Town of Athens
Local Hazard Mitigation Plan

The West River During Tropical Storm Irene

FEMA Approval Pending Adoption Date: 12/29/25
Town Adoption Date: 3/10/26
FEMA Final Approval Date:

Technical Assistance for the Plan development provided by the Windham Regional Commission

In cooperation with

Vermont Emergency Management and the Federal Emergency Management Agency

Contents

Certificate of Adoption
Town of Athens, VT
Selectboard

A Resolution Adopting the Local Hazard Mitigation Plan for the Town of Athens, VT

WHEREAS, the Town of Athens, VT has worked with the Windham Regional Commission to identify natural hazards, analyze past and potential future damages due to natural disasters, and identify strategies for mitigating future damages; and

WHEREAS, The Town of Athens, VT Local Hazard Mitigation Plan analyzes natural hazards and assesses risks within the community; and

WHEREAS, the Town of Athens, VT Local Hazard Mitigation Plan recommends the implementation of action(s) specific to the community to mitigate against damage from natural hazard events; and

WHEREAS, the Town of Athens, VT authorizes responsible agencies to execute their responsibilities to implement this plan for the purposes of long term risk reduction and increased community resiliency and;

WHEREAS, the Town of Athens, VT will follow the Plan Maintenance Process outlined in this plan to assure that the plan stays up to date and compliant; and

NOW, THEREFORE BE IT RESOLVED that the Town of Athens, VT adopts the *Town of Athens Local Hazard Mitigation Plan* as well as future revisions and maintenance required by 44 CFR 201.6 and FEMA for a period of five (5) years from the date of this resolution.

Duly adopted this 3rd day of March 2026.
date *month, year*

Selectboard

Amber Stevens, *Town Clerk*

INTRODUCTION AND PURPOSE

The impact of expected, but unpredictable natural events can be reduced through community planning and action. The goal of this Plan is to provide a natural hazards local mitigation strategy that makes Athens more disaster resistant and more resilient after a disaster.

Hazard mitigation is any sustained action that reduces or eliminates risk to people and property from natural hazards and their effects. Based on the results of previous project impact studies, FEMA and state agencies have come to recognize that it is more cost effective to prevent damage from disasters than to repeatedly repair damage after a disaster has struck. This Plan recognizes that communities also have opportunities to identify mitigation strategies and measures during all phases of emergency management – prevention, preparedness, response and recovery. Hazards cannot be eliminated, but it is possible to understand the potential of hazards and the risk facing the community, and to identify what local actions can be taken to reduce the severity of hazard-related damage.

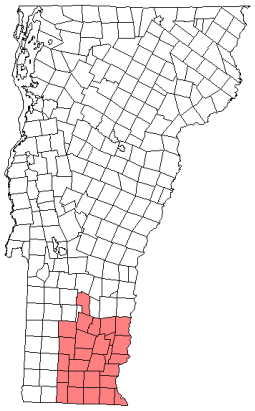
The purpose of this Plan is to assist the Town in identifying all natural hazards facing the community, ranking them according to local vulnerabilities, and developing strategies to reduce risks from those hazards. Once adopted, this Plan is not legally binding; instead, it outlines goals and actions to prevent future loss of life and property.

The benefits of mitigation planning include:

- Identifying actions for risk reduction that are agreed upon by stakeholders and the public.
- Focusing resources on the greatest risks and vulnerabilities.
- Increasing education and awareness of threats and hazards, as well as their risks.
- Reducing the degree of injury and inconvenience to the townspeople and their private and municipal property.
- Communicating priorities to State and Federal officials.
- Aligning risk reduction with other community objectives.

Adoption and maintenance of this Hazard Mitigation Plan will:

- Make certain funding sources available to complete the identified mitigation initiatives that would not otherwise be available if the plan were not in place;
- Support effective pre- and post-disaster decision making efforts;
- Lessen each local government's vulnerability to disasters by focusing limited financial resources to specifically identified initiatives whose importance have been ranked; and
- Connect hazard mitigation planning to community planning where possible.



WINDHAM REGION GEOGRAPHY

Situated in Vermont's southeastern corner, the Windham Region consists of 23 towns in Windham County, the neighboring towns of Readsboro, Searsburg, and Winhall in Bennington County, and Weston in Windsor County. The region is bordered by Massachusetts to the south and New Hampshire to the east. At over 920 square miles (590,000 acres), the region accounts for roughly 9.6% of the State's total land area. The Windham Region has several distinctive identities, largely defined by the diverse natural environment.

The Region's topography is relatively flat or gently rolling land in the Connecticut River valley in the east, while the western part of the region is characterized by the Green Mountain ridges and peaks with narrow stream valleys. Stratton Mountain is the highest point in the region at 3,936 feet. The lowest point is along the Connecticut River in Vernon, at 200 feet.

In addition to the Connecticut, other major rivers of the region are the Deerfield, Green, North, Saxtons, West, and Williams, all tributaries of the Connecticut. There are two major flood control reservoirs on the

West River, Ball Mountain and Townshend, and two major storage reservoirs for hydropower generation on the Deerfield River, Somerset and Harriman.

COMMUNITY PROFILE

Geography and Land Use

Athens is a rural Town of 8,384 acres or 13.1 square miles in northeastern Windham County. Athens is bordered to the north by the town of Grafton, Townshend to the West, Brookline to the South, and Rockingham and Westminster to the East. The only major vehicular travel corridor through Town is Route 35, which is a Class 2 Town Highway that is now fully paved through town. Brookline Road is the major north/south roadway through Athens; It is unpaved and runs along Bull Creek, a FEMA defined Special Flood Hazard Area "A-Zone" on the eastern edge of town.

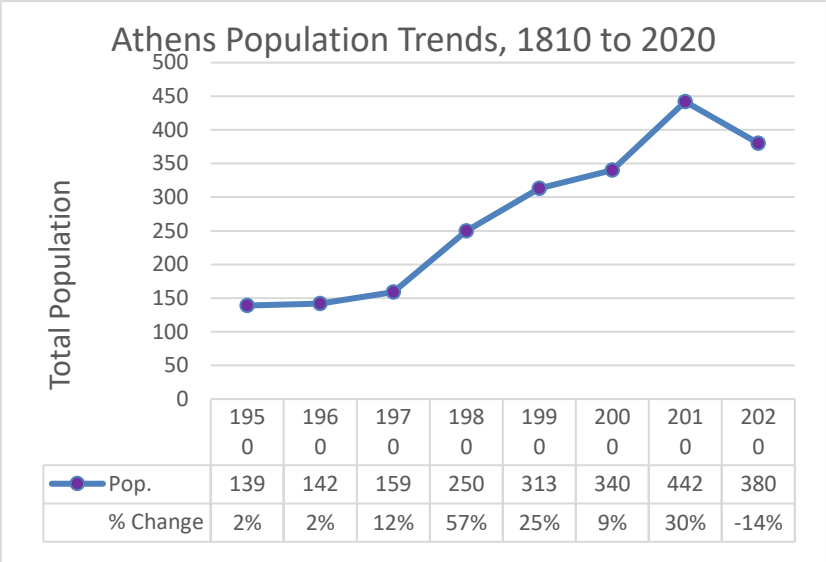
The physical characteristics of Athens are dominated by steep slopes on the east and west borders of the town. Bull Creek forms the major valley in Athens, surrounded by rural agricultural land and dispersed homes. Along the border with Westminster is a steep ridgeline that is generally protected from development and maintained as part of the Windmill Ridge Nature Reserve and Trail by the Windmill Hill Pinnacle Association.[1] The highest elevation points in Athens are, a hill at an elevation of about 1,820 ft. adjacent to Herring Hill Rd., and an area over 1,700 feet in elevation just south of Lily Pond.

There are no large rivers in town, however, some of the brooks and creeks in Athens have been associated with severe flash flood events. Land use in Athens is characterized by large rural undeveloped areas, especially in the western section of town where there are no roads. Most residences directly abut Route 35 and there is small compact development along Ober Hill Rd. Woodlands is predominant in Athens and cover a vast acreage of land. These forestlands provide the scenic backdrop for the town and provide wood products, game for hunting, maple products and recreation. Most forestland is under private, non-industrial ownership.

As of the fall of 2024, there are no large scale residential or commercial developments slated for construction. Athens currently does not have zoning or subdivision regulations. They are finalizing completion of a Town Plan now and it is expected to be adopted in fall 2024. Land use regulation in Athens would only fall under applicable State laws and Act 250. A current land use map is shown on the following page.

Development and Population Trends

As the following table shows, Athens population as of 2020 was 380 persons, which is a decrease of 62 people from the 2010 population of 442. The population graphs below show the trend in population. Athens had been growing at a steady rate since 1970.



	1950	1960	1970	1980	1990	2000	2010	2020
Pop.	139	142	159	250	313	340	442	380
% Change	2%	2%	12%	57%	25%	9%	30%	-14%

Athens does not see a lot of growth, development or change. It retains a rural character and hopes to stay that way. The growth that Athens has seen in recent years is in the number of manufactured (mobile) homes being brought into Town. There are about two moving in per year, some of which are locating in vulnerable areas such as Tenney's Trailer Park on Tenneyville Drive. This area is adjacent to Bull Creek within the river corridor, though it isn't in a mapped floodplain, this area does get flooded when the Creek gets high. Athens currently does not protect the river corridor from private development. Because of the location of the mobile home park, between Brookline Road and Bull Creek, there is a very limited area to expand, so new lots are being put in locations that the Town feels are too close to the Creek. Permits would be granted for these lots, however.

The last stick built home built in Athens was in 2008. Former temporary residences are becoming year-round homes, and there is a trend towards full time living in Athens and away from second homes. This trend may lead to more development in the future and as much as possible Athens should ensure that any new development does not occur in high hazard locations.

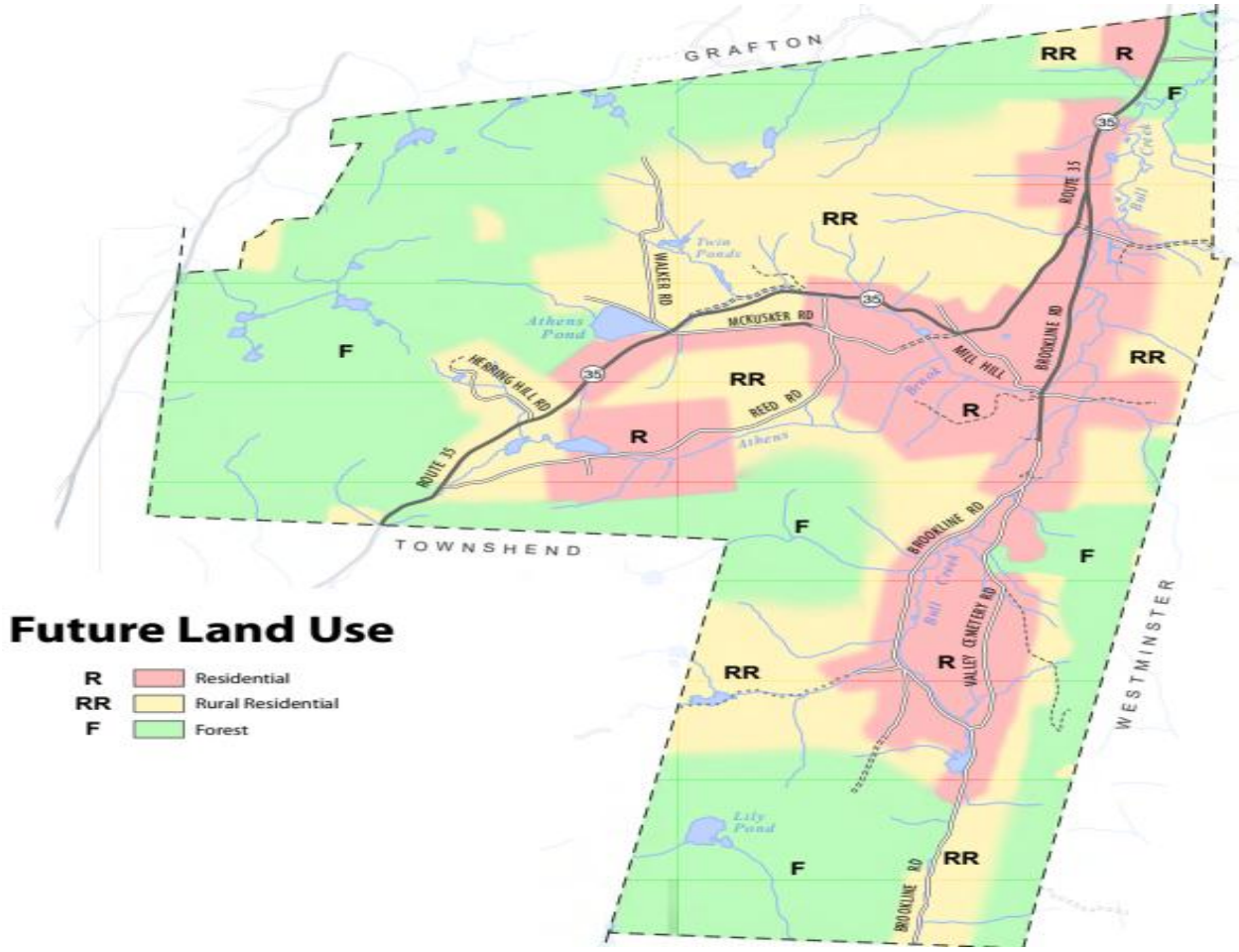
Athens does not have zoning, floodplain regulations, or a current Town Plan. These would help to steer development away from vulnerable areas. Athens is in the process of developing a Town Plan and also wishes to enact floodplain regulations, which could include a fluvial erosion bylaw. As it stands currently, Athens only control on development is if a septic system is being proposed, or an alteration, a permit is applied for through wastewater management at the state level; In this way they can use denial of a septic permit to restrict development. Floodplain and fluvial erosion regulations will add a prevention of high-risk development in special flood hazard areas and the mapped river corridor.[2]

The map on the following page is the towns proposed land use map from the current draft Town Plan. As the map shows, Athens does not have or expect any commercial development. The proposed land use map shows that the town wishes to remain much as it is today, which leaves some room for development in vulnerable areas, such as along Bull Creek.

Excluding agricultural operations like farm stands or firewood operations and home businesses there is no commercial development in Athens. This presents the opportunity for increased disruption of residents lives if Athens is ever cut off from the wider regional transportation or electric networks. A lot of people commute to Brattleboro and Massachusetts or New Hampshire regional towns for work.

Overall, while there have not been appreciable changes in Athens since the last plan update, change has occurred in that the older/higher risk population has expanded, and the impacts and weather patterns linked to climate change have become more evident.

[2] River Corridor mapping has been released as of 12/8/14. It is available for view on VT's floodready.vermont.gov site and is mapped in the Natural Resources Atlas http://floodready.vermont.gov/node/730



Emergency Services and Resources

Athens has a town Emergency Committee[3] formed in 2007. The protocols are listed in the appendix.

The emergency Committee has several core responsibilities

- Field phone calls from residents in need and provide guidance and direction
- To prepare and if necessary open and run an emergency shelter at the Athens Community Church, should circumstances warrant, and should the Red Cross not be able to run the shelter; and
- To conduct a post storm assessment of and response to citizens throughout the town.

The seven-member Committee meets semi-annually or as needed to remain active, but is only activated by the town in the event of a natural, weather-related emergency. They then work in cooperation with other town and regional officials and services. It is NOT a 911-type service, and does not have responsibility beyond weather-related emergencies. The Community Christian Church is the designated emergency shelters in Athens. There is a significant effort to move this shelter across the street to the former Athens Elementary School with scoping work being done concurrently with this update. The overall goal is to make this space a community hub for different town activities and including the town offices. The current town office is directly adjacent to the church and is firmly in the state mapped River Corridor. This presents issues for vital record storage and could put town employees at risk in a major weather event. Moving the town offices and emergency shelter to the former elementary school would create one location in a safe location to house normal and emergency town operations in the event of a major weather event. Having the

[3] Emergency Committee membership and responsibility descriptions are found in the appendix

resources of a community gathering hub in the same space as the town's emergency shelter could provide major benefits during storm events by providing activities and services in that location.

Fire protection for Athens is provided by the Grafton Fire Department, a volunteer department containing 20 active members. Athens belongs to the Southwestern New Hampshire District Fire Mutual Aid System. Athens has a fire pond at the junction of Walker Road and Rte. 35, as well as at the junction of Brookline and Valley Cemetery Roads and Reed Road near the junction of Christian Road.

Athens contracts with Golden Cross Ambulance from Westminster. The Town has no health care facilities and relies on services in adjacent towns which include Grace Cottage Hospital in Townshend, Brattleboro Memorial Hospital, Springfield Hospital and Rockingham Medical Group and Urgent Care which is under the jurisdiction of the Springfield Hospital. The closest being Grace Cottage and Rockingham Medical Group at just under 9 miles away. Both of these facilities are located outside of town and the routes to get to these facilities are subject to both Special Flood Hazard Areas and River Corridors. Designations that include significant flood and erosion risks. Additional ambulances and rescue vehicles are available through Mutual Aid Dispatch.

Police protection is provided by the Vermont State Police, a limited contract (7.5 hours/month) with the Windham County Sheriff's Department, and from one elected, part-time constable.

Public Water and Sanitary Sewer Infrastructure

There are no municipal water or wastewater systems in Athens and no plans to add either.

Transportation Infrastructure and Act 64

Routes 35 and Brookline Road are the main roads serving the community. Route 35 is now paved throughout Athens and Brookline Road is paved up until M & M Farm Road in Athens. These are the only paved roads in town. Athens is served not by an interstate or state highway and this has major implications in the event of a major weather event. Making access for emergency service and repair crews potentially difficult. This impacts the residents of Athens in many ways. Power is often delayed in being restored impacting medical devices, food storage and communications. Athens has a small but dedicated road crew; smaller than many area towns the roads could potentially go days or even weeks without being repaired in extreme weather events. The road crew is very proactive in road maintenance and constantly strives to be ahead of any potential problems.

There are 234 town owned culverts in Athens, of which 22 are in poor condition, 3 are in critical or closed condition. There are 9 town owned bridges, 4 public and 5 under private ownership.

There are 6.75 miles of Class 2 town roads, 11.14 miles of Class 3 town roads, and 1.44 miles of Class 4 roads in Athens. Approximately 11.4 miles or 63.7% of total town road miles (excluding class 4) are hydrologically connected, which means the road is within 100 feet of a water resource (i.e., perennial/intermittent streams, wetlands, lakes or pond). Proximity to water resources can make these sections of road more vulnerable to flooding and fluvial erosion.

Act 64, the Vermont Clean Water Act, requires the state to develop a new Municipal Roads General Permit (MRGP). The MRGP requires Athens to conduct Road Erosion Inventories (REIs) for hydrologically connected municipal road segments. The most recent WRC conducted road erosion inventory (2020) shows over 200 road segments in the town that will be included in this regulation. Athens will be required to meet the Road Stormwater Management Standards for all hydrologically connected road segments not meeting MRGP standards by 2037. Road improvements, which generally consist of gravel resurfacing and stone-lined ditching, also can make the roads more resilient in conveying excess water. Roads that were brought up to standard generally fared well in the most recent flood. Ongoing compliance with MGRP will improve the flood resilience of our roads, which are most likely to be damaged in flooding.

Communication Coverage

Access to high-speed internet and cell service coverage are important parts of emergency communication capabilities in a town. The Windham Region, as in many rural areas, has a patchwork of coverage levels with some areas not having coverage. In Athens, FairPoint Communications provides landline phone service as well as high-speed internet in some areas. High-speed internet and voice-over-internet phone service is also offered by cable companies. However, there are still a few residences in Athens that do not have access to high-speed internet service. The town office offers a wireless internet hotspot. As town operations and activity move across the street to the former school building the hotspot is anticipated to move as well. Cell phone coverage fluctuates throughout Athens, with some areas getting reception, but most having no cell reception. The critical structure in Athens have access to high-speed internet, but not reliable cell coverage.

PLANNING PROCESS

Plan Developers

Each core Planning Team member serves the community in a number of capacities, creating a balanced perspective:

- Denis Randall, Selectboard (at the time of plan development)
- Janet Perry, Selectboard (at the time of plan development)
- Sandi Capponcelli, Selectboard (at the time of plan development)
- Krista Gay, Selectboard (at the time of plan development)
- David Bemis - Emergency Management Director & Selectboard Chair (at time of plan development)
- Hannah Regier, Athens Town Clerk
- Matt Perry, Road Foreman
- Mark Berman – Planning Commission member

Michael McConnell, Senior Planner with the Windham Regional Commission, assisted the Town with this update to meet the standards and guidelines of the latest FEMA *Local Mitigation Plan Review Tool*. FEMA Pre-Disaster Mitigation funding supported this process.

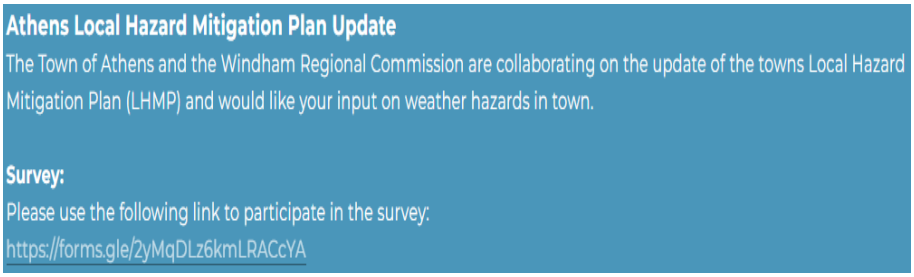
Update Process

This Local Hazard Mitigation Plan ('LHMP' or 'Plan') is an update to a Plan approved for the Town of Athens by the Federal Emergency Management Agency (FEMA) effective 07/15/2015 and expired on 8/2/2020. The below table lists the stakeholders that were provided an opportunity for engagement in this Plan update and how that opportunity was provided:

Stakeholder involvement	In addition to the above listed Planning Team stakeholders, the team recommended speaking with the Weather Emergency Committee and tree warden and road foremen to get their input into this update. Each of these groups or individuals were consulted in the Spring/Summer of 2024 and the tree warden in winter 2025.
General public involvement	An online survey was conducted for several weeks in December 2024 through February 7th 2025 to gather input on lived experience of natural hazards in Athens and ideas for mitigation actions that the town could consider. Survey results are contained in this plan. Advertisement of the survey and public meetings was posted on the town website, went out in the electronic town newsletter which has a wide audience and was announced at a selectboard meeting.
Businesses, academia, and other private and non-profit interests	The draft plan was provided to the following entities for their review and comment via email (see appendix):

	• Green Mountain Power – Electric Utility. Consulted via email on loss of power statistics and other resiliency projects planned for Athens. • Brattleboro Memorial Hospital – largest medical provider in the immediate region. • Community Christian Church –a local emergency shelter
Neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development	The draft plan was provided via email for review and comment to: • The Planning Commissions and Emergency Management Directors of the adjacent towns of: Townshend, Rockingham, Grafton, Brookline and Westminster. • Basin Planner for the Agency of Natural Resources Department of Environmental Conservation. • The plan was also sent to VEM for initial review, so the comments and input from all of the above-mentioned contacts and outreach strategies continued to be incorporated into the plan.
Representatives of nonprofit organizations, including community-based organizations that work directly with or provide support to vulnerable populations or frontline communities	While this list is not exhaustive, here are a number of groups that serve vulnerable residents that received the draft plan for review and input (see appendix for outreach email): • Grafton Cares is a local organization that helps residents in need through a non-emergency phone referral service staffed by volunteers, assistance with minor home repairs for needy residents, an emergency fuel fund, a medical equipment loan program and more. • Senior Solutions – resource for aging Vermonters • MOOver – Provides regional bus and shared ride transport service. • The Gathering Place – Safe space for people with physical or cognitive impairments. • Groundworks Collaborative – Based in Brattleboro. Serves people who are facing housing and food insecurity. • Brattleboro Area Hospice – Provides programs to dying and grieving community members. • Health Care & Rehabilitation Services (HCRS) – A comprehensive community mental health provider. • Southeastern Vermont Community Action (SEVCA) – Anti-poverty, community-based non-profit. • Visiting Nurse and Hospice for VT & NH – Home, health, hospice and pediatric services. • Women's Freedom Center – Based in Brattleboro and working to end physical, sexual and emotional violence against women. • VT211 – non-emergency information resource for those facing crisis or are in need of guidance on available resources.

The planning process overview:



- Spring 2024 – Kick-off meeting with Selectboard member Sandi Capponcelli to set up the public meetings and develop the Planning Team.
- Spring 2024 – WRC staff met with Road Foremen to go over road maintenance practices, current projects and areas of concern. Met with Emergency Committee and other selectboard members to update the mitigation action table.
- Winter 24/25 - The Committee reviewed the prior plan, completed the hazard assessment and reviewed hazard mapping at a public meeting.
- Winter 2025 – WRC staff met with Tree Warden to discuss invasive species in town.
- Winter 2025 – A public survey was advertised and linked on the town website, mentioned at the January Selectboard meeting and via the Town email Newsletter.
- January 23, 2025 – An in person public meeting of some members of the Planning Team and community members that focused on development of mitigation actions.
- The draft was sent for internal town review and public comment on February 25, 2025. This review period was from Feb 25-March 14. One comment was received.
- Physical copies of the draft Plan were available for review in-person at the Town Office
- No comments were received.

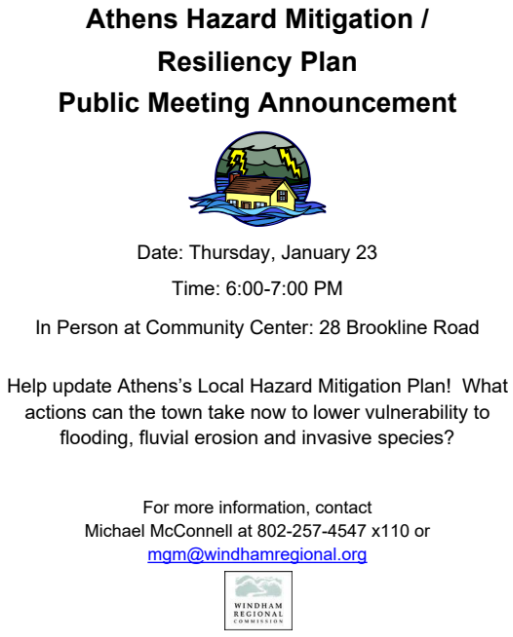
Advertisements for public meetings were on the town website, the town digital newsletter and referenced at selectboard meetings. The meeting lasted for a couple of hours and over the course of the meeting the group discussed:

- **Update of the 2015 Athens Local Hazard Mitigation Plan**
  - Purpose
  - Process

- **Hazard assessment included:**
  - Discussion of hazard events that have occurred since the last Plan
  - Discussion of online public survey results
  - Review and update of hazard assessment
  - Marking up of the physical map and/or the online Vermont Natural Resources Atlas with local hazard notes

- **Mitigation Goals and Actions**
  - Review/edit prior plan goals
  - Update of prior mitigation actions
  - Create an updated Mitigation Actions Table
  - Identify current gaps and capabilities with implementation
  - Identify any changes in hazard or action prioritization

- **Other Updates**
  - Discussion of recent mitigation work completed by the town
  - Discussion of development trends – new developments, upcoming developments and vulnerability impacts
  - Overall resiliency concerns or ideas



Data Sources

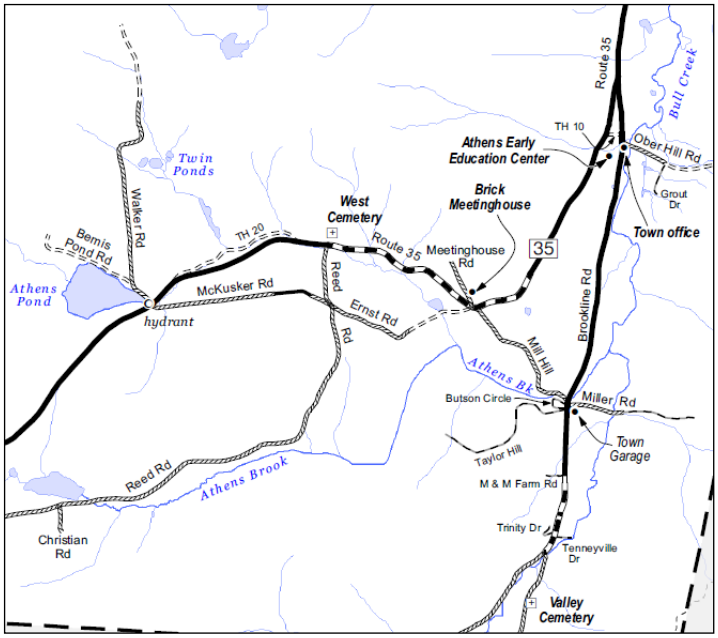
Information was gathered for this update through a variety of sources listed below. A summary of data sources is provided here with some additional specific references cited elsewhere throughout:

- Surveys and warned, public meetings collecting public comment (issues raised were addressed in plan and the public meeting)
- 2023 Local Emergency Management Plan – local emergency resources
- Local knowledge of Planning Team members and other stakeholders – community impacts, priorities, trends, and overall plan guidance
- 2015 Athens Local Hazard Mitigation Plan – prior actions, goals, hazard assessment, and hazard profile information
- Flood Ready Vermont Community reports – NFIP participation data
- Flood Insurance Study (most recent is 2007) – FEMA flood hazard location information
- 2024 Athens Town Plan Draft – community profile, mitigation related actions and goals
- US Drought Monitor to quantify historic periods of drought in Windham County
- US Center for Disease Control – understanding of the risk of heat-related illness
- National Weather Services, including NOAA Events Data, NOW Data, and Climate at a Glance - climate trends, climate records, and special weather events
- 2020 US Census and American Community Survey 5-Year Estimates - population data
- VTrans Town Highway Bridge Inspection Reports – transportation infrastructure statistics
- Vermont Statewide Highway Flood Vulnerability and Risk Map
- Green Mountain Power - outage data and information on the power infrastructure
- 2023 draft State of Vermont Hazard Mitigation Plan – hazard profile information, state goals, and hazard extent data
- FEMA Disaster Declarations for Vermont – county level declared disasters
- VT ANR Atlas – location of River Corridors and Special Flood Hazard Areas
- FEMA Flood Insurance Rate Maps (effective 12/2/2015) - location of Special Flood Hazard Area
- U.S. Geological Survey National Water Information System - flood extent data
- WRC Local Liaison Reports of Storm Damage – local event impacts
- CRREL Ice Jam Database – mapped ice jams
- Review and input from Dover Conservation Commission Chair – invasive species section
- Local invasive plant list from Jay Maciejowski, Athens Tree Warden. January 24, 2025
- VT Fish and Wildlife website – invasive species section
- VTinvasives.org – invasive plant and Forest Pest data
- Vermont Department of Health – Heat data

HAZARD IDENTIFICATION AND RISK ASSESSMENT

Community Assets

In addition to people, community assets relate to town owned buildings and infrastructure. The town office Is currently located directly adjacent to Bull Creek and has experienced flooding. Though the structure was not in or under water. The town garage is located near both Athens Brook and Bull Creek, both streams that have flooded in the past. The other two municipal buildings are located in less precarious positions. The community center, where the town would like the town office to be is across from the current town office in the former elementary school. It is higher up on a hill. The towns' historic meeting house is safely located and not near any streams or water bodies. The current town office is firmly in the state designated river corridor on the corner of Brookline Road and Ober Road, and adjacent to the FEMA designated Flood Hazard Area. The town understands that this is an issue and is actively taking steps to move the town office to the former elementary school across the street. The town garage is located within 20 meters of the Athens Creek designated river corridor.



Athens Community Assets:

- Historic Meeting House
- Community Center
- Town Office
- Town Garage
- Athens Town Cemeteries

VTrans Transportation Infrastructure Vulnerability Mapping

The Vermont Department of Transportation has developed a 'Transportation Resilience Planning Tool' to quantify the flood vulnerability and risk of bridges, culverts, and road embankments throughout the state.[4] Vulnerability assessments were completed for the following infrastructure:

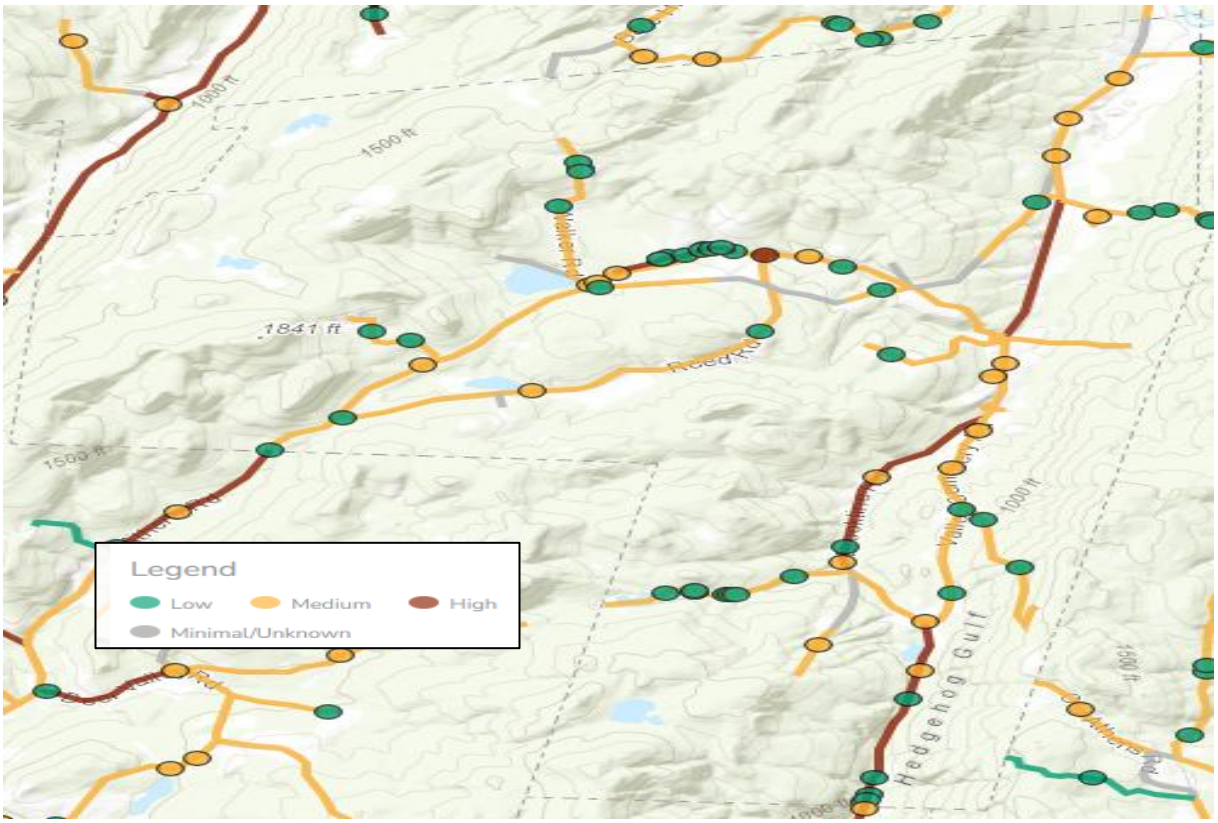
- Road/river embankments along state and town highways
- All long structures (spans greater than 20 feet) on state and town highways
- All culverts and short structures on the state highway system

The maps shown below provides a vulnerability analysis of roads and bridges that are at risk of inundation, erosion, or deposition related to a 100-year flood event. The Tool combines river science, hydraulics and transportation planning methods and is applied at a watershed scale. This data can be used to inform project scoping, capital programming, and hazard mitigation planning for state and local highways. The map shown here shows the vulnerability ranking of roads and bridges in the Town.

The map above identifies sections of Route 35, Brookline Road as being highly vulnerable road segments, particularly due to erosion. No structures are ranked as highly vulnerable, but the map shows 2 ranked as medium risk.

[4] VTrans Statewide Highway Flood Vulnerability and Risk Website: https://vtrans.vermont.gov/planning/transportation-resilience/statewide

The below map is the same data, but showing culverts and roads for context. There is one highly vulnerable culvert at the intersection of Reed Road and Route 35



The Transportation Resilience Planning Tool is a publicly accessible tool that can be accessed here.

Federal Disaster Declarations for Windham County

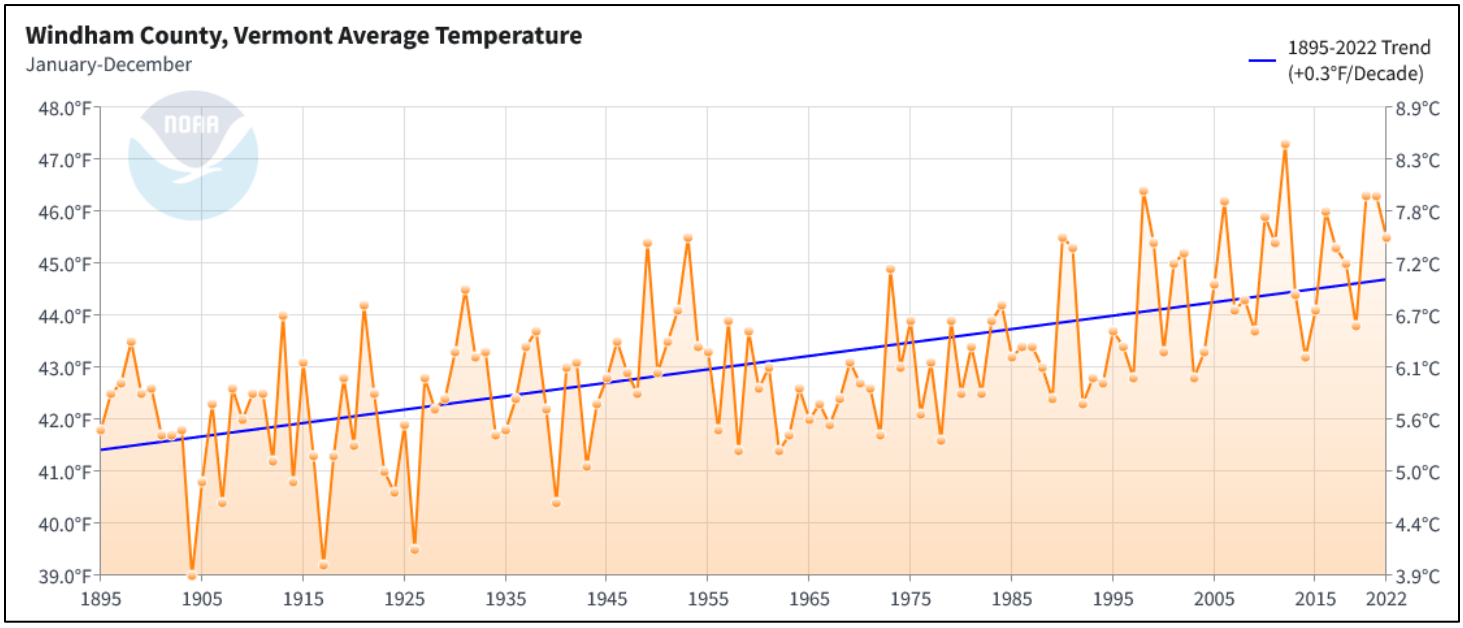
There have been 22 Presidential Disaster Declarations in Windham County since 1953: 8 Floods, 7 Severe Storms, 3 Hurricanes, 2 Biological Incidents (both Covid-19 related), 1 Snowstorm, and 1 Severe Ice Storm.[5] July, August and September are the months that historically have seen the highest number of declarations.

Disaster Declarations for Windham County, VT						
Disaster Number	**Incident Begin Date**	**Incident End Date**	**Declaration Date**	**Incident Type**	**Title**	**Disaster Close Out Date**
3595 / 4720	7/7/2023	7/21/2023	7/14/2023	Severe Storms, Flooding, Landslides, and Mudslides	July 2023 Flooding	
4621	7/29/2021	7/30/2021	9/29/2021	Severe Storm and Flooding	SEVERE STORMS AND FLOODING	
3567	8/22/2021		8/22/2021	Hurricane	Tropical Storm Henri	
4532/ 3437	01/20/2020	5/11/2023	04/08/2020	Biological	Covid-19 Pandemic	
4356	10/29/2017	10/30/2017	01/02/2018	Severe Storm and Flooding	SEVERE STORMS AND FLOODING	
4043	5/20/2011	5/20/2011	11/8/2011	Severe Storm(s)	SEVERE STORMS AND FLOODING	1/14/2020
4022	8/27/2011	9/2/2011	9/1/2011	Hurricane	TROPICAL STORM IRENE	
3338	8/26/2011	9/2/2011	8/29/2011	Hurricane	HURRICANE IRENE	3/10/2014
1816	12/11/2008	12/18/2008	1/14/2009	Severe Ice Storm	SEVERE WINTER STORM	10/15/2014
1698	4/15/2007	4/21/2007	5/4/2007	Severe Storm(s)	SEVERE STORMS AND FLOODING	3/13/2013
1559	8/12/2004	9/12/2004	9/23/2004	Severe Storm(s)	SEVERE STORMS AND FLOODING	1/4/2011
1488	7/21/2003	8/18/2003	9/12/2003	Severe Storm(s)	SEVERE STORMS AND FLOODING	1/4/2011
3167	3/5/2001	3/7/2001	4/10/2001	Snow	SNOW	2/28/2005
1336	7/14/2000	7/18/2000	7/27/2000	Severe Storm(s)	SEVERE STORMS AND FLOODING	6/30/2008
1307	9/16/1999	9/21/1999	11/10/1999	Severe Storm(s)	TROPICAL STORM FLOYD	6/30/2008
1124	6/12/1996	6/14/1996	6/27/1996	Flood	EXTREME RAINFALL AND FLOODING	2/23/2005
1101	1/19/1996	2/2/1996	2/13/1996	Flood	ICE JAMS AND FLOODING	2/17/2005
518	8/5/1976	8/5/1976	8/5/1976	Flood	SEVERE STORMS, HIGH WINDS & FLOODING	4/16/1981
397	7/6/1973	7/6/1973	7/6/1973	Flood	SEVERE STORMS, FLOODING, & LANDSLIDES	11/12/1976
277	8/30/1969	8/30/1969	8/30/1969	Flood	SEVERE STORMS & FLOODING	5/26/1972

[5] FEMA tool: Data Visualization: Disaster Declarations for States and Counties: Windham County, VT http://www.fema.gov/data-visualization-disaster-declarations-states-and-counties Accessed 9/15/2021

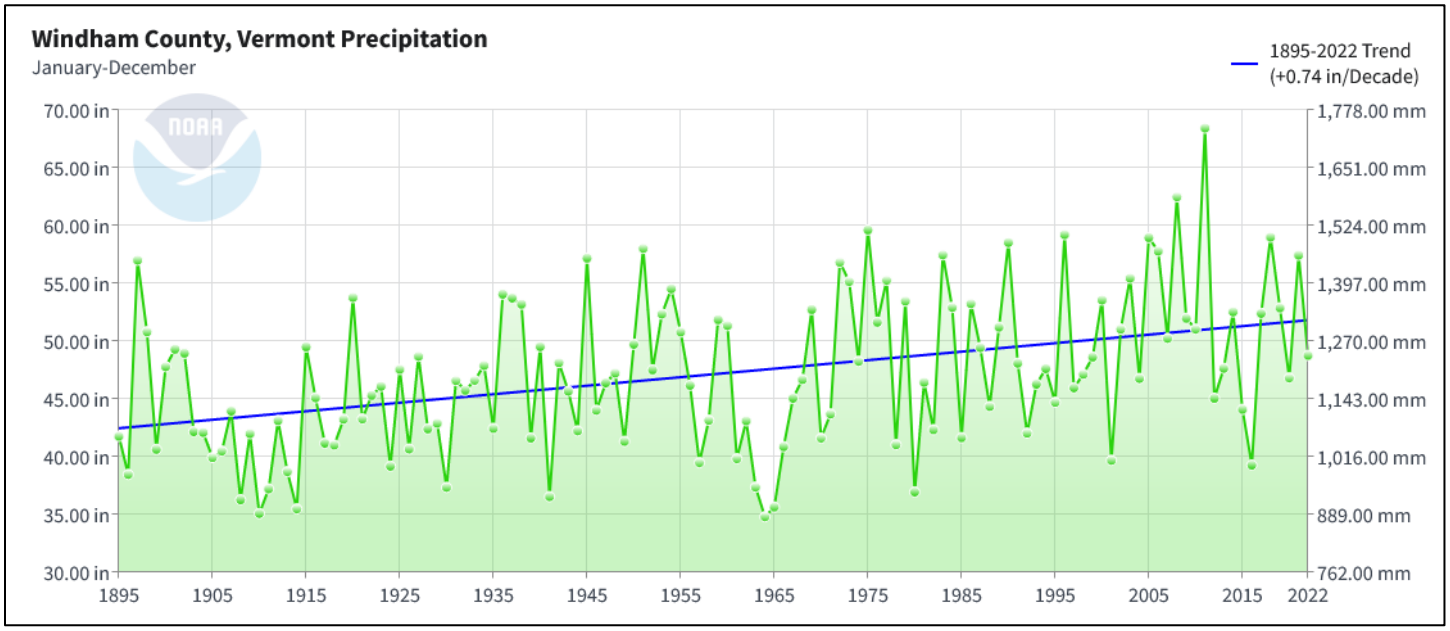
Climate Trends

In recent years, it has become evident that human activities, mostly associated with the combustion of fossil fuel, have added to the natural concentration of greenhouse gases in the atmosphere and are contributing to rapid climate change on a global scale. An analysis of average annual temperature in Windham County shows that temperatures are rising on an average of .3°F per decade (see below graph).



Data source: NOAA Climate at a Glance

Annual precipitation is rising at a rate of about .74” per decade (see below graph). While projections of the effects of climate change vary, it is generally predicted that the region can expect to have warmer temperatures year-round, with warmer, wetter winters, and increasingly erratic patterns of precipitation.



Data source: NOAA Climate at a Glance

Power Outage Statistics[6]

Green Mountain Power provided power outage statistics for the last 5 full years. Power outages present a vulnerability for those without backup power or that rely exclusively on electric for their heating or cooling. The data shows an upward trend over time in the number of times a customer was without power per year, with a steep decline in 2024. This could be due to a variety of factors including a lower volume and/or severity in storm events, utilizes improving grid resiliency or individual improvements in customer infrastructure. It is worth noting that there were significant storm events resulting in a declaration in 2023 that could account for some or most of those outages. This can be seen in the above declaration table.

Town	Calendar Year	Customer Hours Out	Meters with Outages	Meters / Town *(See Note)*	CAIDI	SAIFI	SAIDI
ATHENS	2024	6,391	2,110	238	3.03	8.87	26.85
	2023	47,234	4,482	238	10.54	18.83	198.46
	2022	16,902	3,016	238	5.60	12.67	71.02
	2021	4,319	1,681	238	2.57	7.06	18.15
	2020	7,119	2,239	238	3.18	9.41	29.91
Annual Average (2020 - 2024):		**81,965**	**13,528**	**238**	6.06	11.37	68.88

Note: The 2024 meter count is used in years prior to 2024.

What is CAIDI?
CAIDI refers to "Customer Average Interruption Duration Index." It is calculated as total hours of customer interruption divided by the total number of customers interrupted. CAIDI describes the average time required to restore service. Unlike SAIDI/SAIFI, CAIDI includes *only* customers who actually experienced an interruption.

What is SAIFI?
SAIFI refers to "System Average Interruption Frequency Index." It is calculated by dividing the total number of customers interrupted by an outage by the total number of customers in the system. SAIFI describes how often the average customer experiences an interruption.

What is SAIDI?
SAIDI refers to "System Average Interruption Duration Index." It is calculated by multiplying the average duration of customer interruptions by their total number and then dividing by the total number of customers in the system. SAIDI describes the total duration of the average customer interruption.

When a power outage occurs, communication systems become compromised. Landline phone service that has been converted from copper wire to fiber relies on an in-home battery back-up. The battery life is typically less than eight hours, whether the phone is used or not. Though most residents use cell phones, service in Athens is spotty, further complicating the problem of contacting emergency services during power outages.

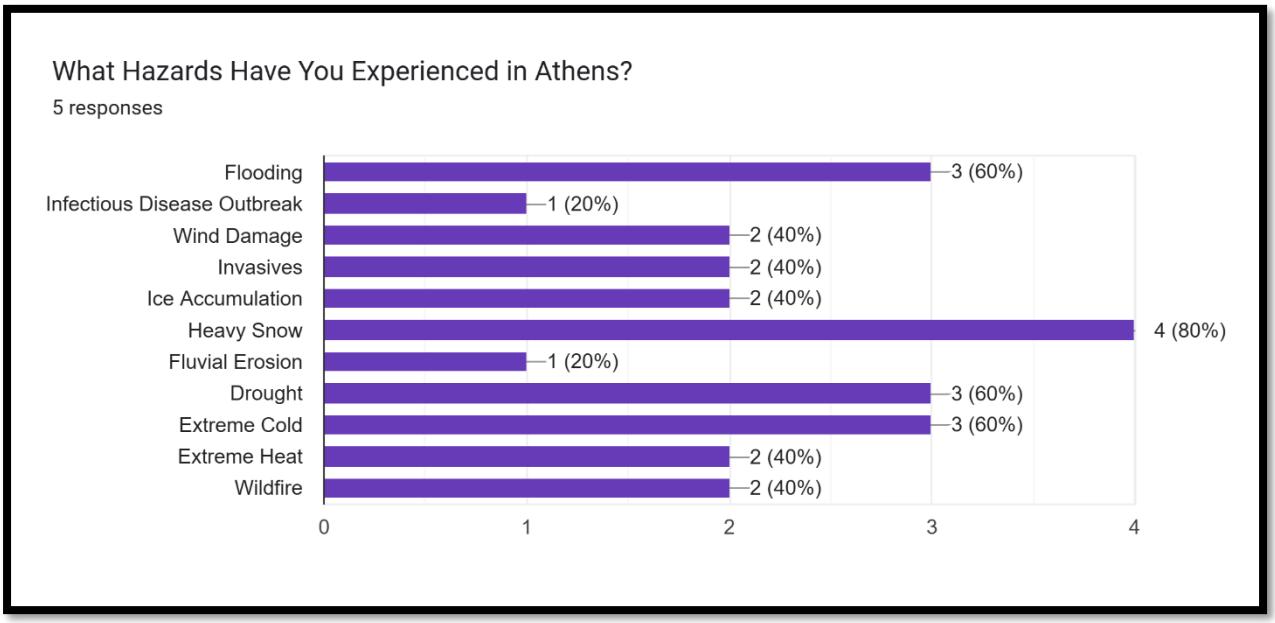
To mitigate the impacts of power outages, the following public buildings/critical facilities have been equipped with or will soon be equipped with back-up power or a generator hook-up: Community Center/Future Town Office (will serve as the EOC); Town Garage and a portable generator for the Congregational Church (town shelter). During a disaster, municipal response is managed at the EOC, this would include all communications – from phone calls to internet browsing and 2-way radio.

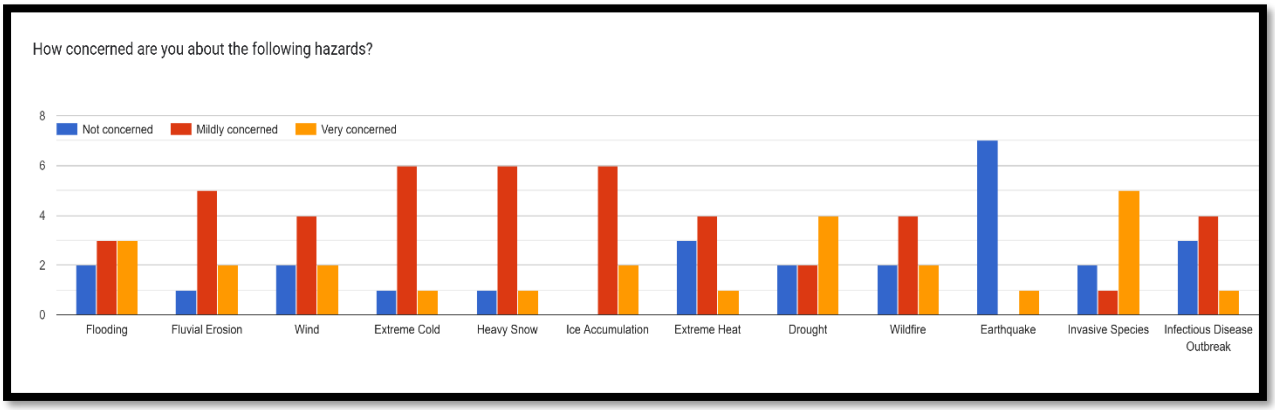
[6] Data provided by Ken Couture of Green Mountain Power via email 11/3/2023.

Connectivity is crucial in times of crisis. Telecommunications are needed for warning systems before disaster, as well as for response during and recovery after.

Hazard Ranking Process

A public survey in addition to discussion at the public meeting was conducted to understand what natural hazards are of concern to people in Athens. The survey was on the Town website for several weeks and was advertised in the Town newsletter and at two Selectboard meetings. There were 8 responses overall to the survey with 5 filling out the section shown below. The hazards of highest concern are high winds, winter storms (snow, ice, cold, hail), fluvial erosion, inundation flooding and invasive species.





The hazard ranking process has been revised since the 2015 plan was developed. The hazards considered now only include natural hazards and align with what is contained in the State Hazard Mitigation Plan. The rankings below are based on data in terms of previous occurrences, probability of future events, and links to climate change. Community input is provided for measuring vulnerability specific to assets and residents. The combination of these factors in a quantified measure produces a score. **Hazards receiving a score of 10 or higher considered medium or high and are profiled in this Plan. For Athens this includes: Wind, Ice, Snow and Cold (combined), Fluvial Erosion and Inundation Flooding (combined, and including ice jams) Invasive Species.**

Possible Hazard	Previous Occurrences	Probability of Future Occurrences	Linked to climate change (add 1 point)	Vulnerable Assets	Vulnerable Residents	Score:
Wind	4	4	1	4.0	4.0	17.00
Ice	3	4	1	3.5	3.5	15.00
Snow	3	4	1	3.2	3.3	14.50
Cold	3	4	1	3.8	3.7	15.50
Fluvial Erosion	4	4	1	3.8	3.2	16.00
Drought	3	3	1	0.8	3.5	11.33
Invasive Species	2	4	1	2.3	2.3	10.67
Wildfire	1	3	1	3.2	3.7	11.83
Inundation Flooding	3	4	1	4.0	2.8	14.83
Heat	2	3	1	1.4	2.8	10.25
Hail	3	3		2.5	2.3	10.83
Infectious Disease Outbreak	1	2		0.6	3.3	6.92
Earthquake	0	1		2.8	2.7	6.50
Landslides	1	2		1.8	2.6	7.33

The rankings are based on this scoring break down:

Probability of Future Occurrences (data driven):

Score	**Meaning**
0	No previous occurrences on record
	One occurrence in last 50 years
2	Once every 10 years
3	Once every 1-5 years
4	More than once per year on average

Previous Occurrences (data driven):

Score	**Meaning**
1	Unlikely
2	Possible
3	Probable
4	Highly Likely

Community input is made less subjective by quantifying vulnerability in relation to assets at risk and proportion of residents at risk.

Vulnerable assets (Community information):

Score	**Meaning**
0	None
1	1 asset, no community lifelines
2	2 assets, no community lifelines
3	3 assets, no community lifelines
4	4 or more assets, or any community lifeline

Vulnerable residents (Community information, specific to hazard location not the community as a whole):

Score	Meaning
0	None known
1	Less than ¼ of population
2	Less than ½ of population
3	More than ½ of population
4	All residents, town-wide hazard

Hazards with a ranking below 10 are considered low risk either because of rare occurrence or lack of community exposure. For hazards not profiled in this Plan, the reader can refer to the State of Vermont Hazard Mitigation Plan.

Hazards Omitted:

Landslides, Earthquake and Infectious Disease were not profiled within this document. The reasoning is outlined below for each hazard.

Landslides – While a Windham County Disaster Declaration (DR) from 1973 does include Landslides among the hazards that occurred during that storm event Athens did not receive any FEMA funding. The hazard received a low score during the hazard ranking process (7.33) and among the attendees of the public event held for the plan was thought to not have happened in anyone's memory. While flooding does occur in town it is generally along the creek bottoms and Athens high level of vegetative cover provides a high level of soil anchoring and ample areas for water infiltration. According to the ANR Atlas there are no mapped landslides in Athens and this hazard was not profiled in the 2015 LHMP. Due to these factors this Hazard was not profiled in this plan.

Earthquakes – This hazard scored 2nd lowest in the State Hazard Mitigation Plan (SHMP) Hazard Assessment Table with a score of 4 (high score Flooding at 16). This was also seen in the Athens LHMP Hazard Ranking Table. With no previous occurrences in Athens and a "Very Low" (42.5/100) rating from the FEMA National Risk Index this profile was not profiled.

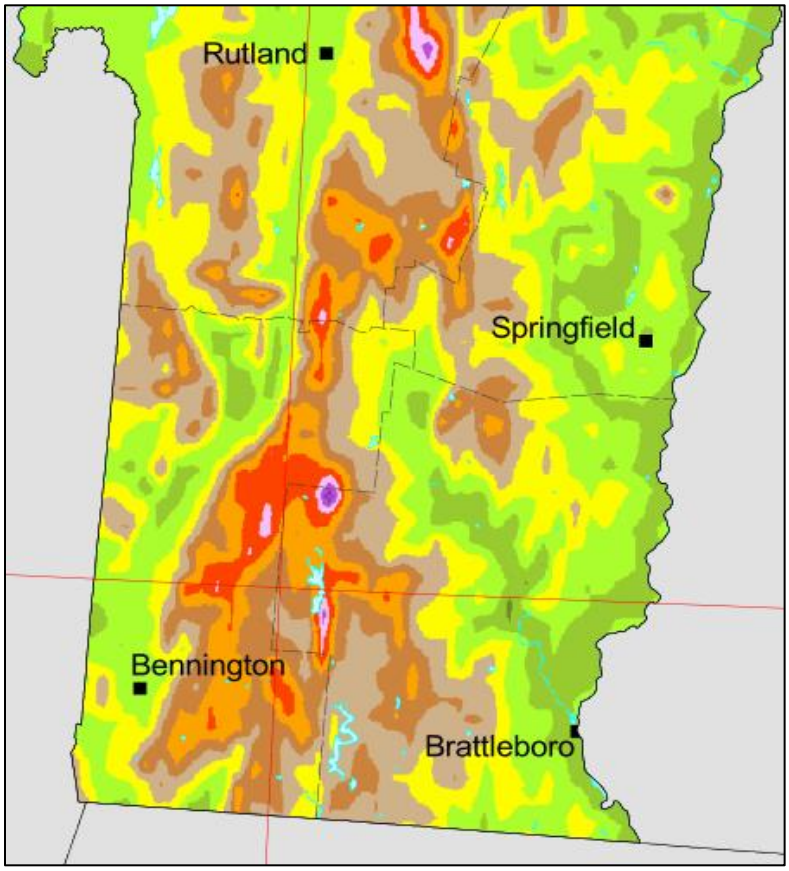
Infectious Disease – This hazard scored middling on the SHMP Hazard Assessment Table with a 7.5 and was also low in Athens table at 6.92. According to the Vermont Department of Health, infectious diseases depend on a wide range of factors to become significant issues for the community. Land use, human behavior, climate, health care service dynamics among others all contribute to this hazard and is far outside the ability of Athens to impact in a meaningful way. The most impactful infectious disease outbreak in the last 20 years to occur other than Covid 19 (DR4532) was "not considered a serious threat to Vermont" according to the SHMP. These factors all contribute to this plan not profiling this hazard.

Highest Risk Hazard Profiles

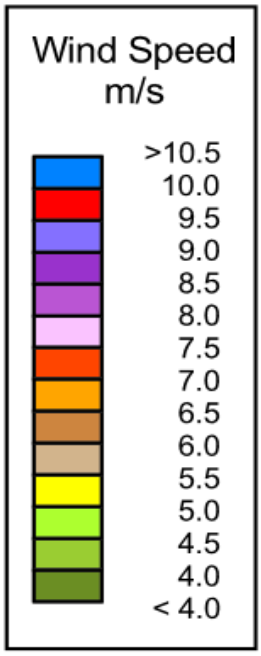
High Winds

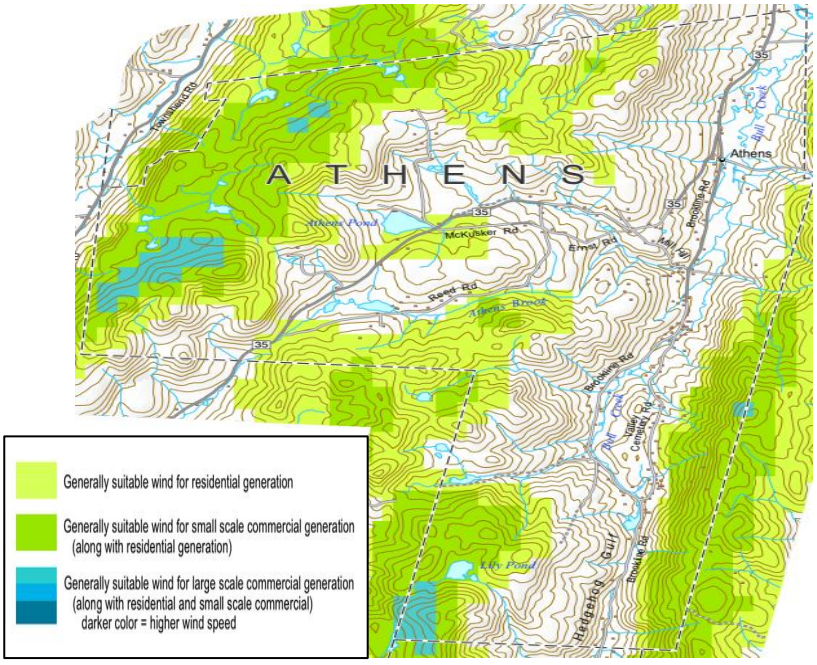
High winds in the region can be associated with thunderstorms, microbursts, straight-line winds, snowstorms, hurricanes, tropical storms or tornadoes. High winds tend to sweep through after the passage of a weather front. Power outage is primarily caused by high wind events taking trees down onto lines, even more so than ice. Trees downed by high winds can damage structures, block roads, and down power and communications lines. Mobile home parks and houses on ridge lines are at greater risk from wind damage. Blowing and accumulating snow is an issue of winds during winter months for open roadways.

There are many trees in close proximity to roads, buildings and power lines. GMP trims trees near their lines only. There are areas where power lines go through the forest, so tree trimming is not as practical. Consolidated Communications does no tree maintenance. Town road crews generally do tree and limb cleanup, but there is not a lot of *preventative* tree maintenance at the town level.



This map from Energy.gov shows the Annual Average Wind Speed at 80 Meters.





High winds can affect any location, though higher elevations are at more risk. The below map shows annual average wind speeds for southern Vermont, and the spine of the Green Mountains predictably has the highest speeds. The purple area just below the center of the map is Stratton Mountain, which gets particularly high winds and is the highest peak in the Windham Region. Most new development is occurring along existing roadways which have overall much lower wind speeds and tend to be in sheltered valleys, making new development less vulnerable to the High Winds hazard. Potential impacts of Wind damage on town assets include impact damage from down trees, which could also cause power outages where residents would not be able to heat their homes or stay informed on cleanup progress. Athens current draft Town Plan discourages development along ridgelines and in areas where no roads currently exist. Current town assets tend to be in the bottom land and not generally subject to high winds. They are in forested areas sheltered from high winds by the ridgeline to the east and the sloping forested land mass in the west of town. There

are no plans for new town assets to be located in areas subjected to high winds and the town plan discourages developments in those locations. Potential impacts from high winds on towns assets in Athens could be increase power loss, closure of roadways while cleanup progresses and property damage from airborne objects. These impacts could have wider implications on the community. Access into and out of Athens is already limited and the closure of Route 35 to Townshend and Grace Cottage Hospital could force longer travel times for residents experiencing critical medical issues. There haven't been appreciable changes in development in Athens to influence the high winds hazards impacts. Green Mountain Power does have future plans to underground power lines in Athens which would lower the impact of high winds. Those projects are not scheduled and are not anticipated in this plans cycle.

For a more localized look at wind speed, the below map shows wind power opportunity correlated only to wind speed[7]. Elevations in town are generally higher overall on the eastern and western edges of town. The ridgeline between Athens and Westminster (east) varies around the 1600' range and elevations in the west of town can range from 1400 in the northwest corner to 1800'+ in some areas of the southeast part of town. These areas will have the highest wind speeds.

The Beaufort Wind Scale, one of the first scales to estimate wind speeds, was created by Britain's Admiral Sir Francis Beaufort in 1805 to help sailors estimate the winds via visual observations. The scale starts with 0 and goes to a force of 12. The Beaufort scale is still used today to estimate wind strengths. This scale is applicable to tropical storms within the 'Hurricane' scale wind speeds.

Force	Speed		Land Conditions
	knots	mph	
0	<1	<1	Calm, smoke rises vertically
1	1-3	1-3	Light air, direction of wind shown by smoke drift only
2	4-6	4-7	Light breeze, wind felt on face, leaves rustle, vanes moved by wind
3	7-10	8-12	Gentle breeze, leaves and small twigs in constant motion, wind extends light flag
4	11-16	13-18	Moderate breeze, raises dust, loose paper, small branches move
5	17-21	19-24	Fresh breeze, small trees in leaf begin to sway
6	22-27	25-31	Strong breeze, large branches in motion, umbrellas used with difficulty
7	28-33	32-38	Near gale, whole trees in motion, inconvenience felt walking against the wind
8	34-40	39-46	Gale, breaks twigs off trees, impedes progress
9	41-47	47-54	Strong gale, slight structural damage occurs
10	48-55	55-63	Storm, trees uprooted, considerable damage occurs
11	56-63	64-73	Violent storm, widespread damage
12	64+	74+	Hurricane, extreme destruction

The Enhanced Fujita Scale or EF Scale is used to assign a tornado a 'rating' based on estimated wind speeds and related damage. When tornado-related damage is surveyed, it is compared to a list of Damage Indicators and Degrees of Damage which help estimate better the range of wind speeds

EF SCALE	
EF Rating	3 Second Gust (mph)
0	65-85
1	86-110
2	111-135
3	136-165
4	166-200
5	Over 200

[7] This map was developed by the Windham Regional Commission for use by the Town and Region in energy planning efforts.

the tornado likely produced. From that, a rating (from EF0 to EF5) is assigned[8]. There have been 2 EF1 tornadoes and 1 EF2 tornado in Windham County since 1990.

According to NOAA records, there have been 169 days with wind events since 1950 in Windham County, 66 of which caused property damage. Damage totals for these events together are $1,411,400. Most record of wind events indicates in the 40-60 mile per hour range, with damages of several thousand dollars. More current and extreme events experienced in Windham County include:

5/16/2022	Wardsboro	70 mph	Thunderstorm winds
3/7/2022	Region-wide	40-50 mph	Thunderstorm winds
5/15/2020	West Dummerston	50 mph	Thunderstorm winds
8/21/2019	Windham	EF1	Tornado
7/28/2018	Regionwide	50-60 mph	Thunderstorm winds
11/10/2017	Region-wide	40-50 mph winds	High winds
9/5/2017	Region-wide	50-60 mph winds	Thunderstorm winds
6/8/2011	Northern Windham C.	50 mph	Thunderstorm winds
7/20/2008	Region-wide	50 mph	Thunderstorm winds
2/17/2006	Region-wide	60 mph generally; Stratton Mtn measured 143 mph gusts	High winds, likely snow storm
7/21/2003	Stratton	EF1	Tornado; $100,000 in damages
6/5/2002	Windham	EF2	Tornado; $75,000 in damages
9/16/1999	Region-wide	60 mph	Hurricane Floyd; $175,000 in damages
7/6/1999	Guilford	90 mph	Microburst; $150,000 in damages
7/3/1997	Eastern Windham C.	Not recorded	Thunderstorm winds caused $100,000 in damages
9/21/1938	Region-wide	100+ mph	Hurricane Igor; $400 million damages across southern Vermont; 600 lives lost; widespread destruction

Wind Hazard Summary Table

Location	Vulnerability	Extent	Observed Impact	Probability
Town-wide	Downed trees, downed power lines, extended power outages; potential for injuries from falling debris or power lines; disruption to services and businesses	High winds in large storms are typically in the 40-60 mph range and in 1938 there was an extreme 100 mph event.	Route 35 and Brookline Road, along the Bull Creek, trees get knocked down in large storms; Overall trees lost, roads blocked, power outages, structural damage to houses	Score of 4; Highly Likely

Fluvial Erosion and Inundation Flooding

[8] National Weather Service < https://www.weather.gov/oun/efscale>

Flooding is the most widespread and destructive hazard in the United States and in the Windham Region. Flooding can occur anytime of the year as a result of heavy rains, thunderstorms, tropical storms, hurricanes, snow melt, or rain on snow. It can result from the overflow of major rivers and their smaller tributaries, or inadequate local drainage. Historically, floods have been a factor in over 80 percent of all federally declared disasters. People living in close proximity to bodies of water such as rivers, lakes, and streams are at greater risk from flooding than those not living in the floodplain. Municipal membership in the National Flood Insurance (NFIP) and having a compliant floodplain ordinance in place gives residents access to discount flood insurance and enables towns to regulate development within their regulated flood hazard area. Once the town enrolls in NFIP the risk for new developments from erosion and flooding would be lower in town. The goal is to discourage new developments in flood prone areas. Maintaining upland forests and intact forest blocks (i.e., limiting development) as suggested in the Town Plan could allow for significant water infiltration and decrease flooding and erosion risks in the valley bottoms. The town must maintain certain bridges across Bull Creek for access purposes and is actively seeking funding to maintain and improve those structures.

Much of the destruction from flooding in Vermont is due to fluvial erosion, which is the is the destruction of river banks caused by the movement of rivers and streams. This can range from gradual bank erosion to catastrophic changes in river channel location and dimension during flood events. This occurs when the stream has more energy than is needed to transport its sediment load, due to channel alterations or runoff events that increase water speed in the channel, leading to erosion. Major erosion events are typically associated with periods of heavy rainfall or rapid snow melt and tend to worsen the effects of flooding that often accompany these events. The historic road network of many Vermont towns and villages typically follows waterways. This historic settlement pattern creates vulnerability for the road network, infrastructure and development in these areas. Climate change is leading to larger storms and larger flood and fluvial erosion events, putting more development at risk. This trend is discussed in the Climate Change section earlier in this Plan.

This photo shows the real connection of river and road during TS Irene, as the river reclaims its floodplain, edging in on the road. Photo courtesy of wilmingtonvtfloodrelief.com.

A waterway that is constrained or impinged by development is unable to reach geomorphic equilibrium which increases flooding in that area and puts increased pressure and larger flood loads on upstream and downstream sections, as well as causing more flooding damage. A river is in geomorphic equilibrium when its water, energy, sediment, and debris are in balance. In this condition a river is neither building up sediment in the channel nor losing sediment from its bed. Importantly, a river in equilibrium has not become overly deep and can continue to overflow onto its floodplains. The water that spills onto the floodplain slows down, and the velocity of the water still in the channel does not become excessively powerful. Mitigation actions that assist with achieving greater stream equilibrium will lessen or even eliminate flooding levels and damages to nearby buildings and infrastructure. Historic development patterns limit or complicate mitigation in some areas.

The biggest flood events in the Windham Region in recent years have been Tropical Storm Irene in 2011 and the July 2023 flooding. Irene (DR4022) caused $31.9 million in public assistance damages for Windham County, $7 million for Bennington County, and $48.6 million for Windsor County. Total damage amounts

for the July 2023 floods are still being tabulated as of this writing, but the amounts are expected exceed that of Irene. All FEMA received funds for Athens[9]:

DR#	Date of Declaration	Event Type	Awarded Amount
1816	1/14/2009	Severe Ice Storm	$5,742.65
3167	4/10/2001	Snowstorm	$3,472.05
4022	9/1/2011	Hurricane (Irene)	$131,297.83
4621	9/29/2021	Flood	$58,907.39
4720	7/14/2023	Severe Storm(s)	$116,654.86

Local Flooding Concerns and Experience

Athens has a very hilly/mountainous topography and is quite beautiful and remote. Because of its topography, nearly all the roads in Athens lie along or in close proximity to waterways or waterbodies of some type as these are the lower flatter areas of land in the town. Therefore, a lot of structures are also close to waterways. Some of the roads that the road crew regularly monitors for washouts are the Taylor Hill Road area, Reed Road, Herring Hill Road, McKusker Road, Brookline Road, Walker Road and Whitney Hill Road. The road crew generally does a great job with road maintenance and is actively maintaining ditches and replaces culverts as needed.

The hilly terrain potentially leads to fast moving flood waters that don't have much opportunity to spread out into floodplains and slow their speeds. What development there is in Athens is generally along or in close proximity to stream beds. This can lead to significant loss of private property and potentially being cut off from the wider community if a bridge or culvert washes out. Any structure within the SFHA or state designated River Corridor is potentially at risk from flooding and fluvial erosion. Brookline road is one of the main roads in town. It is also adjacent to Bull Creek which, in places, regularly overflows its banks. This occurrence might erode a town road, blocking emergency access to large parts of town.

FEMA floodplain lies along Bull Creek, with some dispersed occurrences around Lily Pond and an unnamed pond in the NW corner of town. Fortunately, there is no development around these ponds. Though Athens Center is not in the FEMA defined floodplain, Bull Creek runs through with residences along it and is a state designated river corridor. Some of the highest hazard areas associated with chronic flash floods are Bull Creek and Ober Hill, Mill Hill, and Brookline Roads. These areas have all seen flood damage in recent years. Residences along Bull Creek are extremely vulnerable to flooding including a mobile home community sandwiched between Bull Creek and Brookline Road.

The Road Crew has been very active in replacing undersized culverts, riprapping ditches and pitching the roads to mitigate damages. During Irene Bull Creek rose significantly, but did not take out town bridges.

Flash floods typically occur in high elevation drainage areas as a result of summer thunderstorm activity. Drainage ditches and culverts are the biggest concern for local flash flooding events. The road crew is actively maintaining and cleaning out these areas as needed. Other areas of concern during flooding events are homes located along small brooks throughout town that are subject to rise during quick flash flooding events such as along Athens Brook and Lily Pond and its associated creeks. Due to climate change and changing storm types flash flooding is becoming more common in Athens. The intensity of summer rainstorms is increasing which could exacerbate these issues.

[9] OpenFEMA Dataset: Public Assistance Grant Project Summaries https://www.fema.gov/openfema-data-page/public-assistance-funded-project-summaries-v1

Flash flood on lower portion of Crosby Brook, July 2017. Photo taken by Zeke Goodband

Ice jam flooding is fairly common regionally in the early springtime, generally around March. The heavy rainfall, combined with runoff from snowmelt due to the mild temperatures, results in flooding of rivers, streams and creeks, mainly from the formation of ice jams. Athens doesn't have any mapped historic ice jams[10]. The probability of ice jam flooding increasing is likely due to climate change increasing freeze/thaw cycles. Asset impacts are likely to increase due to the effects of climate change. Though as our winters are getting slightly warmer due to climate change the freeze thaw cycle is being seen more and more in the traditional winter months. This could cause more ice jams in the future as creeks block up with ice and warmer rainfall causes them to spill the banks and burst the ice. Residents, especially those that live close to creeks and rivers could start to see more flood events throughout the year causing damage to both public and private infrastructure. Flooding, however it occurs in Athens could have outsized impacts on the community. Access into and out of Athens is already limited and the closure of Route 35 to Townshend and Grace Cottage Hospital could force longer travel times for residents experiencing critical medical issues. If Bull Creek floods in a significant way farmers could lose valuable land, materials or livestock resulting in potential financial ruin and residents living on the east side of the creek could be cut off from all essential services for an extended period of time.

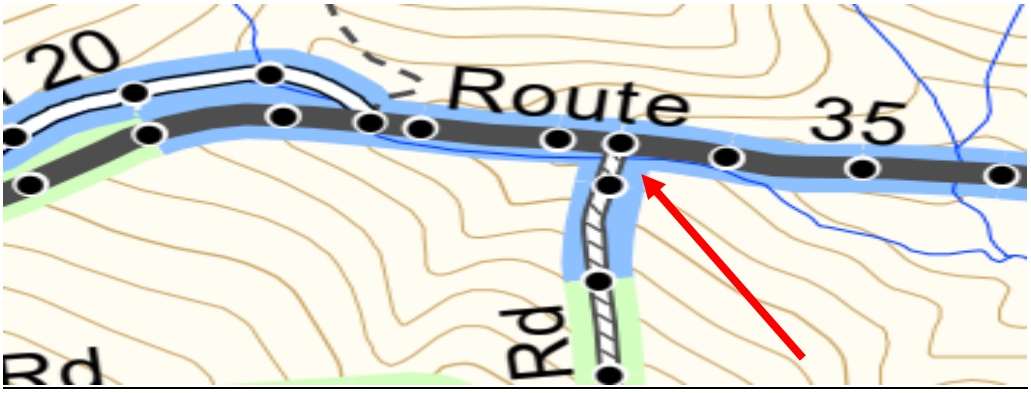
Events of the largest magnitude at the nearest recording station:

Highest Precipitation By Day: Marlboro, VT	
Date	**Amount (inches)**
10/30/2017 (DR 4356)	4.11
7/11/2023 (DR 3595/4720)	4.04
12/18/2023	2.99
6/27/2023	2.92
8/5/2020	2.89
9/19/2012	2.56
1/24/2024	2.53
3/14/2023	2.18
4/8/2022	2.17
5/1/2023	2.09
2/4/2022	1.85
11/3/2018	1.83
Period of record: 8/13/2003 to 1/11/2024	

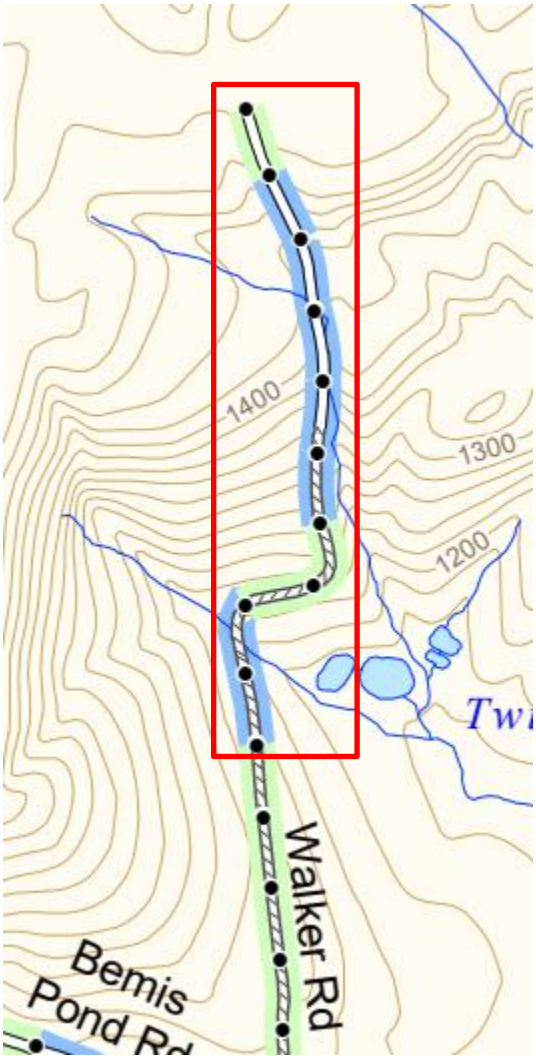
There are a couple of areas in Athens where fluvial erosion is evident. Most issues are areas of gradual erosion where rivers and roads are close together. The first area is along Reed Road near the

[10] https://icejam.sec.usace.army.mil/ords/f?p=1001:2

intersection of Route 35 (see the circled area). This area of concern a steep slope leading to the waterway on both sides. The road is on the opposite bank with another steep slope leading away from the road and erosion is causing trees to come down and lean, and for frequent edge erosion on the road during any larger rain event. This area of concern is approximately 2.2 acres in size.



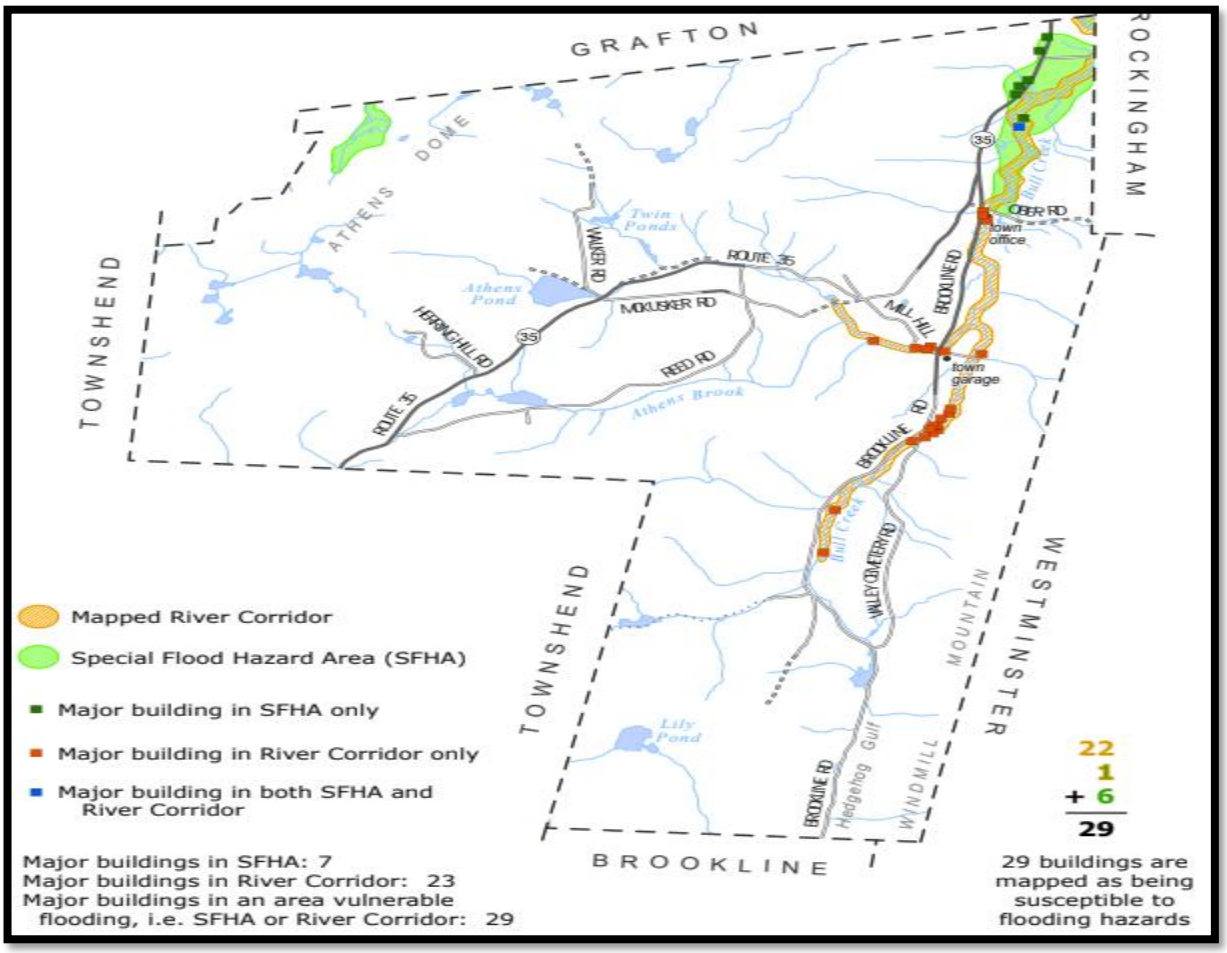
The other areas of concern for fluvial erosion is at unnamed brooks along Herring Hill Road and Walker Road, both steep roadways that also serve as drainages into Athens Brook. Walker Road is approximately 2 acres in size and Herring Hill Road is approximately 1.75 acres.



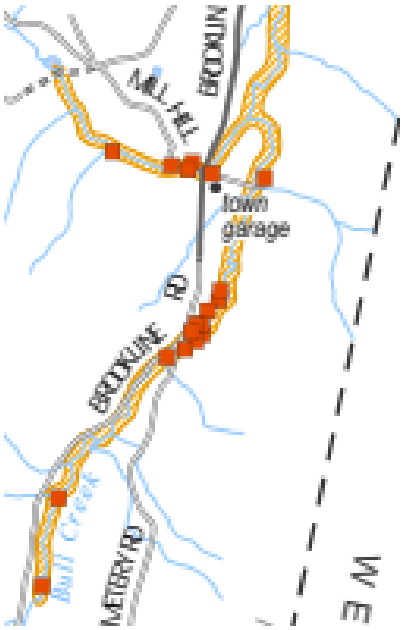
Ober Hill Road along Bull Creek at the intersection of Brookline Road is another area of concern with the Town Office and church that serves as the emergency shelter located in close proximity. The town is seeing some erosion issues that are impacting a bridge and important culvert in the area. There is a large drainage that enters Bull Creek in this location from the west and another fairly large drainage from the east. The area of this erosion issue is approximately 1.7 acres in size.

Structures in Mapped Flood Hazard Areas

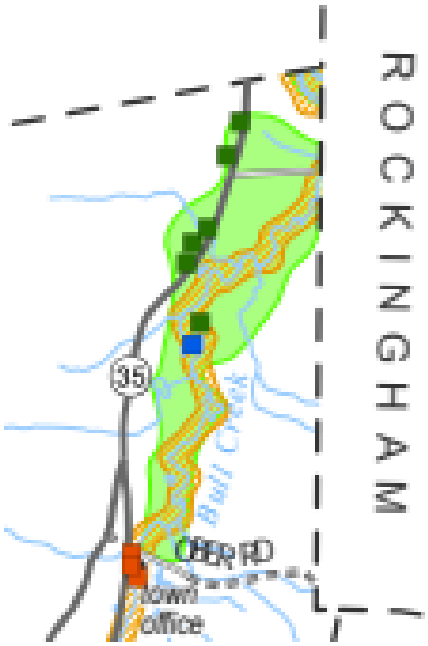
The map here shows where structures are located in one or more flood hazard designated areas.



Note the location of clusters of structures.



These inset views of the above map show the areas of Athens with the highest concentration of flood vulnerable structures. Note that two of these areas are also discussed in relation to fluvial erosion risk.



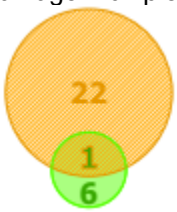
The FEMA mapped Special Flood Hazard Area or "SFHA" is the area subject to inundation by the 1% annual chance flood (100-year flood). FEMA also maps the .2% annual chance flood or the 500-year flood. To address the shifting dynamics of rivers in Vermont, the Vermont Agency of Natural Resources mapped River Corridors, which areas subject to fluvial erosion. Together this mapping can assist in creating an understanding of where flood hazards exist and where towns should consider limiting development and focusing mitigation strategies. Official flood mapping is viewable by accessing the Vermont ANR Atlas, on the FEMA Map Service Center, or by contacting your Town.

30 structures are in a mapped flood hazard area; including residential dwellings and municipal structures.

According to FEMA, Athens does not participate in the NFIP program.

There are 0 repetitive loss properties.

Property owners with a federally backed mortgage on a building in the SFHA are required to purchase flood insurance. A town being a member of the National Flood Insurance Program (NFIP) provides residents with access to flood insurance through the NFIP. If a town is not a member of the NFIP, residents must buy the required insurance on the private market sometimes at an increased cost. Properties outside of the FEMA floodplain can optionally purchase flood insurance at a lesser expense, and it still covers damages resulting from fluvial erosion in events that damage multiple properties.



23 buildings are in the River Corridor **22 + 1**

7 buildings are in the Special Flood Hazard Area **6 + 1**

1 building is in both

Flood Hazard Summary Table

Location	Vulnerability	Extent	Observed Impact	Probability
FEMA SFHA, FEMA 500-year floodplain, VT ANR mapped River Corridors	Culverts, bridges, dams; properties near rivers and streams; septic systems. 30 buildings are located in FEMA or ANR mapped flood hazard areas.	The largest rain event was 4.11 inches on 10/30/2017 (DR 4356). The largest area of fluvial erosion is along Bull Creek north of the town office.	Flooding generally: Damage and debris to roads; flooding to residential properties; some stream bank collapse; streambank erosion.	Score of 4; Highly Likely

Ice, Hail, Snow, and Extreme Cold

Winter weather often results in temporary road closures, school and business delays, and even power outages. Given the high amount of snowfall this region experiences, the town and residents are generally well prepared to deal with normal winter weather conditions. Severe winter storms, however, have been shown to affect the entire region resulting in:

- Extensive damage to above-ground power and utility lines and extended power outages (March 13-15, 2023 storm);
- Road shutdowns, making general travel, transport, and emergency vehicle access difficult;
- Shutdown of schools, businesses, and local government services, limiting access to goods and services;
- Structural failure from excessive snow loading, especially barns (storm of Dec 2008, DR 1816);
- Injuries and fatalities from poor driving conditions, frostbite, hypothermia, heart attacks from overexertion, and carbon monoxide poisoning from blocked vents.

Table 23: Winter Storm Severity Index (still under development in 2018)

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

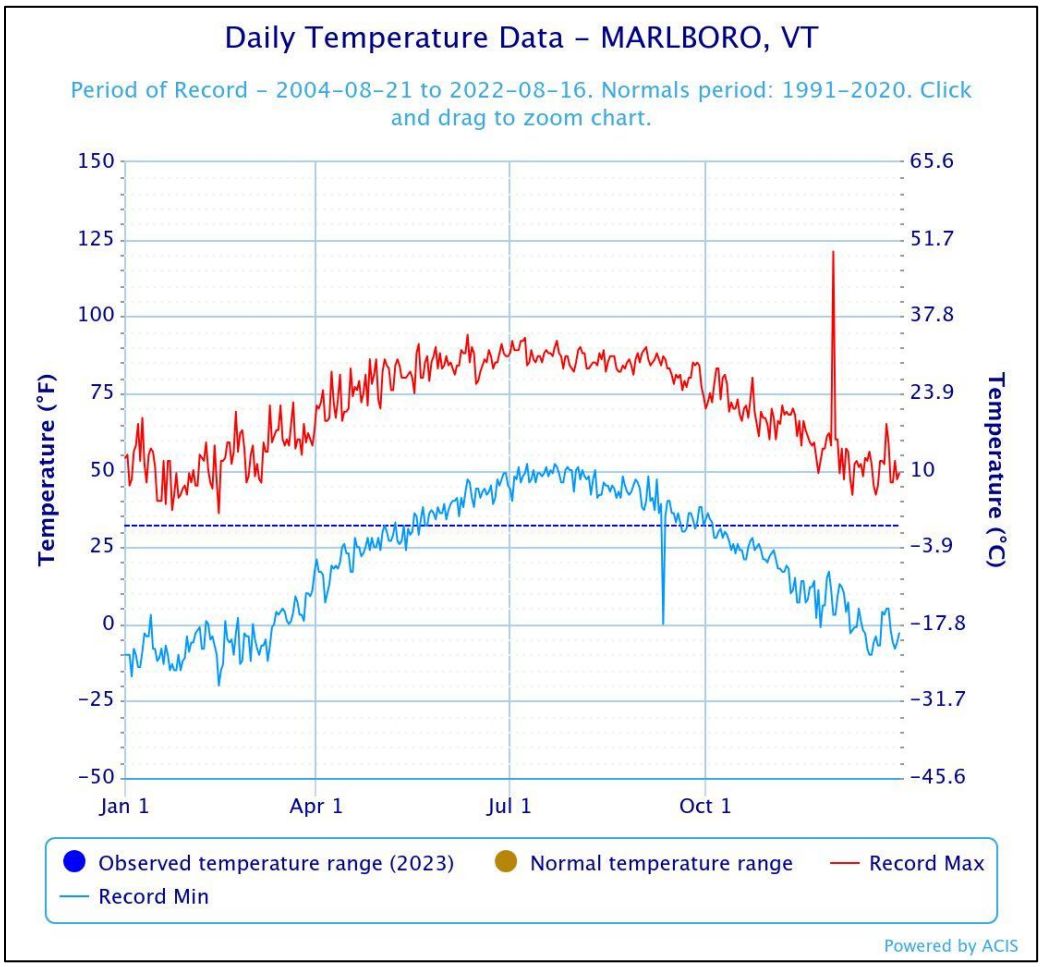
Severe winter weather affects the entire planning area, though higher elevations generally experience more extremes. The above Winter Storm Severity Index, described above can be used to gauge storm impact both during and after the storm. Focusing new development along existing roads, as the town plan calls for, will allow the town to concentrate snow/ice removal efforts and provide more benefit to a greater number of people. This could decrease risk to new developments from Ice, Hail, Snow and Cold hazards. Low levels of development or redevelopment contribute to lower risk factors, furthermore town staff is well versed in winter storm preparation and cleanup. Conversely if the town allows new developments on ridgelines or in the farther flung corners of town the risk from this hazard would be increased. Current town efforts to renovate the old school building into a community center featuring an emergency shelter would be aided by increases in the grand list from new development and allow the town to pursue the project earlier than expected. Athens is also undergoing an extensive renovation of the Town Garage. This will allow the road crew to be better prepared for extreme winter weather of all types and respond

more quickly and provide better results for residents. Ice storms are caused by freezing rain building up on power lines, trees and roadways. Ice storms can occur alone or in conjunction with winter storms and potentially flooding. An ice storm crossed the region in December of 2008 causing widespread downed trees and power outages in the region. The total cost of damages across the region triggered a Presidential Disaster Declaration DR-1816. Damage consisted of roads being blocked due to downed trees and utility lines. Thousands lost power for varying lengths of time and several shelters were opened. An event in March 2023 had similar results and 1-to-5-day power outages varying throughout the region, but did not trigger a federal declaration.

Extreme cold can cause damage to buildings and infrastructure. While FEMA defines Extreme Cold regionally due to the relativity across the county; Vermont Department of Health describes extreme cold as below 13°F. Current town assets including the town office, community center and garage are extremely susceptible to extreme cold. These buildings have leaky thermal envelopes potentially causing heating elements to overwork and create fire hazards. The potential loss of town assets from these hazards would impact town operations and budgets in the long term. Cold temperatures alter the chemical composition of mortar, grout, and adhesives used in building construction which over time can lead to unsecured components. Extreme cold can cause frozen pipes which can cause significant damage to buildings. Town buildings should be winterized, with pipes drained and water shut off, in the event an extreme cold event is forecast. Additionally, town highway and fire department vehicles are vulnerable to damage. Keeping them indoors and properly maintained can help to limit damage. Extreme cold poses potentially severe health issues as well.

Snow accumulation typically has not made the Town vulnerable to loss of road accessibility. The Town's snowplows ensure all roads are accessible, even in major accumulation events. Roads adjacent to critical facilities are well maintained. The change of winter storm events from mostly snow to rain and ice has increased the Town's risk with downed trees and resulting power outages, which are previously discussed in the High Wind hazard profile. The below chart depicts historic temperature variations in the region (Marlboro is the NWS monitoring station for the region) to the present. The observed extreme temperatures for the period of record for each day are shown in highs (red) and lows (blue) with records going back to 2004. The coldest temperature on record is -15° on February 15, 2016, although wind chill factors have probably approached or even exceeded that benchmark on occasion. Snow and its associated circumstances including ice can damage existing property and assets including roadways, structures and equipment. Icy, snowy roadways can be very dangerous both during and after a winter storm event. Less than ideal road or walkway conditions could cause personal injury, potential equipment and vehicle damage from accidents or structure damage from freezing or melting ice/snow.

Hail is a type of precipitation forming spherical lumps of ice typically ranging from 5-50mm in size. Damage from hailstones can vary widely depending on the severity of the Thunderstorm producing the hail. Hail damage can range from lite property and vegetive damage to extensive property and/or structural damage. On the more extreme end of the scale Athens residents could be impacted by hail that would damage their homes and vehicles in various ways and impart grave personal injury as well. New developments would have the same risk as older structures, but can potentially mitigate the risks by utilizing appropriate building techniques and materials. Farmers and ranchers could experience significant crop loss from hailstorms occurring during summer thunderstorms. This hazard could occur throughout town and is not more likely in one location than another. Town assets, including vegetative ones are subject to the same type of damage risk as private property owners. Impacts from Hail could manifest in many ways. The most frequent would be with vehicle repairs or replacements and damaged siding and roofing materials. This could stress town budgets causing other repairs, equipment purchases or capital projects to be postponed in favor of current needs.



The region usually experiences at least one large event every year or two. There have been three winter storm related declarations in Windham County:

- Winter Storm (DR1816) – December 11-18, 2008
- Snowstorm (DR3167) – March 2001
- Ice Jams and Flooding (DR1101) – January 1996

Extreme snowfall records are 36" in one day measured in West Wardsboro on December 19, 1986; the multi-day extreme recorded snow event was 41.6" measured in Marlboro on March 15, 2023.

Ice, Hail, Snow, and Extreme Cold Summary Table

	Location	Vulnerability	Extent	Observed Impact	Probability
Ice	Town-wide, with higher elevations being at greater risk of extremes	Road accidents, power outages, damage to property, docks, shorelines	The Ice Storm of January 6, 1998 (DR-1201) was an unusual combination of precipitation and temperature that led to the accumulation of more than 3" of ice in many locations,	Extended power outages; road accidents; carbon monoxide from improper use of generators	Score of 4; Highly Likely

			causing closed roads, downed power lines, and damage to thousands of trees. This storm was estimated as a 200-500 year event.		
Snow	Town-wide, with higher elevations being at greater risk of extremes	Roofs prone to collapse from weight; Power lines and trees; impassable roads due to snow drifts; indirect injuries from overexertion; Unsafe travel, especially for school buses and ambulances	Extreme snowfall records are 36” in one day measured in West Wardsboro on December 19, 1986; the multi-day extreme recorded snow event was 41.6” measured in Marlboro on March 15, 2023.	Roof collapse on at risk structures; road accidents; power outages from downed trees and wires; school cancellations and delays; outdoor recreation events cancelled;	Score of 4; Highly Likely
Cold	Town-wide, with higher elevations being at greater risk of extremes	People living in older structures; energy burdened households Structure fires Damage to water pipes Damage to agricultural crops	The coldest temperature on record is -15° on February 15, 2016 in Marlboro	Burst water pipes and flooding; school cancellations and delays; outdoor recreation events cancelled;	Score of 4; Highly Likely
Hail	Town-wide, with higher elevations being at greater risk	Structure and vehicle damage, personal injury possible.	Largest recorded hail is 2” in both Dover (2011) and Bellows Falls (2012)	Accompanied by rainfall, lighting and hail region wide making travel dangerous. Reports of extensive property damage throughout Windham County.	Score of 3; Probable

Invasive Species: Plants and Forest Pests

Eurasian milfoil is present in over 80 waterbodies in Vermont (Photo courtesy of VT DEC)

Invasive plant species are a region-wide hazard; however, each location will be confronted with a distinct mix of invasive species that thrive under the particular ecological conditions of that place. Each invasive species has a different potential to spread to other areas based on the rate at which it spreads and the ecological suitability of the ecosystem that it is expanding into. New development would almost certainly increase risk and vulnerability from all types of invasive species. Forest clearing, especially of intact forest blocks, would make space for new invasive plants and pests to take root where there wasn't previously an opportunity. An increase of construction vehicles from outside Athens or the region risks introducing new types of pests to the area as they will stick to tires or trailers and are then deposited on the new site. Invasives will pose greater risk in the future as they become more prevalent throughout the region.

An invasive species can be defined as **an exotic species whose introduction into an ecosystem in which the species is not native and causes or is likely to cause environmental or economic harm or harm to human healt**h[11].

Invasive Plant Species

In the absence or near absence of natural predators or controls, invasive non-native plants are able to spread quickly and out-compete native plants. Invasive plant species can create monocultures, which often provide poor habitat for native animals that have not evolved with the non-native species, resulting in degraded habitat value and increased vulnerability. The invasive plant issue really escalated in the early 1990's. Invasive plants tend to thrive in disturbed areas. Within the Windham region, they are more prolific in the towns along the Connecticut River than they are to the west, because the eastern towns are more populated, contain major transportation routes such as I-91 and the rail corridor, which serve as vectors for their expansion, and tend to have significant land disturbance. Some of these plants were originally planted because of their positive aspects such as their ability to grow in difficult growing conditions, long growing season length, their large seed production and their ornamental value. These same reasons are a big part of why they have become invasive.

Black Swallowwort carpets a bank to the exclusion of almost everything else. It even twines up a utility pole guy wire. Note the abundant seed pods. (Photo courtesy of John Anderson, Dummerston)

[11] (USDA) https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ct/technical/ecoscience/invasive/?cid=nrcs142p2_011124

Japanese knotweed, vtinvasives.org

Heavy travel corridors like VT Routes 9 and 100, and I-91, and even waterways, such as the Connecticut and Deerfield Rivers and their riparian areas, act as corridors that invasives can overtake and spread along.

Particular invasive plant concerns in the Windham region are listed in two groups based on their estimated threats to natural and hard infrastructure. All (except spindle tree) are quarantined, Class B Noxious Weeds in Vermont[12].

Group A—Higher threats to infrastructure:

1. There are heavy infestations of Japanese Knotweed (*Fallopia japonica*) along the North Branch of the Deerfield River and the Rock River, as well as the lower reaches of several brooks. It leaves shorelines susceptible to erosion because there is no other vegetation stabilizing the stream bank (Basin 11 Management Plan, Preliminary Draft 2007). TS Irene both (1) eroded stream and river banks, removing many riparian trees, and (2) moved fragments of knotweed to new areas, thus allowing knotweed to flourish on the bare soil left in its wake.
2. Asiatic (Oriental) bittersweet (*Celastrus orbiculatus*), an aggressive climbing vine that can smother trees, utility poles, and buildings.
3. Amur, Morrow's, Tartarian, and Bell's honeysuckle (*Lonicera mackii, morrowii, tatarica, x bella)*
4. Japanese & Common barberry (*Berberis thunbergii & B. vulgaris)*, which promote Lyme disease by harboring high populations of deer mice, one of the intermediate hosts of deer ticks.
5. common and glossy (European) buckthorn(*Rhamnus cathartica & R. frangula*), which slow forest regrowth.
6. Burningbush (*Euonymus alatus*)—still a common ornamental in yards, spreading to woods via birds that eat the low-value fruit, little wildlife value, should be excavated.

Burning Bush, vtinvasives.org

Group B—Lesser threats to infrastructure:

7. Mile-a-minute vine (*Persicaria perfoliate*), on Federal invasives list that is included in state list. Considered a "watch list" species in VT, but can cover other plants as well as hard infrastructure.
8. Garlic mustard (*Alliaria petiolate*) is common along roads and in fields and riparian areas, and can invade forests.
9. European spindle tree (*Euonymus europaeus*)-locally problematic, not on VT invasives list; suggested for addition to it. Very hard to control. You can buy seeds on eBay.
10. Goutweed (*Aegopodium podagraria*)—Highly invasive, has solid green leaves, or variegated green & white leaves. Very hard to control.
11. Norway maple (*Acer platanoides*)— inhibits growth of nearby plants spread widely by seeds to nearby woods, little food or habitat value to wildlife. Should not plant any new ones. Provides good

[12] Vtinvasives.org is the primary website for information. This list was developed by Peter Bergstrom of the Rockingham Conservation Commission. Email dated 8/21/2021.

breeding habitat for Asian long-horned beetles (ALB).

12. Purple loosestrife (*Lythrum salicaria*)
13. Yellow flag iris (*Iris pseudacorus*)—wetland plant
14. Amur maple (*Acer ginnala*)
15. Tree-of-heaven - Looks very similar to sumac and walnuts (black and butternut) but has smelly leaves when crushed, and smooth leaf margins except at the base.
16. Wild Chervil *(Anthriscus sylvestris)* - This invasive plant can be seen starting in May alongside roads, and is notable in our rolling Vermont fields. Often confused for Queen Ann's Lace which blooms later in the summer.

Five groups of invasive plants, listed below, are thought to pose the highest threat to native and/or hard infrastructure. Barberry is also a human health threat (Lyme disease).

Common name	Latin name	Locations	Threats	Control
Japanese Knotweed	*Fallopia japonica*	Banks of all rivers and many brooks	Can grow through asphalt, into basements, and block trails; more likely to wash out than natives	Mowing (endless), repeated cutting & digging (3-10 years), mesh?
common and glossy (European) buckthorn	*Rhamnus cathartica & R. frangula*	Clearcuts, woodland edges	Prevents regrowth of native trees	Excavation including roots
Japanese & Common barberry	*Berberis thunbergii & B. vulgaris*	Planted shrub, escapes to woods	Increases deer mice which harbor deer ticks with Lyme disease	Excavation including roots
Burningbush	*Euonymus alatus*	Planted as ornamental, birds spread seeds to woods	Displaces native shrubs	Excavation including roots
Amur, Morrow's, Tartarian, and Bell's honeysuckle	*Lonicera mackii, morrowii, tatarica, x bella*	Planted as ornamental, birds spread seeds to woods	Displaces native shrubs	Excavation including roots

Invasives tend to come up early and flower early, allowing them to get established before native plants have the chance. It may be possible to slow down or even halt the spread of these species by identifying and removing plants as soon as they appear. Early detection is the key. This detection can be aided by educating residents about the identification of and problems caused by invasive species. Preventing the spread of invasive plants is something that everyone can assist with. The first step is to not plant non-native plants on your property and to remove invasives that exist. Additionally, it is important that when soil is disturbed, to plant native cover before invasives have a chance to establish themselves. Proper disposal of non-native vegetation is critical to avoid its spread, safely burning the material when possible. Avoid transporting non-native plants, including firewood and garden debris, as this is critical to prevent the spread of non-native seeds and forest pests. Mowing roadsides from the north to the south can also help prevent the migration of invasive seeds on-site.

Local Impact:
There are a number of Invasive plants in Athens that pose a significant threat to maintaining the natural communities that make up fields, wetlands and forest lands in town. Invasive plants threaten natural communities by degrading native species and reducing biodiversity, degrading wildlife habitat, precluding commercial timber regeneration and changing the ways ecosystems function by affecting nutrient, water and light availability.

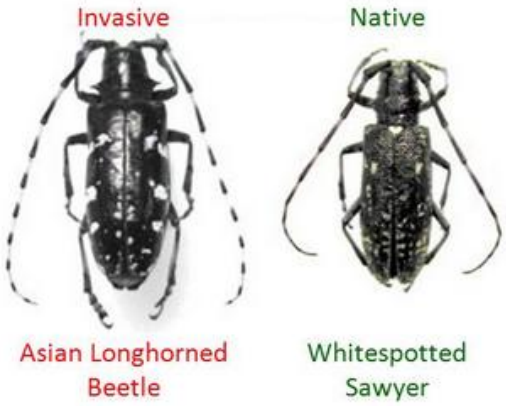
The most prevalent invasive shrubs that have been found in Athens are: Glossy Buckthorn, Japanese Barberry, Burning Bush, Asiatic Bittersweet, Wild Chervil, several species of honeysuckle, Autumn Olive, and Multiflora Rose. Invasive wildflowers and grasses found in open areas and wetlands in Athens include: Purple Loosestrife, Giant hogweed, Wall lettuce, Wild Parsnip, Flowering rush, Japanese knotweed, Garlic mustard, Flowering Rush, Reed Canary Grass, and Common Reed. There are many more species than just these. These have all been observed in Athens and to some degree impact most properties in town.

Invasive vines are also in Athens and they include: Asiatic Bittersweet, Japanese Honey Suckle, Mile a Minute and Periwinkle (found along old house foundations). There are also invasive trees like Norway Maple, Sycamore Maple, Black Locust, Tree of Heaven and Russian Olive and a few more. Trees are not generally as great of a threat to natural communities because they don't spread as rapidly as the rest of the invasive i.e., shrubs, flowering plants and vines.

Dealing with the problem itself, the state Current Use Program requires landowners to identify the presence of invasive species on enrolled lands. Some property owners and organizations enrolled in Current Use also are taking action to eradicate invasive species when they find them. The Windmill Hill Pinnacle Association, for example, which owns several hundred acres in Athens under UVA has an active invasive control program and their goal is to eliminate invasive species on its property. Other individual landowners seek out professional assistance to reduce the impact of invasive species, but this is the exception, not the rule. At this time the federal government through the NRCS program offers financial incentives for invasive control. The Turner Hill Wildlife Management Area in western Athens, owned by the Fish and Wildlife Department has hired contractors to eradicate invasive species found in wetlands.

Invasive Forest Pests

Non-native invasive species cause irreversible impacts on tree health, forest composition, and biodiversity. Species of concern include:

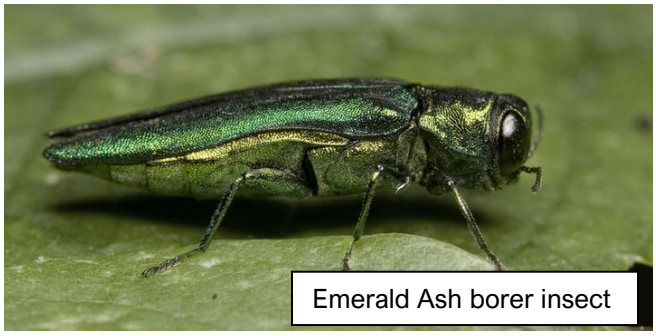


- Ash yellows – present throughout VT
- Asian longhorned beetle – not confirmed in VT; closest area to the Windham region that has the pest is Worchester County, Massachusetts in 2008; this insect will have a major impact if it becomes established in Vermont.
- Balsam wooly adelgid - present throughout VT
- Beech bark disease - present throughout VT
- Beech leaf disease - confirmed in southeastern Vermont
- Butternut canker - present throughout VT
- Chestnut blight - present throughout VT
- Dutch elm disease – has spread throughout VT
- Elm zigzag sawfly – not yet confirmed in VT
- Elongate Hemlock scale – confirmed in parts of VT
- Emerald Ash borer – confirmed and spreading in VT
- Hemlock wooly adelgid – confirmed in southern VT
- Jumping worms (3 species found in VT) - confirmed in all Vermont counties with the exception of Essex and Orleans
- Oak wilt – not yet detected in VT, but has recently been found in in multiple locations in New York state.
- Pear thrips - present throughout VT
- Red pine scale – not confirmed yet in VT

- Sirex woodwasp – confirmed in parts of VT
- Spongy moth – established in VT
- Spotted lanternfly - been found in several states, including Pennsylvania, Connecticut, Delaware, Maryland, New Jersey, New York, Virginia, and West Virginia and Ohio; not yet established in VT, but an interception of truck cargo in VT did find 3 adults of the species
- Thousand cankers disease – never been detected in VT
- Wandering broadhead planarian - distribution is currently unknown. This species was recorded for the first time in Montréal, Canada in 2019
- White pine blister rust - present throughout VT
- Winter moth - never been detected in Vermont.

Between emerald ash borer (EAB), Asian longhorned beetle (ALB) and hemlock wooly adelgid (HWA) alone, more than 14 different species of trees in Vermont are threatened including: maple, elm, horse chestnut, willow, ash, poplar, European mountain ash, hackberry, and hemlock. EAB is spreading fast; within the Windham region, as of this writing EAB is present in these towns, listed with detection year:

- Brattleboro 2023
- Guilford 2023
- Halifax 2023
- Londonderry 2019
- Marlboro 2023
- Putney 2023
- Readsboro 2020
- Somerset 2022
- Townshend 2022
- Vernon 2021
- Westminster 2023
- Whitingham 2023
- Wilmington 2021


Emerald Ash borer insect

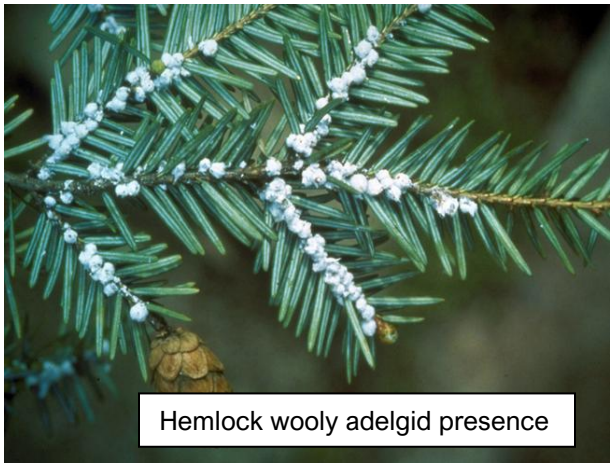
EAB only feeds on Ash trees, but that is 7% of Vermont's tree species. EAB is often moved around on firewood that people transport. Eradicating the insect on wood requires heating it to at least 140 degrees or higher for greater than 60 minutes.


Blonding with pecked holes on ash trees is a sign of EAB infestation.

EAB essentially girdles the ash trees, killing them. It lives between the inner bark and the wood, so it isn't that deep. Woodpeckers like feeding on EAB, but the woodpecker population isn't large enough to significantly impact the EAB population. Also the woodpeckers don't generally detect the insects in the trees until they have been present for about two years, which is too late to save the tree. One of the best diagnostic methods for detecting EAB is called "blonding". "Blonding" is a clear symptom of EAB infestation. It occurs when woodpeckers, while foraging for the succulent EAB larvae, flake off outer layers of bark, revealing the lighter or blond-colored inner layers of bark.[13]
The hemlock woolly adelgid (HWA), *Adelges tsugae*, is a tiny insect from east Asia that attacks forest and ornamental hemlock trees. It feeds on young twigs, causing needles to dry out and drop prematurely. Trees may die in four to six years. Some survive, but with sparse foliage, losing value as shelter for wildlife and their ability to shade streams.

[13] University of New Hampshire Cooperative Extension – Blonding on Ash trees information sheet. <http://extension.unh.edu/resources/files/Resource004103_Rep5824.pdf> Accessed 3/2/15.

Sustained cold leads to kill off of the adelgid insects. Mortality rates of even 91%, however, can still lead to population growth through the warm season because they reproduce asexually so it only takes one for the population to expand. The HWA mortality rate shifts each year based on temperature patterns throughout the year, especially cold winter temperatures cause die off.


Hemlock wooly adelgid presence

In the Windham region, it was initially found in Brattleboro and the Guilford area. It is now found in 14-15 Windham Region towns, and has been recently found in Springfield in Windsor County. HWA is moving south to north in lower elevations first, and is mostly throughout southern Vermont at this point. Dead or dying hemlocks are a sadly regular sight in the region. It was first found at the SIT campus in 2010 and is now found throughout the town of Brattleboro.

Hemlock trees and even whole stands are showing signs of decline, but trees in Vermont have not been reported to have been killed from HWA alone. Foresters have been watching infested trees for eight years, and the trees haven't been killed yet most likely because winter temperatures kill off enough of the HWA to give the tree a temporary reprieve. HWA does weaken the trees to the point that other secondary stresses, such as funguses and disease, may result in their mortality. Another pest, Hemlock elongate scale was found recently for the first time in Guilford, Vernon and Brattleboro.

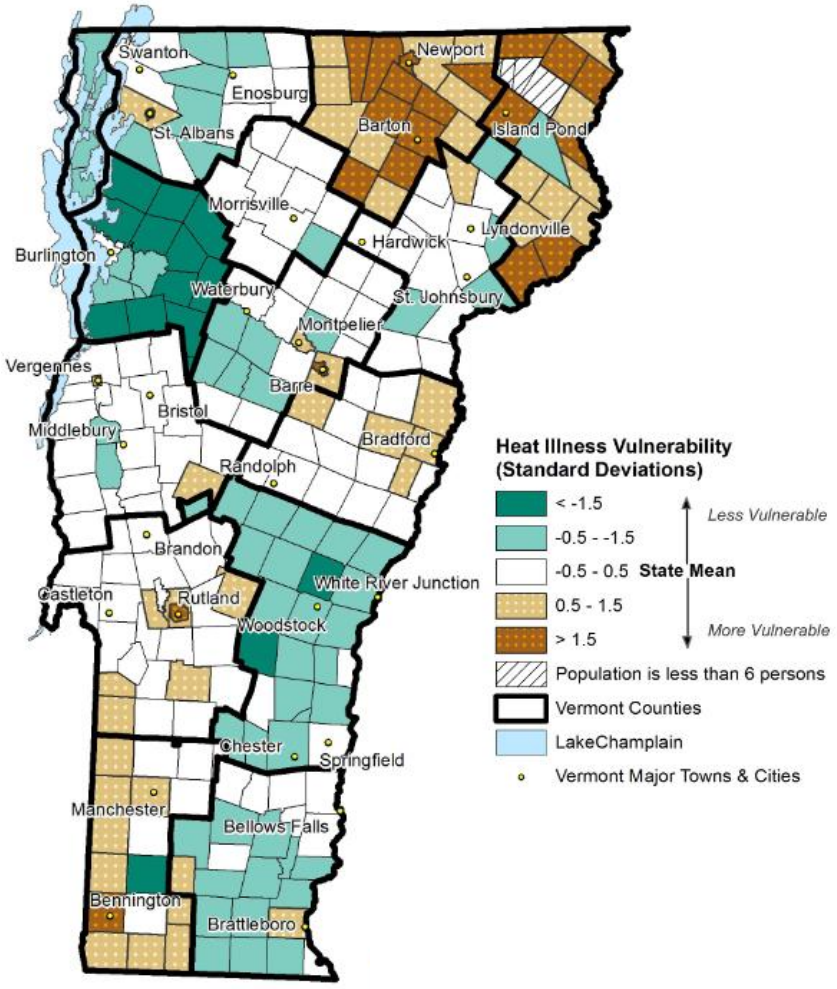
Local impact:
Invasive pests are prevalent throughout the town to varying degrees impacting all types of land cover. Many of the species are impacting the tree cover and become more widespread or at least more apparent closer to the roadways. The impact of these pests is being felt in a number of ways, in particular commercial logging operations are seeing the quality of lumber being produced becoming lower than in the past. Trees along the roadways are becoming weaker due to these pests and with the changing nature of winter storms in Vermont, due largely to climate change, the trees are breaking and falling over power lines. This can cause outages that range from several hours up to days long. There is a significant number of property owners that take advantage of the UVA program to lower taxes and with this program comes the requirement to identify and report the presence of invasives in their property. In some cases, private landowners and institutional owners are taking action to mitigate for these pests on their own. In the future trainings will be offered on pest identification and mitigation techniques.

Invasive Species Summary Table

	Location	Vulnerability	Extent	Observed Impact	Probability
Plants	Elevations generally below 1,500 feet are most susceptible to invasive species, although any land with some sort of major disturbance (from wind, water, logging, or land clearing and development) could potentially host them.	Areas at particular risk are road sides, newly cleared areas, disturbed land, riparian buffers, especially eroded buffers; power line right of ways	There are heavy infestations of Japanese Knotweed along most roadways in town. Japanese barberry, BWA, and common and glossy buckthorn have become well established in many locations including in the Herring and Ober Hill areas.	Dead and dying trees along roadways and powerlines, and near buildings; invasive plants along roadways and waterways; Compromised soil stability along waterways. Overgrowth in shallow waters that kill off other plants and block sunlight.	Score of 4; Highly Likely
Forest Pests	Town-wide; areas where firewood is transported into the area from away, like campsites, are at higher risk	Forests, agriculture, waterways, native species; risk of downed trees in public rights of way from EAB and other pests.	EAB is present in 13 Windham region towns and spreading; HWA is ubiquitously present Athens. Over half of the trees in Vermont are host species of one of these three main pests, so the potential impact is great.	Dead and dying trees along roadways and powerlines, and near buildings; threats real and potential to local forest economy related to maple syrup industry, fall tourism, and logging	Score of 4; Highly Likely

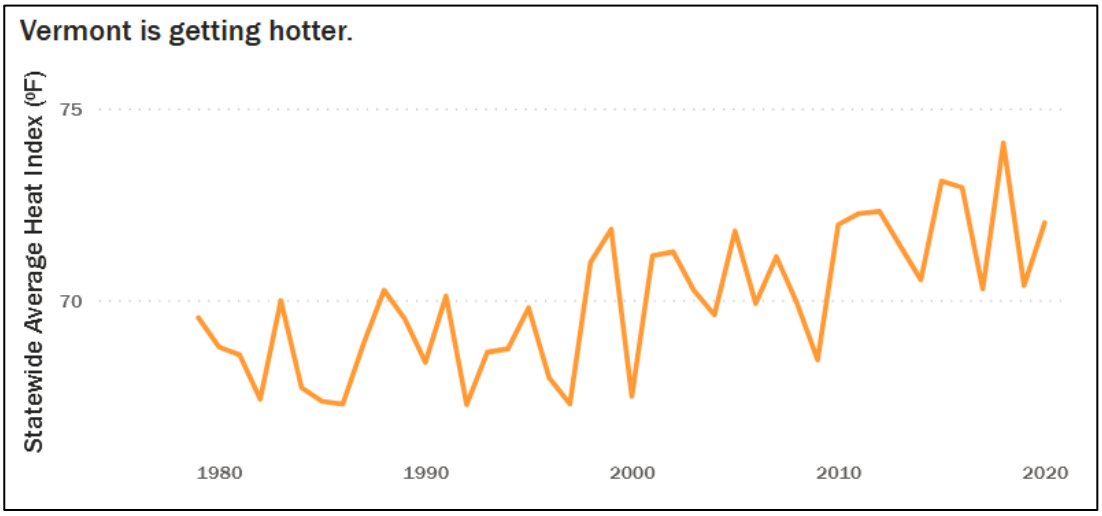
Heat

The Centers for Disease Control reports that more people die from heat than other weather-related events. The actual number of deaths are most likely underreported because heat can exacerbate other underlying conditions such as heart and respiratory disease, leading to death[14]. The impacts of extreme heat can be particularly challenging in areas like the Windham Region where residents are not accustomed to high temperatures and are less likely to live in air-conditioned structures. New developments that clear cut building sites would increase risk and vulnerability to Heat. Removal of mature trees and vegetation that provide shade and shelter from the sun increase the surface temperature on the ground, but generally there has not been enough new and/or concentrated development to impact the heat vulnerability. Demographics in Athens point to an ageing population that may have an increased risk from extreme heat hazards. The renovation of the community center into a heating/cooling and emergency shelter will have an impact on residents vulnerability to extreme heat.



As a rule, the National Weather Service considers "excessive heat" to be an event when the maximum heat index is expected to be 105° or higher for at least two days and nighttime air temperatures will not drop below 75°. The primary impact of extreme heat or prolonged periods of hot weather is to human life. Hot conditions, especially when combined with sun and high humidity, can limit the body's ability to thermoregulate properly. Prolonged exposure to hot conditions can lead to heat cramps, heat exhaustion, heat stroke, or exacerbate other pre-existing medical conditions. Some of these impacts require medical attention and can be fatal if left untreated. Children and the elderly are especially vulnerable to heat-related illnesses. The map to the left is a Heat Vulnerability Index developed by the Vermont Department of Health. The Vermont Heat Vulnerability Index draws together 17 different measures of vulnerability in 6 different themes: population, socioeconomic, health, environmental, climate, and heat illness. These measures are combined to measure the overall vulnerability of Vermont towns to heat-related events.

[14] Centers for Disease Control, Heat Related Illness: Picture of America Report



Windham County has an average of 12 excessive heat days per year; Windsor County has 14 days yearly on average; and Bennington County has 9. Overall, the graph below shows that the statewide average heat index is increasing over time. With this trend, towns should be considering ways to assist residents with managing and getting cool during excessive heat days, through cooling shelters and community pools. Retrofitting town buildings to have air conditioning will also become more necessary over time.

Heat Summary Table

Location	Vulnerability	Extent	Observed Impact	Probability
Town-wide	Children, elders, people with underlying conditions, people below the poverty line; water supplies and water bodies; livestock	2018 has the highest number of excess heat days, 18 in all counties in the region	Increased hospitalizations due to heat-related illness (VT Dept. of Health data), five heat-related deaths reported statewide in the summer of 2018	Score of 3; Probable

Drought & Wildfire

Drought is defined as a shortage of water relative to need. According to the Vermont 2023 Hazard Mitigation Plan, drought is a complex phenomenon for several reasons:

- It is difficult to monitor and assess because it develops slowly and covers extensive areas, as opposed to other disasters that have rapid onsets and obvious destruction.
- The effects of drought can linger long after the drought has ended.
- Drought is an inherent, cyclical component of natural climatic variability and can occur at any place at any time, making it difficult to determine the onset, duration, intensity, and severity, all of which affect the consequences and corresponding mitigation techniques.

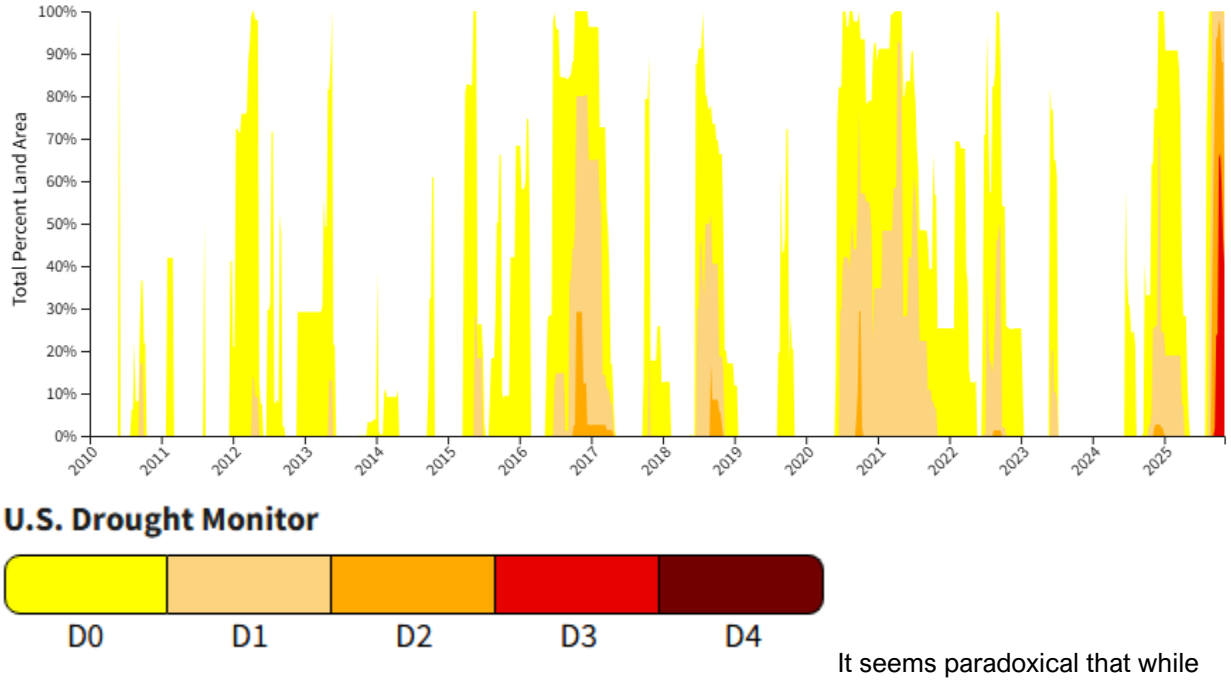
Extended periods of drought during a Vermont growing season can be devastating for agriculture. USDA data show occasional payouts from crop insurance due to drought damage, but this data is at the county level. Furthermore, not all local growers carry crop insurance. Forestry operations are susceptible to drought as well, because extended warm and dry seasons can increase risk of disease. Drought also weakens or kills wildlife, and the dieback of vegetation and increased risk of wildfire destroys habitat.

Drought can also result in loss of potable water when wells run dry. Although the surface waters may appear to have recovered from a period of drought following a return to normal precipitation, replenishing

groundwater levels is a longer process. Low water levels in wells can yield higher concentrations of metals (uranium, iron, sulfur, arsenic, and manganese) in drinking water, making the water unsafe to drink. Some residents have reported wells drying up seasonally. New development doesn't by itself increase risk for drought or drought conditions, but new development could make drought more impactful on the community and its assets. New development tends to direct stormwater to ditching and limit areas of infiltration by increasing the impervious surface area.

Drought conditions are also favorable for wildfires. Low water levels can also affect recreation and fishing. Low water levels, paired with rising temperatures, can trigger occurrence of blue-green algae in lakes and ponds. High winds, low humidity, and extreme temperatures can all amplify the severity of the drought. The severity of a drought depends on the duration and extent of the water shortage, as well as the demands on the area's water supply.

Wildfire is the uncontrolled burning of woodlands, brush or grasslands. The risk from wildfires increases with new developments that might not have secure, mature vegetation around it. Wildfires can occur naturally from sources like lightning, drought or from human interactions with the natural or built environments like a tossed cigarette, unattended campfire or car exhaust pipe. In Athens the largest wildfire to date was in 2023 which burned 10 acres along Whitney Road and was caused by down power lines. Overall, Brattleboro has had the most wildfire incidents in Windham County and in 2015 47 acres were burned, no direct cause (other causes) was listed in the data. The number of ignition sources and a general increased ground temperature from removing mature vegetation could create more favorable wildfire conditions both where drought conditions are and are not present. Athens does not have any type of municipal water system and future assets could be impacted to a greater degree if wells dry up. A wildfire in Athens would impact the community and community members in a variety of ways. Residents could be faced with significant loss of personal property, including homes and vehicles. Farmers and craftspeople would be faced crop destruction, increased storm runoff and loss of tools and materials. Residents would also suffer from burnt out landscapes and increased runoff that would impact a number of outdoor activities in Athens. Structures like the Historic Meeting House could be in more jeopardy from wildfires than other town assets due its location on its lot and wooded land surrounding it. Some wildfire risk can be mitigated by utilizing appropriate building techniques, flame retardant materials and by creating defensible space around structures.



It seems paradoxical that while

climate change is generally bringing increased levels of precipitation that Vermonters should experience drought. However, climate change also is linked to climate instability and extremes. Due to climate change the increasing frequency and duration of droughts will also increase impacts to town assets. According to the US Drought Monitor, Windham County has experienced some level of drought every year since 2012. Minor portions of the county also experienced severe drought (D2) in August 2022. The worst period of drought on record was between November 2001 until March 2002.[15]

In late 2020, USDA Farm Services Agency issued a declaration of drought-related disaster conditions, making all Vermont farmers eligible to apply for emergency loans. With drought conditions persisting for more than a year, the State of Vermont reactivated its Drought Task Force in July 2021.

The Agency of Natural Resources maintains a crowd-sourced database called the ANR Drinking Water Drought Reporter. https://anrmaps.vermont.gov/websites/droughtreporter/. There have been anecdotal reports of wells drying up seasonally in Athens.

Drought & Wildfire Summary Table

	Location	Vulnerability	Extent	Observed Impact	Probability
Drought	Town-wide	Crop loss, loss of drinking water, higher occurrence of algae blooms; increased risk of wildfire	Worst drought was August 2025 to November 2025 and is ongoing as of this draft; some level of drought experienced yearly since 2012	Loss of drinking water	Score of 3; Probable
Wildfire	Town-wide	Crop and vegetation loss. Potential personal property loss and damage to town structures. Loss of utility and access from EMS personnel.	10 acres burned on Whitney Road in 2023 from downed powerlines.	Infrastructure and tree cover damage.	Score of 3; Probable

Mitigation Strategy

Goals of Mitigation

The Goals listed here were reviewed in this update. Changes are shown in blue highlight. The Town's overall goals of this Plan remain the same since the last update.

- Reduce the loss of life and injury resulting from all hazards.
- Reduce the impact of hazards on the town's water bodies, natural resources, and historic resources.
- Reduce the economic impacts from hazard events.
    - Minimize disruption to the road network and maintain access;
    - Mitigate financial losses incurred by municipal, residential, industrial, agricultural and commercial establishments due to disasters;
    - Ensure that community infrastructure is not significantly damaged by a hazard event; and

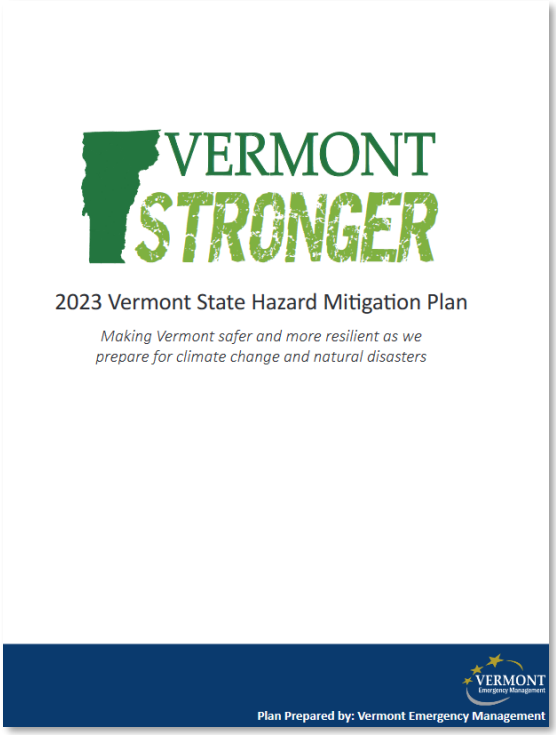
[15] US Drought Monitor website: https://droughtmonitor.unl.edu/DmData/TimeSeries.aspx, accessed 1/17/2024

    - Be proactive in implementing any needed mitigation projects for public infrastructure such as roads, bridges, culverts, municipal buildings, etc.
- Encourage hazard mitigation planning to be incorporated into other community planning resources, such as the Town Plan, the Local Emergency Management Plan and Emergency Committee resources.
- Ensure that members of the general public continue to be part of the hazard mitigation planning process.

Comparing the above Town goals with the below goals from the Draft State Hazard Mitigation Plan, they align in an overarching way.

Goals shown in the Draft 2023 Vermont State Hazard Mitigation Plan:

- 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.



Community Capabilities

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

Administrative and Technical
In addition to the Emergency Management Services described in the Community Profile section, municipal staff that can be used for mitigation planning and to implement specific mitigation actions include: Town Clerk/Treasurer, 2 Listers, 2-member Highway Department, the position of Town Health Officer is currently vacant.

In addition to paid staff, there is a 5-member Selectboard, 5-member Planning Commission, Tree Warden, volunteer Fire Department (located in neighboring town) and several other town groups. The town relies almost exclusively on volunteers to get anything done including rehabbing the historic meeting house, former elementary school and town garage.

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

Planning and Regulatory
Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Examples of planning capabilities that can either enable or inhibit mitigation include land use plans, capital budgeting programs, transportation plans, stormwater management plans, disaster recovery and reconstruction plans, and emergency preparedness and response plans. Examples of regulatory capabilities include the enforcement of zoning ordinances,

subdivision regulations, and building codes that regulate how and where land is developed, and structures are built.

Town Plan: Currently in draft format.
Description: A framework and guide for how future growth and development should proceed.
Relationship to Natural Hazard Mitigation Planning: Includes goals, policies, and action steps related to flood resilience. While this may not have been done in past updates, going forward there should be a distinct consideration of natural hazards in choosing sustainable areas intended for growth and expansion.

Flood Hazard Area and Riparian Area Regulations: Being discussed as a possibility.
Description: Provides for orderly community growth promoting the health, safety, and general welfare of the community.
Relationship to Natural Hazard Mitigation Planning: Establish site plan review requirements and districts, including Flood Hazard and Riparian Area Districts, with specific standards for proposed development. Requirements are designed to prevent overdevelopment; to mitigate negative impacts to the natural and human environment; minimize effects to the historical and aesthetic character of the community; and ensure design and construction of development in flood and other hazard areas are accomplished in a manner that minimizes or eliminates the potential for flood loss or damage to life and property.

Road and Bridge Standards: Adopted October 2019
Description: Provide minimum codes and standards for construction, repair, maintenance of town roads and bridges.
Relationship to Natural Hazard Mitigation Planning: Standards include management practices and are designed to ensure safety of the traveling public, minimize damage to road infrastructure during flood events, and enhance water quality protections.

Road Erosion Inventory Report: last completed 2024
Description: Prioritizes those infrastructure projects necessary to improve transportation network resiliency and water quality.
Relationship to Natural Hazard Mitigation Planning: Improvements are designed to minimize or eliminate flood impacts on hydrologically connected road segments.

Local Emergency Management Plan: Adopted May 2024
Description: Establishes lines of responsibility and procedures to be implemented during a disaster and identifies high risk populations, hazard sites, and available resources.
Relationship to Natural Hazard Mitigation Planning: Includes actions for tracking events and response actions including damage reports to facilitate funding requests during recovery. This type of information can be essential to preparing hazard mitigation project applications for FEMA funding.

Fire Department ISO Rating: Issued in July 2022
Description: Grafton Volunteer Fire Department's ISO rating is 9. This rating is a score from 1 to 10 that indicates how well-protected the community is by the local fire department.
Relationship to Natural Hazard Mitigation Planning: Everyone wants to keep family, home, and business safe from fires. The ISO rating is a measure of the effectiveness of a community's fire services.

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

Athens's currently has annual revenues of $643,357, of which $419,017 funds the Highway Department and public safety expenses. Athens has not received FEMA grant funding for any mitigation projects, other than the update of this Plan.

The Grafton Volunteer Fire Department operates one fire house and collects fees for the provision of fire protection. The Department's annual budget is $154,748, of which approximately $115,000 is for operations and the remainder as a contribution to capital for large purchase needs. In the latest available budget Athens contributes $14,700 per year to the Department for fire and rescue services. The

Department fundraises the difference to meet their base budget with no capital purchases along with a contribution from other towns.

Education and Outreach
Athens has several education and outreach opportunities or mechanisms that could be used to implement mitigation activities and communicate hazard-related information. The town generally does not use social media forums to engage the public due to lack of cell coverage.

Town website
Athens community newsletter, The Athenian (electronic)
Front Porch Forum
Community Facebook Page
Brattleboro Reformer (local newspaper)
The Commons (local newspaper)
Grafton Cares

NFIP Compliance

The Town is not part of the National Flood Insurance Program (NFIP), but is currently considering joining as part of a broad effort to make the community more flood resilient.

State Incentives for Flood Mitigation

Vermont's Emergency Relief Assistance Funding (ERAF) provides state funding to match FEMA Public Assistance after federally declared disasters. Eligible public costs are generally reimbursed by FEMA at 75% with the State matching 7.5%. The State will increase its match to 12.5% or 17.5% of the total cost if communities take steps to reduce flood risk as described below.

12.5% funding for eligible communities that have adopted four (4) mitigation measures:

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

17.5% funding is available if a community does either or both of these enhanced mitigation measures:

1. Regulates development in ANR mapped River Corridors
2. Joins FEMA's Community Rating System

Athens's current ERAF rate is 7.5% because they have in place all four base mitigation measures.

Identification of Mitigation Actions

The Planning Team discussed the mitigation strategy, reviewed projects from the 2015 Plan, and identified possible new actions from the following categories for each of the high scoring natural hazards identified in the Risk Assessment.

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

2. **Structure and Infrastructure Projects:** These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This applies to public or private structures as well as critical facilities. These projects may be eligible for funding through FEMA's Hazard Mitigation Funding Programs.

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

4. **Education and Awareness Programs:** These actions inform and educate the public about hazards and potential ways to mitigate them. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. Greater understanding and awareness are more likely to lead to community support for direct actions.

For the selected actions, the Planning Team assigned a responsible party to lead the implementation of each action; identified potential funding; and developed a timeframe for implementation.

Local Plans and Regulations							
HAZARD(S) ADDRESSED	ISSUE/ CONCERN	ACTION DESCRIPTION / CURRENT STATUS	RESPON-SIBLE ENTITIES (Lead party in bold)	TIME FRAME	POTENTIAL FUNDING	Community Lifeline Conne	MITIGATION / PREPAREDNESS/PREVENTION/MAI
All Hazards	Paper records are vulnerable to destruction by a variety of hazards	Digitizing the town records (covering 50 years) is a goal of the town to ensure their perpetuity.	**Town Clerk**	by 2032	Town funds	N	Mitigation / Prevention
Inundation Flooding & Fluvial Erosion	The town and its residents are not accessing the full amount of potential reimbursements/discounts at the state and federal level.	Develop flood hazard bylaw and join NFIP	**Selectboard**	by 2027	Town Funds / FEMA Grant		Preparedness

Structure and Infrastructure Projects							
HAZARD(S) ADDRESS-ED	**ISSUE/ CONCERN**	**ACTION DESCRIPTION / CURRENT STATUS**	**RESPON-SIBLE ENTITIES (Lead party in bold)**	**TIME-FRAME**	**POTENTIAL FUNDING**	**Community Lifeline Connection Y/N**	**MITIGATION / PREPARED-NESS / PREVENTION / MAINTENANCE**
Inundation Flooding, Snow, Ice, Hail, Wildfire, Extreme Heat/Cold, Earthquake	Moving or creating an emergency shelter is a big task that requires a high degree of planning and coordination.	Properly outfit the Community Center to the specifications of a Red Cross shelter, and to store the EC trailer	**Community Center Committee,** Selectboard	2025-2030	Town Funds, Grants, State Funds	Y	Preparedness
Inundation Flooding, Snow, Ice, Hail, Wildfire, Extreme Heat/Cold, Earthquake	The community center is a tremendous asset that is need of renovation.	Improve the resiliency of the Community Center	**Community Center Committee,** Selectboard	2025-2030	Town Funds, Grants, State Funds	Y	Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Persistent damages, severe erosion and washouts on Ober Hill Road, and streambank behind town office building including damages Bridge #8, culvert #2 on Brookline Road, Privately owned culvert behind town office building. Contributing to flooding that endangers town office and Athens Community Church/ Emergency Shelter.	Scoping Study to identify alternatives to replace structures and mitigate flood damage funded through VTrans TAP program is expected to be complete late winter of 2025, Actions include replacing Ober Hill Road bridge (structure b-11), raising and realigning Ober Hill Road, and additional culvert replacement within project area as necessary depending on final recommendations of scoping study.	**Road Foremen** w/Contractor Support	Summer 25/Summer 26	HMPG, FEMA BRIC, VTrans Structures or Municipal Highway and Stormwater Mitigation grant.	Y	Mitigation
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Route 35. Culvert # 66,65,34A,34,22	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness

Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Reed Road. Culvert # 34,33,23,22,21,13,9	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Brookline Road. Culvert #2,22,24,28,29,30,40,41,54,55,56	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Valley Cemetery Road. Culvert #4,9,11,12,14,16	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Valley Cemetery Road. Culvert #3,6	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness
All Hazards	Supplies and other shelter materials can become old or out of date and need to be monitored for currency.	Maintain Emergency Shelter/Supplies/Trailer	**Emergency Committee**	Yearly	Town Funds		Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Valley Cemetery Road. Culvert #3,6	Selectboard/**Road Foremen**	needed and as funds are	Town Funds / FEMA Grant		Mitigation/Preparedness

Natural Systems Protection and Nature-based Solutions							
HAZARD(S) ADDRESS-ED	**ISSUE/ CONCERN**	**ACTION DESCRIPTION / CURRENT STATUS**	**RESPON-SIBLE ENTITIES (Lead party in bold)**	**TIME-FRAME**	**POTENTIAL FUNDING**	**Community Lifeline Connection Y/N**	**MITIGATION / PREPARED-NESS / PREVENTION / MAINTENANCE**
Invasive Species	The CC currently does annual removals, but wants to improve attendance and increase frequency of events. They also want to educate themselves to improve strategy of removal and disposal.	Improve outreach efforts and contact interested people within Athens and surrounding towns. Occasionally bring in experts to educate the group.	**Tree Warden**	Hold events in spring and fall starting in 2025,	Fundraising and town funds	N	Mitigation / Prevention / Maintenance
Invasive Species, High Wind, Ice	Tree along roadways are especially vulnerable to high winds and invasives and need to be monitored.	GMP tree inventory of dead trees that would potentially take out power lines.	**GMP** and Road Foreman	Yearly in Spring	Town Funding & PPP	Y	Mitigation/Prevention/Maintenance
Wildfire	Trees growing close around structures presents opportunities for wildfire spread	Encourage residents and business owners to create defensible space around structures by removing or reducing flamable vegatation. Create or obtain flyer and distribute at Town Meeting and at Town Office	**Town Clerk**, Selectboard, Emergency Committee	Yearly	Town Funding	N	Mitigation/Preperation
Invasive species / High wind / Ice	Vulnerable trees near power lines is a leading cause of power outages.	Replace ash trees and any unhealthy trees with lower growing trees along power lines.	**GMP** and Tree Warden	Within the 5-year planning cycle	GMP and town funds	Y	Mitigation / Prevention / Maintenance

Education and Awareness Programs							
HAZARD(S) ADDRESS-ED	**ISSUE/ CONCERN**	**ACTION DESCRIPTION / CURRENT STATUS**	**RESPON-SIBLE ENTITIES (Lead party in bold)**	**TIME-FRAME**	**POTENTIAL FUNDING**	**Community Lifeline Connection Y/N**	**MITIGATION / PREPARED-NESS / PREVENTION / MAINTENANCE**
All Hazards	Awareness of hazards including: flooding, fluvial erosion, ice jams, ice, snow, high wind, heat, drought, cold, hail, and landslides.	Update EC page on the town website to house emergency related educational materials, including a list of items to have in case of emergency.	**EMD** and Town Website Administrator	By the end of 2026	Town funds	Y	Preparedness / Prevention
All Hazards	Training is the first step in successful hazard mitigation. Providing more trainings to town officials and volunteers will help during an emergency situation.	Provide training opportunities to Town officials and volunteers	**EMD,** WRC	Continuous, begin 2025	Town Funds, Grants, Scholarships		Preparedness/Prevention, Maintenance
All Hazards	EMD needs to be able to communicate with residents during all hazard events.	EMD will work with VEM to understand VTAlert sign-up rate in town and make flyers available on EC Page	**EMD**	By the end of 2026	Town funds	Y	Preparedness
All Hazards	Residents needs are constantly changing and need to be monitored to maintain an effective database.	Town-wide survey to discover who needs to be checked on during disasters and those who can help with equipment or time during disasters	**Emergency Committee**	Yearly as scheduled by EC	Town Funding & Volunteers	Y	Preparedness
All Hazards	Residents needs are constantly changing and need to be monitored to maintain an effective database.	Distribute Emergency Preparedness booklets from DEMHS to residents at Town Meeting and make available at the town office.	**Emergency Committee**	1 time per year distribution and always available at the Town Office	Volunteers from the Emergency Committee and Town Funds	Y	Preparedness
All Hazards	Educating residents about natural hazards should be a continues effort in order to prepare them for hazard impacts	Publish biannual article in the Athenian addressing disaster prevention through awareness of residents.	**Emergency Committee**	Twice per Year	Volunteers from the Emergency Committee and Town Funds		Preparedness

Mitigation Action Evaluation

For each mitigation action identified above, the Hazard Mitigation Planning Team evaluated its potential benefits and/or likelihood of successful implementation. Each action was evaluated against a broad range of criteria, including a planning level assessment of whether the costs are reasonable compared to the probable benefits. Results of this evaluation are presented in the table below.

Note that the Town will make every effort to maximize use of future Public Assistance Section 406 Mitigation opportunities when available during federally declared disasters.

Action Evaluation Criteria:

- Life Safety – How effective will the action be at protecting lives and preventing injuries?
- Property Protection – How effective will the action be at eliminating or reducing damage to structures and infrastructure?
- Technical – Is the mitigation action a long-term, technically feasible solution?
- Political – Is there overall public support/political will for the action?
- Administrative – Does the community have the administrative capacity to implement the action?
- Other Community Objectives – Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation?

Each of the above criteria is ranked with a -1, 0, or 1 using the following table:
1= Highly effective or feasible
0 = Neutral
-1 = Ineffective or not feasible

Estimated Cost:
1 = less than $50,000;
2 = $50,000 to $100,000;
3 = more than $100,000

C/B – Are the costs reasonable compared to the probable benefits? Yes or No

Local Plans and Regulations										
Hazards Addressed	**ACTION DESCRIPTION**	**Life Safety**	**Prop Protect**	**Tech**	**Political**	**Admin**	**Other Obj**	**Benefit Score**	**Est Cost**	**C/B**
All Hazards	Digitizing the town records (covering 50 years) is a goal of the town to ensure their perpetuity.	0	0	0	1	-1	0	**0**	1	n
Inundation Flooding & Fluvial Erosian	Develop flood hazard bylaw and join NFIP	1	1	1	-1	-1	1	**2**	1	y

Structure and Infrastructure Projects										
	ACTION DESCRIPTION	**Life Safety**	**Prop Protect**	**Tech**	**Political**	**Admin**	**Other Obj**	**Benefit Score**	**Est Cost**	**C/B**
Inundation Flooding, Snow, Ice, Hail, Wildfire, Extreme Heat/Cold, Earthquake	Properly outfit the Community Center to the specifications of a Red Cross shelter, and to store the EC trailer	1	1	1	1	1	1	**6**	3	y
Inundation Flooding, Snow, Ice, Hail, Wildfire, Extreme Heat/Cold, Earthquake	Impreove the resiliency of the Community Center	1	1	1	1	0	1	**5**	3	y
Inundation Flooding & Fluvial Erosian, Snow and Ice	Scoping Study to identify alternatives to replace structures and mitigate flood damage funded through VTrans TAP program is expected to be complete late winter of 2025, Actions include replacing Ober Hill Road bridge (structure b-11), raising and realigning Ober Hill Road, and additional culvert replacement within project area as necessary depending on final recommendations of scoping study.	1	1	1	1	0	1	**5**	3	y
Inundation Flooding & Fluvial Erosian, Snow and Ice	Upgrade Town Culvert on Route 35. Culvert # 66,65,34A,34,22	1	1	1	1	1	1	**6**	2	y
Inundation Flooding & Fluvial Erosian, Snow and Ice	Upgrade Town Culvert on Reed Road. Culvert # 34,33,23,22,21,13,9	1	1	1	1	1	1	**6**	2	y
Inundation Flooding & Fluvial Erosian, Snow and Ice	Upgrade Town Culvert on Brookline Road. Culvert #2,22,24,28,29,30,40,41,54,55,56	1	1	1	1	1	1	**6**	2	y
Inundation Flooding & Fluvial Erosian, Snow and Ice	Upgrade Town Culvert on Valley Cemetary Road. Culvert #4,9,11,12,14,16	1	1	1	1	1	1	**6**	2	y
Inundation Flooding & Fluvial Erosian, Snow and Ice	Upgrade Town Culvert on Valley Cemetary Road. Culvert #3,6	1	1	1	1	1	1	**6**	2	y
Inundation Flooding & Fluvial Erosian, Snow and Ice	Maintain Emergency Shelter/Supplies/Trailer	1	1	1	1	1	1	**6**	2	y
Inundation Flooding & Fluvial Erosian, Snow and Ice	Upgrade Town Culvert on Valley Cemetary Road. Culvert #3,6	1	1	1	1	1	1	**6**	2	y

Natural Systems Protection and Nature-based Solutions										
	ACTION DESCRIPTION	**Life Safety**	**Prop Protect**	**Tech**	**Political**	**Admin**	**Other Obj**	**Benefit Score**	**Est Cost**	**C/B**
Invasive Species	Improve outreach efforts and contact interested people within Athens and surrounding towns. Occasionally bring in experts to educate the group.	0	0	0	1	1	1	**3**	1	y
Invasive Species, High Wind, Ice	GMP tree inventory of dead trees that would potentially take out power lines.	0	0	0	1	1	1	**3**	1	y
Invasive Species, High Wind, Ice	Replace ash trees and any unhealthy trees with lower growing trees along power lines.	0	1	1	1	0	1	**4**	2	y

Education and Awareness Programs										
	ACTION DESCRIPTION	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
All Hazards	Update EC page on the town website to house emergency related educational materials, including a list of items to have in case of emergency.	0	1	1	1	0	0	**3**	1	y
All Hazards	Provide training opportunities to Town officials and volunteers	1	1	1	1	1	0	**5**	1	Y
All Hazards	EMD will work with VEM to understand VTAlert sign-up rate in town and make flyers available on EC Page	1	1	1	1	1	0	**5**	1	y
All Hazards	Town-wide survey to discover who needs to be checked on during disasters and those who can help with equipment or time during disasters	1	0	1	1	1	0	**4**	1	y
All Hazards	Distribute Emergency Preparedness booklets from DEMHS to residents at Town Meeting and make available at the town office.	1	1	1	1	1	1	**6**	1	y
All Hazards	Publish biannual article in the Athenian addressing disaster prevention through awareness of residents.	0	0	1	1	1	0	**3**	1	y

Incorporating Mitigation into Other Local Planning Mechanisms

As part of the planning process, local planning mechanisms were reviewed for how well they consider and incorporate the mitigation goals of the 2015 plan. Areas of improvement should be considered when each of these planning tools is updated. The more that tools can align and reflect each other, the more effective the town can be in consideration of hazard mitigation when making choices and decisions. There is no timeframe set for updating the below referenced plans and regulations, however, as each document is updated the hazard mitigation plan will be reviewed for incorporation. Athens has not until recently had any other planning mechanisms and technically as of this draft still doesn't. Athens does have in draft for a Town Plan, Flood Bylaws and is pursuing membership in the NFIP. Most of what Athens does is road and culvert maintenance. The road crew updates the Culvert Inventory each year and establishes a work plan based, in part, on the Hazard mitigation plan. This plan draft is much more detailed than previous versions to aid this effort and track progress in a meaningful way. The goals of this hazard mitigation plan will be incorporated in the upcoming town plan update to ensure that emergency preparedness and mitigation planning efforts are considered, with particular attention to furthering the projects in the Mitigation Actions Table herein.

Plans and Studies

Capability	Description	Improvement Opportunity
Town Plan	Plan for coordinated town-wide planning for land use, municipal facilities, etc.	The town plan is currently in draft form and set to be voted on in the coming months. A comprehensive integration of the Local Hazard Mitigation Plan should occur with updates of the Town Plan.
Local Hazard Mitigation Plan (LHMP)	Plan that identifies hazards in community and proposes actions to reduce or eliminate risk to people, property, and the natural environment.	Plan has a 5-year lifespan. Maintaining an up-to-date plan keeps the town eligible for FEMA mitigation grant funding. Review yearly and reference when updating Town Plan.
Stormwater Plan	Plan that identifies stormwater improvements for municipal roads.	Athens does not have a Stormwater Plan

Local Emergency Management Plan (LEMP)	Municipal procedures for emergency response.	Updated yearly. The goal is to complete all LEMP appendices.
Invasive Species Management Plan	Plan that provides guidance on effective management of invasive species.	This has not been done and should be completed.
Culvert Inventory	An inventory of the size, material, condition and location of culverts. Updated annually by Public Works Department.	None identified. Culvert Inventory last updated in 2024.
School Emergency Response Protocol	School procedures for emergency response	There are no schools in Athens.

Administrative Capacity and Capability

Capability	Description	Improvement Opportunity
Emergency Management Director	Prepares plans and procedures for responding to natural disasters other emergencies and leads response efforts.	None identified
Planning Commission	Municipal body responsible for planning for the community, including maintaining the town plan, zoning bylaws, and subdivision regulations.	Could be trained on Hazard mitigation issues and best practices.
Development Review Board	Municipal body responsible for evaluating and deciding on proposed development.	No DRB in Athens
Zoning Administrator	Administrative officer responsible for administering zoning bylaws.	No ZA in Athens.
Tree Warden	Responsible for trees on public property, including town properties, schools, and within public right-of-way.	Provide trainings and resources to Athens residents. Could have a web presence for these types of resources.
Selectboard	Legislative body of the town for all purposes required by the state.	None identified.
Mutual Aid Agreements – Emergency Services	Agreement for regional coordinated emergency services.	None identified. SWNH Dispatch for fire and rescue dispatch – written agreement/contract; Contract part-time with the County Sheriffs Dept; State police are backup
Mutual Aid Agreements – Public Works	Agreement for regional coordinated emergency highway maintenance services.	None identified.
VEM Training	Training provided by state to ensure emergency responders are adequately prepared to respond to emergency incidents.	Identified as an action item in LHMP
Highway Department	Municipal department responsible for overseeing all aspects of municipal road network, including maintenance and construction.	None identified
Town Clerk & Treasurer	Responsible for receiving and recording town archives, recording deeds, filing vital statistics information, running treasury.	None identified

Financial Resources

Capability	Description	Improvement Opportunity
Town Budget	Annual municipal operating budget, approved at Town Meeting	Town has a goal of contributing to pay for mitigation projects, but there is no set annual commitment to do that.
Taxing Authority	Ability to assess and collect property taxes.	None identified

Zoning and Regulations

Capability	Description	Improvement Opportunity
National Flood Insurance Program (NFIP)	Provides ability for residents to acquire flood insurance.	Not part of the program. To improve, become part of the program.
SFHA bylaws	Regulates development in FEMA identified SFHAs.	None adopted. Town is considering these types of regulations.
Zoning	Regulates the development and division of land, standards for site access and utilities	None adopted. Stated goal in the town plan draft to not have zoning.
Building codes	Codes for fire and building safety are in place for multifamily structures and are regulated by the Division of Fire Safety. There are also Statewide Standards for Energy Efficiency and Electrical Safety for buildings.	None adopted in town.
Road Standards	Design and construction standards for roads and drainage systems.	None identified. State road and bridge standards adopted.
Wetland Protections	Protection of environment, water resources, wildlife, biota. Protected by 1990 Vermont Wetland Rules	None adopted.
River Corridor bylaws	Regulates development in River Corridors as identified by Vermont ANR.	None adopted
Sewage Regulations	Regulates on-site sewage systems.	None identified. Governed by state sewage regulations.

Outreach and Education

Capability	Description	Improvement Opportunity
Town Website	Municipal website providing relevant information to residents and businesses about public meetings, resources, etc.	Fill out the EC page with training opportunities, emergency and hazard information.

PLAN MAINTENANCE PROCESS

Yearly Review and Plan Monitoring

Once the plan is approved and adopted, the Emergency Management Director, along with interested and appointed volunteers and stakeholders, will work with the Windham Regional Commission (WRC) or a private consultant to monitor, evaluate, and update the plan throughout the next 5-year cycle. The plan will be reviewed annually after Town Meeting Day at a Selectboard meeting in conjunction with the review of the town's Local Emergency Management Plan (LEMP). This meeting will allow town officials and the public to discuss the town's progress in implementing mitigation actions and determine if the town is

interested in applying for grant funding for projects. In addition to tracking progress in implementing the plan, the EMD will lead town officials in evaluating the effectiveness of the plan in meeting plan goals and reducing vulnerability. WRC will assist with this review if requested by the Town. The plan evaluation will address:

- Progress in implementation of plan actions and goals.
- Discuss the effect of completed mitigation actions and their impact on vulnerability.
- Evaluation of unanticipated challenges or opportunities and their effect on capabilities of the town.
- Evaluation of hazard-related public policies, initiatives and projects.
- How mitigation strategy has been incorporated into other planning mechanisms
- The effectiveness of public and private sector coordination and cooperation.

Progress on actions will be kept track using a "mitigation action tracking table" or another monitoring tool of the Town's choice. There will be no changes to the plan unless deemed necessary by the Town, and if so, the post disaster review procedure will be followed.

Five-Year Update Process

Hazard mitigation planning is dynamic with changes in land use, changes caused by events, and the effects of climate change. To ensure that the Town maintains a current and relevant LHMP, it is important that it undergo a major update periodically as required in 44 CFR § 201.6(c)(4)(i). This update process will be thorough and occur at least every five years, and will include an evaluation, incorporate any new requirements that FEMA has set, and account for changes in the Town. To ensure funding for this comprehensive update, the Town should be applying for FEMA funding at the 2½ year point. Awarded grants can be put out to bid using the Town's procurement rules and a Consultant hired to assist with the following procedure[16]:

1. The Emergency Management Director (EMD) will gather a team to serve as the Planning Team. Members may include: Selectboard members, Fire Chief and fire personnel, Zoning/Floodplain Administrator, Constable or Police Chief, Road Commissioner/Foreman, Planning Commission members, Town Health Officer, prominent business owners, longtime residents, impacted residents, and any interested stakeholders, etc.

2. The Consultant will guide the Team through the evaluation and update processes. These processes will include advertised public meetings. The update will address:
   - Incorporating hazard events that have occurred since the last plan update.
   - Changes in community and government processes which impact hazard response.
   - Community growth and development trends and their impact on vulnerability.
   - Incorporation of new mitigation actions and goals.
   - Impacts of climate change on the locality.

3. From the information gathered, along with data collected, the Consultant will prepare the updated draft in conformance with the latest *Local Mitigation Plan Review Tool* and *Local Mitigation Planning Policy Guide* developed by FEMA.

4. The Town will have a chance for an internal review of the draft Plan update and changes will be incorporated. Emphasis in plan updates will be put on critically looking at how the plan can become more effective at achieving actions and meeting goals.

5. The draft Plan will then be made available for public comment and advertised locally. The draft Plan will simultaneously be distributed for review and comment to adjacent towns and entities serving vulnerable populations within the town or regionally. Comments will be addressed and a final draft will be developed.

[16] Towns can also choose to use funding in-house to develop their LHMP without outside assistance.

6. The final draft Plan will be provided to Vermont Emergency Management (VEM) for their review. Any received comments that need addressed for Plan compliance will be addressed and revised draft submitted back to VEM.

7. Once VEM designates the Plan 'approved pending adoption' the Consultant will inform the Town that the Plan is ready for adoption. The adopted Plan will be submitted to VEM and FEMA. FEMA will issue notice of 'final approval' and set the date that an updated LHMP needs to be complete in order to maintain having a compliant plan in place.

Post-Disaster Review/Update Procedure

Should a significant disaster event occur, a special review by the town's Planning Team should occur in regards to the LHMP within 6-months of the event. This review will serve to document the facts of the event and assess whether completed mitigation actions effectively lessened town damages. Newly needed mitigation projects will be discussed and placed on the town's mitigation action tracking sheet to ensure they are considered for the next plan update and/or pursued prior. An 'After-Action Report' will be distributed to the Team to the Selectboard for their awareness. The Report should note whether the Plan needs to be amended. If the Team determines that modification of the plan is needed, then the Team drafts an amended Plan based on the recommendations. VEM can be consulted for guidance during this process. The amended plan will need to be re-reviewed and adopted as in the Plan update process discussed above.

Ongoing Public Participation

Maintenance of this Plan and support on the implementation of the stated mitigation actions is a smooth process when there is continued participation of community members. To keep the public engaged in hazard mitigation efforts, the Town proposes to do the following:

- Provide engaging hazard mitigation information at Town Meeting, including education about individual and family resiliency measures.
- Yearly review and tracking of progress on mitigation actions using a tracking tool. This should be done at a Planning Commission or Selectboard public meeting and with the participation of Team members that helped in Plan development.
- Post the Plan on the town website for public access and share pertinent hazard related information on the Town website, Town sponsored social media, and at local public notice locations.

This Plan is a tool to promote hazard mitigation discussions with the goal of leading to actions that increase resiliency and lessen or eliminate hazard impacts.

APPENDIX

1. Mitigation Action Tracker
2. Update on Mitigation Actions identified in the prior Hazard Mitigation Plan
3. January 23, 2025 Meeting flyer and agenda
4. January 23, 2025 Meeting sign-in sheet
5. Email sent to all Town newsletter recipients
6. Email sent to adjacent towns for comment on the draft plan
7. Email sent to frontline organizations for comment on the draft plan
8. Flyer advertising availability of Draft Hazard Mitigation Plan for public comment
9. Public and Town comments received

1. Mitigation Action Tracker

Local Plans and Regulations							
HAZARD(S) ADDRESSED	**ISSUE/ CONCERN**	**ACTION DESCRIPTION / CURRENT STATUS**	**RESPON-SIBLE ENTITIES (Lead party in bold)**	**TIME FRAME**	**POTENTIAL FUNDING**	**Community Lifeline Conne**	**MITIGATION / PREPAREDNESS/PREVENTION/MAI**
All Hazards	Paper records are vulnerable to destruction by a variety of hazards	Digitizing the town records (covering 50 years) is a goal of the town to ensure their perpetuity.	**Town Clerk**	by 203	Town funds	N	Mitigation / Prevention
Inundation Flooding & Fluvial Erosion	The town and its residents are not accessing the full amount of potential reimbursements/discounts at the state and federal level.	Develop flood hazard bylaw and join NFIP	**Selectboard**	by 2027	Town Funds / FEMA Grant		Preparedness
HAZARD(S) ADDRESS-ED	**ISSUE/ CONCERN**	**ACTION DESCRIPTION / CURRENT STATUS**	**RESPON-SIBLE ENTITIES (Lead party in bold)**	**TIME-FRAME**	**POTENTIAL FUNDING**	**Community Lifeline Connection Y/N**	**MITIGATION / PREPARED-NESS / PREVENTION / MAINTENANCE**
Invasive Species	The CC currently does annual removals, but wants to improve attendance and increase frequency of events. They also want to educate themselves to improve strategy of removal and disposal.	Improve outreach efforts and contact interested people within Athens and surrounding towns. Occasionally bring in experts to educate the group.	**Tree Warden**	Hold events in spring and fall starting in 2025,	Fundraising and town funds	N	Mitigation / Prevention / Maintenance
Invasive Species, High Wind, Ice	Tree along roadways are especially vulnerable to high winds and invasives and need to be monitored.	GMP tree inventory of dead trees that would potentially take out power lines.	**GMP** and Road Foreman	Yearly in Spring	Town Funding & PPP	Y	Mitigation/Prevention/Maintenance
Invasive species / High wind / Ice	Vulnerable trees near power lines is a leading cause of power outages.	Replace ash trees and any unhealthy trees with lower growing trees along power lines.	**GMP** and Tree Warden	Within the 5-year planning cycle	GMP and town funds	Y	Mitigation / Prevention / Maintenance

Structure and Infrastructure Projects							
HAZARD(S) ADDRESS-ED	**ISSUE/ CONCERN**	**ACTION DESCRIPTION / CURRENT STATUS**	**RESPON-SIBLE ENTITIES (Lead party in bold)**	**TIME-FRAME**	**POTENTIAL FUNDING**	**Community Lifeline Connection Y/N**	**MITIGATION / PREPARED-NESS / PREVENTION / MAINTENANCE**
Inundation Flooding, Snow, Ice, Hail, Wildfire, Extreme Heat/Cold, Earthquake	Moving or creating an emergency shelter is a big task that requires a high degree of planning and coordination.	Properly outfit the Community Center to the specifications of a Red Cross shelter, and to store the EC trailer	**Community Center Committee,** Selectboard	2025-2030	Town Funds, Grants, State Funds	Y	Preparedness
Inundation Flooding, Snow, Ice, Hail, Wildfire, Extreme Heat/Cold, Earthquake	The community center is a tremendous	Improve the resiliency of the Community Center	**Community Center Committee,** Selectboard	2025-2030	Town Funds, Grants, State Funds	Y	Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Persistent damages, severe erosion and washouts on Ober Hill Road, and streambank behind town office building including damages Bridge #8, culvert #2 on Brookline Road, Privately owned culvert behind town office building. Contributing to flooding that endangers town office and Athens Community Church/ Emergency Shelter.	Scoping Study to identify alternatives to replace structures and mitigate flood damage funded through VTrans TAP program is expected to be complete late winter of 2025, Actions include replacing Ober Hill Road bridge (structure b-11), raising and realigning Ober Hill Road, and additional culvert replacement within project area as necessary depending on final recommendations of scoping study.	**Road Foremen** w/Contractor Support	Summer 25/Summer 26	HMPG, FEMA BRIC, VTrans Structures or Municipal Highway and Stormwater Mitigation grant.	Y	Mitigation
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Route 35. Culvert # 66,65,34A,34,22	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Reed Road. Culvert # 34,33,23,22,21,13,9	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Brookline Road. Culvert #2,22,24,28,29,30,40,41,54, 55,56	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Valley Cemetery Road. Culvert #4,9,11,12,14,16	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Valley Cemetery Road. Culvert #3,6	Selectboard/**Road Foremen**	As needed and as funds are available	Town Funds / FEMA Grant		Mitigation/Preparedness
All Hazards	Supplies and other shelter materials can become old or out of date and need to be monitored for currency.	Maintain Emergency Shelter/Supplies/Trailer	**Emergency Committee**	Yearly	Town Funds		Preparedness
Inundation Flooding & Fluvial Erosion, Snow and Ice	Some Culverts in town are undersized, outdated or in poor condition.	Upgrade Town Culvert on Valley Cemetery Road. Culvert #3,6	Selectboard/**Road Foremen**	As needed and as funds	Town Funds / FEMA Grant		Mitigation/Preparedness

Education and Awareness Programs							
HAZARD(S) ADDRESS-ED	**ISSUE/ CONCERN**	**ACTION DESCRIPTION / CURRENT STATUS**	**RESPON-SIBLE ENTITIES (Lead party in bold)**	**TIME-FRAME**	**POTENTIAL FUNDING**	**Community Lifeline Connection Y/N**	**MITIGATION / PREPARED-NESS / PREVENTION / MAINTENANCE**
All Hazards	Awareness of hazards including: flooding, fluvial erosion, ice jams, ice, snow, high wind, heat, drought, cold, hail, and landslides.	Update EC page on the town website to house emergency related educational materials, including a list of items to have in case of emergency.	**EMD** and Town Website Administrator	By the end of 2026	Town funds	Y	Preparedness / Prevention
All Hazards	Training is the first step in successful hazard mitigation. Providing more trainings to town officials and volunteers will help during an emergency situation.	Provide training opportunities to Town officials and volunteers	**EMD,** WRC	Continuous, begin 2025	Town Funds, Grants, Scholarships		Preparedness/Prevention, Maintenance
All Hazards	EMD needs to be able to communicate with residents during all hazard events.	EMD will work with VEM to understand VTAlert sign-up rate in town and make flyers available on EC Page	**EMD**	By the end of 2026	Town funds	Y	Preparedness
All Hazards	Residents needs are constantly changing and need to be monitored to maintain an effective database.	Town-wide survey to discover who needs to be checked on during disasters and those who can help with equipment or time during disasters	**Emergency Committee**	Yearly as scheduled by EC	Town Funding & Volunteers	Y	Preparedness
All Hazards	Residents needs are constantly changing and need to be monitored to maintain an effective database.	Distribute Emergency Preparedness booklets from DEMHS to residents at Town Meeting and make available at the town office.	**Emergency Committee**	1 time per year distribution and always available at the Town Office	Volunteers from the Emergency Committee and Town Funds	Y	Preparedness
All Hazards	Educating residents about natural hazards should be a continues effort in order to prepare them for hazard impacts	Publish biannual article in the Athenian addressing disaster prevention through awareness of residents.	**Emergency Committee**	Twice per Year	Volunteers from the Emergency Committee and Town Funds		Preparedness

2. Update on Mitigation Actions identified in the prior Hazard Mitigation Plan

Below is an update on mitigation actions listed in the 2015 Athens Local Hazard Mitigation Plan. The planning participants reviewed these actions and provided an update to WRC at the outset of the Plan update process. Current status is listed here in the last column, and prioritization changes are called out where applicable. Changes in priority are reflected throughout the Plan and in the prioritization of new actions identified.

Action	Information in Hazard Mitigation Plan			
	Responsible Party	Completion Y/N?	Funding Source	Project Priority
Develop flood hazard bylaw and join NFIP to enable residents to have access to discount flood insurance and to get higher ERAF match.	Selectboard / WRC	No, carried over to new Action Table	Dues to WRC or grant funding will pay for technical assistance to accomplish this	High / Mitigation
Two culvert upgrades on Walker Road	Selectboard and Road Foreman	Completed	Federal and State grant	High / Mitigation
Culvert upgrade on Brookline Road at the intersection on Oberhill Road	Selectboard and Road Foreman	Completed	Federal and State grant	High / Mitigation
Culvert upgrade on Brookline Road in the area of Hedgehog	Selectboard and Road Foreman	Unsure if completed. Several culverts in the area. Unclear which culvert this action meant.	State grant	High / Mitigation
Develop culvert inventory / update from 2003 and share data with WRC.	Road Foreman / WRC	Complete. Last updated in 2024. Ongoing process with WRC.	Town General Fund and WRC dues	Medium / Mitigation
Emergency Committee will maintain the emergency shelter	Emergency Committee	Continues to monitor and maintain shelter.	Volunteers from the Emergency Committee and Town General Fund	High / Preparedness
GMP tree inventory of dead trees that would potentially take out power lines.	GMP and Road Foreman	Unsure if completed or if GMP maintains or continues inventory. Carried over to new Action Table	GMP (Green Mountain Power)	Medium / Preparedness and Mitigation
Install dry hydrant on Reed Road	Town Officials	Complete	Town General Fund	High / Preparedness and Mitigation

Town-wide survey to discover who needs to be checked on during disasters and those who can help with equipment or time during disasters	Emergency Committee	Yes – Happens every other year	Volunteers from the Emergency Committee and Town General Fund	High / Mitigation
Distribute Emergency Preparedness booklets from DEMHS to residents at Town Meeting and make available at the town office.	Emergency Committee	Has happened in the past. Unsure if continuous	Volunteers from the Emergency Committee and Town General Fund	Low / Mitigation
Publish biannual article in the Athenian addressing disaster prevention through awareness of residents.	Emergency Committee	Has happened in the past. Unsure if continuous	Volunteers from the Emergency Committee and Town General Fund	Low / Mitigation

3. January 23, 2025 Meeting flyer and agenda

Athens Hazard Mitigation / Resiliency Plan
Public Meeting Announcement

Date: Thursday, January 23

Time: 6:00-7:00 PM

In Person at Community Center: 28 Brookline Road

Help update Athens's Local Hazard Mitigation Plan! What actions can the town take now to lower vulnerability to flooding, fluvial erosion and invasive species?

For more information, contact
Michael McConnell at 802-257-4547 x110 or
mgm@windhamregional.org

WINDHAM REGIONAL COMMISSION

AGENDA FOR TODAY'S MEETING

1. Update of the Athens Local Hazard Mitigation Plan
- Purpose
- Process

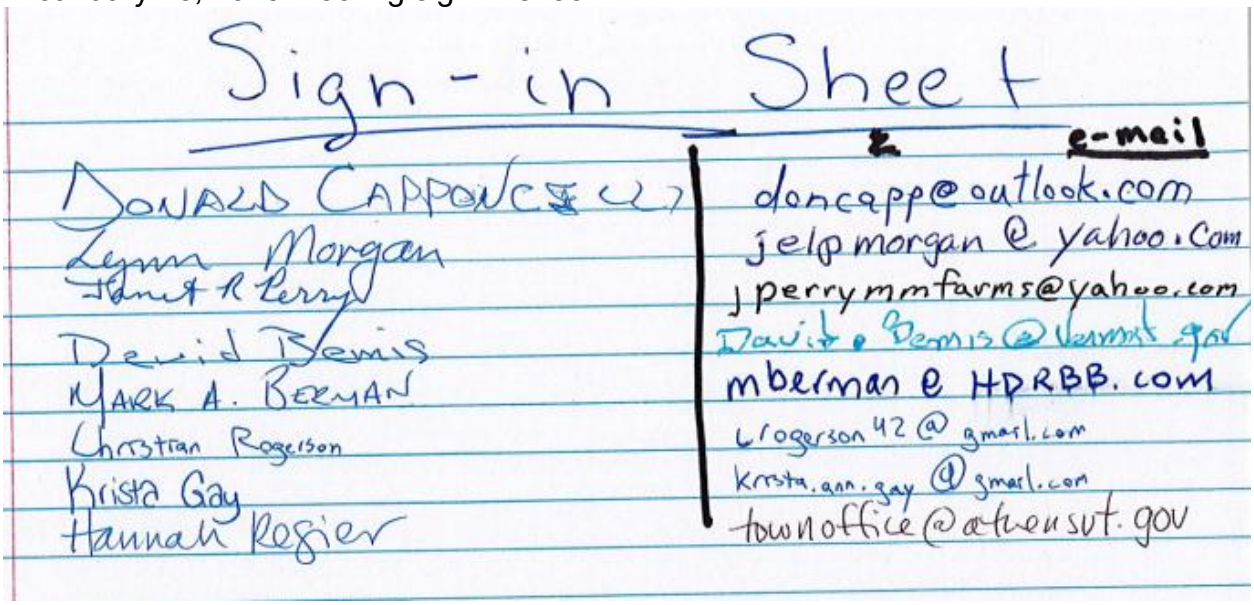
2. Hazards
- Brief review of existing Athens Local Hazard Mitigation Plan
- Discuss hazard events that have occurred since the last Plan and particular locations of concern from attendees
- Hazard Ranking Process

3. Mitigation Goals and Actions
- Review Mitigation Goals
- Create an updated Mitigation Actions Table for the updated Plan
- Identify gaps and capabilities with implementation

4. Other Updates
- Discuss recent mitigation work completed by the town
- Discuss development trends- new developments, upcoming developments
- Overall resiliency concerns or ideas

5. Next Steps

4. January 23, 2025 Meeting sign-in sheet



5. Town email sent from the Town Clerk to all Town newsletter recipients

To 'Sherry'; 'Hannah Regier'
Cc 'The Athenian'; 'Mark Berman'; 'Ginger Maciejowski'

Wed 2/26/2025 1:29 PM

Sherry,
This is a bit expanded from what I had sent in earlier.

"Athens Local Hazard Mitigation Plan (LHMP) has been under review for the past several months by the Windham Regional Commission with help from town staff and a dedicated group of volunteers. An LHMP documents natural hazards potentially impacting Athens, gives general information about them and ways that the town can mitigate the impacts. Some examples of hazards profiled in the plan are flooding, extreme winter storms, drought, wildfire and invasive species. This project was long overdue and is made possible by a grant from Vermont Emergency Management. .

There isn't a requirement to have an LHMP, but it benefits the town in a variety of ways including increasing the state reimbursement percentage after declared disaster events, eligibility for mitigation grants and providing town officials with a series of mitigation actions to achieve town goals.

The Plan is now in preliminary draft form and out for public comment Please submit comments on the draft by 3/11/25 for consideration. Comments can be submitted to Mike McConnell at mgm@windhamregional.org or by calling 802-257-4547 ext. 110."

Mike McConnell
Senior Planner
Windham Regional Commission
193 Main Street, Suite 505
Brattleboro, VT 05301
Phone: (802) 257-4547 Ext 110
www.windhamregional.org

6. Email sent to adjacent towns for comment on the draft plan

From: Mike McConnell <mgm@windhamregional.org>
Sent: Wednesday, February 26, 2025 10:02 AM
To: Mike McConnell <mgm@windhamregional.org>
Subject: Athens LHMP Review

All,
You are receiving this email because you are or were an EMD in a town that borders Athens. The preliminary draft of the Athens Hazard Mitigation Plan is available for comment on the Athens town website. www.Athensvt.com. If you are no longer the EMD please let me know and I will find an alternate contact and update our records.

If you have comments, please submit them to me no later than 3/11/25. If you have questions about the draft, your potential role or anything else related to the LHMP draft, please let me know.

Thanks,
Mike

Mike McConnell
Senior Planner
Windham Regional Commission
193 Main Street, Suite 505
Brattleboro, VT 05301
Phone: (802) 257-4547 Ext 110
www.windhamregional.org

7. Email sent to frontline organizations for comment on the draft plan

Bcc 'Hannah Regier'; 'info@seniorsolutionsvt.org'; 'info@moover.com'; 'info@brattleborohospice.org'; 'sevca@sevca.org'; 'vnh@vnhcare.org'; 'advocates@womensfreedomcenter.net'; 'info@vermont211.org'

To Whom it May Concern,

This email is to let you know that a draft of the Athens Local Hazard Mitigation Plan is now available for review and comm

As a frontline service provider in the region, potentially serving clients in Athens we wanted to make you aware of this op that could impact your clients. Please visit the towns website above to comment on the plan itself. You can visit the Windl state emergency management page for more information on what hazard mitigation is and how it impacts area residents.

If you have any questions or wish to submit a comment, please contact me either via this email or at the phone number b

Thanks,
Mike

Mike McConnell
Senior Planner
Windham Regional Commission
193 Main Street, Suite 505
Brattleboro, VT 05301
Phone: (802) 257-4547 Ext 110
www.windhamregional.org

8. Flyer advertising availability of Draft Hazard Mitigation Plan for public comment

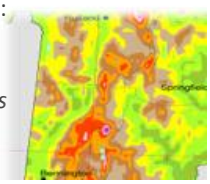
Halifax Hazard Mitigation Plan
Public Comment Period

The Athens LHMP is in *preliminary draft* form and we are soliciting comments from frontline orgs, neighboring towns and the general public for possible inclusion into the plan document

A LHMP profiles natural hazards that could impact Athens in the future, provides commentary on the impacts and potential mitigation actions.

Benefits of this plan are, but not limited to:

Increased state funding
Eligibility for state/federal grants
Increased preparedness for natural hazards
Pathway for mitigation planning efforts



Send in a comment to mgm@windhamregional.org

*Please submit comments no later than 3/11/25

Plan is available at www.athensvt.com

9. Public and Town comments received

1 comment was received and is show below.

Hi Mike,

I skimmed through the draft report for Athens; I think you all have done a nice job. I just pointed out two things:

1. On Page 17, the steep part of Walker Road is the northern end of the road. I noticed that the bottom half has a red box. Maybe I misunderstood what was being outlined there, but just thought I'd mention that. I live on that road, so it just popped out to me!
2. On page 38, the timeframe for the first item is cut off. Seems to just be a formatting error.

I sent the report over to Bill Kearns, one of our Deputy EMDs. Grafton is also working on our LHMP so I sent it to our consultant to see if she has any thoughts. If so, I will pass them along to you.

Thank you!
Morgan

10. Emergency Committee Protocols

ZONES OF RESPONSIBILITY

(updated February 7, 2024)

Don Capponcelli (869.2590 142 Reed Rd.): Reed Road

Cheree Alsvig (802.428.3016) & Justin Stearns (802.591.0560 24 Reed Rd.): Ernst & McCusker & Walker Roads, Rt. 35 from Walker Rd to Townshend town line.

Tim Stevenson & Sherry Maher (869.2141 230 Rt 35): Rte 35 from Walker Rd. to Grafton town line; Herring Hill Rd. & upper Mill Hill, Meetinghouse Rd.

Bonnie Hitchcock (869.2503 57 Taylor Hill): Brookline Rd. from 35 to junction of Valley Cemetery, Taylor Hill, Ober Hill, Grout Rd.; Miller Rd. and lower Mill Hill.

Lynn Morgan (869.2227 250 Brookline Rd.): Brookline Rd from Valley Cemetery Rd to Brookline town line; Sam Farr & Whitney Rds

David Burns (869-6354 92 Valley Cemetery Rd.): Valley Cemetery Rd.

Athens Emergency Committee

EMERGENCY PROTOCOL

(updated Nov 6 , 2023)

(NOTE: Don is Assistant Emergency Management Director, all info should flow through him, and he disseminates to others)

(1) Pre-Emergency:

- **Tim** does pre-event check in with Committee members as to where each is going to be the next 24 - 48 hours and informs **Don (Asst. EMD)**

- **Don (Asst EMD)** communicates with Select Board Chair & Road Foreman on eve of storm
- **Don & Tim** confer on preparations for opening shelter and moving trailer.
- **Don** informs **David (Chair/EMD)** about shelter opening preparations
- **Tim (Shelter Manager)** contacts **Bonnie** on eve of the storm to move the trailer to the Town Office parking lot positioned along back for ease of unloading. **(Church) Justin** is backup
- Pre-event check of church **Don or Lynn w/ Pastor (Asst. EMD, Pet Shelter, Church)**
- **One radio in the Town Office; Cheree (Radio Manager) Bonnie (assistant) are our radio team.**
- **Tim & Sherry (Shelter Managers) activate Town Office**

(2) Event

- Should you become aware of a weather emergency event, assess the incident and report to rest of committee.

- Resident in need calls one of us; person who gets the call assesses the need and asks the following questions:

  a. Name, location & phone: **LOG IT**
  b. What is the nature of the emergency? If this is a 911 emergency, tell person to call 911
  c. Do you have power? If not, how long has it been out? Have you called Green Mountain Power?
  d. Do you have a heat source?
  e. Do you have a health condition or medical equipment requiring power?
  f. Is your home accessible by road?
  g. Do you have pets or livestock? If so, what type (companion animals vs livestock, including horse)? If they have companion animals, do you have a safe place where your pets can be relocated? If not, do you need assistance finding an option to temporarily house your animals? If you have livestock, do you have a safe place and transportation to relocate your animals? If not, do you need assistance from the Agency of Agriculture **INSERT PHONE NUMBER** to move and/or shelter your livestock?
  h. Can you get to the church if we open the Shelter?

  i. Sit tight and stay by the phone while we assess the level of need in town and what resources are available in addition to the Shelter.

- Communicate with **Don (Asst. EMD**; if he is away, call **Tim/Sherry**.
- Basic Question: Can need be met through volunteer list ? **(NOTE: Volunteer list last updated 2022 in Google folder) MAKE FUNCTIONAL COPIES**
- If the need cannot be met, call the Red Cross **(603.236.2630)** to alert them and see if they have resources to meet the need OR where are other shelters.

- If Red Cross cannot meet need, Emergency Committee determines if need warrants opening Shelter for either warming/cooling or full shelter use, makes decision to open the Shelter, in consultation with **Emergency Management Director** (**David Bemis**) and his assistant **(Don)**

(3) Decision NOT to open Shelter

- We contact a community volunteer who is willing to provide shelter for people (and pets if needed) then get back to individual in need
- Or direct individual to other area shelters.

(4) Decision to open Shelter

- If opened, **Don (Asst EMD)** tells **Tim (Manager)** who gets staff on board
- Call **Pastor Noyes** (**Church**) to arrange for walk through of church **(Don, (Asst EMD)**
- Open trailer and move supplies to the shelter **(Shelter Staff)**
- Set up cots, blankets supplies **(Shelter Staff)**
- **Don** or Sherry opens the Town Office
- **Get** the AEC box **(Tim)** & distribute walkie-talkies (**Bonnie)**
- Notify Waterbury EOC (**Cheree/Bonnie, Radio)**
- **Lynn,** sets up **Pet Shelter, if needed.**
- Inform State Police, Sheriff, & SW New Hampshire Mutual Aid & Notify Red Cross that we're opening shelter **(Tim & Sherry, Managers; Cheree, Radio) numbers listed at end of document**
- Cover Town Office phone **(Tim, Manager; Cheree, Radio)**
- Assess the need for ordering water, food, port-a-potty, etc. **(Tim, Sherry, Managers)**
- Get food & water, **(Shelter Staff)**
- Set up registration **(David & Justin Registers)**
- 511VT.com for updated road conditions **(Cheree, Radio)**
- Shelter operation will be turned over to Red Cross if/when it can assume responsibility

(5) Shelter Managers' Responsibilities (Tim & Sherry, Managers)

- Get food, water, set up cots as needed.
- Contact Red Cross
- Plan staffing needs for 48 hours
- Keep shelter clients updated about disaster
- Maintain log
- Routinely inspect safety and sanitation of facility
- Close the shelter with staff

- MOUs are in Emergency Box

(6) Shelter Staff Responsibilities

- Managers: **Tim & Sherry (Manager)**
- Media/Information (Home Base): **Tim (Manager); Don (Asst. EMD)**
- Pet Shelter Coordinator **(Lynn & Lynn's neighbor & Bonnie as back up)**
- Registration**: David & Justin** (**Registesr)**
- Kitchen Manager: **David (Kitchen)**
- Radio: **Cheree (Radio Coordinator) & Bonnie (assist)**
- Security: **Cheree & Justin (Security)**
- Counselor: **Pastor Noyes (Church)**
- Float as needed **Bonnie & Justin & Sherry**

(7) Closing the Shelter

- Confirm shelter residents have a place to go and that their basic needs are met **(David & Justin, Register)**
- Complete inventory of all church supplies used: (**Don, David (Asst EMD & Kitchen)**
- Return all borrowed or rented equipment to owners: (**Tim & Sherry (Managers)**
- Arrange for cleaning of church: (**Tim & Sherry, Managers)**
- Closing inspection with Pastor Noyes: **(Don, Lynn (Asst EMD & Pet)**
- Radio Waterbury EOC that we're closing the shelter **(Cheree)**

(8) Post Storm Neighborhood Assessment and Response w/in Zones

- Check in with all people who called during emergency about their status: **Committee Members by Zones)**
- Check in with all **Committee Members** about their zone of responsibility: **Don (Asst EMD)**
- Take information from people who have contacted the Committee to report damage. This information should then be relayed to the WRC and the State. Use state forms. **(Committee members report to Don)**

- Check in with Grafton Fire Dept. if needed as they are a receiving point for emergency supplies. Event will dictate what we will do; we won't be out during the storm; we will respond to needs as indicated by reports from: **Don (Asst EMD)**

(9) POWER OUTAGE EMERGENCIES:

- Committee Members will contact the folks in their Zone of Responsibility after a storm if there appears to be persistent outages **to check on their welfare, and, specifically, if they have heat and water.**
- **Note who has a generator, who is elderly, who may have medical concerns.**

Phone List:

- **Don Capponcelli, 802.869.2590/802.416.1379**
- **Tim Stevenson / Sherry Maher, 802.869.2141**
- **Sherry's cell 802.275.2835**
- **Lynn Morgan, 802.869.2227**
- **Cheree Alsvig, 802.428.3016 869-2491**
- **David Burns 869.6354/631.793.0493**
- **Bonnie Hitchcock - 802.869-2503**
- **Justin Stearns - 802.591.0560 869-2491**
- **David Bemis, 802.869.3268, 802.376.9832**
- **Matt Perry (H) 869.1153; (G) 869.3312**
- **Pastor Harold Noyes, 869.2513**
- **Hannah Regier - 869-2145**
- **Red Cross - 603.236.2630**
- **State Police - (Rockingham Barracks) 802.722.4600**
- **Windham County Sheriff - 802.365.4942**
- **SW NH Mutual Aid - 603.352.1100**
- **Grafton Fire Chief (Robbie Sprague) - 802.384.2288; 802.843.2288**