire due to the rural nature of the town.

Invasive Species The National Invasive Species Council defines an invasive species as one that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic, environmental harm, or harm to human health. Invasive species can overwhelm native species and their habitats, forcing the native species out. They pose the second greatest threat to biodiversity globally. Invasive plants in Vermont, such as Japanese knotweed, common reed (Phragmites), purple loosestrife, and garlic mustard can change soil composition, change water tables, and disrupt insect cycles. They often lack food value upon which wildlife depends. Some invasive animals prey heavily upon native species while others, such as the alewife and zebra mussel, out-compete native species for food and nutrients with significant impacts reverberating up and down food chains.

Invasive pests such as Emerald Ash Borer (EAB), first found in Vermont in 2018, have serious financial implications for forest landowners and municipalities alike. EAB feeds on ash trees in Vermont, deeply damaging each tree and hindering its ability to move carbohydrates and water resources as necessary. Infected trees will die between three and five years after the introduction of EAB. Productive timber is destroyed by EAB and trees along roads become hazards as they die and disrupt powerlines. Preventative measures can slow the further spread of these insects and protect native ash populations. Additionally, invasive species can directly or indirectly cause harm to human health. Giant hogweed, wild parsnip and wild chervil are three invasive plant species in Vermont that have phytophototoxic properties, meaning direct contact of their sap with human skin can cause a chemical reaction that makes skin hypersensitive to ultraviolet light. Vermonters have received serious skin burns from the toxicity of the sap of these plants combined with exposure to sunlight. Another example is that of Japanese barberry, which has been proven to increase the incidence of Lyme disease by providing sheltered habitat that increases the abundance of small rodents, which act as hosts to the ticks that carry Lyme disease pathogens.

The risk of invasive species is higher in more disturbed soils and developed areas. But the extent is varied, Emerald Ash Borer is more likely to be found in the heavily wooded upland slopes with Japanese knot weed along the river and stream banks. 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 damages.

The town is concerned with the spread of invasive species as climate change progresses. Especially of insects that are either new to the region or increases in prevalence such as deer ticks (lyme disease carrier) and mosquitos which have been in Vermont historically but new species that may move into the region and are carriers of new pathogens.

The town currently has been implementing a right of way (ROW) removal plan for impacted ash trees on town property. The town has been working with contractors to remove trees in the ROW as funding allows. Additional information on invasives in appendix.

Infectious Disease The Vermont Department of Health defines an infectious disease as one that is caused by micro-organisms, such as bacteria, viruses or parasites. A vector-borne disease is an infectious disease that is transmitted to humans by blood-feeding arthropods, including ticks, mosquitoes and fleas, or in some cases by mammals

(e.g. rabies). Climate change is increasing the likelihood of viral and bacterial pathways through warmer temperatures and in association with floods. Due to the climatic associated shifts due to the warming climate the seasons that vector borne organisms can survive in has increased by 7 day over the last 2 decades.

According to the Vermont Department of Health, infectious disease dynamics depend on a range of factors, including: land use, human behavior, climate, efficacy of healthcare services, population dynamics of vectors, population dynamics of intermediate hosts and the evolution of the pathogens themselves. Many of these diseases require continuous monitoring, as they present seasonal threats to the general population. An epidemic emerges when an infectious disease occurs suddenly in numbers that are in excess of normal expectancy. Infectious disease outbreaks put a strain on the healthcare system, can cause continuity of operations challenges for local businesses, impact the economy, and interrupt daily life for everyone within a community. These outbreak incidents are a danger to emergency responders, healthcare providers, schools, and the public. Examples include Coronavirus 19 (Covid-19) which was a federally declared disaster DR-4532, influenza, Bird Flu (e.g. H1N1), pertussis, West Nile virus, equine encephalitis, measles, and many other diseases.

Upon consideration of five climate and health reviews, The Vermont Department of Health has separated vector-borne and other infectious diseases into five threat categories (Table 27). More details on this classification system and the diseases can be found in the 2016 Vermont Climate Health Report.

There is no scale or metric for prioritizing infectious disease at the Town level. The easiest method would be to track hospitalizations by day increase above the average. Or in a pandemic scenario record of days with closed businesses due to risk of infection.

The primary vulnerability would be to those who are immune compromised, elderly and young populations and are most susceptible to respiratory viruses.

Readers should look to the Vermont Department of Health for more information on significant infectious disease outbreaks, such as epidemics and pandemics. The Town will monitor these for up to date threat information and follow the appropriate protocols developed by these agencies as necessary.

Table 27: Threat Categories of Vector-Borne and Other Infectious Disease

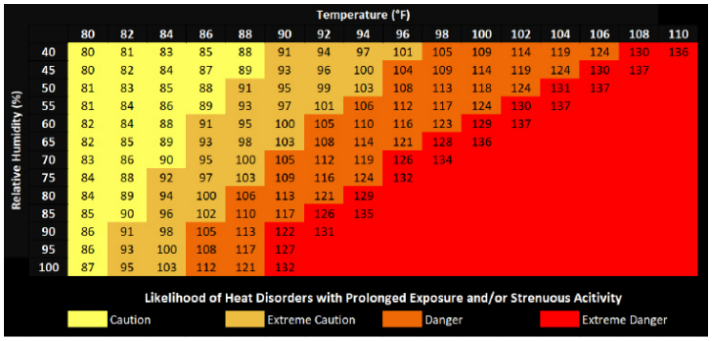
Threat Classification	Disease
Diseases already present in Vermont that may be exacerbated by climate change	West Nile Virus
	Eastern Equine Encephalitis
	Lyme Disease
	Anaplasmosis
	Babesiosis
	Tularemia
	Powassan
Diseases that may spread to Vermont even without contribution of climate change, whose spread to and transmission of Vermont could be exacerbated by climate change	St. Louis Encephalitis
	Western Equine Encephalitis
	La Crosse Encephalitis
	Ehrilichiosis
	Rocky Mountain Spotted Fever
Diseases with vectors that may spread to Vermont by the end of the century under a higher emission scenario	Dengue
	Chikungunya
Disease that have competent vectors or may in the future have competent vectors in Vermont, but are unlikely to become established in Vermont despite a vector presence	Yellow Fever
	Malaria
	Chagas Disease
	Rift Valley Fever
Diseases that may be present in Vermont or may spraed to Vermont in the future but whose link with climate changes expected in Vermont is tenuous	Batonellosis
	Rabies
	Hanta Virus
	Leptospiriosis
	Plague
	Valley Fever
	Anthrax
	Q Fever

Source: Vermont Department of Health

Extreme heat and cold Heat warnings are becoming increasingly more prevalent due to our shifting climate. Vermont has been seeing an Increase in 90+ degree temperature days. This trend is expected to continue. Most of our housing stock and individuals are well adapted to dealing with cold temperature, 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.

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. Consecutive days of hot weather with warm overnight temperatures further increase the risk of experiencing severe heat-related health impacts. Risk also depends on the "normal" level of heat experienced in an area – places that are relatively cooler will typically experience health impacts at lower heat index values than a place that is relatively warmer. June of 2024 saw forecasted heat index of 102. Below are the 4 heat related listing from the SHMP of 2023.

WASHINGTON (ZONE)	8/1/2006	Heat
WASHINGTON (ZONE)	8/2/2006	Heat
WASHINGTON (ZONE)	7/21/2011	Heat
WASHINGTON (ZONE)	7/1/2018	Heat



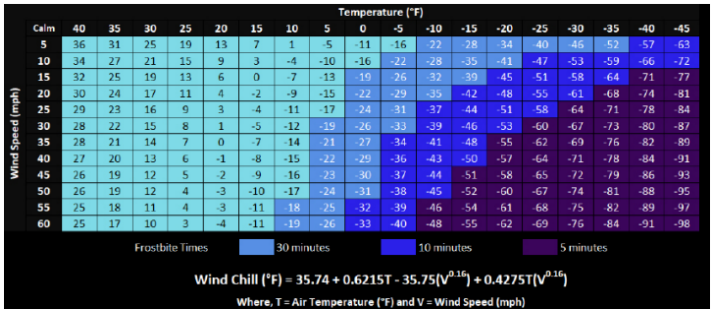
-Hot weather temperature scale

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 East Montpelier with a greater increase in heat warning. With there being at least 1 multiday heat advisory on average per year.

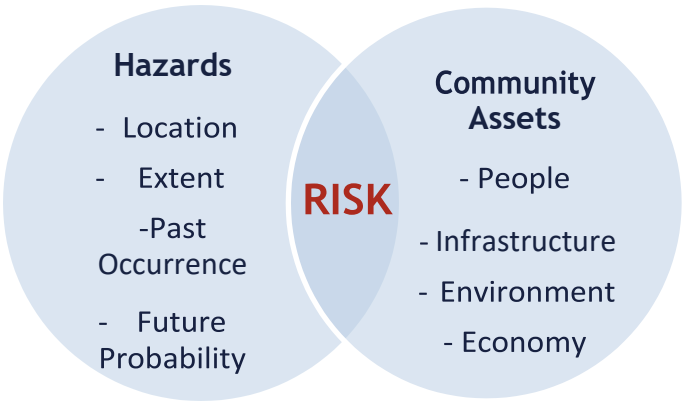
In the region, extreme cold can still be an issue. If it is a long-lasting cold without snow cover, frost can migrate deep into the ground freezing pipes and heaving roadways. Most of this would be dealt with by the town either through their utility contracts or by the town road crew in keeping the transportation infrastructure in usable condition. Loss of power during one of these cold snaps may require use of the town shelter and is planned for in the town Local Emergency Management Plan.

What constitutes "extreme cold" can vary across different areas of the country based on what the population is accustomed to in their respective climates. Vermont is adapted to cold conditions; however very cold temperatures remain a threat despite their commonality during Vermont winters For cold weather events the Town uses the Elementary School as a shelter if in association with a power outage or the school not being in session. The town has also discussed using the Twin Valley Senior Center as both a heating/cooling shelter for older individuals.

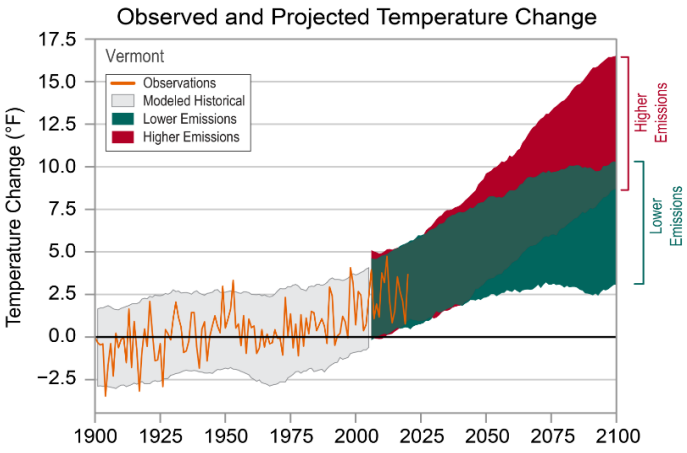
Risk to town assets from cold are limited to waterlines at town owned structures. The risk from extreme cold and heat are primarily to individuals, either residents, town employees, or worker force within the town boundaries.



-cold weather temperature scale w/ wind chill



Climate change

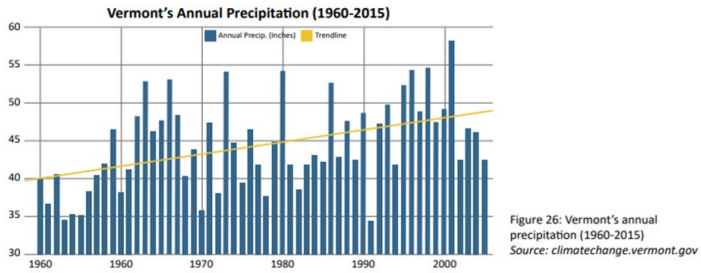


-NOAA 2022 Vermont Climate summary

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

With the increasing risks of events from our changing climate, all weather-related natural events are expected to have an increase in both frequency and in intensity. Vermont is predicted to experience increases in heat waves, downpours and flooding. This also can lead to flash droughts and cold snaps without the time for acclimation.

The Northeastern United States has already seen an increase of seventy one percent precipitation totals increase since 1950 and an increase in extreme weather events. It is imperative that we have solid plans of mitigating future disasters proactively to minimize risk.



-precipitation data showing increased precipitation trends from VT state climate action plan

The increase in Atlantic Ocean temperatures as well as the overall climate will create drastic increases in storm potential. This will increase the storm severity indeterminate of the time of year. There should be a realization that due to higher windspeeds and greater moisture capacity many previous records will be exceeded. This has been document by the surpassing of the 400 ppm CO2 tipping point and will continue as permafrost melts and releases more naturally occurring green house gases.

Earthquakes, Hail and all other risk not described please refer to the State of Vermont Hazard Mitigation plan. : State Hazard Mitigation Plan | Vermont Emergency Management

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:

Increase the Town of East Montpelier's resilience to natural hazards by planning mitigation investments to reduce or avoid risk to people, homes, the local economy, cultural and historic resources, ecosystems, and community lifelines such as transportation, energy, and communications.

See Community Survey results in Appendix C for which assets survey respondents thought were most important to protect against potential future severe weather impacts.

Community Capabilities

Each community has a unique set of capabilities, including authorities, programs, staff, funding, and other resources available to accomplish mitigation and reduce long-term vulnerability. East Montpelier's mitigation capabilities that reduce hazard impacts or that could be used to implement hazard mitigation activities are listed below:

Administrative & Technical This capability refers to the Town's staff and their skills and tools that can be used for mitigation planning and to implement actions. In addition to the Emergency Management staff described in Section 3, municipal staff that can be used for mitigation planning and to implement specific mitigation actions include: Town Administrator, Town Treasurer, Town Clerk, Assistant Town Clerk, Zoning Administrator, Road Foreman, and Road Crew.

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

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

Planning & Regulatory These capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Examples of planning capabilities that can either enable or inhibit mitigation include: land use plans, capital improvement programs, transportation plans, stormwater management plans, disaster recovery and reconstruction plans, and emergency preparedness and response plans. Examples of regulatory capabilities include the enforcement of zoning ordinances, subdivision regulations, and building codes3 that regulate how and where land is developed, and structures are built.

National Flood Insurance Program Compliance

The Town joined the National Flood Insurance Program (NFIP) in 1983. The effective date of the current Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) is March 19, 2013. The Zoning Administrator enforces NFIP compliance through permit review requirements in its Flood Hazard Area regulations. East Montpelier's regulations outline detailed minimum standards for development in flood hazard areas defined as FEMA Special Flood Hazard Areas and Floodway Areas. The regulations also require administering Substantial Improvement and Substantial

Damage (SI/SD) requirements in accordance with FEMA P-758 SI/SD Desk Reference, May 2010.

The town is currently awaiting the new flood insurance maps that are being compiled by FEMA and will be reviewed and accepted to maintain the town's NFIP status once the process has been completed.

The Town discussed the following as possible actions to continue NFIP compliance:
1) Prepare, distribute, or make available NFIP insurance explanatory pamphlets or booklets.
2) Participate in NFIP trainings offered by the State, CVRPC and/or FEMA.

State Incentives for Flood Mitigation Vermont's Emergency Relief Assistance Funding (ERAF) provides state funding to match FEMA Public Assistance after federally declared disasters. Eligible public costs are generally reimbursed by FEMA at 75% with a 7.5% State match. The State will increase its match to 12.5% or 17.5% if communities take steps to reduce flood risk as described below.
12.5% funding for communities that have adopted four (4) mitigation measures:

1) NFIP participation;
2) Town Road and Bridge Standards;
3) Local Emergency Plan; and
4) Local Hazard Mitigation Plan.

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

East Montpelier's current ERAF rate is 7.5%. Upon adoption of the 2024 Local Hazard Mitigation Plan, their ERAF rate will increase to 17.5% because the Town has adopted Flood Hazard regulations that are strong enough to receive interim status as River Corridor Bylaws.

Town capabilities chart in Appendix A

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.

Community Lifelines are organized into seven categories:

1. Law Enforcement
2. Fire Service
3. Search & Rescue
4. Government Service
5. Community Safety

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

1. Medical Care
2. Public Health
3. Patient Movement
4. Medical Supply Chain
5. Fatality Management

1. Power Grid
2. Fuel

1. Infrastructure
2. Responder Communications
3. Alerts, Warnings, & Messages
4. Finance
5. 911 & Dispatch

1. Highway/Road/Motor Vehicle
2. Mass Transit
3. Railway
4. Aviation
5. Maritime

1. Facilities HAZMAT, Pollutants, Contaminants

Mitigation Action Identification

The Hazard Mitigation Planning Team discussed the mitigation strategy, reviewed projects from the 2019 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.

Mitigation Action Evaluation

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 **Table5**.

See Community Survey results in **Appendix D** for which category of mitigation actions survey respondents wanted the Town to prioritize.

Mitigation Action Plan for Implementation

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

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

For the selected actions, the Planning Team then 1) assigned a responsible party to lead the completion of each action; 2) identified potential grant funding; 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. [4] When ranking an action's priority, those that directly benefit a vulnerable population were ranked high.

The action plan is presented in **Table 6**

Table 5: Mitigation Action Evaluation and Prioritization

East Montpelier Mitigation Actions	Need	Support	Feasibility	Project Cost	Project Benefit	
Fluvial Erosion						Mitigation type
Establish Vegetative Buffers in Riparian Areas	1	0	0	1	1	Natural Systems
Restore Incision Areas when threatening structures	0	0	0	2	0	Natural Systems
Armor ditches on identified segments of road per Municipal Roads General Permit requirements	1	1	1	1	3	Structures and infrastructure
Upsize culvert on Guyette Road just south of Tucker Road.	1	1	1	2	3	Structures and infrastructure
Upsize culvert on Coburn Road. From TRPT tool. Just south of 360 Coburn Rd	1	1	1	2	3	Structures and infrastructure
Routinely Clean and Repair Stormwater Infrastructure	0	0	0	1	0	Structures and infrastructure
Study roads for resiliency (culverts) and 5 year plan for dealing with mud season conditions	1	1	1	1	3	Local Plans and Regulations
Implement projects from the Functioning Floodplain Iniative explorer tool	0	0	1	1	1	Natural Systems
Scoping study of Winooski River within East Montpelier for flood mitigation projects	1	1	1	3	3	Local Plans and Regulations
Education program about rain gardens and what individuals can do to lessen runoff	0	0	1	1	1	Outreach and Education
Inundation Flooding						
Utilize buyouts were appropriate to mitigate flood damages in low lying areas	1	1	1	3	3	Structures and infrastructure
Elevate structures to Base Flood Elevation	1	1	0	3	2	Structures and infrastructure
Elevate and upsize bridges/culverts to increase debris passage	1	1	1	3	3	Structures and infrastructure
Initiative to restore floodplains where possible	0	1	-1	2	0	Natural Systems
Increasing drainage or absorption capacities with detention and retention basins	0	0	0	2	0	Natural Systems
Support Winooski H & H model for regional flood model.	1	1	1	3	3	Local Plans and Regulations
Plan for registering flood recovery groups for post incident response and process for them working in the community	-1	-1	0	1	-2	Local Plans and Regulations

Education campaign on banning fill along streams, river and how it leads to increased flooding	1	-1	-1	1	-1	Outreach and Education
Identify and restore wetlands in appropriate locations for flood storage	0	0	-1	2	-1	Natural Systems
Scoping study of Winooski River within East Montpelier for flood mitigation projects	0	1	0	2	1	Local Plans and Regulations
Remove Berms and/or Accumulated Debris from Stream to Restore Flood Capacity	1	1	1	3	3	Natural Systems
Snow						
Adopt Local Building Codes for Roof Wind and Snow Loads	-1	-1	-1	1	-3	Local Plans and Regulations
Retrofit Critical Facilities to Strengthen Structural Frames to Withstand Wind and Snow Loads	0	0	0	3	0	Structures and infrastructure
Bury Power Lines	1	1	1	3	3	Structures and infrastructure
Install generators on critical locations	1	1	1	2	3	Structures and infrastructure
Ice						
Protect Power Lines and Roads by Inspectingand Removing Hazardous Trees in Road ROW	1	1	1	3	3	Structures and infrastructure
Education on Carbon Monoxide Poisioning	1	0	0	1	1	Outreach and Education
Install generators on critical locations	1	1	1	2	3	Structures and infrastructure
High Winds						
Bury Power Lines	1	1	1	3	3	Structures and infrastructure
Update Zoning Ordinance to Require New Subdivision Development to Bury Power Lines	-1	-1	-1	1	-3	Local Plans and Regulations
Protect Power Lines and Roads by Inspectingand Removing Hazardous Trees in Road ROW	1	1	1	3	3	Structures and infrastructure
Install generators/backup power at critical locations	1	1	1	2	3	Structures and infrastructure
Wildfires						
Burn Bans and outreach for fire danger	1	1	1	1	3	Local Plans and Regulations
Educating homeowners of risk and defensible space around home for wildfire prevention.	0	0	0	1	0	Outreach and Education

Public education campaign on fire permits and possible handout.	0	0	0	1	0	Outreach and Education
Landslides						
Defining steep slope/high-risk areas in land use and comprehensive plans and creating guidelines or restricting new development in those areas	0	0	0	1	0	Local Plans and Regulations
Implementing monitoring mechanisms/procedures (i.e.,visual inspection)	1	1	1	1	3	Local Plans and Regulations
Infectious Disease Outbreak						
Educate the Public About the Risks of Infectious Disease and vectors such as lyme disease, West Nile Virus	0	0	0	1	0	Outreach and Education
Train with VDH emergency Specialist staff for outbreak response	1	1	1	1	3	Local Plans and Regulations
Invasive Species						
Outreach on programs for managing and care of aging and diseased trees by Tree Warden to prevent power outages and road debris	0	0	0	1	0	Outreach and Education
Outreach and education program on invasive pests and risks of ticks	0	0	0	1	0	Outreach and Education
Tree Removal in town ROW of infected trees	1	1	1	1	3	Local Plans and Regulations
Outreach/education program on native plants and invasive plant removal	0	0	0	1	0	Outreach and Education
Heat						
Outreach during severe cold or heat of risks to exposure	0	0	0	1	0	Outreach and Education
Hot and Cold Weather Planning	1	1	1	1	3	Local Plans and Regulations
Cold						
Hot and Cold Weather Planning	1	1	1	1	3	Local Plans and Regulations
Outreach during severe cold or heat of risks to exposure	0	0	0	1	0	Outreach and Education
Drought						
Outreach program on water efficiency opportunities	1	1	1	1	3	Outreach and Education
All Hazards						
Develop debris removal plan for post disaster use	-1	0	0	1	-1	Local Plans and Regulations
Integrate Mitigation into Capital Improvement Programs and Planning	0	0	0	1	0	Local Plans and Regulations

Plan for Road Right-of-Way Vegetation Management	1	1	1	1	3	Local Plans and Regulations
Adopt public works mutual aid agreement with other municipalities within Central Vermont Regional Emergency Management Committee area.	1	1	1	1	3	Local Plans and Regulations
Develop 10 yr. strategic or capital plan	0	0	0	1	0	Local Plans and Regulations
Review if contingency fund can be utilized to roll over for funding emergency management needs or mitigation projects	1	1	1	2	3	Local Plans and Regulations

Table 5 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 0, 1, or 2 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

The highlighted culverts found above were prioritized for replacement due to both desktop review and the in further review with the town road foreman.

Table 6: Mitigation Action Plan

East Montpelier	Mitigation type	Who	Funding	When
Mitigation Actions				
Fluvial Erosion				
Armor ditches on identified segments of road per Municipal Roads General Permit requirements	Structures and infrastructure	Road Crew	Vtrans/Town	2025-2029
Upsize culvert on Guyette Road just south of Tucker Road.	Structures and infrastructure	Road Crew	Vtrans/Town	2027
Upsize culvert on Coburn Road. From TRPT tool. Just south of 360 Coburn Rd	Structures and infrastructure	Road Crew	Vtrans/Town	2028

Study roads for resiliency (culverts) and 5 year plan for dealing with mud season conditions	Local Plans and Regulations	Planning commission	MPG	2027
Inundation Flooding				
Utilize buyouts were appropriate to mitigate flood damages in low lying areas	Structures and infrastructure	Town Selectboard	FEMA HMGP	as needed
Elevate and upsize bridges/culverts to increase debris passage	Structures and infrastructure	Town Road Crew	Vtrans/Town	2025-2029
Support Winooski H & H model for regional flood model.	Local Plans and Regulations	Region/Town	VEM	2026
Remove Berms and/or Accumulated Debris from Stream to Restore Flood Capacity	Natural Systems	Watershed groups/Town	CWSP	
Snow				
Bury Power Lines	Structures and infrastructure	Utility(WEC, GMP)	DOE, HMGP	2026-2029
Install generators on critical locations	Structures and infrastructure	Town	DOE, HMGP	2026
Ice				
Protect Power Lines and Roads by Inspectingand Removing Hazardous Trees in Road ROW	Structures and infrastructure	Town/Road Crew	Vtrans HSIP, VT Urban Forestry	2025-2029
Install generators on critical locations	Structures and infrastructure	Town	DOE, HMGP	2026
High Winds				
Bury Power Lines	Structures and infrastructure	Utility(WEC, GMP)	DOE, HMGP	2026-2029
Protect Power Lines and Roads by Inspectingand Removing Hazardous Trees in Road ROW	Structures and infrastructure	Town/Road Crew	Vtrans HSIP, VT Urban Forestry	2025-2029
Install generators/backup power at critical locations	Structures and infrastructure	Town	DOE, HMGP	2026
Wildfires				
Burn Bans and outreach for fire danger	Local Plans and Regulations	Fire Warden	Town	as needed
Landslides				
Implementing monitoring mechanisms/procedures (i.e.,visual inspection)	Local Plans and Regulations	Town Road Crew	Town	weekly
Infectious Disease Outbreak				
Train with VDH emergency Specialist staff for outbreak response	Local Plans and Regulations	Health Officer/Fire Dept.	Town	Every other year
Invasive Species				

Tree Removal in town ROW of infected trees	Local Plans and Regulations	Road Crew/ Contractor	Vtrans HSIP, VT Urban Forestry	2025-2029
Heat				
Hot and Cold Weather Planning	Local Plans and Regulations	Emergency preparedness committee	CVRPC	2025
Cold				
Hot and Cold Weather Planning	Local Plans and Regulations	Emergency preparedness committee	CVRPC	2025
Drought				
Outreach program on water efficiency opportunities	Outreach and Education	Town/Efficiency Vermont	Town	2025-2029
All Hazards				
Plan for Road Right-of-Way Vegetation Management	Local Plans and Regulations	Town	Planning Commission	2025-2026
Adopt public works mutual aid agreement with other municipalities within Central Vermont Regional Emergency Management Committee area.	Local Plans and Regulations	Town	CVRPC/Selectboard	2025
Review if contingency fund can be utilized to roll over for funding emergency management needs or mitigation projects	Local Plans and Regulations	Town	Selectboard	2025-2026

Integrating into Existing Plans and Procedures

For East Montpelier 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 18, information from the risk assessment, and mitigation actions as follows:

- The mitigation goal and risk assessment information can be considered when prioritizing capital improvements. Mitigation actions listed in this Plan can be included in the annual budgeting process.
- Funding for mitigation actions can be prioritized in the annual budget 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. Ideally incorporating this while doing zoning updates for the acceptance of new flood maps.

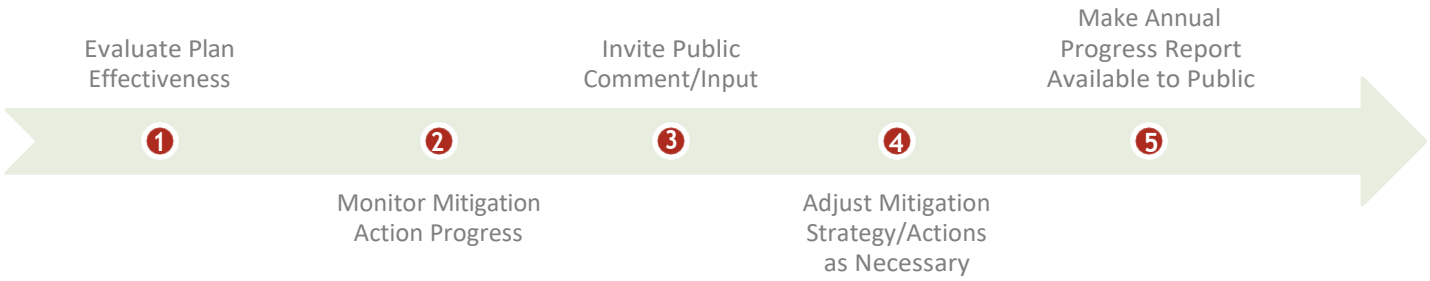
- The mitigation goal and risk assessment information can be incorporated into any plans to expand public water and sewer utilities to ensure they are not expanded into high-hazard areas.
- Several flood-related mitigation actions for increasing road resiliency can be implemented under the existing Municipal Road General Permit (8054-9040) 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. The town will utilize a process for collecting input to the town Emergency Management Director and Emergency Management Coordinator. This will be publicly announced utilizing Front Porch Forum that the yearly review is upcoming to garner community input and comments. This will be incorporated into the yearly review by the Selectboard. This will also allow for the inclusion of any new mitigation projects that the town may want to undertake during the timeframe of the current plan.

Annual Evaluation and Monitoring

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



1. The Selectboard will evaluate the effectiveness of the Plan in meeting the stated goals. Things to consider during this evaluation:

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

2. Next, the Selectboard 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 7**. If the status is "in progress" note whether the action is on schedule. If not, describe any problems, delays, or adverse conditions that will impair the ability to complete the action.

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

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

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

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

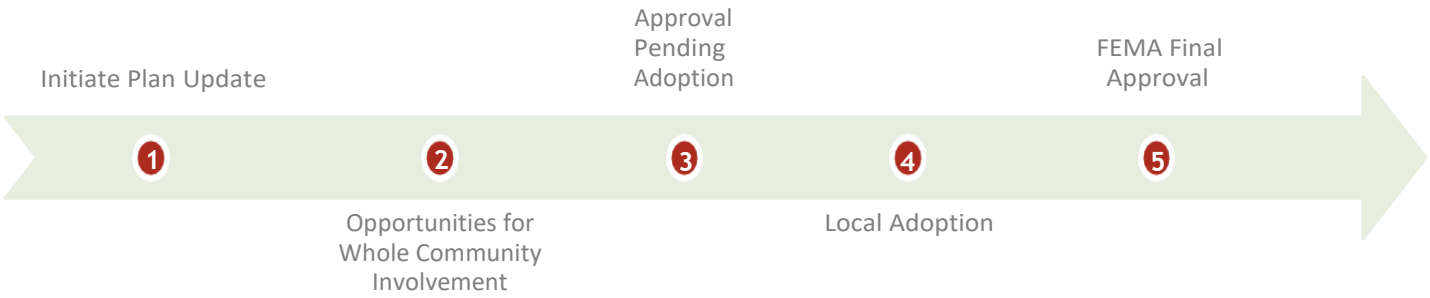
Table 7: Mitigation Action Status

East Montpelier	Who	Funding	When	Status
Mitigation Actions	Instructions on sheet 2			
Fluvial Erosion				
Armor ditches on identified segments of road per Municipal Roads General Permit requirements	Road Crew	Vtrans/Town	2025-2029	
Upsize culvert on Guyette Road just south of Tucker Road.	Road Crew	Vtrans/Town	2027	
Upsize culvert on Coburn Road. From TRPT tool. Just south of 360 Coburn Rd	Road Crew	Vtrans/Town	2028	
Study roads for resiliency (culverts) and 5 year plan for dealing with mud season conditions	Planning commission	MPG	2027	
Inundation Flooding				
Utilize buyouts were appropriate to mitigate flood damages in low lying areas	Town Selectboard	FEMA HMGP	as needed	
Elevate and upsize bridges/culverts to increase debris passage	Town Road Crew	Vtrans/Town	2025-2029	
Support Winooski H & H model for regional flood model.	Region/Town	VEM	2026	
Remove Berms and/or Accumulated Debris from Stream to Restore Flood Capacity	Watershed groups/Town	CWSP		
Snow				
Bury Power Lines	Utility(WEC, GMP)	DOE, HMGP	2026-2029	
Install generators on critical locations	Town	DOE, HMGP	2026	
Ice				
Protect Power Lines and Roads by Inspectingand Removing Hazardous Trees in Road ROW	Town/Road Crew	Vtrans HSIP, VT Urban Forestry	2025-2029	
Install generators on critical locations	Town	DOE, HMGP	2026	
High Winds				
Bury Power Lines	Utility(WEC, GMP)	DOE, HMGP	2026-2029	
Protect Power Lines and Roads by Inspectingand Removing Hazardous Trees in Road ROW	Town/Road Crew	Vtrans HSIP, VT Urban Forestry	2025-2029	
Install generators/backup power at critical locations	Town	DOE, HMGP	2026	
Wildfires				

Burn Bans and outreach for fire danger	Fire Warden	Town	as needed	
Landslides				
Implementing monitoring mechanisms/procedures (i.e.,visual inspection)	Town Road Crew	Town	weekly	
Infectious Disease Outbreak				
Train with VDH emergency Specialist staff for outbreak response	Health Officer/Fire Dept.	Town	Every other year	
Invasive Species				
Tree Removal in town ROW of infected trees	Road Crew/ Contractor	Vtrans HSIP, VT Urban Forestry	2025-2029	
Heat				
Hot and Cold Weather Planning	Emergency preparedness committee	CVRPC	2025	
Cold				
Hot and Cold Weather Planning	Emergency preparedness committee	CVRPC	2025	
Drought				
Outreach program on water efficiency opportunities	Town/Efficiency Vermont	Town	2025-2029	
All Hazards				
Plan for Road Right-of-Way Vegetation Management	Town	Planning Commission	2025-2026	
Adopt public works mutual aid agreement with other municipalities within Central Vermont Regional Emergency Management Committee area.	Town	CVRPC/Selectboard	2025	
Review if contingency fund can be utilized to roll over for funding emergency management needs or mitigation projects	Town	Selectboard	2025-2026	

5-Year Updates

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



1. Currently, no funding to assist municipalities in paying for planning services to update the Local Hazard Mitigation Plan is available through FEMA. Montpelier should contact Vermont Emergency Management (VEM) to apply for funding in 2027 – approximately 2 years before the Plan expires.

   It will be imperative to follow changes to funding to secure funding in the future to continue this work.

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

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

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

5. Once adopted, the Town can submit the Plan for VEM/FEMA Final Approval. The Town should submit for Final Approval approximately 1 month before the Plan expires to ensure there is no gap in coverage between updates. The FEMA Final Approval date starts the clock on the effective dates of the 5-year Plan.

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

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

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

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

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

Section 1. In accordance with 24 VSA §872, the East Montpelier Selectboard adopts the East Montpelier, Vermont 2025 Local Hazard Mitigation Plan. While content related to the Town of East Montpelier may require revisions to meet the plan approval requirements, changes occurring after adoption will not require the Town of East Montpelier 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 3 in favor and 0 against, and 0 abstaining, this 17 day of June 2025.

By: Seth B. Gardner (print name) Seth B. Gardner
Selectboard Chair

ATTEST: By Jennifer Devine (print name) Jennifer Devine
Town Administrator

MITIGATION ACTIONS FROM 2017 PLAN

Table 14: 2019-2024 Mitigation Strategies		
Hazard Mitigated	*Mitigation Action*	*Status update in 2025*
All Hazards	Install generator at Municipal Office Building	Generator was installed.
Winter Storms	Upgrade electrical system in Municipal Office Building	Electrical system was upgraded.
Invasive Species	Provide public education materials and trainings to reduce exposure to and spread of invasive species	Held a public meeting on invasives with Mike Ball presenting.
Invasive Species	Develop action plan to deal with the effects of the Emerald Ash Borer on the town's ash trees	The town has implemented a Right of Way removal program.
Winter Storms/Extreme Cold	Provide public education materials and trainings to residents on how to weatherize homes	Town energy committee completed this work.
Wind/Ice/Snow Storms	Review WEC & GMP plans to clear trees from utility ROWs to limit power outages	Have consulted with WEC to improve service throughout the town.
Wind/Ice/Snow Storms	Collaborate with WEC & GMP to synchronize tree cutting plans for utility ROWs to limit power outages	Have consulted with WEC to improve service throughout the town.
Flood/Fluvial Erosion	Upsize culvert on Morse Farm County Road	Culvert was upsized and work was completed in 2022.
Flood/Fluvial Erosion	Upsize culvert on Mallory Brook County Road	Culvert was upsized and work was completed in 2022.

Table 14: 2019-2024 Mitigation Strategies		
Hazard Mitigated	*Mitigation Action*	*Status update in 2025*
Flood/Fluvial Erosion	Upsize culvert on Mallory Brook Center Road	Culvert is listed as National Historic Registry pathway for replacement has become problematic due to this listing.
Flood/Fluvial Erosion	Erosion control/road stabilization on Hammett Hill Road	Have not completed but have started ditching work in this area.
Flood/Fluvial Erosion	Erosion control/road stabilization at the Town Garage Sand Shed	Currently In Progress with building of new town garage.
Flood/Fluvial Erosion	Erosion control/road stabilization on Horn of the Moon Road	Have been working on and improved 2 sections and installed a new culvert in 2024.

Capabilities to Implement Mitigation Actions

EXISTING AUTHORITIES, POLICIES, PROGRAMS AND RESOURCES

Plans and Studies

Capability	**Description**	**Improvement Opportunity**
Town Plan	Long term plan to guide development and growth in the town.	Prioritize growth in safe areas for development
Local Hazard Mitigation Plan (LHMP)	Long term plan for mitigating risk to natural hazards	Develop new list of priorities for communities and planned mitigations.
Stormwater Plan	Studies watershed for projects	Implement projects from plan list
Local Emergency Management Plan (LEMP)	Town emergency response plan for disasters and updated annually	Continue process for updating annually. Possibly add annexes for heat emergencies.

Capital Improvement Plan	5- or 10-year plan for budgeting community projects	Add in disaster contingency fund
Culvert Inventory	Inventory of all town owned culverts and short bridges	Recently completed in 2024 Scheduled to Update in 2029

Administrative Capacity and Capability

Capability	Description	Improvement Opportunity
Emergency Management Director	Person in charge of coordinating town response to natural disaster	Find EMD who can prioritize work during event
Planning Commission	Plans for future growth in town	None at this time
Zoning Administrator	Verifies that growth aligns with town zoning rules and permits	Utilize NFIP training opportunities
Tree Warden	Maintains trees in town forest, public land and town right of ways	None at this time
Selectboard	Town elected board	Promote selectboard to take ICS 400 training
Mutual Aid Agreements	Currently have mutual aid agreement for fire service.	Sign on to regional public works mutual aid agreement.
VEM Training	ICS training	Promote selectboard to take ICS 400 training
Road Department	Road Maintenance	Train in disaster project management (data recording)
Town Clerk/Manager/Administrative Assistant	Town manager day to day management of town government.	Trained in FEMA ICS structure

Financial Resources

Capability	Description	Improvement Opportunity
Town Budget	Blueprint for funding town government	None at this time

Capital Improvement Plan	Long term plan for funding community projects	Have disaster set aside or contingency fund
Municipal Bonds	Funding for larger projects	None at this time

Zoning and Regulations

Capability	Description	Improvement Opportunity
National Flood Insurance Program (NFIP)	Flood Insurance	Update flood maps as necessary
SFHA bylaws	Are up to date and have addition of adopted river corridor bylaws	Update to new FEMA flood maps and bylaw requirements if necessary
Zoning / Land Use Regulations	Land use guidance for development	Update after town plan update if necessary
Road Standards	2019 VT Bridge and Road Standards	Will wait for VTrans next update
River Corridor bylaws	Adopted	None at this time

Outreach and Education

Capability	Description	Improvement Opportunity
Town Newsletter	Signpost town newsletter that is printed quarterly	Have notices/reminders of risk for wildfires and outreach for programs that lower risk to hazards
Town Website	Town postings and communication	None at this time, already utilizing for disaster support services
Water Bill	*Inserting announcements with town water bills ensures communication to a broad audience.*	*Create long term plan for coordinating announcements and prepare templates to use for communication with water bills.*

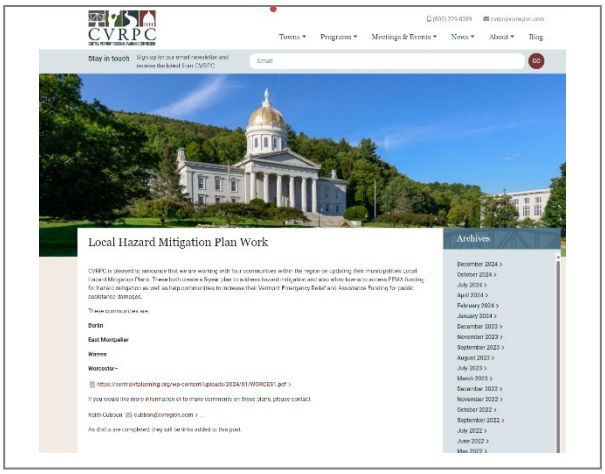
Partnerships

East Montpelier *is served by Friends of the Winooski, Vermont River Conservancy, Winooski Natural Resource District Agency of Natural Resources, and Vermont Department of Environmental Conservation.*

The community will continue to build a stronger relationship with our natural resource partners to design and implement natural systems protection mitigation actions through natural and nature-based infrastructure solutions. Natural and nature-based infrastructure, both existing and constructed, will provide multiple benefits to the community including erosion control, stormwater retention, water purification, cooling effects, wind abatement, mental health and recreation enhancements, increased real estate values, native species habitat, and educational opportunities.

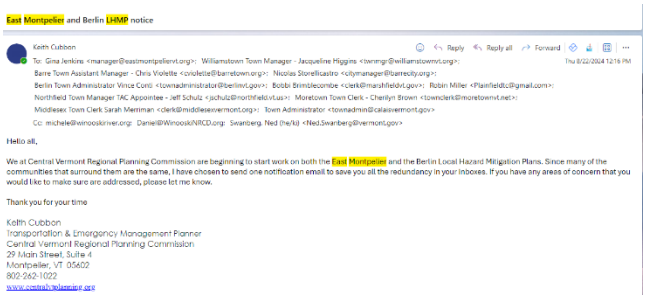
SUMMARY OF PUBLIC COMMENTS ON DRAFT PLAN

Public comments received throughout the plan development process are summarized here. For detailed information about how the Whole Community was invited to participate reference **Table 2**.



Plan update kick-off public notice from Central Vermont Regional Planning Commission website.

No inquiries received in response to the kick-off notice.

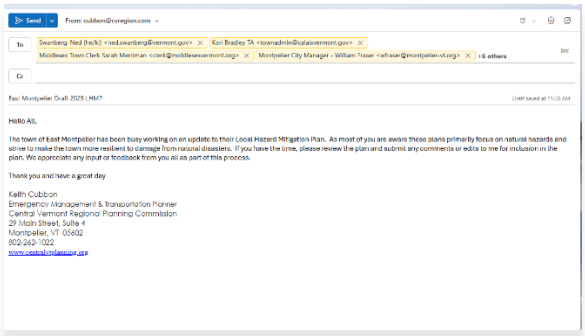


Email to Key Partners announcing Plan update dated August 22, 2024.

Example Local Hazard Mitigation Planning Community Survey poster used in town, on town Facebook and Front Porch Forum, posted on November 2024.

See **Appendix D** for copy of survey and results.

East Montpelier Hazard Mitigation Planning Workshop advertisement posted at locations throughout town. Comments about mud season roads were incorporated and locations of concern in the town.



Example email to Key Partners and local officials in neighboring towns seeking comments on draft plan as draft was completed in plan development process – dated May 29, 2025

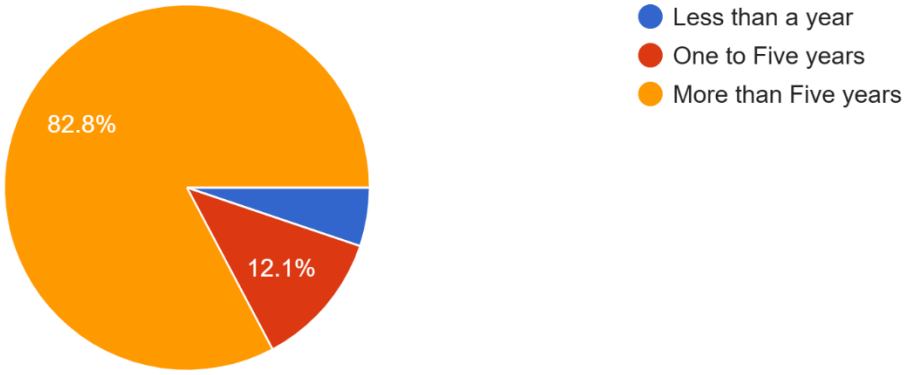
Final Draft of the East Montpelier LHMP was posted to the town website on May 29, 2025. No comments were received at the Selectboard meeting or from the online posting.

COMMUNITY SURVEY RESULTS

The Town of East Montpelier utilized a survey to solicit public input on 1) potential natural hazard impacts and 2) mitigation strategies to reduce these impacts in the future. The survey was made available online over the course of 2 months between December 2024 and February 2025. The Town received 59 responses and a summary of the input received is provided below including the actual survey questions.

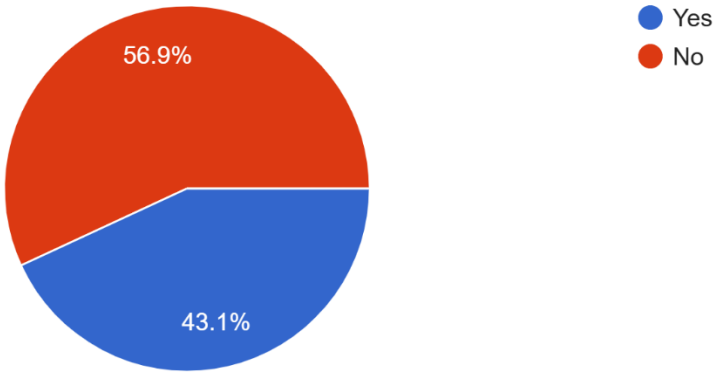
1) How long have you lived in or owned a business or property in East Montpelier?

58 responses



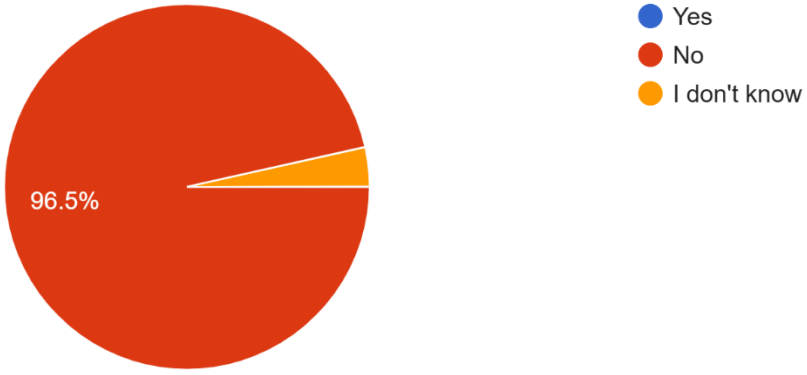
2) Have you experienced damage during a past severe weather event?

58 responses



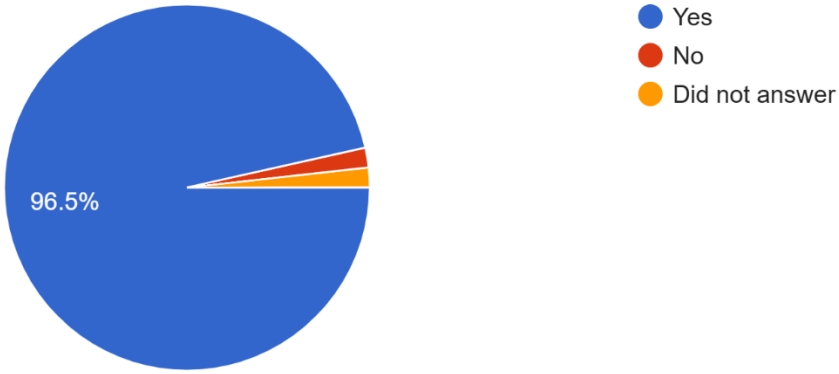
3) Is your home or business property located in a FEMA designated floodplain? If yes, do you have insurance through the National Flood Insurance Program (NFIP)?

57 responses



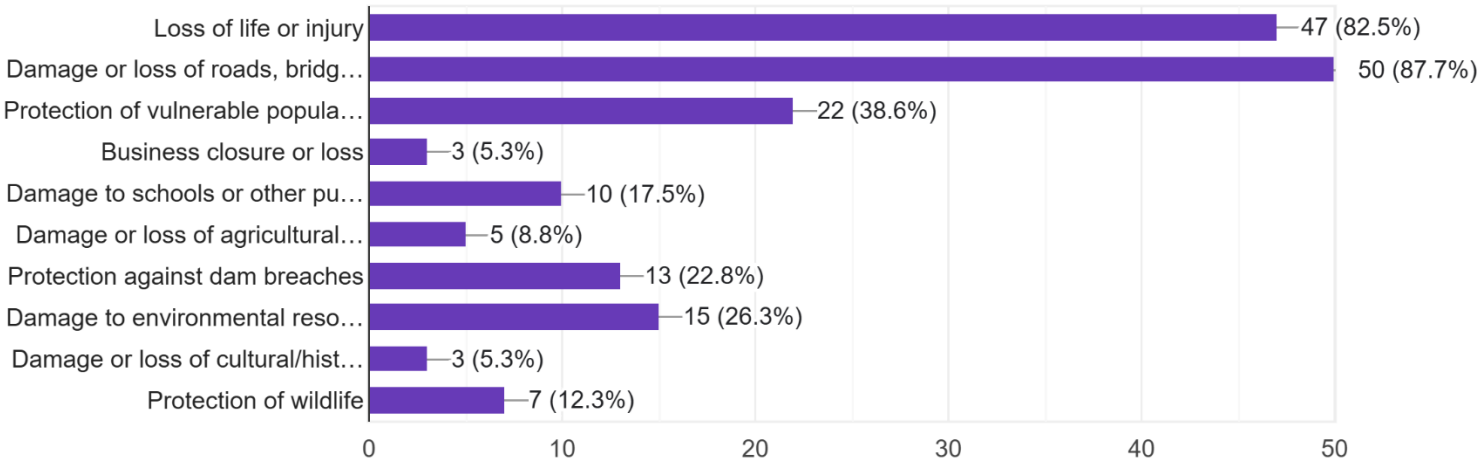
4) Have you seen areas in the community damaged during a past severe weather event?

57 responses



5) In your opinion, which of the following are most important to protect against potential future severe weather impacts in East Montpelier? Please check up to 3 boxes.

57 responses



6) In this context, hazard mitigation is a sustained measure that reduces or eliminates long-term risk to people and property from the effects of natural hazards (defined as severe weather events). What types of hazard mitigation measures would you like to see the community prioritize?

49 responses

Adopting a hazard mitigation framework to be used in all infrastructure and public projects. Then applying that to actions that support the maintenance of services (roads, power, water, etc...) through anticipated natural hazards, as well as disrupted resource availability (energy, food, etc..)

We need to enhance/development wetland capacity and slow flow through area brooks and streams through targeted engineering (strategicslly dropping timbers in stream beds, etc).

Measures which are fluid and proactive vs static and reactive.

Keep river beds and corridors clear of logs and snags so high flow events will pass downstream.

Increasing culvert sizes and continuing to maintain roadside ditches. Not sure what else at this point.

ability to communicate hazard warnings, help for those who are informed or isolated, a central location of contact source for information

keep future houses out of floodplain areas, upsize town road culverts, remove dead or dying trees in town road rights of way, have WEC keep vegetation down in power rights of way

Create natural wetlands zones to capture as much water during floods.

dam removal, return to natural flood plain areas for stream and river overflow

Any response to an emergency will depend on access to the site of the emergency, so preparation for access is primary.

Roadway and waterway improvements, power backup support for businesses and residences

Protection of homes from fires and flooding, and protection of downtown businesses from the same

Strengthen electric system, improve ability to handle large rainfall storms

Dam overflow protections

Whatever will protect people and animals - maybe not allowing re-building of houses in flood areas, protecting forests which lessen climate hazards.

Don't really understand this question.

Start replacing culverts yesterday

Loss or damage to critical infrastructure, roads and property.

get homes out of flood plains

Managing/sizing culverts, bridges and rivers so they are less likely to flood in the wrong places, while "encouraging" flooding in the right areas.

road maintenance that prevents washouts, river maintenence that prevents road washouts

Multiple modality emergency info distribution for alerts and alarms.

Upgrading infrastructure; roads, bridges, and utility.

Maintaining depth/course of waterways and drainage areas

Protection and enhancement of our wetlands and open space to help control erosion and runoff and thus protect our infrastructure.

Dredge the rivers

Minimizing loss of lives is the most important focus, however after that we need to keep the roads in good shape and open. Not being able to get around means we might not be able to get to those in need as well as hurts ones livelihood

Continue to increase roads' ability to accommodate water drainage with such things as larger culverts, roadside drainage, and measures to divert water from structures.

The previous question is hard to answer. I find the wording odd. Perhaps next time there could be some examples of how damage would be mitigated for some of the categories; ie: replacing culverts, redirecting waterways, any eminent domain situations, rerouting roads etc.

Road maintenance to prevent wash outs/people getting stranded

Not sure what you're asking about here. Flood, winter storms and high/ low temperature events are most likely. Dwelling provisions and safe shelters for people temporarily or permanently displaced by such events would be my first priority; road and infrastructure improvements would be second.

Local infrastructure to help in sustained power outages.

Prioritize mitigation in public works projects (ie adopt a policy of overbuilding new culverts to be able to handle storms larger than we have experienced previously). Improve road grading standards to improve run-off and decrease future damage (I have seen roads being graded wider and flatter, which has resulted in more road damage generally, but was especially apparent in the July 2023 and 2024 storms where water could not get off of certain roads and instead ran down the middle and washed deep gullies into them.)

Damn breaches mitigation.

Reducing waste and improving recilancy in our energy systems.

Warning systems sent to community at large and another warning sent to more specifically known areas of concern. Example of General Alert: General warning to all members of the Community of East Montpelier - - River rising quickly between Coburn Rd to Rt 14 exchange. Example of Specific Warning sent to those living on/near river at these specific locations between intersection of Rt 14 & Rt 2:
there is an ice dam and River breech at intersection of Rt 2 and Rt14 Montpelier - include in this a plan with time and map for evacuation. When it is oK to return send a return alert as well w/contact information of who to call if there is immediate damage.. The same system/s can be used for Electric outages and for strong wind warnings. Wind/weather warnings can be sent out hours before arrival and more specific area warnings sent as the need arises. These alerts can be marked Low/Moderate/High/Severe. The object is to prepare folks and give enough time to plan for what is needed including help and contacting other family members out side of the area if necessary..

It feels like so many folks around here are living so close to the edge of financial hardship. Protecting our community and investing in and finding resources that can help people who aren't wealthy feels like the most important thing out town can do.

consistent annual river dredging

Communities need to connect and coordinate regionally, perhaps by watersheds.

Info: how to prepare for possible evacuation (flooding, fire), how to pack a go bag

Route 2 seems especially vulnerable, both near Fox Market (flooding), and also by Goddard College (bank erosion). As a main thoroughfare, I think this is a high risk area.

Maintaining the electrical grid; maintaining communications; protection of farm animals and wild animals.

Wider bridges and culverts, wetland protections, preservation of working floodplains (provide the river access)

Continue the process of sizing up culverts and any other measures road crews know about to make road washouts less likely, maybe consult with business owners (including farms) about their particular risk factors and how to mitigate them (imagine they're different for different people).

Flooding is probably the most imminent threat.

Building/moving to places out of flood risk, including heavy rain saturation risk. We can't protect or continuously rebuild what water, fire, and wind will destroy--we have to change locations and building practices.

Increase wetland areas to absorb excess water

Culverts, Shelters (several, to cover areas of East Mont) , Phone tree so those in need can express needs to a dispatcher and neighbors can be alerted to provide help where needed.

how to protect existing homes and roads in flood plain

7) Anything else you would like to provide for consideration and incorporation into the East Montpelier Local Hazard Mitigation Plan?

29 responses

Development of mutual aid society ...identifying talents, resources of folks in community as well as identifying our vulnerable citizens.

Preparing for the infrastructure collapse which will follow an inevitable Kessler Syndrome event.

No

a volunteer group to assist as needed

This is a good subject to think about before the next storm event

I submitted a response, and then realized I missed one - do we need to include anything about heat emergencies in the plan? I know that that has not been a concern in the past, but as significant heat waves are becoming more and more common (and air condition is still not universal) we may want to include planning around this in the plan as high heat can be quite dangerous for some populations (particularly elderly ones).

buy out and move vulnerable homes and businesses

Floodplain expansion and protection

We need to upgrade all the culverts to larger diameters. They need to be checked annually.

Electric transmission vulnerability

Planning by neighborhood for helpig each other, facilitated so all neighborhoods have meetings

Just a note that, for me, it is difficult to credibly imagine other types of natural disasters than flooding, icing and snow. Earthquakes, fires, drought/famine, etc. - they can happen, but preparing for them as a community seems hard to conceptualize for me.

Is there a plan to use the school or another building for emergency shelter if something causes multiple families to become displaced?

Fire and rescue contingent action plans for floods, wind storms, snow and rain events, etc.

Exploring various power sources/power banks. A large li-ion power bank (for utilities) is an unnecessary risk to mitigate during a severe weather event. I'd also encourage multiple identified & accessible safe community gathering spaces - for example, potentially E. Montpelier Old Brick Church, E. Montpelier School, or Morse Farm.

Utilizing schools as emergency shelters for those in need

Thought should be given to what we do if in the future there is a severe drought. How would we deal with wildfires in this very wooded environment?

We should have a townwide email and/or text list so that people can be alerted to potential disasters.

It would be helpful to have a town-produced list of businesses available to address disaster-related damage, such as demolition and mold solutions after a flood, trash haulers to dispose of demolition debris, emergency crews who can put up plywood, tarps, etc., when structures are damaged, and emergency shelter provisions, such as homeowners who have empty bedrooms that could temporarily house displaced people.

Assessment of areas most likely to suffer severe flooding and possible prevention measures

Consider public health implications as well, eg future infectious disease events like Covid, safe drinking water, care of children and older people in emergencies.

Are you planning for heat waves? Forest fires? Poor air quality from smoke?

Perhaps a stronger call to limit building in flood areas or areas adjacent to them that could also be at risk. I realize that this is already addressed, but we do periodically see people arguing that the flood regs should be loosened.

Infrastructure updates and priorize electrical grid.

Thanks for looking into this. It is important stuff. Best, B

Thank to! I checked all the boxes in question give because how can you only pick three of those? All of them are of the utmost importance.

Again, Communities need to connect and coordinate regionally.

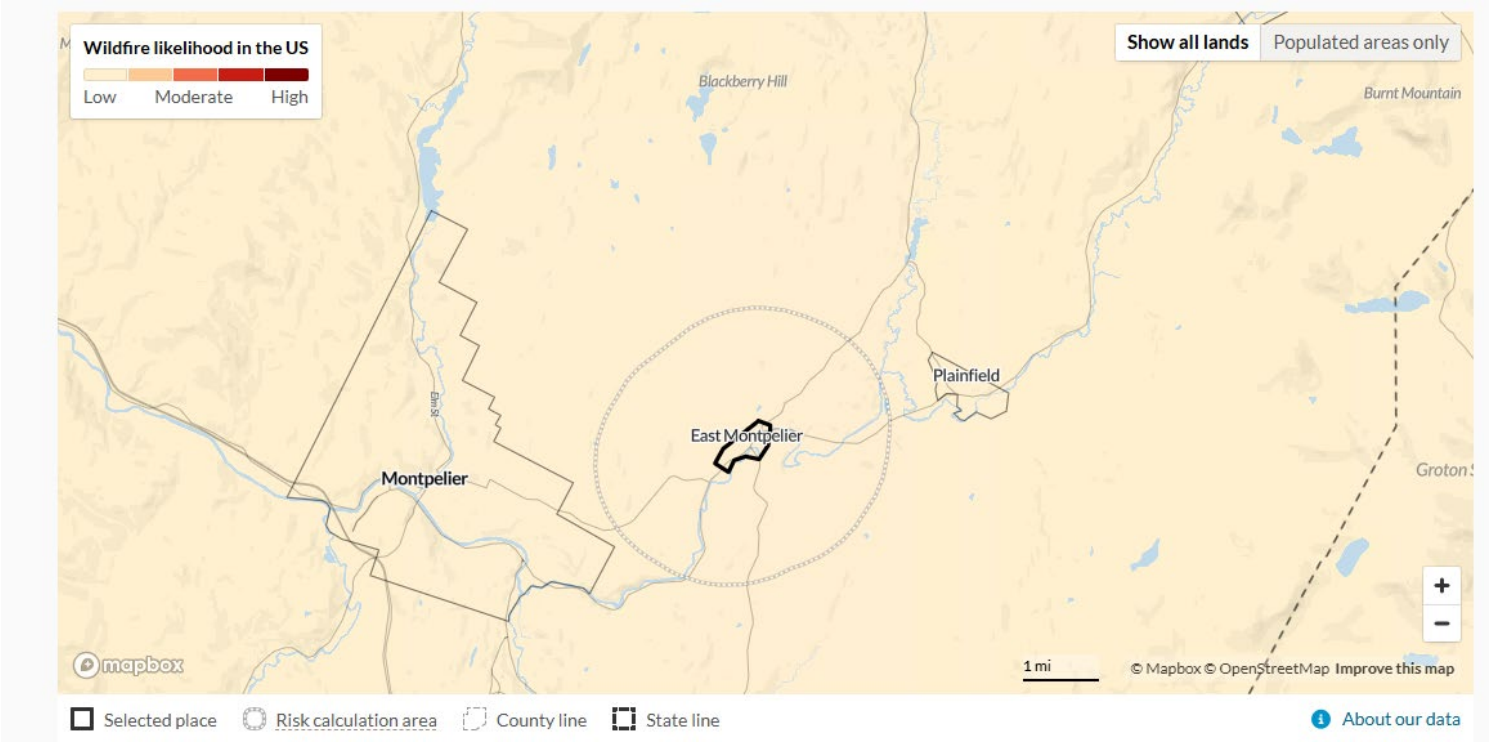
Have ORCA or other medium tape every open meeting or lecture. Some people are not mobile enough to attend a meeting.

Prioritization of underground utilities (especially electrical)

Several of the unchecked boxes in #5 above.

Continue prevention measures of removing trees near power lines and maintaining rods and install culvert and floodplain areas.

Wildfire Risk map from USDA https://wildfirerisk.org/



Local Hazard Mitigation Plan: Flood Hazard Areas

Middlesex
Calais
Marshfield
Montpelier
Plainfield
Berlin
Barre Town

Area	Structure Count	Parcel Value (2023)
Floodway	2	$ 309,800
Flood Hazard Area	35	$ 6,823,600
River Corridor	24	$ 6,209,800
Total	61	$ 13,343,200

Data Resources

Parcels: East Montpelier Parcel Boundaries (2023, VCGI)
State Village Center Designation: Village Center Boundary (2024, ACCD)
Surface Water: Vermont Hydrography Dataset (2020, VCGI)
At-risk Structures: Derived data (CVRPC, 2024)
FEMA Flood Hazard Area: National Flood Hazard Layer (2015, FEMA)
Roads: Vermont Agency of Transportation - Road Centerlines (2023, VCGI)
Hydrologically Connected Road Segments: Agency of Natural Resources (2019, VCGI)

Map Notes

Date: 29 May 2025
File: N:\Towns\EastMontpelier\EastMontpelier.aprx
Contact: gis@cvregion.com

Disclaimer

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Legend

Boundaries
- Parcel Boundary
- Designated Village Center
- Town Boundary

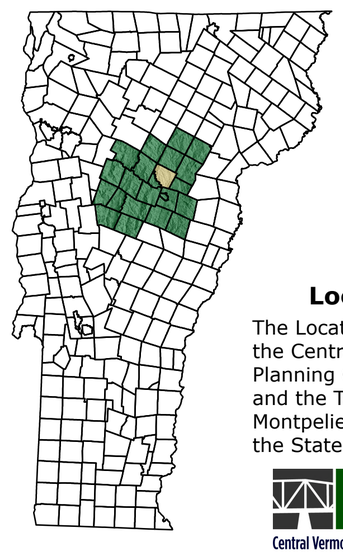
Surface Water
- Rivers & Streams
- Lakes & Ponds

At-risk Structures
- River Corridor
- Flood Hazard Area
- Floodway

Flood Hazard Areas
- Zone A
- Zone AE
- Floodway
- River Corridor

Roads
- Class I, II & III Town Highways
- Class IV & Forest Highways
- Legal Trail
- Private Road
- US Route
- VT Route
- Discontinued Road
- Hydrologically Connected Road Segment

0 0.5 1 1.5 2 mi
0 0.75 1.5 3 km



Location Map

The Location Map displays the Central Vermont Regional Planning Commission (green) and the Town of East Montpelier (yellow) within the State of Vermont.

Central Vermont Regional Planning Commission

Local Hazard Mitigation Plan: Critical Facilities

0 0.5 1 1.5 2 mi
0 0.75 1.5 3 km

Middlesex
Calais
Marshfield
Montpelier
Berlin
Barre Town
Plainfield

DONER RD
FITCH RD
COUNTY RD
HAGGETT RD
SANDERS CIR
HORN OF THE MOON RD
JACOBS RD
NORTH ST
TEMPLETON RD
SIBLEY RD
CENTER RD
CHICKERING RD
FACTORY ST
GUYETTE RD
GOULD HILL RD
LYLE YOUNG RD
PUTNAM RD
VERMONT 14
VERMONT 214
HAMMETT HILL RD
SNOW HILL RD
LEGAL TRAIL 4
DODGE RD
COBURN RD
CUMMINGS RD
COUNTY RD
BARNES RD
VINGENT FLATS RD
KELTON RD
QUAKER RD
BRAZIER RD
BLISS RD
TOWNE HILL RD
WHEELER RD
CODLING RD
EAST HILL RD
DRAKE RD
CLARK RD
2

Data Resources

Parcels: East Montpelier Parcel Boundaries (2023, VCGI)
State Village Center Designation: Village Center Boundary (2024, ACCD)
Surface Water: Vermont Hydrography Dataset (2020, VCGI)
Special Flood Hazard Area: National Flood Hazard Layer (2015, FEMA)
Dam Inventory: DEC Dam Safety and Hydrology (VCGI, 2022)
Critical Facilities: E911 Site Location (2024, VCGI)
Roads: Vermont Agency of Transportation - Road Centerlines (2023, VCGI)

Map Notes

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Legend

Boundaries
- Parcel Boundary
- Designated Village Center
- Town Boundary
- Special Flood Hazard Area

Surface Water
- Rivers & Streams
- Lakes & Ponds

Dams
- Breached
- Breached (Partial)
- In Service

Utilities
- Public Phone

Cultural Facilities
- Recreation
- House of Worship

Educational Facilities
- Daycare / Pre-school
- School (K - 12)

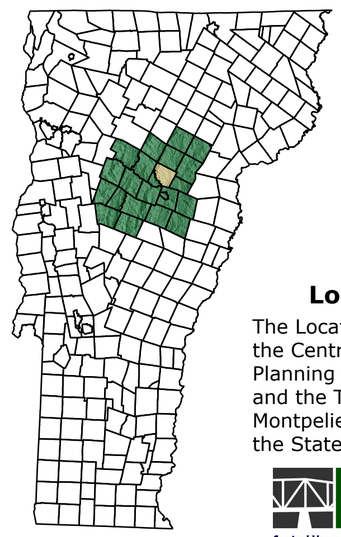
Public Health
- Health Clinic
- Pharmacy

Emergency Services
- Fire Station
- Law Enforcement
- Ambulance Service
- Helipad / Heliport

Health Clinic
Pharmacy

Government Facility
- Town Office
- State / Federal Government
- State Garage

Roads
- Class I, II & III Town Highways
- Class IV & Forest Highways
- Legal Trail
- Private Road
- US Route
- VT Route
- Discontinued Road



Location Map

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Central Vermont Regional Planning Commission

Local Hazard Mitigation Plan: Transportation Infrastructure

Middlesex
Calais
Marshfield
Montpelier
Plainfield
Berlin
Barre Town

SANDERS CIR
DONER RD
COUNTY RD
HAGGETT RD
HORN OF THE MOON RD
JACOBS RD
NORTH ST
CENTER RD
SIBLEY RD
CHICKERING RD
GUYETTE RD
FACTORY ST
GOULD HILL RD
TEMPLETON RD
LYLE YOUNG RD
PUTNAM RD
SNOW HILL RD
HAMMETT HILL RD
COBURN RD
CUMMINGS RD
BARNES RD
DODGE RD
KELTON RD
QUAKER RD
VINCENT FLATS RD
BLISS RD
BRAZIER RD
TOWNE HILL RD
CODLING RD
DRAKE RD
EAST HILL RD
CLARK RD
GALLISON HILL RD
VERMONT 14
VERMONT 214
2

Data Resources

Parcels: East Montpelier Parcel Boundaries (2023, VCGI)
State Village Center Designation: Village Center Boundary (2024, ACCD)
Surface Water: Vermont Hydrography Dataset (2020, VCGI)
Special Flood Hazard Area: National Flood Hazard Layer (2015, FEMA)
Infrastructure Condition: Bridge & Culvert Inventory (2023, CVRPC)
Roads: Vermont Agency of Transportation - Road Centerlines (2023, VCGI)
Hydrologically Connected Road Segments: Agency of Natural Resources (2019, VCGI)

Map Notes

Date: 29 May 2025
File: N:\Towns\EastMontpelier\EastMontpelier.aprx
Contact: gis@cvregion.com

Disclaimer

This map is for planning & assessment purposes only. It is neither a survey product nor intended to be used for conveyance, legal boundary definition or property title. Users are encouraged to examine the data documentation for information related to its accuracy, currency and limitations.

Legend

- Town Boundary
- Special Flood Hazard Area

Surface Water
- Rivers & Streams
- Lakes & Ponds

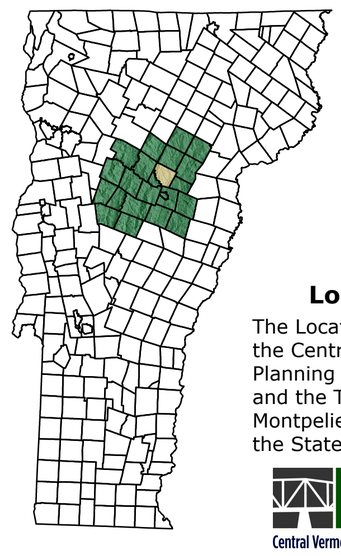
Public Transit
- Bus Stops

Culverts
- Excellent
- Good
- Fair
- Poor
- Closed
- Urgent / Critical
- Unknown

Bridges
- Good
- Fair
- Poor
- Unknown

Roads
- Class I, II & III Town Highways
- Class IV & Forest Highways
- Legal Trail
- Private Road
- US Route
- VT Route
- Discontinued Road
- Hydrologically Connected Road Segment

0 0.5 1 1.5 2 mi
0 0.75 1.5 3 km



Location Map

The Location Map displays the Central Vermont Regional Planning Commission (green) and the Town of East Montpelier (yellow) within the State of Vermont.

Central Vermont Regional Planning Commission

Local Hazard Mitigation Plan: Land Cover

Middlesex
Calais
Marshfield
Montpelier
Berlin
Barre Town
Plainfield

DONER RD
FITCH RD
COUNTY RD
HAGGETT RD
SANDERS CIR
HORN OF THE MOON RD
JACOBS RD
NORTH ST
TEMPLETON RD
SIBLEY RD
CENTER RD
CHICKERING RD
FACTORY ST
GUYETTE RD
GOULD HILL RD
LYLE YOUNG RD
PUTNAM RD
VERMONT 14
VERMONT 214
HAMMETT HILL RD
SNOW HILL RD
LEGAL TRAIL 4
DODGE RD
CUMMINGS RD
COUNTY RD
BARNES RD
VINCENT FLATS RD
COBURN RD
BRAZIER RD
QUAKER RD
KELTON RD
2
BLISS RD
TOWNE HILL RD
WHEELER RD
CODLING RD
EAST HILL RD
CLARK RD
DRAKE RD

Data Resources

Parcels: East Montpelier Parcel Boundaries (2023, VCGI)
State Village Center Designation: Village Center Boundary (2025, ACCD)
Roads: Vermont Agency of Transportation - Road Centerlines (2022, VCGI)
National Land Cover Dataset - (2021, Multi-Resolution Land Cover Consortium)

Map Notes

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File: N:\Towns\EastMontpelier\EastMontpelier.aprx
Contact: gis@cvregion.com

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Legend

Town Boundary

National Land Cover Dataset (2021)

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed High Intensity
- Barren Land (Rock/Sand/Clay)
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

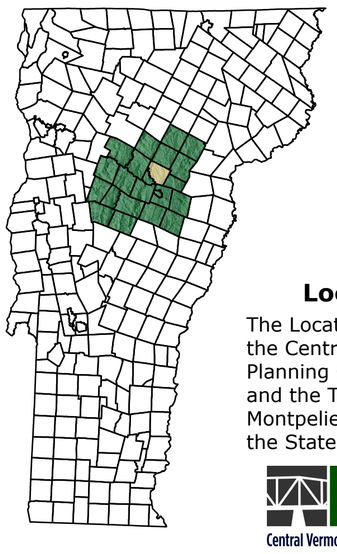
Boundaries

- Town Boundary

Roads

- Class I, II & III Town Highways
- Class IV & Forest Highways
- Legal Trail
- Private Road
- US Route
- VT Route
- Discontinued Road

0 0.5 1 1.5 2 mi
0 0.75 1.5 3 km



Location Map

The Location Map displays the Central Vermont Regional Planning Commission (green) and the Town of East Montpelier (yellow) within the State of Vermont.

Central Vermont Regional Planning Commission

Local Hazard Mitigation Plan: Residential Development

Middlesex
Calais
Marshfield
Montpelier
Berlin
Barre Town
Plainfield

DONER RD
FITCH RD
COUNTY RD
HAGGETT RD
SANDERS CIR
HORN OF THE MOON RD
JACOBS RD
NORTH ST
TEMPLETON RD
SIBLEY RD
CENTER RD
CHICKERING RD
FACTORY ST
GUYETTE RD
GOULD HILL RD
LYLE YOUNG RD
PUTNAM RD
VERMONT 14
VERMONT 214
HAMMETT HILL RD
SNOW HILL RD
LEGAL TRAIL 4
DODGE RD
VINGENT FLATS RD
CUMMINGS RD
COUNTY RD
BARNES RD
COBURN RD
CENTER RD
BRAZIER RD
QUAKER RD
KELTON RD
2
BLISS RD
TOWNE HILL RD
WHEELER RD
CODLING RD
EAST HILL RD
DRAKE RD
CLARK RD

Data Resources

Parcels: East Montpelier Parcel Boundaries (2023, VCGI)
Roads: Vermont Agency of Transportation - Road Centerlines (2023, VCGI)
Surface Water: Vermont Hydrography Dataset (2020, VCGI)
FEMA Flood Hazard Area: National Flood Hazard Layer (2015, FEMA)
Structures: E911 Site Location (address points) (2024, VCGI)

Map Notes

Date: 29 May 2025
File: N:\Towns\EastMontpelier\EastMontpelier.aprx
Contact: gis@cvregion.com

Disclaimer

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Legend

Boundaries
- Parcel Boundary
- Designated Village Center
- Town Boundary
- Special Flood Hazard Area

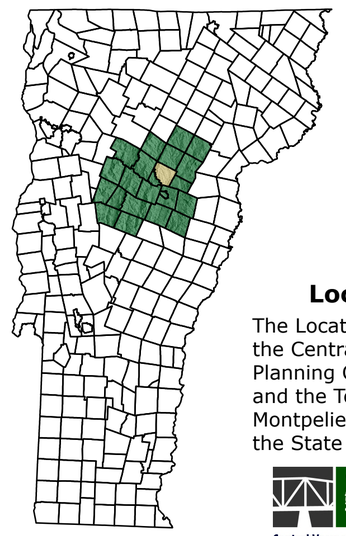
Surface Water
- Rivers & Streams
- Lakes & Ponds

Pre-2019
- Mobile Home
- Single Family Dwelling
- Multi-Family Dwelling
- Other Residential
- Institutional Residence
- Congregate Housing

Post-2019
- Mobile Home
- Single Family Dwelling
- Multi-Family Dwelling
- Other Residential

Roads
- Class I, II & III Town Highways
- Class IV & Forest Highways
- Legal Trail
- Private Road
- US Route
- VT Route
- Discontinued Road

0 0.5 1 1.5 2 mi
0 0.75 1.5 3 km



Location Map

The Location Map displays the Central Vermont Regional Planning Commission (green) and the Town of East Montpelier (yellow) within the State of Vermont.

Central Vermont Regional Planning Commission

Invasive Species in depth of most common problems

Invasive species are plants, animals, and other organisms that are introduced to a non-native ecosystem and also cause harm to the environment, economy, or human health. They are primarily spread by human activities that are introduced intentionally for reasons like agriculture, medicine, sport, decoration, land stability, and biological control.

Emerald Ash Borer

As of June 2019, emerald ash borer (EAB), a destructive forest insect from Asia, had been confirmed in seven Vermont towns: Orange, Plainfield, Barre, Groton, Montpelier, Stamford, South Hero, and Bristol.

Figure 8: Emerald Ash Borer Agrilus planipennis

Photo Credit: VT Urban & Community Forestry

EAB overwinters as larvae under the bark of ash trees where it feeds on the inner bark tissue. Once infested, ash trees rapidly decline and die in 1-5 years, if not treated, and may become a hazard to public safety. EAB is known to be established in 34 states and four Canadian provinces. It is responsible for widespread decline and mortality of hundreds of millions of ash trees in North America. Three species of ash trees - Green Ash (Fraxinus pennsylvanica), Black Ash (Fraxinus nigra), and White Ash (Fraxinus americana) – are found in Vermont.

Ash trees comprise approximately 5% of Vermont forests. They also are a very common and important urban tree. EAB threatens all three species of Vermont's ash trees. It could have significant ecological and economic impacts. There are no proven means to control EAB in forested areas, though individual trees can sometimes be effectively treated. An inventory will facilitate realistic management of EAB by prioritizing removals, identifying trees suitable for treatment, and budgeting for tree treatment or removal. Upon completion of an inventory, municipalities are urged to transition this collected data into an EAB Management Plan where they will identify the most appropriate approach to take including removing the tree, having it treated, or letting it succumb to EAB and fall on its own.

Figure 9: EAB movement under the bark of an ash tree
Photo Credit: VT Urban & Community Forestry

Vermont towns should understand their public ash tree population, including ash trees:

- In the right-of-way in town centers (street trees) and in high-use areas
- In parks, town greens, or other town-owned recreational areas
- In the right-of-way on rural roads
- In natural areas, i.e. town forests, that could impact public safety if diseased or dying, such as those along trails
- On private land that impact town properties or the town right-of-way, or are a priority for preservation

The Vermont Urban and Community Forestry program offers annual grants to support the development of sustainable urban and community forestry programs at the local level. This funding should be considered seed money to help communities care for tree canopy and foster tree stewardship by taking the necessary actions to develop and sustain a community-wide tree program.

This year, the annual grants program was focused on supporting Vermont communities in ash tree removal funding with up to $24,000 available per community.

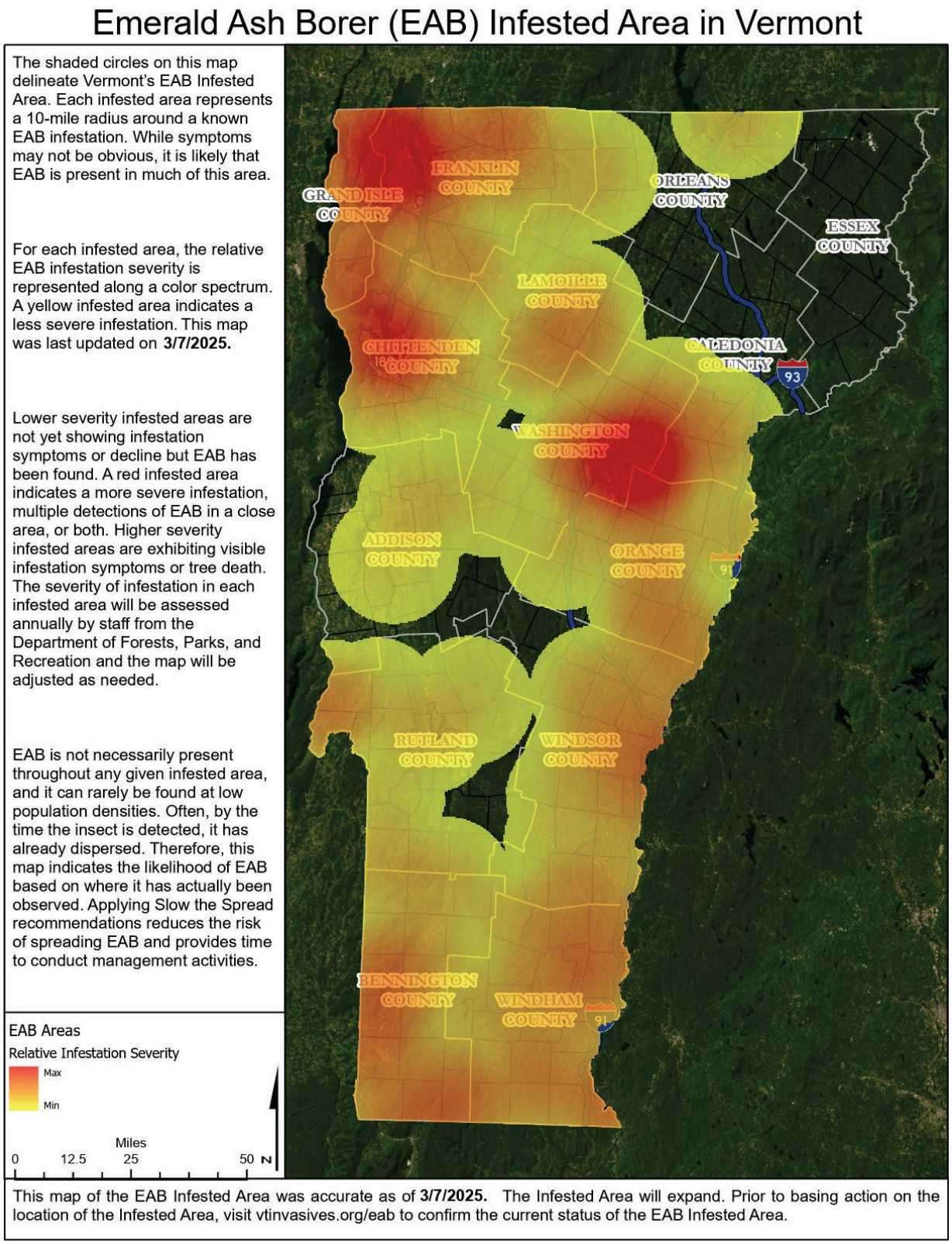


Figure 10: EAB Infestation Map of Vermont

Chervil

Wild Chervil is a weed belonging to the parsley family (Apiaceae). It is becoming a serious problem in hay fields and pastures in Central Vermont. Its 3-4-foot height, fern-like leaves, and white flowers arranged in a compound umbel pattern are quite pronounced during late May to early July. It is commonly found along roadsides and in meadows in Central Vermont.

Figure 11: Wild Chervil, Anthriscus sylvestris
Photo Credit: VT Urban & Community Forestry

Over the past five years, this weed has spread rapidly. It propagates by both seed and by lateral budding at the top of the root. It competes aggressively with forage crops for light, water and nutrients and often kills off the surrounding vegetation by shading it. It is particularly damaging to forage crops, but it has not been a problem in cultivated or tilled fields.

Wild chervil is not poisonous to livestock and, although it is unpalatable when large, animals will graze it effectively when small. The stems are very slow to dry and, if harvested in forage, will reduce crop quality due to molding. This weed also serves as a host for the parsnip yellow fleck virus that infects carrots, celery, and parsnips.

Wild chervil is very difficult to control because of its extremely deep taproot and tolerance to selective herbicides. Rosettes and immature plants can be controlled by digging out the roots. Mature plants must be removed below the root crown to prevent resprouting.

Giant Hogweed

CAUTION: The sap from this plant is dangerous. If it gets on your skin and you are exposed to the sun, it can cause severe burns. Always wear thick gloves and long pants and shirts.

mantegazzianum
Photo Credit: VT Urban & Community Forestry

Giant hogweed is designated as a Federal Noxious Weed, because it produces sap that causes skin sensitivity to UV radiation and leads to blistering and severe burns. Due to its size and rapid growth, giant hogweed is an aggressive competitor capable of displacing native plants. It dies back during the winter months, leaving bare ground open to erosion on riverbanks and steep slopes.

Giant hogweed is native to Europe and Asia, but it was first introduced into the United States in 1917 for ornamental purposes. It can invade a variety of habitats but prefers moist, disturbed soils such as riverbanks, ditches and railroad right-of-ways. It sprouts in early spring, and flowers early July. This perennial plant dies back after flowering, leaving tall dead stalks. It forms perenating buds which lie dormant through winter until the next growing season. It reproduces by seed dispersal only, not vegetatively. Each flower head contains approximately 1500 seeds, which can remain viable for up to ten years.

Manual treatment can be moderately to highly effective for giant hogweed including both mechanical and chemical management. Giant hogweed leafs out very early compared to most native vegetation, thus making it easy to detect. It is beneficial to manually remove this plant before it begins flowering later in the growing season.

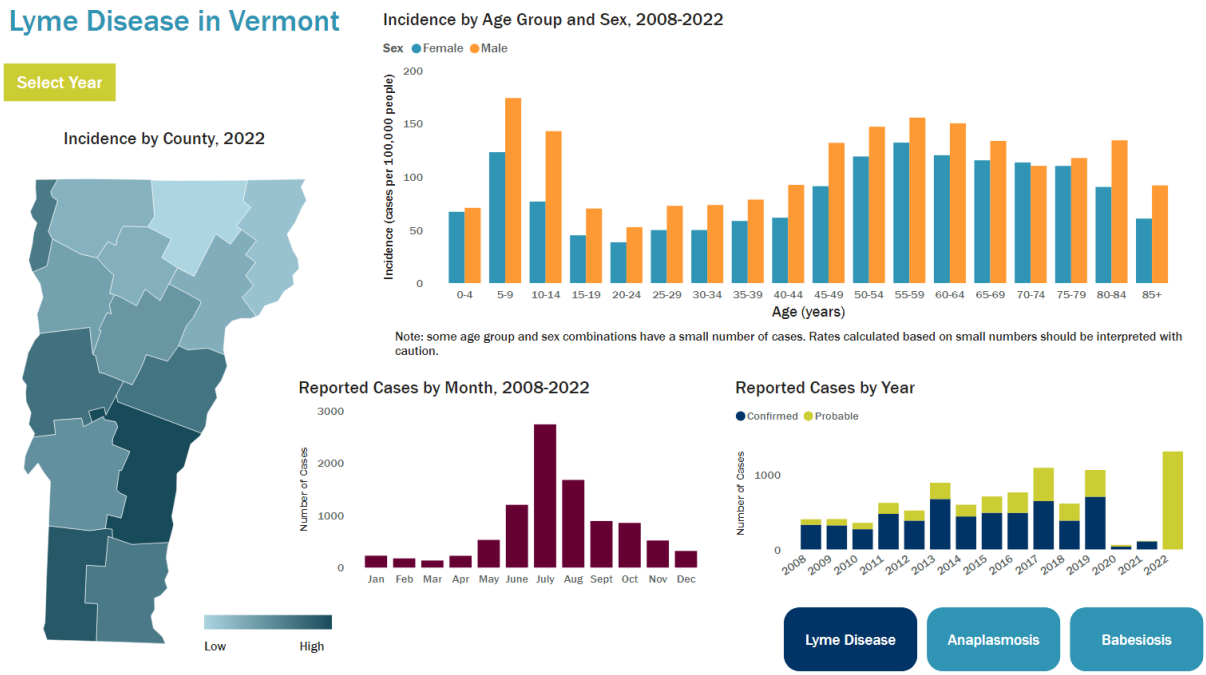
Vector-Borne Diseases

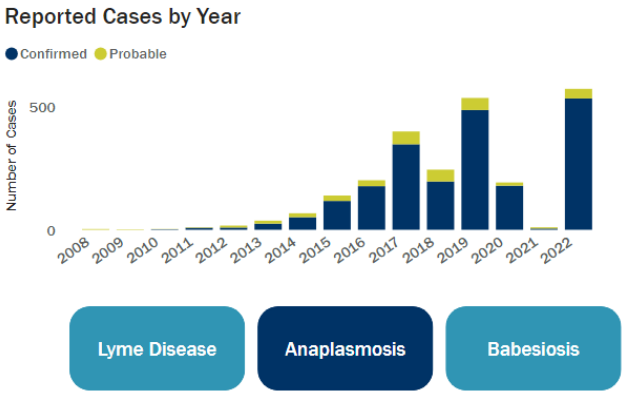
a) Tick-Borne

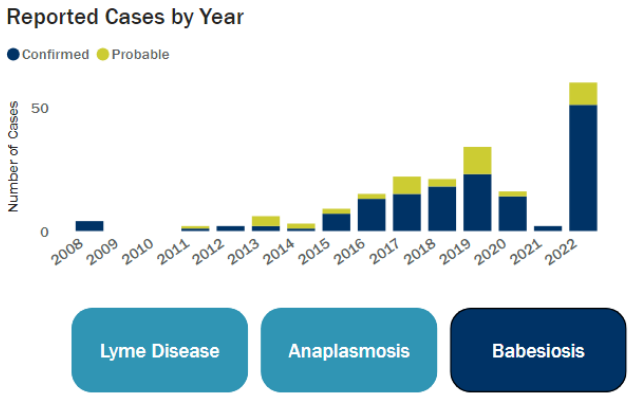
Diseases spread by ticks continue to be a serious public health concern in Vermont. Tick-borne diseases are seeing a drastic increase in Vermont with Lyme disease being the most common. Other tick-borne diseases, such as anaplasmosis and babesiosis, are on the rise as well. (see graphs below)

The Health Department's Vector-borne Disease Program tracks and responds to tick-borne diseases. The Department collects and analyzes data to detect trends in disease activity, investigates reported cases of tick-borne diseases, collaborates with other state agencies and educates Vermonters about disease risks and prevention strategies.

The best way to prevent tick-borne diseases is to prevent tick bites by using a tick repellent that has been proven safe and effective. Check your body daily for ticks, and if you have been bitten, remove ticks as soon as you can and watch for symptoms of a tick-borne disease.







b) Mosquito-Borne

Mosquito season in Vermont begins in the spring but does not typically pose a health risk until the summer months. By July, some mosquitoes may be carrying viruses that cause diseases such as West Nile virus (WNV) infection and Eastern equine encephalitis (EEE).

The Health Department's Vector-borne Disease Program is responsible for tracking and responding to mosquito-borne diseases. The Department investigates reported cases of disease, collects and analyzes data to detect trends in disease activity, collaborates with other state agencies and works to educate Vermonters about prevention. Mosquitoes from around the state are collected and tested for evidence of WNV and EEE. The Department tracks this information and provides a report that is updated weekly. Mosquito-borne Diseases | Vermont Department of Health

The best way to avoid mosquito-borne diseases is to prevent mosquito bites. The Health Department recommends wearing long-sleeved shirts and long pants when outside, limiting time spent outdoors at dawn and dusk when the mosquitoes are most active, and using an insect repellent that has been proven to be safe and effective against mosquitoes.

Extent of risk to community.

Extent of Risk for East Montpelier	Risk	Area/Type of risk	~ $ of damages possible	Disasters
Fluvial Erosion	anything greater than 1"/ hr for more than 2 hours	Special Flood Hazard Area and within 50' of stream channels or stormwater inlets/Structures, People, Transportation	$832,000	See Table Section 5
Inundation Flooding	4-6" of rain in 24hrs	Special Flood Hazard Area and within 50' of stream channels or stormwater inlets/ Structures, People	$1,306,317	See Table Section 5
Snow	up to 30"	town wide/Structures, Utilities, Transportation	Undetermined	See Table Section 5
Ice	1/4" or greater	town wide/ Structures,Utilities, Transportation	Undetermined	See Table Section 5
High Winds	60 mph	town wide, but more prominent on higher slopes/Structures, Utilities	Undetermined	See Table Section 5
Wildfires	6 acres	town wide, Structures, environment	minimal	None
Landslides	0.38 of an acre	Steep sloped areas of unstable soils. Often undercut by stream or waterway. /Structures, Transportation	Undetermined / currently just timber loss.	No disaster records but 10 documented landslides within the town boundaries. Largest along Route 2 on bank of the Winooski.
Infectious Disease Outbreak	206 cases of COVID/weekly avg./ at CVMC for region.	town wide, people	Undetermined	DR-4532
Invasive Species	Unknown/ determinate by type (plant, insect, fungus)	town wide/ environment, agriculture	Undetermined	None
Heat	97 degrees	town wide/People	Undetermined	None
Cold	-20 degrees/ -30 to-60 degrees with windchill	town wide/People	Undetermined	See Table Section 5
Drought	D3	town wide/People, Agriculture	Undetermined	None