LOCAL HAZARD MITIGATION PLAN

TOWN OF MIDDLEBURY, VERMONT

2024

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1 INTRODUCTION

Natural and human-caused hazards may affect a community at any time; they are not usually avoidable, however, their impact on human life and property can be reduced through community planning. The goal of this Plan is to help the community identify risks and provide local mitigation strategies it can take to make Middlebury more disaster resilient and ensure the continuity of government and emergency services.

Hazard mitigation is an action taken to reduce or eliminate the long-term risk to human life and property from both natural and man-made hazards. The work done to minimize the impact of hazard events on life and property is called Hazard Mitigation Planning.

The Federal Emergency Management Agency (FEMA), the Vermont Division of Emergency Management and Homeland Security (DEMHS), and local towns have come to recognize that it is less costly to take action to minimize the impact of natural hazards than to repeatedly repair damage after a disaster has struck. Hazards cannot be eliminated, but it is possible to determine what the hazards are, and which are more likely to occur and tend to have the greatest impact on a community. With some research and outreach, a local community can also determine the extent and impact of these hazards and which assets and areas are most at risk. A culmination of these efforts would be to identify what local strategies and actions can be taken to reduce the severity of the hazard and reduce their impacts on the community. This plan recognizes that communities have opportunities to identify mitigation strategies and measures during all of the other phases of emergency management, preparedness, response, and recovery.

Hazard mitigation planning and strategies include the following benefits:

- ***Structural or land improvements***
- ***Increased public education and awareness of hazards***
- ***Altering the hazard area to remove the hazard occurrence***
- ***Reducing the hazard frequency through structure or land treatment***
- ***Increased community support for specific actions to reduce future losses***
- ***Reduction in financial and physical losses caused by hazard events***
- ***Eligibility for hazard mitigation grants and aid***
- ***Strengthened partnerships***

2 PURPOSE

The purpose of hazard mitigation and this plan is to reduce or eliminate long-term risk to people and property from natural hazards and their effects in the Town of Middlebury, Vermont. This plan has been prepared to meet the Disaster Mitigation Act of 2000 (DMA 2000) requirements in order to maintain the Town's eligibility for Federal Emergency Management Agency's (FEMA) Pre-Disaster Mitigation (PDM) and

Hazard Mitigation Grant Programs (HMGP). More importantly, this plan and its planning process lay out the strategy that will enable the Town to become less vulnerable to future disaster losses.

The process examined the recorded history of losses resulting from natural hazards and analyzed the future risks posed to the Town by these hazards. The Town of Middlebury is at risk of several natural hazards that are identified, profiled, and analyzed in the plan.

The plan identifies several mitigation goals and objectives that are based on the results of the risk assessment. The plan includes specific actions that the Town can implement over time to reduce future losses from hazards. The plan also includes a review of the Town's current capabilities to reduce hazard impacts. This plan required review and adoption from the Middlebury Select Board and is required to be updated a minimum of every five years.

3 COMMUNITY PROFILE

Land Use – Land Features - Development Patterns

Middlebury has two village centers, Middlebury Village and East Middlebury, surrounded by dispersed rural development, working farmland and forests. Otter Creek flows north through Middlebury Village and the Middlebury River flows west through East Middlebury before joining Otter Creek, three miles south of the Village.

The Town has a Town Plan, last approved in 2017 but is in the process of being updated, that lays out a vision for future growth and conservation. The Town has adopted zoning by-laws based on past and current plans, to regulate and direct growth into appropriate areas. These zoning bylaws include associated regulations within designated Flood Hazard Areas and Fluvial Erosion Hazard Zones. See Figure 2 – Local Natural Hazards and Critical Infrastructure Map

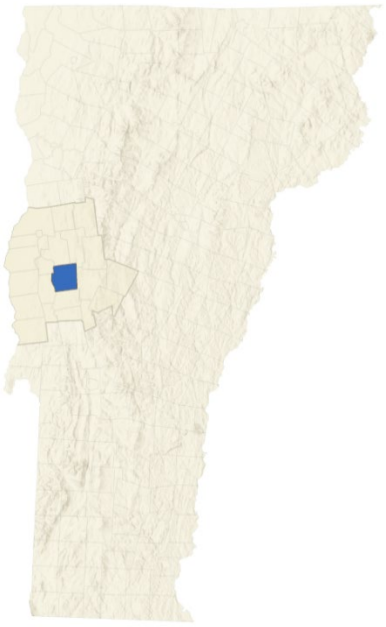


Figure 1 - State Map locating Middlebury

Demographics and Growth Potential

The population in Middlebury, as of the 2020 census, is 9,152, which includes approximately 2,800 resident Middlebury College students, making up nearly 30% of the Town's population. Roughly 62% of homes in Middlebury are single-family units, greater than 30% are multiple-family units and approximately 5% are mobile homes. The total value of the buildings in the Middlebury Grand List is $974,917,600, of which $716,277,800 is taxable. The remaining lands and structures are non-taxable due to non-profit educational and religious exemptions. Middlebury College is the region's largest employer with 1,000 staff and 2,500 students. The College relies upon the Town's emergency response services. Other large businesses in town include Agri-Mark, Inc. DBA Cabot Creamery, Porter Hospital, Wood Chuck Cider Company.

Precipitation and Water Features

According to the National Weather Service the average annual precipitation for the area is 38 inches of rain with June being the wettest month. Average snowfall is around 67 inches.

The town is located within the Otter Creek Watershed of the Lake Champlain Basin. The Middlebury River is a major tributary which runs from Ripton through East Middlebury and into Otter Creek in the southwest corner of the town. It sustains an outstanding natural brook trout fishery and is also stocked. Numerous other smaller tributaries flow directly into Otter Creek. Surface water in the northeast quarter of the town predominantly flows into the New Haven River through a number of small tributaries. The largest of these is the Muddy Branch.

Water and Wastewater

Water is provided by two separate systems – the Middlebury Town Water System for the downtown and portions of outlying areas, and Fire District #1 for much of East Middlebury. Additionally, many Middlebury residents have individual wells or springs. A municipal sewer system supports the village area and a portion of route 7. The town sewers serve a smaller area than that covered by the municipal water system. East Middlebury and most outlying areas are served by individual on-site septic systems.

Transportation

There are five state highways that come together in the Village: Route 7 is the major north/south arterial along the west side of the State and bisects Middlebury; Route 125 traverses the town generally from east to west; Route 116 runs north south at the base of the Green Mountains along the east side of town and Routes 23 and 30 which run northwest and southwest respectively, from Middlebury. There are two major arterial roads that run east and west , Route 125 in East Middlebury and Quarry Road, which carries agricultural and commuter traffic. Route 7 is the alternate route for hazardous materials and oversize transports not allowed on the interstate highway system. Vermont Railway operates rail/freight service through Middlebury multiple times a day. Amtrack has recently started up passenger service again with a morning and evening service. Middlebury also has a state airport located in East Middlebury off of VT 116.

Electric Utility Distribution

Green Mountain Power provides electric service to approximately 4,964 accounts. The average annual outage information between 2018 and 2022 is listed in Table 1

Table 1: Power Outages

Average Annual Outage Data(2018-2022)	
Average number of outages per customer per year	0.88 times per year
Total outage duration per customer	3.33 hours per year
Average length of each outage	3.79 hours per year

Public Safety

The Middlebury Fire Department is a community based, paid on call, volunteer, fire department and is looking to increase its membership. According to the Town's Annual Reports the Fire Department responds to approximately 240 calls annually. Of the 237 fire calls in 2021, 38 were for fire. Examples of the other calls were for hazardous conditions, assist rescue and EMS, severe weather and other service calls.

Middlebury Regional Emergency and Medical Services (MREMS) is a private, non-profit paramedic level ambulance service covering ten towns in Addison County. An all-volunteer organization that provided that averages 3,000 emergency calls a year out of their Middlebury facility.

The Police Service is provided by the Town-operated Middlebury Police Department with 24/7 coverage of the entire town and typically answers from 4500-7000 calls a year.

Emergency Management

The town has an appointed Emergency Management Director and an approved Emergency Operations Plan. The plan includes a preliminary hazards assessment that identifies flooding, aviation accidents, power failures, hazardous materials (transport & fixed site), winter storms and high winds/tornadoes as potential hazards to the community. The areas of the community considered most vulnerable in the plan are the village and community water supplies.

Essential Facilities identified in the Middlebury Emergency Operations Plan include the Town Office Building, Police Station the Fire Department and Department of Public Works as potential emergency operations centers and Middlebury Recreation Center gymnasium and the American Legion as community shelters.

The Town Recreation Center, the primary shelter, now has back-up, generated power on site. The Legion post is also equipped with transfer panels for emergency power and utilize a mobile generator owned by Town stored at Public Works. The Police Department may be used as an emergency short-term evacuation shelter to marshal displaced persons while awaiting primary shelter opening. The police department has full emergency power. The town does not have shelter equipment and must rely on the American Red Cross to provide bedding and other logistical support.

The Police, Fire Departments and Recreation Center are the only town buildings currently equipped with emergency power.

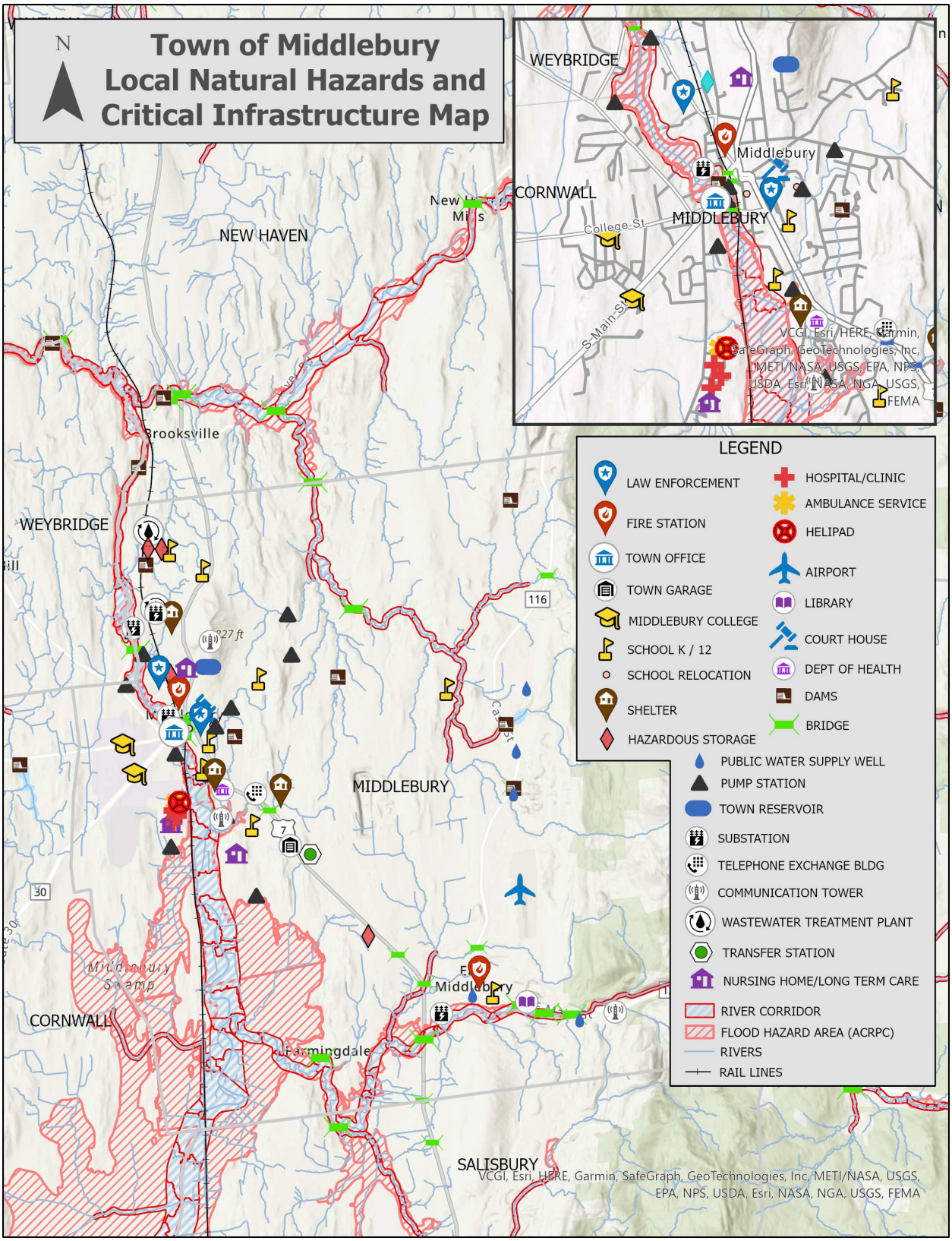


Figure 2 - Natural Hazards and Critical Infrastructure Map

4 Planning Process

Plan Developers

Stephanie Magnan from SEAM Solutions LLC assisted the Town of Middlebury and its Local Hazard Mitigation Planning Committee with updating the Local Hazard Mitigation Plan. In July of 2022, the Committee members (Table 2) were contacted by the Town Planner and requested to participate in the update of the plan and the first meeting was held on August 18, 2022.

The Planning Committee was comprised of Middlebury's emergency services, including fire, police and EMS, the Town Planner, Health Officer, and Addison County Regional Planning Commission. All of these committee members have daily interactions with the community at large.

Fire, police response, dedicated town health officer, new text system for town to use during waterline breaks, etc., fire dept interested in using the text system, right now the town is small enough for door to door, but this is an opportunity to upgrade. During the summer storms of 2023, the volunteer fire department members went to every door in East Middlebury (including mine), letting the community know the river was close to cresting and requested evacuation of properties at the river's edge. This personal visit was helpful for each homeowner to discuss and evaluate their personal situation. For instance, differences in elevation, age, and mobility status, etc. The town does boil water notices in person as well. During covid the police chief utilized the town email list to send out daily updates and communications replicated on Front Porch Forum. The town is small enough that people call the town office directly and speak to the town managers assistant when things happen (e.g. waterline breaks).

The Committee members met periodically to work on tasks outlined in agendas that were either sent out prior to the meeting or appended to the Zoom invite. A meeting schedule was developed, although the public was not included in the monthly meetings, there was ample opportunity for their input through the initial announcement of the plan update, the community survey and concluding with requesting input of the draft plan. (See Appendix D – Meeting Minutes)

Table 2: Planning Committee Members

Local Hazard Mitigation Planning Committee for the Town of Middlebury	
Jennifer Murray – Town Planner	Bill Kernan – Director of Public Works
David Shaw– Fire Chief	Tom Hanley – Chief of Police
Tom Scanlon – Town Health Officer	Kathleen Ramsay – Town Manager
Andrew L'Roe -Addison County Regional Planning Commission	Stephanie Magnan – SEAM Solutions

The committee published the plan update announcement and draft plan for the residents on the Town's website along with posting at various locations throughout town and did not receive any input. The community survey was developed through a series of meetings and once finalized was made available through an announcement on the town's main website page, along with hard copies at the Town Office. There was only one response to the survey, unfortunately this falls in line with past surveys the town has sent out. However the Town resent the survey in June of 2024 and received 21 more responses that, other than transportation, align with the rating of the hazards and future actions to improve the community's

resilience . The town did receive input during the 2024 Town Meeting Day that surrounded recent flooding events and the need for future flood plain considerations.

Various stakeholders also had the opportunity to provide input during the plan update. At the beginning of the plan update process, notification went out via the Town's website along with being posted around the Town Office, distributed through the town email list of over 2, 000 people and on Front Porch Forum. The notification outreach also included surrounding communities including the Town Clerks and Administrators for Bristol, Ripton, and Cornwall. State stakeholders such as Vermont Agency of Transportation (VTrans) District Office, Addison County Regional Planning Commission and River Management Engineer at the Agency of Natural Resources.

Community outreach included Porter Hospital and the Addison County Sheriff's office. Middlebury College and the town have maintained separate emergency response plans; however, the two entities stay in constant contact with each other and go so far as to run joint exercises to practice the plans. Green Mountain Power (GMP) was also included in the outreach as they have an office located in town. The community has immense respect for GMP and the town government has a close knit relationship with them.

Middlebury is the Shire town of Addison County, so there is no shortage of nonprofits providing various services to vulnerable populations. Non-profits such as the United Way of Addison County, Addison County Housing Coalition, Champlain Valley Farmer Coalition, Elderly Services, Inc., the Chamber of Commerce, TriValley Transit and Counseling Services of Addison County were asked to participate in the plan update and draft review as these service providers work closely with the town, and with the police department in particular. (See Appendix A for outreach email) The police department is adept at knowing when and how to make a referral if something (e.g. housing, mental health) is better handled by one of these agencies.

The same outreach was also sought when the update draft plan was submitted to Vermont Emergency Management for their review including. See Appendix A. Town Meeting Day in 2024 gave the community an opportunity to participate in discussions surrounding recent flooding events and future mitigation efforts. The Conservation Commission had a flood damage and restoration table set up at Town Meeting Day. The town also gave a presentation regarding outreach and how to receive up to date information on the website and how to set up notifications on issues or events that might affect the safety of the community such as rising rivers. The Town conducted a lot of outreach via email listserv and door to door knocking, during the flood events in 2023 to help homeowners with the recovery process. There were numerous presentations at the Selectboard meetings where the events were discussed the community had opportunities to discuss the issues at hand. The Town Office has an open door policy, and the community has direct access to speak with individual employees. The Town has learned that the zoning process is an amazing educational opportunity to both developers and the community. At a recent subdivision permit hearing both the Conservation Commission and the Planning Department spoke to the effects of encroachment of the riparian buffer and the differences between the buffer and flood hazard areas.

The Town Manager conducted a public roundtable meeting after the 2023 flooding with downtown businesses to discuss issues around becoming more resilient and mitigate from flooding that is occurring more and more often.

Plan Development Process

The 2024 Local Hazard Mitigation Plan is an update to the 2016 plan which was the first single jurisdiction mitigation plan prior to Middlebury was included in the region's multi-jurisdiction plan. The Town Plan, updated in 2017, added language from the 2016 Local Hazard Mitigation Plan to include a special overlay (zoning map) district for flood and fluvial erosion hazard areas are to be used when considering new subdivisions and developments as was stated as an ability to expand action and long term project in the 2016 LHMP. This zoning map was then adopted by the Select Board and included in the 2022 Zoning and Subdivision Regulations update.

Hazard mitigation planning involves identifying existing policies, tools, and actions that will reduce a community's risk and vulnerability from natural hazards. As such, this plan was coordinated with, and builds off of, other related planning efforts that help reduce hazard losses. The Town of Middlebury uses a variety of comprehensive planning mechanisms, such as a Town Plan, an Emergency Operations Plan and Zoning and Subdivision Regulations to guide growth and development. Integrating existing planning efforts and mitigation policies and action strategies into this hazard mitigation plan establishes a credible and comprehensive plan that ties into and supports other community programs. The development of this plan incorporated information from the following existing plans, studies, reports, and initiatives as well as other relevant data from the region and state. These plans pre-date this plan and are used to illustrate how the community, the Addison region and the State of Vermont have incorporated mitigation into standard planning mechanisms. As planning efforts move forward, this mitigation plan will inform and be integrated into these and other future planning processes and plans.

At the beginning of each town planning process this and future mitigation plans will be used to provide data and policies that will inform the development of all other town plans. The adopted plans, studies, reports, and technical information in Section 6 of this plan relate to hazard mitigation.

Table 3: Plan Development Process

August 18, 2022 – Hazard Mitigation Planning Committee kick-off meeting held. Committee members were discussed and finalized. An overview of the community and government was discussed along with the strategy and approve timeline of the plan development.
September 15, 2022 – Review hazards, initial update of purpose, introduction, and community profile. Defined list of data needs and current list of hazards and discussed aligning with the State Hazard Mitigation Plan.
October 20, 2022 – Reviewed hazard list adjusted to match the State Hazard Mitigation Plan, completed assessment, and ranked. The Committee identified critical facilities.
January 5, 2023 – Reviewed and updated status existing mitigation actions, finalized critical facilities, discussed capabilities and vulnerabilities.
January 26, 2023 – Finalized Community Outreach survey to publish, community capabilities and vulnerabilities
April 13, 2023 – Reviewed mitigation goals from prior plan and completed work on mitigation actions for the next 5 years
April 25, 2023 – Reviewed and added relevant Capital Improvements plans and projects
May 25, 2023 – Final draft review with planning committee, prior to making sure the new requirements of climate change and equitable outcomes language to be added.

August 11, 2023 - Draft LHMP finalized for presentation to the community including the Selectboard and surrounding communities for public input. The Draft plan was distributed via email to the community Emergency Management Directors including ACRPC, VTrans, and the DEC's Regional Flood Manager. Final Draft LHMP submitted to Vermont Emergency Management for Approval Pending Adoption.
October 27, 2023 – Draft plan review completed by Vermont Emergency with required revisions.
March 20, 2024 – Revised draft LHMP submitted to Vermont Emergency Management for review and Approval Pending adoption.
May 22, 2024 – Draft plan review completed by Vermont Emergency with required revisions.
June 11, 2024 - Draft LHMP finalized for presentation to the community including nonprofits that support the community as a whole and especially vulnerable populations.
December 15, 2024 - Revised draft LHMP submitted to Vermont Emergency Management for review and Approval Pending adoption.
January 3, 2025 – Met with Vermont Emergency Management to review the final revision needed.

Table 4: Existing Plans, Studies, Reports and Technical Information

Existing Plans, Studies, Reports and Technical Information	
2022 Local Emergency Management Plan	2017 Town Plan
2018 Zoning and Subdivision Regulations	2016 Local Hazard Mitigation Plan
VTrans Transportation Resiliency Planning Tool	Vermont Statewide Highway Flood Vulnerability and Risk Map
FEMA Flood Insurance Rate Maps	2022 FEMA NFIP Insurance Reports
2018-2022 Green Mountain Power Outage Data	2020 US Census Data
2018 State Hazard Mitigation Plan	2020 American Community Survey Five-Year Estimate
Road Erosion Inventory	National Oceanic and Atmospheric (NOAA) National Climatic Data Center's Storm Events Database
Local Mitigation Planning Policy Guide	OpenFEMA Dataset:Public Assistance Funded Project Summaries for Vermont
FEMA Disaster Declarations for Vermont	Addison County Regional Planning Commission Flood Hazard Area

Changes since the 2016 Plan

Middlebury's 2017 Town Plan "will strike a balance between embracing growth and change while steadfastly preserving the Town's unique historical, cultural, and natural assets. We will use these assets to build a sustainable economy and culture, maintain our quality of life, and ensure the long-term vitality of our community.

The Planning Committee reviewed local plans to ensure any updates or revisions that are relevant to hazard mitigation were incorporated along with any updates to regional, state and federal plans listed in Table 4. This included reviewing the adopted zoning and subdivision reforms that were updated in 2022 , and the 2016 Local Hazard Mitigation Plan, to ensure any relevant revisions have been incorporated in the development of this plan. Middlebury has made progress in completing the mitigation actions identified in 2016 plan, see Appendix C.

Middlebury has gained about 300 residents, a 4% growth, not a huge increase but the Town recognizes, as does the entire state, the need for additional housing. The Town is aware of a balance for the housing need while ensuring these developments will not be vulnerable to the hazards within the town, especially flooding. The zoning and subdivision regulations Section 670 prohibits any new residential or non-residential principal structures from being constructed in both the Special Flood Hazard Areas and in the Floodway and has taken steps towards educating both developers and the community of these hazards as they are reviewing these plans. While this is not necessarily a change in priority but rather focusing

more on the hazards as housing is developed, increasing awareness and decreasing vulnerability to the community.

The Vermont Agency of Transportation (VTranas), in collaboration with the Town of Middlebury, replaced two nearly 100-year old rail bridges in the center of Middlebury with a tunnel in the summer of 2020. The 360-foot tunnel that replaced the Main Street and Merchants Row bridges addresses several deficiencies. The tunnel provides vertical clearance for double-stack rail cars. By lowering the rail bed approximately 4', clearance has increased to 21' without impacting the grade of the road and sidewalks above. The tunnel provides improved rail alignment, softening the rail curve to allow better horizontal clearance for trains. The project includes drainage improvements, mitigating the risk of icing problems as well as ponding that occurred historically. Rail yard work derailments have been reduced since the upgrade of the yard also.

The FEMA funded East Middlebury River project has been completed. This project included riverbank and flood plain stabilization.

Two new elements within a Local Hazard Mitigation plan are now required: Planning for climate change and equitable outcomes.

Climate Change

Climate change has affected the entire state of Vermont, resulting in more frequent and more severe storms including East Middlebury (VTANR 2011 and 2020). The Town of Middlebury has been proactive in protecting East Middlebury Village by implementing setback requirements in the river corridor, purchasing conservation easements and land to mitigate the effects of flooding over time (Town of Middlebury Zoning Ordinance).

The current Town Plan also recognized climate change by continuing “to anticipate and respond to changes that affect our natural resources”. More specifically water:

- Increased frequency and volume of storm events, which may be the result of climate change, has resulted in an increase in erosion and sediment deposition in our surface waters.
- As the town develops, there is increased impermeable surface area from roofs, parking lots, and driveways, resulting in an altered hydrologic cycle.
- New stream buffer and shoreland protection legislation has changed the way Towns regulate water resources on the local level

The Town Plan goes on to look at climate change and sustainability by thinking about “responsible stewardship of our natural heritage today will ease changes brought on by climate and energy changes.

- Conservation of productive farmland and wildlife habitat will provide an insurance policy against climate change and changes brought by the declining availability of inexpensive oil.

Equitable Outcomes

The Town of Middlebury recognizes and has prioritized the need to improve communication and community outreach. The Town also recognizes the need for developing other methods to provide

information and educational outreach opportunities to be as inclusive as possible. The Town formed the Diversity, Equity, and Inclusion Workgroup (DEI Workgroup) that has been charged with assisting the Board with building capacity to engage the Middlebury community in discussions regarding the local impacts of racism.

The town of Middlebury was granted the Neighborhood Development Area Designation (NDA) in January of 2023. This program encourages municipalities and developers to plan for new development within walking distance of its existing designated downtown Middlebury will be using this program to support partnerships to build much-needed new housing including the Stonecrop Meadows subdivision, a multi-unit, mixed income housing development project by Summit Properties on land acquired by Middlebury College. With an NDA now in place, projects like Stonecrop Meadows can access program benefits such as a 50% Act 250 application fee reduction, exemption form the land gains tax, and $50 state wastewater permit fees.

5 HAZARD IDENTIFICATION AND RISK ASSESSMENT

Local Vulnerabilities and Risk Assessment

One of the most significant changes from the 2015 plan is the way hazards are assessed. To be consistent, the Planning Committee chose to take on the model of the Vermont State Hazard Mitigation Plan. Initially the Committee addressed the probability of the known hazard events occurring in the future. See Table 5

The Committee then ranked the hazard events and their known hazard impacts on the community broken down into four categories of: infrastructure, life, economy and environment. The ranking was then averaged and multiplied by the probability to calculate the overall score. See Table 5. Probability for each hazard included in this plan's hazard assessment accounted for future conditions, including climate change projections, on changing frequency and intensities of natural hazards and the likelihood and damage to assets.

The Town recognizes all natural hazards and the threat they may pose to the residents and infrastructure. The lower risk hazards that have been identified as a low probability of occurrence and lower potential impact are not discussed in this plan, however more information on these hazards can be found in the State Hazard Mitigation Plan.

The Committee identified the following as High Risk Hazards:

Transportation events,

Infectious diseases, Ice,

Fluvial erosion associated with large rain events such as thunder or tropical storms,

Inundation flooding, high winds, and finally snow

Table 5: Community Hazard Risk Assessment

Hazard Events	Hazard Impact	Probability	Potential Impact					Score *	Rank
			Infra-structure	Life	Economy	Environment	Average		
Thunderstorm / Lightning	**Fluvial Erosion/Flash Flooding**	**3**	**2**	**2**	**1**	**4**	**2.25**	**6.75**	**3**
Ice Jam	**Inundation Flooding**	**4**	**2**	**1**	**1**	**2**	**1.5**	**6**	**4**
Tropical Storm/ Hurricane	**High Wind**	**4**	**2**	**2**	**1**	**1**	**1.5**	**6**	**4**
Tornado	Hail	3	1	1	2	1	1.25	3.75	
Landslide	Landslide/slope failure	1	1	1	1	1	1	1	
Winter Storm	Ice	4	2	2	2	2	2	8	2
	Snow	**4**	**2**	**1**	**2**	**1**	**1.5**	**6**	**4**
	Cold	4	1	2	1	1	1.25	5	
Drought	Heat	3	1	1	1	1	1	3	
	Drought	2	1	1	2	2	1.5	3	
Wildfire	Wildfire	3	1	1	1	1	1	3	
Earthquake	Earthquake	1	1	1	1	1	1	1	
Invasive Species	Invasive Species	4	1	1	1	2	1.25	5	
Infectious Disease	**Infectious Disease**	**4**	**1**	**3**	**3**	**1**	**2**	**8**	**2**
Transportation Events	**Transportation Events**	**4**	**4**	**4**	**1**	**4**	**3.25**	**13**	**1**

*Score=Probability x Average Potential Impact

	Frequency of Occurrence: Probability of plausibly significant event	**Potential Impact:** Severity and extent of damage and disruption to population, property, environment, and the economy
1	**Unlikely**: < 1% probability of occurrence per year	**Negligible:** Isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	**Occasionally**: 1% to 10% probability of occurrence per year, or at least one chance in the next 100 years	**Minor:** Isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption

	Frequency of Occurrence: Probability of plausibly significant event	Potential Impact: Severity and extent of damage and disruption to population, property, environment, and the economy
3	**Likely:** >10% but <75% probability per year, at least one chance in the next 10 years	**Moderate**: Severe property and environmental damage on a community scale, injuries or fatalities, short-term impact
4	**Highly Likely:** > 75% probability in a year	**Major:** Severe property and environmental damage on a community or regional scale, multiple injuries or fatalities, significant economic impact

Community Vulnerability Analysis

Based on the results of the Community Hazard Questionnaire that was conducted during the 2024 plan development, consisting of one response, the history of disasters in the town, the following hazards were consistently identified as threats to the community by its residents: Drought, extreme heat, flooding, severe thunderstorm, winter storm, ice storm, extreme cold along with windstorm and major transportation incidents.

The communities' concerns fall primarily in line with the Community Hazard Risk Assessment the Planning Committee conducted. More data and historical information were made available to the Planning Committee during the evaluation.

See Appendix B for the survey questions and results.

Table 6- History of FEMA declarations

Year	Hazard Event	Federal Declaration Number
2023	Severe storms and flooding	4774
2023	Severe storm, flooding, landslides and mudslides	4720
2021	Tropical Storm Henri	3567
2019	Severe storm and flooding	4474
2018	Severe Storm and Flooding	4356
2017	Severe Storm and Flooding	4330
2014	Severe Winter Storm	4207
2012	Severe Storm, Flooding, Tornado	4066
2011	Tropical Storm Irene	4022
2011	Severe Storms, Flooding	1995
2008	Severe Storms, Flooding	1790
2008	Severe Storms, Flooding	1778
2004	Severe Storms, Flooding	1559
2001	Snowstorm	3167
2000	Severe Storms, Flooding	1336
1998	Severe Storms	1228
1998	Ice Storms	1201
1996	Major Storms, Flooding	1101

1993	**Flooding**	**990**
1989	**Severe Storms, Flooding**	**840**
1976	**Severe Storms, High Winds, Flooding**	**518**
1973	**Severe Storms, Flooding, Landslides**	**397**

Highest Risk Hazard Profiles

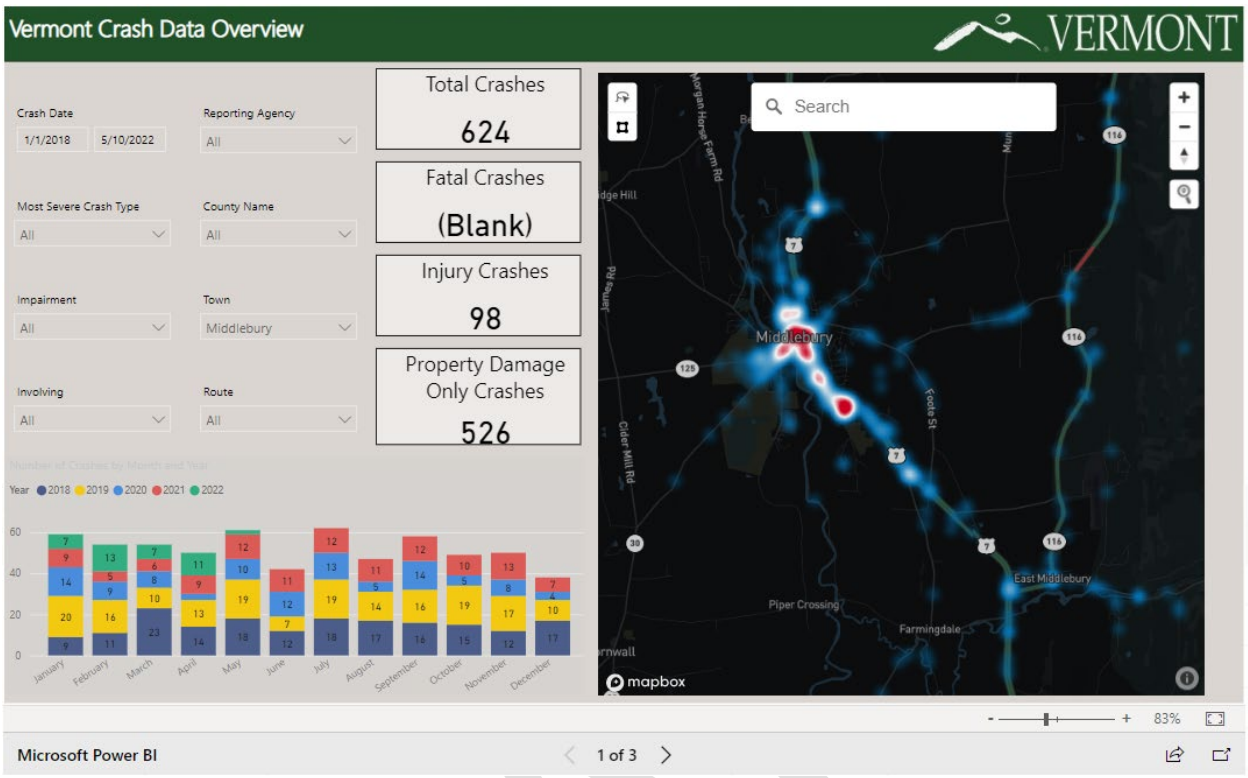
Transportation events

A number of High Accident Locations have been identified within Middlebury by the Vermont Agency of Transportation (VTrans) with the collection and analysis of crash data for the last 5 years, see Figure 1 . The intersection of VT Route 30 and Seymour Street is of particular interest, along with US Route 7 and Elm Street and Elm Street and Exchange Street. A majority of these crashes cause property damage in the sense of the extent of damage to vehicles but also other assets. Thankfully, there have been no fatal crashes in the last five years and the percentage of personal injury is rather low. Yet, these crashes still have an impact on the community and with the general population travelling through the town.

The transport of hazardous materials is a concern to the Town from both the roads and the railroad. Middlebury was surveyed on VT Route 30, just south of Court Square in the heart of the village. The most frequent placards by percentage of vehicles were Propane (35%), Gasoline/Gasahol (22%), Kerosene (13%), and Combustible liquids (9%).

As with the statewide findings, the majority of placarded transport trucks traversing major state highways in Addison County are carrying flammable fuels- Diesel Fuel, Gasoline, Methane/Natural Gas, Propane, and Kerosene- so first responders to truck accidents are more likely to have to deal with these chemicals in HazMat situations than any other.

Figure 3: VTrans Crash Data



Infectious diseases

The Vermont State Hazard Mitigation Plan states, "an epidemic emerges when an infectious disease occurs suddenly in numbers that are in excess of normal expectancy. Infectious disease outbreaks put a strain on the healthcare system and may cause continuity issues for local businesses. These outbreak incidents are a danger to emergency responders, healthcare providers, schools, and the public. This can include influenza (e.g. H1N1), pertussis, West Nile virus, Lyme disease and many other diseases." The outbreaks of these disease would potentially have a huge impact on the residents of Middlebury, especially vulnerable populations like the elderly or immunocompromised individuals. As seen with COVID-19 there was a huge impact on daily operations which lead to economic impacts on local business and mental health impacts to those that were affected by lockdowns and social distance especially school age children.

DR-4532 - January 2020 - An unprecedented major disaster was declared a pandemic. COVID-19 was of the severity and magnitude that the need for supplemental Federal assistance was determined to be necessary prior to the completion of joint Federal, State, and Local government Preliminary Damage Assessments. This declaration made emergency protective measures (Cat B) available to state and eligible local governments and certain private nonprofit organizations on a cost-sharing basis for all areas in the State of Vermont.

Communities quickly needed to learn how to adapt to remote working and continue operating of their government and conducting business as a public entity. Many lessons have been learned and adapted into their continuity plans for future events.

Middlebury had many lessons learned through the pandemic and were quickly able to adapt existing and new processes to respond and support the community. There was an economic impact at times because of the lack of resources. The states ability to support municipalities by providing resources such as supply drop offs of PPE and other needs by VTrans personnel was crucial as PPE became a scarcity to obtain through regular procurement. The Town government was able to adapt rather quickly to working remotely after the state shutdown by utilizing their Continuity of Operation Plan (COOP). The biggest impact, beyond the actual impact of the virus itself on the community, was fear and anxiety of the residents, however the state, county and town worked in conjunction to constantly report out as much information that was available on a daily basis that lent itself to comfort the community as time went by.

Vulnerabilities still exists however, due to future outbreaks not only locally but regionally, statewide, and globally. There is not sufficient data available to determine the impact of future land use and development on the impact of infectious disease on community assets. Recently the Town did an exercise for hoof and mouth disease with the Department of Agriculture with hoof and mouth disease and discovered that it could potentially shut down the town. The hotwash from this exercise revealed that an event like this can quickly grow and there would be a need to restrict movement in the area. The Town would seek a local declaration from the Governor in order to utilize the Vermont National Guard either through activation or a training event.

The 2023 Vermont State Hazard Mitigation Plan cites the following: “According to the Vermont Department of Health, infectious disease dynamics depend on a range of factors, including: land use, human behavior, climate, efficacy of healthcare services, population dynamics of vectors, population dynamics of intermediate hosts and the evolution of the pathogens themselves.” “Tickborne diseases are more prevalent in the southern and western halves of the State, as the warmer climate contributes to longer periods of tick activity.”

Ice

Ice events typically occur between the months of December and March in Addison County region. In 1998 (DR 1201) the worst ice storm on record hit much of northern Vermont and the Town of Middlebury was not spared. Three quarters of an inch of ice toppled trees onto power lines and the resultant power outages continued for several days as remote power lines were accessed by off road vehicles. In December of 2013 another ice storm hit the region that resulted in ¾ of inch in ice accumulation as well as 1 to 2 inches of sleet followed by dropping temperatures below zero that remained for over a week. This caused numerous vehicle accidents as well as widespread tree and utility line damage impacted the entire northern region of Vermont

According to the 2018 National Climate Assessment report, there is an observable increase in the frequency of the most severe storms in the Northeast since observations began in 1950. While this evidence supports an increase in weather and precipitation severity, the incidence of ice storms remains fairly spaced out. The town expects to have another ice storm but unlike rain and snow events, the occurrence of a major ice storm is not expected every year. Along with power loss the potential for internet loss and access to food in water could impact the community. The cost of these storms come in the form of power outages due to ice damaging trees and power lines, school closings and traffic accidents.

Fluvial Erosion/ Inundation Flooding

Flooding is the most common recurring hazard event in the State of Vermont. In recent years, flood intensity and severity appear to be increasing. Due to climate change, it is highly likely that flooding will continue in both the short-term and long-term along with becoming more intense both in the summer and in the winter months. According to the 2023 State Hazard Mitigation Plan; "With a projected increase in more intense precipitation events there is an increased risk of inland flooding particularly in valleys, where people, infrastructure, and agriculture tend to be concentrated." Flooding and fluvial erosion has the potential for causing loss of life, damage or loss of homes, businesses, electricity, water systems, agricultural and transportation infrastructure disruptions.

There are three main types of flooding that occur in Vermont: flooding from rain or snowmelt, flash flooding, and urban flooding. Flooding has also been known to occur as a result of ice jams in rivers adjoining developed towns and cities. Flood damages are associated with inundation and fluvial erosion hazards(FEH). Data indicate that greater than 75 percent of flood damage in Vermont, measured in dollars, are associated with fluvial erosion. These events may result in widespread damage in major rivers' floodplains or localized flash flooding caused by unusually large rainstorms over a small area. The effects of all types of events can be worsened by ice or debris dams and the failure of infrastructure (especially culverts), private dams, and beaver dams. Within Middlebury, the two most significant bodies of water that are subject to flooding are the Middlebury River and Otter Creek. Due to historic patterns of development, erosion issues are generally limited to erosive actions of high water on riverbanks. The historic settlement of East Middlebury on the Middlebury River and some locations along Otter Creek are most at risk for erosion associated with river channel movements.

The most significant erosion events in recent memory occurred in 2008, 2011 and most recently in 2023. Two successive events in June and August of 2008 required the complete replacement of the "Lower Plains Bridge" in East Middlebury due to failure of abutments due to fluvial erosion. In addition, the retaining wall near the abutments of the "Grist Mill Bridge" was also undermined. In 2011, the erosive actions of flooding down the Creek from Tropical Storm Irene caused the Middlebury River to erode sections of its bank and change its route to flow down through the village itself. This event also caused additional undermining of the "Grist Mill Bridge" retaining wall. In July of 2023 and then again in August of 2023 Middlebury saw unprecedent flood events. July saw a rainfall event in upwards of 5 inches of rain and Otter Creek rose at lease a foot above flood stage. The Middlebury Wastewater treatment facility recorded 23 days of rain, totaling over 10.92 inches. The town was hit again in August of 2023, receiving over 6 inches of rain within a three hour window that equated to the 1000 year storm. Creek Road continues to lose ground to an ever changing river, but these bank failures are not attributable to any particular events. No records of the number of acres lost to fluvial erosion have been found. Historically, industrial structures were built close to the banks of the river to take advantage of waterpower. The Marblework's area in the center of town was, at one point, almost entirely powered by water through direct mechanical means and later through electric generating stations located up and down the Creek.

The village of East Middlebury was built in its current location on an alluvial fan of the Middlebury River due to the readily available access to waterpower. At one point there were 4 impoundments serving small scale industry in this area. High flow events had a great impact to these local industries as flood waters eroded riverbanks and damaged footings for buildings located too close to the bank. Portions of these areas were severely damaged due to flooding events in 1830, 1913, 1927, 1938 and 2011. Photographs showing the extent of damages following the 1927, 1938 and 2011 flooding and erosion events indicate the wholesale relocation of the Middlebury River onto State Route 125. These events resulted in major flooding throughout the Village of East Middlebury as well as destruction of most of the transportation infrastructure.

Phase 2 & 3 Stream Geomorphic Assessments on the Middlebury River show evidence of extensive channelization, bank armoring and gravel extraction that have been historically used to attempt to control the rivers. Current wisdom indicates that these attempts to control the river are temporary at best and tend to provide a false sense of security to those who would develop in these "protected" areas. In the worst case, these same measures tend to destabilize the river so that its energy is then diverted to other unprotected locations further downstream causing an increased risk there. Much of the erosion susceptible property along Otter Creek and its floodplain is currently in agricultural use and is not currently at risk. Future development along the Creek is severely limited due to a town-wide no-build protection provided by adopted floodplain zoning. Properties at risk include a few homes developed prior to current zoning on Creek Road along Otter Creek where the riverbank has been extensively armored in an attempt to stabilize an unstable reach of the river.

Based on the results of overlaying the Fluvial Erosion Hazard Zone with the location of the E911 points, there is one multi-family residential, eight single-family residential, one commercial, one fire hydrant and one 'other' unit in the town that are mapped as vulnerable to potential erosion hazards. The estimated loss for damage to these properties (buildings only) is up to $1,307,300. This represents 0.13% of the grand list. See Figure 2: Local Natural Hazards and Critical Infrastructure Map.

Windstorm/High Winds

Severe thunderstorms are capable of producing high winds (including downdrafts), large hail, lightning, flooding, rains, and tornadoes. Thunderstorm winds are generally short in duration, involving straight-line winds and/or gusts in excess of 50 mph. Thunderstorm winds tend to affect areas of Vermont with significant tree stands as well as areas with exposed property and infrastructure and aboveground utilities. Thunderstorm winds can cause power outages, transportation and economic disruptions, and significant property damage, and pose a high risk of injuries and loss of life. Microbursts and macrobursts are downdrafts that move outward from the base of a thunderstorm and can reach speeds in excess of 80 mph. Microbursts (the smaller of the two in terms of area affected) pose an extreme threat to aircraft. The downward wind can exceed the lift component of an aircraft, making it impossible to maintain altitude, which for low flying aircraft (especially during takeoff and landing) is extremely dangerous.

Thunderstorms range in size and type. An ordinary cell thunderstorm consists of one cell with an updraft and downdraft and produces strong winds, rain, lightning, and even hailstones. Multicell cluster thunderstorms consist of several ordinary cell thunderstorms in the vicinity of each other. Multicell cluster thunderstorms are extremely prone to causing flash flooding. Squall line thunderstorms move in a line or front that can exceed 100 miles in length, with the strongest rains and winds at the front of the storm.

Supercell thunderstorms are the largest, longest lasting, and most devastating thunderstorms. Nearly all tornadoes are formed from supercell thunderstorms. Supercell thunderstorms can also form hailstones larger than golf balls. These supercell storms have clockwise rotating winds that exacerbate the storm. Lightning, hail, flash flooding, and tornadoes are all associated with this type of thunderstorm.

Power outages that result from these types of storm events are not uncommon in Middlebury. Their occurrence is inconvenient to residents but typically short lived, however longer outages can occur and leave communities vulnerable without access to most basic amenities such as heat, air conditioning, and drinking water. Wind events can also cause trees to impact transportation systems and cut off access emergency services if they are needed. Mitigation activities over the years by power companies have re-routed many remote power lines onto town highway ROW for improved performance. Increased pruning activities along ROW have also reduced impacts from major storm events. Generally the extent of damage due to these hazards are limited to wind damage to structures and/or power lines and electrical spikes which fry delicate electronics. The worst-case damage would include isolated structural damage (roof damage) coupled with extended power outages and lightning damage to the electronic controls for the towns utilities.

High winds come in many forms in Addison County and are included in damages associated with hurricane/tropical Storm, tornado, thunderstorms, hailstorms and in the winter, wind chill. In addition to these specific events, high winds are often associated with collisions of major weather fronts when high pressure and low pressure systems create extreme gradients between them. Since 1950 there have been 200 high wind events, one death related event, 153 that caused property damage and one event with crop damage. There have been three tornado events in the last three years measuring EF0 (65-85mph) and EF1 (86-110 mph) on the Enhance Fujita Scale. The Fujita Scale became operational in 2007, " is used to assign a tornado a 'rating' based on estimated wind speeds and related damage', according to the National Weather Service. Technically tornadoes can be in excess of 200 mph, it is highly unlikely that would occur in Vermont.

Locally developing thunderstorms due to convective forces in the atmosphere can also generate high winds, such as those experienced in parts of eastern Vermont on July 6, 1999, downing hundreds of large trees in a few minutes.

Both straight-line and tornadic high wind events are possible in Middlebury. Fortunately, Vermont has never experienced a hurricane in its recorded history. However, remnants known as tropical storms have blown through the Champlain Valley causing greater damage due to flooding than high winds (see flooding). In both 2011 and 2012, winds as high as 60-80mph accompanied by hail up to 1" were felt in the region causing scattered damages in the form of dents on cars, damaged roofs, and downed trees which, in turn caused scattered power outages. No records of greater damage than that were found in a review of high wind articles in the local paper. Nearly all of the recorded high wind events have occurred from May through August and most of these occurred in the afternoon. With climate change gaining speed, it is highly likely that wind events associated with hurricanes, tropical storms, thunderstorms and standalone high wind events will increase as the area has already been witnessing.

On March 26, 2021, an EF1 tornado touched down just northeast of Juniper Lane in Middlebury causing limb damage before throwing a barrel into a house and shattering a window. As the tornado tracked northeastward, multiple softwood trees were either uprooted or had snapped trunks. Once the tornado crossed Painter Road, it forcibly removed an attached garage from a house, caused a full collapse of the garage and did significant damage to the shingled roof. A car was also flipped on its side at the residence. As the tornado continued to move northeastward, it removed roofing from multiple farm buildings and uprooted additional softwood trees. Once the tornado moved northeast of the farm, it entered a field where it snapped over a dozen additional trees at

mid-trunk level before dissipating over the field. This tornado injured two people during the brief touchdown. In the following year there were two more documented tornadoes in the County.

Winter Storms/Snow

Severe winter storms bring the threat of heavy accumulations of snow, cold/wind chills, strong winds, and power outages that result in high rates of damage and even higher rates of expenditure.

A heavy accumulation of snow, especially when accompanied by high winds, causes drifting snow and very low visibility. Sidewalks, streets, and highways can become extremely hazardous to pedestrians and motorists. Winter storms could potentially cause power outages leaving residents vulnerable to cold if there is no back up electricity or heat. Severe snowstorms can cause limited access to emergency services if roads are not able to be plowed. Severe winter storms develop through the combination of multiple meteorological factors. In Vermont and the northeastern United States, these factors include the moisture content of the air, direction of airflow, collision of warm air masses coming up from the Gulf Coast, and cold air moving southward from the Arctic.

The National Weather Service uses the Northeast Snowfall Impact Scale (NESIS) to categorize the severity of a snowstorm based on the amount of snowfall and the population at risk. The NESIS provides a numerical measurement of the snowstorm's potential socioeconomic impact compared with past storms and assigns each large storm into one of the five categories ranging from notable to extreme.

With the almost annual occurrence of a significant snowstorm, the Town of Middlebury feels the impact of a winter storm most on the infrastructure of the community. The average annual snowfall for Addison County is 89 inches.

The Town is able to keep the roads open and treated for most storms and rarely has lost the ability to keep up with a winter storm due to the Town's high preparedness level and ongoing mitigation actions. Fortunately, the regular occurrence of winter storms also causes most residents to maintain a high level of preparedness for winter storms.

The worst snowfall on record accumulated 24" of snow in a single storm. These occurred March 11-14 of 1888 and February 14th, 2007. This last storm, known as the Valentine's Day Blizzard. This "Valentines' Day Blizzard" stressed the resources of most local communities, including the Town of Middlebury, to capacity. In the last 10 years there were 45 winter storms ranging from a few inches up to 30 inches in a storm that hit Vermont in March of 2017.

In March of 2001, the so-called "Town Meeting Day" snow event caused reduced ability for residents to travel to the voting booth due to hazardous conditions. Some of the additional costs of keeping roads open on voting day were reimbursed through State and Federal assistance.

As population growth and housing expands along remote road corridors, increasing dependency on local roads by the new homeowners requires changes in winter maintenance. The town has, thus far, been able to keep up with those increased demands on its services through additional hires and equipment purchases. According to the State Hazard Mitigation Plan; "While the frequency of heavy snowstorms has increased over the past century, there has been an observed decline since 2000 and an overall decline in total seasonal snowfall." "Changes in snow accumulation patterns is due to climate change can also impact the soil profile" which can disrupt burrowing species and the maple industry. While snow storms are highly likely, over next 25 years it is anticipated the northeast will see an increase of rain or freezing rain events and a decrease in snow events.

Table 7: Location-Vulnerable Assets-Extent-Impact-Probability

HAZARD	LOCATION/EXTENT	VULNERABLE ASSETS	IMPACT	PROBABILITY
Transportation	Town-wide/one vehicle to potential hazardous spill and effecting a few square blocks to a mile	People, vehicles, infrastructure	$1,000 to $500,000 both property damage and personal injury	Highly Likely
Infectious Disease	Town-wide/ Entire population of the Town	People, local economy, agricultural	Loss of livestock Definite loss of revenue to herd loss, quantify	Highly Likely
Ice	Town to region wide/ ¾" ice	People, highway infrastructure, power lines, trees, internet	Up to $1,000,000 agricultural and property damage	Highly Likely
Winter storms	Town-wide/Up to 30" snow	Roads, culverts, bridges, trees, power lines, telecommunication systems and homes	$1,000 local to $1,000,000 regional damage	Highly Likely
Flooding/fluvial erosion	Rivers cresting at major flood stage and areas adjacent to the Middlebury River and Otter Creek flooding impacting thousands of acres. Rainfall in the range up to 6 inches in 3 hour window	Roads, culverts, bridges, houses, recreational fields, wastewater, agricultural lands, fuel pumps, sewer pump stations	$55,000 local/ $1,000,000 Reginal damage	Likely/Highly Likely
Windstorm/high winds	Town-wide and base of Green Mountains and VT Route 116/ a few hundred acres of forest/up to 110 mph	Trees, power lines, telecommunications systems, homes	$1,000 local to $500,000 regionally	Highly Likely

6 HAZARD MITIGATION STRATEGY

Mitigation Goals and Objectives

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

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

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

Objective: Provide mechanisms to enhance life safety

Objective: Reduce impacts to critical facilities and services

Objective: Reduce impacts to existing buildings and infrastructure to the extent possible Objective: Reduce impacts to future development and infrastructure to the extent possible Objective: Reduce impacts to the town's natural and historic resources

Objective: Reduce impacts to public health

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

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

Community Capabilities

Administrative and Technical

Strengths: Community resources such as knowledgeable and experienced staff who have managed and helped with emergency management situations coordination between departments is effective strong working relationships with neighboring communities through mutual aid agreements. Technical support through Addison County Regional Planning Commission.

Area for Improvement: Recruit more volunteers for sheltering, improve radio communications between all departments. Utilize grant opportunities to their fullest to improve the Town's infrastructure.

Planning and Regulatory

Planning and Regulatory capabilities are the ordinances, codes, plans, and policies that are the foundation by which the impacts of hazards can be reduced.

Strengths:

The following plans are integrated into one another and reviewed periodically to improve the mitigation initiatives for ongoing efforts to aid the Town and its residents in becoming more resilient.

Middlebury Local Hazard Mitigation Plan
Adopted: January 12, 2016
The Hazard Mitigation Plan was referenced extensively during the plan update process, especially in regard to the worst threats and mitigation action strategies identified in 2016.

Middlebury Town Plan
Adopted: November 28, 2017
The Town Plan provides the groundwork of information on the community, as well as more detail on their emergency services. The Flood Resilience section provides goals. Planning principles, policies, and specific recommendations. The Town has both zoning ordinances and subdivision regulations and does comply with the State energy building codes but lacks any other building codes.

2022 Middlebury Zoning and Subdivision Regulations
Section 660 - Shorelands, Riparian Buffers and Fluvial Erosion Hazard Areas
In order to protect water quality, prevent erosion, protect fish and wildlife habitat and preserve the natural beauty of shorelands and riparian buffer areas, there are hereby established shoreland / riparian buffer protection areas abut- ting all rivers and year-round flowing streams in Middlebury as shown on the Town GIS maps.

Section 670 – Special Flood Hazard Area Regulations

A. Implement the goals, policies, and provisions in the Middlebury Town Plan
B. Avoid and minimize the loss of life and property, the disruption of commerce, the impairment of the tax base, and the extraordinary public expenditures and demands on public services that result from flood related damages.
C. Ensure that development in hazard areas is reasonably safe and accomplished in a manner that is consistent with public wellbeing, does not impair stream equilibrium, flood plain functions, or river/stream corridors;
D. Manage all flood hazard areas designated pursuant to 10 V.S.A. Chapter 32, the municipal hazard mitigation plan; and make the Town of Middlebury, its citizens, and businesses eligible for federal flood insurance, federal disaster recovery funds, and hazard mitigation funds as may be available.

Local Emergency Management Plan (LEMP)
Updated: May 1, 2023, accepted
The LEMP outlines how the municipal government will coordinate support from an Emergency Operations Center (EOC) and, if necessary, direct actions from an Incident Command Post (ICP). This also aids the town in reducing the town share when they request FEMA funding.

Road and Bridge Standards Plan
Adopted: July 23, 2019
By adopting these standards, the town agrees to comply with the minimum typical and standards for construction, maintenance, and repair of all the town roads and bridges. This also aids the town in reducing the town share when they request FEMA funding.

Municipal Roads Program - Road Erosion Inventory Report
Initial inventory 9/8/2017 and updated 10/7/20
The Vermont Department of Environmental Conservation implemented this program to "achieve significant reductions in stormwater-related erosion from municipal roads, both paved and unpaved." This program aids towns in developing priorities by which roads should be improved to comply by pre-determined dates.

Areas for Improvement: Improving upon continuity of government, redundant communications plan.

Financial
Financial capabilities are the resources that a community has access to or is eligible to use to fund mitigation actions. The Town has a robust Capital Improvement Programs with dedicated funds by department including the Public Works Department.

Strengths: Dedicated reserve funds for highway, water, and sewer departments that can be used to fund mitigation actions

Area for Improvement: Maximize grant opportunities

Education and Outreach
Education and outreach opportunities that could be used to implement mitigation activities and communicate hazard-related information:

Strengths: Middlebury utilizes the Town website, Library, Fire Department, email listserv, and Front Porch Forum as some means of community . It is not unusual to see Town officials going door to door knocking to ensure neighborhoods are aware of immediate threats such as rivers rising or water main breaks. The Town utilizes Selectboard meetings to present information to encourage dialogue with the community. The Town Office has an open door policy and the community has direct access to speak with individual employees when they have questions or need information. The Town has learned that the zoning process is an amazing educational opportunity to both developers and the community.

Area for Improvement: Better coordination is needed to help implement future mitigation actions and better ways for outreach in more diverse forms to be more equitable. Continue the educational opportunities during and after events during the zoning permit process and business roundtables.

National Flood Insurance Program
The Town participates in the National Flood Insurance Program since the effective Flood Insurance Rate Map (FIRM), dated January 3, 1985. The FIRM is utilized to determine Special Flood Hazard Areas for regulation under town bylaws. Article VI, Section 670 regulates land use in the floodplains, a permit is required from the Zoning Administrator (ZA) and is approved or denied by the Development Review Board (DRB). The Administrative Officer shall administer the provisions of the Zoning and Subdivision Regulations literally, and with the administrative review authority granted in 24 VSA 4464(c).
The Special Flood Hazard Area Regulations were created to:

1. Implement the goals, policies, and provisions in the Middlebury Town Plan

2. Avoid and minimize the loss of life and property, the disruption of commerce, the impairment of the tax base, and the extraordinary public expenditures and demands on public services that result from flood related damages
3. Ensure that development in hazard areas is reasonably safe and accomplished in a manner that is consistent with public well being, does not impair stream equilibrium, flood plain functions, or river/stream corridors
4. Manage all flood hazard areas designated pursuant to 10 V.S.A. Chapter 32, the municipal hazard mitigation plan; and make the Town of Middlebury, its citizens, and businesses eligible for federal flood insurance, federal disaster recovery funds, and hazard mitigation funds as may be available

The Conditional use review and approval by the DRB is required prior to the issuance of a permit by the ZA for substantial improvements in flood fringe areas regardless if the improvement is from the result of a flood event. Middlebury adheres to the Vermont Department of Environmental Conservation 2018 Flood Hazard Model Bylaw for substantial damage and substantial improvements.

There are extensive flood plains in the southwestern portion of Middlebury. These flood plains have been mapped by the Federal Emergency Management Agency, and the Town participates in the National Flood Insurance Program (NFIP). This makes flood insurance and flood disaster assistance available, as long as the Town manages these flood hazard areas through zoning to prevent future building or development. All Middlebury waterways are capable of flooding that can cause damages from both inundation and erosion; however, the relationship between the Middlebury River and East Middlebury Village is of particular concern.

There are currently 31 policies insured under the National Flood Insurance Program and total coverage is $6,656,100 with no repetitive loss structures. Since 1978 there have been 5 total claims for a total payment of $6,125.

Hazard Mitigation Strategies: Programs, Projects, and Activities

Vermont Division of Emergency Management encourages a collaborative approach to achieving mitigation at the local level through partnerships with Vermont Agency of Natural Resources, VTrans, Vermont Agency of Commerce and Community Development, Regional Planning Commissions, FEMA Region 1 and others. That said, these agencies and organizations can work together to provide assistance and resources to towns interested in pursuing hazard mitigation projects.

With each mitigation strategy, general details about the following are provided: local leadership, possible resources, implementation tools and prioritization. The prioritization category is based upon the economic impact of the action, Middlebury's need to address the issue, the cost of implementing the strategy, and the availability of potential funding. The cost of the strategy was evaluated in relation to its benefit as outlined in the STAPLEE guidelines (includes economic, political, environmental, technical, social, administrative, and legal criteria). A range of mitigation strategies was vetted by the committee, and those that were determined to be feasible are included in the table below.

Ongoing Actions/Ability to Expand

Flooding and erosion are the highest risk in town with the highest vulnerability. Over the years extensive mitigation activities have been deployed to protect the town's residents and infrastructure from the risks associated with flooding and erosion.

Strategies given a "High" prioritization indicate that they are either critical or potential funding is readily available and should have a timeframe of implementation of less than two years. A "Medium" prioritization indicates that a strategy is less critical, or the potential funding is not readily available, and has a timeframe for implementation of more than two years but less than four. A "Low" prioritization indicates that the timeframe for implementation of the action, given the action's cost, availability of funding, and the community's need to address the issue, is more than four years.

The Town of Middlebury understands that in order to apply for FEMA funding for mitigation projects that a project must meet more formal FEMA benefit cost criteria, and a project seeking FEMA funds would undergo a full benefit-cost assessment in the FEMA-approved format. The Town must have a FEMA approved Local Hazard Mitigation Plan as well.

Mitigation Action Plan for Implementation

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

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

For the selected actions, the Planning Team then 1) assigned a responsible party to lead the completion of each action; 2) identified potential grant funding; 3) defined a timeframe for implementation; and ranked each action's priority (high, medium, low – as outlined below).

In order to identify and select mitigation measures to support the mitigation goals, each hazard identified in the Identifying Hazards section was evaluated. Once it was determined which hazards warranted the development of specif- ic mitigation measures, the planning team analyzed a set of viable mitigation alternatives that would support identified goals and objectives. A facilitated discussion then took place to examine and analyze the alternatives. With an understanding of the alternatives, a brainstorming session was conducted to generate a list of preferred mitigation actions. Once the mitigation actions were identified, the planning team was provided with several decision-making tools, including FEMA's recommended prioritization criteria, STAPLEE sustainable disaster recovery criteria, to assist in deciding why one recommended action might be more important, more effective, or more likely to be implemented than another.

STAPLEE stands for the following:

Social: Does the measure treat people fairly? (e.g., different groups, different generations)

Technical: Is the action technically feasible? Does it solve the problem?

Administrative: Are there adequate staffing, funding, and other capabilities to implement the project?

Political: Who are the stakeholders? Will there be adequate political and public support for the project?

Legal: Does the jurisdiction have the legal authority to implement the action? Is it legal?

Economic: Is the action cost-beneficial? Is there funding available? Will the action contribute to the local economy?

Environmental: Does the action comply with environmental regula- tions? Will there be negative environmental consequences from the action?

Natural hazards pose a unique threat to the Town's vulnerable populations. Data has shown that underserved and marginalized populations tend to live in at-risk hazard-prone areas or in homes with substandard construction. The data also suggests that this segment of the community is less likely to fully recover after a disaster.4 When ranking an action's priority, those that directly benefit a vulnerable population were ranked high.

Mitigation Action Evaluation and Prioritization

Table 8: Mitigation Actions

Mitigation Actions	Description and/or Benefit	Hazard Addressed	Responsible Party	Estimated Timeline	Possible Funding	Estimated Cost*	Priority
Community Education, Outreach and notification	Continued outreach to the community to educate in ways to be prepared, mitigate potential damage and set up a notification system for awareness	All Hazards	**Planning & Zoning**, Conservation Commission	2024-2028	Local resources	Low	High
South Street Stormwater Improvements	Reduce flash flooding	Fluvial Erosion	Department of Public Works	To be completed by the end of 2024	ARPA /CWSRF	High	High
Charles/Monroe St Intersection design –realign the intersection that enters the high school	Reduce congestion and potential crashes	Transportation	**VTrans Headquarters – Roadway Design** / Town Engineer	2024-2029; Construction expected to occur in 2030	Local Resources, VTrans, FHWA	High	Low
Review and update Middlebury's Emergency Management Plan (MEMP)	Ensure that MEMP is kept up-to-date and identifies vulnerable areas and references this Plan	All Hazards	Selectboard	Annually	Local resources, ACRPC, DEMHS	Low	High
Maintain and update town bridge and culvert Inventories	Ensure road commissioner has up to date information to plan for capital improvements	Fluvial Erosion and Inundation Flooding	Selectboard **Road Commissioner**	Annually	Local resources, VTrans Local Roads program	Low	Medium

Mitigation Actions	Description and/or Benefit	Hazard Addressed	Responsible Party	Estimated Timeline	Possible Funding	Estimated Cost*	Priority
Rollover from prior plan - Evaluate Need for Additional Air Terminals on Town Buildings	Detection - grounding rods for lightning protection	Flash Flooding/Fluvial Erosion	Public Works, **Fire Department**	2024-2028	Local resources	Low	Low
Interoperability of radios to communicate during events – software/firmware	Increase communication capabilities between the various entities involved in responding to events in Middlebury	All Hazards	**Police Department**/Fire Department/Public Works/Vermont State Police/ Middlebury College Public Safety	2024-2028	Local resources	Medium	High
Fully Operational Shelter	Assess and acquire necessary equipment, supplies, and resources needed for a fully functional shelter	All Hazards	**EMD** and Recreation Dept.	2024-2028	Local resources	Medium	High
Back up power at Department of Public Works	Install a generator so that the Public Works can function during events	All Hazards	Selectboard/**Public Works**	2024-2028	Local resources, DEMHS	Medium	Medium

Mitigation Actions	Description and/or Benefit	Hazard Addressed	Responsible Party	Estimated Timeline	Possible Funding	Estimated Cost*	Priority
Continue tree maintenance within ROW	Reduce power outages and impact to roads	Snow, Ice and Wind	Selectboard **Road Commissioner**	Annually	Local resources	Medium	High
Traffic study at intersection of US7 and Exchange St to consider a roundabout	Reduce congestion and likely hood of crashes	Transportation	Department of Public Works	2024-2028	VTrans/ Local Resources	Medium	High
Buyout at 83 Court Street	Create green space for accommodating future flooding events	Fluvial Erosion and Inundation Flooding	Department of Public Works	Summer 2025	FEMA/Local Resources	High	High
Repair river bank stabilization berm located at 52 Ossie Road – Phase II ESA	Stabilize river bank from future fluvial erosion	Flooding	Department of Public Works	Summer 2024	Local Resources/FEMA/CWSRF	High	Low

Mitigation Actions	Description and/or Benefit	Hazard Addressed	Responsible Party	Estimated Timeline	Possible Funding	Estimated Cost*	Priority
Mary Hogan School impervious treatment for stormwater runoff	Reduce flash flooding, naturally treat stormwater runoff and reduce runoff from entering waste treatment facility	Flooding	Department of Public Works	Spring 2025	Local Resources	High	Medium
Adams Acres Development stormwater compliance	Design and construct a stormwater treatment practice to serve the permitted 12.13 acre area while also accounting for flows the enter the site	Flooding	Department of Public Works	2026	Local Resources	High	Medium
Main Pump Station – Lucius Shaw Lane Install flood Gates and raise generator	The proposed mitigation efforts include construction of flood gates and flood doors to protect the main pump station if another storm surge impacts the area. Additionally, the generator would be installed onto a concrete platform at least three feet higher than base flood elevation	Flooding	**Department of Public Works Director of Engineering** Wright-Pierce Engineering	Design in process – Anticipated bid Fall 2025	FEMA Mitigation funding plus local match	High	High

***Estimated Cost: 1 = less than $50,000 2 = $50,000 to $100,000 3 = more than $100,000 - Main Point of Contact is in bold lettering**

Mitigation Actions	Description and/or Benefit	Hazard Addressed	Responsible Party	Estimated Timeline	Possible Funding	Estimated Cost*	Priority
Secure funding for and install an upgraded generator for Porter Medical Center	The generator will mitigate risk to electrical systems and enable the hospital to continue operations during and after hazards, an essential community lifeline for Middlebury and the region.	All Hazards	UVM Health Network	2024-2025 Secure funding April- June 2026 install the generator	HMGP	3	High

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

7 PLAN MAINTENANCE

Plan Implementation and Maintenance

Requirement §201.6(c)(4): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle. Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. This chapter provides an overview of the overall strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. The chapter also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement. To ensure that the plan remains current and relevant, it is important that it be updated periodically.

Plan Update Process:

To assure that the Plan does not expire, the town will begin the update process within no less than a year and a half of the use the experience to assess the current Plan's ability to address the impact of the most recent disaster and edit the plan accordingly. Applying for the grant approximately two and a half years ahead of the plan expiration. The plan will be updated at a minimum every five years in accordance with the following procedure:

1. The Town manager assembles a Review/Update Committee made up of town department representatives convening at posted public meetings
2. The Committee will discuss the process to determine if any modifications or additions are needed due to changing conditions since the last update occurred. Data needs will be reviewed, data sources identified and responsibility for collecting/updating information will be assigned to members.
3. Other Town plans (Emergency Operations Plan, Town Plan, etc) will be reviewed to ensure a common mitigation thread still exists throughout.
4. A draft update will be prepared based on these evaluation criteria:
    - Changes in community and government processes, which are hazard related and have occurred since the last review.
    - Progress in implementation of plan initiatives and projects.
    - Effectiveness of previously implemented initiatives and projects.
    - Evaluation of unanticipated challenges or opportunities that may have occurred between the date of adoption and the date of the report.
    - Evaluation of hazard-related public policies, initiatives, and projects.
    - Review and discussion of the effectiveness of public and private sector coordination and cooperation.
5. Select Board representation on the committee will provide the board an ongoing opportunity to review the draft updates. Consensus will be reached on any changes to the draft.
6. The Select Board will notify and schedule a public meeting to ensure adequate public input.
7. The Select Board will recommend incorporation of community comments into the draft update.

Annual Plan Evaluation and Review Process:

The Town Manager will monitor the plan and lead the plan evaluation process as part of the annual progress report prior to town meeting. Although the plan will be reviewed in its entirety every five years as described above, the Town will also evaluate the plan against its other programs, initiatives, and projects annually as the town budget is created. This review will ensure that, whenever possible, progress can be monitored and projects either added or removed from the Town's work plan based on changing local needs and priorities. The review will also ensure the overall effectiveness of the plan in meeting its purpose and goals and adjust accordingly.

Post-Disaster Evaluation and Review Process:

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

1. Within six months of a declared emergency event, the Town will initiate a post disaster review and assessment.
2. This post disaster review and assessment will document the facts of the event and assess whether existing Hazard Mitigation Plans effectively addressed the hazard.
3. A report of the review and assessment will be created by a Review/Update Committee composed of representatives of affected town departments and citizens.
4. The committee will make a determination whether the plan needs to be amended. If the committee determines that no modification of the plan is needed, then the report is distributed.
5. If the committee determines that modification of the plan is needed, then the committee drafts an amended plan based on its recommendations and forwards it to the Select Board for public input.
6. The Select Board will hold a public meeting to gather comments on the draft amendments and recommend inclusion if appropriate.
7. Once any changes are made as identified in the public meeting, the Select Board adopts the amended plan.

Public Involvement Following Plan Approval

After adoption, the town will continue to maintain the presence of the mitigation plan with an opportunity for community input available on its website. Additionally, the town will hold an annual public meeting after performing the annual progress report for the mitigation plan to discuss achievements and the following year's implementation plan. At town meeting, the town will present mitigation information and provide the public an opportunity to increase understanding and involvement with planning efforts. The town will also continue outreach opportunities to educate the community as events and further development occurs.

APPENDIX A – Community Outreach

****

Town of Middlebury
Local Hazard Mitigation Plan Update
Announcement

The Town of Middlebury is looking for the public's assistance in identifying local hazards to aid in updating the Local Hazard Mitigation Plan (LHMP).

As mandated by the Disaster Mitigation Act of 2000, all municipalities are required to complete a Local Hazard Mitigation Plan every 5 years in order to qualify for FEMA funding should a disaster occur. The plan aids in identifying threats and hazards such as flooding, winter storms, power failures, pandemics, cyber-attacks etc. and then determine mitigation efforts that can aid municipalities in reducing risk and recovery from natural, technological and human-caused hazards.

The Town of Middlebury has begun the plan update process and will looking for input from Middlebury residents and surrounding communities over the next 6 months to help identify hazards that impact the community. Input can be provided at one of our upcoming community input meetings (dates to be determined), in person using the contact info below, or at any regularly scheduled Planning Commission meeting.

To share early input or comments related to this project please contact Jennifer Murray, Town Planner at jmurray@townofmiddlebury.org or by calling (802) 458-8010. Otherwise, stay tuned for more information!
The current Local Hazard Mitigation Plan is located on the Town website under Government>Town Departments>Planning & Zoning>Planning Resources. It can be viewed at the link below:
https://cms5.revize.com/revize/middlebury/departments/planning_zoning_office/docs/Middlebury%20Hazard%20Mitigation%20Plan.pdf

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The Town of Middlebury Cares!

If you need help with
a Town issue or concern, there's no need to wait for a Selectboard Meeting!
Our Department Heads are available to assist you, as is our Town Manager.

2024 Local Hazard Mitigation Plan

The purpose of the **2024 Middlebury Hazard Mitigation Plan** is to reduce or eliminate long-term risk to people and property from natural hazards and their effects in the Town of Middlebury, Vermont. This plan has been prepared to meet the Disaster Mitigation Act of 2000 requirements in order to maintain the Town's eligibility for Federal Emergency Management Agency's Pre-Disaster Mitigation and Hazard Mitigation Grant Programs. The plan is being updated for 2024.

DOCUMENT LIBRARY

- March 2024 - DRAFT Middlebury Hazard Mitigation Plan

Search for file name:

search here Search

2023 1 document

2022 4 documents

Town of Middlebury DRAFT Local Hazard Mitigation Plan - Public Comment Period

Stephanie Magnan

Reply | Reply all | Forward

Fri 9/1/2023 9:23 AM

To: diesel@myfairpoint.net; mjewett02@gmail.com; townadmin@bristolvt.org; pcoffey@gmavt.net; lcox@riptonvt.org; erikriptonc2@gmail.com; tscanlon@aol.com; paulvaczy@gmail.com; bmarkscornwall@gmail.com; cornwallvt@shoreham.net; kris.bowdish@yahoo.com; brian.sanderson@vermont.gov; Kyle.Medash@vermont.gov; Borg, Jaron <jaron.borg@vermont.gov>; macollins@portermedical.org; jeanette.willey@vermont.gov; michael.elmore@vermont.gov; rchristoffersen@middlebury.edu; dgaiotti@middlebury.edu; dkirby@middlebury.edu; bcunningham@trivalleytransit.org; Stephanie Magnan

Cc: Jennifer Murray <JMurray@townofmiddlebury.org>; Andrew L'Roe <alroe@acrpc.org>

Bcc: Stephanie Magnan

MiddleburyLHMP2023_DRAF... 2 MB

The Town of Middlebury is seeking public comments for the attached DRAFT Local Hazard Mitigation Plan.

The public comment period will run from September 1st through September 15th.

Please submit comments to steph.magnan@seamsolutionsvermont.com

Stephanie Magnan
166 Mitchell Rd
Barre, VT 05641
(802) 793-3484
steph.magnan@seamsolutionsvermont.com
https://www.seamsolutionsvermont.com/

Town of Middlebury - Local Hazard Mitigation Plan Update Invite for Input

Stephanie Magnan <steph.magnan@seamsolutionsvermont.com>

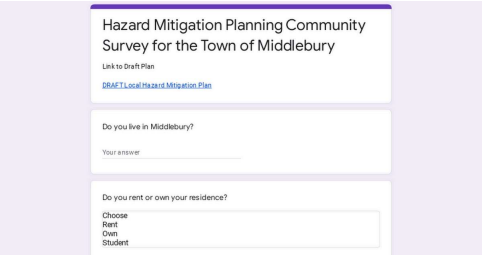
Tue 6/11/2024 4:59 PM

Bcc:info@unitedwayaddisoncounty.org <info@unitedwayaddisoncounty.org>;heidi@chcvt.org <heidi@chcvt.org>;info@cvfc-vt.com <info@cvfc-vt.com>;mail@elderlyservices.org <mail@elderlyservices.org>;info@addisoncounty.com <info@addisoncounty.com>;info@trivalleytransit.org <info@trivalleytransit.org>;Jennifer Murray <JMurray@townofmiddlebury.org>

Good afternoon,
My name is Stephanie Magnan and I was hired by the Town of Middlebury to assist in updating their Local Hazard Mitigation Plan.

We are sending out a draft plan and asking that community support system review the plan and provide any input, additions or revisions needed to be inclusive of vulnerable populations along with the organizations such as yours.

Please take a moment to review the plan at the following link and let us know if you have any input or feedback by June 28th.
https://forms.gle/Y1ae1w52Hx6VrVceA



Hazard Mitigation Planning Community Survey for the Town of Middlebury

Link to Draft Plan DRAFT Local Hazard Mitigation Plan

forms.gle

Thank you.

Best regards,
Steph

Stephanie Magnan
166 Mitchell Rd
Barre, VT 05641
(802) 793-3484
steph.magnan@seamsolutionsvermont.com
https://www.seamsolutionsvermont.com/

APPENDIX B – Community Survey Questions

Hazard Mitigation Planning Community Survey for the Town of Middlebury

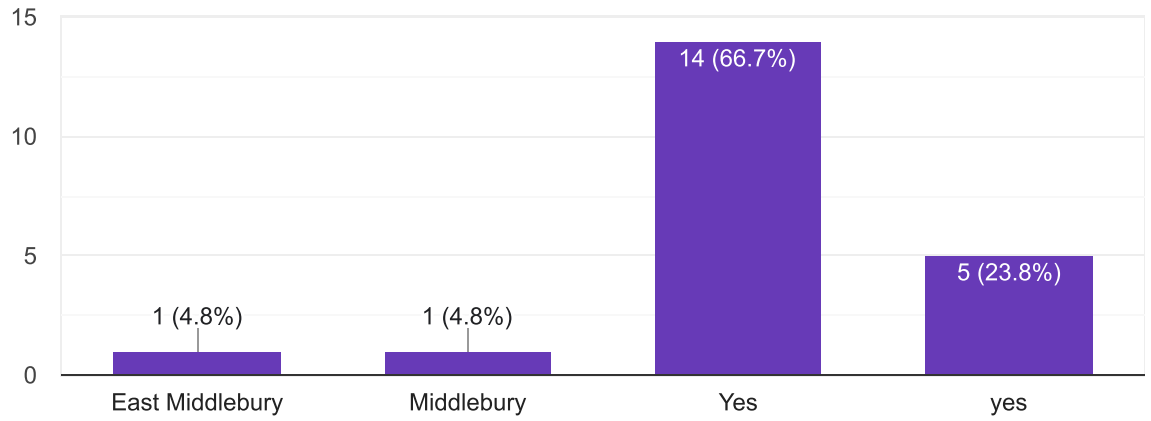
22 responses

Publish analytics

Do you live in Middlebury?

Copy

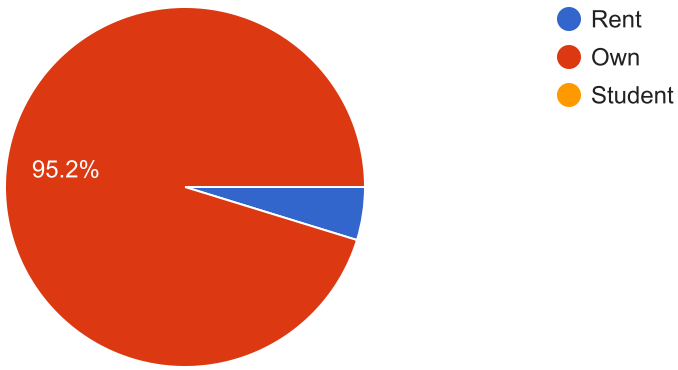
21 responses



Do you rent or own your residence?

Copy

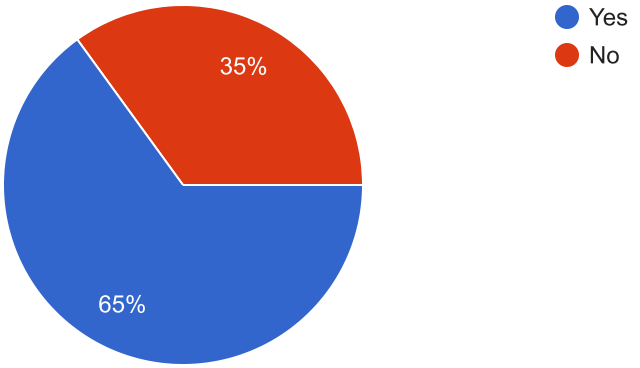
21 responses



Have you experienced a disaster in Middlebury?

Copy

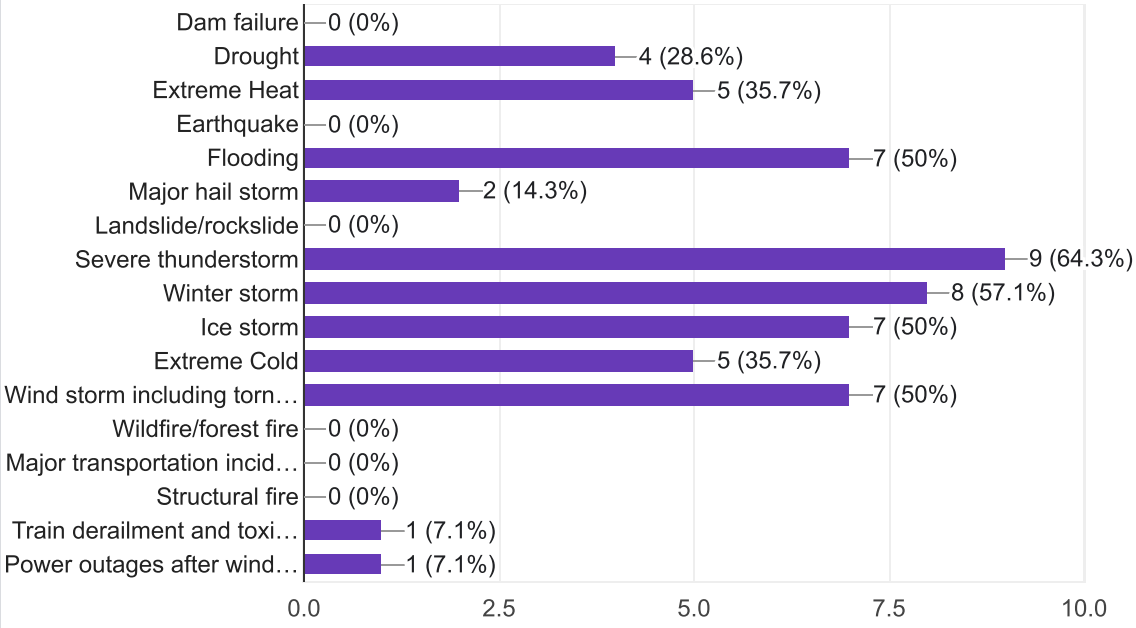
20 responses



If Yes, which of the following disasters have you experienced?

Copy

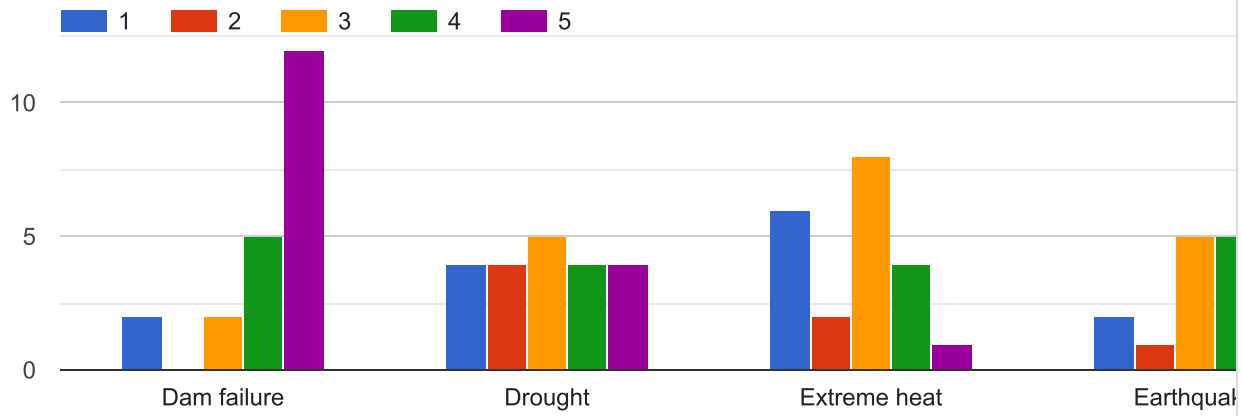
14 responses



How concerned are you about the following events?

1=Most concerned 5=Least concerned

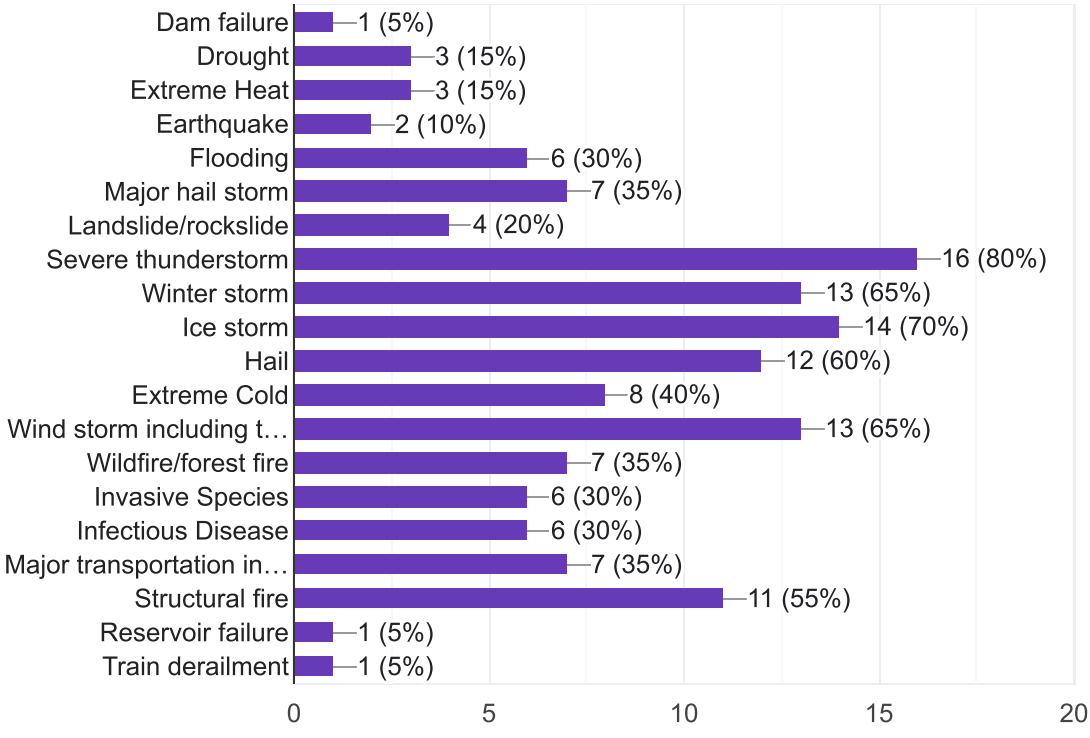
Copy



Is your home at risk for any of the following disasters?

Copy

20 responses



List newspaper, TV, radio, social media that you would use for receiving information

20 responses

TV radio

Addison Independent, Town of Middlebury listserve, Front Porch Forum

FPF, Facebook, town email

Town of Middlebury alerts, vermont alerts

Everbridge, WCAX, WPTZ, Addison Independent

Addison Independent, VPR, Seven Days, Town email

TV Newspaper

Addy Indy, MCTV, town emails, Facebook, emergency tv announcements, vt alerts text messages

Addison Independent, FPF, WCAX, Facebook, Instagram, X

WDEV Addison independent vpr

Burl Free Press, Addison Independent, Facebook

Addison Independent, wvtk, Burlington free press, Town of Middlebury alerts

social media (email, texts from local and state agencies)

Alerts on phone, radio, TV

Middlebury email list, addison independent, Vermont Public Radio

Addison Independent, WPTZ, WVTK, VPR

Town notification, public radio

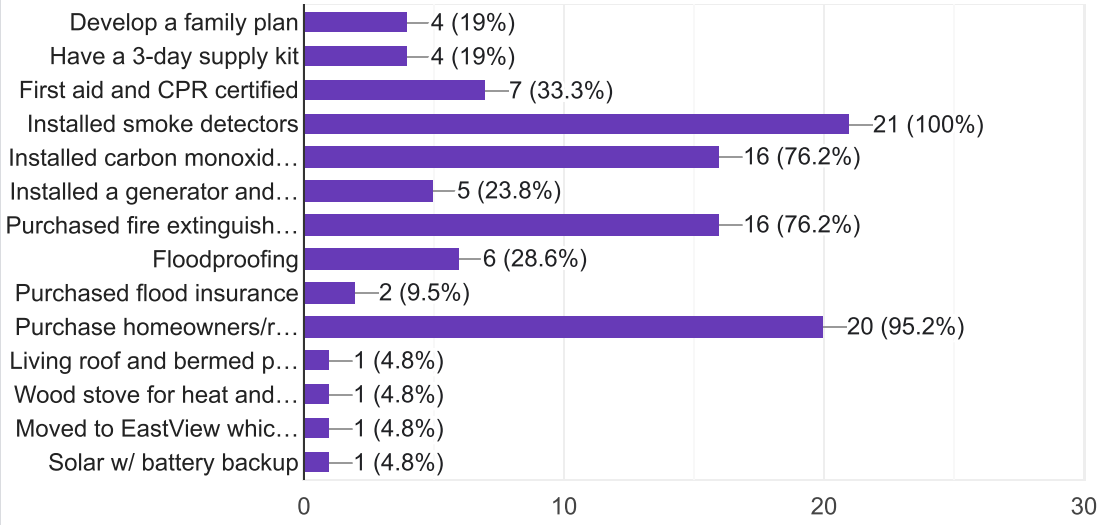
Addy Indy, text from town

Addison Independent, VPR, WPTZ, Town of Middlebury notifications

What actions have your taken to reduce the risk to your residence of potential disasters? (Check all that apply)

Copy

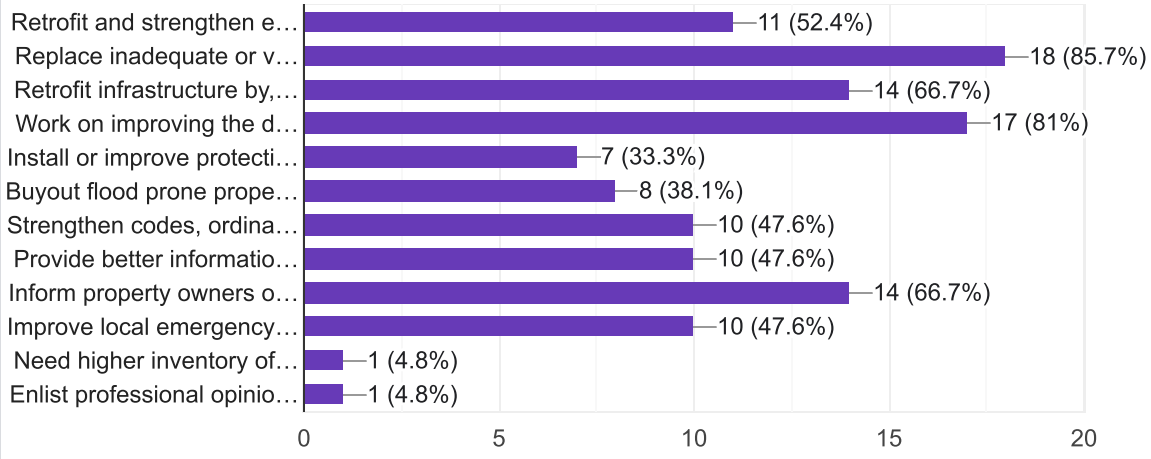
21 responses



Which of the following mitigation project types do you believe local, states and federal government agencies should focus on to reduce disruptions of services and to strengthen the community (Check ALL that apply)

Copy

21 responses

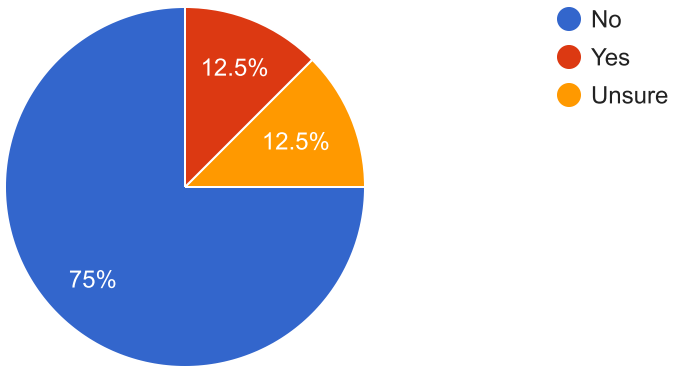


Floodplain Questions

Do you live in a floodplain? (If no, skip to the next section)

Copy

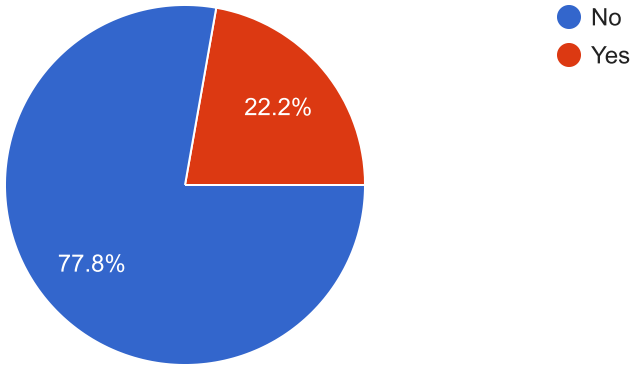
16 responses



Do you have flood insurance?

Copy

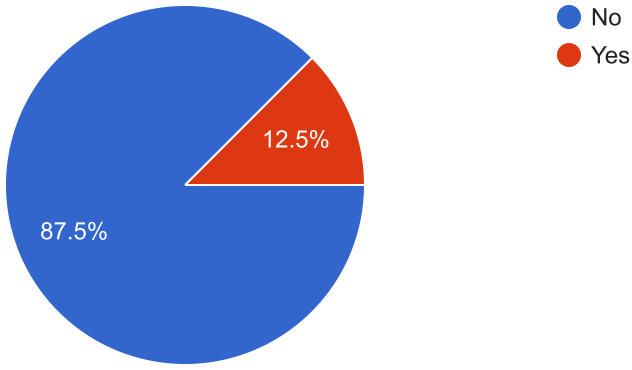
9 responses



If you do not have flood insurance would you like information about flood insurance?

Copy

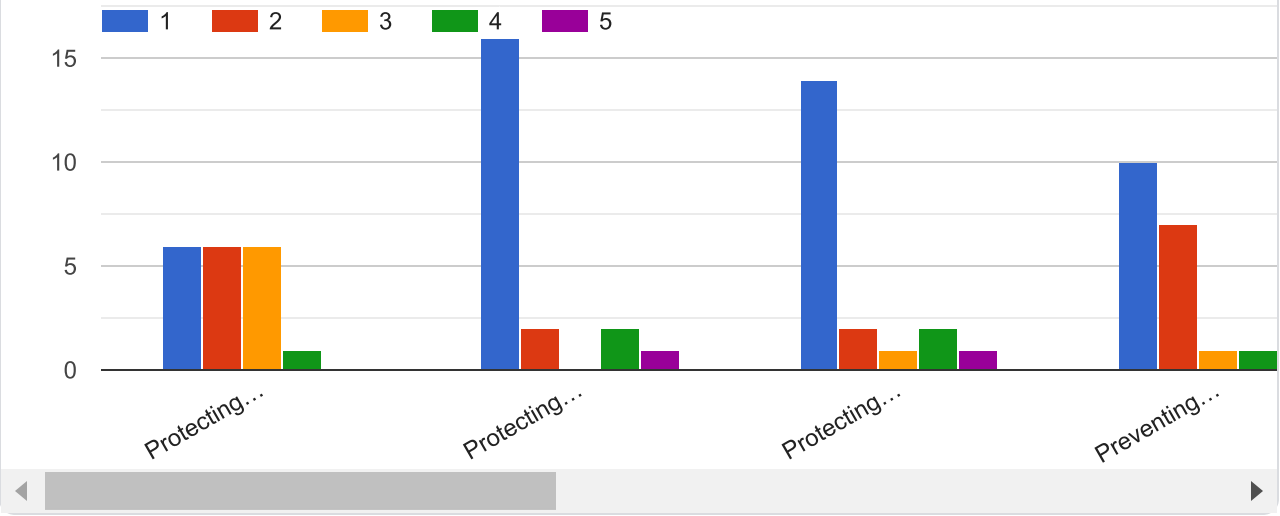
8 responses



Protecting yourself and your community

Thinking about protecting yourself and your community, rate the following based on importance.
1= Most important 5= Least important

Copy



Appendix C: Mitigation Actions form 2016 Plan and Current Status

Hazard	Action and 2022 Review	Leadership Responsibility	Priority	Timeframe	Link to Goals	Funding Sources? (see Appendix
Flooding and Fluvial Erosion	Milone and MacBroom Middlebury River Phase 1 **COMPLETED**	Town Manager, Public Works, Planning	High	Q3, 2015 – Q3, 2016	1,2,3	HMGP, Town Budget
Flooding and Fluvial Erosion	Milone and MacBroom Middlebury River Phase 2 **COMPLETED**	Town Manager, Public Works, Planning	High	Q3, 2016 – Q3 2017	1,2,3	HMGP, Town Budget
Flooding and Fluvial Erosion	Milone and MacBroom Middlebury River Phase 3 **COMPLETED**	Town Manager, Public Works, Planning	High	Q3, 2017 – Q3 2018	1,2,3	HMGP, Town Budget
Flooding and Fluvial Erosion	Standards for floodplain and EHZ protection **COMPLETED and ongoing updates**	Town Manager, Public Works, Planning	Medium	Q3, 2015-Q4, 2017	1,2,3	Town Budget MPG
Flooding and Fluvial Erosion	NFIP Rating Change **Still needs to be done because of new mapping**	Planning Department, Planning Commission	Low	Q3, 2016 - Q3, 2017	3	Town Budget
Flooding and Fluvial Erosion	Create Conservation Plan **COMPLETED**	Planning Department, Planning Commission	Medium	Q3, 2015 - Q4, 2017	1,2,3	Town Budget
Severe Thunderstorm and Lightning	Evaluate Need for Additional Air Terminals on Town Buildings **carry forward to new plan**	Public Works, Fire Department	Low	Q3, 2015 – Q3 2016	2,3	Town Budget
Wildfire	Explore the Need for a Wildfire Plan **Over time and in recent discussion it was decided it was not a priority and it was decided to drop this action**	Planning DepartmentPlanning	Low	Q3, 2015 – Q4, 2017	1,2,3	USFS grant
Severe Winter Storm	Identify Back-up Power and additional Warming Shelters **In process of getting generator backup**	Town Manager, Public Works, Planning Dept, Emergency Manager	Medium	Q2, 2016 – Q4, 2017	1,2,3	ARC support, Town Budget

	Relationship with ARC has changed over the last few years carry forward to new plan					

Appendix D: Meeting Minutes

Meeting Notes
Middlebury LHMP Kick Off Meeting
August 18, 2022 at 11am

Participants:
(Present in bold)
LHMP Planning Team

Jennifer Murray, Planning and Zoning
Tom Hanley, Police
Tom Scanlon, Health Officer/ Zoning Assistant/ representing police chief
Kathleen Ramsey, Town Manager
David Shaw, Fire Chief
Bill Kernan, Public Works
Andrew L'Roe, Addison County Regional Planning Commission
Stephanie Magnan, SEAM Solutions

Agenda Items:

- Identify and assemble Planning Team
- Establish Call/Meeting Schedule
- Kick off meeting
- Work plan
- Timeline
- Document public outreach strategy

Action Items and Tasks:
Stephanie

- Send questions to Jennifer
- Send out packet for next meeting
- Outline of plan

Further meeting discussion:
Hold monthly meetings for now, but may need to increase frequency to meet the deadline
Outreach Strategy

- Announce the plan update to the community, surrounding towns and other stake holders (Vtrans, river/flood corridor) has been sent out
- 2 public meetings
- Email outreach to communities/ FPF

Future Meetings:
<u>Thursday September 15 at 11</u>
Next Team meeting

Review hazards and make changes
Identify Data sources
Identify critical facilities
Start updating plan sections

Purpose
Introduction
Community Profile

Standard Local Hazard Mitigation Plan Outline

1. Introduction
2. Purpose
3. Community Profile
4. Planning Process
5. Hazard Identification and Risk Assessment
6. Hazard Mitigation Strategy
7. Plan Maintenance

2016 Town of Middlebury LHMP Outline

1. Introduction
    a. Purpose
    b. Background and Scope
    c. Plan Organization
2. Community Profile
3. Planning Process
4. Risk Assessment
    a. Identifying Hazards
    b. Profiling Hazards and Assessing Vulnerability
5. Mitigation Strategy
6. Plan Adoption
7. Plan Implementation and Maintenance

Meeting Notes
Middlebury LHMP Monthly Meeting
October 20, 2022, at 10am

Participants:
(Present in bold)
LHMP Planning Team

Jennifer Murray, Planning and Zoning
Tom Hanley, Police
Tom Scanlon, Health Officer/ Zoning Assistant
Kathleen Ramsey, Town Manager
David Shaw, Fire Chief
Bill Kernan, Public Works
Andrew L'Roe, Addison County Regional Planning Commission
Stephanie Magnan, SEAM Solutions

Agenda Items:

- Historical hazard data
  - 3 mile bridge road
  - Creek Rd – REI ?
  -
- Review hazard list
- Hazard Ranking
- Identify/Review Critical Facilities
- Review changes and make additions to first 3 sections of LHMP
  - Introduction
  - Purpose
  - Community Profile
    - Drinking water and wastewater
    - Transportation
    - Electric Utility Distribution System
    - Public Safety
    - Emergency Management
- Discuss Community Survey or outreach

Standard Local Hazard Mitigation Plan Outline

1. Introduction
2. Purpose
3. Community Profile
4. Planning Process
5. Hazard Identification and Risk Assessment
6. Hazard Mitigation Strategy
7. Plan Maintenance

2016 Town of Middlebury LHMP Outline

1. Introduction
   a. Purpose
   b. Background and Scope
   c. Plan Organization

2. Community Profile
3. Planning Process
4. Risk Assessment
    a. Identifying Hazards
    b. Profiling Hazards and Assessing Vulnerability
5. Mitigation Strategy
6. Plan Adoption

Plan Implementation and Maintenance

Action Items and Tasks:

Further meeting discussion:

Future Meetings:
Thursday November 17, 2022 at 10

Meeting Notes
Middlebury LHMP Monthly Meeting
September 15, 2022, at 11am

Participants:
(Present in bold)
LHMP Planning Team

Jennifer Murray, Planning and Zoning
Tom Hanley, Police
Tom Scanlon, Health Officer/ Zoning Assistant
Kathleen Ramsey, Town Manager
David Shaw, Fire Chief
Bill Kernan, Public Works
Andrew L'Roe, Addison County Regional Planning Commission
Stephanie Magnan, SEAM Solutions

Agenda Items:

- Review hazards and make changes
- Identify Data sources
    - Does infectious disease include animals
    - RPC – does track flooding events
    - Bill Kernan – has data
    - Addison county paper
- Identify critical facilities
    - Water pumps
    - Water facilities
    - Radio tower
    - Reservoir
    - Inground concrete tank
    - E middlebury reservoir
    -
- Start updating plan sections
    - Purpose
    - Introduction
    - Community Profile

Standard Local Hazard Mitigation Plan Outline

1. Introduction
2. Purpose
3. Community Profile
4. Planning Process
5. Hazard Identification and Risk Assessment
6. Hazard Mitigation Strategy
7. Plan Maintenance

2016 Town of Middlebury LHMP Outline

1. Introduction
    a. Purpose
    b. Background and Scope
    c. Plan Organization

2. Community Profile
3. Planning Process
4. Risk Assessment
    a. Identifying Hazards
    b. Profiling Hazards and Assessing Vulnerability
5. Mitigation Strategy
6. Plan Adoption

Plan Implementation and Maintenance

Action Items and Tasks:

Further meeting discussion:

Future Meetings:
Thursday October 20, 2022 at 11

Meeting Notes
Middlebury LHMP Monthly Meeting
January 5, 2023 at 10am

Participants:
(Present in bold)
LHMP Planning Team

Jennifer Murray, Planning and Zoning
Tom Hanley, Police
Tom Scanlon, Health Officer/ Zoning Assistant
Kathleen Ramsey, Town Manager
David Shaw, Fire Chief
Bill Kernan, Public Works
Andrew L'Roe, Addison County Regional Planning Commission
Stephanie Magnan, SEAM Solutions

Agenda Items:

- Discuss community outreach
- Review existing list of mitigation actions
- Finalize critical facilities
- Discuss outline of plan
- Finalize first 3 sections
- Capabilities and vulnerabilities

Standard Local Hazard Mitigation Plan Outline

1. Introduction
2. Purpose
3. Community Profile
4. Planning Process
5. Hazard Identification and Risk Assessment
6. Hazard Mitigation Strategy
7. Plan Maintenance

2016 Town of Middlebury LHMP Outline

1. Introduction
    a. Purpose
    b. Background and Scope
    c. Plan Organization
2. Community Profile
3. Planning Process
4. Risk Assessment
    a. Identifying Hazards
    b. Profiling Hazards and Assessing Vulnerability
5. Mitigation Strategy
6. Plan Adoption

Plan Implementation and Maintenance

Action Items and Tasks:

- Discuss community outreach

    - Send survey questions
- Review existing list of mitigation actions
    - Reviewed and noted in document
- Finalize vulnerability map with finalized critical facilities
- Finalize first 3 sections

Further meeting discussion:

- Capabilities and vulnerabilities
    - Fire, police and dpw handled
    - Utilized the police station as a warming shelter 24 hours
    - Back up power for the town shelter – should have that
        - Grants for shelter equipment
        - ARC has changed their philosophy
        - No shelter staff
    - Back up power at dpw is needed and will apply
    - Issue with floods, VTrans has issues with the town closing the state roads
- Train derailment – 30 agencies all Addison county FD
    - After action report

FEMA grants – turn around time for applications with 50% match – they don't advertise on a regular basis
Safer grant – homeland security fire safety grants – micro grants were too small – pulled plug because of the negative input
Set aside a certain amount of money each year
2 generators – water sources – to support primary backup generator

Annual submit emergency management – with good clear rules (grant match terminology for capital budgeting recommendations)

Circle back with VTrans grants

Future Meetings:
TBD

Meeting Notes
Middlebury LHMP Monthly Meeting
January 5, 2023 at 10am

Participants:
(Present in bold)
LHMP Planning Team
Jennifer Murray, Planning and Zoning
Tom Hanley, Police
Tom Scanlon, Health Officer/ Zoning Assistant
Kathleen Ramsey, Town Manager
David Shaw, Fire Chief
Bill Kernan, Public Works
Andrew L'Roe, Addison County Regional Planning Commission
Stephanie Magnan, SEAM Solutions

Agenda Items:

- Discuss community outreach
- Review existing list of mitigation actions
- Finalize critical facilities
- Discuss outline of plan
- Finalize first 3 sections
- Capabilities and vulnerabilities

Standard Local Hazard Mitigation Plan Outline

1. Introduction
2. Purpose
3. Community Profile
4. Planning Process
5. Hazard Identification and Risk Assessment
6. Hazard Mitigation Strategy
7. Plan Maintenance

2016 Town of Middlebury LHMP Outline

1. Introduction
    a. Purpose
    b. Background and Scope
    c. Plan Organization
2. Community Profile
3. Planning Process
4. Risk Assessment
    a. Identifying Hazards
    b. Profiling Hazards and Assessing Vulnerability
5. Mitigation Strategy
6. Plan Adoption

Plan Implementation and Maintenance

Action Items and Tasks:

- Discuss community outreach

    - Send survey questions
- Review existing list of mitigation actions
    - Reviewed and
- Finalize critical facilities
- Discuss outline of plan
- Finalize first 3 sections
- Capabilities and vulnerabilities
    - Fire, police and dpw handled
    - Utilized the police station as a warming shelter 24 hours
    - Back up power for the town shelter – should have that
        - Grants for shelter equipment
        - ARC has changed their philosophy
        - No shelter staff
    - Back up power at dpw is needed and will apply
    - Issue with floods, VTrans has issues with the town closing the state roads
- Train derailment – 30 agencies all Addison county FD
    - After action report

FEMA grants – turn around time for applications with 50% match – they don't advertise on a regular basis
Safer grant – homeland security fire safety grants – micro grants were too small – pulled plug because of the negative input
Set aside a certain amount of money each year
2 generators – water sources – to support primary backup generator

Annual submit emergency management – with good clear rules (grant match terminology for capital budgeting recommendations)

Circle back with VTrans grants

Further meeting discussion:

Future Meetings: January 26 @11am

January 26 Town of Middlebury LHMP meeting

Agenda

1. Community Survey Questions
2. Comments and feedback for Draft Plan provided
    1. Introduction
    2. Purpose
    3. Community Profile
3. Community Capabilities
    1. Administrative and technical
    2. Planning and regulatory
    3. Financial
    4. Education and outreach
    5. National Flood Insurance Program
4. Hazard assessment
    1. Location
    2. Vulnerable assets
    3. Extent
    4. Impact
    5. Probability

Send email to jen to provide zoom link

Jennifer Murray -Planning

David Shaw – Fire Department

Tom Hanley –

Andrew L'Roe

Community Survey

Add property owner to type

Add do not know if the live in a flood plain

Look at primarily natural hazards for FEMA purposes

Off of 116

Range of hazard concerns basically combining the least and highest

Add other to each section for input

Remove hail and major hail

FEMA funded project Middlebury river project

Creek rd north south of the town along the Otter Creek thoughts of making it into a recreational corridor

With the wind storm

Road foreman was asked to track the storm damage – informed PD but didn't' communicate to Public works

Public works repeater is not with the FD and PD VHF on Chipep tower with power back up

Salt shed or main garage is where DPWs repeater – FD/PD didn't have the pair access for the repeater

FD has multiple back up systems/

PD also has multiple backup for radios

Do not participate in FIRSTNET because of the Verizon service.

FEMA funded project Middlebury river project

Creek rd north south of the town along the Otter Creek thoughts of making it into a recreational corridor

Reach out and communicate and work with other agencies

FD can communicate through phone or radio – mutual aid for resources

PD does if for a living

DPW - slow to react because of how they are structured and labor force

No hierarchy in DPW

Pre storm event tracking resources

Bridges and culverts are definitely tracked with inspections

Emergency action plan – cross department communication

Duplicating efforts – for instance

Town of Middlebury LHMP Agenda
Thursday March 6, 2023 @ 11am

1. NFIP update - old plan 31 policies
2. Identify mitigation goals based on FEMA strategy:
    a. Show how mitigation investments reduce risk
    b. Coordinate mitigation investments to reduce risk
    c. Make mitigation investment standard practice
3. Identify mitigation actions (list from past meetings discussions forthcoming)
4. Additions that now need to be included in LHMPs
    a. Equitable outcomes
    b. Climate Change

Agenda Item 1- NFIP

Has this number of policies changed? Currently 31 policies
Ask Jennifer this questions

Agenda Item 2- Mitigation Goals

FEMA goals
Show how mitigation investments reduce risk
Coordinate mitigation investments to reduce risk
Make mitigation investment standard practice

Below is from the old plan, we'll discuss if this aligns with FEMA's current strategy:

Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Up to this point the planning team has organized resources, assessed natural hazards and risks, and documented the planning process. A profile of Middlebury's vulnerability to natural hazards resulted from this effort, which is documented in the preceding chapter. The resulting goals, objectives, and mitigation actions were developed based on this profile.

Goals were defined for the purpose of this mitigation plan as broad-based public policy statements that:
• Represent basic desires of the community;
• Encompass all aspects of community, public and private;
• Are nonspecific, in that they refer to the quality (not the quantity) of the outcome;
• Are future-oriented, in that they are achievable in the future; and
• Are time-independent, in that they are not scheduled events.

Goals are stated without regard for implementation, that is, implementation cost, schedule, and means are not considered. Goals are defined before considering how to accomplish them so that the goals are not dependent on the means of achievement. Goal statements form the basis for objectives and actions

that will be used as means to achieve the goals. Objectives define strategies to attain the goals and are more specific and measurable.
Based upon the risk assessment review and goal setting process, the planning team developed the following goals with several objectives and associated mitigation measures. These goals and objectives provide the direction for reducing future natural hazard-related losses within the Town of Middlebury.

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

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

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

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

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

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

Agenda Item 3 - Mitigation action ideas

Transportation Events

Infectious Disease Outbreak

Ice/snow/cold

Fluvial Erosion/Flash flooding

Inundation Flooding

High Wind

The following are excerpts from past meeting discussions

- FEMA funded project Middlebury river project ?
    - Creek rd north south of the town along the Otter Creek thoughts of making it into a recreational corridor
- Interoperability of radios to communicate during events (all events)
- Pre storm event tracking resources (flooding)
    - Bridges and culverts are definitely tracked with inspections
- Emergency action plan – cross department communication (all events)
    - Duplicating efforts – for instance
- Fully Operational shelter (all events)
    - Back up power for the town shelter – should have that COMPLETED?
    - Grants for shelter equipment
    - ARC has changed their philosophy
    - No shelter staff
- Back up power at dpw is needed and will apply all events
- Issue with floods, VTrans has issues with the town closing the state roads (transportation and flooding)
- Better knowledge of what is being transported through the Town
    - Need after action report of derailment
    - As railroad for that information VTrans/VEM/State HazMat
- Stockpiling supplies needed for another virus outbreak (infectious disease)
- Selectboard continuity of operation – became evident during covid shut down
- MRGP/REI flooding
- US 7
- charles ave and Monroe st – congestion issue and leads to first response issues

Appendix E: Certificate of Adoption

CERTIFICATE OF ADOPTION

<<DATE>>

TOWN OF Middlebury, Vermont Selectboard

A RESOLUTION ADOPTING THE Local Hazard Mitigation Plan – Town of Middlebury, Vermont 2024

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

WHEREAS, the Town of Middlebury has developed and received conditional approval from Vermont Emergency Management (VEM) for its **Local Hazard Mitigation Plan – Town of Middlebury, Vermont 2024 (Plan)** under the requirements of 44 CFR 201.6; and

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

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

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

RESOLVED by Town of Middlebury Selectboard:

1. The **Local Hazard Mitigation Plan – Town of Middlebury, Vermont 2024** is hereby adopted as an official plan of the Town of Middlebury:
2. The respective officials identified in the mitigation action plan of the **Plan** are hereby directed to pursue implementation of the recommended actions assigned to them;
3. Future revisions and **Plan** maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as part of this resolution for a period of five (5) years from the date of this resolution; and
4. An annual report on the process of the implementation elements of the Plan will be presented to the Selectboard by the Emergency Management Director or Coordinator.

IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Middlebury this ____ day of _____ 2024.

_____	_____	_____
Selectboard Chair	Selectboard Member	ATTEST Town Clerk