Town of Cornwall, Vermont

Single Jurisdiction All-Hazards Mitigation Plan

Final Plan Adoption Date: / /2024 *FEMA Approval Date: / /2024*

Cornwall LHMP Executive Summary 2025

The Town of Cornwall began work on updating its All-Hazards Mitigation Plan in 2024 into 2025. Town officials and citizens have conducted a hazards inventory and risk assessment matrix, identified locations where hazards are known to the community, and identified potential mitigation projects associated with the priority hazards.

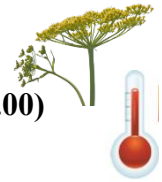
The committee identified the following hazard as their **Highest Priority**, based on probability, warning time, geographic impacts, property damage, and other concerns:

- **Severe Ice Storm (Risk Score 9.00)**

- **Insect-Borne Illness (Risk Score 8.00)**

High Priority:

- **High Winds (7.00)**
- **Invasive Species (7.00)**
- **Flash Flood (7.00)**
- **Severe Heat (7.00)**
- **Infectious Disease-Pandemic (6.75)**



- **Widespread Power Failure (6.00)**
- **Wildfire (6.00)**
- **Structure Fire (6.00)**
- **Severe Cold (6.00)**

Moderate Priority:

- **Hail Storm (5.25)**
- **Severe Snow Storm (5.25)**
- **Lightning Storm (4.50)**
- **Highway Accident (4.50)**

- **Drought (4.50)**
- **Tornado (3.50)**
- **Inundation Flooding (3.00)**

For each high-vulnerability hazard type, the hazard mitigation planning committee considered previous occurrences and extent, current vulnerability, and future probability. The committee documented the statues of mitigation activities undertaken since the previous hazard mitigation plan adoption in 2016. The committee set these overall mitigation goals and objectives:

Goal 1: Increase Community Awareness of Cornwall's Vulnerability to Natural Hazards

Objective: Inform and educate the community about the types of hazards the Town of Cornwall is exposed to, where they occur, how to prepare, and recommended responses

Goal 2: Reduce Vulnerability of People, Property, and the Environment to Natural Hazards

Objective: Provide mechanisms to enhance life safety
Objective: Reduce impacts to critical facilities and services
Objective: Reduce impacts to existing buildings and infrastructure to the extent possible
Objective: Reduce impacts to future development and infrastructure to the extent possible
Objective: Reduce impacts to the town's natural and historic resources
Objective: Reduce impacts to public health

Goal 3: Increase Interagency Capabilities and Coordination to Reduce the Impacts of Natural Hazards

Objective: Continue to collaborate and coordinate with other agencies on planning, projects, hazard response, and funding opportunities

The hazard mitigation planning committee developed a prioritized list of future mitigation actions and projects, with care taken to include those projects which can be considered reasonable and feasible based primarily on capacity, cost, and political feasibility. These include:

Hazard	Future Mitigation Actions
All Hazards	Conduct drills and exercises to test plans Provide educational materials to residents
Severe Ice Storm	Manage vegetation in the ROW to minimize/allow space for powerlines
Insect-Borne Illness	Provide funding for the efforts of the Lemon Fair Insect Control District.
High Winds	Remove dead and dying trees from town rights of way as part of normal maintenance
Invasive Species	Follow state recommendations for roadside mowing to prevent seed production of Poison Parsnip Provide Emerald Ash Borer (EAB) education, conduct a town road ash tree inventory
Flash Flood	State Route 125 box culvert replacement/rebuild (Beaver Brook)
Severe Heat/Cold	Maintain Town Hall as emergency heating/cooling shelter with generator and air-conditioning
Infectious Disease-Pandemic	Develop and maintain continuity planning and agreements for potential town staff shortages.
Widespread Power Failure	Maintain Town Hall as emergency warming shelter with generator
Wildfire	Require outdoor burn permits prior to any outdoor burning. Install additional dry hydrants throughout town.
Structure Fire	Install additional dry hydrants throughout town. Provide Fire Safety education program in the elementary school Upgrade driveway standards in the next zoning bylaw rewrite to support basic accessibility for emergency vehicles to all structures in town.
Highway Accident	Support the mitigation of the following high-risk locations: The intersection of US Rte #30 and Cider Mill Road VT Route 74 at the base of the "Ledges" VT Route 74 from the "Old Red Barn" site to the junction of Clark Road VT Route 125 by "the Knoll"- VTrans efforts to improve sightlines and safety James Rd and Route 125 intersection-VTrans implementation of safety measures

A Hazard Mitigation Plan is dynamic and should not be static. To ensure that the plan remains current and relevant, it is important that it be updated periodically. The hazard mitigation plan should be reviewed by all new town officials and revised and updated in its entirety every 5 years.

The Town of Cornwall will monitor and evaluate its hazard mitigation goals, strategies and actions annually as the town budget is created. In updates of the Municipal Plan by the planning commission, the concepts, goals and strategies from this hazard mitigation plan should be incorporated and used to inform municipal development strategies.

Table of Contents

1. Planning Process

Requirement 44 CFR § 201.6(c)(1)
(Document the planning process)

1.1. Current Plan Development Process

The Town of Cornwall received a Hazard Mitigation Assistance grant from FEMA in 2022. On April 16, 2024, the town selected the Addison County Regional Planning Commission (ACRPC) as a consultant to update the Local Hazard Mitigation Plan and submit it to FEMA for approval.

The Town of Cornwall Selectboard confirmed their intent to work through the process of writing an All-Hazards Mitigation Plan at a meeting of the Town Selectboard. After the confirmation of funding availability, the Selectboard further showed their support of the plan by appointing the following residents of Cornwall to a mitigation planning committee:

- Tanya Byker, Cornwall Selectboard and Emergency Management Director
- Ben Marks, Cornwall Selectboard and Emergency Management Coordinator
- Don Burns, Cornwall Planning Commission
- Andrea Landsberg, Cornwall Conservation Commission
- Laura Fetterolf, Cornwall Town Clerk

The full committee met **December 11, 2024** to review the Hazard Mitigation Plan components and requirements and develop a strategy for outreach to public and other community stakeholders. At the following meeting on **January 8, 2025**, meeting, the committee completed a hazards inventory and risk assessment matrix to determine highest vulnerability hazards and locations. Following the February meeting, the committee reviewed Previous Hazard Mitigation Actions (from the 2018 plan) and posters were placed at Town Meeting Day for citizen input and feedback. ACRPC reached out to other Cornwall officials and Emergency Responders in Middlebury for additional feedback on the hazards inventory and risk assessment. The committee met again on **February 19, 2025** to set overall mitigation goals, review existing policies, programs and resources, and to develop potential mitigation projects associated with the hazards identified. A public meeting was held on **June 2, 2025** and several participants attended and provided comments.

The final plan draft was sent to the Town Selectboard for their **June 3, 2025** regular meeting. Input on the draft plan was requested from the Town Selectboard and Planning Commission during open meetings. The town also made the plan available on its website www.cornwallvt.com to reach a broader distribution. A copy of the draft plan was sent via e-mail to the town clerks of the surrounding municipalities of Middlebury, Salisbury, Whiting, Shoreham, Bridport, and Weybridge for distribution to appropriate town officials on with a request for review and edits by **June 3, 2025**. No comments were received.

Based on comments from the complete public process, the draft plan was further edited and forwarded to Vermont's State Hazard Mitigation Officer for comments and preliminary approval on **June 4, 2025**.

Suggested edits were identified by the State Hazard Mitigation Officer on **XXX XX 20XX**. Changes were made to the draft plan based on SHMO recommendations and an updated draft was completed on **XXX XX 20XX**. Upon completion of this draft, the plan received Approval Pending Adoption (APA) status. Upon receipt of the FEMA APA, the resulting document was adopted by the Cornwall Selectboard on **XXX XX 20XX**.

1.2. Opportunities for Public Involvement

Multiple opportunities for public comment were made available during the planning process:

- A planning committee was appointed from volunteers and town officers at an open meeting of the Town Selectboard.
- A set of posters with overview information about the Hazard Mitigation Plan and an interactive chart for communities to rank their own vulnerability priorities was displayed at Town Meeting, March 4, 2024 (Appendix 1)
- A copy of the draft plan was made available along with a comment sheet at the Town Office on May, 2025. The Town Clerk was asked to encourage the public to read and comment on the draft plan. (No comments received)
- A public meeting was held on **June 2, 2025** and several participants attended and provided comments.
- Meetings of both the Town Selectboard and the Town Planning Commission were open for public comment throughout the planning and draft phases of this plan. (No comments received)
- Local stakeholder organizations were invited to attend during the initial hazard prioritization, during mitigation action prioritization, and again during plan revisions for feedback on hazard mitigation actions (Appendix 1).

Requirement 44 CFR § 201.6(b)(2) (Stakeholder Involvement)

1.3. Opportunities for Additional Comment

Additional opportunities for regional and state-level comments in the draft stage were provided throughout the planning process.

- A copy of the draft plan was posted on the ACRPC website www.acrpc.org for regional review and notice of its availability was given during the **May 2025** Addison County Regional Emergency Management Committee (REMC) meeting. Commissioners were asked to review and pass along comments to (Andrew L'Roe) at ACRPC. No comments received.
- The May 2025 ACRPC newsletter included an announcement that a draft plan was available for public review and comment. That draft was posted in the ACRPC office and was available for public input during normal business hours with a comment sheet attached. No comments received.
- The neighboring Town Clerks of Bridport, Middlebury, Salisbury, Whiting, Shoreham, Bridport, and Weybridge were notified of the posting via e-mail on **May 23, 2025**. The clerks were instructed to share the notice with the select boards, planning commissions and the general public. Comments were requested to be sent to Andrew L'Roe at ACRPC. No comments were received.
- A copy of the draft plan was provided to the State Hazard Mitigation Office for comments on June 4, 2025. Comments were received on XXXXXXXDATE

Requirement 44 CFR § 201.6(b)(3)
(Review of existing plans)

1.4. Extent of Review

Throughout the plan development process information from the following documents and sources were incorporated into the plan either as data or to inform the committee's prioritization process:

- 2024 Local Emergency Management Plan
- 2023 Cornwall Town Plan (support for the committee's prioritization process and section 2 narrative)
- 2022 Addison County Regional Plan (Goals related to public safety as well as energy and transportation resilience)
- 2023 State of Vermont Hazard Mitigation Plan
- 2021-2023 reports of the State Fire Marshall (provided data to inform structure and wild fire risks)
- Federal Emergency Management Agency, www.fema.gov (provided official data on declared disasters)
- National Climatic Data Center website (provided information for Section 4.3)
- FEMA FIRMS dated 1985 (incorporated into maps)
- VT Center for Geographic Information data layers (incorporated into map products)
- State of Vermont Tier II reports, 2020-2024 (reviewed for Section 4.3)
- Cornwall Annual Town Reports 2013-2023
- Vermont Arbovirus Surveillance and Response Plan, updated in 2024
- NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/) for previous hazard occurrence

2. Local Background

2.1. Community Background

The Town of Cornwall makes up an area of about 29 square miles and is bordered by Weybridge, Middlebury, Salisbury, Whiting, Shoreham, and Bridport. Cornwall is primarily an open landscape of pasture and cropland punctuated with corridors of forest land and remnant woodlands or woodlots.

Cornwall's position on the Champlain Valley floor substantially influences its climate. The western section of the town is only eight miles from the eastern foothills (elevation 1000-2000' above sea-level) of the Adirondacks, and the eastern height of land is within nine miles of the Green Mountains. Cornwall is less than eight miles from Lake Champlain, which is about one mile wide at this point.

The moderating influence of Lake Champlain's warmer temperatures in fall keeps the valley floor more temperate, extending the growing season to over 150 days, which is almost a month longer than that of the upland areas of the state and spans from April to October in some years, adding to the area's appeal as an agricultural setting. The United States Department of Agriculture Hardiness Zone Map (the map on which plant hardiness ratings are based) has put Cornwall in Zone 5, which has an average annual extreme minimum temperature of between -20 and -15 degrees Fahrenheit. The Green Mountains to the east induce orthographic cooling, creating frequent cloud cover in the region and often signal weather changes associated with changing frontal systems of low and high pressure.

There are two major stream systems in Cornwall: the Lemon Fair River, a tributary of Otter Creek which flows north in the west of the town, and Otter Creek, which forms part of the town's eastern boundary with Salisbury.

Population

Since the 1960s Cornwall's population has steadily increased, reaching a population of 1,207 in the 2020 Census. This is a population increase of 22 residents since the 2010 Census, when the population was 1,185. From the 2010 Census to the 2020 Census, Cornwall's median age increased from 46 years in 2010 to 48.3 years in 2020, reflecting an aging population.

Housing Development

Cornwall's population is concentrated near Vermont Routes 30 and 74. Few people live east of Vermont Route 30, which is predominantly covered by a swamp. In Cornwall, there are 525 single family dwellings, three camps, 11 mobile homes, 10 multi-family dwellings, and one commercial site with residences. Since 2017, 32 single dwelling residences have been added to the town.

The minor changes in development that have occurred since the previous plan have had no impact on the community's vulnerability to the identified hazards- none of the development was in hazard prone areas or increases vulnerability to other planning area-wide hazards **(see map 2.2.7. New Development. 2018-2025**)

Emergency Services

The Town has an appointed Emergency Management Coordinator and uses a Local Emergency Management Plan (LEMP) to coordinate response to larger incidents. Cornwall's Town Hall has been designated as an emergency shelter, and the town office as an emergency operations center.

Fire Department

The Cornwall Volunteer Fire Department (CVFD) was established in 1950. It has approximately 26 highly trained members, including five first responders. The department houses its vehicles and equipment in two fire stations on Route 30 near the Sperry Road intersection and in West Cornwall at 63 North Bingham Road. It is imperative that the highway transportation links and highways to and from these locations be well maintained and free from obstruction or any utility infrastructure development with the potential to cause catastrophic failure due to explosion or otherwise. It is self-evident that these highways will be vital in the event a large or small emergency response is required from these locations or assisting agencies. At the 2012 Town Meeting, residents voted to fund significant improvements to the latter to improve space availability for needed equipment. Voters also agreed to transfer the 0.5-acre property from the Town to the Cornwall Fire Department.

There is a First Response Group organized under the auspices of the department. Its members respond to medical emergencies and provide care until the Middlebury Ambulance arrives.

The CVFD typically responds to around 45 medical calls per year, 12 auto accidents, and 4 structure fire calls. The department gives and receives mutual aid with neighboring departments and usually responds to around 5 mutual aid calls each year. While Cornwall continues to have a committed group of volunteers, issues such as increased training requirements, firefighter employment located outside of town, and an aging population pose a threat to volunteer recruitment and retention.

Regional Emergency & Medical Services

In a medical emergency, Cornwall is served by the Middlebury Regional Emergency & Medical Services, Inc. (MREMS). MREMS serves the towns of Middlebury, including East Middlebury, Bridport, Shoreham, Orwell, Ripton, Salisbury, Cornwall, Weybridge, Whiting, and New Haven. They also respond to mutual aid requests from the neighboring towns of Bristol, Brandon, and Vergennes. Cornwall supports MREMS through an annual allocation at Town Meeting and through an annual drive for operating support.

Police Protection

The Vermont State Police are the main law enforcement entity for Cornwall and much of Addison County. As 22A is a state highway, that route is under State Police jurisdiction. The State Police Headquarters for this region is located on Route 7 in New Haven. Due to the low crime rate in town, there is relatively little activity involving law enforcement. There is occasional police presence for traffic safety enforcement. Contract services available from the Addison County Sheriff's Department.

Healthcare, Social and Human Services

While there are no medical facilities located within Cornwall, residents have convenient access to Porter Medical Center in Middlebury and its associated medical practices. There are also a number of dental and healthcare providers not associated with Porter located in Middlebury.

Some Cornwall residents may also seek medical care in the Burlington or Rutland areas. Fletcher Allen Medical Center in Burlington is the nearest Level I Trauma Center and patients in need of services not available at Porter are typically transported there.

Cornwall residents have access to a variety of social and human service organizations, most of which are nonprofits located in Middlebury. Organizations like the Addison County Community Action Group, Addison County Home Health and Hospice, Addison County Transit Services, Champlain Valley Agency on Aging, the Counseling Service of Addison County, Elderly Services, the Open Door Clinic, Vermont Adult Learning and WomenSafe receive a small amount of funding annually from the town to support their services, which are available to Cornwall residents.

Communication Utilities

Wireless phone service in Cornwall is fairly reliable. The main coverage is AT&T, T-Mobile, and Verizon. Slightly less reliable service is provided by FirstNet, US Cellular and VTel Wireless. There is one cell tower location within Cornwall providing service for the Cornwall Volunteer Fire Department, and the other nearest transmitters have limited range and are located in Shoreham, Whiting, Salisbury, and Middlebury.

Local wired phone service in Cornwall is provided by Shoreham Telephone, LLC. There is a central switching center located on 2659 VT Route 30 in Cornwall.

Internet access is available in most locations in town but varies considerably in speed. Since there is no cable television infrastructure in Cornwall, provision of high-speed access over cable is not an alternative.

An overwhelming majority of areas in Cornwall receive 100/100 Mbps service (100 Mbps download speed and symmetrical download speed of at least 100 Mbps). Four address points near the border with Weybridge receive 100/200 Mbps service, two address points receive 25/3 Mbps service, twelve address points receive 4/1 Mbps service, and one address point is underserved. The Town of Cornwall joined Maple Broadband Communications Union District in October 2020. Over 18% of the town is served via direct connection to fiber (optic) or coaxial cable, counting Cornwall among the towns in the CUD with the lowest percentage of existing fiber or coaxial cable infrastructure.

Community Assets Table

Category	Assets	Widespread-Long term Power Outage	Severe Heat	Severe Cold	High Winds	Heavy Snow	Ice storm	Lightning Strikes	Drought	Infectious Disease Outbreak	Insect-borne Illness	Structure Fire	Fluvial Erosion	Inundation Flooding	Invasive Species	Highway Accident	HazMat Spill	Wildfire	Hail storm	Landslides	Earthquake
		Potential Hazard Vulnerabilities																			
People																					
Underserved Communities	Older Residents	X	X	X		X	X			X	X										
	People with Disabilities	X	X	X		X	X			X	X										
Socially Vulnerable Communities	Agricultural Workers		X	X						X	X						X				
	Short-term Visitors	X	X	X		X	X	X		X	X										
Public Workers	Town Staff	X								X											
	Road Crew		X	X	X			X								X					
	Volunteer Fire Dept									X											
	Vol. First Response									X											
Natural, Historic, and Cultural Resources																					
Natural Resources	Beef Farms									X	X										
	Apple Orchards		X	X	X				X						X				X		
	PYO Farms		X	X	X				X		X				X				X		
	Cornwall Swamp WMA														X						
	Douglas Pond Recreation Area								X						X			X			
Historic Resources	DAR Samson Memorial House											X									
	Historic Blacksmith Shop											X									
Cultural Resources	First Congregational Church											X					X				
Activities that have value to the community																					
	Outdoor Recreation		X	X				X						X	X				X		
	Town Hall Programs									X											

		Potential Hazard Vulnerabilities																				
Category	**Assets**	Widespread-Long term Power Outage	Severe Heat	Severe Cold	High Winds	Heavy Snow	Ice storm	Lightning Strikes	Drought	Infectious Disease Outbreak	Insect-borne Illness	Structure Fire	Fluvial Erosion	Inundation Flooding	Invasive Species	Highway Accident	HazMat Spill	Wildfire	Hail storm	Landslides	Earthquake
Structures																					
Facilities	Town Hall-Office-Library											X					X				
	High Dept/Town Garage											X									
	Bingham Memorial School	X										X									
	Fire Station 1(Rte 30)											X									
	Fire Station 2 (N Bingham)											X									
Lifelines	Private Water Wells								X								X				
	Cell Tower- Fire Station 2							X				X									
Critical Infrastructure	Swamp Road/ Otter Creek Bridge															X					
	VT Route 125 Bridge												X			X					
	VT Route 125												X	X		X	X				
	VT Route 74												X			X	X				
	VT Route 30												X			X	X				
Future	Residential Buildings											X						X			
	Cornwall Outdoor Recreation Area														X						
	New Otter Creek Bridge											X				X					
Systems																					
Networks	Powerlines	X			X	X	X														
	Internet lines				X	X	X														

Zoning Regulations

Requirement 44 CFR § 201.6(c)(3)
(existing land use and development ordinances)

The town of Cornwall enforces a set of Zoning Regulations, most recently adopted on February 5, 2008. The Town of Cornwall Zoning Regulations are intended to provide for orderly community growth and to further the purposes established in the Cornwall Town Plan. The regulations require that dwellings comply with all applicable State and Federal health and safety regulations. Where these regulations impose a greater restriction upon the use of a structure or land than are required by any other statutes, ordinances, rules, regulation, permit, easement or agreement, the provisions of these regulations shall control.

The Zoning Regulations contain a set of Flood Hazard Area Regulations in order to promote the public health, safety, and general welfare, to prevent increases in flooding caused by the uncontrolled development of lands in areas of special flood hazard, and to minimize losses due to floods. These regulations apply to all lands in the Town of Cornwall identified as areas of special flood hazard on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), dated September 27, 1985, and any revisions.

The Development Review Board (DRB) and Planning Commission (PC) are responsible for establishing zoning regulations. The DRB/PC also reviews subdivision requests and decides on exceptions to those regulations in the form of variances and conditional and special use permits. The Zoning Administrator receives, reviews, and issues standard building applications, and may only issue a required Certificate of Occupancy following inspection when a structure is completed.

Like most municipalities in Vermont, Cornwall does not have residential building codes that control how a building is constructed. NFIP compliance requires local policy that regulates where homes are built. Builders work with the designated building inspector and floodplain administrator in your community to document building code and NFIP compliance. The State of Vermont has adopted building codes for commercial building safety and energy standards

Land Use and Development Ordinances

Six distinct areas within the town have been identified with concomitant guidelines for future planning in these areas. These Future Land Use Areas include the:

1. **Cornwall Village (V1)** representing Cornwall's historic village area located near the junction of Vermont Routes 30 and 74. The purpose of this zoning district is to promote residential and commercial uses that are in conformance with the historic character of the village and to promote strong community interaction.

2. **West Cornwall Village (V2)** representing the second village area in Cornwall located near the intersection of Vermont Route 74 and North and South Bingham Street. This district encompasses the West Cornwall Village, a historic hamlet of Cornwall, and the purpose of this district designation is to maintain its inviting, primarily residential character.

3. **Medium Density Residential District (MDR)** representing two areas: an area adjacent to Vermont Route 30 in the north of Cornwall near Cider Mill Road and an area encompassing Cider Mill Road and Ridge Road. These areas are meant to remain in residential and agricultural use.

4. **Low Density Residential District (LDR)** representing the area in the west of Cornwall, where agriculture is the primary land use. The purpose of this district is to preserve this area's predominant agricultural use.

5. **Conservation District (CON)** consisting of land unsuitable for development and having high wildlife value. Most of this land is concurrent with the floodplain area around the Lemon Fair River and the Cornwall Swamp west of Otter Creek.

6. **Floodplain Area** representing the federally determined special flood hazard area 1% (aka 100-year) floodplain zones surrounding the Lemon Fair River and the Cornwall Swamp west of Otter Creek. These areas are limited in size and contain other constraints for development and thus will remain sparsely developed.

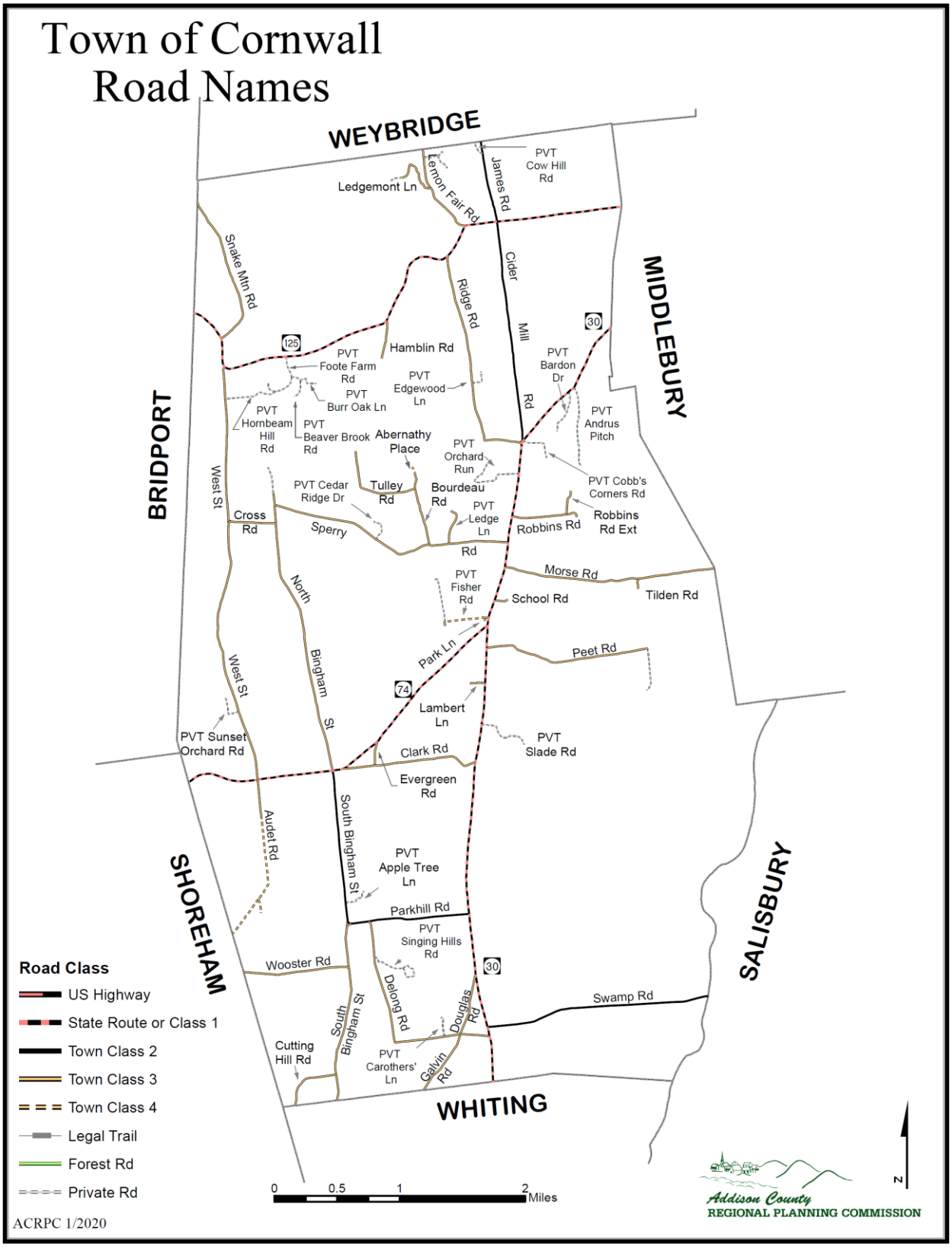
The Town of Cornwall is a member in good standing of the National Flood Insurance Program since 1985 and as such has adopted zoning by-laws designating Flood Hazard Areas including associated regulations for administering those areas. In Cornwall, those floodplain regulations are administered by the Zoning Administrator as part of their regular duties. The Vermont Floodready Website indicates that there are potentially two buildings currently in the FEMA mapped Special Flood Hazard Area (SFHA, aka 100-year floodplain). None of these is being insured through the NFIP and therefore there are no repetitive loss structures located in the Town of Cornwall.

Requirement 44 CFR § 201.6(c)(2)(ii) (NFIP Repetitive Damage)

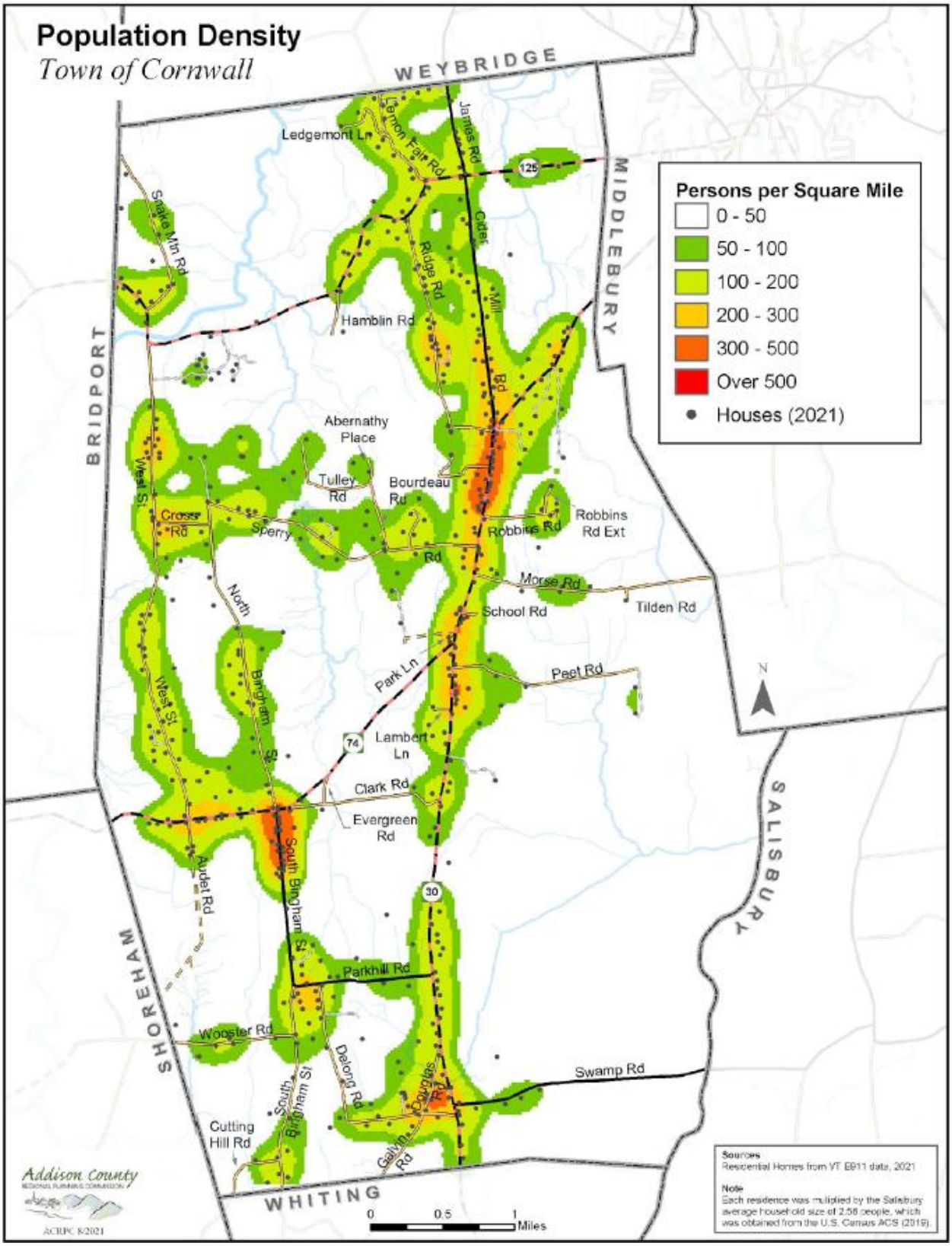
Requirement 44 CFR § 201.6(c)(3)(ii) (NFIP Participation and Compliance)

2.2. Community Maps

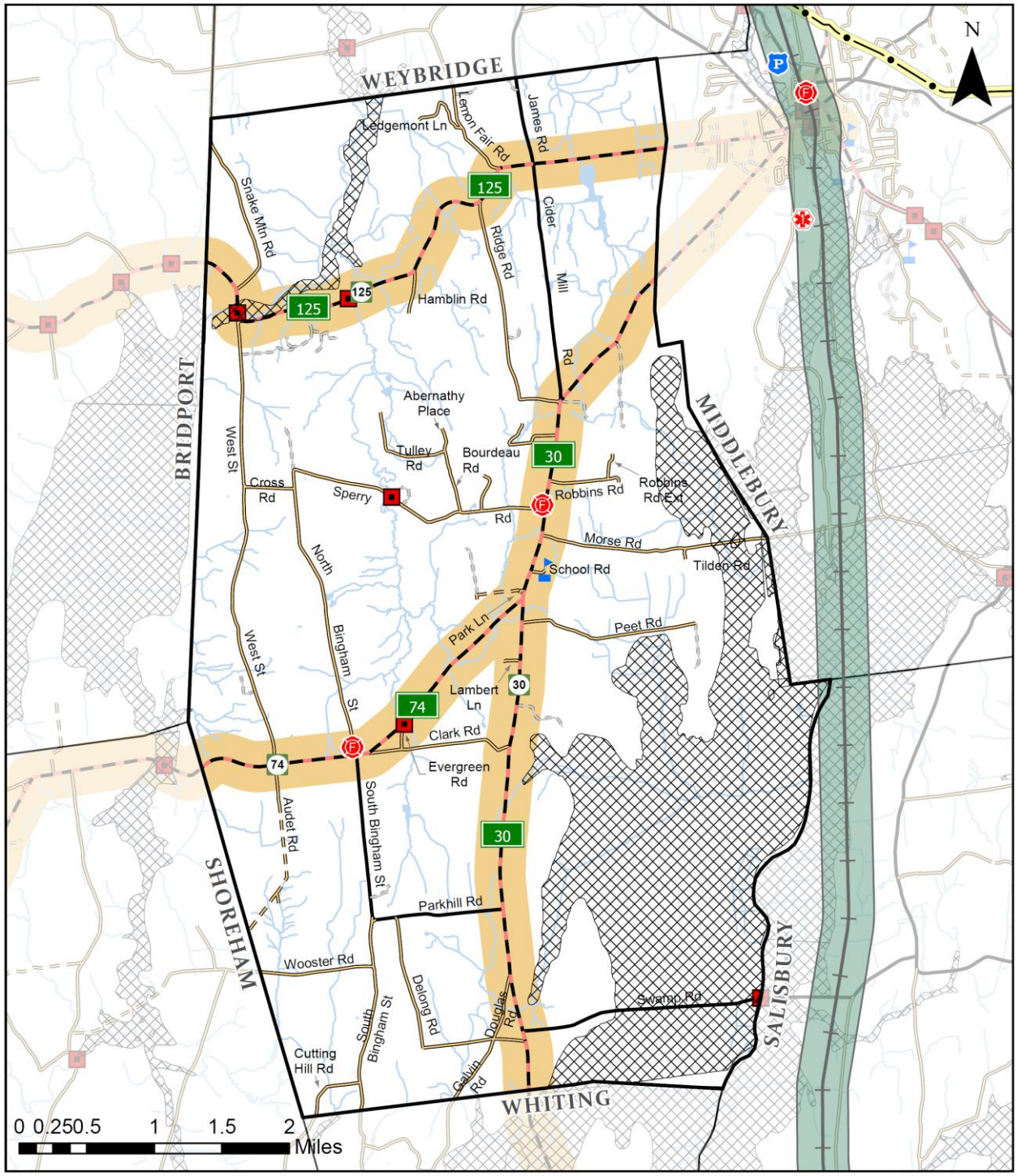
2.2.1. Municipal Road Names Map



2.2.2. Population Density Map



2.2.3. All-Hazards Planning Map

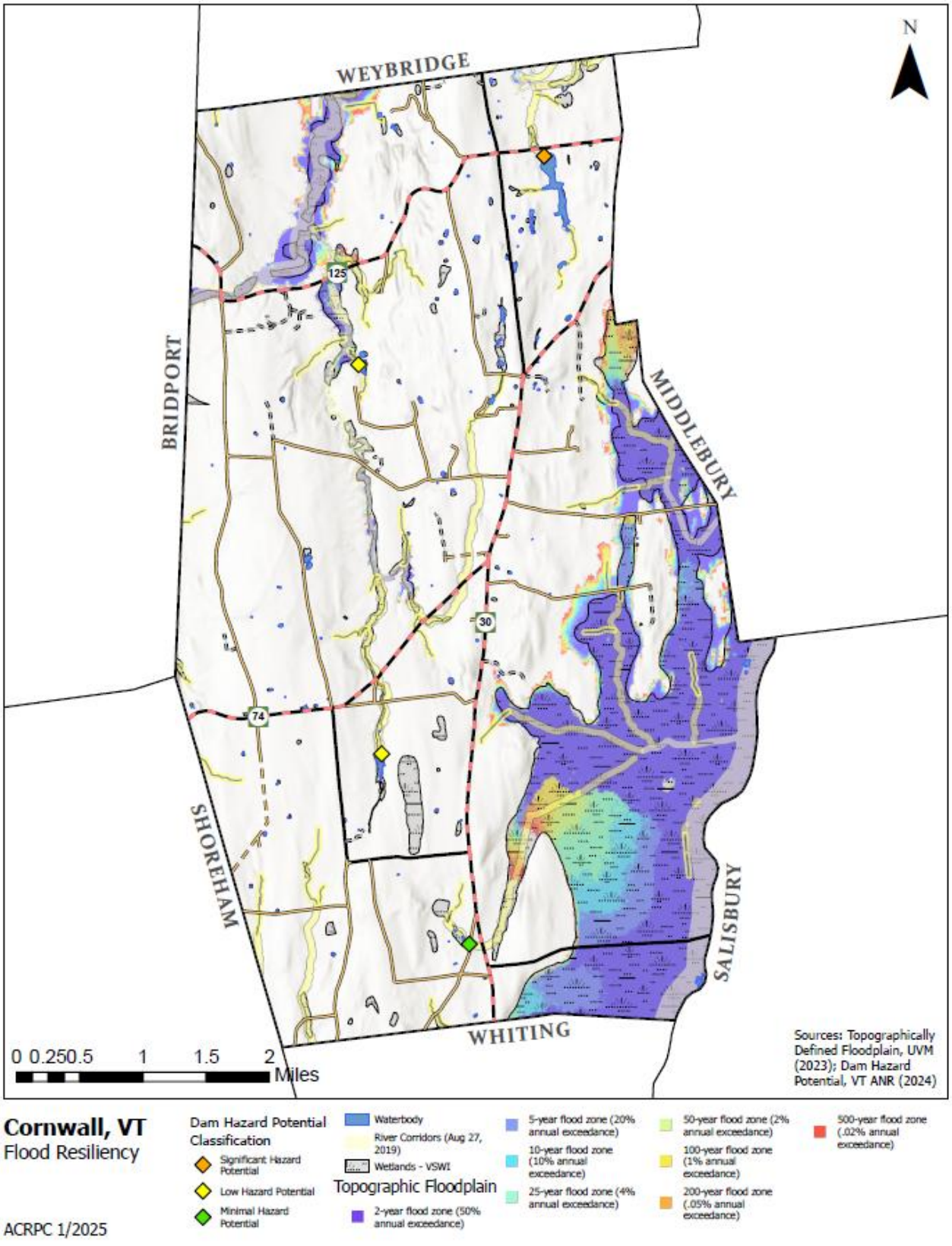


Cornwall, VT
All-Hazard Planning

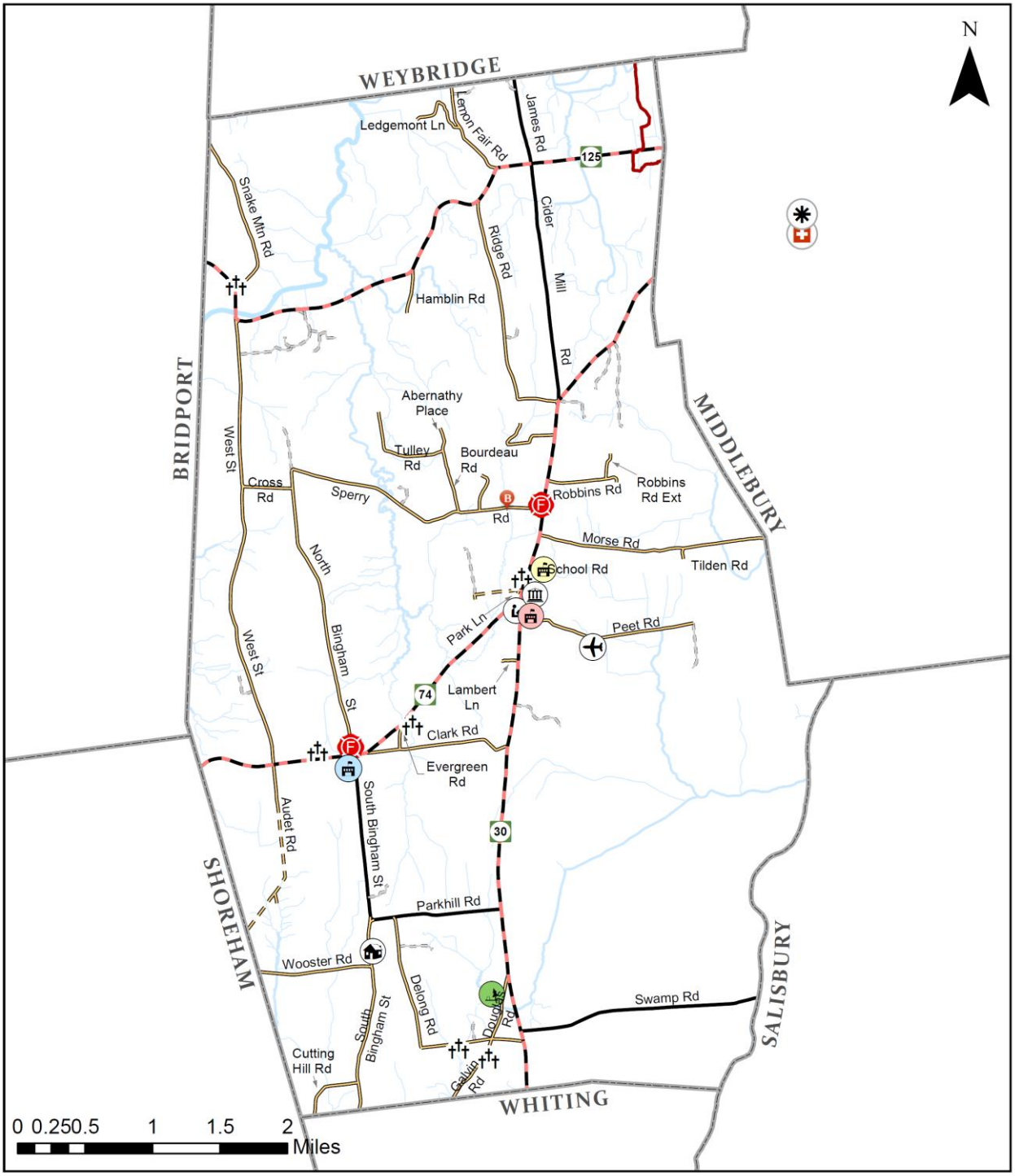
ACRPC 1/2025

- AMBULANCE SERVICE
- FIRE STATION
- LAW ENFORCEMENT
- School
- Bridge
- Electric Transmission Lines
- Transmission Line Buffer (300ft)
- Rail Lines
- Railroad Buffer (100ft)
- FEMA Floodplain (digitized)
- US Highway
- State Route or Class 1
- Town Class 2
- Town Class 3
- Town Class 4
- Private Rd
- US/VT Highway Buffer (100ft)

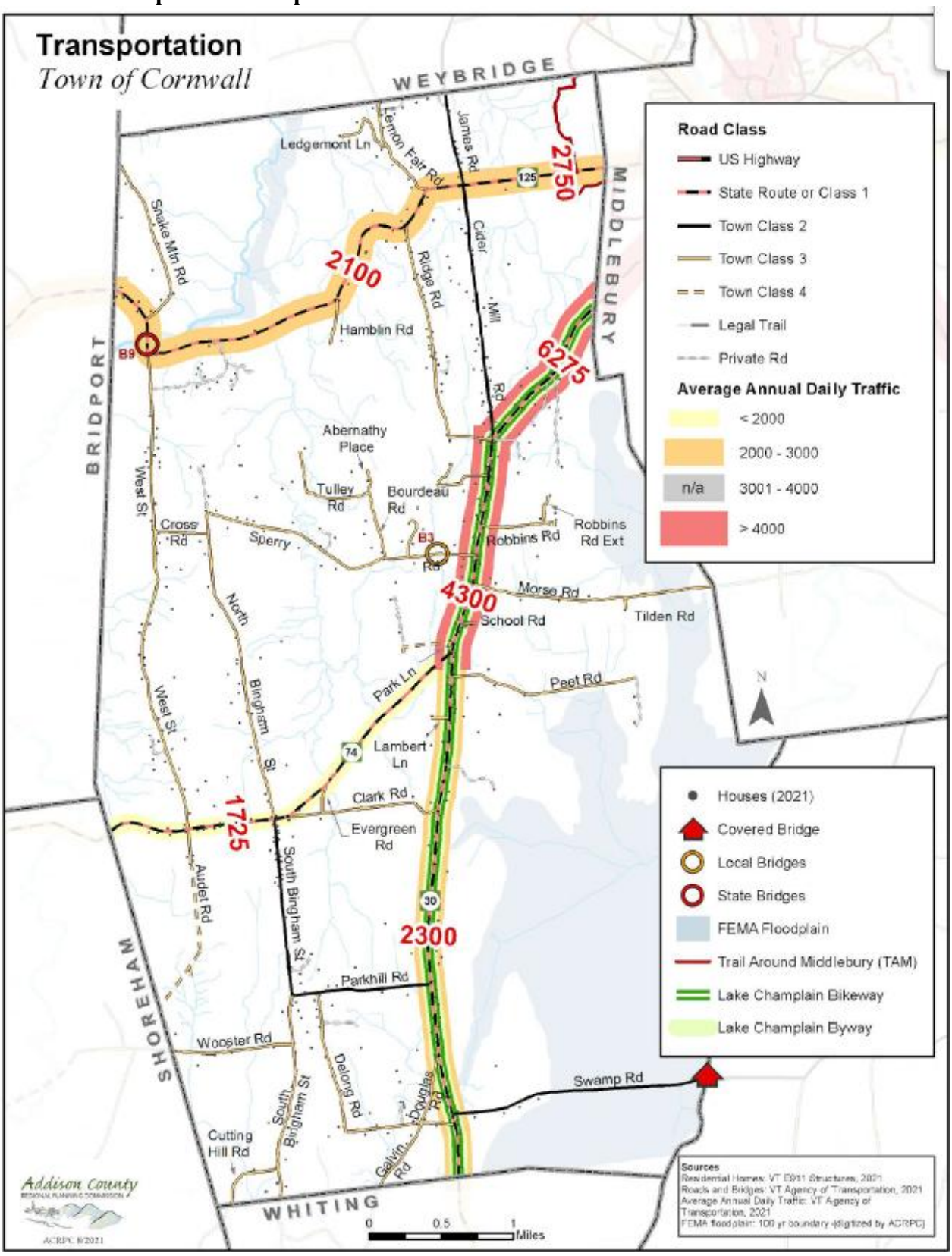
2.2.4. Flood Resiliency Map



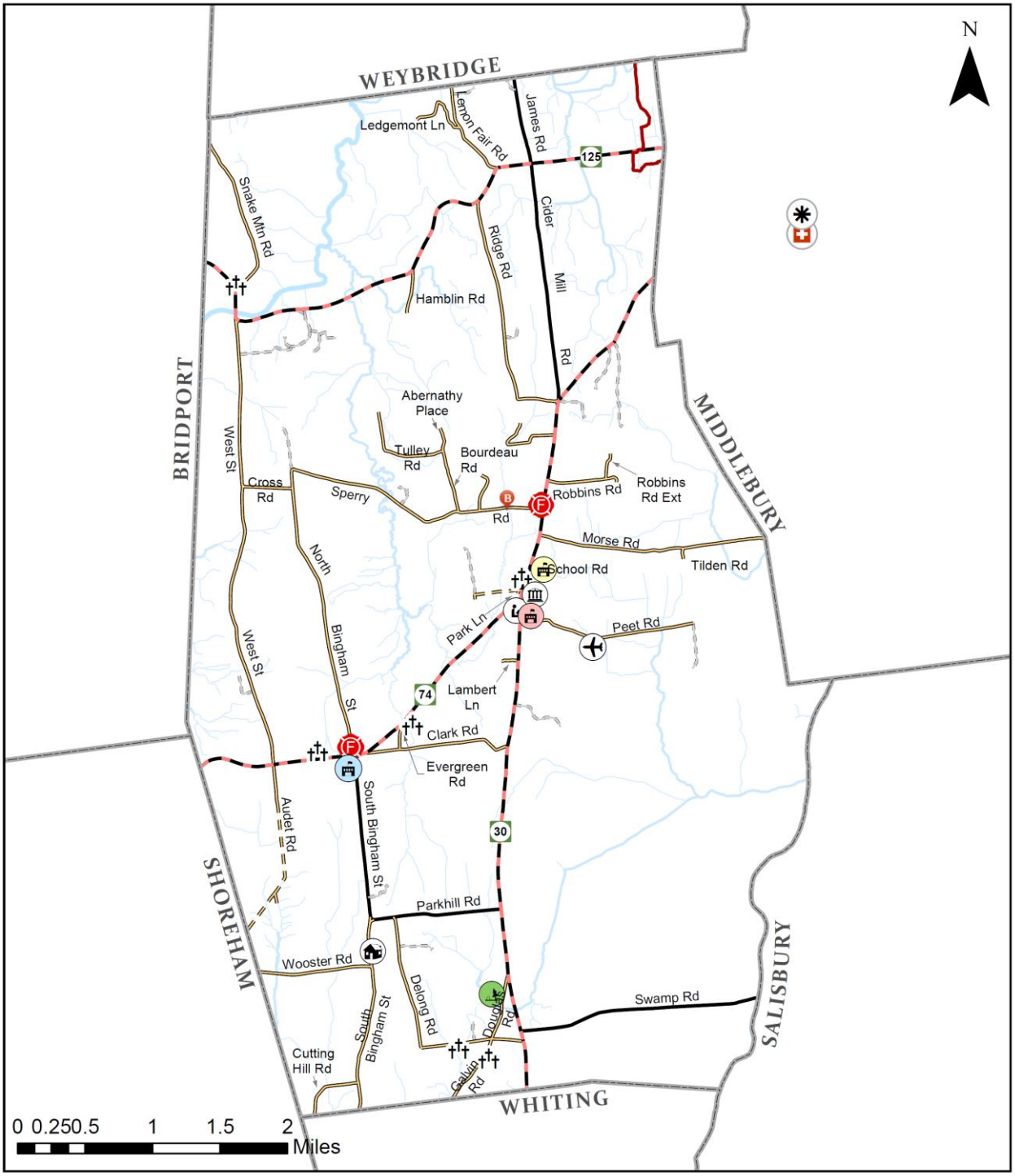
2.2.5. Community Facilities Map



2.2.6. Transportation Map



2.2.7. New Development (2018-2025) Map

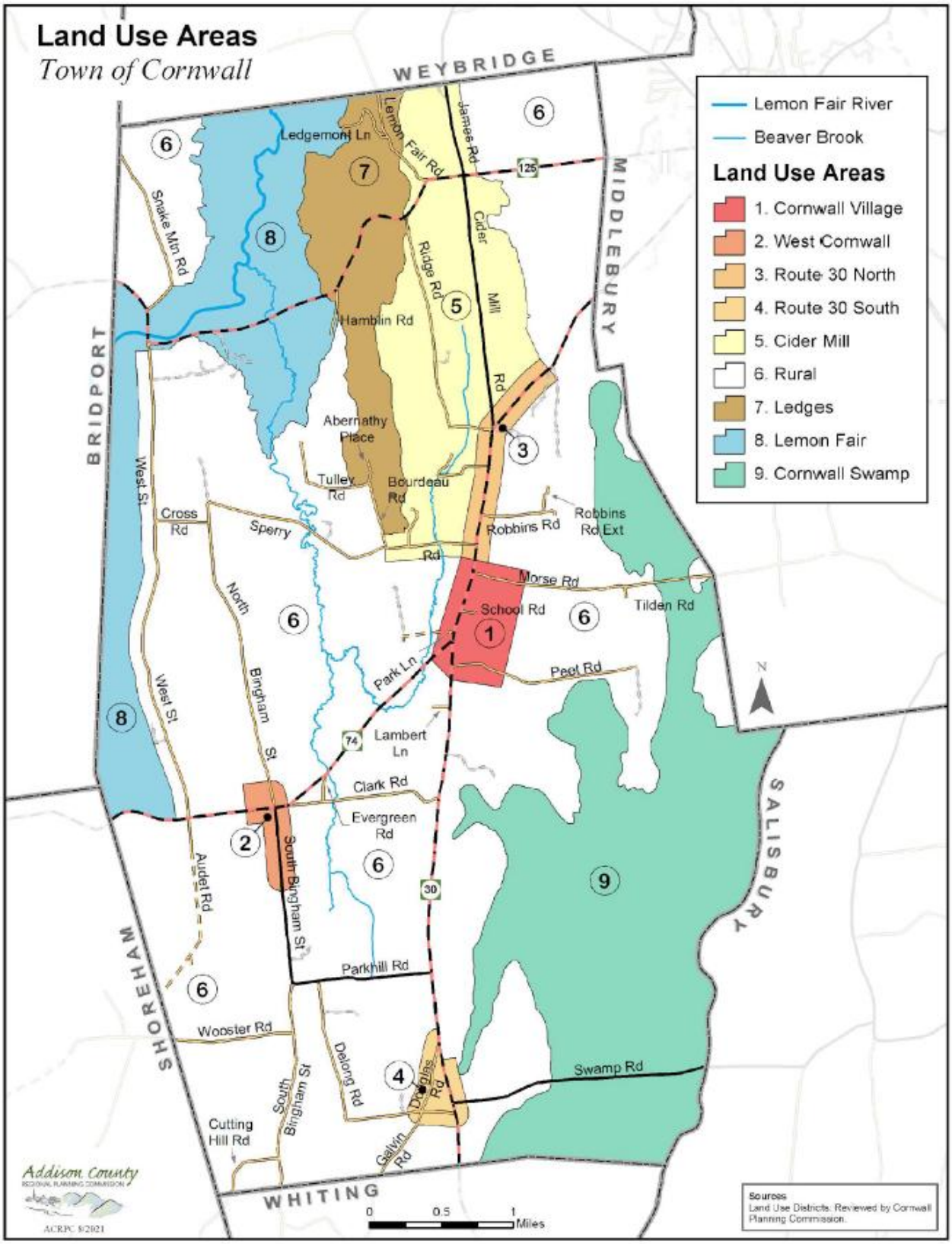


Cornwall, VT
Community Facilities

ACRPC 1/2025

- Middlebury Regional EMS
- Porter Medical Cener
- Peet Airfield (private)
- Peet School House
- Bingham Memorial School
- #5 School House
- Douglas Pond Recreation Area
- Town Hall
- D.A.R. Library
- Town Garage
- Fire Stations
- FireStationWC
- Cemetery
- Trail Around Middlebury (TAM)
- Bridges

2.2.8. Future Land Use Map



3. Existing Adopted Plans Which Support Hazard Mitigation

3.1. 2024 Cornwall Local Emergency Management Plan

Adopted annually and before May 1st each year and includes all required elements:

- Emergency Management (EM) Planners
- Municipal Emergency Operations Center (EOC)
- Municipal Resources
- Public Information and Warning
- Vulnerable Populations
- Shelters
- Local and Regional Contacts

3.2. 2023 Cornwall Municipal Plan and Land Use Plan Goals

Section: COMMUNITY FACILITIES AND SERVICES

GOAL 1: Work to ensure that Cornwall's public buildings can continue to accommodate the services needed by residents currently and in the future through the following actions.

i. Continue to support high quality fire and rescue services in town and ensure that there is adequate access for emergency vehicles to all residential and commercial development.

j. Continue to support the organizational and planning efforts of the Emergency Management Committee to ensure adequate preparation for potential large-scale emergencies.

Section: UTILITIES AND ENERGY

GOAL 2: Foster resource conservation by promoting energy efficiency, small-scale generation and local distribution of energy through the following actions.

c. Encourage dispersed, small-scale development of renewable energy generators, including solar panels and wind turbines, and net-metering as a way to make these systems more affordable.

GOAL 3: Ensure that energy infrastructure and services do not cause undue adverse impact to the health and safety of our residents or on the environmental quality of our town.

Section: TRANSPORTATION

GOAL 1: Reduce safety hazards throughout Cornwall's road network through the following actions:

a. Lobby Vermont Agency of Transportation to improve the safety of the intersection of Route 125 and Cider Mill Road.

b. Enter into substantive talks with the Vermont Agency of Transportation when planning the next round of repaving the approaches for Route 125 and 74 for the purpose of establishing paved shoulders wide enough to accommodate bicycles, joggers and pedestrians.

c. Support implementation and enforcement of slower speed limits and increased signage in the Historic Route 30 North, Cornwall Village and West Cornwall areas to reflect the population densities in these areas, and allow safer access by cyclists and pedestrians, and explore the feasibility of village crosswalks.

d. Support the creation of a plan to identify existing and potential bike and pedestrian networks throughout Cornwall.

GOAL 3: Ensure that private roads and drives are constructed and maintained to minimum standards through the following action:

a. Maintain the town's current standards for private roads to ensure they are in keeping with state standards for safe access by emergency vehicles.

Section: NATURE AND THE ENVIRONMENT

GOAL 2: Maintain and, where necessary, improve the quality of Cornwall's groundwater, surface waters and wetlands through the following actions.

a. Cooperate with agencies or organizations in monitoring the river's water quality and support the extension of this program to all of Cornwall's rivers and streams.

b. Require adequate management of storm-water runoff from developed lands, parking areas, roads and driveways so that surface waters are not negatively impacted by storm-water discharge.

c. Review and update zoning regulations to include specific setback requirements from riparian corridors.

d. Limit development in the floodplain to protect the ecological services that this area provides mitigating flood hazards.

e. Limit development in areas with steep slopes and other areas with high erosion potential.

f. Discourage negative impacts to wetlands, such as disruption of natural hydrology and soils, alteration of natural nutrient, chemical and sediment regimes, and degradation of natural community quality.

g. Work with landowners, land trusts, state and federal agencies, and other organizations to protect water quality, conserve groundwater resources and preserve functioning wetland systems

Section: FLOOD RESILIENCE

GOAL 1: Further develop and enhance the town of Cornwall as a Flood Resilient Community through the following actions.

a. Maintain and protect water resources including their functions to limit and mitigate flood-related damage.

b. Continue to maintain and upgrade as needed town road infrastructure to withstand potential flood events.

c. Encourage participation by townspeople in Flood Resiliency planning meetings and process.

d. Review and update Zoning and Subdivision Regulations in order to improve regulation of development in the Special Flood Hazard Area and River Corridor areas. Investigate simplifying interface between Zoning Districts and water resource feature-based overlays in order to improve and clarify regulation.

e. Consider and investigate conducting necessary steps to qualify for maximum State funding (17.5%, 92.5% total) from the Emergency Relief and Assistance Fund.

f. Continue annual updates of the Local Emergency Management Plan.
g. Continue maintaining and, as needed, updating of Local Hazard Mitigation Plan.
h. Using existing GIS resources, investigate developing and maintaining a digital mapping database (GIS) that would include parcel boundaries, zoning districts, wetlands, river corridors, Special Flood Hazard Area, special features, etc.

3.3. 2018 Addison County Regional Plan

Goals that support hazard mitigation:

- Work to restore and maintain stream equilibrium by developing and implementing river corridor plans.
- Reduce flooding and related damages through appropriate mitigation techniques.
- Encourage watershed-based cooperation and educate towns and the general public about water quality and stream dynamics
- Provide communities the support they need to be proactive in reducing flood and erosion hazards by adopting appropriate zoning regulations to limit development in hazardous areas.
- Encourage proper maintenance and sizing of bridges, culverts and other structures to accommodate flow from storm events and to mitigate flood hazards.
- Reduce the loss of life and injury resulting from all hazards.
- Mitigate financial losses incurred by municipal, residential, industrial, agricultural and commercial establishments due to disasters.
- Reduce the damage to public infrastructure resulting from all hazards.
- Recognize the connections between land use, storm-water, road design/ maintenance and the effects from disasters.
- Ensure that mitigation measures are sympathetic to the natural features of the region's rivers, streams and other surface waters; historic resources; character of neighborhoods; and the capacity of the community to implement them.
- Encourage hazard mitigation planning as a part of the Municipal Planning Process.
- Encourage municipalities and landowners to consider VT Agency of Natural Resources riparian guidelines for habitat and flood protection.

3.4. 2023 State of Vermont Hazard Mitigation Plan

Goals:

Protect, restore and enhance Vermont's natural resources to promote healthy, resilient ecosystems.
Enhance the resilience of our built environment – our communities, infrastructure, buildings, and cultural assets.
Develop and implement plans and policies that create resilient natural systems, built environments, and communities.
Create a common understanding of – and coordinated approach to – mitigation planning and action.

Priority Plan Actions:

Utilizing existing FEMA mapping updates and the Functioning Floodplain Initiative, develop an inventory of critical headwater and floodplain storage areas that would result in a measurable abatement of flooding.
Develop a drought plan for Vermont to include analyzing water level/monitoring data to use as predictor of drought and rates of recovery.
Develop a wildfire mitigation plan, to include research on the long-term future risk of wildfire due to climate change, determine existing infrastructure for wildfire suppression, and develop wildfire mitigation options.
Support municipalities in developing a prioritized list of transportation infrastructure improvements that increase resilience using PROTECT and/or other funding sources.
Increase Public Service Department capacity to maximize utilization of available federal dollars (including IIJA, IRA, ARPA, and EDA) towards utility resilience implementation work.
Assess all state/federal funding/technical assistance programs, as well as State permitting programs, to determine areas for better alignment around state hazard mitigation priorities.
Identify sustainable, long-term funding to support hazard mitigation and local match, to include: purchase of hazard-prone properties and easements to conserve river corridors, floodplains, and wetlands identified as key flood attenuation areas.
Complete an assessment of heat risks in urban areas of Vermont and expected impacts on historically disadvantaged populations, identify strategies for mitigating impacts (e.g., urban forestry, green roofs, green infrastructure, and/or other vegetative strategies; increased use of highly reflective and/or high emittance materials for pavement, roofs, and building).
Develop a methodology and protocol for quantifying climate mitigation, resilience, and adaptation impacts (Climate Action Office measuring and assessing progress tool).
Develop an analysis of existing Resilience Hub locations, including identification of new locations, and identification of key components that should be co-located within a Resilience Hub.

4. Community Risk Assessment

Requirement 44 CFR § 201.6(c)(2)(i)
(Description of all natural hazards)

4.1. Risk Prioritization Process

The Town of Cornwall's Hazard Mitigation Planning Committee reviewed the following hazards in its Hazard Inventory/Risk Assessment, examining each of the 2018 State Hazard Mitigation Plan assessed hazards:

- Inundation Flooding,
- Fluvial Erosion
- Severe Snow Storm
- Ice Storm
- Tornado or High Winds
- Severe Cold
- Invasive Species
- Landslides
- Wildfire
- Drought
- Hail
- Infectious Disease outbreak
- Severe Heat
- Earthquake
- Dam Failure

While completely human-caused hazards were removed in the most recent State of Vermont's 2018 hazard mitigation plan, the Cornwall committee felt that additional hazards should be included in the assessment due to community concerns and potential impacts:

- Widespread Power Failure
- Structure Fire
- Highway Accident
- Large-Scale Hazardous Materials Incident

The Cornwall Hazard Mitigation Planning Committee then assessed the town's vulnerability to each hazard for each of the following factors:

- **Probability,** or likely frequency of occurrence from historical trends and future projections
- **Warning**, or the projected time available to give notice to the majority of the population
- **Geographic impacts**, or how much of the population is expected to be impacted
- **Potential impacts**, or the potential severity of damages and disruption to lives and property.

Overall Vulnerability was then calculated by taking the total score of Warning, Geographic Impact, and Property Damage and multiplied by Probability. This score was divided by 4 to increase the scoring legibility and rank hazards on a 12-point scale.

In an effort to validate the risk assessment completed by the Steering Committee, community input was solicited through both an online survey and interactive display at Town Meeting Day to solicit input. The priority scores indicated by community members were very similar to those determined by the steering committee and comments supported including the additional hazards (See **Appendix 1**).

4.1.1 Hazard Inventory/Risk Assessment Parameters

Probability: Frequency of Occurrence

1= Unlikely	<1% in a given year
2= Occasionally	1%-10% probability in a given year
3= Likely	>10% but <90% in any given year
4= Highly Likely	90%-100% probability in a given year

Warning: Time available to give notice to the majority of the population

1= More than 12 hours
2= 6-12 Hours
3= 3-6 hours
4= <3 hours (minimal)

Geographic Impacts: How much of the population is expected to be impacted

1= Isolated Locations/neighborhood	<20% of population impacted
2= Moderate impact	>20% and <75% of population impacted
3= Community-wide	>75% of population impacted within community
4= Region-wide	Level 2 & 3 impacts in surrounding communities

Potential Impact: Severity of damages and disruption to lives and property

1= Negligible	Isolated property damage, minimal disruption to infrastructure
2= Minor	Isolated moderate to severe property damage, brief disruption to infrastructure
3= Moderate	Severe damages at neighborhood level, temporary closure of infrastructure
4= Major	Severe damages town-wide, temporary to long-term closure of infrastructure

Vulnerability: Total score of Warning, Geographic Impact, and Property Damage, multiplied by Probability (and divided by 4 to increase legibility of scale)

Community Priority:

Highest Priority	Vulnerability score > 6
High Priority	Vulnerability score > 4 and ≤ 6
Moderate Priority	Vulnerability score > 3 and < 4
Low Priority	Vulnerability score ≤ 3

4.1.2 Town of Cornwall Risk Assessment Results 2025

New evaluation	Hazard	Hazard Impact	Potential Occurrence Location	Probability	Warning Time	Geographic Extent	Potential Impact	Total Vulnerability Score	Community Priority
				1(Unl)-4(High)	1(Long)-4(Short)	1(Little)-4(Wide)	1(Neg)-4(Maj)	Prob. x Other Factors (/4)	
	Severe Ice Storm	Property Damage and Power Outage	Whole town	4	2	4	3	9.00	**Highest**
	Insect-borne Illness	Health risk	Whole town	4	1	4	3	8.00	**Highest**
	High Winds	Property Damage and Power Outage	Southwest Exposures	4	3	2	2	7.00	**High**
	Invasive Species	Property Damage, Health Risks	Whole town	4	1	3	3	7.00	**High**
	Flash Flooding & Fluvial Erosion	Property damage and road closure	Areas immediately adjacent to rivers and streams	4	3	2	2	7.00	**High**
*	**Severe Heat**	Health Risk	Whole town	4	1	4	2	7.00	**High**
	Infectious Disease Outbreak (Pandemic)	Human health	Whole town	3	1	4	4	6.75	**High**
	Widespread Power Failure	Health Risk, property damage	Whole town	3	4	2	2	6.00	**High**
	Wildfire	Structure Fires and Property Damage, Air throughout town	Residential areas with forest and grassland, human health	3	4	2	2	6.00	**High**
	Structure Fire	Property damage, Injury	Individual Structures	4	4	1	1	6.00	**High**
*	**Severe Cold**	Health risk	Whole town	3	1	4	3	6.00	**High**

New evaluation	Hazard	Hazard Impact	Potential Occurrence Location	Probability	Warning Time	Geographic Extent	Potential Impact	Total Vulnerability Score	Community Priority
				1(Unl)-4(High)	1(Long)-4(Short)	1(Little)-4(Wide)	1(Neg)-4(Maj)	Prob. x Other Factors (/4)	
	Hail Storm	Property and Crop Damage	Whole town	3	4	2	1	5.25	**Mod.**
	Severe Snow storm	Closed Roads, Property Damage and Power Outage	Whole town	3	1	4	2	5.25	**Mod.**
	Highway Accident	Human injury, property damage	Along roads	3	4	1	1	4.50	**Mod.**
	Drought	Loss of Drinking Water, Crop damage	Farms and Residences served by private wells	3	1	4	1	4.50	**Mod.**
	Lightning Storm	Fire Damage	High structures and ridges	3	3	1	2	4.50	**Mod.**
	Tornado	Property Damage and Power Outage		2	3	1	3	3.50	**Mod.**
*	**Inundation Flooding**	Water Damage	Low-lying Areas adjacent to Otter Creek, Cornwall Swamp, and the Lemon Fair River	4	1	1	1	3.00	**Mod.**
	Earthquake	Structure and Property Damage	Whole town	1	4	3	2	2.25	**Low**
	Large-Scale Hazardous Materials Incident	Health risk/contamination	Along major roads and Tier II sites	1	4	1	2	1.75	**Low**
	Dam Failure	Property damage, road closure	Vermont Route 125	1	4	1	2	1.75	**Low**
*	**Landslide**	Health Risk, property damage	Steep slopes	1	4	1	1	1.50	**Low**

4.2. Risk Prioritization Results

The committee calculated the following hazards as the Highest overall vulnerability:

- Severe Ice Storm
- Insect-borne Illness

Nine additional hazards received a High vulnerability score:

- High Winds
- Invasive Species
- Flash Flooding & Fluvial Erosion
- Severe Heat
- Infectious Disease Outbreak
- Widespread Power Failure
- Wildfire
- Structure Fire
- Severe Cold

Seven additional hazards received a Moderate vulnerability score:

- Hail Storm
- Severe Snow Storm
- Highway Accident
- Drought
- Lightning Storm
- Tornado
- Inundation Flooding

Four additional hazards received a Low vulnerability score:

- Earthquake
- Large-Scale Hazardous Materials Incident
- Dam Failure
- Landslides

4.3 Hazards: Location, Extent, Previous Occurrences, Future Probability and Vulnerability

Addison County has experienced just over a dozen federally-declared disasters over the past decades (see Figure and Table). Most of these have been due to severe storms and associated flooding.

The Town of Cornwall has avoided most of the physical effects and financial damage of these disaster events. The costliest storm events were flooding in spring 2011 (months prior to Tropical Storm Irene), and a snowstorm in March 2001. The town received some public assistance following these events, but the individual assistance damage threshold was not met.

The vulnerability scores for earthquake and landslides have changed since the last plan based on USGS data and local knowledge.

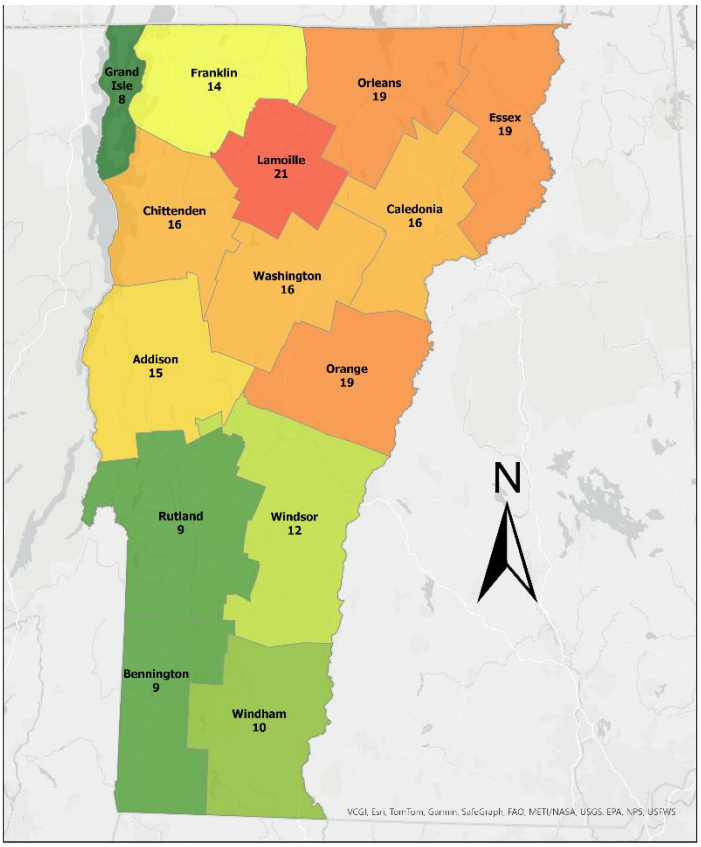


Figure. Federally Declared Disasters in Vermont by County, 2003-2024

Table. Federally declared disasters and costs affecting Addison County

Year	Incident Date	Description	Declaration #	County Cost
2024	July 29- 31, 2024	Severe Storms, Flooding, Landslides, and Mudslides	DR4826	Unavailable
2023	Jul 7- 21, 2023	Severe Storms, Flooding, Landslides, and Mudslides	DR4720	Unavailable
2022	Dec 22- 24, 2022	Severe Storms and Flooding	DR4695	Unavailable
2021	July 29 - July 30, 2021	Severe Storms and Flooding	DR4621	Unavailable
2020	Jan 20, 2020 - May 11, 2023	Vermont COVID -19 Pandemic	DR4532	Unavailable
2019	April 15, 2019	Severe Storms and Flooding	DR4445	Unavailable
2019	October 31- November 1, 2019	Severe Storms and Flooding	DR4474	Unavailable
2017	Oct 29 - Oct 30, 2017	Severe Storms and Flooding	DR4356	Unavailable
2017	June 29 - Jul 1, 2017	Severe Storms and Flooding	DR4330	Unavailable
2015	June 9, 2015	Severe Storms and Flooding	DR4232	$893,310.63
2015	December 9 - 12, 2014	Severe Winter Storms	DR4207	$184,715.05
2012	May 29, 2012	Severe Storm, Tornado and Flooding	DR4066	$172,847.70
2011	August 26-September 2, 2011	Hurricane Irene	EM3338	Unavailable
2011	August 27-9/2/2011	Tropical Storm Irene	DR4022	$1,175,911.20
2011	April 23- May 9, 2011	Severe Storms and Flooding	DR1995	Unavailable
2008	June 14-17, 2008	Severe Storms and Flooding	DR1778	$1,114,515.70
2008	July 21-August 12, 2008	Severe Storms and Flooding	DR1790	$2,273,481.42
2004	August 12- September 12, 2004	Severe Storms and Flooding	DR1559	$430,551.00
2001	March 5-7, 2001	Snowstorm	EM3167	$138,333.08
2000	July 14-18, 2000	Severe Storms and Flooding	DR1336	$738,127.27
1998	January 6-16, 1998	Ice Storms	DR1201	$662,388
1998	July 17-August 17, 1998	Severe Storms and Flooding	DR1228	$2,146,484
1996	January 19- February 2, 1996	Storms, Flooding	DR1101	$130,529
1993	April 24- May 26, 1993	Flooding, Heavy Rain, Snowfall	DR990	$17,639
1989	August 4-5, 1989	Severe Storms, Flooding	DR840	$31,033
1977	September 6, 1977	Drought	EM3053	$ Unavailable
1976	August 5, 1976	Severe Storms, High Winds, Flooding	DR518	$ Unavailable
1973	July 6, 1973	Severe Storms, Flooding, Landslides	DR397	$ Unavailable

* data for declared disasters is only available at the county scale.

Each of the hazard types have been identified, evaluated and listed in order of priority as identified by the Cornwall Hazard Mitigation Committee as shown in their risk assessment. Other hazards identified in Vermont's state hazard mitigation plan did not rise to the same level of concern by the local planning committee. Hazard types are listed in their order of priority with highest perceived vulnerability described first.

Requirement 44 CFR § 201.6(c)(2)(i) (Hazard information- Location, Extent, Previous Occurrences)
Requirement 44 CFR § 201.6(c)(2)(ii) (Hazard Impacts, Vulnerability)
Requirement 44 CFR § 201.6(c)(d)(3) (Development in hazard-prone areas)

4.3.1 Severe Ice Storm (Vulnerability Score 9.00)

Location:

Severe ice storms are common throughout Vermont and can occur geographically in any part of Cornwall. Located in the Champlain Valley below the Green Mountains, Cornwall is at greater risk for more widespread ice accumulation. Generally, ice storms strike within a particular elevation band depending on temperatures with higher elevations experiencing snow and lower elevations experiencing rain.

Extent:

Because winter storms are extremely temperature and elevation dependent, they are notoriously difficult to predict. When conditions conducive to ice build-up are predicted, the National Weather Service issues a Winter Storm Warning with emphasis on ice accumulation.

The Winter Storm Severity Index (WSSI) (Appendix 5) is a categorization of overall severity based on six components:

- **Snow Amount:** to depict severity due to total amount of snow or rate of snowfall accumulation. (Adjustments are made based on climatology and urban areas)
- **Snow Load:** to depict severity due to total weight of snow on trees and power lines.
- **Blowing Snow:** to depict severity mainly to transportation due to blowing and drifting snow.
- **Ice Accumulation:** to depict severity of transportation and downed trees/powerlines due to the accumulated ice in combination with wind.
- **Ground Blizzard:** to depict severity to mainly transportation of ground blizzards that develop due to a pre-existing snowpack and strong winds.
- **Flash Freeze:** to depict severity primarily to transportation of situations where temperatures rapidly fall below freezing during precipitation.

Previous Occurrences:

The National Climatic Data Center reports that the Addison Region has experienced two major Ice Storm events over the past 25 years. During that period an estimated $850,000 in total property damages were recorded in the region. The highest recorded damages were incurred during the January 1998 Ice Storm which impacted most of the northeastern US and resulted in ice

accumulations of up to ¾ inch, a loss of power for up to 2.5 weeks, and $750,000 in damages to Addison County. The Cornwall hazard mitigation committee identified the 1998 ice storm as the worst that had occurred in the region. Fortunately, the residents of Cornwall were largely spared the effects of this storm. On December 22-23, 2022, Addison County received high winds, downing power lines and closing roads, followed by cascading temperatures falling into the single digits, with wind chills of zero to the minus 0's, but again Cornwall was largely spared the effects.

Since 1970, NOAA has documented winter storms across Addison County in a number of events, spanning the period from November to April:

	January	February	March	April	May	June	July	August	September	October	November	December
Ice Storm	1	0	0	0	0	0	0	0	0	0	0	1
Winter Storm	28	38	42	10	0	0	0	0	0	1	14	42
Winter Weather	54	32	27	12	0	0	0	0	0	7	11	44

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

The impacts within the Town of Cornwall are generally limited to residents impacted by loss of power and the occasional downed tree or branches in the road. Loss of power to the town hall and garage are of concern due to the frequency of losses at these locations. In March 2001 a string of storms hit Cornwall and the rest of Vermont, beginning with 15-30" of snow on March 5-6, followed by 10-30" on March 22, and 10-20" on March 30.

Future Probability:

Warmer temperatures such as might be anticipated with climate change would result in less snow and a higher likelihood of ice in winter. Other predictions indicate that climate change will bring more atmospheric moisture and snowfall, or jet stream alternations producing "Bomb Cyclones" that might increase sudden deep freezes or ice storms in early spring and late fall. In all cases, winter storms are predicted to increase in severity. Changes in land use and development are not expected to increase the impacts of ice storms or power outages on community assets or the population.

Vulnerability Summary:

The Town of Cornwall is a rural community with one major highway and dispersed population. Utility company priorities following storms are to repair the simplest fixes which impact the highest total populations as the highest priority. As a result, there is a high risk of extended power failures due to ice storm throughout the Town of Cornwall.

Severe Ice Storms are considered the **HIGHEST PRIORITY** for the Town of **Cornwall**, with an overall vulnerability score of 9.00 determined.

4.3.2 Insect-borne Illness (Vulnerability Score 8.00)

An infectious disease is caused by micro-organisms, such as bacteria, viruses or parasites. A vector-borne disease is an infectious disease that is transmitted to humans by blood-feeding arthropods, including ticks, mosquitoes, and fleas, or in some cases by mammals (e.g. rabies). For the purposes of this plan, Cornwall has separated insect-borne diseases, transmitted primarily through mosquitoes, into a separately evaluated hazard.

Cornwall is a member of the Lemon Fair Insect Control District (LFICD), one of only two insect control districts in the state of Vermont (the other is located in the towns on the opposite side of Otter Creek). The LFICD has identified about 800-900 treatable acres along the Lemon Fair River, and up to 400 acres in the Cornwall Swamp.

The Vermont Department of Health has classified vector-borne and other infectious diseases into five threat categories (see full chart in infectious disease section). Diseases spread by mosquitoes include:

Threat Classification	Disease
Diseases already present in Vermont that may be exacerbated by climate change	West Nile Virus
	Eastern Equine Encephalitis
	Jamestown Canyon Virus
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
Diseases with vectors that may spread to Vermont by the end of the century under a higher emission scenario	Dengue
	Zika Virus
	Chikungunya Virus
Diseases that have 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
	Rift Valley Fever

2016 Vermont Climate Health Report

Location:

In Cornwall, mosquito-borne illness poses a seasonal health threat, particularly during the warmer months when mosquito populations flourish. The Lemon Fair River, with its slow-moving waters and adjacent floodplains, creates ideal breeding grounds for mosquitoes, is the primary habitat for a floodplain mosquito known as *Aedes vexans* (a nuisance mosquito).

The Cornwall Swamp provides a large, undisturbed wetland habitat where *Culiseta melanura* black mosquito larvae thrive, and are known to carry Eastern Equine Encephalitis (EEE). Additionally, numerous wet areas on private properties—such as poorly drained lawns, clogged gutters, and standing water in containers—serve as smaller, but widespread breeding sites that help sustain local populations of Common or Northern House Mosquitoes (*Culex pipiens)* known to carry diseases such as West Nile virus.

The risk to surrounding populations varies based on proximity to these breeding areas and individual property conditions. Residents living near the Lemon Fair River and Cornwall Swamp face elevated exposure, particularly if preventative measures are not taken to control standing water or limit outdoor activity during peak mosquito hours. However, even those farther from large wetlands may be affected due to mosquitoes traveling short distances and breeding in overlooked backyard environments. Public health agencies urge continued surveillance and mosquito control efforts, along with public education campaigns, to reduce the risk of transmission and protect community health throughout the region.

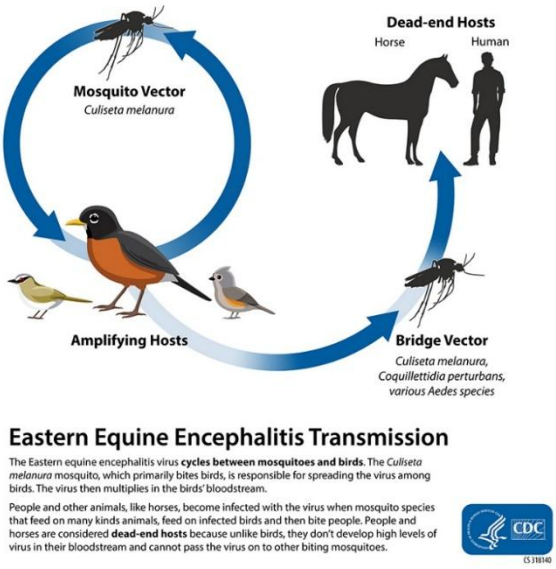
Extent:

West Nile virus (WNV) is a Flavivirus from the family Flaviviridae that can infect a wide range of vertebrates. Birds are the natural reservoir for WNV. WNV is maintained in nature in a mosquito–bird transmission cycle primarily involving Culex mosquitoes. Many species of birds survive their infections and develop permanent immunity; the virus can even become amplified in some bird species, contributing to the transmission cycle between birds and mosquitos. However, several species become ill and die, particularly corvids such as crows, blue jays, and ravens.

Approximately 80% of humans infected with WNV do not develop symptoms, and 20% experience a febrile illness. Less than 1% develop severe neurologic illness, such as encephalitis or meningitis, which can be fatal in a small percentage of cases. People over 50 years of age and individuals with weakened immune systems are at greatest risk for severe illness.

The virus was first detected in Vermont in 2000 and has spread to all 14 counties. WNV is considered enzootic and widespread in Vermont, and the risk is considered uniform throughout the state. Active mosquito-based WNV surveillance is conducted June through October every year throughout Vermont, and passive veterinary and human surveillance is conducted year-round.

Eastern equine encephalitis virus (EEEV) is maintained in nature through avian hosts and *Culiseta melanura* mosquitoes located primarily in freshwater, hardwood swamps. Mosquito species from the genera *Aedes, Ochlerotatus, Coquillettidia*, and *Culex* that bite both birds and mammals are considered "bridge" vectors and allow transmission of EEEV to mammals



The virus is well established in North America, but human cases are relatively uncommon, with an annual average of 11 cases reported nationally during 2010–2019. Most EEEV activity has occurred in the Atlantic, Gulf Coast, and Great Lakes states. The first evidence of EEEV in Vermont was identified through a 2010 deer and moose serosurvey.
In humans, an infection with EEEV can vary from asymptomatic to severe illness. People who become ill with an EEEV infection either have systemic or encephalitic disease. Symptoms of a systemic illness include the abrupt onset of fever, chills, fatigue, arthralgia, and myalgia, which lasts 1–2 weeks. Those with encephalitic disease may have fever, headache, irritability, vomiting, diarrhea, convulsions, and other symptoms; approximately one third of people with encephalitis from EEEV infection die and about half of those who survive have some degree of permanent neurologic damage.

Jamestown Canyon Virus (JCV) is a bunyavirus belonging to the California serogroup and circulates in nature in a cycle including deer and various mosquito vectors. The transmission cycle of JCV is still not fully understood, but it is thought that early season mosquitoes, such as Ochlerotatus species, play a significant role in the early amplification of the virus within deer populations. These species overwinter as eggs and may be infected when they are laid in the fall by an infected female mosquito. When the eggs hatch after the snow melts in the spring, they are able to transmit the virus when they take their first bloodmeal. Late season amplification as well as transmission to humans is also thought to be connected to certain Anopheles mosquitoes, which readily bite mammals, including humans.

Many people infected with JCV do not develop any illness, but the proportion of asymptomatic infections among all infections is unknown. In people who develop illness, JCV will cause a mild, febrile illness. Some patients also report respiratory symptoms, such as cough, rhinitis, or pharyngitis. The incubation period for JCV disease is unknown. Neuroinvasive disease (meningitis or encephalitis) has been reported. No human infections with JCV have been reported in Vermont to date. In recent years the number of annual JCV cases reported to the CDC by other states has been increasing, although this is thought to be due to increased awareness and testing efforts

The **Lemon Fair Insect Control District (LFICD)** operates an Integrated Mosquito Management (IMM) program focused on early intervention by targeting mosquitoes in their larval

stage before they emerge as adults. Formed to address mosquito populations in floodplain areas, particularly the Lemon Fair River and Cornwall Swamp, LFICD conducts extensive surveillance over approximately 800–900 treatable acres along the river and up to 400 acres in the swamp. The organization is funded by annual contributions of $6,000 each from its three member towns—Bridport, Cornwall, and Weybridge—as well as a longstanding $70,000 grant from Vermont Agency of Agriculture, Food & Markets (VAA F&M), which also supports the Otter Creek Watershed (OCW). C. Zondag, LFICD's sole employee, oversees all operations, including the hiring and training of two college interns each summer to assist with fieldwork and larviciding.

LFICD uses both ground and aerial methods to apply larvicide, with aerial treatments requiring at least 800 contiguous acres to justify the significant cost of contracting a helicopter service from North Fork, Long Island—an expense the budget can only support once or occasionally twice per year. The timing of treatments is crucial, as mosquito hatches are unpredictable and staggered, requiring constant surveillance to effectively coordinate control efforts. Beyond treatment, the LFICD also responds to resident complaints, often from those outside the immediate floodplain areas. In such cases, staff may conduct site visits and deploy CDC Light Traps to identify mosquito species and advise homeowners on reducing breeding habitats on their properties.

Previous Occurrences:

The state has an Arbovirus Surveillance and Response Plan[1], updated in 2024, that it implements with sampling and testing. Several insect-borne diseases are frequently present in and around Cornwall. West Nile Virus was confirmed in mosquito populations in Vergennes and New Haven in August and September of 2023. There have not been any cases of Jamestown Canyon Virus in Vermont since prior to 2011.

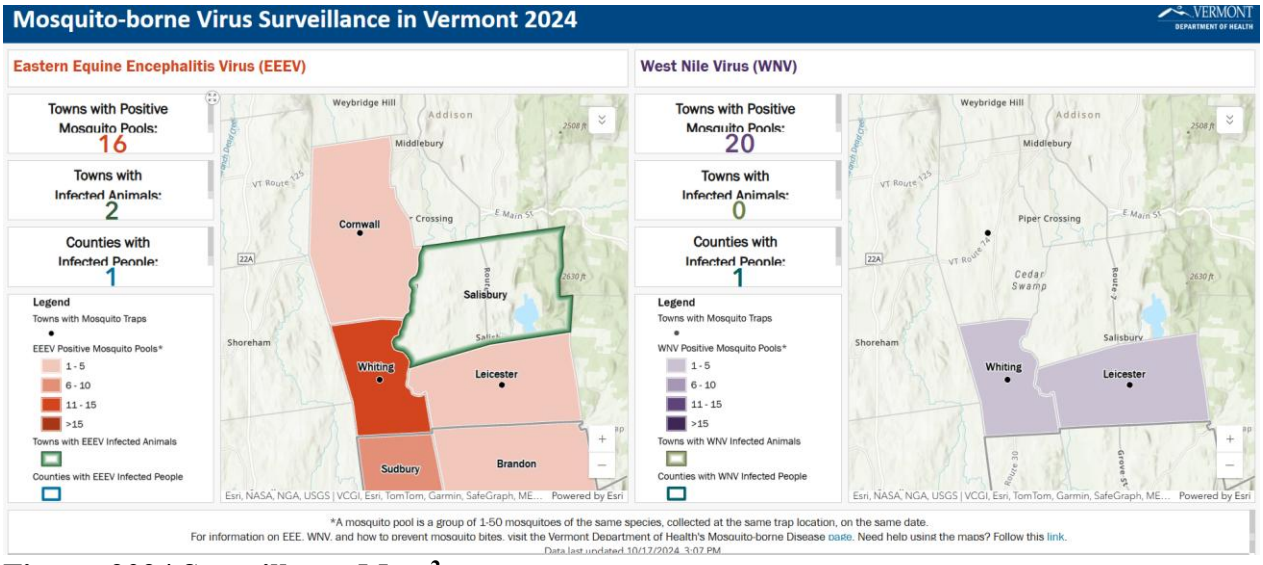


Figure. 2024 Surveillance Map [2]

[1] https://www.healthvermont.gov/sites/default/files/document/lsid-arbovirus-response-plan-2024.pdf

[2] https://experience.arcgis.com/experience/ac541a89a490435aa7beb80ec8e54bca/

Future Probability:

Climate change is intensifying the risk of mosquito-borne illnesses in Cornwall, Vermont, as warmer temperatures and increased precipitation create more favorable conditions for mosquito proliferation. The expansion of mosquito habitats, coupled with longer breeding seasons, heightens the potential for diseases such as Eastern Equine Encephalitis (EEE) and West Nile virus to affect the region. This trend is evident in the broader Northeast, where EEE cases have emerged in states including Vermont, New Hampshire, and Massachusetts, prompting public health advisories and preventive measures. In Vermont, the combination of milder winters and wetter summers has been linked to a surge in mosquito populations, thereby increasing the likelihood of disease transmission.

The Lemon Fair Insect Control District (LFICD), serving Cornwall and neighboring towns, plays a pivotal role in mitigating these risks through targeted mosquito surveillance and larvicide treatments. LFICD exercises Best Management Practices (BMP's) and as of 2025 has access to a drone service for aerial application of larvicide and are willing to come and treat 250 acres at a time. This will afford them to "stamp out fires" of mosquito hatches and stay on top of management in ways they have not been able to in the past. However, the district faces financial constraints, relying on static funding levels that have not adjusted in over a decade. This financial rigidity limits the LFICD's capacity to respond to the escalating challenges posed by climate change, such as the need for more frequent and widespread treatments.

The LFICD is charged with nuisance mitigation of mosquitoes. It is the responsibility of the State of Vermont and the Dept. of Health to mitigate disease transmitted by mosquitoes. However, The LFICD does serve as a watchdog to inform the state when their CDC Light traps collect more than normal numbers of potential disease-carrying mosquitoes. To sustain and enhance mosquito control efforts, it is imperative for the LFICD to secure increased funding and possibly expand its collaborative network beyond the current member towns. Such measures would bolster the district's ability to protect public health in the face of evolving environmental conditions.

Vulnerability Summary:

People who are most vulnerable to insect-borne diseases include immunocompromised individuals, elderly and young populations, and those frequently outdoors. Due to weakened immune systems or compounding factors of other illnesses or stressors these populations are at heightened risk of infection and death. Outdoor laborers and recreationalists are especially vulnerable to mosquito-vector transmission and tick bites that may cause Lyme disease. Future assets are not expected to experience increases in vulnerability due to land use changes or change in population demographics.

Insect-borne Illness outbreaks are considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 8.00 determined.

4.3.3 High Winds (Vulnerability Score 7.00)

High wind events can be the result of any of the following:

- **Wind Storm:** events without precipitation with gusts sustained at more than 31 mph for at least an hour or any gusts greater than 46 mph.
- **Hurricanes/Tropical Storms**: often result in high winds greater than 39 mph, along with inundation flooding, and fluvial erosion impacts.
- **Thunderstorm**: storms with precipitation, lightning, and/or hail, that can be compounded by downburst high winds potentially in excess of 80 mph.

(See Beaufort Wind and Saffir-Simpson wind scales in Appendix 4).

Location:

High winds can affect the entire planning area. In Vermont, high winds are most often seen accompanying severe thunderstorms. In Addison County, these storms usually originate from the west, southwest, or south.

Because Cornwall is about 5 miles from base of the Green Mountains, it is less vulnerable to downslope windstorms and related hazards. Large-scale hurricanes affecting the entire region are infrequent because hurricanes typically lose wind speed as they move inland and downgraded to tropical storms by the time they reach inland Vermont.

Extent:

Wind-producing storms can range significantly in size and type. Wind storms and hurricanes can affect the entire state in a single event. Squall line thunderstorms move in a line or front that can exceed 100 miles in length, with the strongest rains and winds at the front of the storm. Thunderstorms can produce downburst winds that affect the land immediately beneath a storm. These downburst winds are called microbursts, which move outward from the base of a thunderstorm.

Previous Occurrences:

In Vermont, high winds most often seen accompany severe thunderstorms. In fact, straight-line winds are often responsible for most of the wind damage associated with a thunderstorm. These winds are frequently confused with tornadoes because they exhibit similar wind speeds and cause similar damage but the winds do not rotate as they do in a tornado.

While thunderstorms and associated hazards can occur anywhere and at any time of the year in Vermont; spring and summer are the most common times for severe thunderstorms. Tornadoes typically occur in Vermont between March and August.

Since 1970 NOAA has documented wind-damage from over 150 thunderstorms across Addison County, primarily during the spring and summer:

	January	February	March	April	May	June	July	August	Septembe	October	November	December
Thunderstorm & Wind	0	1	2	0	21	32	72	35	9	3	3	1

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

Cornwall has had 9 NOAA-documented thunderstorm-wind events causing a reported $55,000 of property damage

Large-scale windstorms have affected wide portions of the state three times in the last decade: October 30, 2017, November 1, 2019, December 23, 2022. In each of these storms, strong winds affected all of Vermont's 14 counties, resulting in downed tree limbs, power outages, and uprooted trees which affected transportation routes.

Future Probability:

Wind events are considered **Highly Likely** in Vermont. The risk due to wind events is moderate for the built environment and minor for natural environment, people, and economy. Tornadoes are not common in Vermont. However, it is likely that as climate change accelerates, the area will see exacerbation of wind events such as hurricanes, tropical storms, and thunderstorms. Projected land use and population changes are not expected to significantly affect their impact on community assets or vulnerable populations, but may make such events more visible.

Vulnerability Summary:

People who live in rural, isolated communities like Cornwall are particularly vulnerable to windstorms. High winds can take down trees and power lines, resulting in blocked transportation routes, cut off electricity and telecommunication networks, and property destruction. Lack of electricity is life-threatening for those relying on electric life supports systems and electrical heating and cooling systems. In addition, isolated populations may have limited access to information and communication resources that could prevent injury or death. Future assets are not expected to experience increases in vulnerability due to land use changes or change in population demographics. Due to the risk to life and property represented by this hazard the Town expends considerable resources attempting to make its roads as safe as possible within a restricted budget. Future assets are not expected to experience increases in vulnerability to wind storms due changes in population demographics but they may increase with land use changes or increased residential development.

High Winds are considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 7.00 determined

4.3.4 Invasive Species (Vulnerability Score 7.00)

Invasive species are non-native introductions to an ecosystem whose presence causes or is likely to cause economic or environmental harm or harm to human health. invasive species can overwhelm native species and their habitats, forcing the native species out due to their ability to outcompete native species in their natural environments without the threat of a predator that can keep their populations in check. Invasive species are considered the second greatest threat to global biodiversity.

The State of Vermont has a long history of invasive species infestation in several categories, including:

Aquatic Species

- Zebra Mussel
- Eurasian and Variable-Leaf Watermilfoil
- Water Chestnut

Forest Pests

- Emerald Ash Borer
- Hemlock Woolly Adelgid*
- Asian Long-horned Beetle*

Arbovirus-Transmitting Arthropods

- Asian Tiger Mosquito (*Aedes albopictus*)*
- Asian Longhorned tick*

Disruptive Terrestrial Plants

- Japanese Knotweed
- Common Reed (Phragmites)
- Purple Loosestrife
- Garlic Mustard
- Buckthorn

Phototoxic Terrestrial Plants

- Giant Hogweed
- Wild Parsnip
- Wild Chervil

Tick Increasing Plants

- Japanese Honeysuckle
- Japanese Barberry

*Not yet present in Addison County

Aquatic Invasive Species pose a serious threat to lakes, ponds, and rivers by choking out swimming holes and crowding out beneficial native species, drastically impacting aquatic foodwebs and limiting fishing, or covering lake bottoms with a layer of sharp shells.

Forest Pests are insects that cause irreversible impacts on tree health and biodiversity.

Arbovirus-Transmitting Arthropods are a group of insects that transmit viral infections through their bites.

Disruptive Terrestrial Plants are invasive plants can change soil composition, change water tables, and disrupt insect cycles, negatively affecting native plant regeneration, agricultural crops, ecosystem function, recreation and wildlife habitat, and human health.

Phototoxic Terrestrial Plants are invasive plants whose sap can cause a chemical reaction that makes skin hypersensitive to ultraviolet sunlight if it makes direct contact with human skin and potentially cause serious skin burns.

Tick Increasing Plants are plants have proven to increase the incidence of Lyme disease by providing sheltered habitat that increases the abundance of small rodents, which act as hosts to the ticks that carry Lyme disease pathogens.

Location:

Invasive species are commonly introduced via travel routes, unintentionally brought into Vermont with the transportation of people and goods. As a result, many are found along roadsides and in waterways across the entire state. Aquatic Species have become established in Otter Creek (Water Chestnut).

Cornwall contains relatively little forest cover susceptible to Forest Pest insects, in comparison to neighboring municipalities. Cornwall's largest forest blocks are located in Cornwall Swamp and the Ledges. Large trees on the Ledges adjacent to Route 125 and other trees along other roads and driveways in town could be impacted. Cornwall is within the five mile "confirmed infested areas" of confirmed Emerald Ash Borer locations in Middlebury and Bristol.

Phototoxic Terrestrial Plants like Wild Parsnip are especially common in abandoned yards, farmland, and along roadsides and other disturbed environments. They spread by seed via waterways, wind, mowers, and wildlife.

Extent:

Invasive species have a variety of effects on humans and the environment so characterizing the extent of their spread is a challenge.

Forest Pest insects threaten more than 14 different species of trees in Vermont, including: maple, elm, horse chestnut, willow, ash, poplar, European mountain ash, hackberry, and hemlock.

Wild parsnip secretes a toxic sap that contains furanocoumarins, chemicals that make the skin extremely sensitive to ultraviolet (UV) rays. The toxic sap, in combination with sun exposure, can cause a severe skin reaction called phytophotodermatitis, which usually starts within 24 to 48 hours of exposure. The reaction can turn into a severe rash or blistering burn and lead to discoloration of the skin or photosensitivity that can last for years.

Previous Occurrences:

Because invasive species often spread over a long period of time and have dispersed effects, identification of hazard events concerning invasive species is difficult.

- The zebra mussel was discovered in Lake Champlain in the summer of 1993.
- The emerald ash borer was first discovered in Vermont in February 2018, and was detected in nearby Bristol (2019) and Middlebury (in 2021).
- Wild Parsnip was likely brought by early European settlers, but has escaped cultivation and populations have increased dramatically across the state in the last decade. In recent years it has been documented to cause 2nd degree burns to several individuals in parts of Vermont.

Future Probability:

Changes in climate are expected to increase the probability of invasive species introduction and spread, but projected land use and population changes are not expected to affect their impact on community assets or vulnerable populations. Existing and new invasive species are expected to continue moving into Cornwall through human transport and by natural reproductive spread.

Phototoxic Terrestrial Plants like Wild Parsnip can form dense stands which outcompete native species and become self-sustaining populations that continue to expand if not eradicated.

Some mobile species like ticks and Woolly Adelgid are moving north from southern Vermont and are expected to continue moving as milder winter temperatures allow them to overwinter. The *Aedes albopictus* (Asian tiger) mosquito, which can carry and transmit Zika, dengue, and other arboviruses including West Nile Virus, has an estimated geographic range that includes southern Vermont and is anticipated to move into Addison County.

In addition to concerns over Vermont's ash tree population, northern hardwood species like maple, yellow birch and American beech are predicted to largely vanish in the State, replaced by tree species such as oak and pine that thrive in warmer, drier conditions. The changing climate is expected to lead to less available water, resulting in additional stress to existing trees, which will increase their vulnerability to pest invasion and disease.

Vulnerability Summary:

Warming temperatures and milder winters makes Vermont more vulnerable to insect borne diseases and increases the chance these diseases can overwinter. While not strictly invasive, this shift in species distribution and range could threaten human health in the state. As the global climate continues to shift rapidly rate, species better adapted for warmer climates will continue to proliferate, causing changes in ecosystem composition that could destabilize basic ecosystem functions. Monetary and health costs associated with the disturbances invasives cause will continue to increase. However, future assets are not expected to experience increases in vulnerability to invasive species due to land use changes or changes in population demographics.

Invasive Species are considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 7.00 determined.

4.3.5 Flash Flooding & Fluvial Erosion (Vulnerability Score 7.00)

Fluvial erosion is the wearing-away of streambed and streambank associated with physical adjustment of stream channel dimensions (both width and depth). It occurs naturally in stable, meandering rivers and small streams.

Fluvial erosion typically occurs as a result of one of the following:

Rainfall: Significant precipitation from rainstorm or hurricane/tropical storm, causing flash flooding when a large amount of precipitation occurs over a short period of time.

Snowmelt: Melted runoff due to rapidly warming temperatures, often exacerbated by heavy rainfall. The quantity of water in the snowpack is based on snow depth and density.

Ice Jams: A riverine back-up when flow is blocked by ice accumulation, often due to warming temperatures and heavy rain which causes snow to melt rapidly.

Location:

The generally gentle topography of Cornwall does not lend itself to widespread high velocity flood events common to fluvial erosion events. Previous plans have identified several vulnerable areas where roadways cross streams and the statewide Transportation Resilience Planning Tool (TRPT) identifies portions of VT Route 30, VT Route 125, and Swamp Road as highly vulnerable and critical. Portions of Peet Road and Sperry Road, serving several residences, are at higher risk.

Extent:

Summer downpours and remnants of tropical storms can have the effect of concentrating flood waters into small and narrow areas, particularly in steeper geographic regions. According to NCDC statistics, the Addison Region has experienced 31 flash flood events over the past 25 years.

The highest record of damage in Addison County was $1,000,000 during that period in July of 1998. During the period an estimated $32,310,000 in property damages and $1,500,000 in crop damages were incurred. None of this damage was experienced in Cornwall due to the limited infrastructure located in susceptible terrain. Cornwall may also be affected indirectly by flash flooding in nearby areas, as the closing of other North-South state routes (VT Route 22 or VT Route 7) might result in an inordinate amount of traffic being directed onto VT Route 30 and other parts of Cornwall's road system.

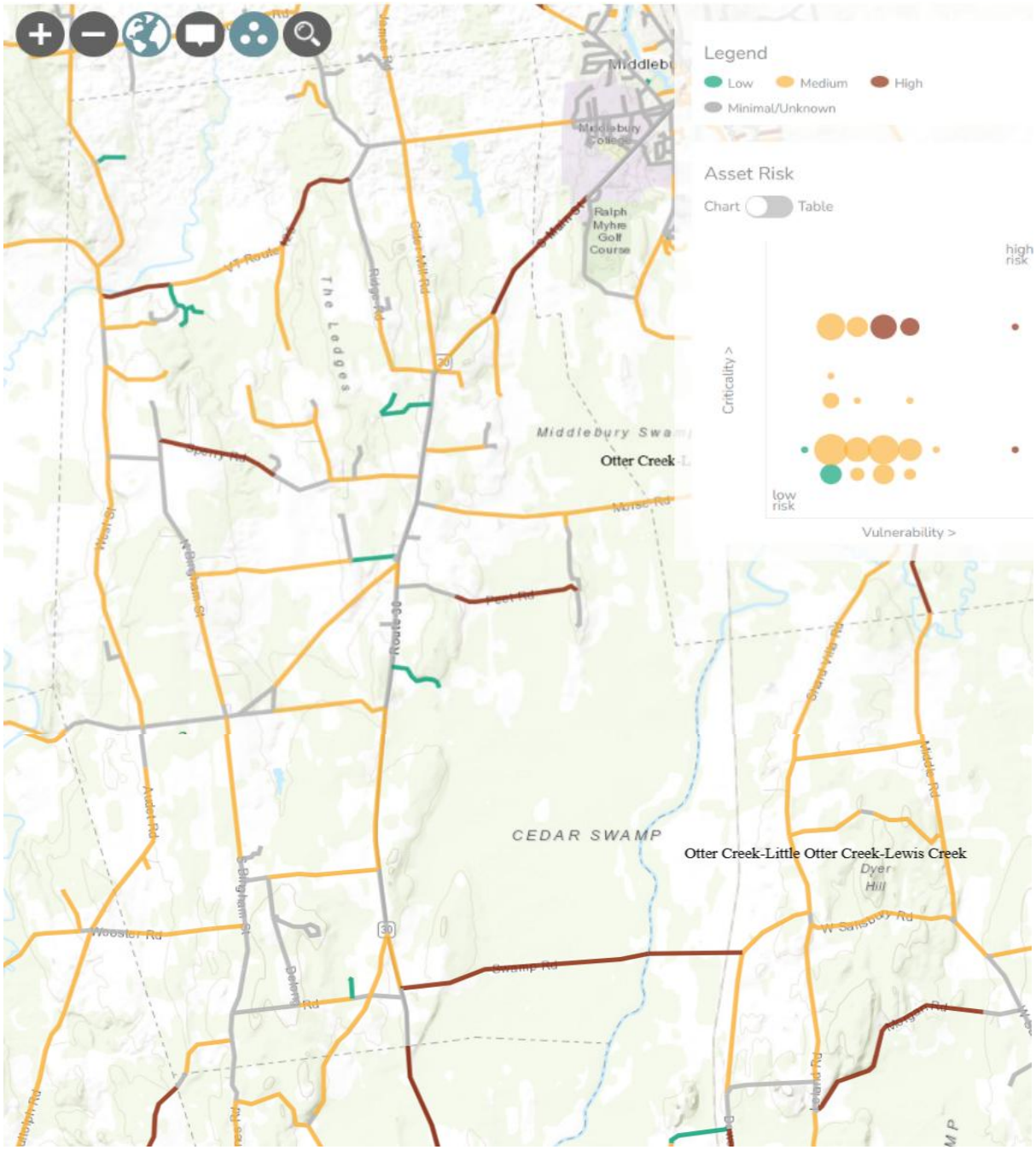


Figure. Cornwall Infrastructure Asset Risk from the Vermont Transportation Resilience Planning Tool (TRPT) (https://roadfloodresilience.vermont.gov/#/map)

Previous Occurrences:
According to NOAA statistics, the Addison Region has experienced more than 45 flash flood events over the past 25 years. These generally occur in the summer months due to intense rainstorms, but they can occur in other seasons as well.

Table. NOAA recorded flash flood events by month of occurrence

	January	February	March	April	May	June	July	August	September	October	November	December
Flash Flood	2	1	1	2	7	10	13	7	0	2	1	1

The Halloween storm of October 31-November 1, 2019 brought more than 3 inches of rain and gusting southwest winds that caused flooding and power outages across the region. In Cornwall, flooding damaged culverts and covered roadways.

Future Probability:

Changes in climate are expected to increase the probability of large rainfall events and rapid snow melt that may have increasing impacts on community assets. In Vermont, average annual precipitation has increased by almost 7 inches over the past 50 years. The northeastern United States is projected to experience above average precipitation in the winter and spring, with even wetter conditions expected under a high greenhouse gas emissions scenario, and is also projected to experience more frequent, heavier rainfall events. These anticipated increases in both frequency and magnitude of precipitation in Vermont are expected to lead to alterations of hydrology and increased flash flooding events and fluvial erosion. Increasing development in Cornwall might be expected to affect the impact of flash flood events on vulnerable populations.

Vulnerability Summary:

Flash flooding is an increasing concern for residents of the Town of Cornwall. Although few areas are susceptible to flooding, the expense of infrastructure repairs make the community relatively vulnerable to large scale damages caused by flash flooding. Future assets are not expected to experience increases in vulnerability to flash flooding due to change in population demographics but may be increase with land use changes.

Flash flooding and fluvial erosion are considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 7.00 determined

4.3.6 Severe Heat (Vulnerability Score 7.00)

The frequency and intensity of hot weather is increasing in Vermont, resulting in greater numbers of heat-related emergency department visits and total deaths.

Location:

Heat waves occur across the entire state, but are generally slightly lower risk in higher elevation mountain communities, and slightly higher in lower-lying areas like Cornwall.

Extent:

A number of metrics demonstrate the extent of recent increase across the state:

- Days with a maximum temperature **above 95 degrees** Fahrenheit have increased from less than 1 per year (1950-2009) to **at least 2** per year (2010-2022)
- Days with a maximum temperature **above 90 degrees** Fahrenheit have increased from about 4 per year (1950-2009) to **more than 9** per year (2010-2022)
- Days with a **minimum temperature above 70 degrees** Fahrenheit have increased from about 2 per year (1950-2009) to **more than 7** per year (2010-2022)

Previous Occurrences:

Since 1970 across western Addison County, NOAA has seven documented heat events, primarily during July and August and all since the year 2006:

	January	February	March	April	May	June	July	August	Septembe	October	November	December
Heat Event	0	0	1	0	0	1	3	2	0	0	0	0

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

The March 2012 event saw record heat across all of Vermont with maximum temperatures 30° to 40° above normal. Some daily records that stood for more than 100 years were broken and several daily records were broken by 10° or more. The Winter of 2011-12 was atypical with temperatures that averaged 4°-5° above normal and snowfall that was 40-60 percent lower than normal. This combination caused snowpacks across the region to be well below normal or even non-existent by mid-March. The ski industry suffered significant revenue loss due to lack of snow, including early spring closures and the Vermont maple sugaring industry lost approximately $10M statewide.

From June 18-23, 2020 the second longest heatwave in modern history (1900-onward) occurred across portions of New York and Vermont. Temperatures exceeded 90° F for up to six consecutive days in portions of the Champlain Valley.

Between 2009 and 2019, there were an average of 104 heat-related emergency department (ED) visits per year and 12 heat-related deaths across the state.

Future Probability:

Changes in climate are expected to significantly increase the probability of Severe Heat events. Land use changes are not expected to significantly affect their impact on community assets, but changing population demographics, especially aging populations, may create more compounding factors and overall vulnerability. For instance, older residents may use more medications that reduce tolerance to heat, or experience more social isolation.

Average temperatures in Vermont are projected to increase by an additional 3° to 12° F by the year 2100, suggesting that Cornwall can expect more frequent and harmful hot weather in the future. A number of NOAA projections demonstrate the probability of future temperature increases in the Champlain Valley:

- Days with a maximum temperature **above 95 degrees** Fahrenheit will increase from 2 per year (2010-2022) to **between 3 and 6 per year** (2035-2064)
- Days with a maximum temperature **above 90 degrees** Fahrenheit will increase from 9 per year (2010-2022) to **between 13 and 19 per year** (2035-2064)

Vulnerability Summary:

Despite Vermont's northern location, data indicates that Vermont residents experience heat-related illnesses at lower temperatures than residents of other regions. This is likely related to the infrequency of hot weather in Vermont, which has several impacts:

- Vermonters do not experience enough hot weather for their bodies to adapt to hotter conditions;
- Many Vermont homes are not adequately weatherized and do not have air conditioning;
- The State and local communities have not developed plans and policies needed to be prepared for hot weather;
- Adapting behaviors to stay safe during hot weather can be challenging for individuals;
- Vermont has a large population of older adults, who are at higher risk for heat-related illnesses.

The Vermont Department of Health has identified Cornwall as having a higher population vulnerability than the state average, due primarily to the percentage of "Adults 65 and Older Living Alone" in Cornwall. Other populations disproportionately impacted by heat can include outdoor workers and hobbyists with more exposure to hot conditions, populations that are particularly sensitive to heat exposure (older adults, young children, pregnant women, people that are overweight or have chronic medical conditions, people using drugs, alcohol, or some prescription medicines), and people with limited adaptation resources (living alone, unable to access community cooling sites, or unable to keep their home cool). Future assets are not expected to experience increases in vulnerability to severe heat due to change in population demographics or land use changes.

Severe Heat is considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 7.00 determined.

4.3.7 Infectious Disease Outbreak-Pandemic (Vulnerability Score 6.75)

An infectious disease is caused by micro-organisms, such as bacteria, viruses or parasites. A vector-borne disease is an infectious disease that is transmitted to humans by blood-feeding arthropods, including ticks, mosquitoes, and fleas, or in some cases by mammals (e.g. rabies). This section covers Zoonotic Diseases, spread by animals (including Rabies, Avian Influenza or Bird Flu, Hanta Virus, Human Monkeypox Virus (Mpox), Tularemia) and respiratory viruses (including Coronavirus 19 (COVID-19), pertussis, etc.). For the purposes of this plan, Cornwall has separated insect-borne diseases, transmitted primarily through mosquitoes, into a separately evaluated hazard.

An epidemic emerges when an infectious disease occurs suddenly in numbers above 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. The Vermont Department of Health has separated vector-borne and other infectious diseases into five threat categories:

Threat Classification	Disease (vector)
Diseases already present in Vermont that may be exacerbated by climate change	West Nile Virus*
	Eastern Equine Encephalitis*
	Lyme Disease (ticks)
	Anaplasmosis (ticks)
	Babesiosis (ticks)
	Hard Tick Relapsing Fever (ticks)
	Jamestown Canyon Virus*
	Tularemia (ticks, flies, animals)
	Powassan Virus (ticks)
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*
	Ehrlichiosis (ticks)
	Alpha-gal Syndrome (ticks)
	Rocky Mountain Spotted Fever (ticks)
Diseases with vectors that may spread to Vermont by the end of the century under a higher emission scenario	Dengue*
	Zika Virus*
	Chikungunya Virus*
Diseases that have 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 (insects)
	Rift Valley Fever*
Diseases that may be present in Vermont or may spread to Vermont in the future but whose link with climate changes expected in Vermont is tenuous.	Bartonellosis (fleas/lice)
	Rabies (mammals)
	Hantavirus (rodents)
	Leptospirosis (mammal urine)
	Plague (rodent fleas, cats)
	Valley Fever (soil fungus)
	Anthrax (sheep, goats, cattle)
	Q Fever (sheep, goats, cattle)

*Mosquito vector, included in separate insect-borne disease category

Location:

Infectious disease cases have been dispersed throughout Vermont and likely in Cornwall. Low population density in town may reduce the spread of respiratory disease.

Extent:

Infectious diseases come in a wide variety of types and have a broad range of effects. In most cases, only a few individuals are affected. However, more virulent infectious disease outbreaks have the potential to affect the entire community over a long period of time. Most recently, the COVID-19 pandemic that began in 2020 led to a complete disruption of daily life and municipal operations across Cornwall and the rest of Vermont.

Previous Occurrences:

Respiratory diseases have had the greatest impact and most widespread previous occurrences. Pandemic influenza, considered to be a global outbreak, spread quickly around the world and was observed in 1918, 1957, 1968 and in 2009 with the novel H1N1 strain. The 2009 H1N1 outbreak, though not considered a serious threat to Vermont, still affected some Vermonters. The great influenza epidemic of 1918 killed millions worldwide and would likely cause hundreds to thousands of deaths in Vermont should a similar outbreak occur today. A more serious strain of the flu is anticipated in the future and vaccines might not be available in time to combat rapid spread.

The COVID-19 pandemic led to a complete disruption of daily life in Vermont. A state of emergency was issued by Governor Phil Scott on March 13, 2020 to help ensure Vermont had the resources necessary to respond to the COVID-19 public health emergency. In the following weeks, a series of executive orders were issued restricting activities likely to result in transmission or use up valuable medical resources. Some of these included restricting visitor access to long term care facilities, suspending in person PreK-12 education, closing bars and restaurants, suspension of elective and non-essential medical surgeries, interstate travel restrictions, and limits on non-essential gatherings. COVID-19 restrictions stayed in effect until June 14, 2021 when 80% of Vermont's eligible population (those 12 and older) had received at least one dose of COVID-19 vaccine, in accordance with the State's Vermont Forward Plan. To date, Vermont has documented more than 150,000 cases and 900 deaths due to COVID-19.

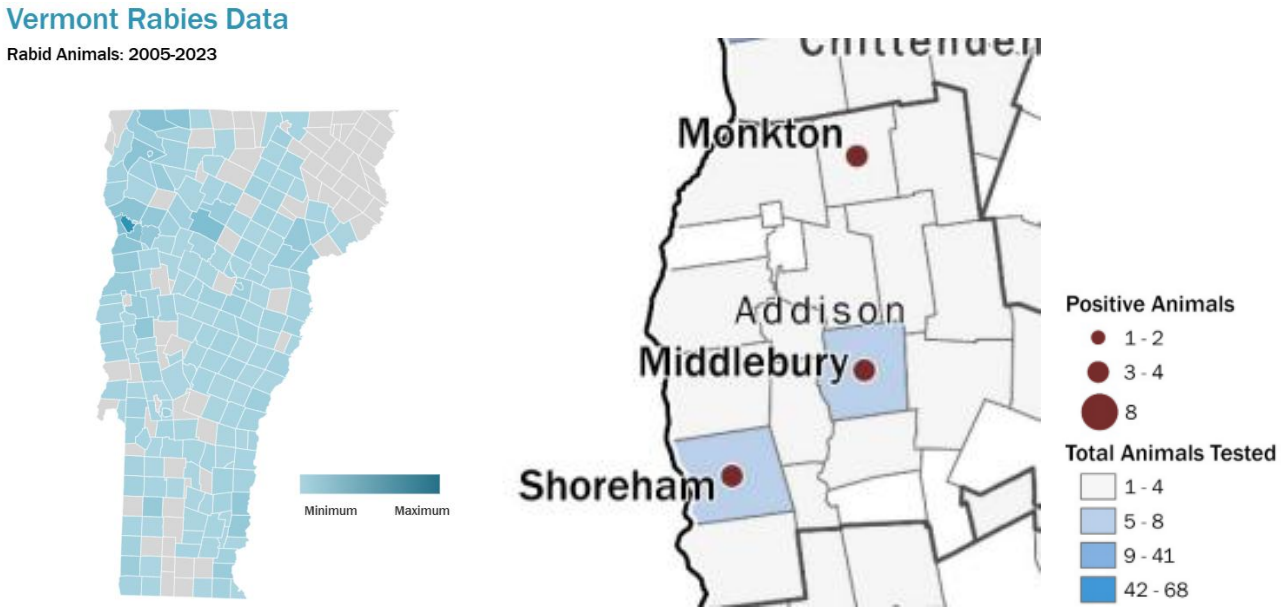
Vector-borne diseases continue to pose a significant and growing threat. In 2019, Vermont ranked highest in the United States for Lyme disease incidence, and is often at or near the top of incident rankings. the Vermont Department of Health has tracked Lyme disease cases in the state since for several decades, though not at the town-level. Shifting habitats and climate changes continue to create favorable conditions for pathogen-carrying ticks to proliferate.

The presence of highly pathogenic avian influenza (HPAI), also known as H5N1 bird flu, has been circulating in Vermont since 2022. A bobcat and two red-tailed hawks found dead in Cornwall tested positive for HPAI in early 2024. HPAI is uncommon in mammals, and the

bobcat that tested positive was the first detection of HPAI virus in a mammal in all of Vermont HPAI was also confirmed in a backyard chicken flock in Franklin County in December 2024. This was the fourth instance of HPAI in a domestic flock in Vermont since spring of 2022 and emphasizes the ongoing need for vigilance as the disease continues to be an ongoing risk to domestic birds.

Other vector-borne diseases have been noted recently in and near Cornwall. Between 2005 and 2023 Cornwall has had three rabies cases identified in skunks and raccoons. Adjoining Middlebury and Shoreham had positive rabies cases in 2023. In Vermont, rabies is most commonly found in wild animals such as raccoons, skunks, foxes, bats and woodchucks. Cats, dogs and livestock can also get rabies if they have not been vaccinated.

2023 Rabies Surveillance Report



Future Probability:

Changes in climate are expected to increase the probability of Infectious Disease introduction and spread. According to the Centers for Disease Control (CDC), the number of reported cases of vector-borne infectious disease more than tripled between 2004 and 2016 and can be expected to continue rising. Warmer temperatures allow more diseases and their vectors to expand and establish populations farther north, where harsh winters temperatures previously inhibited expansion.

The increase in Lyme disease is the most significant trend in infectious disease cases in Vermont. The Vermont Department of Health reports a dramatic increase in reported cases of Lyme disease around the state and milder, shorter winters increases the potential for infection through tick bites. Additionally, early successional habitat on road edges and retired farmland could provide a more suitable habitat for ticks and their hosts, which may lead to further spread of Lyme disease.

Projected land use changes are not expected to affect the impact of infectious disease on community assets, but changing demographics may result in faster spread and impacts on vulnerable populations. With increasing trends for global travel and short-term visitors, diseases not previously observed in Vermont may be introduced by infected travelers and spread to the local population.

Vulnerability Summary:

People who are immunocompromised, elderly and young, and healthcare workers are most vulnerable to infectious disease. These populations are at heightened risk of infection and death due to weakened immune systems or compounding factors of other illnesses or stressors. Outdoor laborers and recreationalists are especially vulnerable to mosquito-vector transmission and tick bites that may cause Lyme disease. Future assets are not expected to experience increases in vulnerability to infectious diseases due to land use changes but may increase with changes in population demographics.

Infectious Disease Outbreaks are considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 6.75 determined

4.3.8 Widespread Power Failure (Vulnerability Score 6.00)

Location:

Cornwall's electricity is provided by Green Mountain Power, with nearly all of the town supplied by the substation in East Middlebury and line across Otter Creek at Piper Crossing. The northern portion of town is supplied by a substation in Weybridge, and one residence at the south end of town is supplied by the Leicester substation. All three substation transformers have less than 10% capacity remaining

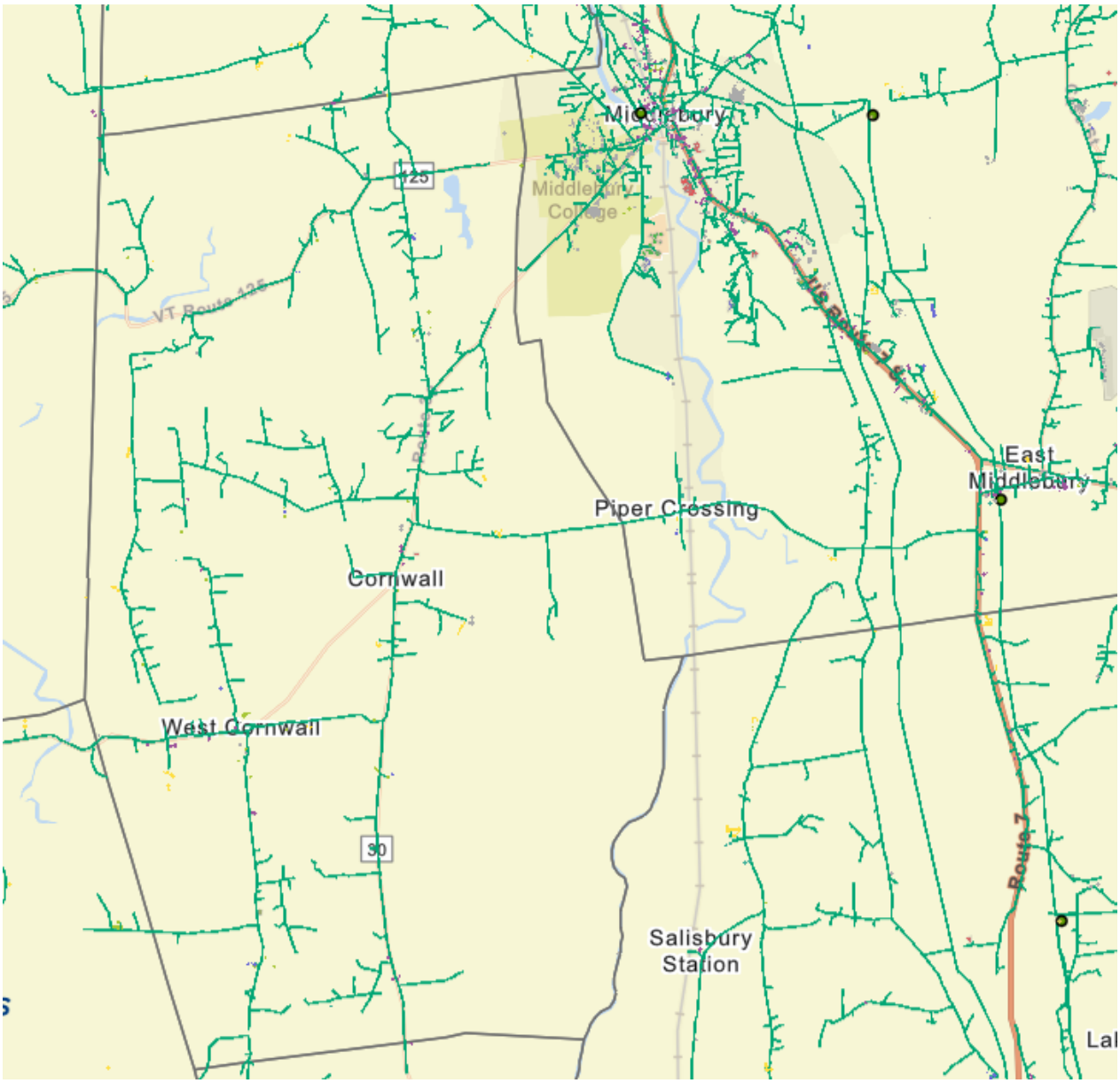


Figure. GMP powerline map

Extent:

Nearly all residences and public buildings in Cornwall rely on electricity provided by the Green Mountain Power utility. An increasing number of residents have residential solar production, home-battery storage, or generator backups that can allow them to maintain power for extended periods.

Previous Occurrences:

On December 22-23, 2022, Addison County received high winds, downing power lines and closing roads, followed by cascading temperatures falling into the single digits, with wind chills of zero to the minus 0's. The greatest effect to Cornwall was the extended power outage following the storm. The Town Hall was opened as a warming shelter, and a small number of residents visited to charge electronic devices, but none stayed overnight.

In January 2024, heavy winds from an intense winter storm downed trees and damaged utility lines throughout the region, leaving more than 4,000 residents in Addison County without power, and an estimated 12,595 Vermonters without power in 72 towns throughout the state according to GMP.

Power outages in August 2023 due to Tropical Depression Debby, when more than 50,000 residences across Vermont lost power due to high winds, were relatively minor in Cornwall and Addison County. Nearly all residents that lost power regained it within 36 hours.

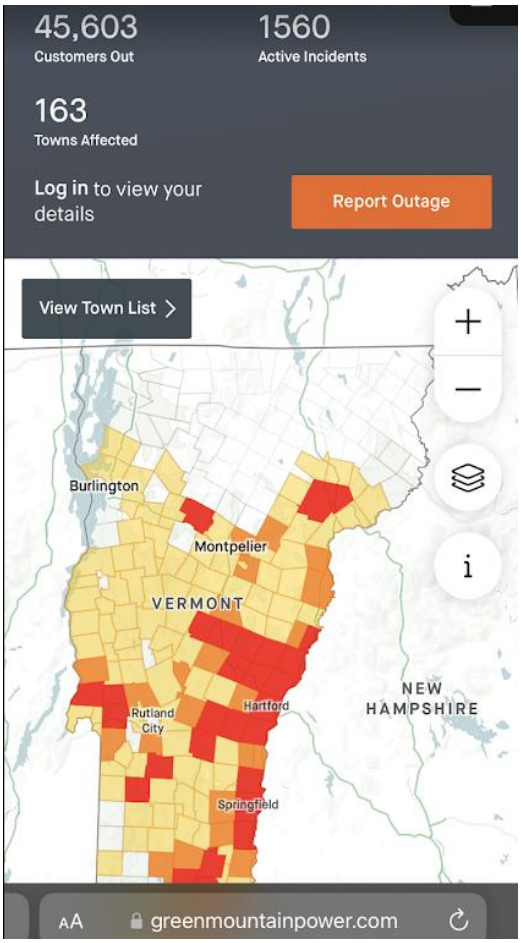


Figure. Screenshot from Green Mountain Power's online Outage Map on December 22, 2023

Future Probability:

Future power outages due to wind-storms and heavy snowfall are likely to continue and may increase with more frequent with higher precipitation amounts in all seasons and higher wind speeds, leading to more risk for infrastructure and more outages for utility customers. Green Mountain Power has been working to make their electrical systems more resilient and are working towards a 0-outages goal. Their projects to implement a resilient energy system include:

- Undergrounding lines (doing undergrounding work on the 20 most unreliable circuits, burying power conduit/cable/telephone lines at depth of 51 inches). GMP tries to stay in existing right of ways off-road to avoid roads, but in some areas the only flat place that they can bury lines is the road and they work with towns to minimize disturbance.
- Storm hardening above ground lines (spacer-cables in diamond shape), and
- Creating additional energy storage, including home battery storage

GMP monitors forecasters and weather models days in advance of any storm, and do outreach before, during, and after storms, with regional and local updates to state and local officials. They do targeted updates by email and phone for customers on their critical care list.
They secure and pre-position GMP teams, and extra crews are brought in to help as needed
They distribute resources to the hardest hit areas and have districts run storm response in their area for efficiency.

Vulnerability Summary:

Future assets are not expected to experience increases in vulnerability to extended power outages due to land use changes, but may increase with changes in population demographics.

Widespread Power Failure is considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 6.00 determined

4.3.9 Wildfire (Vulnerability Score 6.00)

Location:
Severe wildfires are uncommon throughout Vermont, but minor fires are regular occurrences and could conceivably occur in any part of Cornwall. Un-mowed field edges and grass or shrub vegetation are the most likely locations for fires to start.

Extent:
Wildfire conditions in the Champlain Valley are typically at their worst either in spring when dead grass and fallen leaves from the previous year are dry and new leaves and grass have not come out yet. The majority of fires in Vermont are caused by burning debris, though they can be a result of naturally occurring influences such as lightning, and exacerbated by drought and extreme heat. Open burning of natural and untreated wood, brush, weeds, or grass requires a 'Permit to Kindle Fire' from the Town Forest Fire Warden. When there is significant fire danger, open burns are banned entirely.

Previous Occurrences:

There has not been a major wildfire in Cornwall or all of Vermont in the last 50 years. There were several runaway brush fires in the summer of 2018. In the last decade, the average size of wildfires has been 1.72 acres and there were only 11 brush fires in all of Addison County in 2024. Most wildland fires occurring in vegetation or natural fuels in the area are caused by debris burning or campfires and are quickly reported and contained. A campfire that got out of control in neighboring Starksboro damaged just over 4 acres in an inaccessible area off Big Hollow, and a small campfire in Bristol burned about 2 acres. The Town Forest Fire Warden issues permits and local fire departments respond for wildland fire control with mutual aid assistance from other towns and the State, when necessary.

The greatest impacts to communities from wildfires are smoke from wildfires in Canada and the western United States. In 2023, Cornwall and much of Vermont experienced substantial impacts from Canadian wildfire smoke from June 5 to 8. The entire state experienced poor air quality, with records for highest ever 24-hour average concentration of fine particulate matter (PM2.5, µg/m3), broken several times over multiple days and far exceeding the previous records. Air quality was worst in the south and west of Vermont, with the Air Quality Index exceeding 400 in some locations, considered "hazardous" for all populations, resulting in cancellations of outdoor activities and widespread distribution on N95 masks to the public.

Future Probability:
Although wildfires are currently uncommon in Vermont, the LHMPC acknowledged that extended periods of warming due to climate change have the potential to increase the occurrence of wildfire events. Unhealthy wildfire smoke from out-of-state wildfires is also expected to affect Vermont more frequently and severely in the future, as climate change is already increasing wildfire risks in the western United States and Canada. Changes in climate are expected to significantly increase the probability of Wildfire events, if not in Cornwall, then in distant forested areas that still affect local atmospheric conditions. Local land use changes are not expected to significantly affect their impact on community assets, but changing population demographics, especially aging populations, may create more vulnerability and compounding factors. For instance, older residents may have more breathing issues, or experience more social isolation. Limited numbers of volunteer fire fighters available, especially for daytime and early evening hours when wildfires are most likely to be initiated, make response efforts challenging and reliant on mutual aid from neighboring communities.

Vulnerability Summary:

Populations that are more vulnerable to wildfire include firefighters, isolated residents, and immune-compromised individuals. Future assets are not expected to experience increases in vulnerability to wildfires due to land use changes or change in population demographics.

Wildfires are considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 6.00 determined

4.3.10 Structure Fire (Vulnerability Score 6.00)

Location:

Nationwide, civilian fatalities are correlated with populations living in rural areas and in older homes. As with much of Vermont, Cornwall's housing stock is dominated by older, owner-occupied residential homes, which account for most structure fires. While multi-building fires are unlikely, given the dispersed geography of the town's structures, response time is extended. Access issues on narrow driveways could also cause challenges, especially with multiple departments and the need to coordinate a continuous stream of water tankers to deliver the needed volume for fire suppression in areas without a municipal water system.

Cornwall supports its own volunteer fire department for fire-response coverage, as well as motor vehicle accidents and a number of other types of emergency calls.

Extent:

The primary causes of structure fires are cooking fires and heating appliances, especially wood stoves and uncleaned creosote from solid-fueled heating equipment chimneys. Aging houses and cold Vermont winters put added stress on heating systems. Furthermore, the high cost of heating fuel can force people to use alternative heating sources that may not be safe. An improperly installed and maintained heating appliance can result in added fire risk and carbon monoxide poisoning. While fatalities from fires are rare, older adults have a greater risk of fire death than the overall population.

Previous Occurrences:

In the last decade, only a small number of emergency calls in Cornwall were for structure fires. However, structure fires do occur every year or two. Several significant fires have occurred over the last decade:

In 2018 multiple barn structures burned in a fire on Parkhill Road.

On September 10, 2016, the historic Cedar Swamp Covered Bridge—also known as the Station Bridge—was destroyed by a suspicious fire. Built between 1864 and 1865, the bridge spanned Otter Creek, connecting Cornwall and Salisbury, Vermont. Despite a significant restoration in 2008, the wooden structure was fully engulfed in flames by the time firefighters arrived. Investigators found no evidence of accelerants, and while the fire was deemed suspicious, it was not classified as arson.

The loss of the bridge was deeply felt by the local community, not only for its historical significance but also for its role in daily transportation. The fire also raised concerns about the potential destruction of a colony of endangered little brown bats that inhabited the bridge. In response, town officials from Cornwall and Salisbury coordinated efforts to remove the debris and install a temporary steel bridge to restore connectivity. The Cedar Swamp Covered Bridge had been listed on the National Register of Historic Places since 1974, marking its importance as a cultural and historical landmark. Efforts to replace the bridge have been ongoing, and will likely not occur until at least 2030.

Future Probability:

The risk of individual structure fire events is likely to continue. Education about safe practices and maintenance activities will prevent some incidents, but accidents and unforeseen occurrences will occur. Changes in climate, land use, and population are not expected to increase the probability of Structure Fires or affect their impact on community assets or the population.

Vulnerability Summary:

Older adults have a greater risk of fire death than the overall population. In the past decade, more than a third of Vermont's fire deaths have been seniors over the age of 65. About 13% of Cornwall's population is older 65, slightly less than the rest of Addison County (21%) and Vermont. Future assets are not expected to experience increases in vulnerability to structure fires due to land use changes or change in population demographics.

Structure Fires are considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 6.00 determined

4.3.11 Severe Cold (Vulnerability Score 6.00)

Location:

Severe cold events occur across the entire state, and are generally more severe at higher elevations. Temperatures in the lower, populated areas of Cornwall are somewhat moderated, but can still experience significant low temperatures.

Extent:

Vermont often experiences cold conditions during winters, however very cold temperatures remain a threat despite their regularity. The NOAA Wind Chill Chart identifies those temperatures and associated wind speeds that may cause frostbite if skin is exposed to the air over a certain period of time. In anticipation of extreme cold temperatures, the National Weather Service may issue the following watches, warnings or advisories, which are aimed at informing the general public as well as the agricultural industry:

- **Wind Chill Warning:** Dangerously cold wind chill values are expected or occurring
- **Wind Chill Watch:** Dangerously cold wind chill values are possible
- **Wind Chill Advisory:** Seasonably cold wind chill values but not extremely cold values are expected or occurring
- **Hard Freeze Warning:** Temperatures are expected to drop below 28°F for an extended period of time, killing most types of commercial crops and residential plants
- **Freeze Warning:** Temperatures are forecasted to go below 32°F for a long period of time, killing some types of commercial crops and residential plants
- **Freeze Watch:** Potential for significant, widespread freezing temperatures within the next 24-36 hours
- **Frost Advisory:** Areas of frost are expected or occurring, posing a threat to sensitive vegetation

Previous Occurrences:

Since 1970, NOAA has documented severe cold and wind chill events across Addison County in a number of events, exclusively in the period from December to February:

	January	February	March	April	May	June	July	August	September	October	November	December
Cold/Wind Chill	19	6	0	0	0	0	0	0	0	0	0	3

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

In January and March of 2007, several arctic cold fronts moved across Vermont on the 24th and delivered very cold temperatures as low as 15 degrees below zero along with blustery winds.

On January 14, 2009 an arctic cold front moved across Vermont during the early morning hours which delivered some of the coldest temperatures across the region in several years. As the arctic front passed across northern Vermont, temperatures dropped over 20 degrees within several hours. Temperatures averaged 20 to 25 degrees below normal values, which were already at climatological winter minimums. In parts of Addison County, minimum temperatures reached 20 degrees below zero. These extremely cold temperatures led to numerous cold weather-related problems including numerous dead vehicle batteries and broken home/business water pipes.

On January 7, 2015, early evening temperatures were zero to 10 above zero with winds of 15 to 30 mph that created wind chills colder than 20 to 30 below zero through the overnight into the morning hours of January 8th. Actual morning low temperatures on January 8th were 10 below to 20 below zero in Addison County, with temperatures dipping to 12 below zero in neighboring Salisbury.

On December 22-23, 2022, Addison County received high winds, downing power lines and closing roads, followed by cascading temperatures falling into the single digits, with wind chills of zero to the minus 0's. The greatest effect to Cornwall was the extended power outage.

Future Probability:

Warmer temperatures associated with climate change may result in milder winters but the possibility of jet stream alterations producing "bomb cyclones" that might increase sudden deep freezes or ice storms in early spring and late fall. As a result, some winter storms and severe cold events are predicted to increase in severity. Changes in land use and population are not expected to increase the impact of severe cold events on community assets or the population.

Vulnerability Summary:

Severe cold can drain vehicle batteries and freeze water pipes, leading to transportation challenges that prevent people from reaching work, school, childcare, grocery stores, and hospitals. Frozen or burst pipes can cut off water supply and cause extensive damage, leaving homeowners and business owners with costly repairs, cleanup, and potential loss of income or operations—compounding the hardship caused by the cold.

Future assets are not expected to experience increases in vulnerability to severe cold events due to land use changes or change in population demographics.

Severe Cold is considered a **HIGH PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 6.00 determined

4.3.12 Hail Storm (Vulnerability Score 5.25)

Location:

Hail can occur anywhere in Vermont, but tend to be highly localized and limited to a relatively small area.

Extent:

Hail is considered a relatively infrequent occurrence in Vermont. Storms can be significant to local farmers, who can lose entire fields of crops in a single hailstorm. Large hail is also capable of property damage, including both structures and vehicles. Hailstone size can range from the size of a pea to the size of a melon.

Previous Occurrences:

There have been two significant hailstorms documented in Cornwall since 2010. There have been documented occurrences in neighboring Middlebury (6), Bridport (7) Weybridge (2) and Addison (1), all between 2008 and 2014 and all with magnitude of hail less than 1.0 inch in size. No property or crop damage was recorded as a result. Hailstorms usually occur in Vermont during the summer months and generally accompany passing thunderstorms.

	January	February	March	April	May	June	July	August	September	October	November	December
Cornwall	0	0	0	0	1	0	0	0	1	0	0	0
All Addison County	0	0	0	0	16	19	38	19	3	2	0	0

Source: https://www.ncdc.noaa.gov/stormevents/

Future Probability:

Significant hailstorms are likely to occur relatively infrequently, and have not shown significant change in frequency over time. According to the 2018 National Climate Assessment, changes in the frequency or severity of hail events are still uncertain. Changes in climate may slightly increase the probability of Hail Storms, but projected land use and population changes are not expected to affect their impact on community assets or vulnerable populations.

Vulnerability Summary:

The impact from hail is considered to be negligible to infrastructure, life, the economy and the environment. However, hail can damage property, young and tender plants, and cause bodily harm to those individuals unfortunate enough to be caught outside. As a result, farmers and outdoor recreationists are more vulnerable to hailstorms than other groups of people. Future assets are not expected to experience increases in vulnerability to hailstorms due to land use changes or change in population demographics

Hail Storms are considered a **MODERATE PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 5.25 determined

4.3.13 Severe Snow Storm (Vulnerability Score 5.25)

Location

Severe winter snow storms are common throughout Vermont and can occur geographically in any part of Cornwall. Generally, ice storms strike within a particular elevation band depending on temperatures with higher elevations experiencing snow and lower elevations experiencing rain. Located at in the heart of the Champlain Valley and well below the Green Mountains, Cornwall is at greater risk for more widespread Ice.

Extent

Because winter storms are extremely temperature and elevation dependent, they are notoriously difficult to predict. When conditions conducive to ice build-up are predicted, the National Weather Service issues a Winter Storm Warning with emphasis on ice accumulation.

The Winter Storm Severity Index (WSSI) (Appendix 5) is a categorization of overall severity based on six components:

- **Snow Amount:** to depict severity due to total amount of snow or rate of snowfall accumulation. (Adjustments are made based on climatology and urban areas, e.g. 4" of snow in Atlanta is more severe than 4" in Minneapolis.)
- **Snow Load:** to depict severity due to total weight of snow on trees and power lines.
- **Blowing Snow:** to depict severity mainly to transportation due to blowing and drifting snow.
- **Ice Accumulation:** to depict severity of transportation and downed trees/powerlines due to the accumulated ice in combination with wind.
- **Ground Blizzard:** to depict severity to mainly transportation of ground blizzards that develop due to a pre-existing snowpack and strong winds.
- **Flash Freeze:** to depict severity primarily to transportation of situations where temperatures rapidly fall below freezing during precipitation.

Previous Occurrences

Since 1970, NOAA has documented winter storms across Addison County in a number of events, spanning the period from late October to April:

	January	February	March	April	May	June	July	August	September	October	November	December
Blizzard	0	0	1	0	0	0	0	0	0	0	0	0
Heavy Snow	0	7	1	0	0	0	0	0	0	0	0	1
Winter Storm	28	38	42	10	0	0	0	0	0	1	14	42
Winter Weather	54	32	27	12	0	0	0	0	0	7	11	44

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

The major impacts within the Town of Cornwall are generally limited to residents impacted by loss of power and the occasional downed tree or branches in the road. Loss of power to the town hall and garage are of concern due to the frequency of losses at these locations. In March 2001 a string of storms hit Cornwall and the rest of Vermont, beginning with 15-30" of snow on March 5-6, followed by 10-30" on March 22, and 10-20" on March 30.

Future Probability

Warmer temperatures such as might be anticipated with climate change would result in less snow and a higher likelihood of ice in winter. Other predictions indicate that climate change will bring more atmospheric moisture and snowfall, or jet stream alternations producing "Bomb Cyclones" that might increase sudden deep freezes or ice storms in early spring and late fall. In all cases, winter storms are predicted to increase in severity. Changes in land use and development are not expected to increase the impacts of ice storms or power outages on community assets or the population.

Vulnerability Summary:

Severe snowstorms in rural Vermont pose significant threats to vulnerable populations and both current and future infrastructure. These storms can lead to power outages, road closures, and restricted access to essential services, disproportionately affecting older adults, individuals with health conditions, and those with limited mobility or financial resources. The accumulation of heavy snow can damage roads, bridges, and utility lines, while also impeding emergency response efforts. As climate change contributes to more frequent and intense winter storms, the strain on aging infrastructure and the challenges faced by vulnerable communities are expected to increase, underscoring the need for proactive adaptation and resilience planning.

The Town of Cornwall is a rural community with one major highway and dispersed population. Utility company priorities following storms are to repair the simplest fixes which impact the highest total populations as the highest priority. As a result, there is a moderate risk of extended power failures due to snow storm throughout the Town of Cornwall. Changes in land use and development are not expected to increase the impacts of snow storms or power outages on community assets or the population.

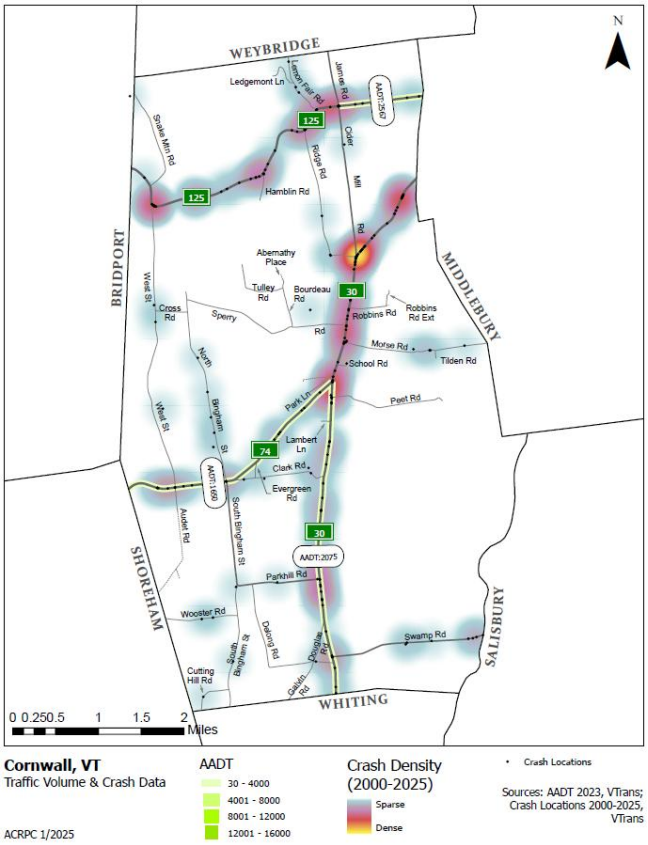
Severe Snow Storms are considered a **MODERATE PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 5.25 determined.

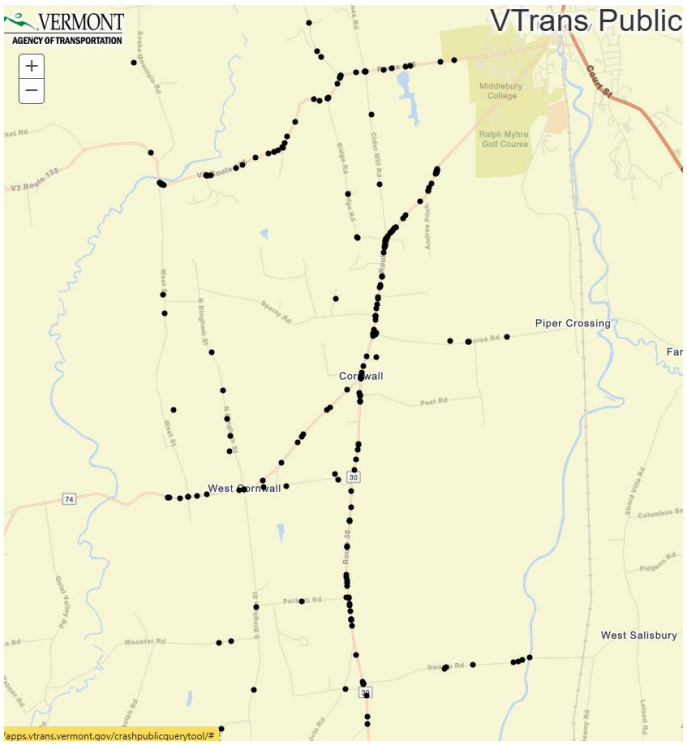
4.3.14 Highway Accidents (Vulnerability Score 4.50)

Location:

Since 2010, there have been more than 220 car accidents documented by state police within the town of Cornwall. Most of these have been on the primary state routes through town, on Route 30 (43.6%), Route 125 (22.6%), Route 74 (9.8%).

The intersections of Route 30 and Cider Mill Road, James Road and Cider Mill Road, and Route 30 and Route 74 were areas of high numbers of crashes, though most of these were due to cars being rear-ended.





Extent:

Most accidents occurred during daylight hours (64%) and in clear weather, though freezing precipitation was the weather condition in 14% of crashes. The majority of crashes were single vehicle accidents with most resulting only in property damage, with no fatalities, though nearly 71 (40.5%) resulted in injuries. At least 21 (11.3%) involved Heavy Trucks, and most were sideswipes. There are occasional incidents involving pedestrians and cyclists, which is a concern especially near Middlebury College on Route 125, as well as Routes 30 and 74.

Previous Occurrences:

Car accidents in Cornwall have averaged 1 or 2 per month, with slightly higher rates in the winter months, but declining overall in recent years.

Figure. Car crashes by Year

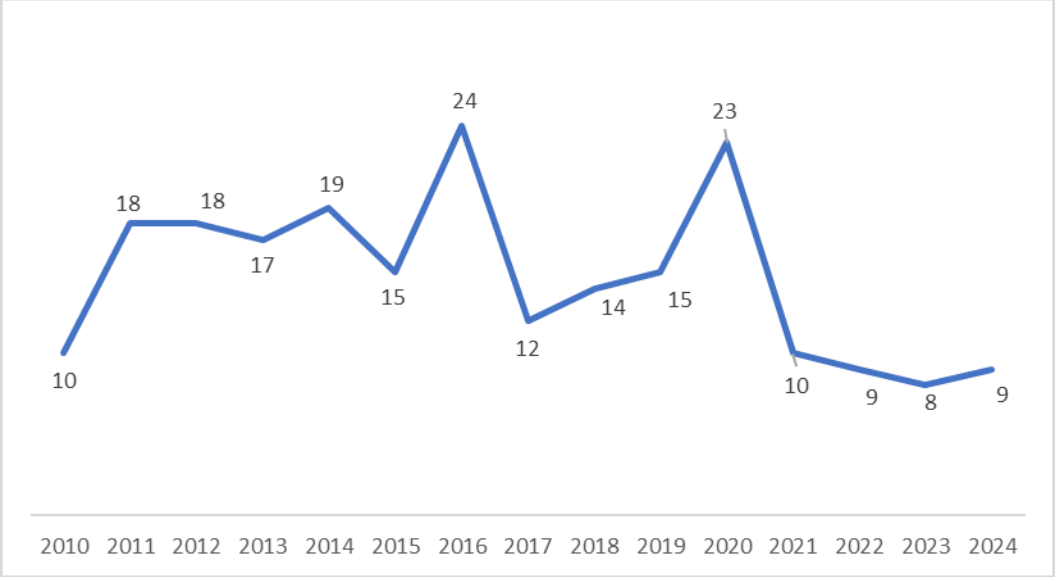
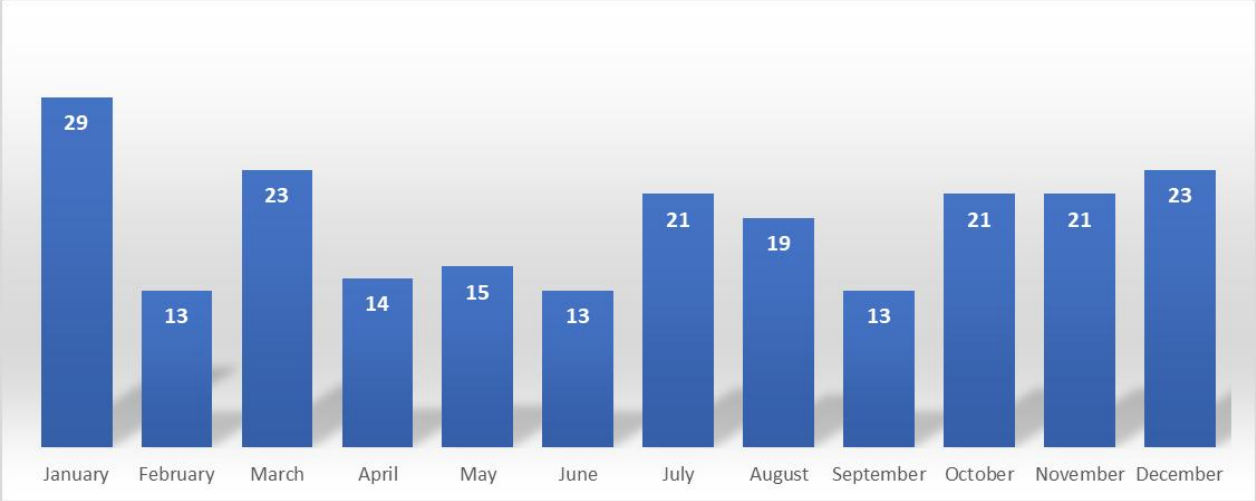


Figure. Car crashes by Month



In 2018, a pickup truck collided with an oncoming Cornwall firetruck near the Middlebury boundary on VT Route 125 at a location with difficult line of sight by “the Knoll”. This tragically resulted in a fatality to the pickup truck driver and injuries to the firetruck operator.

Figure. Location of 2018 fatal crash on Route 125 entering Middlebury from Cornwall.

Future Probability:
While documented car accidents over time have declined in recent years, through-traffic may have increased, potentially due to commuters and travelers.

Traffic calming measures, such as road widening and other safety engineering, should help reduce speeding and accidents.

Vulnerability:
Changes in climate are not expected to increase the probability of Highway Accidents or affect their impact on community assets or the population.

Highway Accidents are considered a **MODERATE PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 4.50 determined.

4.3.15 Drought (Vulnerability Score 4.50)

Location:

Drought is an inherent, cyclical component of natural climatic variability and can occur at any place at any time. They are often spread over a larger geographic area than other natural hazards, with gradation of impacts that are not as obvious as other hazards. Significant droughts would affect the entirety of the municipality of Cornwall, as well as adjoining municipalities and likely extending to other counties and states during the same event.

Extent:

The severity of a drought depends on the duration, intensity, and geographic extent of the water shortage, as well as the demands on the area's water supply. Droughts are rated in classifications from D0–D4, depending on the severity of the drought, the amount of time it will take for vegetation to return to normal levels, and the possible effects of the drought on vegetation and water supply. High winds, low humidity, and extreme temperatures can all amplify the severity of a drought.

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

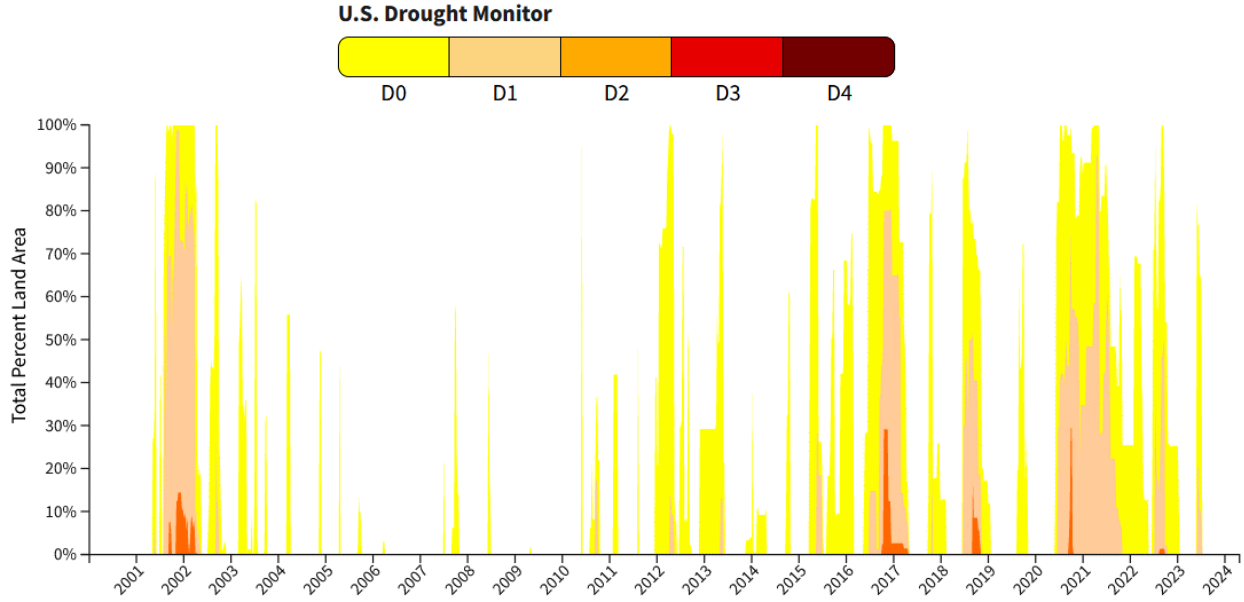
Source: http://droughtmonitor.unl.edu/AboutUSDM/DroughtClassification.aspx

The impacts of drought are typically felt by rural residents in areas like Cornwall first. Drought can cause extensive damage to gardens, agricultural crops and livestock. Drought can also lead to dry or low water levels in wells needed for drinking water. and can also concentrate water contaminate levels and lead to resulting in potential health concerns.

Soil moisture, streams, and groundwater are all depleted due to drought. Drought depletes water availability for both cultivated and wild plants and animals. Lack of rain combined with high temperatures can lead to significant crop loss. As a result, the economic effects of a drought can be just as devastating as any other natural hazards.

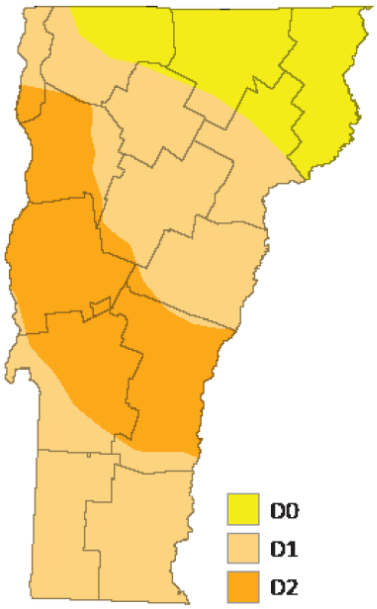
Previous Occurrences:

Droughts, while low frequency hazards, are of serious concern to the population of Vermont. It is often difficult to recognize the onset of a drought during its preliminary stages. Since 2000, drought conditions measured by intensity indices have periodically surged in Vermont.



Source: https://www.drought.gov/states/vermont#historical-conditions

Beginning in 2001, New England experienced historic drought conditions not seen since the 1960s. In 2001-2002, large parts of Vermont were affected by a Severe Drought (D2), but Cornwall and the Champlain Valley were judged to have only reached Abnormally Dry (D0) conditions.



A series of drought conditions have affected portions of Vermont nearly annually over the past decade. Parts of central Vermont were in Severe Drought (D2) from October 2016 through April 2017, peaking in October and November 2016. At least 80% of the State was in at least Moderate Drought (D1), including all of Cornwall and Addison County reaching Severe Drought (D2) (Figure). Moderate Drought conditions returned in October of 2017 and again in June 2018.

Since 2018 there have been three Severe Droughts, more than the previous two decades combined. From September to November of 2018 the State experienced another Severe Drought. Then from June 2020 to October 2021 much of the State was under Moderate Drought to Abnormally Dry conditions. From September to October of 2020 29.4% of the State was under Severe Drought conditions.

Figure. Map of abnormally dry (D0) to severe drought (D2) during significant 2016 drought period in Vermont
(Source: https://www.drought.gov/drought/states/vermont)

Future Probability:

Relative to other regions of the country, severe droughts are not frequent occurrences in Vermont. However, changes in climate are expected to significantly increase the probability Drought events. Both wet and dry extremes are expected to increase over time across the state: Vermont's precipitation trend is an on upward trajectory, having seen increases in average annual precipitation of 7.5 inches since 1900. At the same time Vermont is seeing an increase in average annual maximum and minimum temperature, which is contributing to an increased likelihood of drought. Higher temperatures lead to increased rates of evaporation, combined with dry periods between intense precipitation events will lead to increased dry conditions.

Land use changes are not expected to significantly affect the impact of droughts on community assets, but changing demographics, especially isolated or aging populations, may increase vulnerability. For instance, isolated residents may be unable to obtain drinking water.

Vulnerability Summary:

Changes in climate may increase the probability of droughts. Drought frequency and severity is unlikely to be affected by land use or demographic changes, or cause additional impact on community assets.

Droughts are considered a **MODERATE PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 4.50 determined.

4.3.16 Lightning Storm (Vulnerability Score 4.50)

Location:

Severe storms which include lightning along with wind and rain events are a common occurrence in Cornwall during summer months. While unpredictable, lightning tends to be drawn to exposed areas of higher elevation or where there are sudden increases in elevation. Areas where elevation has resulted in more frequent lightning strikes are located along higher ridges, which run north-south especially along Route 30 and areas south of Route 74.

Lightning fatalities are most commonly associated with water-related activities such as fishing, boating, and swimming. Given Cornwall's location along Otter Creek and the Cornwall Swamp, victims are most likely to be located on the water. Another common strike location is at power line transformers.

Extent:

Based on data collected by NASA satellites between 1995 and 2002 there were between 4-6 strikes per square kilometer in western Addison County each year. These numbers would extrapolate into between 225 and 350 lightning strikes per year.

Lightning strikes routinely cause fires to trees along ridge tops in Vermont and less commonly start fires in structures. Fires associated with lightning strikes to inhabited buildings occur fewer than once every five years on average. More common is loss of power and damage to electronic equipment in homes where there has been a proximity strike. Anecdotally, there are multiple reports each year of electronic equipment unprotected by surge suppressors which are damaged by lightning strikes. Generally, these homeowners file insurance claims for damages and total annual damages in the entire community likely do not exceed $10,000.

Previous Occurrences:

The National Lightning Safety Institute has recorded only three known fatalities due to lightning in Vermont between 1990-2003.

Given the estimated numbers of lightning strikes in Cornwall, unreported strikes on homes and other structure that resulted in fire are possible, but likely infrequent.

Energy meter that caught fire from Whispering Pines lightning strike in Panton, 2023

Future Probability:

Storm frequency and severity are predicted to increase which would likely cause more lightning strikes. The effect of strikes may be mitigated by the use of fire-resistant materials in new construction. Changes in climate are expected to slightly increase the probability of Lightning Strikes, but projected land use and population changes are not expected to affect their impact on community assets or vulnerable populations.

Vulnerability Summary:

Cornwall's susceptibility to lightning strikes seems to be relatively stable. The use of lightning rods has historically protected buildings from lightning-caused fires but these have fallen out of favor in recent years due to increased fire protection capability. The perceived risk of lightning strike in the community is relatively unchanged.

A lightning strike in the traditional village center along Route 30 would likely cause the most disruption to the public, particularly if Town Hall or the Bingham School were damaged or destroyed. Changes in climate may increase the intensity and frequency of lightning storms. Lightning strikes are unlikely to be affected by land use or demographic changes, or cause additional impact on community assets.

Lightning Storms are considered a **MODERATE PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 4.50 determined

4.3.17 Tornado (Vulnerability Score 3.50)

Tornadoes are violently rotating columns of air extending from a thunderstorm with wind speeds capable of reaching in excess of 250 mph.

Location:

High winds can affect the entire planning area. In Vermont, high winds are most often seen accompanying severe thunderstorms. In Addison County, these storms usually originate from the west, southwest, or south.

Extent:

Tornado damage paths can be more than mile wide and 50 miles long. Straight-line winds from thunderstorms are more common, but usually more limited in scale. (See Beaufort Wind and Saffir-Simpson wind scales in Appendix 4).

Previous Occurrences:

In Vermont, high winds most often seen accompany severe thunderstorms. In fact, straight-line winds are often responsible for most of the wind damage associated with a thunderstorm. These winds are frequently confused with tornadoes because they exhibit similar wind speeds and cause similar damage but the winds do not rotate as they do in a tornado.

While thunderstorms and associated hazards can occur anywhere and at any time of the year in Vermont; spring and summer are the most common times for severe thunderstorms. Tornadoes typically occur in Vermont between March and August.

Since 1970 across Addison County, NOAA has documented wind-damage from only 3 tornadoes, all during the spring and summer:

	January	February	March	April	May	June	July	August	Septembe	October	November	December
Tornado	0	0	1	0	0	0	2	0	0	0	0	0

*NOAA Storm event database (https://www.ncdc.noaa.gov/stormevents/)

Tornadoes can occur in Addison County, but are rare. In July 2022 a storm system produced two tornado touchdowns just north of Cornwall; one in Addison (EF1) and one in Waltham (EF0). (See Enhanced Fujita Scale in Appendix 4). The tornadoes caused property damage, and uprooted and snapped several trees. The path length of the Addison tornado was 1 mile long and as much as 50 yards wide, while the second tornado path was 0.7 miles long and 25 yards wide.

Future Probability:

Tornadoes are not common in Vermont. However, it is likely that as climate change accelerates, the area will see exacerbation of wind events such as hurricanes, tropical storms, and thunderstorms. Projected land use and population changes are not expected to significantly affect their impact on community assets or vulnerable populations, but may make such events more visible.

Vulnerability Summary:

People who live in rural, isolated communities like Cornwall are particularly vulnerable to tornadoes, if they should occur. High winds can take down trees and power lines, resulting in blocked transportation routes, cut off electricity and telecommunication networks, and property destruction. Lack of electricity is life-threatening for those relying on electric life supports systems and electrical heating and cooling systems. In addition, isolated populations may have limited access to information and communication resources that could prevent injury or death. Future assets are not expected to experience increases in vulnerability to tornadoes due to land use changes or change in population demographics.

Tornadoes are considered a **MODERATE PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 3.50 determined

4.3.18 Inundation Flooding (Vulnerability Score 3.00)

Location:
Minor inundation flooding is a regular occurrence in Cornwall. The 1% annual chance of flooding Special Flood Hazard Area (aka 100-year floodplain) identified by FEMA is primarily within the Cornwall Swamp along Otter Creek on the eastern edge of the town, and along the Lemon Fair River in the northwestern corner of town (see **2.2.4. Flood Resiliency Map, page 20**). Inundation waters often overtop the Swamp Road connecting Cornwall to Salisbury, causing minor inconveniences for 36-48 hours. Low-lying areas along VT Route 125 along Beaver Brook can be covered by floodwaters, causing minor inconveniences and detours.

Extent:
The Town of Cornwall has been a participating member of the National Flood Insurance Program since 1985 and as such, has adopted zoning by-laws designating Flood Hazard Areas including associated regulations for administering those areas. The most current floodplain maps were adopted 9/27/1985 and are available on paper copy and unofficial digitized versions. The availability of alternate sites and the adoption of flood hazard regulations have thus far discouraged development along these low-lying areas due to difficulties in disposing of septage and the costs of complying with floodplain regulations.

There are no "repetitive loss" or "severe repetitive loss" properties in Cornwall. The town's lack of at-risk structures can be heavily attributed to the topographic conditions surrounding the Lemon Fair and Otter Creek. Both of these rivers have extensive floodplains which have, over the years, not been compromised by human interference. These floodplains effectively mitigate damages by slowing currents in these rivers and by reducing the levels of flooding experienced. A 2016 publication from UVM [3] quantified the economic value of Otter Creek wetlands and floodplains, the majority of which are located in the Cornwall Swamp, to downstream Middlebury. The authors calculated flood damage reductions of 84–95% for Tropical Storm Irene and 54–78% averaged across all 10 events. They estimated that the annual value of flood mitigation services provided to Middlebury, VT, exceeds $126,000 and may be as high as $450,000.

Previous Occurrences:
The Town of Cornwall has been hit with three presidentially declared disasters in the past two decades years (August 2008, September 2011 and May of 2012) as a result of flooding. Reimbursements for the 2008 and 2012 storms totaled over $44,000. Following tropical storm Irene in 2011, flooding all along the river downstream of Rutland resulted in very limited damages in Cornwall due to the Otter Creek wetland complex. In July of 2023 a rainfall event in upwards of 5 inches of rain and Otter Creek rose at least a foot above flood stage. The area of VT Route 125 at the Beaver Brook crossing was covered with water for two days and traffic was rerouted.

[3] Watson, et al. Quantifying flood mitigation services: The economic value of Otter Creek wetlands and floodplains to Middlebury, VT. In Ecological Economics Volume 130, October 2016, Pages 16-24
https://www.sciencedirect.com/science/article/abs/pii/S092180091630595X

Minor inundation flooding occurs regularly each spring and following significant upstream rainfall and flooding events in the spring and summer. Barricades are used to block roads from the Cornwall side and on the east side of the Cornwall-Salisbury bridge to prevent traffic from entering, and residents are notified. The road bed has been strengthened and improved to prevent damages.

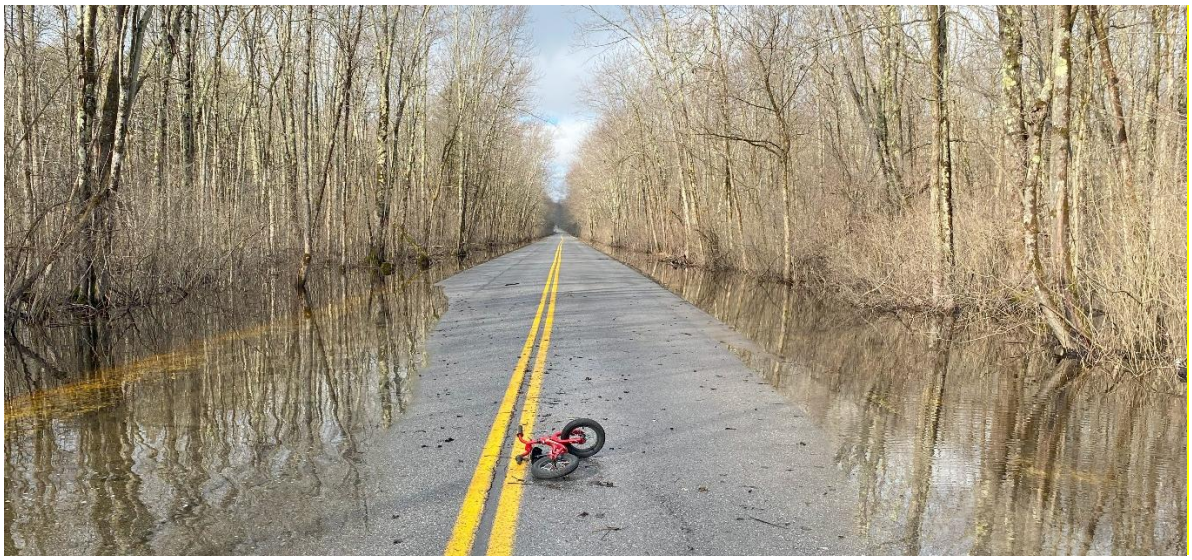


Figure. Early spring inundation flooding over Swamp Road

Figure. Barricades on Swamp Road due to annual flooding

<u>Future Probability</u>:

Flood hazard areas for Cornwall and all of Addison County are currently being updated by USGS for FEMA and are expected to be finalized by 2027. The Zoning Administrator implements the substantial improvement/substantial damage provisions of the town's floodplain management regulations by prohibiting substantial improvement and post-event repairs that will result in any increase in flood levels. All new construction and substantial improvements require the granting of a conditional use permit. Changes in climate and high rainfall events may increase the probability of inundation flooding events, but land use and development changes are not expected to affect their impact on community assets or vulnerable populations.

Vulnerability:

The Town of Cornwall, with its historic development patterns and large wetland areas, is relatively inundation flood-safe. Future assets are not expected to experience increases in vulnerability due to land use changes or change in population demographics.

Inundation Floods are considered a **MODERATE PRIORITY** for the Town of Cornwall, with an overall vulnerability score of 3.00 determined

4.3.18 Downgraded Hazards from previous Hazard Mitigation Plan

Earthquake

Vermont and New England are classified as a “moderate" seismic activity area. Several seismic centers and events have been projected to have a <2% chance of affecting Addison County in the next 50 years, including:

- The Middlebury Once-in-500-year earthquake (5.7 magnitude)
- The Goodnow, NY Once-in-500-year earthquake (6.6 magnitude)
- The Montreal, Quebec (6.8 magnitude) Once-in-500-year earthquake
- Tamworth, NH (6.2 magnitude) Once-in-500-year earthquake

Activity in any of these seismic centers is predicted to produce low to moderate damage to buildings, transportation and utility systems, and minimal casualties and economic loss. The Cornwall Hazard Mitigation Committee and residents do not consider the risk of an earthquake high enough to require a specific mitigation plan.

Ice Jam

Severe ice jams causing flooding do not occur in the Town of Cornwall. Ice formation in culverts can cause spring runoff to flood over the tops of low lying and wooded stretches of town highways. These are closed for a few days until warm weather melts the plugged culverts. The Town believes its current program of upgrading culverts and bridges as they are replaced will mitigate minor Ice Jam issues in town.

Large-Scale Hazardous Materials Incident

There are no sites in town that have sufficient types and/or quantities of hazardous materials to require Tier II reporting. However, several local farms likely store fuels in excess of the quantities which require reporting. In addition, two local mobile businesses provide agricultural chemicals and supplies to farmers in retail sized packaging. In aggregate, the quantities could represent a significant hazard should a multiple package spill occur. Highway accidents also, could result in a release of hazardous materials and several high accident locations are identified in the section on Transportation Accidents

A fixed site hazardous materials storage location is unlikely to be established in Cornwall in the near future. With adequate industrial space available in nearby Middlebury, it is likely that any future needs for such a facility will be accommodated there. State highways in Cornwall are used by many trucks headed south and east out of Middlebury carrying hazardous materials as their payload. While the Cornwall Volunteer Fire Department has training in hazardous materials, the entire State of Vermont is highly dependent on the limited resources of the State's HazMat team. Fortunately, highway safety is improving both in alignments of the highways themselves and in safer vehicle designs.

Dam Failure

There is no history of catastrophic dam failure in the Town of Cornwall. Historic records indicate that due to the topography of the area, early settlers found few locations where the effort needed to dam the water courses in town were justified by the resultant water power. Only 4 dams in Cornwall are identified in the State's dam inventory database. These are:

- Cornwall #1 dam located on Douglas Road,
- Norinberg dam, located off South Bingham Street,
- Kirk dam, located off Tulley Road and
- Perry-Jackson dam, located off Route #125.

Only the Perry-Jackson Dam has the real potential for major damage to VT Route 125 should a catastrophic failure occur. The remaining dams located in town would only result in minor road washouts should a failure occur. Close monitoring of the Perry-Jackson Dam by state officials should lessen the risks that it would fail unexpectedly and allow for gradual draining if issues with the dam structure were to be found. Overall, the Town of Cornwall is at limited risk to dam failure that would cause severe damages.

Landslide

Due to the generally rolling terrain, the Town of Cornwall is at limited risk for landslide/erosion hazards. Because of the easy access to the natural floodplain by flood waters, they rarely are constricted enough to create the conditions which would cause a rapid realignment of any river channels. There is limited risk associated with slumps in Cornwall though one has been observed in one location. It is possible that conditions exist elsewhere in the community for slumping but at this point, no additional locations have been identified where a slump would affect public or private infrastructure.

5. Community Mitigation Strategies
5.1 Hazard Mitigation Goals by Hazard Type

Requirement 44 CFR § 201.6(c)(3)(i)
(Goals to reduce vulnerability to Hazards)

The Town of Cornwall has identified that its goals for hazard mitigation are to reduce vulnerabilities to the hazards identified in section 4.3 and mitigate their potential harmful effects. In doing so, it also recognizes that political will and lack of funding stand in the way of many mitigation projects. The town particularly supports local residents' efforts to mitigate their personal risks. The Town also supports projects that lead to a positive benefit vs. cost evaluation and which the voters can afford.

Goal 1: Increase Community Awareness of Cornwall's Vulnerability to Natural and Human-influenced Hazards

Objective: Inform and educate the community about the types of hazards the Town of Cornwall is exposed to, where they occur, and recommended responses

Goal 2: Reduce Vulnerability of People, Property, and the Environment to Natural and Human-influenced Hazards

Objective: Provide mechanisms to enhance life safety

Objective: Reduce impacts to critical facilities and services

Objective: Reduce impacts to existing buildings and infrastructure to the extent possible

Objective: Reduce impacts to future development and infrastructure to the extent possible

Objective: Reduce impacts to the town's natural and historic resources

Objective: Reduce impacts to public health

Goal 3: Increase Interagency Capabilities and Coordination to Reduce the Impacts of Natural and Human-influenced Hazards

Objective: Continue to collaborate and coordinate with other agencies on planning, projects, hazard response, and funding opportunities

5.2 Authorities, Policies, Programs, Resources

Requirement 44 CFR § 201.6(c)(3)
(Existing capabilities and ability to expand)

5.2.1. Authorities of Town Officials:

Selectboard: The Selectboard is responsible for the basic administration of the town. They take care of roads, make appointments to other boards and commissions, and authorize expenditures of voted budgets. The selectboard may enact ordinances and rules in many areas including traffic regulation, regulating nuisances, managing solid waste, dogs and recreation, and establishing bike paths.

Planning Commission: The Planning Commission is responsible for long range planning in a town particularly as it relates to future land uses and resilience. They prepare a municipal plan and zoning bylaws which are adopted by the Selectboard. Planning Commission members are currently appointed by the Selectboard, but beginning in 2026, will be appointed by the Select Board.

Conservation Commission: The Town Conservation Commission is responsible for inventories of the natural resources of a town and making recommendations to the Planning Commission related to conserving them. Conservation Commission members are appointed by the Selectboard.

Zoning Administrator: The Zoning Administrator (ZA) is appointed by the town's Selectboard with consideration given to the recommendation of the planning commission. Their responsibilities include administration and enforcement of a town's zoning bylaws, The ZA and usually also serve as the administrator of town floodplain regulations.

Tree Warden: The Town Tree Warden is responsible for the shade and ornamental trees within the town rights-of-way. They oversee tree health and removal when necessary. The tree warden is appointed by the Selectboard.

Fire Warden: The Town Forest Fire Warden has the responsibility for suppression of wildland fires, regulating open burning in the town by issuing burn permits, and wildfire education/prevention. The Town Fire Warden is appointed by the state Commissioner of Forests, Parks and Recreation with approval by the town's Selectboard.

Health Officer: The Town Health Officer is the executive officer of the local Board of Health.
A local board of health may make and enforce rules and regulations…relating to the prevention, removal, or destruction of public health hazards and the mitigation of public health risks. The Town Health Officer is appointed by the Commissioner of Health with approval by the local Selectboard. They take direction from the state Department of Health in investigation and enforcement of public health issues.

Emergency Manager or Coordinator: By default, a towns Selectboard chair is the town's emergency management director (EMD) unless one is appointed. Many communities retain the authorities of an EMD within the Selectboard and appoint an emergency coordinator instead. The emergency manager is responsible for the organization, administration and operation of the local emergency management organization. Emergency managers prepare local emergency operations plans, coordinate a local emergency management group and perform emergency management functions at the local level.

5.2.2. Current policies, programs, resources

All Hazards:

The Town of Cornwall's Emergency Management Network is a well-organized and active presence in Cornwall. Their mitigation strategy includes increasing the awareness of all hazards planning, and promoting preparedness in the school.

Widespread Power Failure

Many private residences have back-up power sources and essential Town facilities like the Town Hall/Office and Town Garage have been retrofitted in recent years.

As population growth and housing expands along remote road corridors, increasing reliance on dependable power by the new homeowners requires changes in line maintenance. Green Mountain Power (GMP), the utility servicing the Town of Cornwall has an ongoing program of line clearing and relocation to ensure outages are kept to a minimum. In addition, recent improvements to the transmission system in northwest Vermont have provided redundant systems to bring electric power to the region.

The Town of Cornwall supports continued development of a robust and redundant local electric generation and transmission system for its residents. This support is limited to that which can prove that the benefit to local residents outweighs the societal costs associated with industrial generation and transmission degradation of the local landscape.

Flash Flood

The Town of Cornwall adopted the 2013 version of road and bridge standards as recommended by VT AOT on March 18, 2014. These standards address road and bridge construction, are designed to mitigate local traffic issues and are particularly designed to mitigate potential damages due to flooding and flash flooding. The standards address culvert sizing, ditch treatments and driveway access to reduce flood-caused erosion.

The town supports the Vermont Culvert Database VOBCIT by updating records whenever they replace or upgrade culverts.

Winter Storm/Ice Storm

Mitigation activities by power companies have re-routed many of the remote lines along town highways since a 1998 ice storm and an increased pruning effort has reduced the impact of a similar event would it happen today.

The Town of Cornwall generally mitigates its winter storm risk through preparedness activities in the form of appropriately sized equipment and training. The cutting of brush along town highways also mitigates the effects of large winter storm events by reducing their ability to act as snow fence dropping windblown snow into the town highway system. Reduced brush also mitigates snow storms by allowing space to plow snow off the roads.
All improvements to the road system take into account ease of snow removal in design

High Winds

Residents of the Town generally do not recognize high wind as a hazard which can be mitigated with the exception of the effects previously discussed under widespread power failure.

Newly constructed buildings may have tie downs between roof and side walls but no building codes exist within the community that require construction to any particular standard.

Where high wind hazards have been recognized, it is usually a function of damage that might be caused if a tree were to be blown over and its effect on a resident's home. For this reason, some trees are removed from the landscape to reduce their vulnerability to high wind events. The Town of Cornwall supports removal of dead and hazardous trees in the town rights-of-way to mitigate the hazards associated with their falling either on town highways or on power lines.

Lightning

The town has mitigated potential damage to some Town-owned structures due to lightning strike by installing lightning rods to channel the electrical energy directly to ground rather than through the structure's electrical system.

Most larger privately owned structures in vulnerable locations have similarly installed lightning rod systems to protect them from lightning strike with the encouragement from insurance companies and extension agents.

The Town has no adopted building standards which would require this action but feels the risk to private residences should be borne by residents on an individual basis.

Structure Fire

Installation of dry hydrants at water supply locations can increase the availability of and speed in which water can be accessed for firefighting purposes. The Town of Cornwall supports installation of these hydrants as funding permits and suitable locations can be identified. Actions identified under the Drought hazard would also mitigate structure fire and wildfire risk in future developments.

Insect-Borne lllness

Cornwall has a high percentage of its land mass in frequently flooded soils and abandoned farmlands. These lands are home to insects, some of which also carry arboviruses. The town is a member of the Lemon Fair Insect Control District and annually contributes tax money toward the district's efforts to keep insect populations in check.

The Town supports efforts by the Vermont Department of Health in educating the population by making handouts available at the town office and by supporting the educational efforts of the town's health officers.

Wildfire

Cornwall has an active fire warden who requires permits prior to any outdoor burning in the town. This process includes site visits to a proposed burn site and a subsequent issuance of a permit. Enforcement is usually limited to a warning if the fire seems lit out of ignorance and can result in fines if the fire department is called out.

The town has no guidelines for home construction in place that would limit the risk to wildfire in Cornwall. Actions taken as described above should limit the setting of uncontrolled outdoor fires and should result in an overall limited risk. Fire ponds may be required in larger developments, which should mitigate future fire risk in those developments.

Large-Scale Hazardous Materials Incident

A representative from the Town of Cornwall is an active member of the Local Emergency Planning Committee in planning for hazardous materials incidents. The nearby Middlebury Volunteer Fire Department maintains additional HazMat Decontamination supplies, providing mitigation through proximity of response resource. The State HazMat team responds to larger incidents.

The Town zoning bylaws section 521 specifically limits storage of explosives and requires conditional use review by the Board of Adjustment prior to a permit being issued. In addition, Town zoning bylaws limit storage of hazardous materials or any other materials in the mapped floodplain.

Drought

Most homeowners with shallow wells have learned to live with the inconvenience of dry spells by purchasing bottled water and using public toilets and laundries for the short periods they would be without a dependable water supply. When the inconvenience has become too much, many of these homeowners have mitigated the problem by drilling deep wells. Increasingly, home mortgages are requiring a dependable deep well water supply as a condition of a loan.

Agricultural activities highly dependent on water such as fruit and vegetable crops can be severely impacted by lack of rain. Most of these businesses have mitigated the effects of periodic droughts by providing irrigation systems. Other farms, dependent on crops to feed livestock rather than humans, are highly impacted by low water supplies and may be dependent on a USDA disaster declaration to find relief.

Reduced water supplies also impact the community's fire-fighting capabilities. Since no public water supply is available, the fire department is highly dependent on surface water supplies for fire-fighting. The Cornwall Volunteer Fire Department is active in installing dry hydrants in deep water ponds and streams to make access to water easier within the Town of Cornwall. As housing continues to expand into rural areas, the potential lack of a dependable water supply for fighting fire is becoming an issue.

As a mitigation measure shared with structure fire and wildfire, future development may need to be required to provide fire ponds as part of an impact assessment. Cornwall's current subdivision regulations call for "adequate" water supply to be provided for any subdivision.

Transportation Accidents

A representative from the town sits on the local Transportation Advisory Committee, a regional group whose purpose is to prioritize potential transportation related projects within the region. This group rates High Crash Locations (HCL) highly in prioritizing projects to mitigate the risks associated with these locations by changing alignments, adding signage, and reducing speed limits.

Earthquake

Despite the probability of an earthquake within the next 50 years, most town residents do not even attempt to mitigate its hazard.

The Town of Cornwall has also not identified earthquake as a hazard it feels is imminent enough to justify much in the way of mitigation actions.

Dam Failure

The Town of Cornwall does not generally address dam failure mitigation in its day-to-day activities leaving the protection of the public up to State dam safety inspectors. Since the most catastrophic dam failure would primarily impact the state highway, mitigation actions have been left up to the State and Federal authorities.

The Town Planning Commission has considered writing of water impoundment construction standards into its zoning regulations. The intent of such standards would be to limit the volume of water which could be stored in a man-made impoundment and therefore limit risk.

Invasive Species (Insects)

The Town of Cornwall has an active tree warden appointed annually to oversee the publicly owned trees located in the Town's right-of-way. The Road Commissioner and Tree Warden are appointed and have the ability to evaluate dangerous and/or diseased trees along with their town highway duties.

Unhealthy or hazardous trees are removed on a regular basis. Any drastic increase in tree deaths due to invasives may need to be budgeted for separately from the highway budget should the need arise.

Landslide/Erosion Hazard

Unfortunately, the relatively short lives (compared to geologic time) of property owners lead them toward the belief that the river has always been stable and that it is poor management that causes channel migration rather than the unstoppable forces of nature.

In the most current Town Plan, adopted in 2023, the town planning commission indicates a desire to reduce the erosion of river banks and the resultant sedimentation which cause nutrient loading into the river systems. By encouraging vegetative buffers along riverbanks it is believed that future erosion will be reduced.

Adoption of zoning regulations which would require a buffer along all riverbanks is an acceptable option but could be difficult to adopt as property owners often do not recognize the threats associated with river channel migration over time.

Pandemic

The Town of Cornwall has an active Town Health Officer who also serves as a member of the town's emergency management network. The Town Health Officer is active in training opportunities offered by the VT Department of Health including pandemic preparedness when it has been offered.

Inundation Flooding

The Town has been a member in good standing of the NFIP for over 30 years. There are no identified "Repetitive Loss" properties located in Cornwall. One flood insurance policy is in effect for a residence in the town located outside of the identified flood hazard zone.

The Town supports continued compliance with the NFIP and would support Community Rating System (CRS) improvements where the benefits to the town's residents would outweigh the costs of additional administration and compliance.

5.2.3. Current Resources

The Town of Cornwall's annual budget is slightly less than $1 million annually. Receipts are primarily from property taxes, with less than 1% from grant incomes, fines fees and licenses, zoning permits, and other sources of income.

The town's budget is structured to address various operational and community needs. Key allocations include:

- **General Fund**: Covers administrative expenses, including salaries for town officials, office supplies, and other operational costs.
- **Public Safety**: Funds allocated for fire protection services, emergency medical services and law enforcement (Addison County Sheriff) support.
- **Public Works**: Includes road maintenance, snow removal, and infrastructure repairs.
- **Health and Welfare**: Supports health officers, animal control, and contributions to health-related organizations.
- **Recreation and Culture**: Funds for community events, library services, and historical preservation.
- **Debt Service**: Payments on any outstanding municipal debts.

The budget also outlines anticipated revenues from property taxes, state aid, and other local sources to balance expenditures.

Current Grants and Funding Sources
Cornwall actively seeks external funding to supplement its budget. Notable grants and funding sources include:

- **State and Federal Grants**: Applications submitted for infrastructure improvements and community development projects.
- **Donations and Contributions**: Received from local organizations and residents to support specific initiatives.
- **Intergovernmental Transfers**: Funds from county or state agencies for designated programs.

These funding sources are detailed in the "Grant Activity" section of the town report, highlighting the town's efforts to secure additional resources.

Potential Grants for Future Hazard Mitigation
To enhance Cornwall's resilience against natural hazards, the town may consider applying for the following grants:

- **Hazard Mitigation Grant Program (HMGP)**: Provides funding for projects that reduce disaster risk, such as infrastructure upgrades and property buyouts.
- **Building Resilient Infrastructure and Communities (BRIC)**: Supports proactive mitigation projects, including planning and code enforcement activities.
- **Flood Mitigation Assistance (FMA)**: Offers grants for flood risk reduction projects, particularly for properties insured under the National Flood Insurance Program.
- **Community Development Block Grant - Disaster Recovery (CDBG-DR)**: Funds long-term recovery efforts in areas affected by significant disasters, focusing on infrastructure and housing restoration.

To be eligible for these grants, Cornwall must maintain an updated Local Hazard Mitigation Plan, be in good standing with the National Flood Insurance Program, and have an adopted Local Emergency Operations Plan.

By leveraging these funding opportunities, Cornwall can proactively address potential hazards and enhance the community's safety and resilience.

5.2.4. Authority and Capabilities to Expand Funding

As a small town governed by a Selectboard and annual Town Meeting, the Town of Cornwall has limited authority and capacity to expand its funding capabilities independently. However, it does have some tools and options within its municipal authority:

- **Property Tax Adjustments**: The town can propose and approve increases to property tax rates through the Town Meeting process, allowing for additional revenue—though this depends on voter support and is often constrained by affordability concerns in a small population.

- **Grant Applications**: Cornwall has the authority to pursue state and federal grants, and its annual report indicates it does so. Successful grant-seeking depends on administrative capacity, competitive proposals, and alignment with state and federal priorities.
- **Special Assessments and Fees**: The town can levy fees or create special assessment districts for specific projects (e.g., road improvements), though this is rare in small rural towns.
- **Intergovernmental Partnerships**: Cornwall can collaborate with neighboring towns or regional planning commissions (e.g., Addison County Regional Planning Commission) to access shared services, technical assistance, and larger funding pools.

Limitations:

- **Administrative Capacity**: Small towns like Cornwall often lack full-time staff, grant writers, or dedicated financial planners, limiting their ability to aggressively pursue or manage complex funding streams.
- **Revenue Base**: With a small population and limited commercial activity, Cornwall's tax base is modest, restricting local revenue potential.
- **Regulatory Constraints**: State laws cap certain forms of taxation or borrowing, and voter approval is typically required for new spending or debt.

In summary, Cornwall has some municipal authority to improve its funding—especially through voter-approved measures and grants—but its small size and limited resources pose real constraints on expanding its financial capabilities. Collaborating regionally and leveraging state/federal programs are its most viable paths to increased funding.

5.3 Project Prioritization Process

Requirement 44 CFR § 201.6(c)(3)(ii)
(Prioritization, Implementation, Administration)

Projects and actions included in Section 5.2 are conducted by the Town of Cornwall, GMP or regional and State agencies where noted. The Town encourages its residents to adopt mitigation actions which could protect their personal property by making educational materials available to residents. Mitigation actions identified in Section 5.4, are considered the jurisdiction's priority mitigation actions.

The Town has established the following priorities for choosing mitigation projects: Life safety and the safety of its residents, keeping local roads and bridges open to ensure access for emergency vehicles, and protecting critical infrastructure facilities in the town. These actions/projects are constantly evaluated for benefit to the community, estimated project cost and political will to implement and will be implemented as those factors indicate. Several mitigation projects have been completed in the past five years, and additional work is underway. The Town has established that costs considered are primarily financial, however there are political and social costs considered depending on the action.

The actions identified in Section 5.4 under each hazard have passed a preliminary evaluation utilizing those general concepts by the hazard mitigation committee, and are listed in their order of priority. Before undertaking these projects, they will additionally be prioritized based on their feasibility and a benefit vs. cost review. A minimum C/B result of 1.0 will be required prior to any request for federal mitigation funds. All projects in section 5.4 will be reviewed for progress following any local disaster declaration and will be considered annually as part of overall town budgeting.

5.4 Proposed Mitigation Actions by Hazard Type

Requirement 44 CFR § 201.6(c)(d)(3)
(Revisions due to priorities changes)
Requirement 44 CFR § 201.6(c)(3)(ii)
(Range of actions and projects considered

The following list of proposed mitigation actions and projects was revised from the previous plan due to changes in community priorities. The Hazards Committee identified a comprehensive range of specific mitigation actions from the previous Hazard Mitigation Plan, the State Hazard Mitigation Plan, and the goals and actions of neighboring municipalities, and analyzed each. Projects were considered to reduce the effects of each priority hazard, with emphasis on human life and safety as well as consideration of the new and existing buildings and infrastructure.

The final list includes only those projects which could be considered reasonable and feasible based on cost and political willingness. The town will maximize 406 mitigation opportunities whenever possible when making repairs to Public Assistance eligible damages during a declared disaster.

Each project in this action plan includes an estimated cost, possible funding sources, potential benefits, the lead person or agency responsible for completion of the project and an estimated start and end timeframe for project completion. Timeframes are an estimate only and are dependent upon funding and the political will to complete.

Requirement 44 CFR § 201.6(c)(3)(ii)
(Actions for each identified hazard)
Requirement 44 CFR § 201.6(c)(3)(iii)
(Responsible position, potential funding, expected time frame)

5.4.1 Mitigation Actions by Hazard Type Table

Hazard	Future mitigation action(s) for this hazard	Estimated Cost	Source of Funds	Responsible Entity	Timeframe	Priority (Low-Medium-High)
All Hazards	Conduct drills and exercises to test plans	None to Town	VEM grants, Volunteer Time	Emergency Management Coordinator with support of CVFD	2025-3030, biannually	Medium
	Maintain EBS/NOAA emergency radios for use in appropriate locations throughout town	None to Town	Volunteer Time	Emergency Management Coordinator	2025-2026	Low
Severe Ice Storm	Manage vegetation in the ROW to minimize/allow space for powerlines	$5000/yr	Town highway budget	Town Road Crew	2025-3030, annually	High
	Grant Right of Way usage to GMP for maintenance purposes, with due consideration for scenic corridors and aesthetic desires for tree-lined streets and roads.	None	N/A	Select Board	Q3 2025- Q4 2030 Ongoing	Medium
Insect-borne Illness	Provide funding for the efforts of the Lemon Fair Insect Control District.	$6,000/yr	Town Annual Budget	LFICD	Annually	High
	Provide mosquito-safety educational materials on the use of appropriate repellants and behavior patterns which reduce the likelihood of mosquito bites	None to Town	Volunteer Time, ACRPC	Town Health Officer	2025-2030, Ongoing	Low
Invasive Species	follow state recommendations for roadside mowing to prevent seed production of Poison Parsnip	None	N/A	Town Road crew	2025-3030, annually	Medium
	Provide invasives education	$300	Volunteer Time	Conservation Commission	2027	Low
	EAB education, town road ash tree inventory	$1,000	ANR grants, fundraising	Conservation Commission	2026	Medium

Hazard	Future mitigation action(s) for this hazard	Estimated Cost	Source of Funds	Responsible Entity	Timeframe	Priority (Low-Medium-High)
Flash Flooding & Fluvial Erosion	*Work towards implementation of specific road projects:*					
	State Route 125 box culvert replacement/rebuild (Beaver Brook)	None to Town	State of Vermont Vtrans	Road Crew	2028-2030	High
	Consider zoning bylaw adoption of River Corridor and small stream buffer protections	None to Town	Volunteer Time	Planning Commission	2028-2030	Medium
High Winds	Remove dead and dying trees from town rights of way as part of normal maintenance	$5,000	Town highway budget	Town road crew, with assistance from the tree warden	2025-2030, Ongoing	High
Severe Heat	Maintain Town Hall as emergency heating/cooling shelter with generator and air-conditioning	$10,000	State grants	Select Board	2025-2030	High
	Encourage residents to sign up for the CARE registry and set up a process to check on vulnerable populations during severe heat events	None to Town	Volunteer Time	Emergency Management Director	2026-2028	Medium
	Develop and implement a Hot Weather-Cooling Shelter plan	None to Town	Volunteer Time	Emergency Management Director	2025-2027	Medium
Infectious Disease Outbreak (Pandemic)	Support training of the Town Health Officer to help mitigate the effects of a pandemic	$500	Town operating Budget	Town Health Officer	2025-2030	Medium
	Prepare an agricultural emergency response plan for local farms	None to Town	Volunteer Time	Emergency Management Coordinator	2028-2030	Low
	Develop and maintain continuity planning and agreements for potential town staff shortages.	None to Town	Volunteer Time	Emergency Management Coordinator	2028-2030	High

Hazard	Future mitigation action(s) for this hazard	Estimated Cost	Source of Funds	Responsible Entity	Timeframe	Priority (Low-Medium-High)
Widespread Power Failure	Maintain Town Hall as emergency warming shelter with generator	$10,000	State grants	Select Board	2025-2030	Medium
	Encourage ACSD provision of back-up power generation options at the Bingham Memorial School	None to Town	N/A	ACSD	2025-2030, Ongoing	Low
	Encourage and support GMP undergrounding of major electrical lines	None to Town	N/A	GMP	2025-2030, Ongoing	Low
	Support installation of residential energy storage	None to Town	N/A	Energy Coordinator with support of EMC	2025-2030, Ongoing	Low
Wildfire	Require outdoor burn permits prior to any outdoor burning.	Annual stipend	Town operating Budget	Town Fire Warden	2025-2030, Ongoing	High
	Provide educational materials on "firewise" practices on the ACRPC website	None to Town	Volunteer Time, ACRPC annual fee	ACRPC	2025-2030, Ongoing	Low
	Acquire a Brush Truck for the fire department	$50,000	Town Budget, CVFD fundraising	CVFD	2027-2029	Medium
	Install additional dry hydrants throughout town.	$1000-$5000	Rural Fire Protection Grant Program	CVFD	2025-2030, Ongoing	High
	Consider creating a Community Wildfire Protection Plan	None to Town	State Grant funds, Volunteer time	CVFD	2027-2029	Low

Hazard	Future mitigation action(s) for this hazard	Estimated Cost	Source of Funds	Responsible Entity	Timeframe	Priority (Low-Medium-High)
Structure Fire	Install additional dry hydrants throughout town.	$1000-$5000	Rural Fire Protection Grant Program	CVFD	2025-2030, Ongoing	Medium
	Provide Fire Safety education program in the elementary school	None to town	Volunteer Time	CVFD	2025-2030, Ongoing	Medium
	Upgrade driveway standards in the next zoning bylaw rewrite to support basic accessibility for emergency vehicles to all structures in town.	None to town	Zoning Administrator time	Planning commission	2025	Medium
Hail Storm	Provide Hail safety education materials on the ACRPC website	None to Town	Volunteer Time, ACRPC annual fee	ACRPC	2025-2030, Ongoing	Low
Severe winter storm- Snow	Explore creation of "living snow fences" in cooperation with landowners where feasible	None to Town	N/A	Conservation Commission	2026-2028	Low
	Identify appropriate shelters for people who may need to evacuate due to loss of electricity, isolation, cold temperatures	None to Town	N/A	Emergency Management Coordinator	2025-2030	Medium
Highway Accident	*Support the mitigation of the following high-risk locations.*					
	The intersection of US Rte #30 and Cider Mill Road	Unknown	State of Vermont	VTrans with support of Select Board	2030	High
	Route 74 at the base of the "Ledges"	Unknown	State of Vermont	VTrans with support of Select Board	2030	High
	Route 74 from the "Old Red Barn" site to the junction of Clark Road	Unknown	State of Vermont	VTrans with support of Select Board	2030	High
	Support VTrans efforts to improve sightlines and safety on VT Route 125 by "the Knoll"	Unknown	State of Vermont	VTrans with support of Select Board	2030	High
	Support VTrans implementation of safety measures for the James Rd and Route 125 intersection	Unknown	State of Vermont	VTrans with support of Select Board	2030	High

Hazard	Future mitigation action(s) for this hazard	Estimated Cost	Source of Funds	Responsible Entity	Timeframe	Priority (Low-Medium-High)
Drought	Follow State of Vermont's water/wastewater rules	None to Town	N/A	Planning Commission	2025-2030, Ongoing	Low
	Encourage drought-tolerant landscape design through measures such as incorporating drought tolerant or xeriscape practices into landscape ordinances to reduce dependence on irrigation.	None to Town	Volunteer time	Conservation Commission	2025-2030, Ongoing	Low
	Provide drought education materials on the ACRPC website	None to Town	Volunteer Time, ACRPC annual fee	ACRPC	2025-2030, Ongoing	Low
Inundation Flooding	fund attendance by the Zoning Administrator at National Flood Insurance Program trainings when offered locally.	$300	Town operating Budget	Zoning Administrator	2026-2030	Medium
	Support the mitigation of the area around the Beaver Brook crossing of VT Route 125.	Unknown	State of Vermont	VTrans with support of Select Board	2030	Medium
	Adopt updated and digitized FIRMs from FEMA and incorporate into town plans and zoning.	None to Town	Volunteer Town Official time, ACRPC annual fee	Planning Commission	2027	High
Earthquake	Provide earthquake education materials on the ACRPC website	None to Town	Volunteer Time, ACRPC annual fee	ACRPC	2025-2030, Ongoing	Low
Large-Scale Hazardous Materials Incident	Support ongoing HazMat training efforts of the Cornwall Volunteer Fire Department	None to Town	Volunteer Time	CVFD	2025-2030, Ongoing	High
Dam Failure	Consider adoption of water impoundment construction standards into zoning regulations.	None to Town		Planning Commission	2026	Low
Landslides	Consider adoption of a River Corridor Overlay district in the next zoning bylaw rewrite.	None to Town		Planning Commission	2026	Low

Requirement 44 CFR § 201.6(d)(3)
(Update on previous mitigation actions)

5.5 Mitigation activities undertaken since 2016 plan adoption

Hazard	Action Description	Project Status
All Hazards	Institute an EM preparedness/Fire Safety education program in the school	In-Progress
	Purchase EBS/NOAA emergency radios for use in appropriate locations throughout town	Action Completed
	Prepare an agricultural emergency response plan for local farms	Completed- the hazard is no longer a priority
	Conduct drills and exercises to test plans	In-Progress- the hazard is no longer a priority
Widespread Power Failure	Grant access for Right of Way usage for maintenance purposes	In-Progress
	Explore creation of "living snow fences" in cooperation with landowners where feasible	Still needed
	Explore back-up power options for the Bingham Memorial School	Still needed (but now owned by Addison County School District)
Flash Flood	Work towards implementation of specific road projects:	
	State Route 125 box culvert replacement/rebuild (Beaver Brook)	Still needed
	Upgrade cross culverts from Trombley to Gorton properties on West Street	Action Completed
	Upgrade and lengthen 3ft culvert south of Bolduc Farm on West Street	Action Completed
	Upgrade 30" culvert South of Payne Farm on West Street	Action Completed
	Upgrade and lengthen 18" culvert west of Beaver Brook bridge on Sperry Road	Action Completed
	Add an additional culvert at the multi-plate culvert west of the asphalt on Wooster Road	No longer needed
	Add a 4' culvert east of Evergreen Lane on Clark Road	Action Completed
	Add additional cross culverts or improve ditches south of Severy Farm on Delong Road	Action Completed

Hazard	Action Description	Project Status
Ice Storm	Provide annual funding of the highway crew and its equipment.	In-Progress
	The Town has identified installation of back-up power for the school as an important need to allow continued operation in the event of a severe winter storm.	Still needed
	In future requests for Right of Way usage for maintenance purposes, the Town will normally grant access. Due consideration in granting these permissions will be given when such access will adversely impact scenic corridors and residents desires to keep the beauty of tree-lined streets and roads.	In-Progress
	Manage vegetation in the ROW/ to allow space for heavy/wet snow and ice events	In-Progress
	Explore creation of "living snow fences" in cooperation with landowners where feasible	No longer needed
High Winds	The town road crew, with assistance from the tree warden, currently removes dead and dying trees from its right of 'way as part of normal maintenance	In-Progress
Lightning	The town will provide lightning safety educational materials in the town office.	Still needed
Structure Fire	The Town supports efforts by the fire department to install dry hydrants throughout town.	In-Progress
	The Town supports upgrading of driveway standards in the next planning commission zoning bylaw rewrite to support basic accessibility for emergency vehicles to all structures in town.	In-Progress
Insect-Borne Illness	The Town partners in funding the efforts of the Lemon Fair Insect Control District.	In-Progress
	The Town encourages use of appropriate repellants and behavior patterns which reduce the likelihood of mosquito bites through education.	In-Progress
Wildfire	The Town supports the fire warden system requiring outdoor burn permits prior to any outdoor burning.	In-Progress
	The town will support education of "firewise" practices by providing educational materials in the town office.	In-Progress

Hazard	Action Description	Project Status
Large-Scale Hazardous Materials Incident	Support ongoing HazMat training efforts of the Cornwall Volunteer Fire Department	In-Progress- the hazard is no longer a priority
Drought	Follow State of Vermont's new water/wastewater rules	In-Progress
Highway Transport Accidents	Support the mitigation of the following high risk location on the highway systems:	
	The intersection of US Rte #30 and Cider Mill Road	In-Progress
	The area around the base of the "Ledges" on Route 74	In-Progress
	The area on Route 74 from the "Old Red Barn" site to the junction of Clark Road	In-Progress
Earthquake	Make earthquake education materials available at the town office.	In-Progress- the hazard is no longer a priority
Dam Failure	The Town Planning Commission will explore writing of water impoundment construction standards into its zoning regulations. The intent of such standards would be to limit the volume of water which could be stored in a man-made impoundment and therefore limit risk.	Not Completed- the hazard is no longer a priority
Landslide/ Erosion Hazard	The Town will explore adoption of a River Corridor Overlay district in its next zoning bylaw rewrite.	In-Progress- Still needed
Pandemic	The Town currently supports training of the Town Health Officer to help mitigate the effects of a pandemic on the community. No new actions are required.	In-Progress
Inundation Flooding	The town will fund attendance by the Zoning Administrator at local NFIP trainings when offered locally.	Still needed
	The Town will evaluate inclusion of a river corridor overlay in its next zoning bylaw rewrite.	Still needed
	The Town will request updated and digitized FIRMs from FEMA to support their flood mitigation efforts.	Completed, map updates in progress

6. Plan Maintenance Procedures

Any Hazard Mitigation Plan is dynamic and should not be fixed. To ensure that the plan remains current and relevant, it is important that it be updated periodically. The plan will be integrated into other plans and updated at a minimum every five years.

6.1 Hazard Mitigation Plan Integration

Requirement 44 CFR § 201.6(d)(3) (Process of mitigation plan integration) Requirement 44 CFR § 201.6(c)(4)(ii)) (Integration process and planning mechanisms)

The municipality will integrate the goals and actions of this hazard mitigation plan into all other municipal planning mechanisms, including the annual Local Emergency Management Plan, annual municipal budget, and Cornwall Municipal Plan (re-adoption due in 2031). The Emergency Management Director and Emergency Management Coordinator will be responsible for integrating the goals, information and strategy of the mitigation plan into other planning mechanisms

6.2 Hazard Mitigation Plan Review/Update Process

1. The Cornwall Selectboard assembles a Review/Update Committee to include government officials and interested public.
2. The Committee will discuss the process to determine if any modifications or additions are needed due to changing conditions since the last update occurred. Data needs will be reviewed, data sources identified and responsibility for collecting/updating information will be assigned to members.
3. Other Town plans (Emergency Management Plan, Town Plan, Road Plan, etc.) will be reviewed to ensure a common mitigation thread still exists throughout.
4. A draft update will be prepared based on these evaluation criteria:
    - Changes in community and government processes, which are hazard-related and have occurred since the last review.
    - Progress in implementation of plan initiatives and projects.
    - Effectiveness of previously implemented initiatives and projects.
    - Evaluation of unanticipated challenges or opportunities that may have occurred between the date of adoption and the date of the report.
    - Evaluation of hazard-related public policies, initiatives and projects.
    - Review and discussion of the effectiveness of public and private sector coordination and cooperation.
5. The public will be invited to review and give input on drafts as they are produced.
6. Selectboard members will have an opportunity to review the draft update. Consensus will be reached on any changes to the draft.
7. The Selectboard will notify and schedule a public meeting to ensure adequate public input.
8. The Selectboard will recommend incorporation of community comments into the draft update.

Requirement 44 CFR § 201.6(c)(4)(i)
(Monitoring, Evaluating, and Updating)

6.3 Mitigation Project Status Monitoring and Evaluation

The town of Cornwall has outlined a process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy. The plan will be reviewed and updated in its entirety at least every five years as described in Section 6.2 above. Utilizing the same criteria outlined for the update process in section 6.2, the Town will monitor and evaluate its hazard mitigation goals, strategies and actions/projects annually as the town budget is created. A town budget is created by the Selectboard of a town in publicly noticed meetings utilizing budget requests from town committees and the citizenry. This will ensure that progress will be reviewed and actions/projects either added or removed from the towns work plan based on changing local needs and priorities. In creation of the municipal plan by the planning commission, concepts, goals and strategies from this plan will be used to inform the development of that plan and will be incorporated into that plan when appropriate. The progress/status of the mitigation actions identified within the mitigation strategy will be tracked by the Selectboard and Emergency Management Coordinator, who will be responsible for this process and bring mitigation actions to other planning processes. The plan will be evaluated for effectiveness annually and post-disasters (see section 6.5).

Requirement 44 CFR § 201.6(c)(4)(iii)
(Future public participation)

6.4 Public Participation

This Hazard Mitigation Plan solicited and received public input, especially in developing the hazard risk and vulnerability assessment. The municipality will continue to encourage future public participation in mitigation actions after the plan has been approved. Notice of the plan will be made and a copy of the plan along with contact information will be made available on the town website and at the Town Office. While the public are encouraged to read and comment on the plan, the committee understands that the length of the plan following all FEMA requirements is unwieldy and time-consuming for review, and has therefore provided a concise executive summary to provide the main Vulnerabilities, Goals and Mitigation actions The Emergency Management Director and Emergency Management Coordinator will provide a status report on mitigation action progress at the annual Town Meeting and provide information on potential weather-hazards via local networks including Front Porch Forum. Public comments and suggestions will be recorded and incorporated into the upcoming hazard mitigation plan.

6.5 Post-Disaster Review Procedures

Should a declared disaster occur, a special evaluation process will occur in accordance with the following procedures:

1. Within six (6) months of a declared emergency event, the Town will initiate a post disaster review and assessment of actions.
2. This post disaster review and assessment will document the facts of the event and assess whether the existing Hazard Mitigation Plan effectively addressed the hazard.
3. A report of the review and assessment will be created by a Review/Update Committee.
4. The committee will make a determination whether the plan needs to be amended. If the committee determines that NO modification of the plan is needed, then the report is distributed.
5. If the committee determines that modification of the plan IS needed, then the committee drafts an amended plan based on its recommendations and forwards to the Selectboard for their input.
6. Following completion of a public input process, further amendments may be made and a final plan delivered to the Selectboard for adoption.
7. The Selectboard adopts the amended plan.

7. Plan Adoption Resolution

Requirement 44 CFR § 201.6(c)(5)
(Documentation of adoption)

TOWN OF CORNWALL, VERMONT SELECTBOARD ADOPTION RESOLUTION

WHEREAS, the Town of Cornwall has occasionally experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **Town of TOWN, Vermont Single Jurisdiction All-Hazards Mitigation Plan 2025 (The Plan)**, which can result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Cornwall has developed **The Plan** and received conditional approval from the Federal Emergency Management Agency (FEMA); and

WHEREAS, **The Plan** identifies specific hazard mitigation strategies, and plan maintenance procedures applicable to the Town of Cornwall; and

WHEREAS, **The Plan** identifies actions and/or projects intended to provide mitigation for specific natural hazards that impact the Town of Cornwall; and

WHEREAS, adoption of **The Plan** will make the Town of Cornwall eligible for additional funding to help alleviate the impacts of future hazards;

Now, therefore, be it RESOLVED by Town of Cornwall Selectboard:

1. The **Town of Cornwall, Vermont Single Jurisdiction All-Hazards Mitigation Plan 2025** is hereby adopted as an official plan of the Town of Cornwall, Vermont. While content related to Cornwall may require revisions to meet the plan approval requirements, changes occurring after adoption will not require Cornwall to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions;

2. The respective Town officers identified in the action plan are hereby directed to pursue implementation of the recommended actions assigned to them;

3. Support agencies within the Town of Cornwall are also requested to implement actions assigned to them within this plan;

4. Plan maintenance procedures described in Section 6 of this plan are also adopted as part of this resolution.

IN WITNESS WHEREOF, the undersigned have affixed their signatures for the Town of Cornwall, this ____ day of _____ 2025.

_____	_____	_____
Selectboard Chair	Selectboard Member	Selectboard Member

ATTEST:_____

Appendix 1. Public Outreach

Poster displayed at Town Hall and Town Meeting, March 2025

What Natural Hazards Should Cornwall Plan For?

(Add a sticker for one or more hazards to share your opinion!)

Potential Hazards

What other hazards should we plan for, and what can you do to prepare?

Take our survey at: **https://tinyurl.com/CornwallHazardSurvey**

or scan:

Addison County Regional Planning Commission

...re information or to get involved, contact

Co... ...rk Laura Fetterolf at **townclerk@cornwallvt.com**

or A... ...egional Planner Andrew L'Roe, at **alroe@acrpc.org**

Online Survey Responses
The online survey received 2 responses from Cornwall residents, and the poster received multiple responses, providing the following hazard priority rankings (on 1-5 scale, where 5 = Most Concerned or Highest, 1= Least Concerned or Low).

Hazard	Mean Priority (1= Most, 5 = Least)	# of Times Ranked as Most Concern
Insect-borne Disease	4.33	**8**
High Wind	4.25	**3**
Infectious Disease	4.14	**4**
Invasive Species	4.00	**3**
Severe Ice Storm	3.80	**3**
Flash Flooding & Fluvial Erosion	3.50	0
Drought	3.20	0
Highway Accident	3.14	0
Severe Heat	3.00	0
Landslide	2.75	0
Lightning Storm	2.50	0
Snow Storm	2.50	0
Hazardous Materials Accident	2.40	0
Inundation Flooding	2.33	0
Structure Fire	2.33	0
Severe Cold	2.00	0
Hailstorm	2.00	0
Ice Jam	2.00	0
Wildfire	1.80	0
Tornado	1.50	0
Dam Failure	1.00	0
Earthquake	1.00	0

Stakeholders providing comments:
Lemon Fair Insect Control District- confirmed importance of Insect-borne Disease, especially compounded with recent summer flooding conditions
Green Mountain Power Corporation, Electric Utility- indicated that Wind storms and Severe Winter Ice or Snow Storms are their highest concerns
Addison County School District staff on behalf of Bingham Memorial School

Other Stakeholders contacted for review [during hazard ranking process, for hazard mitigation actions, and draft reviews]:
Neighboring Municipalities: Bridport, Middlebury, Salisbury, Shoreham, Weybridge, Whiting

Addison County Regional Emergency Management Committee

Addison County Regional Planning Commission, Full membership

The Town of Cornwall is updating its Hazard Mitigation Plan and needs your Input!!

Hazard Mitigation is sustained action taken to reduce or eliminate long-term risk to people and property due to natural or man-made disasters.

Cornwall's Local Hazard Mitigation Plan is updated every 5 years

What natural hazards are you most concerned about?
What do you think the town should be preparing for?

Please take our survey to provide feedback at
https://tinyurl.com/CornwallHazardSurvey
and on a poster at the Town Office!

For more information, contact the Cornwall Town Clerk or Addison County Regional Planning Commission, 802-388-3141

The Town of Cornwall is finalizing its Hazard Mitigation Plan and needs your input!!

The Cornwall Hazard Mitigation Committee identified the following hazards as High Priorities:

- **Severe Ice Storm (Risk Score 9.00)**
- **Insect-Borne Illness (8.00)**
- **High Winds (7.00)**
- **Invasive Species (7.00)**
- **Flash Flood (7.00)**
- **Severe Heat (7.00)**
- **Infectious Disease-Pandemic (6.75)**
- **Widespread Power Failure (6.00)**
- **Wildfire (6.00)**
- **Structure Fire (6.00)**
- **Severe Cold (6.00)**

The Committee prioritized the following mitigation goals to address these hazards:

Goal 1: Increase Community Awareness of Cornwall's Vulnerability to Natural Hazards

Goal 2: Reduce Vulnerability of People, Property, and the Environment to Natural Hazards

Goal 3: Increase Interagency Capabilities and Coordination to Reduce the Impacts of Natural Hazards

Have Thoughts or Concerns?

Join us in-person or by Zoom for a Public Meeting about the Draft Hazard Mitigation Plan

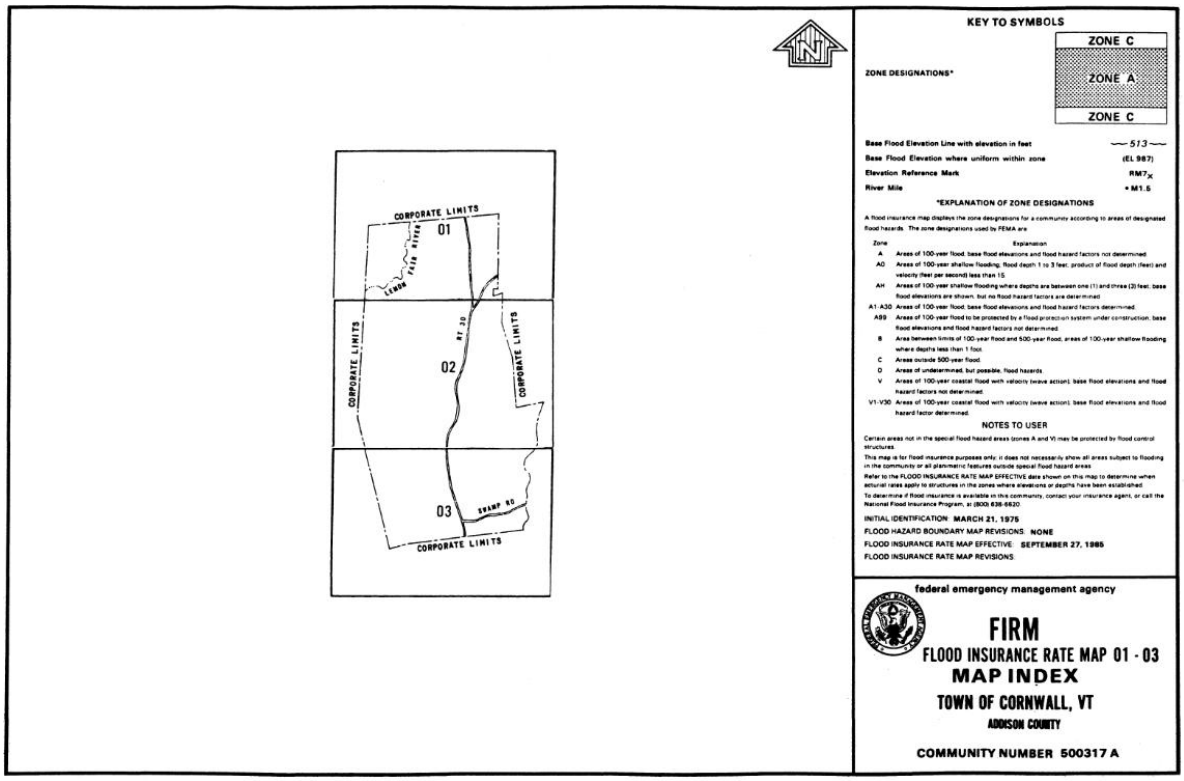
Time: June 2, 2025, 12:00 -1:00pm **Location:** Cornwall Town Office

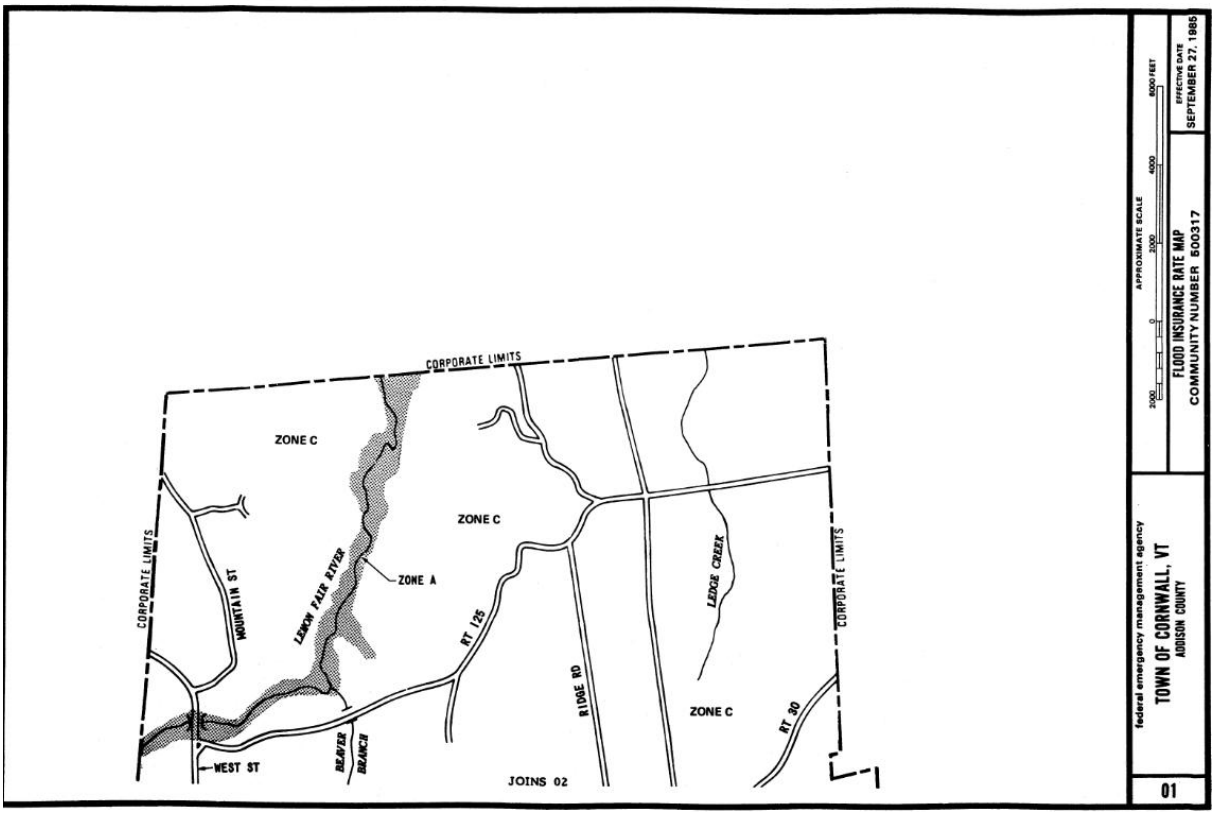
Drop by or join our Zoom Meeting:

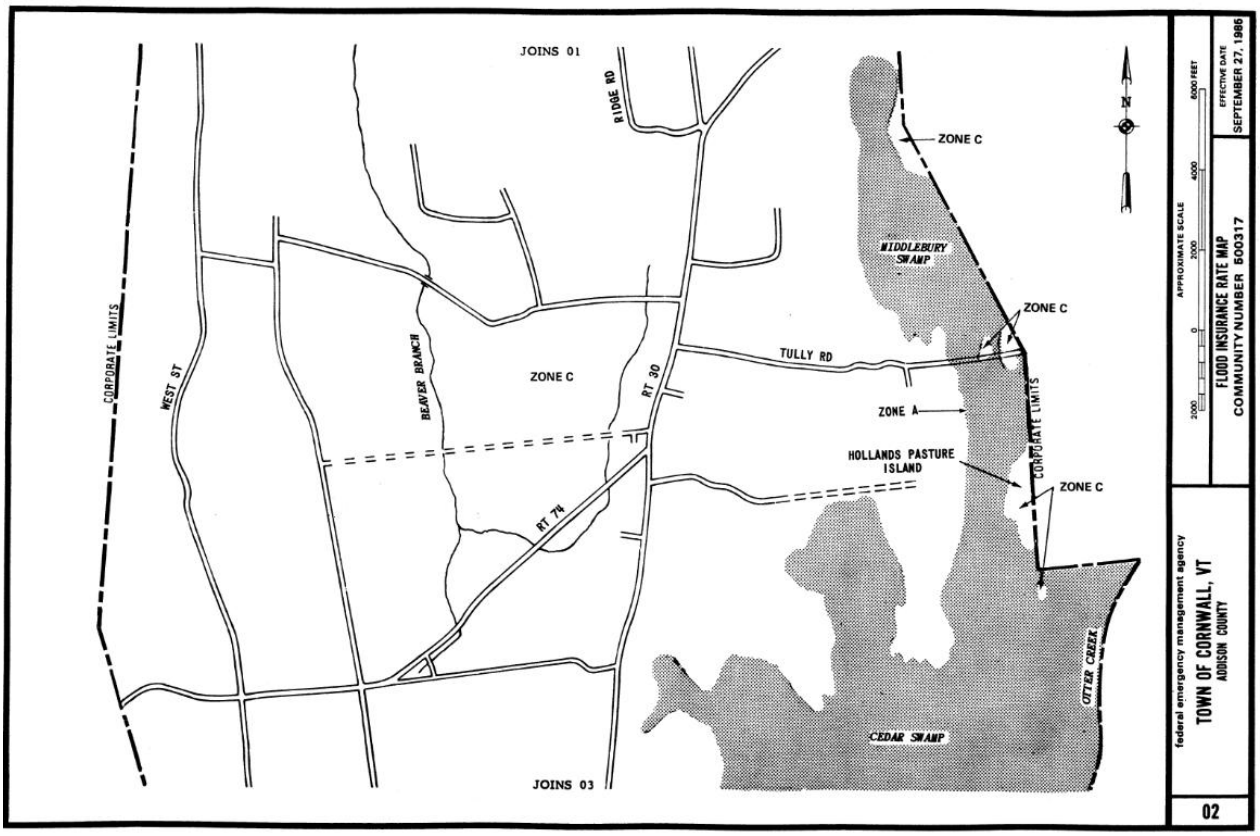
https://us02web.zoom.us/j/89425570434?pwd=CJ9nG9SdgUdoXpgheFCTrisK18QRXE.1

For more information, contact the Cornwall Town Clerk or Addison County Regional Planning Commission, alroe@acrpc.org

Appendix 2. FEMA Flood Insurance Rate Map
Number 500317A, effective 9/27/1985







(Available at https://msc.fema.gov/portal/search?AddressQuery=cornwall%20VT)

Appendix 3. Flood Hazard language in Cornwall 2008 Zoning Regulations

Available at https://cornwallvt.com/forms-documents/zoning-building-subdivision-documents/

ARTICLE IX: FLOOD HAZARD AREA REGULATIONS

Section 901: STATUTORY AUTHORIZATION

To effect the purposes of 10 V.S.A. Chapter 32, and in accord with the Vermont Planning and Development Act, 24 V.S.A., Chapter 117, Sections 4410, 4411 and 4424, there are hereby established zoning regulations for areas of special flood hazard in the Town of Cornwall.

Section 902: STATEMENT OF PURPOSE

It is the purpose of these Regulations to promote the public health, safety, and general welfare, to prevent increases in flooding caused by the uncontrolled development of lands in areas of special flood hazard, and to minimize losses due to floods by:

1. restricting or prohibiting uses that are dangerous to health, safety, or property in times of flood or cause excessive increase in flood heights or velocities;
2. requiring that uses vulnerable to floods, including public facilities that serve such uses, shall be protected against flood damage at the time of initial construction;
3. protecting individuals from buying lands that are unsuited for their purposes because of flood hazard.

Section 903: LANDS TO WHICH THESE REGULATIONS APPLY

These Regulations shall apply to all lands in the Town of Cornwall identified as areas of special flood hazard on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), dated 9/27/85, and any revisions thereto; a copy of these maps are located at the Town Clerk's office.

Section 904: OFFICIAL FLOOD HAZARD AREA MAP

The Official Flood Hazard Area Map shall consist of the FEMA Flood Insurance Study, including the Flood Insurance Rate Maps (FIRM), and Flood Boundary and Floodway Maps. The Official Flood Hazard Area Map, together with all explanatory matter thereon and attached thereto, is hereby adopted by reference and declared to be part of these Regulations.

Section 905: INTERPRETATION OF DISTRICT BOUNDARIES

The Zoning Administrator shall determine the boundaries of any designated area of special flood hazard by utilizing the base flood elevation data contained in the Flood Insurance Study or, in the absence of such data, by obtaining, reviewing, and reasonably utilizing any base flood elevation data available from a Federal or State agency. Appeals with respect to a boundary interpretation shall be made by filing a notice with the Board of Adjustment within fifteen days of the decision or action.

Section 906: PERMITTED USES

Upon issuance of a Permit by the Zoning Administrator, the following open space uses shall be permitted within the area of special flood hazard to the extent that they are not prohibited by any other ordinance and provided that they do not require the erection of structures or storage of materials and equipment, the borrowing of fill from outside the flood hazard area, or channel modification or relocation, and do not obstruct flood flows, affect the water-carrying capacity of the regulatory floodway or channel or increase offsite flood damage potential.

1. Agricultural uses, such as general farming, pasture, orchard grazing, outdoor plant nurseries, truck farming, and forestry.
2. Recreation uses, such as parks, camps, picnic grounds, golf courses, golf driving ranges, archery and shooting ranges, hiking and riding trails, hunting and fishing areas, game farms, fish hatcheries, wildlife sanctuaries, nature preserves, swimming areas, and boat launching sites.
3. Accessory residential uses, such as lawns, gardens, parking areas, and play areas.

Section 907: CONDITIONAL USES IN FLOOD HAZARD AREAS

All new construction, substantial improvements, and development uses prescribed by the Town of Cornwall Zoning Ordinance that do not meet the requirements of Section 906 and fall within the designated area of special flood hazard are permitted only upon the granting of a conditional use permit by the Board of Adjustment in accordance with the procedures and requirements of Sections 910, 911, and 912 of these Regulations.

Section 908: PERMIT REQUIREMENTS AND APPLICATION PROCEDURES

Permits are required for all proposed new construction, substantial improvements, and other developments, including the placement of mobile/modular/prefabricated homes, within all lands to which these Regulations apply.

All Zoning Permit applications shall be submitted to the Zoning Administrator on forms furnished by the Zoning Administrator. The Zoning Administrator shall determine, on application, whether or not the proposed development is located within the area of special flood hazard by the procedures established in Section 905 of these Regulations.

If the proposed use will be located in the areas of special flood hazard and meets the requirements of Section 906 of these Regulations, the Zoning Administrator shall refer all applicants to the Secretary of the Board of Adjustment.

Section 909: RECORDS

The Zoning Administrator shall maintain a record of:

1. the elevation, in relation to mean sea level, of the lowest habitable floor, including basement, of all new construction or substantial improvement of structures and whether or not such structures contain a basement; and
2. the elevation, in relation to mean sea level, to which such structures have been floodproofed.

Section 910: CONDITIONAL USE REVIEW APPLICATION

The applicant shall submit to the Zoning Administrator, by filing an application in the Town Clerk's office, at least 25 days prior to the regular meeting of the Board of Adjustment, six (6) copies of a letter summarizing the proposed conditional use which addresses all elements of this article, and all other information necessary to illustrate compliance with these Regulations and for the Board of Adjustment to make its decision including: property identification numbers of the property taken from the latest tax records; name and address of the owner of record and the owners of adjoining lands; name and address of person or firm preparing the map; scale of map of at least 1"=200', north point and date.

1. Upon receiving an application for a conditional use permit under these Regulations, the Board of Adjustment shall, prior to holding a hearing and rendering a decision thereon, obtain from the applicant:

a. base flood elevation data for all subdivisions and other proposed new developments greater than 50 lots or 5 acres, whichever is the smaller;

b. the elevation, in relation to mean sea level, of the lowest habitable floor, including basement, of all new construction or substantial improvement of structures;

c. where floodproofing is proposed in lieu of elevation, the elevation, in relation to mean sea level, to which any structure or substantial improvement will be floodproofed;

d. certification from a registered Professional Engineer or Architect that the designed and proposed method of construction of buildings to be floodproofed are in accordance with accepted standards of practice for meeting the floodproofing criteria of Section 914(1)(c) of these Regulations;

e. a description of the extent to which any watercourse will be altered or relocated as a result of the proposed development.

2. In addition, the Board of Adjustment shall require such of the following information as it deems necessary for determining the suitability of the particular site for the proposed use:

a. Six plans, drawn to scale, showing the location, dimensions, contours, and elevation of the lot; the size and location on the site of existing or proposed structures, fill, or storage of materials; the location and elevations of streets, water supplies, and sanitary facilities; and the relation of the above to the location of the channel, flood way, and base flood elevation.

b. A typical valley cross-section showing the channel of the stream, elevation of land areas adjoining each side of the channel, and cross-sectional areas to be occupied by the proposed development.

c. A profile showing the slope of the bottom of the channel or flow line of the stream.

d. Specifications for building construction and materials, floodproofing, mining, dredging, filling, grading, paving, excavation, or drilling, channel improvement, storage of materials, water supply, and sanitary facilities.

3. In unnumbered A zones, the Board of Adjustment shall obtain, review, and reasonably utilize any base flood elevation and flood way data available from a Federal, State, or other source as criteria for approval of all land development under Section 912.

4. The Board of Adjustment shall notify adjacent communities and the Vermont Department of Water Resources prior to approval of an alteration or relocation of a watercourse and shall submit copies of such notifications to the FEMA Administrator.

5. The Board of Adjustment shall transmit one copy of the information required by subsections 910(1) and 910(2) to the Vermont Department of Water Resources in accordance with 24 V.S.A. § 4424(d).

6. In reviewing each application, the Board of Adjustment shall consider the evaluation of the Vermont Department of Water Resources and shall determine that the proposed use will conform to the development standards of Section 914 of these Regulations.

7. In accordance with 24 V.S.A. § 4424(d), no Permit may be granted for new construction or the development of land in any area designated as a flood plain by the Vermont Department of Water Resources prior to the expiration of a period of 30 days following the submission of a report to the Vermont Department of Water Resources under Section 910(5) above.

Section 911: PUBLIC NOTICE AND REVIEW PROCEDURE

The Board of Adjustment shall give public notice of hearing as specified in Section 340(1) (a) of these Regulations. The Board of Adjustment shall review this application pursuant to the review

procedure established in Section 340(2) of these Regulations and pursuant to any rules of procedure it adopts.

Section 912: REVIEW CRITERIA BY THE BOARD OF ADJUSTMENT

In reviewing each application, the Board of Adjustment shall consider:

1. The danger to life and property due to increased flood heights or velocities caused by encroachments;

2. The danger that materials may be swept onto other lands or downstream to the injury of others;

3. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions under conditions of flooding;

4. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners;
5. The importance of the services provided by the proposed facility to the community;
6. The necessity of the facility on a waterfront location;
7. The availability of alternative locations for the proposed use not subject to flooding;
8. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future;
9. The relationship of the proposed use to the proposed comprehensive plan, insofar as it has been developed;
10. The safety of access to the property in times of flood of ordinary and emergency vehicles;
11. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site;
12. The costs of providing governmental and public facilities and services during and after flooding;
13. Such other factors as are relevant to the purposes of this ordinance.

Section 913: DECISIONS

Upon the close of the hearing, the Board of Adjustment shall issue its decision, and any conditions included therein, pursuant to the procedure outlined in Section 340(3) of these Regulations.

Section 914: CONDITIONS ATTACHED TO APPROVAL

1. As a condition of approval, the Board of Adjustment shall specifically require that:

a. All new construction or substantial improvement of any residential structure have the first floor and basement floor elevated to or above the base flood elevation, unless the Town of Cornwall has been granted an exception by the Administrator for the allowance of basements floodproofed below the base flood level;

b. All new construction or substantial improvement of non-residential structures have the lowest floor, including basement, elevated to or above the base level elevation, or be floodproofed below the base flood level in accordance with subsection (c) of this section;

c. The lowest floor, including basement, and attendant utility and sanitary facilities of all new construction or substantial improvement below the base flood elevation be floodproofed so that the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy;

d. Structures shall be (1) designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure during the occurrence of the base flood, (2) be constructed with materials resistant to flood damage, (3) be constructed by methods and practices that minimize flood damage, and (4) be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

e. Development within the flood way is prohibited unless a registered Professional Engineer certifies that the proposed development will not result in any increase in flood levels during the occurrence of the base flood;

f. On-site waste disposal systems be located to avoid impairment to them or contamination from them during flooding;

g. New and replacement mobile modular/prefabricated homes shall be elevated on properly compacted fill such that the top of the fill (the pad) under the entire manufactured home is above the base flood elevation,

h. All necessary permits be obtained from those governmental agencies from which approval is required by Federal or State law;

1. All land development be reasonably safe from flooding and that:

1) All public utilities and facilities serving subdivisions, such as sewer, gas, electrical, and water systems, be located and constructed to minimize or eliminate flood damage, and

2) Adequate drainage be provided within subdivisions to reduce exposure to flood hazards.

2. Upon consideration of those factors in Section 912, and the purposes of these Regulations, the Board of Adjustment shall attach such additional conditions to the granting of a Permit as are necessary to meet the purposes and flood hazard area management requirements of these Regulations.

Section 915: ISSUANCE AND TRANSMISSION OF PERMITS

Upon granting a Permit, the Board of Adjustment shall send to the applicant, by certified mail, a copy of the decision. Copies of the decision shall also be mailed to every person appearing and having been heard at the hearing, to the Zoning Administrator, who shall forthwith issue a Permit, and to the Town Clerk as a part of the public records.

Section 916: EFFECTIVE DATE OF PERMITS

No Permit issued pursuant to this section shall take effect until the time for appeal in 24 V.S.A. § 4465 has passed, or in the event that a notice of appeal is properly filed, no such Permit shall take effect until the Environmental Court rules in accordance with 10 V.S.A. § 8504 on whether to issue a stay, or until the expiration of 15 days whichever comes first.

Section 917: APPEALS

An "interested person", as defined in 24 V.S.A. § 4465(b), may appeal a decision of the Board of Adjustment to the Environmental Court in accordance with the provisions of 24 V.S.A. § 4471 and Section 399 of these Regulations.

Section 918: VARIANCES

1. Variances shall be granted by the Board of Adjustment only:

a. in accordance with the provisions of 24 V.S.A. § 4469;

b. upon a determination that during the base flood discharge the variance will not result in increased flood levels in the designated regulatory flood way, threats to public safety, extraordinary public expense, or create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

2. The Board of Adjustment shall notify the applicant that the issuance of a variance to construct a structure below the base flood level:

a. will result in increased premium rates for flood insurance commensurate with the resulting increase in risk up to amounts as high as $25 for $100 of insurance coverage;

b. increase risks to life and property.

3. The Board of Adjustment shall:

a. maintain a record of all variance actions, including justification for their issuance, and

b. report such variances issued to the Administrator upon request.

Section 919: FEES

The Board of Selectmen may establish additional fees as may be necessary for the filing of notices and the processing of hearings and action thereon under this Article of these Regulations. All such fees shall be paid to the Board of Adjustment upon application for a conditional use permit under this Article of these Regulations.

Section 920: WARNING OF DISCLAIMER OF LIABILITY

These Regulations do not imply that land outside the areas of special flood hazard of land uses permitted within such districts will be free from flooding or flood damages. These Regulations shall not create liability on the part of the Town of Cornwall or any Town official or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

Section 921: PRECEDENCE OF REGULATIONS

The provisions of these Regulations shall take precedence over any conflicting and less restrictive local laws.

Section 922: ANNUAL REPORT TO FEDERAL EMERGENCY MANAGEMENT AGENCY

1. The Zoning Administrator shall, to the extent possible, submit to the Administrator the information required by the FEMA annual report form with respect to the administration and enforcement of these flood hazard area bylaws.

2. A copy of the annual report shall be submitted to the State coordinating agency.

Appendix 4. Wind Scales

Saffir-Simpson Hurricane Wind Scale				
Tropical Depression		≤38 mph, ≤33 knots, ≤62 km/h	**Tropical Storm**	39–73 mph, 34–63 knots, 63–118 km/h
Category	**Wind Speed**	**Types of Damages Due to Hurricane Winds**		
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding, and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.		
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.		
3 (Major)	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-built frame homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.		
4 (Major)	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.		
5 (Major)	≥ 157 mph ≥ 137 kt ≥ 252 km/h	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.		

Source: https://www.nhc.noaa.gov/aboutsshws.php

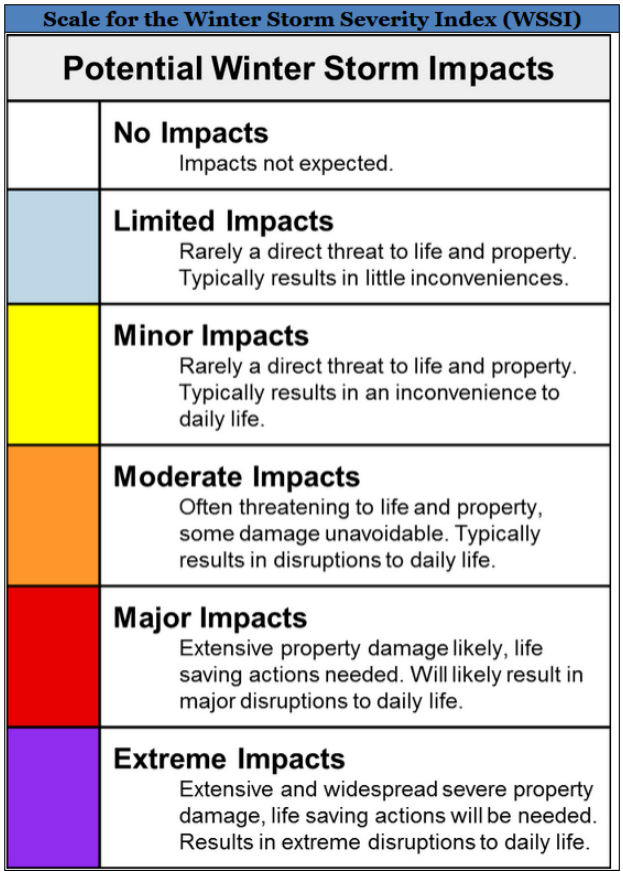
Enhanced Fujita Scale			
Scale	**Wind Speed**		**Types of Damages Due to Hurricane Winds**
	mph	km/h	
EF0	65-85	105-137	*Minor or no damage.* Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e., those that remain in open fields) are always rated EF0.
EF1	86-110	138-177	*Moderate damage.* Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135	178-217	*Considerable damage.* Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136-165	218-266	*Severe damage.* Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations are badly damaged.
EF4	166-200	267-322	*Devastating damage.* Well-constructed and whole frame houses completely leveled; cars and other large objects thrown and small missiles generated.
EF5	>200	>322	*Extreme damage.* Strong-framed, well-built houses leveled off foundations are swept away; steel-reinforced concrete structures are critically damaged; tall buildings collapse or have severe structural deformations; some cars, trucks, and train cars can be thrown approximately 1 mile (1.6 km).

Source: http://www.spc.noaa.gov/efscale/ef-scale.html

Appendix 5. Winter Storm Severity Index

The WSSI is broken down into six components that are individually weighted based on the WSSI categories and then summarized into overall severity:

- **Snow Amount:** to depict severity due to total amount of snow or rate of snowfall accumulation. (Adjustments are made based on climatology and urban areas, e.g. 4" of snow in Atlanta is more severe than 4" in Minneapolis.)
- **Snow Load:** to depict severity due to total weight of snow on trees and power lines.
- **Blowing Snow:** to depict severity mainly to transportation due to blowing and drifting snow.
- **Ice Accumulation:** to depict severity of transportation and downed trees/powerlines due to the accumulated ice in combination with wind.
- **Ground Blizzard:** to depict severity to mainly transportation of ground blizzards that develop due to a pre-existing snowpack and strong winds.
- **Flash Freeze:** to depict severity primarily to transportation of situations where temperatures rapidly fall below freezing during precipitation.



Source: https://www.weather.gov/ict/WSSI_Overview