

Middletown Springs, Vermont Local Hazard Mitigation Plan



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Western Vermont Floodplain Manager



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1 Introduction

The impact of expected, but unpredictable natural events can be reduced through community planning. The goal of this Plan is to provide a natural hazards local mitigation strategy that makes Middletown Springs (the Town) more disaster resistant.

Hazard Mitigation is any sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects. FEMA and state agencies have come to recognize that it is less expensive to prevent disasters than to repeatedly repair damage after a disaster has struck. This Plan recognizes that communities have opportunities to identify mitigation strategies and measures during all the other phases of Emergency Management – Preparedness, Response and Recovery. Hazards cannot be eliminated, but it is possible to determine what the hazards are, where the hazards are most severe, and identify local actions that can be taken to reduce the severity of the hazard.

2 Purpose

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

The benefits of mitigation planning include:

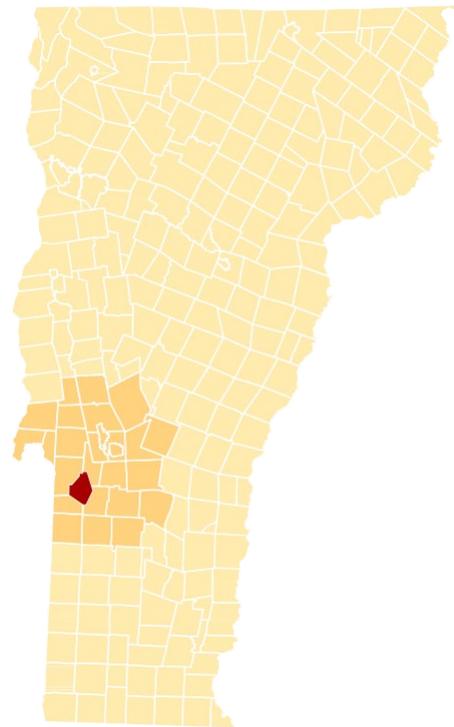
- Identifying actions for risk reduction that are agreed upon by stakeholders and the public;
- Focusing resources on the greatest risks and vulnerabilities;
- Increasing education and awareness of threats and hazards, as well as their risks;
- Communicating priorities to State and Federal officials;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

Furthermore, the Town seeks to be in accordance with the strategies, goals, and objectives of the 2018 State Hazard Mitigation Plan.

3 Community Profile

Land Use and Development Patterns

Middletown Springs is a small, rural town encircled by mountains. The village green lies at the heart of the village, surrounded by one of the Town's two churches, fine historic houses, a country store, and old cemetery. One of the historic structures in this village center is owned by the Middletown Springs Historical Society and houses a museum as well as the Town Office. The Town Garage, transfer station, and Fire House are all located right behind the Town Office. A former service station site is soon to house a new Town Office and Library.



Middletown Springs history as a resort town and booming industry left a legacy of elegant buildings along the main roads emanating from the village center. In 1984, much of the village center was added to the National Register for Historic Places and later an additional 31 sites outside the village were added to the Vermont State Register of Historic Places.

Outside of the village area, the Town is largely rural residential with a mixture of active agricultural lands and several home-based businesses. As of 2002, 70% of the land acreage is woodland and another 18% are a combination of cropland and pastureland.

Aside from the relatively flat lands in the village and extending along the river, Middletown Springs has a very hilly terrain with steep ridgelines surrounding it. Elevations range from a low of around 660' along Route 140 on the west side of town to over 2100' at the high points in the northeast side of town, with the village center mostly around 900'.

Demographics and Growth Potential

The 2017 American Community Survey Five-Year Estimates prepared by the U.S. Census Bureau shows an estimated population of 835 for Middletown Springs, and 452 housing units. Of the population included in the survey, 23% were 19 or under, and 22% were 65 or over, with a median age of 47.8 years, substantially older than Vermont’s already high median age of 42.

The population of Middletown Springs declined by 9% from 823 to 745 between 2000 and 2010. Although the population increased by 12% from 745 to 835 between 2010 and 2017, it is not expected that Middletown Springs will grow significantly (in terms of adding new homes and businesses) in the next decade. This is due in part to a lack of infrastructure; to certain soil types and hilly terrain which limit feasible development; and to the Town’s location, which features winding and narrow roads. Aside from these physical constraints to population growth, there is strong public sentiment to maintain the rural character and historic settlement pattern of the Town.

Precipitation and Water Features

Average precipitation is 40.6 inches of rain, two-thirds of which falls between May and November. Average snowfall is 73.1 inches, most of which is December through March.

Poultney River and many of its tributaries flow through Middletown Springs. Floodplains and riverbanks along the Poultney River and South Brook are significant natural resources. The Town is located within the South Lake watershed of the Champlain Valley.

Water and Sewer Supply

There are no municipal water systems nor municipal sewer services in town. Homes and businesses rely upon individual wells for water supply, and on-site septic systems for waste management.

Transportation

Transportation to and from Middletown Springs is primarily via Vermont Routes 140 and 133. The Town maintains 30 miles of class 2 & 3 roads: 26 miles unpaved and four miles paved. The State maintains Route 133 and the eastern portion of Route 140 that is co-designated with 133. The town-maintained western stretch of Route 140 to the Poultney town line has substantial traffic volumes, and its maintenance is a burden upon the Town’s limited highway resources.

The Town has accurate and current road, bridge and culvert inventories, and has pursued numerous reconstruction and culvert-upgrade projects in recent years, in coordination with RRPC, VTRANS and Vermont ANR.

Electric Utility Distribution System

Electric service to approximately 457 customers is provided by Green Mountain Power via one circuit. Average annual outage statistics between 2015 and 2018 are summarized in **Table 1**.

Table 1: Power Outage Summary

Average Annual (2015-2018)	
Avg # of times a customer was without power	4.59
Avg length of an outage in hours	2.89
# of hours the typical customer was without power	13.28
2018 only	
Avg # of times a customer was without power	5.71
Avg length of an outage in hours	2.69
# of hours the typical customer was without power	15.37

The longest power outage affecting the greatest number of customers was 28.76 hours long and impacted 30 customers. There was a 55.73 hour long outage, but it only impacted three customers.

Emergency Management

Fire protection is provided by the Middletown Springs Volunteer Fire Department. Currently the Fire Department has 16 volunteers and five trucks (three NIMS I pumpers, one NIMS III pumper/tanker, and

one NIMS II ladder truck). The Town has mutual aid agreements with 15 other towns in the county.

Law enforcement services are provided by contract with the Rutland County Sheriff's Department, which has a forty-hour patrol shared by Ira, Tinmouth, Danby, and Middletown Springs. Law enforcement coverage is also available by the State Police as needed, though long service delays are common.

Emergency medical care is provided in town by the Middletown Springs First Response and Poultney Rescue Squad. Advanced paramedic service and transport is provided by the Regional Ambulance service as needed. Most acute care services are provided by Rutland Regional Medical Center, with specialist/medivac support to Dartmouth Hitchcock (53 miles) and the University of Vermont (70 miles).

Emergency Management Planning

The Town has an appointed Emergency Management Director (EMD) who works with others in town to keep the Local Emergency Plan up-to-date as well as to coordinate with nearby towns and regional emergency planning efforts.

4 Planning Process

Plan Developers

Steffanie Bourque, an Emergency Management Planner at the Rutland Regional Planning Commission (RRPC) assisted the Town with updating its Local Hazard Mitigation Plan. Hazard Mitigation Grant Program funds from FEMA supported this process.

The Hazard Mitigation Committee members who assisted with the update include the EMD, Selectboard Chair, Road Foreman, and representative from the local Planning Commission (who also happens to be the Executive Director of the Poultney Mettowee Resource Conservation District).

Plan Development Process

The 2019 Middletown Springs Local Hazard Mitigation Plan is the first single jurisdiction mitigation plan drafted for the Town. Previously, the Town had a town-specific Annex in the 2009 Rutland County, VT Hazard Mitigation Plan.

Table 2: Plan Development Process

October 4, 2018: Kick-off meeting with the Hazard Mitigation Committee. Discussed the status of the current plan, the plan development process, potential hazards, and next steps.

May 24, 2019: Hazard Mitigation Committee meeting. Reviewed the status of the current plan and the plan development process, including opportunities for public participation. Completed the community hazard risk assessment to identify high risk hazards and began reviewing high risk hazard profiles and weather event history.

June 5, 2019: Public notice posted on RRPC social media and Middletown Springs Front Porch Forum that the Town is engaging in hazard mitigation planning and updating their LHMP. Emailed notice to Selectboard/Planning Commission chairs and Town Clerks in the neighboring towns of Ira, Tinmouth, Poultney, and Wells. Name and contact information provided in notices for more information. No public comments received.

June 11, 2019: Input received from Road Foreman on vulnerable locations and assets.

June 21, 2019: Hazard Mitigation Committee meeting. Completed work on hazard identification and risk assessment. Began work on mitigation strategy – goals; capabilities; mitigation action evaluation, prioritization, and implementation; and changes since 2009 plan.

June 24, 2019: Road Foreman and Poultney Mettowee Conservation District input on mitigation actions.

June 26, 2019: Draft Plan shared with neighboring Selectboards / Planning Commissions / Town Clerks for input and notice posted on the RRPC website and Front Porch Form for a 14-day public comment period.

June 27, 2019: Draft Plan review by local Selectboard and Planning Commission at public meeting.

July 11, 2019: Public comments incorporated into Draft Plan and then submitted to VEM for review.

July 29, 2019: Incorporated VEM comments into Draft Plan.

This Plan has been reconstructed as a single jurisdiction, stand-alone Middletown Springs Local Hazard Mitigation Plan that will be submitted for individual approval to FEMA. As such, several sections have been added or updated to include all necessary information. A summary of the process taken to develop this Plan is provided in **Table 2**.

In addition to the local knowledge of Committee members and other relevant parties, several existing plans, studies, reports, and technical information were utilized in the preparation of this Plan. A summary of these is provided in **Table 3**.

Changes Since the 2009 Plan

Recent development in Town over the past decade has included the construction of single family homes. In a typical year, the Town will see two to three new residential houses built – and they have always been built outside of the floodplain. Middletown Springs rarely sees commercial development – in the past 10 years, one apartment complex with four units was built. Also, new subdivisions are rare – the last one was built over 10 years ago. This development has not made the Town more vulnerable, since development has not occurred in flood zones or other hazardous areas.

There has been little change in the Town’s mitigation priorities between this Plan update and the 2009 plan. In 2009, floods and fluvial erosion, winter storms, and high winds were the Town’s highest risk hazards.

Since the 2009 Plan, the Town has acquired property at the South/East Street intersection and conducted extensive planning toward the construction of a new town office. This will relieve the problems of records preservation identified in the 2009 Plan. Bonding for this construction will be presented to Town voters in fall 2019.

Similarly, the Town has acquired property on West Street and is conducting extensive planning toward the construction of a new town garage, salt shed, and transfer station. This will address the problems caused by runoff from the sand/salt pile identified in the 2009 Plan.

Hazard mitigation actions from 2009 are presented in **Appendix C**. The Hazard Mitigation Committee reviewed these actions and reported on the status of each.

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

- 2019 FEMA NFIP Insurance Reports
- 2019 Local Emergency Management Plan
- 2018 State of Vermont Hazard Mitigation Plan
- 2017 Middletown Springs Town Plan
- 2017 American Community Survey Five-Year Estimate
- 2013 Stormwater Infrastructure Mapping Study
- 2009 Rutland Region All Hazards Mitigation Plan
- 2008 Flood Hazard Area Regulations
- National Oceanic and Atmospheric (NOAA) National Climatic Data Center’s Storm Events Database
- FEMA Disaster Declarations for Vermont
- OpenFEMA Dataset: Public Assistance Funded Project Summaries for Vermont
- U.S. Geological Survey National Water Information System- Stream Gage Data
- “Climate Variability and Socioeconomic Consequences of Vermont’s Natural Hazards: A Historical Perspective” by Lesley-Ann Dupigny-Giroux, 2002, Vermont History 70: 19-39.
- Rutland Herald Archives
- FEMA Flood Insurance Rate Maps
- Relevant Stream Geomorphic Assessments and/or River Corridor Plans

5 Hazard Identification and Risk Assessment

After engaging in discussions, the Town identified the following “high risk hazards” that they believe their community is most vulnerable to:

Local Vulnerabilities and Risk Assessment

One of the most significant changes from the 2009 Plan is the way hazards are assessed. To be consistent with the approach to hazard assessment in the 2018 State Hazard Mitigation Plan, the Hazard Mitigation Committee conducted an initial analysis of known natural hazards to determine their probability of occurring in the future.

- Rain/Thunderstorms with associated fluvial erosion, inundation flooding, high winds, and/or hail.
- Winter storms with associated extreme cold, snow, ice, and high winds.

Each of these “high risk hazards” (orange in Table 4) are further discussed in this section and depicted in the Local Hazards and Vulnerabilities Map in Appendix B.

The Committee then ranked the hazard impacts associated with the known natural hazards based on the probability of occurrence and potential impact to life, the economy, infrastructure, and the environment. The ranking results are presented in Table 4.

The “low risk hazards” that are considered to have a low probability of occurrence and low potential impact are not discussed. For information on these hazards, consult the State Hazard Mitigation Plan.

Table 4: Community Hazard Risk Assessment

Hazard Event	Hazard Impacts	Probability	Potential Impact					Score
			Life	Economy	Infrastructure	Environment	Average	
Thunderstorm	Fluvial Erosion	4	1	2	3	2	2.00	8.00
Tropical Storm/Hurricane	Inundation Flooding	3	1	1	2	1	1.25	3.75
Landslide	Wind/Hail	4	1	1	2	1	1.25	5.00
Ice Jam	Cold/Snow/Ice/Wind	4	1	2	2	1	1.50	6.00
Tornado	Heat	2	1	1	1	1	1.00	2.00
Winter Storm	Drought	2	1	1	1	2	1.25	2.50
Drought	Wildfire	1	1	1	1	1	1.00	1.00
Wildfire	Earthquake	1	1	1	1	1	1.00	1.00
Earthquake	*Score = Probability x Average Potential Impact							

	Frequency of Occurrence: Probability of a plausibly significant event	Potential Impact: Severity and extent of damage and disruption to population, property, environment and the economy
1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	Likely: >10% but <75% probability per year, at least 1 chance in next 10 years	Moderate: severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	Highly Likely: >75% probability in a year	Major: severe property and environmental damage on a community or regional scale, multiple injuries or fatalities, significant economic impact

High Risk Hazard Profiles

Inundation Flooding and Fluvial Erosion

Flooding is the overflowing of rivers, streams, drains and lakes due to excessive rain, rapid snow melt or ice as well as overflow of banks caused by sudden high water flow due to breaching of dams (both human-made and natural dams caused by beavers or debris build-up). Flooding of land adjoining the normal course of a stream or river is a natural occurrence. If these floodplain areas were left in their natural state, floods likely would not cause significant damage.

Floods can damage or destroy public and private property, disable utilities, make roads and bridges impassable, destroy crops and agricultural lands, cause disruption to emergency services, and result in fatalities. People may be stranded in their homes for a time without power or heat or they may be unable to reach their homes. Long-term collateral dangers include the outbreak of disease, loss of livestock, broken sewer lines or wash out of septic systems causing water supply pollution, downed power lines, loss of fuel storage tanks, fires and release of hazardous materials.

While inundation-related flood loss is a significant component of flood disasters, the more common mode of damage in Vermont is associated with fluvial erosion, streambed and streambank erosion, often associated with physical adjustment of stream channel dimensions and location during flood events. These dynamic and oftentimes catastrophic adjustments are due to bed and bank erosion, debris and ice jams, or structural failure of or flow diversion by human-made structures. An ice jam occurs when the ice layer on top of a river breaks into large chunks which float downstream and cause obstructions (State HMP 2018). Although they are not common, the Town does have the potential for ice jams – particularly in the Poultney River along Route 140. This area is routinely monitored by Town highway personnel.

As noted in the State Hazard Mitigation Plan, “Flooding is the most common recurring hazard event in Vermont” (2018: 55). Several major flooding events have affected the state in recent years, resulting in multiple Presidential Disaster Declarations.

From 2003 to 2010, Rutland County experienced roughly \$1.4 million in property damages due to flood events.

The worst flooding event in recent years came in August of 2011 from Tropical Storm Irene, which dropped up to 10-11 inches of rain in some areas of Rutland County. Irene caused 2 deaths and \$55,000,000 in reported property damages and \$2.5 million in crop damages in Rutland County. Although the storm was technically a tropical storm, the effects of the storms are profiled in this flooding section, since the storm brought only large rainfall and flooding to the Town, not the high winds typically associated with tropical storms. This caused most streams and rivers to flood in addition to severe fluvial erosion.

From 2012 to 2018, Rutland County experienced approximately \$2.5 million in property damages; with \$1.9 million due to flash flood event in July 2017.

In Middletown Springs, flooding is the greatest risk. Middletown Springs has a high number of streams and brooks running through it, draining water from the hills down toward the Poultney River. Given the agricultural history of the town, many of the roads have been built alongside these waterways and they are predominately gravel. During periods of high rains or rapid spring thaws the water can move quickly, exceeding the banks, and doing damage to roads, culverts and bridges. Historically, there have been several major floods such as those that wiped out the mills in the 1800s as well as the ones that covered and uncovered the mineral springs.



Undersized Culvert on Norton Road

As shown on the Local Hazards and Vulnerabilities Map in **Appendix B**, areas prone to inundation flooding have been along Buxton Avenue and Burdock Avenue—both of which are in floodplains.

In December 2000, significant road and culvert damage occurred along Coy Hill Road and Buxton Avenue. No significant damage occurred to the houses on Buxton Avenue. It is believed that this problem area has been improved over the past couple of years through culvert work, stone-lining ditches, and streambank armoring.

Additional inundation flooding potential exists along Coy Hill Road due to a large, man-made pond located just over the town line in Wells. Although the pond has not breached its banks in the past, it remains a concern and is monitored.

Rain from Tropical Storm Irene totaled around 7 inches on August 27-28, 2011. This rainfall damaged numerous town roads in Middletown Springs. In addition, the Poultney River eroded its bank along VT Route 140 (West Street), which is maintained by the Town, temporarily closing one lane. At Middle Granville, New York, the USGS gauge recorded a peak of 15 feet on the Mettowee River, which is 8 feet above flood stage.

Post-Irene, several culverts were upgraded and stream banks stabilized to help maintain water flow and stop erosion. These areas include West Street along the Poultney River and Burdock Avenue along North Brook.



Streambank Armoring on the Poultney River

Currently there are 28 structures (commercial, residential, and accessory buildings) in Town located in the Special Flood Hazard Area. According to FEMA, three properties are covered by flood insurance and there are no repetitive loss properties.

Flash flooding events periodically wash out sections of nearly every gravel road – Norton Road, Spruce Knob Road, North Street, Dudley Road, Haley Road, Fitzgerald Road, Daisy Hollow Road, Garron Road, Coy Hill Road, and Dayton Hill Road. The most recent event, which received a federal disaster declaration (DR4445), occurred in April 2019 with approximately \$70,000 in local damages.



Flash Flood Erosion on Fitzgerald Road

The Poultney River in Middletown Springs has undergone Stream Geomorphic Assessment (SGA), and a River Corridor Management Plan has been developed. This study and plan are vital in determining river and stream alterations, which affect water flows and could potentially lead to future flood damage. The SGA and River Corridor Plan suggests potential remediation actions that can be taken to reduce the risk of future flood damage including, planting stream buffers, stabilizing stream banks, removing berms, removing structures and restoring incision areas.

Severe Wind/Hail

Severe thunderstorms can produce high winds, lightning, flooding, rains, large hail, and even tornadoes. Thunderstorm winds are generally short in duration, involving straight-line winds and/or gusts in excess of 50 mph. Thunderstorm winds can cause power outages, transportation and economic disruptions, significant property damage, and pose a high risk of injuries and

loss of life. From 2004 to 2010, for thunderstorms that caused more than \$200,000 in damage, Rutland County experienced nearly \$2 million in property damage. From 2011 to 2018, thunderstorms resulted in \$2.1 million in property damage in Rutland County, with \$525,000 due to a high wind event in May 2017.

Hail is a form of precipitation composed of spherical lumps of ice. Known as hailstones, these ice balls typically range from 5–50 mm in diameter on average, with much larger hailstones forming in severe thunderstorms. The size of hailstones is a direct function of the severity and size of the thunderstorm that produces it. Much of the hail activity in Rutland County is scattered and varies in intensity, and the resulting damage usually takes form in uprooted trees, downed power lines, and crop damage.

Violent windstorms are possible here; Middletown Springs is susceptible to high directional winds. Many storms with high winds result in downed trees, damaged phone and power lines, and crop losses. Middletown Springs is vulnerable to power outages. The following public buildings/critical facilities could be affected by a prolonged power outage due to lack of back-up power: town office (which serves as the alternate emergency operations center), elementary school (which serves as the primary shelter location), Community Church (which serves as an alternate shelter location), St. Anne's Church (which is the designated evacuation center for the elementary school), and the public library.

Because there is no municipal water system, when there is a power outage, those that rely on a private well are also without water during a prolonged power outage.

Currently, the Middletown Springs Firehouse (which serves as the primary EOC) has a generator.

Extreme Cold/Snow/Ice/Wind

In the Rutland Region, most winter weather events occur between the months of December and March. Throughout the season, winter weather events can include snowstorms, mixed precipitation events of sleet and freezing rain, blizzards, glaze, extreme cold, the occasional ice storm, or a combination of any of the above. Events can also be associated with high winds or flooding, increasing the potential hazard.

The costs of these storms come in the form of power outages due to heavy snow or ice accumulations, damaged trees, school closings and traffic accidents. From 2002 to 2010, Rutland County experienced \$1.1 million in property and crop damages from winter storms. From 2011 to 2018, Rutland County experienced \$1.3 million in property damage, with \$300,000 due to a 10" to 20" heavy, wet snowfall across the county on December 9, 2014.

There have been four winter storm-related federally declared Disasters in the county (the ice storm of January 1998 – DR 1201; severe winter storms in December 2000 and 2014 – DR 1358 and DR 4207, respectively; and severe storm and flooding in April 2007 – DR 1698). Historically, the winter storm of December 1969 brought record snowfall amounts and snowdrifts to Vermont, and later freezing rain caused prolonged power outages (Dipugny-Giroux 2002:26).

Middletown Springs is not as vulnerable to snow and ice storms as it is to flooding. Typically, towns' vulnerability to snow and ice storms are power outages and loss of road accessibility. As previously described, the Town could be vulnerable to a power outage caused by ice/wet snow accumulation on power lines or trees falling on power lines due to weight of ice accumulation in a storm, especially if the outage coincided with a large scale sheltering event.

In general, snow accumulation and drifting has not made the Town vulnerable to loss of road accessibility. Drifting is common at the top of Dudley Road, top of Spruce Knob Road, on Lookaway Road, sections of Coy Hill Road, and a small section on Route 140. The Town's fleet of snowplows has ensured that roads are accessible, even in major snow accumulation events.

High Risk Hazard History

Note: These are the most up to date significant events impacting Middletown Springs.

Inundation Flooding and Fluvial Erosion

4.15.2019: DR4445 1" rain: +/- \$70,000 local damage
 8.28.2011: DR4022 Tropical Storm Irene 7" rain: \$102,081 local damage (\$26,711 Individual/\$68,970 Public/\$6,337 NFIP)
 10.7.2005: 3-4" rain: no reported impact
 12.16.2000: 2-4" rain: \$36,628 local damage
 7.31.2000: 5+" rain: portions of Route 133 washed out: \$5,000 local damage
 9.16.1999: DR1307 Tropical Storm Floyd 4-5" rain: no reported impact
 1.19.1996: DR1101 snow melt/rain: \$1,330 local damage

Severe Wind/Hail

4.1.2018: 50-60 mph wind: downed trees/power lines: \$50,000 regional damage
 10.30.2017: 40 mph wind: \$100,000 regional damage
 7.1.2017: 50 mph wind: \$2,000 local damage
 5.5.2017: 60 mph wind: \$500,000 regional damage
 10.28.2015: 40 mph wind: downed trees/power lines: \$50,000 regional damage
 8.5.2014: 50 mph wind: downed trees: \$2,000 local damage
 5.27.2014: 1 ¾" hail: \$75,000 regional damage
 10.29.2012: 40-50 mph wind: \$15,000 regional damage
 5.29.2012: 1 ½" hail: no reported impact
 8.28.2011: 50 mph wind: \$100,000 regional damage
 5.8.2010: 50 mph wind: \$5,000 local damage
 8.16.2007: 1" hail: no reported damage
 6.25.1998: DR1228 lightning and high wind: downed trees/power lines, major power outages: \$15,000 local damage

Extreme Cold/Snow/Ice/Wind

1.13.2018: ½" freezing rain/sleet: \$5,000 regional damage
 3.14.2017: 22" snow with 35 mph wind gusts: \$25,000 regional damage
 2.1.2015: Record cold month with 15 to 20+ days below zero: no reported impact
 1.7.2015: 0 to 10 degrees with winds of 15-30 mph
 Creating wind chills colder than -20 to -30 below zero: no reported impact
 12.9.2014: DR4207 10-20" snow: \$100,000 regional damage
 3.12-13.2014: 8-24" snow and wind gusts to 35-40 mph: \$35,000 regional damage
 3.6.2011: 6-12" snow and ¼" ice: \$10,000 regional damage
 2.23.2010: 6-30" snow: \$100,000 regional damage
 4.15-16.2007: DR1698 "Nor'icane" 3" snow and rain with winds of 60 to 80 mph: \$1,000,000 regional damage

Vulnerability Summary

Inundation Flooding and Fluvial Erosion

Location¹: Town-wide

Vulnerable Assets¹: Houses, roads, bridges, culverts

Extent: 7" of rain; extent data for fluvial erosion is unavailable

Impact: \$102,081 (local)

Probability: Fluvial Erosion, Highly Likely
 Inundation Flooding, Likely

Severe Wind/Hail

Location¹: Town-wide

Vulnerable Assets¹: Houses, trees, power lines

Extent: 1 ¾" hail and 60 mph winds

Impact: \$15,000 (local) / \$500,000 (regional)

Probability: Highly Likely

Extreme Cold/Snow/Ice/Wind

Location¹: Town-wide

Vulnerable Assets¹: Houses, roads, trees, power lines, bridges, culverts

Extent: Up to 30" of snow; ½" freezing rain/sleet; 80 mph winds; 15 to 20+ days below zero

Impact: \$1,000,000 (regional)

Probability: Highly Likely

¹ See **Appendix B**: Local Hazards and Vulnerabilities Map

6 Hazard Mitigation Strategy

The high risk hazards and vulnerabilities identified in the previous section of this Plan directly inform the hazard mitigation strategy outlined below, which the community will strive to accomplish over the coming years. The mitigation strategy chosen by the Town includes the most appropriate activities to lessen vulnerabilities from potential hazards.

Mitigation Goals

The Hazard Mitigation Committee discussed mitigation goals and identified the following as the community's main mitigation goals:

- Reduce or avoid long-term vulnerabilities to identified hazards;
- Reduce the loss of life and injury resulting from these hazards;
- Mitigate financial losses incurred by municipal, residential, industrial, agricultural and commercial establishments due to disasters;
- Reduce the damage to public infrastructure resulting from these hazards;
- Encourage hazard mitigation planning as a part of the municipal planning process;
- Encourage the adoption and implementation of existing mitigation resources, such as River Corridor Plans and Fluvial Erosion Hazard Maps, if available;
- Recognize the connections between land use, stormwater, road design, maintenance, and the effects from disasters;
- Ensure that mitigation measures are sympathetic to the natural features of community rivers, streams, and other surface waters; historic resources; character of neighborhoods; and the capacity of the community to implement them.

Community Capabilities

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

Administrative and Technical

In addition to the Emergency Management staff described in Section 3, municipal staff that can be used for mitigation planning and to implement specific mitigation actions include: a part-time Town Clerk; part-time Treasurer; a full-time Road Commissioner/Foreman; and one full-time Highway Department employee.

In addition to paid staff, there is a 5-member Selectboard and 5-member Planning Commission.

To augment local resources, the Town has formal mutual aid agreements for emergency response – fire, EMS, and police and informal (verbal) agreements for public works. Technical support is available through the RRPC in the areas of land use planning, emergency management, transportation, GIS mapping, and grant writing. Technical support is available through the State for floodplain administration.

Strengths: Staff are trained on hazards and mitigation. Coordination between departments is effective.

Areas for Improvement: Maintenance programs to reduce risk could be more robust, particularly that for cleaning out the stormwater collection system. Developing an emergency communications plan because cell coverage is poor and fiber optic land line batteries last only 8-hours. Periodic table and field exercises to test and strengthen inter-agency coordination. Sheltering agreements with Red Cross need to be updated.

Planning and Regulatory

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

Strengths: Town employs capital planning for facilities and equipment, employing restricted funds to which budget funds are allocated each fiscal year; codes and standards are adequately administered and enforced; elements of hazard mitigation are included in other local plans.

Areas for Improvement: Existing land use ordinance to reduce inundation flood hazard impacts is not adequately administered and enforced (Flood Hazard Area Regulations); Protect river corridors from new encroachment (River Corridor Bylaws); stormwater master planning; and continuity of operations planning.

Flood Hazard Area Regulations: Adopted April 21, 2008

Description: Apply to all areas in the Town identified as areas of special flood hazard.

Relationship to Natural Hazard Mitigation Planning: Ensures the design and construction of development in flood and other hazard areas are accomplished in a manner that minimizes or eliminates the potential for flood loss or damage to life and property.

Road and Bridge Standards: Adopted on February 14, 2013

Description: Provide the minimum codes and standards for the construction, repair, and maintenance of all town roads and bridges.

Relationship to Natural Hazard Mitigation Planning: The standards include management practices and are designed to ensure the safety of the traveling public, minimize damage to road infrastructure during flood events, and enhance water quality protections.

Fire Department ISO Rating:

Description: The Middletown Springs Fire Department's ISO rating is 9. This rating is a score from 1 to 10 that indicates how well-protected the community is by the local fire department.

Relationship to Natural Hazard Mitigation Planning: Everyone wants to keep family, home, and business safe from fires. The ISO rating is a measure of the effectiveness of a community's fire services.

Municipal Plan: Adopted March 7, 2017

Description: A framework for defining and attaining community aspirations through public investments, land use regulations, and other implementation programs.

Relationship to Natural Hazard Mitigation Planning: The Emergency Management and Flood Resilience sections of the Town Plan include specific goals and policies related to natural hazards.

Local Emergency Management Plan: Last adopted on April 25, 2019

Description: The Local Emergency Management Plan (LEMP) establishes lines of responsibility during a disaster as well as high risk populations, hazard sites, procedures, and resources. The purpose of this plan is to guide municipal emergency management operations.

Relationship to Natural Hazard Mitigation Planning: The LEMP includes actions for tracking events and response actions including damage reports to facilitate funding requests during recovery. This type of information can be essential to preparing hazard mitigation project applications for FEMA funding.

Stormwater Infrastructure Mapping Study: April 2013

Description: Developed up to date municipal drainage system maps and established locations for BMP stormwater retrofit sites.

Relationship to Natural Hazard Mitigation Planning: Assist with emergency preparedness for large rainfall and spring snowmelt runoff events and identified several structural projects to improve the stormwater drainage system capacity.

Financial

Financial capabilities are the resources that a community has access to or is eligible to use to fund mitigation actions. Middletown Springs’s current annual budget is approximately \$750,000, with \$400,000 to fund the Highway Department.

The Fire Department was awarded a \$10,580 Ecosystem Restoration Program grant in 2015 to undertake a feasibility analysis and develop an engineered bio-infiltration design for several properties surrounding the Town Green.

Although the Town has not done so in the past, it is eligible to incur debt through general obligation bonds to fund mitigation actions.

Strengths: Maximizing grant opportunities, especially through VTrans for transportation infrastructure projects; established reserve funds.

Areas for Improvement: None currently.

Education and Outreach

Middletown Springs has several education and outreach opportunities that could be used to implement mitigation activities and communicate hazard-related information:

- The Fire Department is actively involved in presenting fire safety programs in the school.
- Safety-related school plans/programs are discussed during regular staff meetings.
- There are active community groups (Friends of the Library and Historical Society).
- The Poultney Mettowee Conservation District provides educational outreach, technical assistance, and financial support to communities and landowners to protect healthy soil and clean water and preserve the ecological integrity and economic vitality of communities. One of their current project areas is stormwater mitigation.

Strengths: Multiple programs/organizations are already in place in the community; strong social media presence (Front Porch Forum, Library Facebook); monthly town newsletter.

Areas for Improvement: Better coordination is needed to help implement future mitigation actions.

National Flood Insurance Program Compliance

The Town joined the National Flood Insurance Program (NFIP) in 1985. The Administrative Officer enforces NFIP compliance through FHA regulations. Middletown’s regulations:

1. Require any new residential construction within the 100 year floodplain to have the lowest floor, including the basement, elevated above the 100 year flood elevation. The community must maintain a record of all lowest floor elevations or the elevations to which buildings in flood hazard areas have been flood proofed;
2. Allow non-residential structures to be elevated or dry flood proofed; and
3. Require anchoring of manufactured homes in flood prone areas.

The Town has discussed the following actions as possible actions the Town could take to continue NFIP compliance:

1. Provide information to residents on safe building initiatives and the availability of flood insurance;
2. Adopt river corridor protection language in the flood hazard regulations bylaw; and
3. Work with the RRPC to ensure that floodplain and river corridor maps are kept up to date.

State Incentives for Flood Mitigation

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

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

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

17.5% funding for eligible communities that also have:

1. FEMA’s Community Rating System (CRS) participation; OR
2. Fluvial Erosion Hazard (FEH) or other river corridor/floodplain protection bylaw that meets or exceeds the Vermont Agency of Natural Resources FEH model regulations and scoping guidelines.

Mitigation Action Identification

The Hazard Mitigation Committee discussed the mitigation strategy, reviewed projects from the 2009 Plan, and identified possible new actions from the following categories for each of the high risk natural hazards identified in Section 5:

1. Local Plans and Regulations: These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.
2. Structure and Infrastructure Projects: These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This applies to public or private structures as well as critical facilities and infrastructure. Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance Program.
3. Natural Systems Protection: These are actions that minimize damage and losses and preserve or restore the functions of natural systems.
4. Education and Awareness Programs: These are actions to inform and educate the public about hazards and potential ways to mitigate them. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk is more likely to lead to direct actions.

Local Plans and Regulations

Integrate Mitigation into Capital Improvement Programs: Hazard mitigation can be included in capital improvement programs by incorporating risk assessment and hazard mitigation principles into the capital planning efforts.

Manage Development in Erosion Hazard Areas: The intent of River Corridor Bylaws is to 1) allow for wise use of property within river corridors that minimizes potential damage to existing structures and development from flood-related erosion, 2) discourage encroachments in undeveloped river corridors and 3) reasonably promote and encourage infill and redevelopment of designated centers that are within river corridors.

Improve Stormwater Management Planning:

Rainwater and snowmelt can cause flooding and erosion in developed areas. A community-wide stormwater management plan can address stormwater runoff.

Reduce Impacts to Roadways: The leading cause of death during winter storms is from automobile or other transportation accidents, so it is important to plan for and maintain adequate road and debris clearing capabilities.

Structure and Infrastructure Projects

Remove Existing Structures from Flood Hazard Areas:

Communities may remove structures from flood-prone areas to minimize future flood losses and preserve lands subject to repetitive flooding.

Improve Stormwater Drainage Capacity:

Improving the stormwater drainage capacity can help to minimize inundation flooding and fluvial erosion by: 1) increasing drainage/absorption capacities with low impact development practices; 2) increasing dimensions of drainage culverts in flood-prone areas; 3) stabilizing outfalls with riprap and other slope stabilization techniques; and 4) re-establishing roadside ditches.

Conduct Regular Maintenance for Drainage Systems:

Regular maintenance will help drainage systems and flood control structures continue to function properly. Techniques include: 1) routinely cleaning and repairing stormwater infrastructure – culverts, catch basins, and drain lines; 2) routinely cleaning debris from support bracing underneath low-lying bridges; and 3) inspecting bridges and identifying if any repairs or retrofits are needed to prevent scour.

Protect Infrastructure and Critical Facilities:

Mitigation techniques can be implemented to help minimize losses to infrastructure and protect critical facilities from flood events by: 1) elevating roads above the base flood elevation to maintain dry access and 2) floodproofing critical facilities.

Protect Power Lines: Power lines can be protected from the impacts of natural hazards by: 1) incorporating inspection and maintenance of hazardous trees within the road right-of-way into the drainage system maintenance process and 2) burying power lines.

Retrofit Critical Facilities: Critical facilities can be protected from the impacts of high winds and winter storms. Techniques include: 1) retrofitting critical facilities to strengthen structural frames to withstand wind and snow loads; 2) anchoring roof-mounted mechanical equipment; and 3) installing back-up generators or quick connect wiring for a portable generator.

Natural Systems Protection

Protect and Restore Natural Flood Mitigation Features: Natural resources provide floodplain protection, riparian buffers, and other ecosystem services that mitigate flooding. It is important to preserve such functionality. Possible projects include: 1) establishing vegetative buffers in riparian areas; 2) stabilizing stream banks; 3) removing berms; and 4) restore incision areas.

Education and Awareness Programs

Educate Property Owners About Freezing Pipes: Extreme cold may cause water pipes to freeze and burst, which can cause flooding inside a building. Education and Awareness Programs for property owners may include: 1) educating building owners on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls and 2) informing homeowners that letting a faucet drip during extreme cold weather can prevent the buildup of excessive pressure in the pipeline and avoid bursting.

Assist Vulnerable Populations: Measures could be taken to ensure vulnerable populations are adequately protected from the impacts of natural hazards, such as: 1) organizing outreach and 2) establishing and promoting accessible heating or cooling centers in the community.

Mitigation Action Evaluation and Prioritization

For each mitigation action identified, the Hazard Mitigation Committee evaluated its potential benefits and/or likelihood of successful implementation. Each action was evaluated against a broad range of criteria, including a planning level assessment of whether the costs are reasonable compared to the probable benefits. Results of this evaluation are presented in **Table 5**.

Mitigation Action Implementation

After careful evaluation and prioritization, the Committee agreed upon a list of actions that are acceptable and practical for the community to implement. Those actions without overall public support/political will were not selected for implementation. Those actions whose costs were not reasonable compared to the probable benefits were also not selected.

For the selected actions, the Committee then 1) assigned a responsible party to lead the implementation of each action; 2) identified potential funding mechanisms; and 3) developed a timeframe for implementing each action. This action plan is presented in **Table 6**.

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

Table 5: Mitigation Action Evaluation and Prioritization

Mitigation Action	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
Local Plans and Regulations									
Integrate Mitigation into Capital Improvement Programs	1	1	1	1	1	1	6	1	Yes
Manage Development in Erosion Hazard Areas by Adopting River Corridor Bylaws	1	1	1	0	0	1	4	1	Yes
Improve Stormwater Management Planning by Completing a Stormwater Management Plan	1	1	1	1	1	1	6	1	Yes
Improve Stormwater Management Planning by Completing a Road Stormwater Management Plan	1	1	1	1	1	1	6	1	Yes
Plan for and Maintain Adequate Road and Debris Clearing Capabilities	1	1	1	1	1	1	6	2	Yes
Structure and Infrastructure Projects									
Increase Drainage/Absorption Capacities with Low Impact Development Practices	1	1	1	1	1	1	6	1	Yes
Increase Dimension of Drainage Culverts in Flood-Prone Areas	1	1	1	1	1	1	6	1	Yes
Stabilize Outfalls	1	1	1	1	1	1	6	1	Yes
Re-establish Roadside Ditches	1	1	1	1	1	1	6	1	Yes
Routinely Clean and Repair Stormwater Infrastructure	1	1	1	1	1	1	6	1	Yes
Review VTrans Bridge Inspection Reports ¹ and Plan for Identified Repairs to Prevent Scour	1	1	1	1	1	1	6	1	Yes
Elevate Roads Above Base Flood Elevation to Maintain Dry Access	1	1	1	1	1	1	6	1	Yes
Protect Power Lines by Inspecting and Maintaining Hazardous Trees in Road ROW	1	1	1	1	1	1	6	1	Yes
Install Back-up Generators or Quick Connect Wiring at Critical Facilities	1	1	1	1	1	1	6	1	Yes
Retrofit Critical Facilities to Strengthen Structural Frames to Withstand Wind and Snow Loads	1	1	1	1	1	1	6	3	Yes
Remove Existing Structures from Flood-Prone Areas	1	1	1	0	1	0	4	1	No
Bury Power Lines	1	1	1	-1	1	1	4	3	No
Routinely Clear Debris from Support Bracing Underneath Low-Lying Bridges	No low-lying bridges, so the Committee did not evaluate this action.								
Floodproof Critical Facilities	No critical facilities that require floodproofing, so the Committee did not evaluate this action.								
Anchor Roof-Mounted Mechanical Equipment on Critical Facilities	No critical facilities with roof-mounted mechanical equipment, so the Committee did not evaluate this action.								
Natural Systems Protection									
Stabilize Stream Banks	0	1	1	1	1	1	5	1	Yes
Establish Vegetative Buffers in Riparian Areas	0	1	1	0	1	1	4	1	Yes
Remove Berms	0	1	1	0	1	1	4	1	Yes
Restore Incision Areas	0	1	1	0	1	1	4	1	Yes
Education and Awareness Programs									
Assist Vulnerable Populations	The Town already has a system in place to assist vulnerable populations – see 2019 Local Emergency Management Plan.								
Educate Property Owners about Freezing Pipes	0	1	1	1	1	1	5	1	Yes

¹ VTrans inspects all bridges in the state every two years. Bridge inspection reports are available on the VTrans website.

Evaluation Criteria:

Life Safety – How effective will the action be at protecting lives and preventing injuries?

Property Protection – How effective will the action be at eliminating or reducing damage to structures and infrastructure?

Technical – Is the mitigation action a long-term, technically feasible solution?

Political – Is there overall public support/political will for the action?

Administrative – Does the community have the administrative capacity to implement the action?

Other Community Objectives – Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation?

Rank each of the above criteria in Table 5 with a -1, 0, or 1 using the following table:

1= Highly effective or feasible

0 = Neutral

-1 = Ineffective or not feasible

Estimated Cost – 1 = less than \$75,000; 2 = \$75,000 to \$500,000; 3 = more than \$500,000

C/B – Are the costs reasonable compared to the probable benefits?

Table 6: Mitigation Action Implementation

Mitigation Action	Lead Party	Potential Funding	Timeframe
Local Plans and Regulations			
Integrate Mitigation into Capital Improvement Programs and Annual Budget	Selectboard	Town General Fund	Ongoing
Determine if There is Public Support to Manage Development in Erosion Hazard Areas by Adopting River Corridor Bylaws	Planning Commission	Town General Fund	1/1/20 – 12/31/20
Improve Stormwater Management Planning by Completing a Stormwater Management Plan	Poultney Mettowee Conservation District	Ecosystem Restoration Grant	7/1/20 – 6/30/21
Complete Road Erosion and Culvert Inventories and Develop Road Stormwater Management Plan	Road Foreman	VTrans Grant	8/1/19 – 12/31/19
Plan for and Maintain Adequate Road and Debris Clearing Capabilities	Selectboard & Road Foreman	Town General Fund; Reserve Funds	Ongoing
Examine current Town Plan to ensure identified hazard areas are addressed	Planning Commission	Town General Fund; Municipal Planning Grant	At next Town Plan Update in 2025
Examine flood hazard area regulations to ensure they are being adequately administered and enforced	Selectboard and Planning Commission	Town General Fund	7/1/19 – 12/31/19
Structure and Infrastructure Projects			
Increase Drainage/Absorption Capacities with Low Impact Development Practices: (1) Construct rain garden just north of Fire House (in lieu of the practice previously engineered for the Town Green) (2) Explore potential for bioretention area just south of Schoolhouse Road (3) Explore potential for bioretention area behind 49 West Street	Road Foreman	Town General Fund; VTrans Grant; FEMA HMGP/PDM	(1) 7/1/19 – 12/31/19 (2) 7/1/20 – 12/31/20 (3) 7/1/20 – 12/31/20
Increase Dimension of Drainage Culverts in Flood-Prone Areas: (1) Haley Road – 1 culvert (2) Norton Road – 1 culvert (3) Spruce Knob Road – 1 culvert	Road Foreman	Town General Fund; VTrans Grant; FEMA HMGP/PDM	(1) 7/1/20 – 12/31/21 (2) 7/1/20 – 12/31/21 (3) 7/1/19 – 12/31/20
Develop a List of Prioritized Driveways that Either Need Culvert or Need an Upsized Culvert	Road Foreman	Town General Fund	1/1/20 – 12/31/20
Routinely Clean and Repair Stormwater Infrastructure	Road Foreman	Town General Fund	Annually or as needed
Review VTrans Bridge Inspection Reports ² and Plan for Identified Repairs to Prevent Scour: (1) Bridge #0007M West Street (2) Bridge #00019 Fitzgerald Road – voided and scoured area along downstream side of abutment #1 should be cleaned out and filled in with a kneewall (3) Bridge #00021 Wescott Road (4) Bridge #00022 Coy Hill Road	Road Foreman	Town General Fund; VTrans Grant	7/1/19 – 12/31/19
Engineering Evaluation to Address Concrete Box Culvert (just upstream of Coy Hill Bridge) Scour on Wing Walls, Footings, and Bottom	Selectboard & Road Foreman	Town General Fund; VTrans Grant; FEMA HMGP/PDM	1/1/20 – 12/31/2023
Elevate Roads Above Base Flood Elevation to Maintain Dry Access: (1) Spruce Knob Road	Road Foreman	Town General Fund; VTrans Grant; FEMA HMGP/PDM	7/1/19 – 12/31/20
Protect Power Lines by Inspecting and Maintaining Hazardous Trees in Road ROW	Road Foreman	Town General Fund	Annually or as needed

² VTrans inspects all bridges in the state every two years. Bridge inspection reports are available on the VTrans website.

Mitigation Action	Lead Party	Potential Funding	Timeframe
Install Back-up Generators or Quick Connect Wiring at Critical Facilities: (1) Future Town Office (2) Elementary School (3) Community Church	Selectboard	Municipal Bond; FEMA HMGP/PDM	1/1/2020 – 12/31/2025
Re-establish Roadside Ditches	A prioritized list and implementation table for roadside ditch stabilization will be presented in the Road Stormwater Management Plan – see above.		
Stabilize Outfalls	This action was not selected for implementation because there are no known projects at this time. Will monitor and address as needed.		
Retrofit Critical Facilities to Strengthen Structural Frames to Withstand Wind and Snow Loads	This action was not selected for implementation because the only critical facility with structural deficiencies is the town garage and capital planning is underway to build a new facility.		
Remove Existing Structures from Flood-Prone Areas	Although there are structures within flood-prone areas, none are identified as repetitive loss properties. Therefore, this action was not selected for implementation because the costs do not outweigh perceived benefits.		
Bury Power Lines	This project was not selected for implementation because it lacks political support.		
Natural Systems Protection			
As part of the Poultney River Stormwater Master Planning Effort: (1) Identify locations where increased riparian buffers would benefit stormwater mitigation; (2) Identify locations where streambank stabilization would mitigate impacts of flooding and high stream flows; (3) Identify locations where berms exist and investigate potential benefits and landowner willingness for removal; (4) Map incision areas and if possible, note the potential erosion risks posed by incision.	Selectboard & Poultney Mettowee Conservation District	Town General Fund; Ecosystem Restoration Grant	7/1/20 – 6/30/21
Education and Awareness Programs			
Educate Property Owners about Freezing Pipes and other winterization practices by including mitigation information in Middletown Springs newsletter & Front Porch Forum	Selectboard	Not applicable	Annually in October

Process for Incorporating Plan Requirements into Other Planning Mechanisms

For Middletown Springs to succeed in reducing long-term risks, the information and recommendations of this Plan should be integrated throughout government operations.

The following are specific examples of how the Town will incorporate this Plan into other plans, programs and procedures:

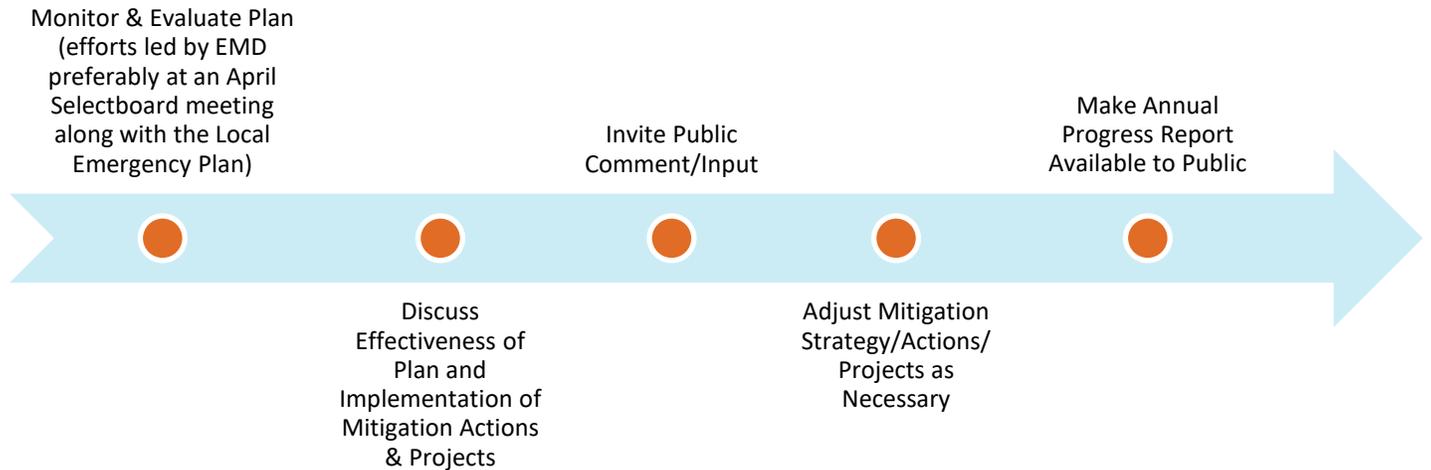
- The Selectboard will work with the Road Foreman to incorporate risk assessment and hazard mitigation goals into the capital planning efforts.
- The Planning Commission will integrate the hazard mitigation goals for disaster resiliency into the goals and objectives of the next Town Plan update in 2025.
- The Selectboard and Planning Commission will consider the data, analysis, and maps from the risk assessment in the next review of the local flood hazard area regulations in 2019.
- The Road Foreman will implement several mitigation infrastructure projects (e.g., increase dimension of drainage culverts in flood-prone areas, re-establish/stabilize roadside ditches, increase drainage/absorption capacities with LID practices) through existing or soon to be completed plans (2013 Stormwater Infrastructure Study, 2019 Road Stormwater Management Plan), which already have community support.
- The Selectboard will work with the Poultney Mettowee Conservation District to identify opportunities for natural systems protection through the Poultney River Stormwater Master Planning effort, to be completed in 2021.

7 Plan Maintenance

This Plan is dynamic. To ensure the Plan remains current and relevant, it is important it be monitored, evaluated, and updated periodically.

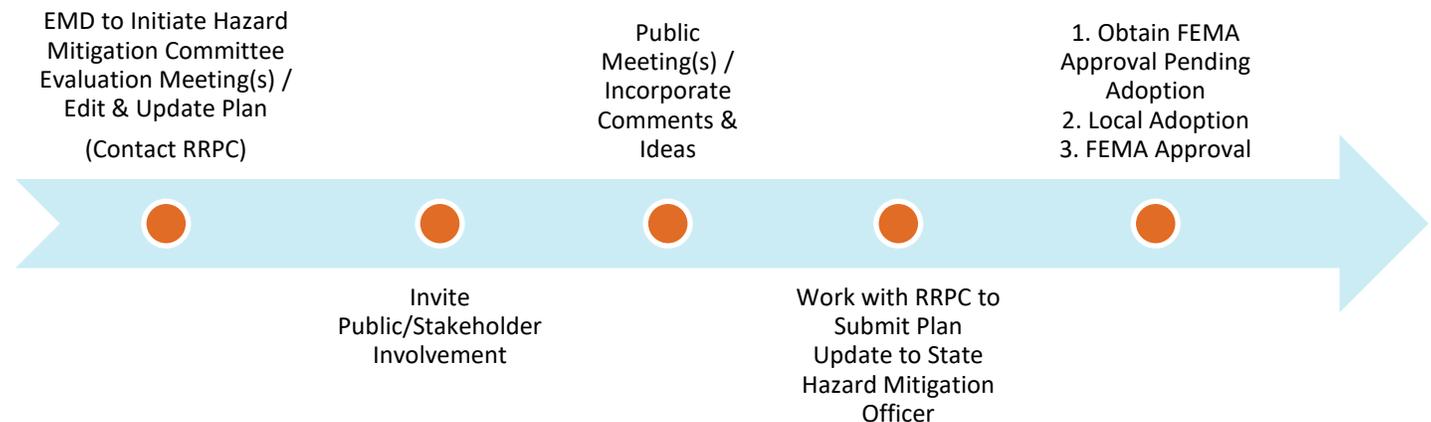
Monitoring and Evaluation

This Plan will be monitored and evaluated annually in accordance with the following process:



Updating

This Plan will be updated at a minimum every five (5) years in accordance with the following process:



CERTIFICATE OF ADOPTION

October 3, 2019

TOWN OF Middletown Springs, Vermont Selectboard

A RESOLUTION ADOPTING THE Middletown Springs, Vermont 2019 Local Hazard Mitigation Plan

WHEREAS, the Town of Middletown Springs has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **2019 Middletown Springs, Vermont Local Hazard Mitigation Plan**, which result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Middletown Springs has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its **2019 Middletown Springs, Vermont Local Hazard Mitigation Plan (Plan)** under the requirements of 44 CFR 201.6; and

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

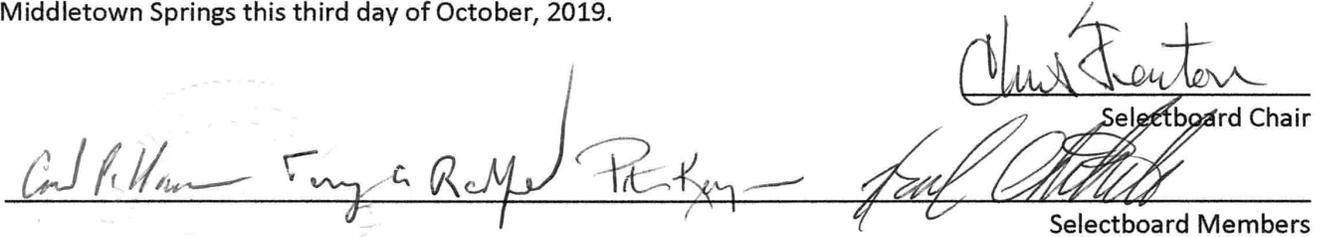
WHEREAS, the **Plan** recommends several hazard mitigation actions (projects) that will provide mitigation for specific natural hazards that impact the Town of Middletown Springs with the effect of protecting people and property from loss associated with those hazards; and

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

RESOLVED by Town of Middletown Springs Selectboard:

1. The **2019 Middletown Springs, Vermont Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Middletown Springs;
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.

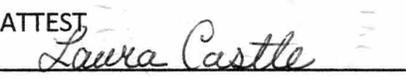
IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Middletown Springs this third day of October, 2019.



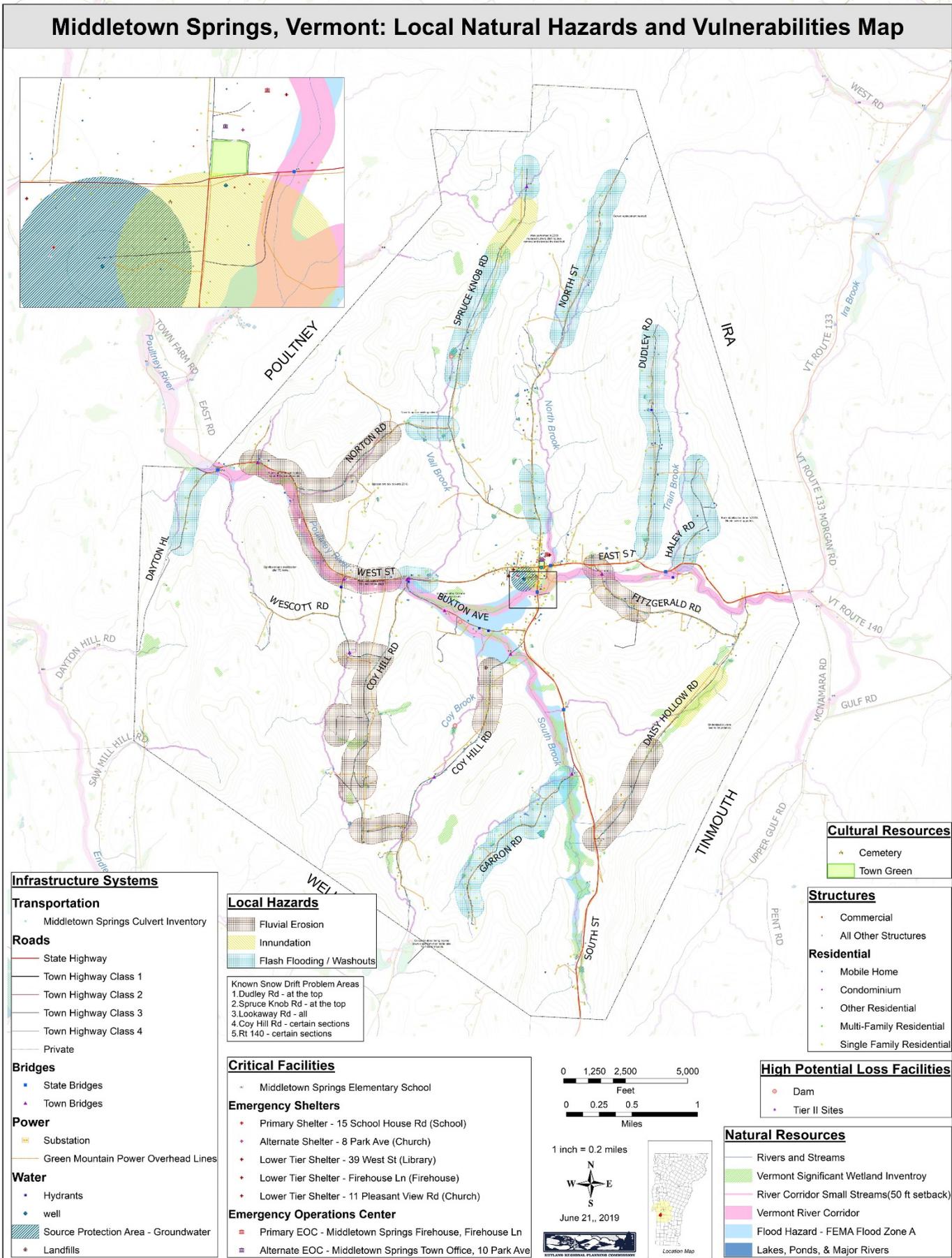
 Selectboard Chair

 Selectboard Members

ATTEST



 Town Clerk



Mitigation Action	Who is Responsible	Approx. Time Frame & Potential Funding Sources	2019 Status Update
Install a humidity/ temperature monitor in vault to better track and regulate conditions.	Town Clerk / Selectboard	<ul style="list-style-type: none"> • Med Term • Local Resources 	This remains a priority. Capital planning underway for a new town office. Not a natural hazards priority and therefore is no longer addressed in this plan.
Construct a building to house the Town's sand/salt pile to prevent problems caused by runoff.	Selectboard	<ul style="list-style-type: none"> • Long term • State and Local Resources 	This remains a priority. Capital planning underway for new town garage and salt shed. Construction of rain garden in 2019 will mitigation to some extent in the short-term.
Expand the size of the Town Office to better accommodate activities and record storage vault.	Selectboard	<ul style="list-style-type: none"> • Long Term • Local resources 	See above.
Incorporate proposed strategies into Annual Budget and/or Capital Improvement Plan	Selectboard	<ul style="list-style-type: none"> • Short-Term • Local Resources 	This remains a priority.
Examine current Town Plan, bylaws and development regulations to ensure identified hazard areas are addressed	Planning Commission/ Selectboard	<ul style="list-style-type: none"> • Med-term • Municipal Planning Grant 	This remains a priority.
Acquire generators for all shelter sites.	Selectboard Shelters	<ul style="list-style-type: none"> • Med-term • HSU funds 	This remains a priority.
Further investigate issues related underground water supply to plan for long-term needs of town such as a wastewater treatment plant.	Selectboard, with planning commission's assistance	<ul style="list-style-type: none"> • Med Term • Local Resources 	This is no longer a community priority.
Follow recommendations in Poultney River Corridor Management Plan and SGA to address fluvial erosion hazards. Create Fluvial Erosion Hazard Zones.	Selectboard/ Agency of Natural Resources	<ul style="list-style-type: none"> • On-going • Long Term 	This remains a priority.

Note: In the table above, time frames are defined as follows: short term equals 6 months to one year. Medium term equals 1-3 years. Long term equals 4+ years