Town of Worcester, Vermont

2024 Local Hazard Mitigation Plan

Prepared by the Town of Worcester and

Central Vermont Regional Planning Commission

Photo provided by Worcester Town Officials

Date of Town Adoption: August 19, 2024
Date of FEMA Approval: April 16, 2025

Plan is effective for five years from FEMA approval through April 15, 2030.

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I. Introduction

The impact of expected, but unpredictable natural and human-caused events can be reduced through community planning. The goal of this Local Hazard Mitigation Plan (LHMP) is to provide a local mitigation plan that makes the Town of Worcester more disaster resistant.

Hazard mitigation is any sustained action that reduces or eliminates long-term risk to people and property from natural and human-caused hazards and their effects. Based on the results of previous project impact efforts, FEMA and state agencies have learned that it is less expensive to prevent disasters than to repeatedly repair damage after a disaster has struck. This plan addresses the opportunities to identify mitigation strategies and measures during all other emergency management phases – preparedness, response, and recovery. Hazards cannot be eliminated, but it is possible to reduce their severity by identifying potential hazards and where they are most likely to strike. Local actions can be taken ahead-of-time to reduce the damage and losses from these hazards and establish a coordinated process to implement the Plan. These actions and measures, also known as "hazard mitigation strategies," can 1) alter the hazard by eliminating or reducing the frequency of occurrence, 2) avert the hazard by redirecting the impact by means of a structure or land treatment, 3) adapt to the hazard by modifying structures or standards, or 4) avoid the hazard by preventing, limiting, or relocating development, improving public education, or ensuring development is disaster resistant.

II. Purpose

The purpose of this Local Hazard Mitigation Plan is to assist Worcester in recognizing hazards facing the community and identify strategies to begin reducing risks from acknowledged hazards.

Worcester strives to comply with the strategies, goals and objectives of the State Hazard Mitigation Plan, including an emphasis on proactive pre-disaster flood mitigation for public infrastructure, good floodplain and river management practices, and fluvial erosion risk assessment initiatives.

The 2024 Worcester Local Hazard Mitigation Plan is an update of the town's 2018 plan. The town reviewed, evaluated, and revised the 2012 plan to reflect changes in development, progress in local mitigation efforts and changes in priorities. New information has been incorporated into this plan making it up to date, stronger and more useful for the Worcester town officials and residents who will implement the actions and measures going forward.

The 2024 Worcester Local Hazard Mitigation Plan includes:

- Current information since the last plan update done in 2018.
- A status update of the 2018 mitigation strategies/actions.
- A new mitigation strategies/action section to reflect the current priorities and intended actions of the community over the next five years.
- Updates have been made to the Hazard Analysis Map.
- The town has updated the hazards to reflect changes in the communities' priorities.

Benefits of hazard mitigation planning include:

1) Increased public awareness and understanding of natural and manmade hazards,
2) Associated risks and community vulnerabilities,
3) Reduced physical, financial and emotional losses caused by disasters,
4) Improved understanding of potential risks and possible risk reduction measures associated with future development,
5) Increased community and voter support for specific actions the town may take to reduce future losses,
6) Strengthened partnerships and lines of communication among diverse interests, including opportunities to leverage and share resources,
7) Community eligibility for federal hazard mitigation grants and aid prior to and following federally declared disasters.

III. Process

The previous Worcester Hazard Mitigation Plan was adopted in December 2018 and this plan is an update within a 5-year cycle. Vermont's ongoing recovery efforts and the Federal Emergency Management Agency's (FEMA) new mitigation framework both focus on strengthening community resilience to not only understand and reduce risks of future events, but to also empower communities to recover quickly and effectively when disasters occur. The Emergency Relief and Assistance Fund (ERAF) provides State funding to match Federal Public Assistance after federally-declared disasters. Eligible public costs are reimbursed by federal taxpayers at 75%. For disasters after October 23, 2014, the State of Vermont will contribute an additional 7.5% toward the costs. For communities that take specific steps to reduce flood damage the State will contribute 12.5% or 17.5% of the total cost. Worcester currently has an Emergency Relief and Assistance Fund (ERAF) rating of 7.5%, due to the expiration of the 2018 Local Hazard Mitigation Plan. Once the 2024 LHMP is approved the Town's ERAF score will return to 17.5%, the maximum under the program. Under changes to state planning law (24 V.S.A Chapter 117), as of July 2014, all Municipal Plans must include a "flood resilience" element that may reference a locally adopted and FEMA- approved local hazard mitigation plan.

This plan represents the revision of the previous Worcester Local Hazard Mitigation Plan. It is a standalone, single jurisdiction hazard mitigation plan that updates and builds upon previous mitigation plans and augments the adopted Worcester Town Plan. The process of developing the Plan has been as important as the plan itself, by drawing the community together to identify, prioritize, and agree on actions to be taken to reduce and mitigate hazards. The five parts of the plan update process included:

Planning Process (Public Involvement) - To receive and consider Whole Community* input from diverse stakeholders. To document how decisions were reached and who was involved in the planning process.

*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.

Hazard Impact Analysis- Integrate current hazard data and studies to identify and plan for the most probable hazards, estimate the potential frequency and magnitude of hazard events and their potential impacts on both the built environment and the local community.

Mitigation Strategy- To reaffirm and develop goals, objectives and strategies aimed at mitigating future disaster losses that are cost-effective, technically feasible, environmentally sound, and are strategic investments of scarce resources. To identify which actions will be taken by whom and by when. This Plan reflects local priorities for hazard mitigation, as determined from the community planning process, and currently available federal, state and local information. Action items are included to monitor the success or effectiveness of implementation and results, and to inform the next update of the Plan.

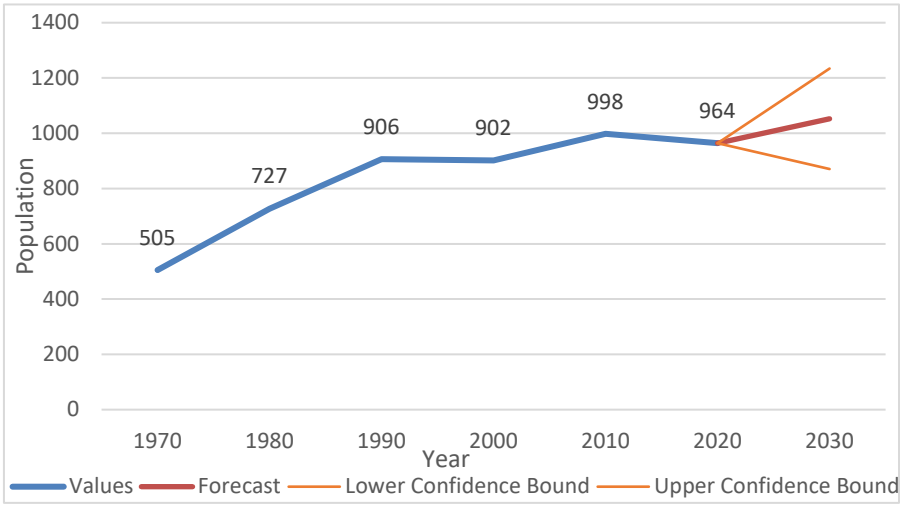
Plan Review, Evaluation, and Implementation- to review and revise prior plan to address changes in development, progress in local mitigation efforts, and changes in priorities with a 5-year cycle to reflect current conditions and maintain eligibility for FEMA funding.

Plan Adoption- to ensure Selectboard approval and adoption of the local hazard mitigation plan demonstrating community commitment to the plans hazard mitigation goals and actions.

IV. Community Profile

1. Demographic Profile

The 2020 Decennial Census prepared by the U.S. Census Bureau shows an estimated population of 964 with 397 housing units. The population density of the town is 23.3 people per square mile compared to an overall state density of 68. From 1970 to 1990 Worcester's population experienced steady growth. Around 1990 the population began to stabilize, and the graph below shows forecasted changes with lower and upper confidence bounds.



Source: Decennial Census data with excel projection of expected growth

Worcester 2020 Age Distribution

Age	Population	Percent
0-19	196	20.4
20-34	145	15.1
35-49	177	18.4
50-64	227	23.5
65 and older	219	22.8
Total	964	

Source: Decennial Census data

Between 2000 and 2020, the median age of Worcester has increased by 8.4 years; 47.7 is the median age, higher than the Vermont median age of 43.2. The portion of the population over 65 is 22.8%, compared to 21.6% in Vermont and 16% in the country. This population data does show a trend that the population of Worcester is aging. Being a small rural community, this has direct implications on services and volunteerism. Fire and EMT services may become harder roles to fill 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. According to the American Community Survey (ACS) 5-Year estimates the 2022 employment rate in Worcester was 61.4%. 78.5% of workers 16 years and older drive alone to work with an average commute time of 26.8 minutes. Daily vehicle commuters are vulnerable to any hazard that may adversely impact driving conditions most commonly in the winter months.

2. Community Summary

The Town of Worcester is a small, rural, primarily residential community in Northwestern Washington County. With over 3,000 feet of topographic relief within its boundaries, Worcester ranks as one of the most rugged communities within Central Vermont. The Worcester Mountain Range dominates the Western third of the town. Vermont Route 12 follows the North Branch River in a North-South direction and provides connection to Montpelier and Morrisville. The Village of Worcester is located along the south eastern section of the town along Vermont Route 12. The Town's limited commercial development is focused primarily within this area, along with its densest residential development. The largest numbers of private residences, however, are widely dispersed throughout the Town's rural lands. This pattern of rural development surrounding a dense Village is reinforced by the Town Plan. Worcester does not have zoning bylaws or a subdivision ordinance. As of writing this plan, there are no planned commercial or residential developments for Worcester. In February of 2020 Worcester updated its road standards and follows the Vermont Road and Bridge Standards. Over the past ten years new development has been minimal and has not increased the communities' vulnerabilities. In 2018, the Vermont River Conservancy worked with the Vermont Land Trust to create the North Branch Cascades Trail, a 1-mile recreation trail along the North Branch of the Winooski. River that includes 7 waterfalls and several swimming holes. The Trail is located in Worcester and Elmore.

In Worcester, Green Mountain Power provides electricity to residents along Vermont Route 12. Those in

the hills and along other secondary roads are served primarily by the Washington Electric Cooperative. The Worcester community is completely dependent upon groundwater for its domestic water supply and industrial uses, with a storage and distribution system known as Worcester Fire District No. 1 providing service to much of the Village area. Worcester has no public sewage disposal system. The State of Vermont Regional Office issues water/wastewater permits for soil-based wastewater systems with flows less than 6500 gallons per day, for potable water supplies (water supplies that are not public), and for municipal water and sewer connections.

The Town's fire coverage is provided by the volunteer Worcester Fire Department, which provides support to the inter-municipal Capital Fire Mutual Aid System. Housed within the Worcester Fire Department is the Worcester Fast Squad, a non-profit corporation which provides medical care under the Vermont Emergency Medical Services system. The Fast Squad works in conjunction with the Montpelier Ambulance Service, which provides emergency transportation within the Town's boundaries. According to the 2023 Worcester Town Report, the Worcester Fire Department and Fast Squad responded to 100 calls for fire and medical assistance. In regard to law enforcement, the Vermont State Police provide first response support and the Washington County Sherriff monitors the speed of traffic on Worcester's major thoroughfare.

The Town of Worcester has an approved Local Emergency Management Plan (LEMP), (formerly known as the Local Emergency Operations Plan), that is updated and adopted annually. The current LEMP was adopted on March 18, 2024. The town coordinates with the Central Vermont Regional Planning Commission who provides technical support and guidance with the plan update. The town requires the certifying officer to be trained in Incident Command Structure (ICS) 402 or ICS 100 at a minimum. It is the policy of the town to have the Chair of the Selectboard serve as the Emergency Management Director (EMD). In conjunction with the LEMP, on May 21, 2012 the town adopted the use of the National Incident Management System (NIMS) as the standard for management and systematic approach involving all threats and hazards, regardless of cause, size, location, or complexity, to reduce loss of life, property, and harm to the environment.

In addition to the water supply, there are 7 dry hydrants installed using grant funding from the Rural Resources Water Supply Grant program of the Vermont Association of Conservation Districts. Ultimately, the Town has the goal of installing a dry hydrant on every road.

The Doty Memorial School follows the Vermont School Crisis Guide and has an Emergency Evacuation Plan in place. Safety drills are performed on a regular basis. The current school principal is Gillian Fuqua.

The 2023 Town Plan is designed to "balance the wide range of competing interests among Worcester citizens, to coordinate the pattern of development, and to guide the use of important natural resources." The Plan includes (1) a description of present physical and social conditions, (2) a vision/goals for the Town's future, (3) strategies to achieve that vision and (4) actions for the Town. (2023 Town Plan). The Plan promotes mitigation of flood resiliency in Goal 11 of 12 through the development of a Flood Resilience Plan. Part 4. Utilities, Facilities, and Services of the Plan outlines the fire and emergency services provided by a Volunteer Fire Department and the Worcester FAST Squad. By updating the 2018 LHMP with this Plan, Worcester continues to meet the goals and priorities of the Town Plan.

Much of the work of town government is accomplished by local volunteers. Worcester is governed by an elected, three-member Selectboard. The Selectboard is responsible for the general supervision of Town

affairs. Among its duties are the enactment of local ordinances, the preparation of an annual budget, the board of Health and Liquor Control, the maintenance of Town roads, real estate and equipment; the appointment of all non-elected positions, and the hiring of all Town employees except the Assistant Town Clerk/Treasurer (Fran Cerulli). The Town's Assets and Facilities Supervisor, Roger Strobridge, is in charge of management and maintenance of all municipal buildings. The Town also has an appointed Road Commissioner (Mike Utton), Fire Chief (Will Sutton), Health Officer (John Kaeding), and an active four-member Planning Commission. The Town Clerk, Jennifer LeStat and Katie Miller as the hired Town Treasurer make up the Town Complex, along with the Listers Christopher Lyon, Peter Strobridge, and Alan Erdossy who maintain regular town office hours Monday through Thursday. A complete listing of Town officials elected and appointed can be found in Appendix D.

Elected Lister's (Christopher Lyon, Peter Strobridge, and Alan Edrossy) track and assess property values in Town. Worcester, as all Vermont towns, relies almost solely on the local property tax base and state aid to fund town government including town offices and facilities, schools and local roads. The Town's property tax also supports local fire and rescue services through annual appropriations. The Town doesn't have the ability to expand its resources. In order to meet mitigation goals outside state and federal funding is required. The Hazard Mitigation Strategies Matrix, see Appendix A, outlines the municipal leader for each action as well as possible resources. Worcester is an active member of the Central Vermont Regional Planning Commission and the 23-town Local Emergency Planning Committee #5.

Although Worcester has no zoning bylaws or local building codes, development of housing, farming, and commercial projects need to meet State and local expectations which exist as permit requirements and regulations. Worcester's "Flood Hazard Area Regulations" (updated in 2010) do not allow new construction within the "Special Flood Hazard Areas", "Fluvial Erosion Zones", and "River Corridor" areas except by special permit and regulated by DEC Chapter 29 VT Flood Hazard and River Corridor Rule. Worcester will incorporate the goals and objectives of this Local Hazard Mitigation Plan and the Flood Hazard Regulations into the Town Plan update and vice versa when this plan is again updated.

3. National Flood Insurance Program (NFIP)

Worcester participates in the National Flood Insurance Program and enrolled on 4/3/1978. Currently there are no individual NFIP policies in force. Approximately six buildings are located in the Special Flood Hazard Area (estimated from e911 sites). There are no repetitive loss properties in Worcester. Updated FEMA Maps are scheduled to be released for the Region during the summer of 2024.

Worcester is eligible under the Vermont Emergency Relief and Assistance Fund (ERAF) to receive state funding to match Federal Public Assistance funds after a federally declared disaster. Communities that take specific steps to reduce flood damage can increase the percentage of state funding they receive from 7.5% up to a maximum of 17.5%. At the time of this Plan development, Worcester has an ERAF rating of 7.5%. Upon the approval of this LHMP Worcester's ERAF score will return to 17.5%. Worcester has taken the specific steps to reduce flood damage by 1) participating in the National Flood Insurance Program, 2) adopting standards that meet or exceed the current Vermont Roads and Bridge Standards,

3) adopting a Local Emergency Management Plan which is renewed and adopted annually, 4) renewing a Local Hazard Mitigation Plan for FEMA approval, and 5) adopting Interim River Corridor protection standards (River Corridor Plan criteria).

Community	ERAF Rate	(1) NFIP	(2) Rd Stds	(3) LEMP	(4) LHMP	(5) RC	RC Interim	NFIP Enrolled	Road Stds	LEMP (Current)	LHMP (Approved)	RC Bylaw
Worcester	7.5%	Yes	Yes	Yes	No	Yes	Interim	04/03/1978	02/11/2020	04/16/2024	Expired	

According to S.213 (Act 171) passed in 2024, new statewide Flood Hazard and River Corridor Regulations will become effective before this plan is renewed. The act directs the Agency of Natural Resources (ANR) to update the State River Corridor Base Map by January 1, 2026, to include areas suitable for development within existing settlements in river corridors that will not contribute to fluvial erosion hazards. It requires ANR to adopt rules regulating all development within mapped river corridors by July 1, 2027. It also requires the agency to establish state flood hazard area standards necessary for enrollment in the National Flood Insurance Program (NFIP) by January 1, 2026. On January 1, 2028, the new state standards become the minimum flood hazard area standards (2024 Legislative Summary). At or before 2028 Worcester must update its bylaw to meet the new standards. The Central Vermont Regional Planning Commission is posed to assist once the state releases the new standards.

V. Planning Process and Maintenance

A. Planning Process Outline

- Kick-off meeting with CVRPC and Hazard Planning Team (5/28/24)
- Began drafting text:
  - Collaborated with municipal staff for updates to 2018 mitigation actions
  - Reviewed background studies / reports for Mitigation Actions
- Hazard Planning Team meeting (6/17/24):
  - Hazard analysis review with CVRPC
  - Ranked all FEMA hazards
- Whole Community outreach (7/12/24 – 8/19/24):
  - Posters placed around town in multiple locations with QR code for online survey
  - Public meetings advertised through Worcester's Front Porch Forum, Town website, and CVPRC's website and weekly newsletter. Outreach included but was not limited to;
    - Representatives of Worcester's Elementary school
    - Captsone Community Action - 501(c)3
    - CVRPC's 23 member municipalities via Town Clerks, Planning Commissioners, Zoning Administrators, Road Commissioners, Development Review Boards, and Selectboard / City Council members.
    - Washington County Senators and District Representatives.
- Public meeting #1 – 15 attendees at hybrid Planning Commission meeting (7/18/24):
  - Hybrid meeting at the Worcester Town Hall recorded by ORCA Media.
  - Reviewed hazards analysis scoring

    - Collected mitigation actions ideas and hazard locations from public and key local officials
    - Promoted online survey for submitting comments
- Hazard Planning Team meeting (7/25/24):
    - Evaluated and Prioritized Mitigation Actions with CVRPC
- CVRPC submitted rough draft to Hazard Planning Team (8/1/24):
    - Draft posted to Selectboard 8/5/24 agenda
- Public meeting #2 – 12 attendees at Selectboard meeting (8/5/24):
    - Selectboard reviewed and commented on plan
    - Discussed 2024 Flooding Mitigation Actions
- Public comment period (8/5/24 - 8/19/24):
    - Draft Plan posted to Town / CVRPC websites and the CVRPC weekly newsletter.
    - Outreach to Whole Community stakeholders (listed above) with direct solicitation to;
        - Adjacent Town Clerks
        - Friends of the Winooski
        - Agency of Natural Resources.
- Selectboard meeting (8/19/24):
    - Selectboard voted to adopt plan
- Final plan submitted to Vermont Emergency Management (8/23/24)
- Final FEMA Approval Letter received (4/16/25)

B. Planning Process Description

The Central Vermont Regional Planning Commission (CVRPC) assisted the town of Worcester with their Hazard Mitigation Plan update process. A kickoff meeting was held on May 28, 2024 with Transportation and Emergency Management Planner Keith Cubbon, Natural Resources Planner Lincoln Frasca, Facilities and Assets Manager Roger Strobridge and Planning Commissioner Toni Kaeding. The 2018 LHMP was discussed and a process for updating developed. The 2018 Mitigation Action and Preparedness Actions were sent to municipal staff to review and provide status updates. On June 17, 2024 the Worcester Hazard Mitigation Planning Team met to review and score priority hazards.

Worcester Hazard Mitigation Planning Team:

- Roger Strobridge, Assets and Facilities Supervisor
- Toni Kaeding, Planning Commissioner
- John Kaeding, Selectboard Chair
- Katie Miller, Town Treasurer
- Jennifer LeStat, Town Clerk
- Mike Utton, Road Commissioner
- CVRPC Staff: Keith Cubbon, Emergency and Transportation Planner and Lincoln Frasca, Natural Resources Planner

Following the first meeting with the Hazard Mitigation Planning Team a copy of the 2018 LHMP was distributed to the Town Clerk, Planning Commission, Fire Department, and the Highway Department for review and updates to relevant sections.

The first public meeting occurred on 18 July 2024 to discuss the prioritization of local hazards and identify locations of specific concern. Posters were posted around town in multiple locations and the

meeting was advertised through Worcester's Front Porch Forum, Town website, and CVPRC's website and newsletter. An online survey was created and disseminated with meeting materials for those who preferred to make digital comments. This was a hybrid meeting at the Worcester Town Hall and was recorded by ORCA Media. The intention in providing opportunities both online and in person was to enable the Whole Community, including those who may be underrepresented in past planning processes, to provide needed input. 13 people attended in person and 3 people were present online. A presentation outlining the planning process was given by CVRPC followed by discussion of local areas of concern.

The following hazards were identified at the 18 July 2024 public meeting and incorporated into the Hazard Mitigation Strategy Table in Section VIII:

- Erosion related to logging in the Worcester Range,
- Landslides on steep and unstable slopes,
- Extreme Heat / Cold events impacting vulnerable communities,
- Septic failures in the flood zone,
- Debris clogged culverts, and
- Erosion along West Hill Road.

Following the initial public meeting the Hazard Planning Team reconvened on July 25, 2024 to evaluate and prioritize the proposed mitigation actions and local areas of concern (see Section VII. C. Proposed Mitigation Actions – Evaluation and Prioritization). Prior to this meeting mitigation actions were received by Fire Chief & Warden, Will Sutton.

After assessing the material, an initial first draft was developed and the Hazard Planning Team and CVRPC staff met with members of the Selectboard at a second public meeting held on August 5, 2024. This meeting was publicly advertised, and direct invites were sent to all local leaders mentioned in Mitigation Action Matrix: Road Commissioner, Fire Chief, Planning Commission, Neighborhood Network, Principle of Doty Elementary, Health Commissioner, and Green-Up Chair. Input from the Selectboard members (John Kaeding (Chair), Roger Strobridge, and Carter Stowell) was collected for incorporation into the draft plan update. After the August 5 meeting, a two-week public comment period began. The initial draft plan was made publicly available for review and comments.

Public comment period (8/5/24 - 8/19/24):

- Comments sent to CVRPC via email to Keith Cubbon, *cubbon@cvregion.com,* and Lincoln Frasca, *frasca@cvregion.com*
- Plan posted to Town website, Front Porch Forum, CVRPC website/newsletter with a hard copy made available at the Town Hall
- Plan sent to Town Clerks in surrounding communities: Elmore, Montpelier, East Montpelier, Calais, Middlesex, Morristown, Stowe, Waterbury, and Woodbury
- Plan sent to the Friends of the Winooski River and ANR Regional Floodplain Manager, Ned Swanberg

Posting on CVRPC website/newsletter

The town of Worcester with the Central Vermont Regional Planning Commission has released a Draft 2024 Local Hazard Mitigation Plan.

The public comment period for this plan begins today: **8/6/24 – 8/19/24**

Comments can be submitted via email to frasca@cvregion.com & cubbon@cvregion.com with the subject line: *"Worcester LHMP 2024 Public Comment."*

The Worcester Selectboard will review the plan at their regularly scheduled meeting tonight starting at 6:30pm. See the Selectboard 8/5/24 agenda for location and zoom link.

Please forward this email notification to interested parties within your community.

We appreciate any and all input.

https://centralvtplanning.org/wp-content/uploads/2024/08/Worcester_DRAFT_-LHMP-2024.pdf

Posting on Worcester Town Website

Following the public comment period, the Selectboard met on 19 August and voted to adopt of the plan. The final plan was submitted to Vermont Emergency Management on 23 August 2024.

In the future, the plan may also be shared at informal meetings between local, regional and state officials. The draft plan may be made available during Town Meeting Day and local meetings with State and local officials to allow for more public comment and review.

Upon FEMA written notice of FEMA Approval Pending Adoption, the Selectboard will hold a warned public hearing on a date to be determined, to get public comment on the final Plan. Following the warned Public Hearing, the Worcester Selectboard will hold a regular warned public Selectboard meeting to approve and adopted the hazard mitigation plan by resolution. Upon adoption, the Selectboard will submit the adopted plan and signed certification to VEM/FEMA for issuance of the

final Plan approval letter from FEMA. This Plan will expire 5 years from the date of final FEMA approval.

Preparation for the plan review meetings included a review of the Worcester Town Plan, Worcester Local Emergency Management Plan, North Branch Corridor Plan, the Department of Environmental Conservation Watershed Project Database & Bridge and Culvert Reports, the 2015 Worcester Stormwater Infrastructure Mapping Report, the VT Agency of Transportation's Transportation Resilience Tool, the 2010 Worcester Flood Hazard Bylaw, Vermont State Hazard Mitigation Plan Jan. 2024, and Vermont Forest Action Plan. The Worcester Hazard Mitigation meetings focused on assessing past mitigation projects, responding to the July 2024 flooding, and compiling information on its current and future hazard mitigation programs, projects and activities. During the planning process, the town identified its most vulnerable hazards; inundation floods / fluvial erosion, ice / snow, and extreme cold / heat.

C. Plan Update Process

The Worcester Local Hazard Mitigation Plan was originally adopted by the Town as an Annex to the Central Vermont Regional Local Hazard Mitigation Plan in October 2005 and received FEMA final approval in January 2006. In 2011, Worcester updated its plan as a standalone Local Hazard Mitigation Plan which was adopted by the Selectboard on November 21, 2011 and received FEMA approval on March 12, 2012. In 2018, the Town approved an updated Local Hazard Mitigation Plan that received FEMA approval on January 25, 2019. This Plan is an update to the January 25, 2019 FEMA approved plan.

This Plan reflects changes from the 2019 plan related to the town's vulnerabilities to hazards and how Worcester addresses them based on changes in priorities and the effects of the implementation of past mitigation actions and strategies. The implementation of mitigation actions over the past five years, some not listed because the town considers them to be regular maintenance and program implementation measures, have reduced the town's vulnerability to specific hazards. Worcester has benefitted from the collaborative approach to achieving mitigation on the local level, by partnering with Agency of Natural Resources (ANR), Vermont Agency of Transportation (VTrans), Agency of Commerce and Community Development (ACCD), Vermont Emergency Management, Central Vermont Regional Planning Commission (CVRPC), Federal Emergency Management Administration (FEMA) Region 1 and other agencies, all working together to provide assistance and resources in pursuing mitigation projects and planning initiatives in Worcester The entire plan was updated in this update process.

(a) General Updates

- General reorganization/restructuring of the plan according to future FEMA/VEM checklist
- Update of all data and statistics using the 2023 Town Report and 2020 US Census Data
- Reevaluation, identification and analysis of all significant hazards identified from the 2018 Plan, including flash flooding and forest fires.
- Acknowledgement of implemented mitigation strategies since 2018 – see matrix below
- Identification of on-going mitigation projects and strategies – see Existing Mitigation Programs, Projects and Activities section.
- Identification of new mitigation projects and strategies – see Hazard Mitigation Activity Matrix Appendix.
- Update of all hazard data and historical records since 2018 to present day.

- Consideration of changes in development in the community and in development regulations.

(b) Hazard Analysis

- New hazards added – Landslides, Drought, Hail, Infectious Disease Outbreak, Cold/Heat
- Review of current forest map to identify camps and other areas which are at risk of forest fire
- Review of North Branch Corridor Plan, 2009
- Stormwater Infrastructure Mapping Report, 2015
- Review of Vermont Forest Action Plan, 2017
- Review of Transportation Resilience Planning Tool
- Review of Department of Environmental Conservation Watershed Project Database
- Review of Department of Environmental Conservation Bridge and Culvert Reports

(c) Maps

- Review of regulatory Flood Insurance Rate Maps (3/19/2013 effective date)
    - There is not yet a detailed Flood Insurance Study for Worcester
- Review of 2019 Plan maps - Hazard Analysis Map and Transportation Risk Analysis Map
- 5 updated Hazard Analysis Maps, see Section XI:
    - Map of Critical Facilities
    - Map of Transportation Infrastructure
    - Map of Flood Hazard Areas
    - Map of Land Cover
    - Map of Residential Development

(d) 2018 Mitigation & Preparedness Actions Table

2018 Mitigation & Preparedness Actions	2024 Status
(MA)Replacement and upgrade of Minister Brook Rd, Jim Dawson's field, Downs Rd bridges and culverts	All complete except for Dawson's field per Road Commissioner
(MA/PA) "Harden" utility services within the town through the replacement/burying of above-ground utility services.	Utility work still pending
(MA) Update and adopt River Corridor regulations including the state map Fluvial Erosion Hazard zone.	Regulation work still pending
(PA) Work with State to develop alternative water supplies in State Forest for wildfire suppression purposes	Water supply/dead tree removal still pending
(PA) Remove taller and dead trees from land surrounding camps in State Forest	It is the understanding of the Town that the involved trees reside on private property.

(PA) Perform routine inspections on the boiler	School building now responsibility of WCSU school district
(MA) Retrofit and strengthen boiler room to better contain an explosion	School building now responsibility of WCSU school district
(MA/PA) Work with elected officials, the State and FEMA to provide education and training on the NFIP to ensure compliance and understanding of the program by the Worcester community.	Pending. Growing interest in NFIP flood insurance by community?
(MA) Upgrade or improve culverts and ditches along sections of road on Hampshire Hill Rd, Norton Rd, Hancock Brook Rd, Downs Rd, Ira B Rd, Eagle Ledge Rd, Harris Hill Rd, Gould Hill Rd, Ledge Rd, Minister Brook Rd to help prevent stream erosion.	Upgrades complete on all roads per Mike (road commissioner)
PA- Explore Town participation in VT Alert as a notification system for use in emergency management	Worcester participates in VT Alert
MA/PA Provide educational materials to residents and sensitive populations on how to insulate homes (pipes, attics) for extreme cold spells; protect against snow loads; inform residents about Capstone Community Action	Educational materials made accessible to residents by Town Clerk as they become available
PA- Explore developing a citizen group with a Coordinator to activate volunteers as needed to assist with Town wide emergencies such as traffic control, help open roads where debris, tress have blocked roadways, and similar matters	Volunteer services good in emergencies, otherwise difficult to find.
PA- initiate school age programs on Emergency Preparedness. Use VEM School Crisis Planning Team resources. Student Tools for Emergency Planning (STEP) is for 4th & 5th grade students and includes a series of videos called "Disaster Dodgers" and subject specific worksheets. Be a Hero includes educator lessons for grades 1-12, Disaster master and Build a Kit web-based games, and parent aids create a family plan and emergency checklist	School emergency preparedness occurs through Vt School Board Insurance Trust per Gillian F. (principal)
PA- Explore purchasing two-way radios for Worcester Town Fire Warden and assistant to enhance communication capabilities and increase efficiency with response in an emergency	Adequate communication devices in place
MA- Budget for and Updated the 2010 Town Forest Management Plan including incorporation of a silviculture schedule	Awaiting appointment of Town Forester

MA- Develop one- two additional dry hydrant site in rural area of Town to increase protection from fire for residents and infrastructure	Still needed, still pending. Town may be at the maximum number of dry hydrants permittable. Further conversations with ANR is needed.
PA- Gather GIS data points on all dry hydrants for incorporation into Town data set and map productions. This will assist in emergency response and provide an historical record of the dry hydrant system in Town	Map currently in development

(e) Existing Mitigation Programs, Projects and Activities

The Town of Worcester is currently engaged in the following ongoing or recently completed programs, projects and activities that are listed by mitigation strategy and were reviewed during the update process. They share and incorporate the overall goals of the local hazard mitigation plan. Worcester has the capacity to maintain these programs and initiatives using the staff and volunteers described in the Community Profile. Unless otherwise noted, there is no need to expand or improve on these programs, projects and activities.

It is important to note, there is an increasing need to spend more time with administrative duties of the Road Commissioner. This is in part due to requirements and regulations the Town is subject to from the Municipal Roads General Permit and the need of the Town to secure funding from both non-emergency and emergency grants which help to increase their capacity for implementation of mitigation strategies and actions.

Community Preparedness Activities:

- Current Local Emergency Management Plan adopted 3/18/2024 and renewed annually. No need to expand or change process.
- Doty Memorial School Emergency Evacuation Plan. Reviewed and adopted annually. No need to expand or change the process.
- Appointment of a Town Fire Warden to serve a five-year term. Will Sutton currently serves as Fire Warden, no further action needed.

Hazard Control & Protective Works:

- Maintenance Programs (Culvert Survey & Replacement) last completed 2019. Next update scheduled by CVRPC for 2026.
- Participant in the Capital Mutual Aid System, ongoing and no need to expand or change the process.
- Capital Equipment Plan and Replacement Schedule. This requires annual review and approval. Funding from Town budget Capital Maintenance Fund. Process is satisfactory and there is no need to expand or improve program/policy.
- School disaster/emergency/evacuation plans, reviewed and adopted annually. No need to expand or change process.

Insurance Programs:

- Vermont League of Cities and Towns Liability and Insurance Program, is ongoing with no need for expansion or improvement at the time of this plan update.

- **National Flood Insurance Program (NFIP):** The Town of Worcester is a long-standing member of the National Flood Insurance Program (NFIP) with substantial improvement/substantial damage provisions outlined in the floodplain management regulations. The Town has no zoning regulations with an exception for regulations in the Special Flood Hazard Area (SFHA), so NFIP compliance is enforced by the Town Selectboard through permit review requirements outlined in the Worcester Flood Hazard Regulations (2010). That work is supported by the Administrative Officer (Will Baker). In the event of structural damage within the SFHA, the Administrative Officer and the Board of Abatement, as directed by the Selectboard, will collaborate with the State Regional Floodplain Manager to complete the review and permitting

process outlined in the Flood Hazard Regulations.

- The Worcester 2010 Flood Hazard Regulations include the following details regarding substantial damages and improvements:
    - *"The Board may, after public notice and hearing, approve the repair, relocation, replacement, or enlargement of a nonconforming structure within a flood hazard area provided that: 1. The proposed development is in compliance with all the Development Standards in Section VII of this bylaw; 2. A nonconforming structure that is substantially damaged or destroyed may be reconstructed only in circumstances when the structure cannot be relocated to a less hazardous location on the parcel. The lowest floor of the reconstructed structure must be rebuilt to one foot or more above the base flood elevation, and the structure must otherwise comply with all requirements of the National Flood Insurance Program;" (page 6 of Flood Hazard Regulations)*
    - *"Upon receipt of a complete application for a substantial improvement or new construction the AO shall submit a copy of the application and supporting information to the State National Flood Insurance Program (NFIP) Coordinator at the Vermont Agency of Natural Resources, in accordance with 24 V.S.A. § 4424. A permit may be issued only following receipt of comments from the Agency, or the expiration of 30 days from the date the application was mailed to the Agency, whichever is sooner. (page 11 of Flood Hazard Regulations)*
- FEMA is currently updating the Flood Insurance Rate Maps (FIRMs) in Vermont for NFIP. This will be the first map update for many towns since the 70's or 80s. Some Vermont counties received official "digital" FIRMs in 2007 but most of the flood hazard areas did not get fresh studies.
    - This new update will cover the entire state in stages and draft maps can be expected in the summer of 2025 with effective maps released in the winter of 2028. Preliminary maps can be viewed at bit.ly/fema-map-update.
    - The Worcester Flood Hazard Area Regulations utilize the most recent FEMA FIRMs for Worcester in Washington County, VT.

Funding:

- Town Budget: Capital Maintenance Fund, Dry Hydrant Grant, FEMA Fund, Equipment Fund, ARPA Fund, Service Committee Fund
- Hazard Mitigation Funding
- Municipal Energy Resilience Program
- CVRPC: Transportation Grant Funding, Clean Water Service Provider Funding, Municipal Planning Grant Funding

Land use Planning/Management:

- Flood Hazard Bylaw 2010.
- Municipal Plan 2023.
- Local Hazard Mitigation Plan, reviewed annually and updated and adopted every five years through VEM/FEMA approval process. Plan is currently under review for FEMA approval and adoption by Selectboard. No need to change process.
- No local building codes, development must meet state permitting requirements and local regulations.

Completed/Ongoing Protection & Retrofit of Infrastructure and Critical Facilities:

- Town Complex backup generator
- Dry Hydrant Program, ongoing dependent upon funding grants (7 completed, goal of 1 per road)
- Worcester follows the Uniform Grants Guidance Policies/Procedures guidelines (Adopted July 15, 2024).
- Replaced and upgraded of Minister Brook Rd and Downs Rd bridges and culverts.
- Upgraded or improved culverts and ditches along sections of road on Hampshire Hill Rd, Norton Rd, Hancock Brook Rd, Downs Rd, Ira B Rd, Eagle Ledge Rd, Harris Hill Rd, Gould Hill Rd, Ledge Rd, Minister Brook Rd to help prevent stream erosion.

Public Awareness, Training & Education:

- Fire safety educational programs for town residents
- CPR & Hazmat Trainings
- School emergency preparedness occurs through VT School Board Insurance Trust
- School Fire Awareness Week
- FAST Squad

D. Plan Maintenance Process

The Worcester Local Hazard Mitigation Plan is updated and evaluated annually at an April Selectboard meeting along with the review of the Local Emergency Operations Plan. An annual report on the process of the implementation elements of the Plan and progress made on reaching the goals of this plan will be presented to the Selectboard by the Emergency Management Director or Coordinator. Updates and evaluation by the Selectboard will also occur within three months after every federal disaster declaration that affects Worcester and as updates to Town Plan and river corridor plans come into effect. This Plan will be reviewed by the Selectboard, Planning Commission, Emergency Management Committee, and public at the above-mentioned April Selectboard meeting. An annual report on the process of the implementation elements of the Plan will be presented to the Selectboard by the Emergency Management Director or Coordinator.

The process of evaluating and updating the plan will include continued public participation through public notices posted on the municipal website, notice in the municipal building, Front Porch Forum and CVRPC newsletter inviting the public to the scheduled Planning Commission and Selectboard (or specially scheduled) meetings. All meetings were hybrid to make accessible to the Whole Community. Additional stakeholders invited to the meeting will be a representative from the Doty Memorial School. Also invited in the future will be the VT Agency of Natural Resources (VT ANR), as they are able to provide assistance with NFIP outreach activities, models for floodplain zoning regulations, delineation of fluvial erosion hazard areas, and other applicable initiatives. These efforts will be coordinated by the Selectboard.

Monitoring of plan progress, implementation, and the five-year update process will be undertaken by the Selectboard in conjunction with the Road Commissioner, and the Emergency Management Committee. The Selectboard will discuss the Plan maintenance activities. Monitoring updates may include changes in community mitigation strategies; zoning and planning strategies; progress of implementation of initiatives and projects; effectiveness of implemented projects or initiatives; and evaluation of challenges, priorities, and opportunities. If new actions are identified in the five-year interim period, the plan can be amended

without formal re-adoption during regularly scheduled Selectboard meetings. After a five-year period, the plan will be submitted for re-adoption following the process outlined in section V. A. of this plan. **In order to maintain a current up to date unexpired plan, within one year of this plan expiration data, the plan update process with FEMA should begin.** The Town of Worcester is responsible for the update and maintenance of this Plan.

Worcester shall also incorporate mitigation planning into their long-term land use and development planning documents. It is recommended the Town review and incorporate elements of the Local Hazard Mitigation Plan when updating the Town Plan, and flood hazard bylaws and when considering the development and adoption of river corridor regulations, zoning regulations, storm water management or road plans. The incorporation of the Local Hazard Mitigation Plan into these planning tools will also be considered after declared or local disasters. The Town shall also consider reviewing future North Branch Corridor planning documents for ideas on future mitigation projects and hazard areas as town capacity, funding, and political will dictate. The Town may consider reviewing any future CVRPC planning documents and studies for ideas on future mitigation projects and hazard areas.

VI. Community Vulnerability by Hazard

Hazard Assessment Ranking Criteria

In determining the probability and impact of a hazard happening in Worcester the following method was used:

Table 4: Hazard Assessment Ranking Criteria

	Frequency of Occurrence: Probability of a plausibly significant event impacting the community or regional scale based on previous occurrences and climate change projections.	**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 the 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

2024 Hazard Impact Analysis

The following natural disasters were discussed, and the top priority hazards were identified based upon the likelihood of the event and the community's vulnerability to the event. The Hazard Impact Table reflects the hazards Worcester feels can be expected, or at least are possible, to occur in Town.

Table 5: 2024 Hazard Table								
Hazard Impact	**Probability**	**Potential Impact**					**Score***	**NOTES**
		Infrastructure	Life	Economy	Environment	Average		
Fluvial Erosion	4	3	2	4	3	3	12	Over 3 million in damages from July '23 Flood
Inundation Flooding	3	3	2	4	3	3	9	
Ice	3	3	2	3	2	2.5	7.5	
Snow	3	2	2	3	2	2.25	6.75	
Wind	3	3	2	2	2	2.25	6.75	
Heat	2	2	3	2	2	2.25	4.5	
Cold	3	3	3	2	2	2.5	7.5	
Drought	2	1	2	1	2	1.5	3	
Landslides	2	2	2	2	2	2	4	
Invasive Species	2	1	1	1	2	1.25	2.5	
Wildfire	2	2	2	2	3	2.25	4.5	
Earthquake	1	2	1	1	3	1.75	1.75	
Hail	2	2	1	1	2	1.5	3	
Infectious Disease Outbreak	2	1	3	3	2	2.25	4.5	Need to monitor; COVID, RSV, elderly population and response to an outbreak (FAST Squad and Fire Dept.). Consider loss of income and ability to pay income tax. Food shelf is also impacted.

*Score = Probability x Average potential 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)

Just because the town has not identified a hazard as a top priority or significant threat, does not mean the hazard will not occur in the future, they are just not the focus of this Plan.

The Town of Worcester Hazard Mitigation Planning Team identified the following disasters as presenting the worst threat to the community (score of > 7):

- Fluvial Erosion
- Inundation Flooding
- Ice
- Cold

The Town is interested in focusing a majority of mitigation efforts into reducing impacts from fluvial erosion, inundation flooding, ice, and cold as the events occur most frequently, severely and cause the most damage to public and private infrastructure.

Moderate threat hazards include (score of 3 – 7):

- Snow
- Wind
- Heat

- Drought
- Landslides
- Hail
- Infectious Disease Outbreak
- Wildfire

Other Hazards with low likelihood, and low potential impact are (score of < 3):

- Invasive Species
- Earthquake

The municipal team ranked invasive species and earthquakes as a low probability of occurrence and low impact. Accordingly, and due to a lack of resources and capacity in the town, these hazards will not be discussed in detail in this plan. Hazards not identified as a probable or impactful threat may still occur. Greater explanations and mitigation strategies of these threat hazards can be found in the State of Vermont's Hazard Mitigation Plan.

Climate change is anticipated to increase the frequency and intensity of the hazards profiled in this plan, resulting in greater impacts to the community assets and the consequences identified in the hazard profiles. Population trends are discussed in the beginning of this plan. If Worcester's average age trends continue, vulnerability to the hazards profiled in this plan will increase. As a result, Worcester considered the effects of future climate and demographic conditions on the type, location, and range of intensities of identified hazards when they conducted the Hazard Impact Analysis in 2024. Future development and land use changes also have the potential of changing Worcester's vulnerability to the identified hazards and their impact on community assets. Although there has been minimal new development in the last ten years, with no other zoning regulations other than Flood Hazard Area Regulations there is the possibility for new development in remote areas of town disconnected from the village areas. This could stress the town's emergency response resources such as fire fighters and EMTs. This could also increase isolation of aging residents in need of services during all significant hazard events.

The town is concerned with land use changes proposed in the Worcester Range Management Unit Long-Range Management Plan adopted September 26, 2024. The main concern expressed at the July 18, 2024 public meeting was the expansion of logging activities and potential for increased runoff and erosion during heavy rain events. To address these concerns the town created a mitigation action to partner with Dept. of Forest Parks & Recreation and private landowners to address runoff from active and proposed logging in the greater Worcester area. Vulnerability to certain hazards such as hail, is unlikely to change despite future land use changes.

A discussion of each significant hazard is included in the proceeding subsections and a map identifying the location of each hazard is attached (See Hazard Analysis Map Appendix C) Each subsection includes a list of past occurrences based upon County-wide FEMA Disaster Declarations (DR-#), as well as information from local records and a narrative description of each hazard.

The County-wide FEMA Disaster Declarations (DR-#) in each subsection cover all disaster declarations that have applied to Worcester.

A. Worst Threat Hazards

INUNDATION FLOODING/FLUVIAL EROSION

Inundation Flooding: An overflowing of a large amount of water beyond its normal confines **(rivers, streams, drains and lakes),** especially over what is normally dry land **due to excessive rain, rapid snow melt or ice.**

Fluvial Erosion: Fluvial processes include the motion of sediment and erosion or deposition on the river bed. Fluvial erosion processes occur more quickly and severely during flood events. Fluvial erosion extent data is not available for Worcester.

Flash Flooding: (see Flood) flash flooding is a rapidly occurring flood event usually from excessive rain.

Flooding is one of the most common natural hazards in Worcester. Flooding occurs when rapidly rising water inundates an area beyond the body of water's normal or accepted channel or basin. Floods can affect a neighborhood, a community or an entire river basin and it should be noted not all floods are alike. Some floods develop slowly over days due to rainfall or snowmelt; others can develop quickly due to a sudden rain burst and are commonly called flash floods.

Fluvial Erosion & Inundation Flooding:
Flooding 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. 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.

The Town of Worcester identified West Hill Road as a location with some of the worst damages sustained by fluvial erosion during the July 2023 and 2024 storms. At this site municipal infrastructure, including bridge and roads, were washed out costing the town approximately $1.5 million in consecutive years. In Section VIII. Hazard Mitigation Strategy Matrix, the Town identified 5 critical culverts that need resizing to mitigate fluvial erosion. They have also set the goal of updating road erosion and culvert Inventories as part of a larger planning effort. According to the Flood Hazard Areas Map in Section XI. roads that fall within the River Corridor and are susceptible to fluvial erosion include VT Rt. 12, Minister Brook Road, Calais Road, Eagle Ledge Road, and Hancock Brook Road. However, the damages sustained on West Hill Road is evidence that damages from severe fluvial erosion will occur outside of the mapped river corridor areas.

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. From the July 2023 flood alone Worcester experienced greater than $3 million

worth of damages. The total losses from the most recent July 2024 flood event are still being totaled at the time of this writing.

Flash Flooding:

According to the 2023 State of Vermont Hazard Mitigation Plan, in addition to inundation flooding and fluvial erosion dangers along rivers and lakes in Vermont, there are significant flash flood dangers near small streams and in alluvial fans. Alluvial fans are areas where streams transition between a steep mountain grade to gentler, flatter valleys below. Flash floods are likely to occur after a severe thunderstorm that produces a large amount of precipitation over a short amount of time. The precipitation falls so quickly that the soil is unable to absorb the water which results in surface runoff that collects in small, upstream tributaries, that then moves quickly downstream at a high velocity. The stream alterations described as increasing fluvial erosion may also exacerbate the effects of flash flooding. Mountainous areas such as Vermont are particularly prone to flash flooding due to the steep terrain. Damage from flooding includes land erosion, property damage, loss of crops, and even human life.

Flash flooding in Worcester most often occurs in areas where tree roots, branches, and debris block the path of the water. These areas are located along Downs Road and Minister Brook Road where tree growth is close to the edge of the waters. The town flooding bylaw follows the NFIP minimum guidelines to limit flooding of structures nearby. Unclogging culverts is part of ongoing maintenance that the town performs to mitigate the impact of flash floods.

History of Occurrences (State and County Wide*)

Date	Event	Location	Extent
7/10-7/14/2024	Flooding/Fluvial Erosion	Washington County	Montpelier flood gauge at 14.45 feet DR 3609 and DR 4810
12/18/2023	Flooding/Fluvial Erosion	Washington County	Montpelier flood gauge at 16.15 feet
7/10 - 7/14/2023	Flooding/Fluvial Erosion	Washington County	Montpelier flood gauge at 21.29 feet DR 3595 and DR 4720
12/22/2022	Flooding/Severe Storms	Washington County	DR 4695
8/22/2021	Flooding/Tropical Storm	Washington County	DR 3567
1/17/2020	Flooding/Severe Storms	Washington County	DR 4474
6/14/2019	Flooding/Severe Storms	Washington County	DR 4445
1/2/2018	Flooding/Severe Storms	Washington County	DR 4356
8/16/2017	Flooding/Severe Storms	Washington County	DR 4330
6/11/2014	Flooding/Fluvial Erosion	Washington County	Montpelier flood gauge at N.A. DR 4178
8/2/2013	Flooding/Fluvial Erosion	Washington County	Montpelier flood gauge at 4.23 feet DR 4140

11/8/2011	Flooding/Fluvial Erosion	Washington County	Montpelier flood gauge at 4.05 feet DR 4043
8/29/2011	Flood/Tropical Storm/Fluvial Erosion	Statewide	Winooski Flood gauge knocked out – above 423.3 feet (flood stage is 19.05 feet) – DR 4022
5/27/2011	Flood/Fluvial Erosion	Washington County	Winooski flood gauge at 17.59 feet DR 4001
4/11/2011	Flood / Fluvial Erosion	Washington County	2-4" of rain and heavy snowmelt, Winooski flood gauge at 421.0 feet DR 1995
8/2/2008	Flash Flood	Washington County	3-5" of rain, not a historical crest in Montpelier DR1790
7/11/2007	Flash Flood	Washington County	3-6" of rain in 2 hrs. – DR 1715, not a historical crest in Montpelier
6/26/2006	Flood / Fluvial Erosion	Washington County	3-4" of rain, not a historical crest in Montpelier
9/16/1999	Tropical Storm Floyd	Washington County	Montpelier flood gauge at 9.30 feet, 5-7" rain county wide DR 1307
6/17/1998	Flash Flood	Washington County	3-6" of rain over 2-day period - DR 1228, not a historical crest in Montpelier
7/25/1997	Flooding/Severe Storm	Washington County	DR 1184
2/13/1996	Flooding/Ice Jams	Washington County	DR 1101
8/16/1995	Flooding/Severe Storm	Washington County	DR 1063
3/18/1992	Flooding/Ice Jams	Washington County	DR 938
7/25/1990	Flooding/Severe Storm	Washington County	DR 875
9/11/1989	Flooding/Severe Storm	Washington County	DR 840
6/18/1984	Flooding/Severe Storm	Washington County	DR 712
8/5/1976	Flood/Fluvial Erosion	Washington County	Montpelier flood gauge at 12.31 feet – DR 518
6/30/1973	Flood/Fluvial Erosion	Washington County	Montpelier gauge at 17.55 ft DR 397
9/22/1938	Flood/Hurricane/Fluvial Erosion	Washington County	Montpelier flood gauge at 14.11 feet
11/03/1927	Flood/Fluvial Erosion	Washington County	Montpelier flood gauge at 27.10 feet

*State and County Wide Flooding impacts Worcester Townwide but most severely within the River Corridor and where fluvial erosion undermines municipal infrastructure.

Climate change is anticipated to increase the frequency and intensity of flooding events causing greater impacts to Worcester's assets and community. The town's aging population combined with its rural nature could increase its vulnerability to flooding events. Older residents may require more assistance during evacuations and face a greater risk if isolated from emergency services because of infrastructure related flood damages.

The most prominent body of water within Worcester is the North Branch of the Winooski River, which originates in Elmore and flows in a southerly direction along Vermont Route 12, finally converging with the Winooski in the City of Montpelier. Several streams originating in Worcester's upland areas converge with the North Branch in the Worcester Valley. Flowing east from the Worcester Range are Minister, Hancock and Catamount Brooks. From the eastern hills flow the Hardwood, Worcester and Russ Pond Brooks. The town has interest in looking at flooding within the Village on the watershed scale. Coordination with the Department of Forest Parks and Recreation on the proposed logging in the Worcester Range Long Range Management Plan to prevent runoff into the town is recommended.

Over the years a variety of natural resource studies have been conducted both by the Agency of Natural Resources and private consultants that identify projects to mitigate the risk of flooding on the local and regional scale. Potential mitigation actions can be identified in the following reports and should be further scoped to understand their status and potential for mitigating threats to infrastructure and human life.

Two studies have been conducted on the North Branch of the Winooski River and associated tributaries (Minister Brook, Worcester Brook, Hancock Brook, Catamount Brook and Harwood Brook) located in Worcester. The first study is a Phase I Stream Geomorphic Assessment done in 2009. The second 2009 study is the North Branch Corridor Plan which evaluates the condition of the North Branch and larger tributaries and identifies and prioritizes 92 projects to remediate the river. Of these 92 projects, more than half are recommended along the stretches in Worcester. The Corridor Report identifies numerous stretches of the river that are in fair and poor condition due to road or field encroachment on floodplains or banks, highly incised reaches, and increased loads and flows due to surrounding land use activities. Table 33 of the North Branch Corridor Report summarizes all potential projects and their benefits. It would be advisable for the Town of Worcester to begin performing some of the high priority projects in Worcester's stretch of the river corridor to restore the river's health and prevent future flooding events and reduce fluvial erosion. However, implementation is dependent upon identifying viable funding sources and grant awards. In addition, many identified projects involve private property and will require the cooperation and commitment of the private landowner. A matrix of prioritized projects and related maps are attached as an appendix for the Town to reference and to help guide, direct and prioritize future mitigation projects. Fluvial erosion extent data is not available for Worcester.

The North Branch Corridor Plan identifies several areas in Worcester where roads/field encroach the river's floodplain. Also identified in the Plan are structures which constrict the flow of the River and Minister Brook. Several berms along the Brook also limit access to the floodplain. Similar conditions are occurring on the Worcester Brook as well. Table 33 in the North Branch Corridor Plan outlines remediation actions for each stretch of the North Branch and its tributaries. It would be advisable for Worcester to implement high priority projects to reduce future impacts of flooding and restore the overall health of the North Branch. However, implementation is dependent upon identifying viable

funding sources and grant awards as well as garnering cooperation and commitment from the private landowners.

Project Types identified in the 2009 North Branch River Corridor Report include:

- 14 River Planting
- 11 Floodplain / Stream Restoration projects
- 14 Bridge Replacements
- 1 Dam Removal – Minister brook
- 2 Berm Removals

The Department of Environmental Conservation Stream Geomorphic Assessment identifies approximately 40 culverts to be in "Failure Mode with problem condition." The Streams with problem culverts include Hancock Brook, Hardwood Brook, Minister Brook, Russ Pond Brook, Worcester brook, North Branch, and tributaries to North Branch.

The 2015 Worcester Stormwater Infrastructure Mapping Report identifies 4 projects to reduce environmental impacts of nutrient and sediment loading to the Mad River, as well as mitigate flood vulnerability to municipal or state road and drainage infrastructure.

The VT Agency of Transportation Resiliency Planning Tool identifies the following roads as high vulnerability for erosion: Calais Rd., Minister Book Rd. and Elmore Rd. At the July 18, 2024, public meeting West Hill Road was also identified as extremely vulnerable to erosion. Wash outs on the uphill side of West Hill Road have accounted for approximately $1.5 million in repairs just in the last two years.

According to the National Flood Insurance Program, Worcester has 6 structures and 23 properties located within the State designated river corridor. The total loss value for river corridor properties is $5,932,300 based on the property value of the grand list. There are no recurring loss properties in Worcester, and no critical facilities in the floodplain. As previous events have made clear, even areas beyond the NFIP designated 100-year floodplain may be vulnerable to flood related hazards. Channel adjustments with devastating consequences have frequently been documented wherein such adjustments are linked to historical channel management activities, floodplain encroachments, adjacent land use practices and/or changes in watershed hydrology associated with conversion of land cover and drainage activities, within and beyond the NFIP floodplain. There are no future residential or commercial developments planned within floodplain areas. Flood bylaws enacted in 2010 also limit development in flood prone areas. Vermont has experienced most of its flooding in areas along upland streams and in road drainage systems that do not adequately convey the amount of water they are receiving. Flooding in these areas should be expected and planned for. The National Weather Service has seen a trend in recent years of more intense, locally severe storms with high intensity rain and flooding associated with them. Worcester has experienced the damage caused by these severe storms.

The Hazard Analysis Map (attached) identifies the Worcester Methodist Church, Doty Memorial School, Fire House, and other government buildings to be outside the designated flood plain, but near the river.

Hazard	Location	Vulnerability	Impact	Likelihood
Fluvial Erosion	West Hill Road	Municipal infrastructure – bridge and road wash out	$1.5 million from 2023 & 2024 events; continuous funding from general maintenance activities	High

Hazard	Location	Vulnerability	Impact	Likelihood
Flooding	Route 12, Downs Road, Minister Brook Road, Brown Rd. 327 acres in flood plain, 391 acres in FEH zone	Municipal infrastructure – bridges, culverts transportation routes along North Branch, Minister Brook, and Worcester Brook.	$18, 324,900- possible floodplain damages; $88,000 from 2007 event; continuous funding from general maintenance activities	Medium

Hazard	Location	Vulnerability	Impact	Likelihood
Flash Flood	Along North Branch, Upper Minister Brook, Worcester Brook, Downs Road 327 acres in flood plain, 391 acres in FEH zone	Municipal infrastructure, private property transportation routes, undersized culverts and bridges	$88,000 - 2007 event; continuous funding from general maintenance activities	Medium

SNOW & ICE STORMS*

*Snow was identified by the Town of Worcester as a moderate threat, but it is included here due to its integrated nature with ice during winter storms.

Snowstorms: a heavy accumulation of snow, which can be accompanied by high wind causing drifting snow, low visibility and hazardous travel.

Blizzard: a storm which contains large amounts of snow and/or blowing snow, with winds in excess of 35mph and visibilities of less than 1/4 mile for an extended period of time

Ice Storm: A storm of freezing rain that leaves a coating of ice.

A winter storm is defined as a storm that generates enough snow, ice or sleet to result in hazardous conditions and/or property damage. Ice storms are sometimes incorrectly referred to as sleet storms. Sleet is similar to hail only smaller and can be easily identified as frozen rain drops (ice pellets) that bounce when hitting the ground or other objects. Sleet does not stick to wires or trees, but in sufficient depth, can cause hazardous driving conditions. Ice storms are the result of cold rain that freezes on contact with the surfaces coating the ground, trees, buildings, overhead wires and other exposed objects with ice, sometimes causing extensive damage. Periods of extreme cold tend to occur with these events.

One of the major problems associated with ice storms is the loss of electrical power. Major electric utility companies have active, ongoing programs to improve system reliability and protect facilities from damage by ice, severe winds and other hazards. Typically, these programs focus on trimming trees to prevent encroachment of overhead lines, strengthening vulnerable system components, protecting equipment from lightning strikes and placing new distribution lines underground. Other major problems include closed roads and restricted transportation.

Severe storms with snow and ice typically occur between 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.

There is the 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 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, respectively. 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 public 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 damage 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 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

History of Occurrences (State and County Wide)

Date	Event	Location	Extent
3/14/2023	Winter Storm	Statewide	11 inches of snow. Wind gusts up to 45 mph.
11/26/2021	Snow Storm	Statewide	4 to 8 inches of snow.
2/7/2020	Snow Storm	Statewide	Snow with rates of 1-2+ inches per hour.
3/22/19	Winter Storm	Statewide	Wet snow conditions and winds of 15 to 25 mph
1/19/2019	Winter Storm	Statewide	8 to 16+ inches of snow. Winds of 10 to 20 mph with gusts over 30 mph. Highs of -5 to 15 degrees and lows of 10 to 20 below zero. Wind chills of 20 to 40 below zero.
1/12/2018	Winter Storm	Statewide	Rain, freezing rain, sleet, and snow.
12/22/2017	Winter Storm	Washington County	A widespread 5 to 10 inches of snow fell across central VT.
12/12/2017	Winter Storm	Washington County	A widespread 6 to 12 inches

3/14/2017-3/15/2017	Winter Storm	Statewide	Major Nor'easter with heavy intense snowfall. Snowfall totals across Washington county generally ranged from 14-24 inches with isolated higher totals. Blizzard conditions during heaviest snow fall. Snow rates at times 4/5 inches/hour.
2/3/2015	Extreme Cold	Statewide	15 to 20+ below zero with wind chills of 30 below zero or colder. DR 4207.
1/7/2015-1/8/2015	Extreme Cold	Statewide	15-25 below with winds 15-30 mph, created wind chills colder than 20-30 below.
12/9/2014-12/13/2014	Winter storm	County wide	6-24" of snow, widespread power outages DR4207.
11/26/2014-11/27/2014	Winter Storm	County wide	8-14'' of snow, with 9 inches in Worcester
3/12/2014	Winter storm	County wide	12-24" of snow
2/13/2014	Winter Storm	County wide	10-24 inches of snow, with 1-2inches an hour.
3/19/2013	Winter storm	County wide	6-14" of snow
12/26/2012	Winter storm	County wide	9-18" of snow
2/24/2012	Winter storm	County wide	3-36" of snow
11/23/2011	Winter storm	County wide	5-12" of wet snow
3/6/2011	Winter storm	County wide	12-18" of snow, 10,000
2/23/2010	Winter Storm	County wide	20" of snow and 50,000 customers lost power statewide
2/22/2009	Winter Storm	County Wide	16" of snow, 30 mph wind gusts

2/1/2008	Winter storm	County wide	3-7” of snow and ice ¼-1/2” thick, 50 mph wind gusts
2/14/2007	Winter storm	County wide	22” of snow
2/14/2006	Winter storm	County Wide	30” of snow
1/4/2003	Winter storm	County wide	19” of snow
3/5/2001	Winter storm	County wide	15-30” of snow
12/31/2000	Winter storm	County wide	10” of snow
1/15/1998	Winter storm	County wide	10-12” snow (not a DR in Washington County)
12/29/1997	Winter storm	County wide	21” of snow
12/7/1996	Winter Storm	County wide	12” of snow
3/21/1994	Winter storm	County Wide	5-11” of snow
11/1/1993	Winter storm	County wide	15” of snow
1/3/1993	Freezing Rain	Statewide	1/4-1/2” freezing rain

Climate change is anticipated to increase the frequency and intensity of winter storm events causing greater impacts to Worcester’s assets and community. The town’s aging population combined with its rural nature could increase its vulnerability to winter storm events. Older residents, especially those dependent on medical assistant devices, will require more assistance during power outages and face a greater risk if isolated from emergency services due to a storm.

By observing winter storm watches and warnings, adequate preparations can usually be made to lessen the impact of snow, ice and sleet, and below freezing temperature conditions on the Town of Worcester. Providing for the mass care and sheltering of residents left without heat or electricity for an extended time and mobilizing sufficient resources to clear broken tree limbs from roads, are the primary challenges facing community officials. Worcester should plan and prepare for these emergencies. That planning and preparedness effort should include the identification of mass care facilities and necessary resources such as cots, blankets, food supplies and generators, as well as debris removal equipment and services. Doty Memorial School is the town shelter. The Barre Auditorium in Barre, Vermont serves as the Regional American Red Cross Shelter for Central Vermont when activated by the State of Vermont in a declared disaster and has the ability to shelter pets.

Winter Storm Severity Index (WSSI):

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.

Hazard	Location	Vulnerability	Extent	Impact	Likelihood
Winter Storm/Ice Storm	Town Wide	Utilities, trees, roads, old/under insulated structures	18+" snow in March 2011 storm, depends on severity; 1/4-1/2" freezing rain	5-10% damages –routine emergencies	Medium

*EXTREME COLD & HEAT**

*Heat was identified by the Town of Worcester as a moderate threat, but it is included here due to the similarities in risk and mitigation strategies during extreme cold and heat events.

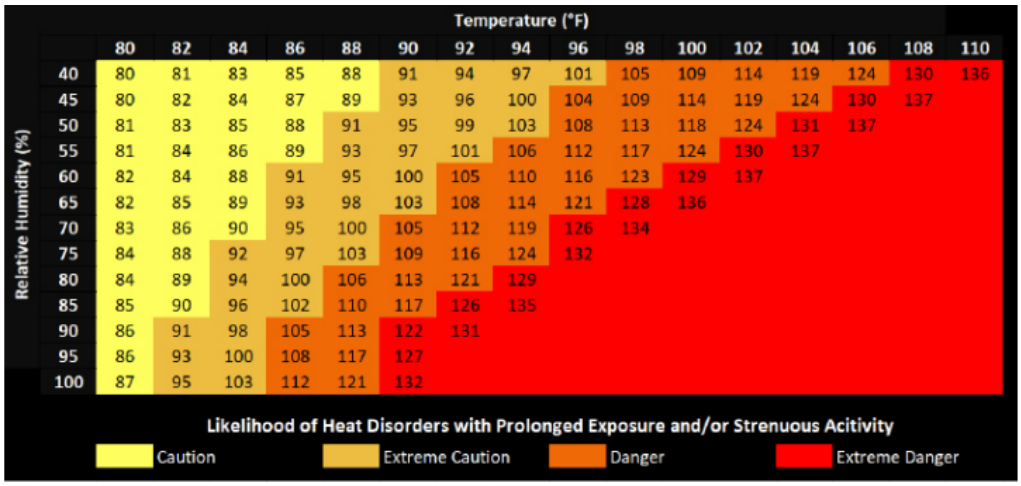
Extreme Cold: Very cold temperatures that may lead to serious health problems.

Extreme Heat: When the heat index exceeds the historic 95th percentile threshold (85-90 degrees Fahrenheit)

Extreme heat and cold 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 (see table below). 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.

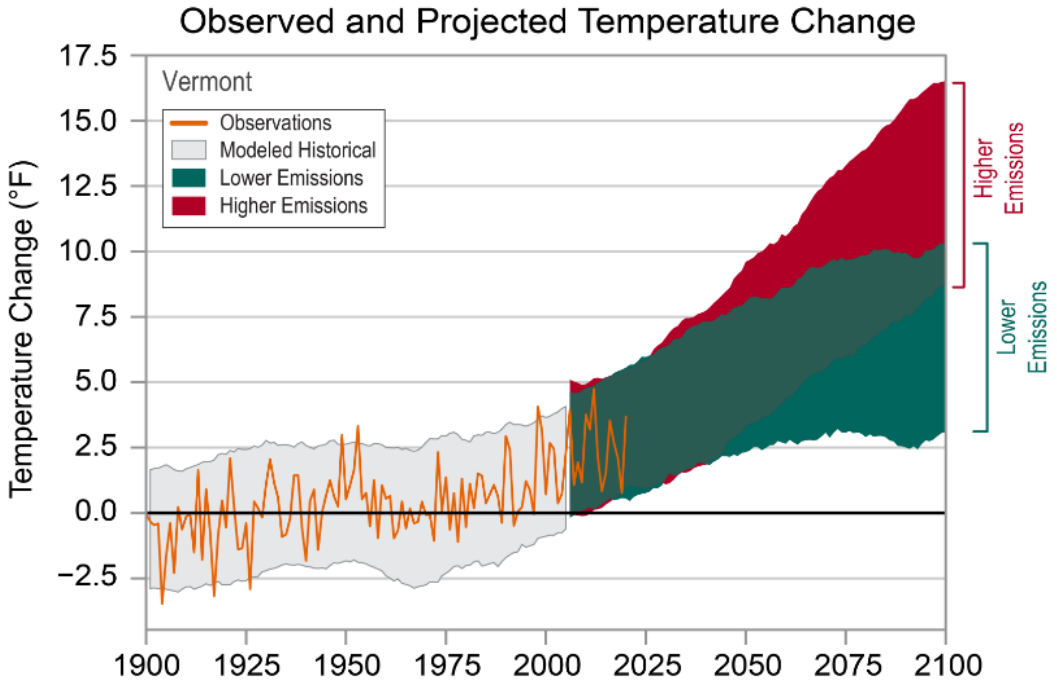


http://www.nws.noaa.gov/om/heat/heat_index.shtml

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.

Extreme heat also impacts infrastructure due to an increase of use of cooling systems in homes and buildings during a heat event. Most cooling systems rely on electricity. The loss of power during a heat event due to a related storm or electrical grids overloading could compromise health and safety for the people of Worcester. This is a particular concern for congregate care facilities, shelters, or private residences that house people at especially high risk for experiencing a heat illness. Additional threats to infrastructure caused by extreme heat include thermal expansion of the concrete and steel and swelling of connections of bridges which can result in collapse.

Due to the instability of the jet stream from climate changes, 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.



NOAA 2022 Vermont Climate summary

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 same sites plus has the capacity to open the Elementary School as an additional shelter if in association with a power outage.

History of Occurrences (County Wide*)

Date	Event	Location	Extent
8/1/2006	Extreme Heat	Washington County	91°F (Heat Index 105)
1/25/2007	Extreme Cold	Washington County	0°F to -25°F
3/6-3/9/2007	Extreme Cold	Washington County	-5°F to -20°F
1/14/2009	Extreme Cold	Washington County	-10°F to -30°F
7/21/2011	Extreme Heat	Washington County	95°F (Heat Index 108)
1/8/2015	Extreme Cold	Washington County	-15°F to -35°F (Wind Chill -40)
6/30-7/5/2018	Extreme Heat	Washington County	>90°F (Heat Index 110)
1/11-1/15/2022	Extreme Cold	Washington County	-15°F to -35°F (Wind Chill -40)

*County Wide Extreme Cold and Heat Events were experienced townwide in Worcester.

Climate change is anticipated to increase the frequency and intensity of extreme cold and heat events causing greater impacts to Worcester's assets and community. The town's aging population combined with its rural nature could increase its vulnerability to extreme cold and heat events. Older residents are at a greater risk of heat related illnesses and face greater health risks if there were to be a power outage during an extreme heat or cold event.

WILDFIRE

A wildfire is the uncontrolled burning of woodlands, brush, or grasslands. According to FEMA, there are four categories of wildfires that can occur throughout the United States:

1. **Wildfires:** Fueled by natural vegetation; typically occur in national forests and parks, where federal agencies are responsible for fire management and suppression.
2. **Interface or Intermix Fires:** Urban wildfires in which vegetation and the built environment provide fuel.
3. **Firestorms:** Events of such an extreme intensity that effective suppression is virtually impossible; occur during extreme weather and generally burn until conditions change or the available fuel is exhausted.
4. **Prescribed Fires and Prescribed Natural Fires:** Fires that are intentionally set or selected natural fires that are allowed to burn for beneficial purposes.

Wildfires are not often a concern within Worcester, 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. Wildfires are predominantly caused by human activity and mainly from uncontained or unsupervised debris fires. Public outreach when dry hazardous conditions exist is very important to help prevent mistakes in relation to human-ignited fires. 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 due to climate change this should be planned for due to spring and fall risk with flash droughts.

C.C. Putnam State Forest is approximately 13,000 acres and covers roughly 1/3rd of the western portion of Worcester and is shown as conserved land on the attached Hazard Analysis Map. This forest is located in the Worcester Range and spans across 5 adjoining towns. The protection of C.C. Putnam State Forest is essential in protecting the water quality of the region as it is located in the headwaters of the Winooski watershed.According to the Vermont Forest Parks and Recreation, burning debris is the most common cause of wildfires in Vermont. In Vermont, wildfires are most prevalent in the spring and late summer and early fall when conditions are most favorable. Drought conditions also increase the threat of wildfires. The State of Vermont does have a Forest Action Plan in place which addresses forest fire concerns. The 2017 Vermont Forest Action Plan includes several resources regarding forest fire prevention. The Plan encourages communities to consider Community Wildlife Protection Plan as a tool to build trust and cooperation between all partners involved in wildfire pre-suppression efforts, identify vulnerable areas, improve response time by fire departments, and ensure access to water including dry hydrants.

The Forest Division also runs the Town Forest Fire Warden program. This program requires towns to have appointed fire wardens. In Worcester, the Fire Warden is Will Sutton. The forest fire program focuses on prevention, fire awareness and fire fighter safety. Access to the State lands from the town is VERY limited. In 2024 an estimated 22 private camps were identified in the State Forest. Given the limited access to the forest itself and water resources in the forest, the ability to put out a large fire quickly and efficiently is limited. The greatest threat of a forest fire comes from human error – such as smoking and improper campfire etiquette. However, lightning is also a threat as the forest is very dense and is said to contain dense undergrowth. Although Worcester has no large- or small-scale developments planned in the future, encroachment on forest lands presents greater threats of forest fire. A buffer between future

residential development and forest land should be maintained to reduce the threat of forest fire and also protect important watershed areas.

Vulnerable populations to wildfire include firefighters, isolated residents, and immunocompromised individuals. Firefighters directly involved with the process of extinguishing wildfires, are at higher risk for severe burns, cardiovascular and respiratory issues, and injury from fallen timber. Wildfires that are not extinguished can trap isolated residents in their homes if evacuation routes are blocked. Emergency vehicles may not be able to reach isolated populations due to damage blocking the transportation routes. Those with preexisting cardiovascular and respiratory conditions may experience life-threatening symptoms due to smoke exposure. Unhoused individuals are at particularly high risk from wildfire smoke, and emergency shelter or N95 masks may be needed to help mitigate health impacts. In addition to affecting immunocompromised populations, wildfires will affect the health of the general public. The air quality of the surrounding area is diminished after a wildfire due to the emissions of toxic pollutants. In addition to wildfire events that occur within the state, air quality in Vermont could be compromised as smoke travels into Vermont from other locations in the United States and Canada, especially as these events increase in frequency and severity.

Date	Event	Location	Extent
1903	Forest Fire	Worcester Mountain	600 Acres

Climate change is anticipated to increase the frequency and intensity of wildfires events causing greater impacts to Worcester's assets and community. Worcester's aging population could increase its vulnerability to wildfires and smoke from nearby fires. Older residents are less able to volunteer for the town's fire department and may face a greater risk of respiratory issues during periods of poor air quality resulting from wildfire smoke.

Hazard	Location	Vulnerability	Impact	Likelihood
Wildfire/Forest Fire	State Forest lands 13,000 acres of State Forest	Private camps	$2.2 million ($100,000/house x 22)	Medium

B. Moderate Threat Hazards

WIND

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 Worcester'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. 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 road right-of-way are the root cause of many power outages. Roads that pass through dense wooded areas are prone to downed trees, which often can 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 Worcester'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 complicate the problem of contacting emergency services. Telecommunications are also needed for warning systems before a disaster, during the response, and afterwards during recovery. 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: The Town Hall, Town Office, and Town Garage

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. One hundred percent (100%) 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. Seventy-one percent (78.3%) of community survey respondents reported having experienced damage during a past severe weather event.

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

Further exasperating the damage caused by high winds is Vermont's Emerald Ash Borer infestation, 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 damage.

Beaufort Wind Scale:

Force	Wind (mph)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	< 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-7	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	8-12	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	13-18	Moderate Breeze	Small waves 1-4ft becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	19-24	Fresh Breeze	Moderate waves 4-8ft taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	25-31	Strong Breeze	Larger waves 8-13ft, whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	32-38	Neal Gale	Sea heaps up, waves 13-19ft, white foam streaks off breakers	Whole trees moving, resistance felt walking against wind
8	39-46	Gale	Moderately high (18-25ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Twigs breaking off trees, generally impedes progress
9	47-54	Strong Gale	High waves (23-32ft), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	55-63	Storm	Very high waves (29-41ft) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, considerable structural damage
11	64-72	Violent Storm	Exceptionally high (37-52ft) waves, foam patches cover sea, visibility more reduced	Very rarely experienced on land, accompanied by widespread damage
12	73+	Hurricane	Air filled with foam, waves over 45ft, sea completely white with driving spray, visibility greatly reduced	Devastation

https://vem.vermont.gov/sites/demhs/files/documents/2023%20SHMP_Adopted%20Draft%20Jan2024.pdf

History of Occurrences (County Wide*)

Date	Event	Location	Extent: Beaufort Wind Scale
11/13/2003	Strong Winds (Near Gale)	Washington County	7
9/29/2005	Strong Winds (Near Gale)	Washington County	7
2/17/2006	Strong Winds (Near Gale)	Washington County	7
2/26/2010	Strong Winds (Storm)	Washington County	10
10/30/2017	Strong Winds (Gale)	Washington County	8
12/23/2022	Strong Winds (Storm)	Washington County	10

*County Wide strong winds were experienced townwide in Worcester. Power lines and structures were most at risk due to falling trees.

Climate change is anticipated to increase the frequency and intensity of strong wind events causing greater impacts to Worcester's assets and community. Worcester's aging population combined with its rural nature could increase its vulnerability to strong wind events. Older residents, especially those dependent on medical assistant devices, will require more assistance during power outages and face greater health risks if isolated from emergency services due to a high wind event.

DROUGHT

The Northeast frequently experiences 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.

Most residents of the Town are on private wells and bear the costs and risks of mitigation themselves. There is an opportunity for municipal staff to produce and disseminate water conservation strategies before and during periods of drought.

Drought Severity Classification:

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

http://droughtmonitor.unl.edu/AboutUSDM/DroughtClassification.aspx

History of Occurrences (County Wide*)

Date	Event	Location	Extent
2016	Drought	Washington County	D3 Extreme Drought
2018	Drought	Washington County	D3 Extreme Drought
2020	Drought	Washington County	D3 Extreme Drought

*County Wide extreme droughts were experienced townwide in Worcester. Townwide crop and pasture losses data is unavailable.

Climate change is anticipated to increase the frequency and intensity of drought events causing greater impacts to Worcester's assets and community. Worcester's aging population combined with its rural nature could increase its vulnerability to drought events. Older residents with private wells may require more assistance during a severe drought event and this could stress municipal emergency services.

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 Worcester, 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.

Location: The Town of Worcester has 17 landslide locations within the town as listed on the Vermont Agency of Natural Resources Landslide map that was last updated in 2020:

- Minister Brook (8 locations)
- Hancock Brook (2 locations)
- VT Route 12 (3 locations)
- Worcester Brook (2 locations)
- Shepard Hill Road (1)
- East of Moss Glen Brook (1 Location)

History of Occurrences (County Wide*)

Date	Event	Location	Extent
8/20/2024	Landslides / Severe Storm	Washington County	Landslides on steep and unstable slopes due to fluvial erosion– DR 4810
7/14/2023	Landslides / Severe Storm	Washington County	Landslides on steep and unstable slopes due to fluvial erosion – DR 4720

*Local data for the history of landslides in Worcester is not available.

Climate change is anticipated to increase the frequency and intensity of landslide causing greater impacts to Worcester's assets and community. The town's aging population combined with its rural nature could increase its vulnerability to landslide events. Older residents may require more assistance and face a greater risk if isolated from emergency services due infrastructure damages related to a landslide.

HAIL

According to the 2023 State Hazard Mitigation Plan, Hail is a form of precipitation composed of spherical lumps of ice. Known as hailstones, these ice balls typically range from 5-50 mm in diameter on average, with much larger hailstones

forming in severe thunderstorms. The size of hailstones is a direct function of the severity and size of the thunderstorm by which it is produced. No matter the size, hail can damage property, young and tender plants, and cause bodily harm to those outside.

TORRO Hailstorm Intensity Scale:

	Intensity Category	Typical Hail Diameter (mm)	Probable Kinetic Energy (J/m2)	Typical Damage Impacts
H0	Hard Hail	5	0-20	No damage
H1	Potentially Damaging	5-15	>20	Slight general damage to plants, crops
H2	Significant	10-20	>100	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	>300	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Destructive	25-40	>500	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	>800	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60		Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	50-75		Severe roof damage, risk of serious injuries
H8	Destructive	60-90		Severe damage to aircraft bodywork
H9	Super Hailstorm	75-100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorm	>100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

https://www.torro.org.uk/hscale.php

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. 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.

Date	Event	Location	Extent: TORRO Hailstorm Intensity
5/27/2011	Hail	Worcester Townwide	H2: Penny size hail - 20mm reported

Climate change is anticipated to increase the frequency and intensity of hail events. There are no anticipated changes to asset impacts from an increase of hail because of changes in population or demographics.

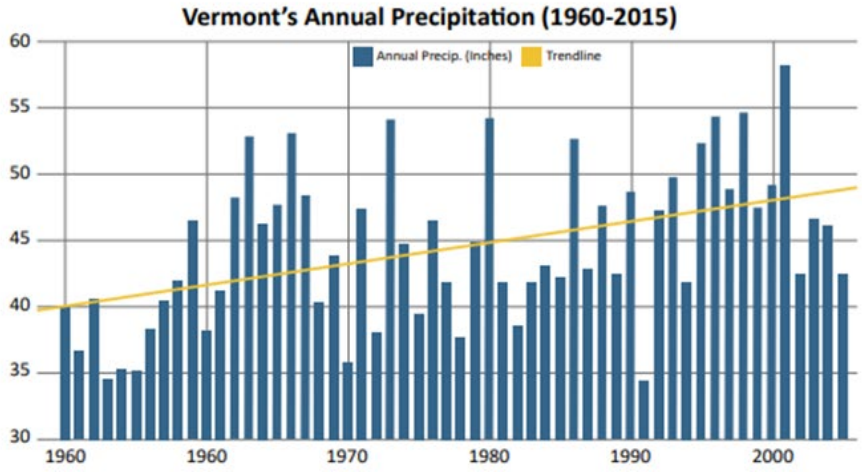


Figure 26: Vermont's annual precipitation (1960-2015)
Source: climatechange.vermont.gov

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.

INFECTIOUS DISEASE OUTBREAK

The Vermont Department of Health defines an infectious disease as one caused by micro-organisms, such as bacteria, viruses or parasites. A vector-borne disease is an infectious disease transmitted to humans by blood-feeding arthropods, including ticks, mosquitoes and fleas, or in some cases by mammals (e.g. rabies). 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 (e.g. H1N1), pertussis, West Nile virus, 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 (See table below). 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 tracking infectious disease at the Town level. The easiest method would be to track hospitalizations by day that 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.

The Vermont Department of Health is the primary source of information on significant infectious disease outbreaks, such as epidemics and pandemics. The Town will follow the appropriate protocols developed by these agencies as necessary. The impact to elderly residents should not be overlooked when planning for an infectious disease outbreak. Additionally, the subsequent impact on the local food shelf during an outbreak is

important to consider. From an economic standpoint an outbreak of disease can lead to a decrease in people's ability to pay their taxes due to lost work time. The Town plans to create a list of vulnerable communities to prioritize resources in the event of an infectious disease outbreak.

Threat Categories of Vector-Borne and 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

Date	Event	Location	Extent
2020	COVID - 19	Statewide	DR 3437 - 3/13/2020 DR 4532 - 4/8/2020 152,618 cases and 929 deaths

Worcester's aging population combined with its rural nature may increase its vulnerability to infectious disease outbreaks. Older residents may be more susceptible to severe symptoms related to an outbreak and this could stress the town's emergency services.

SCHOOL SAFETY

No changes have been made to this section since the 2019 plan update.

School Safety consists of a variety of programs and services that are designed to contribute to the maintenance and establishment of safe and positive learning environments.

Worcester's elementary school children attend Doty Memorial School, located on Calais Road near the center of the Village. Constructed in 1978, the school serves approximately 73 children from Kindergarten through 6th grade, as reported in the Washington Central Unified Union School District 2023-2024 Annual Report.

The boiler for the school's furnace is located on the second floor. The Town mitigation meeting highlighted the location of the school's boiler as a potential hazard, given that a leak could cause a dangerous situation. The boiler has not had any history of defects.

The school suffered a bomb threat in 1999. The threat was deemed to be a prank, but the threat to the community is genuine as the school contains the Town's highest population density.

The Doty Memorial School Emergency Evacuation Plan addresses the following threats: bomb, fire, weather related closings, and general disaster emergencies. Doty Memorial School follows the Vermont School Crisis safety guidelines.

Hazard	Location	Vulnerability	Impact	Likelihood
School Safety	Doty Memorial School Boiler room and adjacent rooms	Municipal infrastructure, transportation routes.	$500,000	Medium

For school safety there are no anticipated changes to community or asset impacts because of changes in climate or population.

VII. Mitigation

A. Goals and Policies

The goal of this Plan is to update the local mitigation strategy that makes Worcester more disaster resistant and reduces its risk from all hazards. Further, it is the goal of this Plan to take actions to reduce or eliminate the long-term risk to human life and property from the worst threat hazards, as identified by the Town:

1. Inundation Flooding / Fluvial Erosion
2. Snow and Ice Storms.
3. Extreme Cold and Heat
4. Wildfire

B. Town Plan Goals/Strategies Supporting Hazard Mitigation

- **Part 3-C. Strategy 4:** *Trees and other vegetation along streams, rivers, and lake shores serve to 1) protect property from flood flow and ice jams, 2) prevent bank erosion..., For these*

reasons, undisturbed areas of vegetation shall be retained and encouraged along the banks of surface waters.

- **Part 1-C. Goal 11:** *Promote development of flood resiliency in our Town through, and in accordance with, a Flood Resilience Plan.*
- **Part 5-B Goal 5.** *Maintain the quality and safety of the Town road network through cost-effective methods that are appropriate to the Town's topography.*

The 2023 Worcester Town Plan has a five-year life span since its adoption and will be updated again in 2028. The goals and objectives of the Worcester Hazard Mitigation Plan will be incorporated into the Town Plan as it is revised and updated.

Specific hazard mitigation strategies related to goals of the Town Plan include:

- Develop a floodplain restoration plan that address septic failure and chemical runoff on downstream communities
- Partner with Dept. of Forest Parks & Recreation to mitigate runoff from proposed logging in the Worcester Range
- Update Road Erosion and Culvert Inventories
- Protect Power Lines and Roads by Inspecting and Removing Hazardous Trees in Road ROW

C. Proposed Mitigation Actions and Prioritization

The Hazard Mitigation Activities Matrix (Appendix A) lists mitigation activities in regard to local leadership, possible resources, implementation tools, and prioritization. Prioritization was based upon the economic impact of the action, the Community's need to address the issue, the action's cost, and the availability of potential funding. The Hazard Planning Team prioritized actions using the following criteria (Appendix B):

- **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?

The Team considered how these various factors balanced each other, in a spectrum from highly important projects to projects of that should be pursued after the others. Highest priority projects had a very high risk to the community and a mitigation solution that was likely to mitigate most of the problem. The costs of the high priority projects were attainable by the municipality, or funding assistance was readily available. Highest priority projects also had strong community support and staff capacity was available to carry them out. Medium priority projects had a moderate risk to the community and a mitigation solution that was likely to mitigate some of the problem and the action is less critical. The municipality had a limited ability to cover the cost of a medium priority project and usually funding required a significant match. Medium priority projects had some community support and limited staff capacity to carry them out. Lowest priority projects were of

lower risk to the community, had solutions that did not mitigate very much of the problem, or were extremely expensive or had no financial assistance available. Projects for which there was little community support or available staff capacity would also be considered low priority.

Prioritized Mitigation Actions:

Inundation Flooding & Fluvial Erosion Flooding

- Replace / upgrade the following culverts
  - Downs Road Boiler Plate Culvert (Local ID 28.2)
  - Hampshire Hill Culvert at Hancock Brook/Mountain Road Intersection (Local ID 8.26)
  - Norton Road Culvert (Local ID 30.11)
  - Norton Road Box Culvert (Local ID 30.9)
- Update Road Erosion and Culvert Inventories
- Repair/replace Minister Brook bridge
- Address erosion on West Hill Road and runoff onto Rt. 12
- Partner with Dept. of Forest Parks & Recreation to mitigate runoff from proposed logging in the Worcester Range
- Develop a floodplain restoration plan that address septic failure and chemical runoff on downstream communities

Ice/Snow

- Acquire 2-3 portable generators for medical assistance individuals during power outages.

Heat/Cold

- Establish warming / cooling shelters
- Hot and Cold Weather planning, education, and training. Space and equipment for training emergency volunteers is needed.

Wildfire

- Side by side ATV for back country rescues, training space, and equipment are all needed.
- Implement Burn Bans and public outreach for fire danger.
- Install dry hydrants on every road. Gather GIS data points on all dry hydrants for incorporation into Town data set and map production.
- Acquire washer / dryer machines to maintain gear.

Wind

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

Drought

- Outreach on water conservation strategies during emergencies

Landslides

Utilize GIS to identify and map hazard areas Hail

- Consider implementing building codes to fortify new construction from the impacts of hail storms

Infectious Disease Outbreak

- Create a list of vulnerable communities to prioritize resources during an emergency
- Utilize resilience hub as a possible vaccination location

All Hazards

- Expand the Worcester Neighborhood Network to strengthen social infrastructure and increase access to information and resources in an emergency. Examples of hazards where communication is critical include but are not limited to; high wind events leading to backouts, severe droughts causing water shortages, and or extreme temperatures where people living in homes with insufficient heating or cooling may be at risk.
- Establish a resilience hub to be the designated location for services during and after an emergency. Examples of hazards where a designated location for services is critical include but are not limited to; inundation flooding, fluvial erosion, extreme cold & heat, and or infectious disease outbreak.

Vermont Emergency Management emphasizes a collaborative approach to achieving mitigation on the local level. As such, the town will continue to partner with state agencies (Vermont Emergency Management, Vermont Agency of Natural Resources, Vermont Agency of Transportations, Agency of Commerce and Community Development), Central Vermont Regional Planning Commission, our Local Emergency Planning Committee (#5), FEMA Region 1 and other agencies to obtain needed assistance and resources to pursue identified mitigation projects and planning initiatives. It is understood that, in order to apply for FEMA funding for mitigation projects, the Town must have a FEMA-approved hazard mitigation plan, and a project must meet FEMA benefit cost criteria.

VIII. Appendix

A. Hazard Mitigation Strategy Matrix
B. Town Directory
C. 5-year Plan Maintenance and Review Process
D. Mitigation Action Tracker
E. Certificate of Adoption

A. Hazard Mitigation Strategy Matrix

Hazard	Mitigation Action/ Preparedness Actions	Local Leadership **Bold = Primary lead**	Prioritization (High, Med)	Possible Resources	Time Frame*
Fluvial Erosion / Inundation Flooding	Downs Road Boiler Plate Culvert (Local ID 28.2)	**Road Commissioner**	High	Hazard Mitigation Funding	2025
Fluvial Erosion / Inundation Flooding	Hampshire Hill Culvert at the Hancock Brook/Mountain Road Intersection (Local ID 8.26). 13x9 corrugated squash pipe with concrete cradle walls.	**Road Commissioner**	High	Hazard Mitigation Funding	2025
Fluvial Erosion / Inundation Flooding	Norton Road Culvert (Local ID 30.11). 6' CMP with concrete block headwalls.	**Road Commissioner**	High	Hazard Mitigation Funding	2025
Fluvial Erosion / Inundation Flooding	Norton Road Box Culvert (Local ID 30.9). 7' Conc. Box Culvert	**Road Commissioner**	High	Hazard Mitigation Funding	2025
Fluvial Erosion / Inundation Flooding	Gould Hill Box Culvert	**Road Commissioner**	High	Hazard Mitigation Funding	2025
Fluvial Erosion / Inundation Flooding	Address erosion on West Hill Road and runoff onto Rt. 12 – concrete wall & guardrails along ditch, vegetation mgmt., bank stabilization	**Road Commissioner**	High	Hazard Mitigation Funding	2026
Fluvial Erosion / Inundation Flooding	Update Road Erosion and Culvert Inventories	**Road Commissioner,** CVRPC	Medium	CVRPC – Transportation Planning Budget	2026
Fluvial Erosion / Inundation Flooding	Partner with Dept. of Forest Parks & Recreation and private landowners to mitigate runoff from active and proposed logging in the greater Worcester area	**Planning Commission**	High	Use Value Appraisal, Current Use Program, CVRPC - Clean Water Service Provider Funding	2028

Ice / Snow	Acquire 2-3 portable generators for medical assistance individuals during power outages.	**Assets and Facilities Supervisor,** Fire Dept. /	High	Hazard Mitigation Funding	2027
Heat / Cold	Establish warming / cooling shelter	**Assets and Facilities Supervisor**, School	Medium	Doty Elementary, Town Hall, Municipal Energy Resilience Program Funding	2028
Heat / Cold	PA - Hot and Cold Weather planning, education, and training. Space and equipment for training emergency volunteers is needed.	**Fire Chief**, FAST Squad	High	Possible space behind fire station (former highway area), Town Budget – Equipment & ARPA Fund	2026
Wildfire	MA - Side by side ATV for back country rescues, training space, and equipment are all needed.	**Fire Chief**	High	Assistance to Fire Fighters FEMA grant	2028
Wildfire	PA - Promote Burn Ban permit requirements by alerting public to fire danger with signage at Town Hall	**Fire Warden**	Medium	Town Budget – Equipment Fund	2027
Wildfire	PA - Maintain 7 dry hydrants, investigate potential for additional hydrant installations	**Fire Dept.,** Road Crew, Town Treasurer	High	Rural Resources Water Supply Grant program of the Vermont Association of Conservation Districts, Capital Fund	2028
Wildfire	PA – Acquire washer / dryer machines to maintain gear and meet OSHA requirements	**Fire Chief**	Medium	Assistance to Fire Fighters FEMA grant	
Wind	MA - Protect Power Lines and Roads by Inspecting and Removing Hazardous Trees in Road ROW	**Road Crew**	High	Town Budget – Capital Fund	2028
Drought	PA - Outreach on water conservation strategies during emergencies	**Neighborhood Network**, Fire Dept.	Medium	Front Porch Forum, Town Budget – Service Committee Fund	2028
Landslides	PA – Utilize GIS map to identify and map hazard areas	**Road Crew**, CVRPC	Medium	CVRPC – TransportationPlanning Budget	2026

Infectious Disease Outbreak	MA - Utilize future Community Resilience Hub as a possible vaccination location	**Health Officer**, Neighborhood Network	Medium	Town Hall, Dept. Of Health, Red Cross, Town Budget – Health Equity Fund	2028
Infectious Disease Outbreak	PA - Create a list of vulnerable communities to help prioritize resources during an emergency	**Neighborhood Network**,Food shelf, FAST Squad	Medium	CVRPC – Municipal Planning Budget	2026
All Hazards	PA – Expand the Worcester Neighborhood Network to strengthen social infrastructure and increase access to information and resources in an emergency. Examples of hazards where communication is critical including but are not limited to; high wind events leading to backouts, severe droughts causing water shortages, and or extreme temperatures where people living in homes with insufficient heating or cooling may be at risk.	**Planning Commission**, Neighborhood Network	Medium	Volunteers, Town Budget – Service Committee Fund	2027
All Hazards	PA – Establish a Community Resilience Hub to be the designated location for services during and after an emergency. Examples of hazards where a designated location for services is critical include but are not limited to; inundation flooding, fluvial erosion, extreme cold & heat, and or infectious disease outbreak.	**Planning Commission**, Neighborhood Network, Health Officers	Medium	Town Hall, Red Cross, Municipal Energy Resilience Program Funding	2028

*Time frame: Actions are to begin as soon as plan adoption and be completed no later than the year listed.

The following mitigation actions were identified as valuable strategies that were ultimately assigned a low priority due to staff capacity and the need to complete higher priority projects.

Hazard	Mitigation Action/ Preparedness Actions	Local Leadership Bold = Primary lead	Prioritization
Fluvial Erosion / Inundation Flooding	Repair/replace Minister Brook bridge – footings are looking ok and not a priority (checked by engineer)	**Road Commissioner**	Low
Fluvial Erosion / Inundation Flooding	Develop a floodplain restoration plan that address septic failure and chemical runoff to downstream communities	**Planning Commission**	Low
Hail	MA - Consider implementing building codes to fortify new construction from the impacts of hailstorms	**Selectboard**	Low
Invasive Species	PA - Educate the public on risk of invasive species and how to slow the spread	**Planning Commission**, Green Up Chair	Low

Due to a lack of resources and capacity at the town, specific mitigation actions were not identified for the earthquakes. Greater explanations and mitigation strategies of thisthreat hazard can be found in the State of Vermont's Hazard Mitigation Plan.

B. Mitigation Acton Evaluation and Prioritization

The following table demonstrates the cost benefit analysis used by the Hazard Planning Team to evaluate and prioritize local hazards.

Mitigation Action	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
Inundation Flooding / Fluvial Erosion									
Downs Road Boiler Plate Culvert (Local ID 28.2)	1	1	1	1	1	1	6	1	Yes
Hampshire Hill Culvert at the Hancock Brook/Mountain Road Intersection (Local ID 8.26).	1	1	1	1	1	1	6	1	Yes
Norton Road Culvert (Local ID 30.11).	1	1	1	1	1	1	6	1	Yes

Norton Road Box Culvert (Local ID 30.9).	1	1	1	1	1	1	6	1	Yes
Repair Minister Brook Bridge	0	1	1	0	0	1	3	3	No
Gould Hill Box Culvert	1	1	1	1	1	1	6	1	Yes
Address erosion on West Hill Road and runoff onto Rt. 12	1	1	1	1	1	1	6	3	Yes
Update Road Erosion and Culvert Inventories	0	1	1	1	1	1	5	1	Yes
Partner with Dept. of Forest Parks & Recreation to mitigate runoff from proposed logging in the Worcester Range	0	1	1	1	1	1	5	1	Yes
Develop a floodplain restoration plan that address septic failure and chemical runoff on downstream communities	0	1	1	0	0	1	3	1	No
Ice / Snow									
Acquire 2-3 portable generators for medical assistance individuals during power outages.	1	1	1	1	1	1	6	1	Yes
Cold / Heat									
Establish warming / cooling shelters	1	0	1	1	0	1	4	1	Yes
Hot and Cold Weather planning, education, and training. Space and equipment for training emergency volunteers is needed.	1	0	1	1	1	1	5	1	Yes
Wind									
Protect Power Lines and Roads by Inspecting and Removing Hazardous Trees in Road ROW	1	1	1	1	1	1	6	1	Yes
Drought									
Outreach on water conservation strategies during emergencies	0	0	1	1	1	1	4	1	Yes
Landslides									
Utilize GIS to identify and map hazard areas	0	1	1	1	0	1	4	1	Yes
Hail									
Consider implementing building codes to fortify new	0	1	0	0	0	0	1	1	No

construction from the impacts of hail storms									
Infectious Disease Outbreak									
Utilize Community Resilience Hub as a possible vaccination location	1	0	1	1	0	1	4	1	Yes
Create a list of vulnerable communities to prioritize resources during an emergency	1	1	1	1	1	1	6	1	Yes
Invasive Species									
Educate the public on risk of invasive species and how to slow the spread	0	0	1	1	0	1	3	1	No
Wildfire									
Promote Burn Ban permit requirements by alerting public to fire danger with signage at Town Hall	1	1	1	1	1	1	6	1	Yes
Maintain 7 dry hydrants, investigate potential for additional hydrant installations	1	1	1	1	1	1	6	1	Yes
Side by side ATV for back country rescues, training space, and equipment are all needed.	1	0	1	1	1	1	5	1	Yes
All Hazards									
Expand the Worcester Neighborhood Network to strengthen social infrastructure and increase access to information and resources in an emergency.	1	1	1	1	1	1	6	1	Yes
Establish a Community Resilience Hub to be the designated location for services during and after an emergency.	0	1	1	1	0	1	4	2	Yes

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?

Each of the above criteria in were ranked with a -1, 0, or 1 using the following definitions:

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

C. Town of Worcester Directory

LOCATION:
The Worcester Town Complex is located at 20 Worcester Village Road, Worcester, Vermont 05682.
The Town mailing address is P.O. Box 161, Worcester, VT 05682
The Highway Department is located at 11 Maxham Drive.

TOWN OFFICIALS:
Town Treasurer: Katie Miller, 802- 223-6942 Email: worcestertreasurervt@gmail.com
Town Clerk: Jennifer LeStat 802-223-6942 Email: worcestertownclerk@gmail.com
Assistant Clerk/Treasurer: Francette Cerulli
Town Grant Administrator: Brian Powers, 802-760-8039 Email: brianpowersworc@gmail.com
Assets and Facilities Supervisor: Roger Strobridge, 802-223-0852 Email: worcesterfacilitiesvt@gmail.com
Road Commissioner, Mike Utton, Town Garage 802-223-6903 Email: mikeutton23@gmail.com, (Cell only in Emergencies 802- 595-1285)
Road Crew Foreman, Ernie Laplant (Doc), 802-249-2231

LISTERS:
Christopher Lyon,802- 225-6699 Email: Worcesterlisters@comcast.net
Peter Strobridge, 802-229-5822
Alan Erdossy, 802-223-5125

JUSTICES OF THE PEACE:
Paul Hanlon (Chair), 802-223-3591
Marcia "Mimi" Hill, 802-223-3591
Michele Hill, 802- 223-3312
Roger Hill, 802- 223-3312
Sara Baker, 802-224-6378

Delinquent Tax Collector: Katie Miller,802-223-6942 xtn 0
Health Officer: John Kaeding 802-229-0176
Constable: Shawn M. McManis, 802- 223-6867
Moderator (Town & School): Paul P. Hanlon, 802- 223-3591
Transfer Station / LRSWMD Supervisor: Main 802-888-7317, Carl Witke, 802- 229-0259
Wrightsville Beach: Carl Witke, 802- 229-0259
Central Vermont Regional Planning Commission: Christian Meyer 802-262-1039
Green-Up Chair: Coleen Kutin, 802- 229-0173

SELECTBOARD:
John Kaeding, Chair 802-229-0176 johnkaeding@gmail.com
Roger Strobridge 802-223-0852 rogerstrobridge2@gmail.com
Carter Stowell 802-223-3705 carter.stowell@gmail.com

Board of Abatement: Town Listers, Town Treasurer, Town Clerk, Selectboard and the Justices of the Peace

VOLUNTEER FIRE & RESCUE DEPARTMENT
Mail address: P.O. Box 321 Worcester, Vt 05682
NON-EMERGENCY CALLS – Capital West 802-223-3445

Chief: Will Sutton, 802- 223-6942 xtn 3" EMAIL: wsznbvt@comcast.net
FAST Squad Director: Peter Fitz 802-223-8616 EMAIL: gpeterfitz@gmail.com
Fire Warden: Will Sutton 802-557-1037 (cell)
Chair: Wayne Holland, 802-229-1582

PLANNING COMMISSION:
Chani Waterhouse- Chair, 802-223-3705 chaniwater@gmail.com
Toni Kaeding- Commissioner, 802-229-0176 tonikaeding@icloud.com
Bill Arrand – CV Planning Representative, 802-223-9014 arrand238@gmail.com
Will Baker-Commissioner & NFIP Coordinator, 802-793-3361

RECREATION COMMITTEE: *worcester-rec-committee@googlegroups.com*

CEMETERY COMMISSION:
Chair: Heather Pagel 802-229-5672, halpagel@myfairpoint.net
Treasurer/Secretary: Francette Cerulli, 802- 229-9827 cerulean49@gmail.com

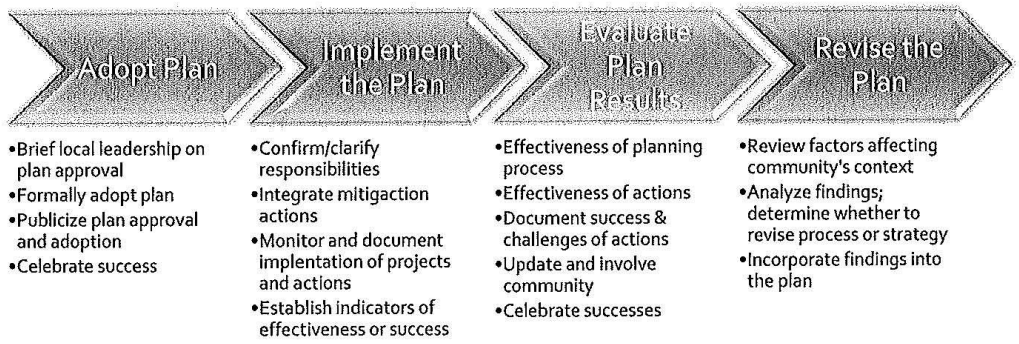
SOCIAL CONCERNS COMMITTEE:
Christina Goodwin, 802-793-7443 Hm. 802-479-8549 Wk.
Myles Chater, 802-224-1399 Hm. 802-522-7886 Cell

WORCESTER FIRE DISTRICT / TOWN WATER:
Chair- Mathew Morrissette 802-431-0287 email: worcesterfiredistrict@gmail.com
P.O. Box 105 Worcester, VT 05682

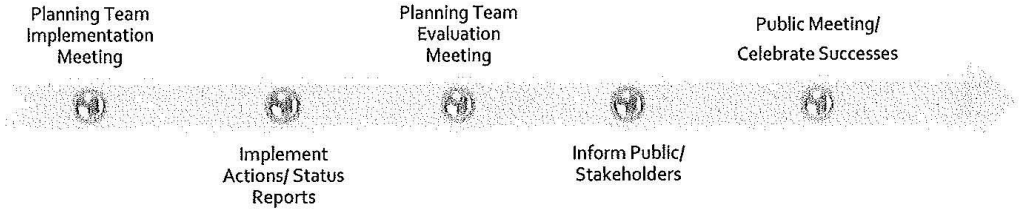
STATEHOUSE, *802- 828-2228*
Senator Ann Cummings, Washington District (D), 802-223-6043
Representative Saudia LaMont, Lamoille-Washington (D), 802-828-2228
Representative Avram Patt (D), Lamoille, Washington District (D), 802-223-1014
Senator Andrew Perchlik, Washington District (D/P), 802-279-0471
Senator Anne Watson, Washington District (D/P), 802-828-2228

D. 5-year Plan Maintenance and Review Process

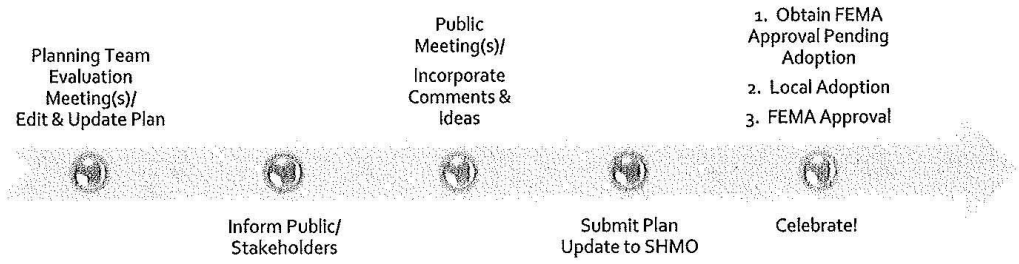
5-Year Plan Review/Maintenance



After Plan Adoption-Annually
Implement and Evaluate



Fifth Year, and After Major Disaster
Evaluate and Revise



E. Mitigation Action Tracker

The Mitigation Action Tracker is a tool to be used at the annual review of Worcester's Local Hazard Mitigation Plan at the April Selectboard meeting. Local leaders of the various mitigation actions should update the Mitigation Action Tracker periodically as progress towards implementation is made.

	MITIGATION ACTION TRACKER									
		Information in Hazard Mitigation Plan				Current Status				Other notes; Difficulties encountered
	Action	Local Leader	Timeframe for Completion	Funding Source	Project Priority	Date Began	Current Status	Completion Time-frame	Completion Goal	
1										
2										
3										
4										
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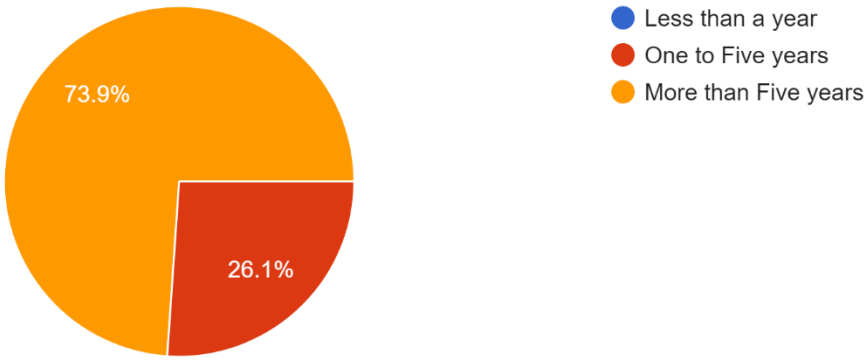
IX. Public Input

The following responses were collected from on online survey from 6/17/24 - 8/19/24.

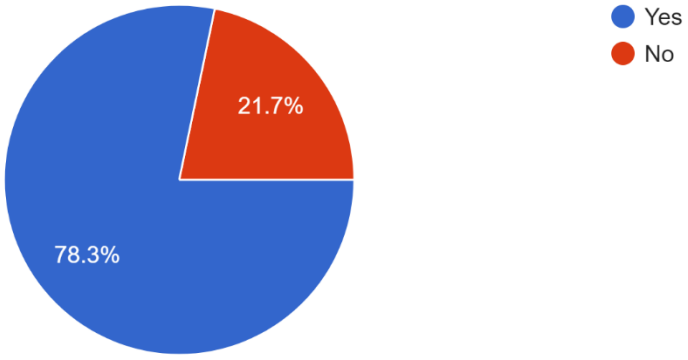
1) How long have you lived in or owned a business or property in Worcester

23 responses



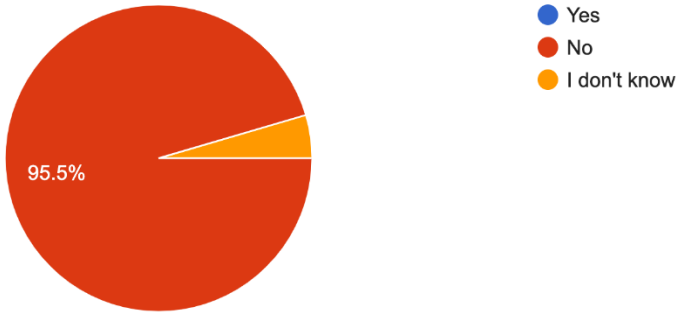
2) Have you experienced damage during a past severe weather event?

23 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)?

22 responses

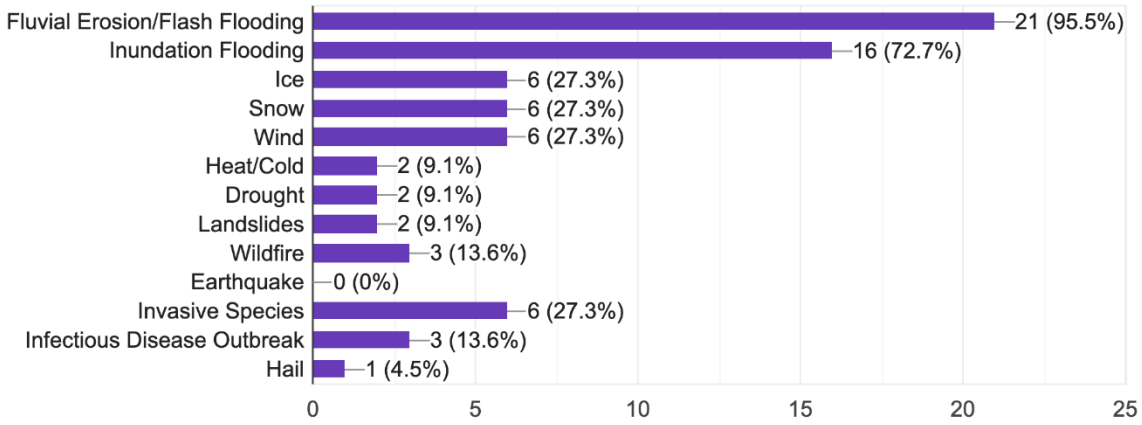


4) Have you seen areas in the community damaged during a past severe weather event?

23 responses

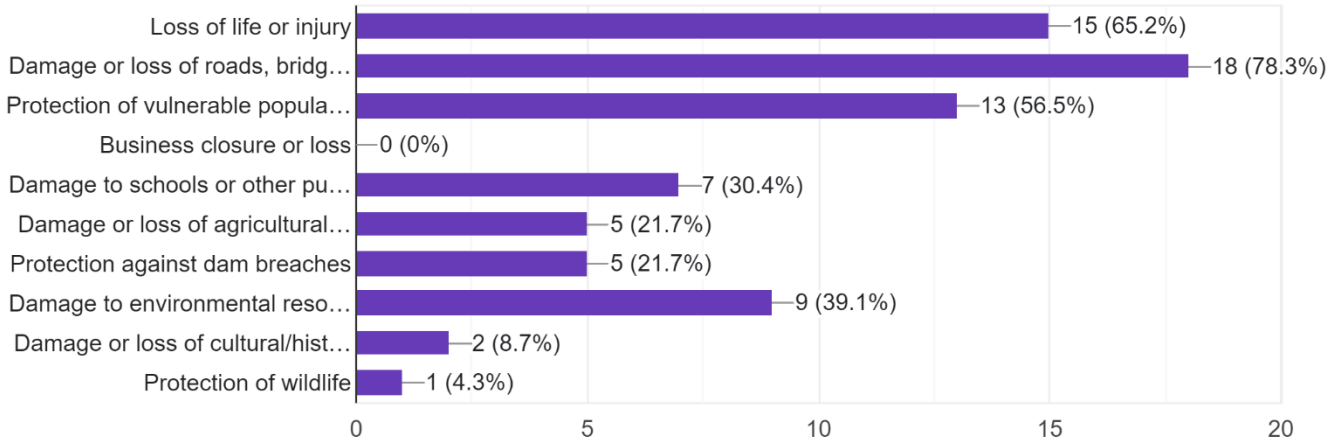
5) Which hazard are you most concerned about?

22 responses



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

23 responses



7) 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?

22 responses

8) Anything else you would like to provide for consideration and incorporation into the Worcester Local Hazard Mitigation Plan?

Although I selected structure and infrastructure projects at 7, I think outreach and education programs for Worcester residents and property owners are also very, very important.

I think all of the above mitigation measures are important for Worcester to consider; yet our property has sustained significant damages recently and in the past due to overflow and the inability of some town culverts to handle severe water events. If watershed management isn't tackled through a hazard mitigation lens then the trickle effect is destruction to individual homeowners property and our responsibility to clean it up out of pocket ourselves. This has hurt us hard 2023 and now again 2024. We still have no 911 access. Last year we regained 911 access late November! We cannot sustainably build a bridge each year to mitigate town culverts failures. The Town qualifies for hazard mitigation grants that individual homeowners cannot qualify for. Please act on our behalf.

There are real disasters unrelated to "natural" weather events. If Trump is elected and has his hand on the button he is likely to start nuclear war. He has already said, "In a nuclear event we won't be the first."

We need training in avoiding radioactivity as Burlington will certainly be targeted. We need to plan for resource planning and shared resources from hand tools to alternative housekeeping (cooking, sewage, alternative foods, shelter). Transportation links will be broken. Read Margaret Attwood's "The Year of the Flood" (not about flooding) for a glimpse of possible life styles.

Brainstorm how to react to a Trumpian government where immigrants are collected and shipped away. Will we join an underground railroad? Trump plans to replace regulatory agencies with folks that prefer a conservative-capitalist point of view with consumer and environmental protection discarded.

How will we collectively react to these threats which will be as serious or more serious than "natural" disasters? We

need to consider social elements of natural and human-made disaster.

Establish a shelter and systems to operate it in town for residents in the case of extended loss of power, heat, etc. Coordinate with the American Red Cross.

Use of federal and state expertise and money to aid local work toward hazard mitigation.

Continue and or increase efforts to mitigate climate change.

An EMP and loss of electrical grid for an extended period of time, and its effects on agricultural production, food availability, heat, water, communication etc.

For hazard mitigation to be effective we need more than one option for question 7. We need structures/infrastructure, natural systems protection and local plans/regulations.

On Q7, both of the first two options are equally important and go hand in hand.

We should create a community fund to help our neighbors who get hit hardest with disaster recovery.

#7 only lets me choose one, but I believe all of the measures are ultimately needed

Living out on a town trail means fema does not help us and the town does not help us, a grey area, we are constantly trying to fix the road ourselves and keep the road open to keep children and families safe and able to travel safely

I didn't care for the binary choices… particularly #7… we need both Natural Systems Protection AND Structures and Infrastructure Projects. We clearly cannot continue to fix and refix as we have been…

If question 7 had an option for "all of the above" that would be my selection. We need all 4 options from question 7 to achieve effective hazard mitigation.

For Question 7, I feel strongly that the first three hazard mitigation measures offered should be prioritized. This includes Structures and Infrastructure, Natural Systems Protection, and Local Plans & Regulations. I would prefer not to choose just one. I would specifically like to hear from road engineers about ideas for upsizing culverts in a sustainable way. I would also like to see a section of our Town Hall devoted to a localized floodplain map visual for all to be able to see and reference.

Its important we pay attention to what and where the water wants to go when flooding happens. If we keep pushing it back into a path that it refuses to take, its a huge waste of materials, time and $. Sometimes we need to change where our roads go to avoid huge future expense and waste. Thank you.

Public Comments:

No written comments were sent to frasca@cvregion.com & cubbon@cvregion.com during the public comment period between 8/5/24 and 8/19/24

X. Certificate of Adoption

TOWN OF Worcester, Vermont Selectboard

A RESOLUTION ADOPTING THE Worcester, Vermont 2024 Local Hazard Mitigation Plan

August 19, 2024

WHEREAS, the Town of Worcester has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **2024 Worcester, Vermont Local Hazard Mitigation Plan,** which result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Worcester has developed and seeks conditional approval from the Federal Emergency Management Agency (FEMA) for its **2024, Vermont Local Hazard Mitigation Plan (Plan)** under the requirements of 44 CFR 201.6; and

WHEREAS, the **Plan** specifically addresses hazard mitigation strategies, and Plan maintenance procedures for the Town of Worcester; and

WHEREAS, the **Plan** recommends several hazard mitigation actions (projects) that will provide mitigation for specific natural hazards that impact the Town of Worcester with the effect of protecting people and property from loss associated with those hazards; and

WHEREAS, adoption of this **Plan** will make the Town of Worcester eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by Town of Worcester Selectboard:

The **2024, Vermont Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Worcester;

The respective officials identified in the mitigation action plan of the **Plan** are hereby directed to pursue implementation of the recommended actions assigned to them;

Future revisions and **Plan** maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as part of this resolution for a period of five (5) years from the date of this resolution; and

An annual report on the process of the implementation elements of the Plan will be presented to the Selectboard by the Hazard Planning Team.

IN WITHNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Worcester this 19 day of August, 2024.

Town Clerk _____

Selectboard Chair _____

Selectboard Member _____

XI. FEMA Approval Letter

U.S. Department of Homeland Security
FEMA Region 1
220 Binney Street
Cambridge, MA 02142

FEMA

April 16, 2025

Stephanie A. Smith, Hazard Mitigation Section Chief | State Hazard Mitigation Officer
Vermont Emergency Management
45 State Drive
Waterbury, Vermont 05671-1300

Dear Stephanie Smith:

As outlined in the FEMA-State Agreements for FEMA-4744-DR-VT, FEMA-4720-DR-VT, FEMA-4695-DR-VT, FEMA-4621-DR-VT, FEMA-4532-DR-VT, and FEMA-4474-DR-VT, your office has been delegated the authority to review and approve local mitigation plans under the Program Administration by States Pilot Program. Our Agency has been notified that your office completed its review of the *Town of Worcester, Vermont 2024 Local Hazard Mitigation Plan* effective **April 16, 2025** through **April 15, 2030** in accordance with the planning requirements of the Robert T. Stafford Relief and Emergency Assistance Act (Stafford Act), as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; and Title 44 Code of Federal Regulations (CFR) Part 201.

Mitigation plans may include additional content to meet Element H: Additional State Requirements or content the local government included beyond applicable FEMA mitigation planning requirements. FEMA approval does not include the review or approval of content that exceeds these applicable FEMA mitigation planning requirements.

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

The plan must be updated and resubmitted to the FEMA Region 1 Mitigation Division for approval every five years to remain eligible for FEMA mitigation grant funding.

Thank you for your continued commitment and dedication to risk reduction demonstrated by preparing and adopting a strategy for reducing disaster losses. Should you have any questions, please contact Alexis Meehan at (202) 394-6439 or Alexis.Meehan@fema.dhs.gov.

Sincerely,

CHRISTOPHER J MARKESICH

Digitally signed by CHRISTOPHER J MARKESICH
Date: 2025.04.17 10:08:34 -04'00'

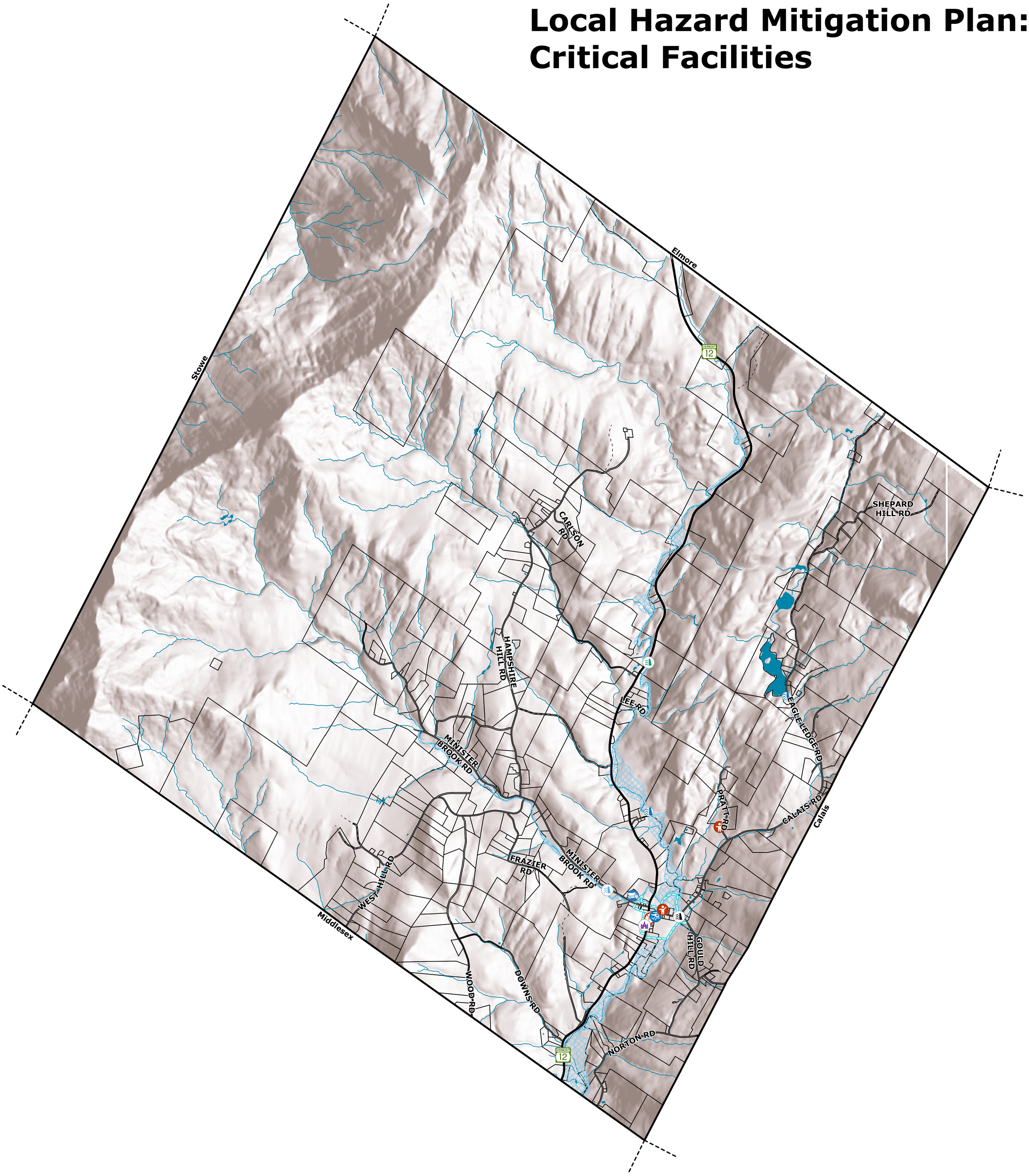
Christopher Markesich
Floodplain Management and Insurance Branch Chief
Mitigation Division | DHS, FEMA Region 1

cc: Caroline Paske, State Hazard Mitigation Planner, VEM
Matthew Hand, State Hazard Mitigation Planner, VEM
Richard Verville, Mitigation Division Director, DHS, FEMA Region 1
Alexis Meehan, Community Planner, DHS, FEMA Region 1

XII. Hazard Analysis Maps

Critical Facilities
Transportation Infrastructure
Flood Hazard Areas
Land Cover
Residential Development

Local Hazard Mitigation Plan: Critical Facilities



Data Resources

Parcels: Worcester 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 (2021, VCGI)

Map Notes

Date: 19 August 2024
File: N:\Towns\Worcester\Worcester.aprx
Contact: cvrpc@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

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

Surface Water
- Rivers & Streams
- Lakes & Ponds

Emergency Services
- Fire Station
- Helipad / Heliport

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

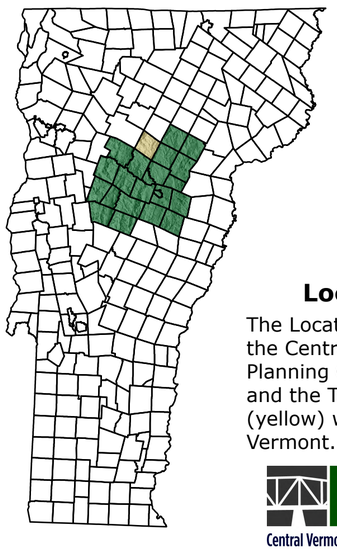
Cultural Facilities
- House of Worship

Government Facility
- Town Office
- Town Garage

Dams
- Breached
- Breached (Partial)
- In Service
- Removed

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

0 0.5 1 2 mi
0 0.75 1.5 3 km

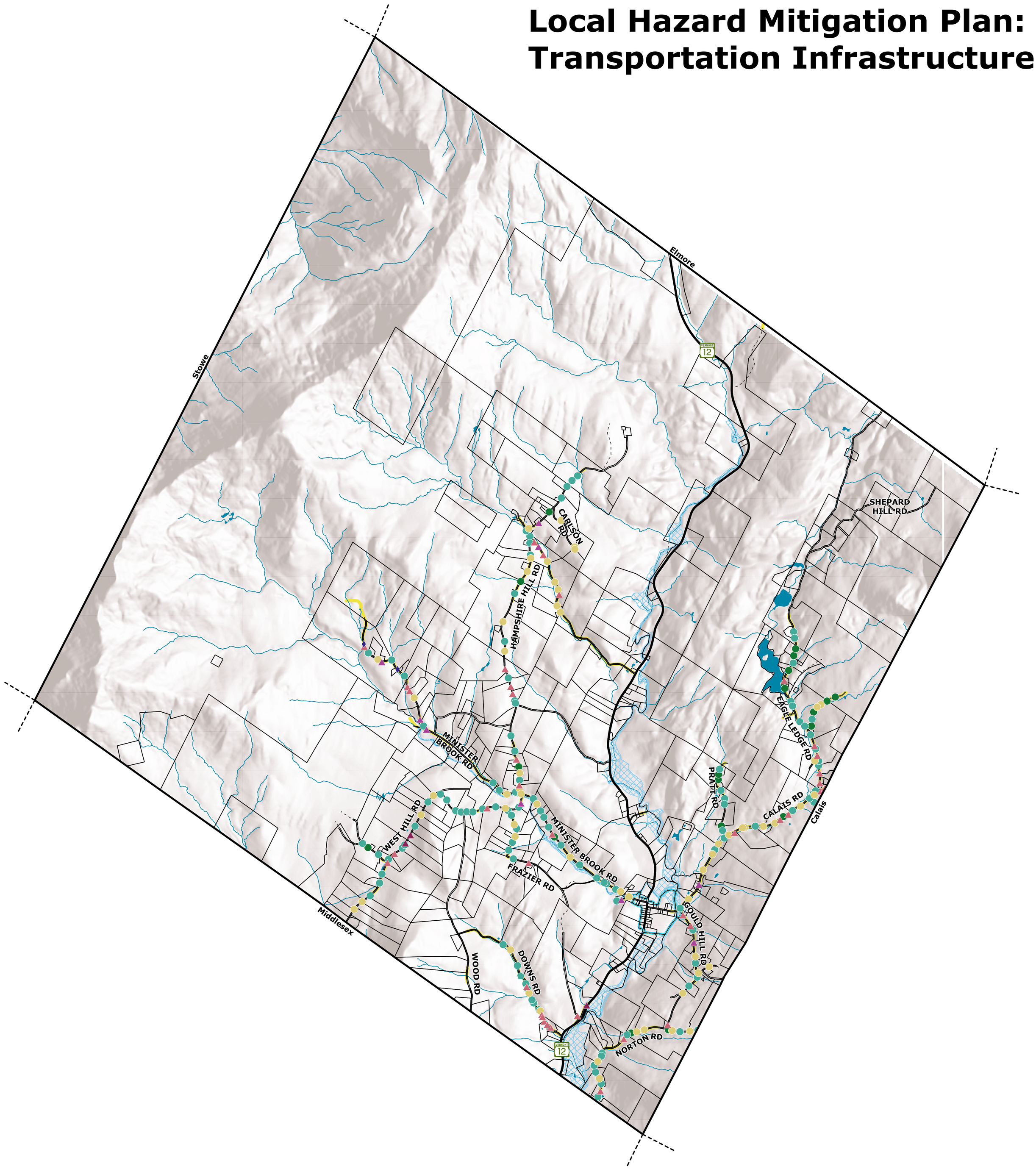


Location Map

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

Central Vermont Regional Planning Commission

Local Hazard Mitigation Plan: Transportation Infrastructure



Data Resources

Parcels: Worcester 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 (2021, VCGI)
Hydrologically Connected Road Segments: Agency of Natural Resources (2019, VCGI)

Map Notes

Date: 19 August 2024
File: N:\Towns\Worcester\Worcester.aprx
Contact: cvrpc@cvregion.com

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Legend

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

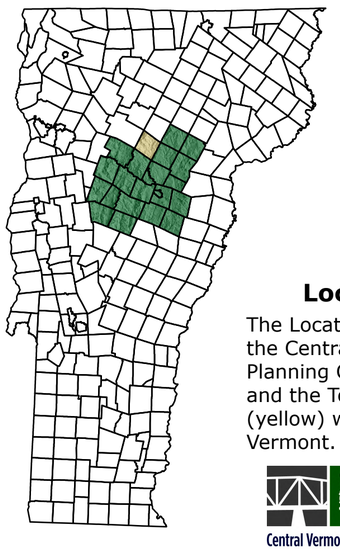
Surface Water
- Rivers & Streams
- Lakes & Ponds

Culvert Condition
- Excellent
- Good
- Fair
- Poor
- Closed
- Urgent / Critical
- Unknown

Bridge Condition
- Good

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

0 0.5 1 2 mi
0 0.75 1.5 3 km



Location Map

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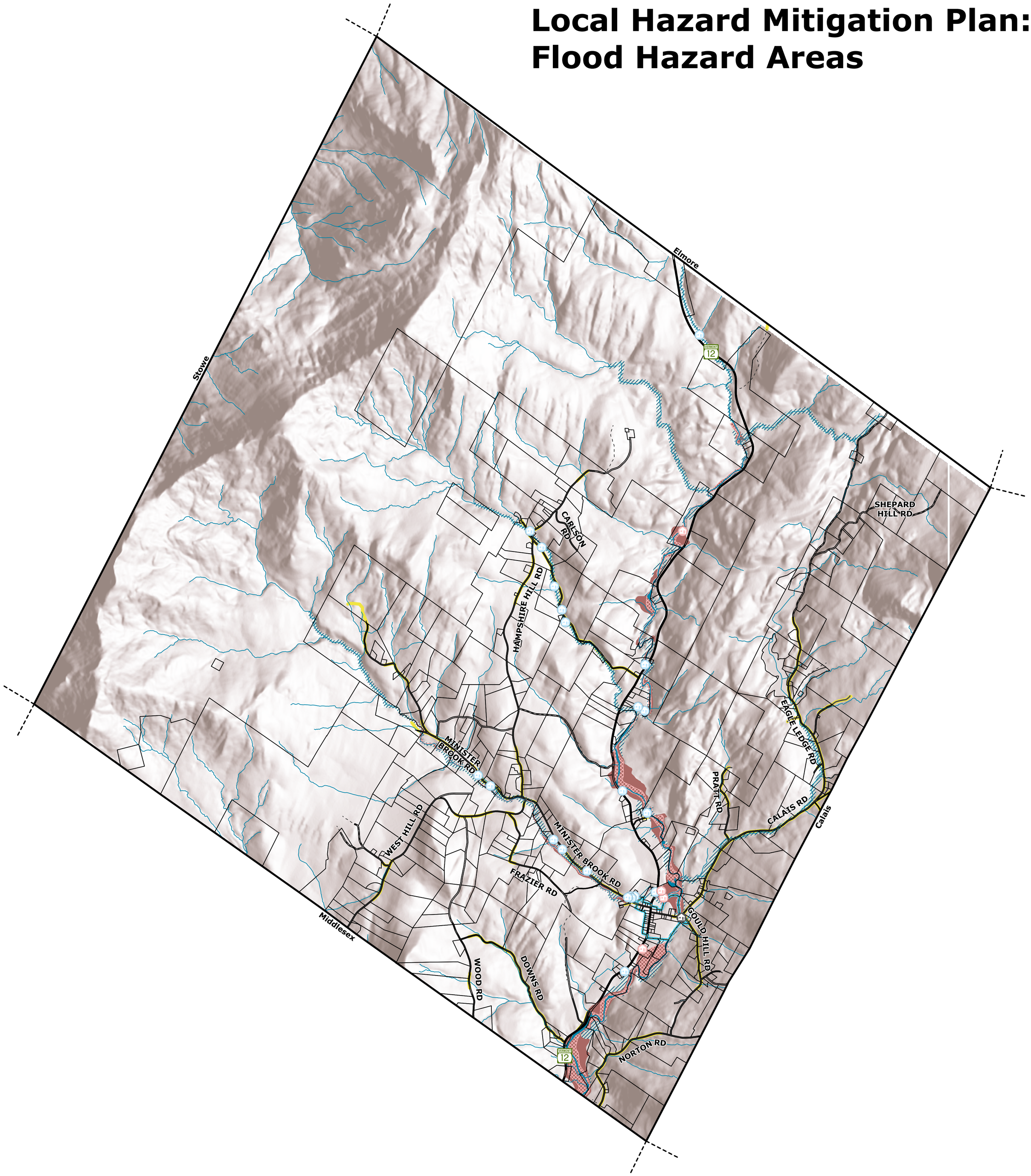
Central Vermont Regional Planning Commission

Local Hazard Mitigation Plan: Flood Hazard Areas



Data Resources

Parcels: Worcester 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)
River Corridors: Vermont Department of Environmental Conservation (2019, VCGI)
Roads: Vermont Agency of Transportation - Road Centerlines (2021, VCGI)
Hydrologically Connected Road Segments: Agency of Natural Resources (2019, VCGI)

Map Notes

Date: 19 August 2024
File: N:\Towns\Worcester\Worcester.aprx
Contact: cvrpc@cvregion.com

Disclaimer

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Legend

Boundaries
- Parcel Boundary
- Designated Village Center
- Town Boundary

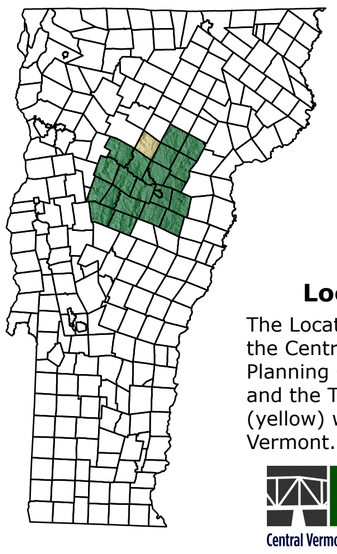
Surface Water
- Rivers & Streams
- Lakes & Ponds

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

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

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

0 0.5 1 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 Worcester (yellow) within the State of Vermont.

Central Vermont Regional Planning Commission

Local Hazard Mitigation Plan: Land Cover

Data Resources

Parcels: Worcester Parcel Boundaries (2023, VCGI)
State Village Center Designation: Village Center Boundary (2024, ACCD)
Roads: Vermont Agency of Transportation - Road Centerlines (2021, VCGI)
National Land Cover Dataset - (2021, Multi-Resolution Land Cover Consortium)

Map Notes

Date: 19 August 2024
File: N:\Towns\Worcester\Worcester.aprx
Contact: cvrpc@cvregion.com

Disclaimer

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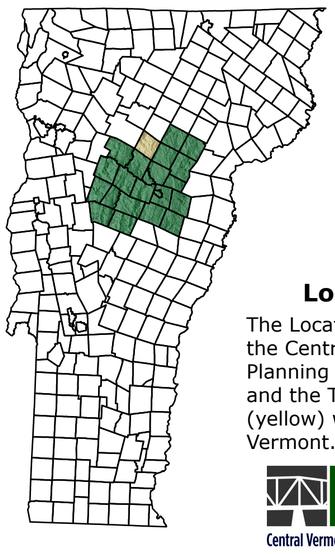
Legend

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

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
- Woody Wetlands
- Emergent Herbaceous Wetlands

0 0.5 1 2 mi
0 0.75 1.5 3 km

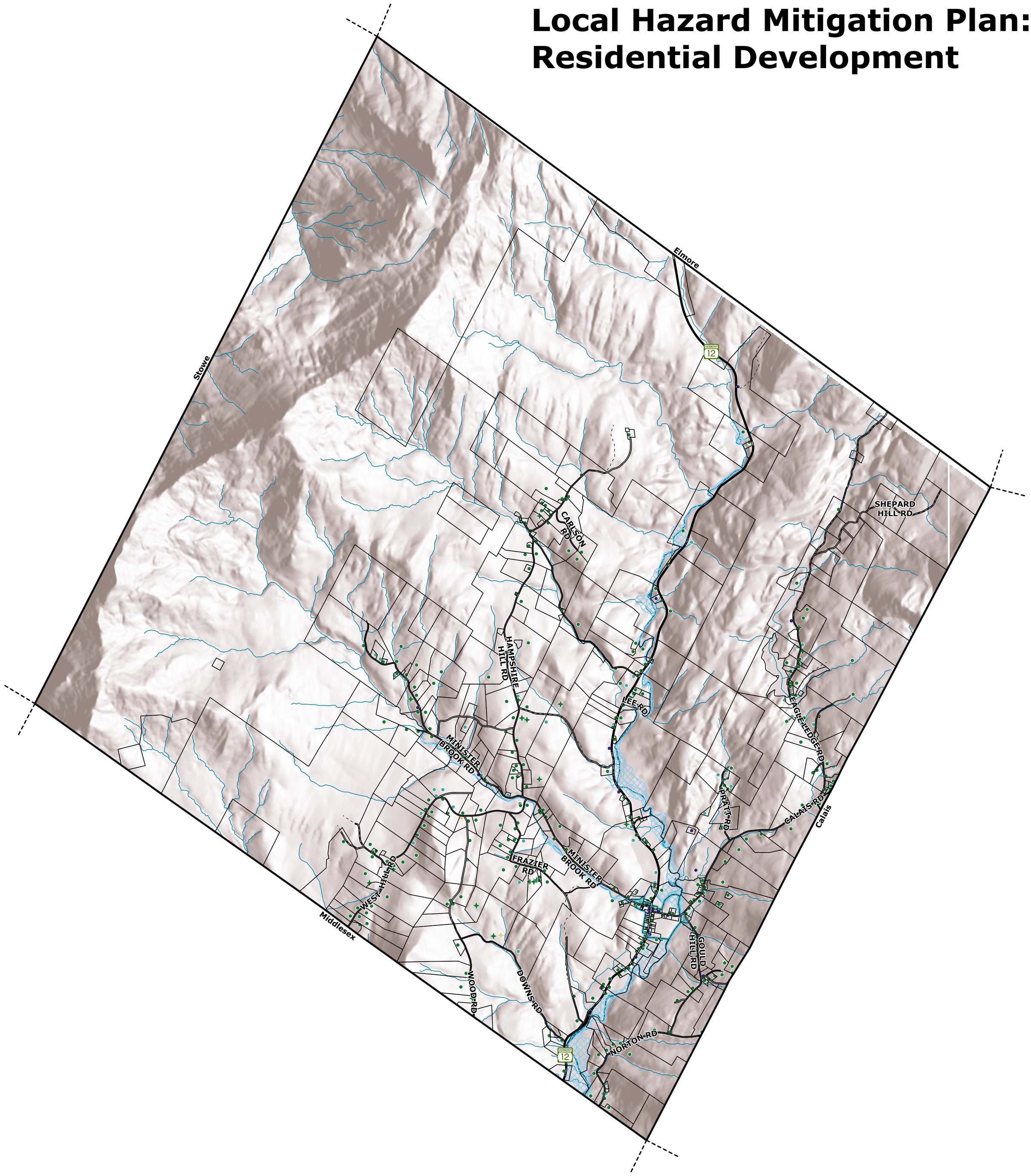


Location Map

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

Central Vermont Regional Planning Commission

Local Hazard Mitigation Plan: Residential Development



Data Resources

Parcels: Worcester Parcel Boundaries (2023, VCGI)
State Village Center Designation: Village Center Boundary (2024, ACCD)
Roads: Vermont Agency of Transportation - Road Centerlines (2021, 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: 19 August 2024
File: N:\Towns\Worcester\Worcester.aprx
Contact: cvrpc@cvregion.com

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Legend

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

Surface Water
- Rivers & Streams
- Lakes & Ponds

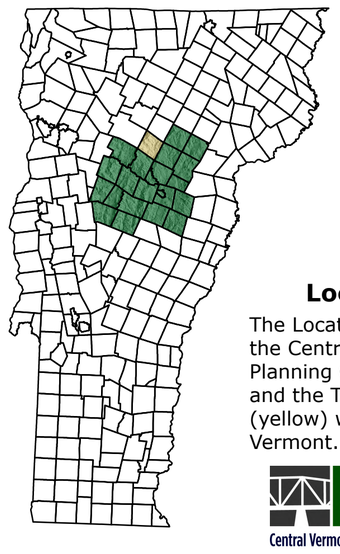
Residential Development

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

Post-2019
- Single Family Dwelling
- Other Residential

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

0 0.5 1 2 mi
0 0.75 1.5 3 km



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