

Pittsford, Vermont Local Hazard Mitigation Plan



Corn Hill Road Flash Flooding Damage - 2019

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Other Key Partners

Poultney Mettowee Natural Resources Conservation District

Rutland Natural Resources Conservation District

Western Vermont Floodplain Manager



VERMONT DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
WATERSHED
MANAGEMENT DIVISION
RIVERS PROGRAM

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1 INTRODUCTION

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

Hazard Mitigation is any sustained policy or 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 and policies that can be implemented 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 developing strategies to reduce risks from those hazards. Once adopted, this Plan is not legally binding; instead, it outlines goals and actions to reduce the degree of injury and inconvenience to the townspeople and their private and municipal 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.
- Aligning risk reduction with other community objectives.

Furthermore, the Town seeks to be in accordance with the 2018 State Hazard Mitigation Plan.

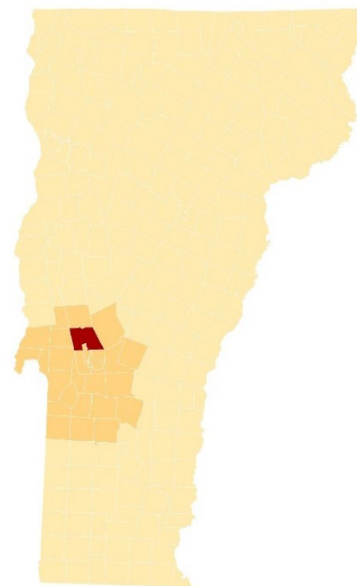
3 COMMUNITY PROFILE

Development Patterns and Land Use

Settlement patterns in Pittsford were initially determined by available waterpower, transportation routes, abundant quantities of high quality marble, and quality agricultural land. The combination of these factors led to the development of agriculture along the Otter Creek valley while industries were attracted to the Florence area of Pittsford because of the availability of raw materials, primarily marble, and the development of a railroad spur to serve this area.

The village of Pittsford developed above the Otter Creek flood plain on a major north-south transportation route (US Route 7). Most of the town's commercial retail and services are located within the village area, though the overall character in the village is primarily residential.

The percentage of housing units in Pittsford that are occupied year-round is 96.5%, one of the highest in this tourism-based region.



Pittsford encompasses a broad range of land uses in addition to housing. These other land uses include heavy industrial mining and processing of minerals, manufacturing, commercial, protected open space, agriculture, and state facilities housing the Police and Fire Academy. The Town has a large percentage of the land in active agricultural use.

Land Features

Pittsford lies between the Taconic Mountains to the west and the Green Mountains to the east. The terrain in Pittsford to the west of the village of Florence is quite mountainous. On the west side of the Otter Creek is a wide valley which includes the village of Florence. The remainder of Pittsford (east of Otter Creek) features more moderate hills and favorable soils for development and farming.

Demographics and Growth Potential

The 2018 American Community Survey Five-Year Estimates prepared by the U.S. Census Bureau shows an estimated population of 2,846, and 1,490 housing units. Between 2010 and 2018, the population declined slightly (4.8%). The median age of Pittsford residents is 47.9 years old. Pittsford's median age is 12% higher than the Vermont median age of 42.8. The portion of the population over 60 is 27%, compared to 25% in Vermont and 20.9% in the country.

The current Town Plan was adopted on February 7, 2018. The current Zoning Bylaws were adopted on March 20, 2019. As stated in the Town Plan, there is growth potential in Pittsford, to be encouraged by “developing business activities to supply jobs to local residents” and by “the development of a diversified and commercial base”.

The development pattern over the past decade has been for small but steady growth, averaging 43 zoning permits issued annually. It appears that there was little commercial and residential vacancy during this period.

Precipitation and Water Features

Average precipitation is 42 inches of rain; with July being the wettest month. Average snowfall is 73 inches, with January being the snowiest month.

Water features include the wide Otter Creek and numerous other waterways – Castleton River, East Creek, Furnace Brook, Little Brook, and Sugar Hollow Brook. In addition, Smith Pond and Burr Pond are in Pittsford.

Drinking Water and Sanitary Sewer

Pittsford has a municipal water system that is supplied by springs on Nickwackett Mountain in Chittenden. This spring water flows cross-country for several miles to the Town's reservoir, located off Plains Road (where minimal amounts of chlorine are added). Water is then distributed to customers throughout the service area.

Approximately 560 customers with approximately 800 connections enjoy the clean, pure water provided by the springs. The entire water system operates upon the principles of gravity and head.

In the unlikely event that the flow from the springs should be inadequate, the Town has a well house and pump in Florence capable of supplying the entire service area. The well house is vulnerable to flooding. To mitigate this risk, it was upgraded in 2010 to better withstand high water events, through improved drainage. It is also equipped with a transfer switch capable of accepting power from a portable generator.

Pittsford has a sewer district covering much of the intensely developed areas along US Route 7 and Arch Street. Other structures outside of this district rely upon on-site septic systems.

Roughly 245 customers with about 338 connections generate sewage collected through the gravity-based pipelines, with three pump stations (one on Elm Street and two on Depot Hill Road). Each of the pump stations are equipped with transfer switches capable of accepting power from a portable generator. Sewage is treated at the Town's wastewater treatment facility on Arch Street.

The treatment system is based on a proprietary activated-sludge model, whereby natural biological digestion processes are utilized to separate sludge (which is periodically hauled away for disposal) from clear, clean effluent that is discharged into Furnace Brook.

An upgrade to portions of the Town's sewer collection system and wastewater treatment facility in 2012 increased flow capacity and chlorine contact capability. This has made the facility more resilient to high flow events associated with downpours and springtime snow melt.

Transportation

The present network of ±66 miles of roads in Pittsford serves the needs of current residents. US Route 7 and VT Route 3 traverse Pittsford, providing major north-south access. Whipple Hollow Road is a major link to US Route 4 and West Creek Road is important for moving agricultural and industrial materials in and out of the valley surrounding Florence. Heavy loads are transported to/from Florence businesses (e.g., Omya, Troy Minerals, Florence Crushed Stone) via the Town’s “truck route” – Kendall Hill Road and short sections of West Creek and Whipple Hollow Roads.

In addition, there are several other roads that have been identified as locally important for use as through-ways, detours, short-cuts, and access to critical facilities such as the fire station, town garage, town office, and school. These routes are shown in orange in **Figure 1**.

A major rail line passes through Pittsford running parallel to Otter Creek and providing access to the industrial area in Florence.

Pittsford has a total of 21 bridges and ±390 culverts. Three of the bridges are wooden, covered bridges. Of the total, 6 are state owned. Nine of the bridges have a span over 20 feet (3 are town owned, 6 are state owned). The local transportation network is maintained by the Town Highway crew, whose garage is located on Pleasant Street.

According to the Town’s Road Erosion Inventory Report, nearly half of the Town’s road mileage (35.9 miles) is hydrologically-connected – meaning it is within 100-feet of a water resource (i.e., stream, wetland, lake, or pond). Proximity to water resources can make these sections of road more vulnerable to flooding and fluvial erosion.

Electric Utility Distribution System

Electric service to approximately 1,734 accounts is provided by Green Mountain Power via four circuits. Average annual outage statistics between 2015 and 2019 are summarized in **Table 1**.

Table 1: Power Outage Summary

5-Year Average (2015-2019)	
Avg # of times a customer was without power	1.74
Avg length of an outage in hours	4.21
# of hours the typical customer was without power	7.32
2019 only	
Avg # of times a customer was without power	1.63
Avg length of an outage in hours	1.54
# of hours the typical customer was without power	2.51

The longest power outage affecting the greatest number of accounts between 2015 and 2019 was 58.57 hours long and impacted 327 accounts. During this same period, there was a 62.87 hour long outage that impacted one account.

Public Safety

Pittsford has two fire stations – main station in the Village and substation at the OMYA plant in Florence. Both stations are operated by a 40-member volunteer department. Support is available through Rutland County Fire Mutual Aid.

Law Enforcement in Pittsford is provided by a municipal police department. Additional assistance is provided by the Rutland County Sheriff’s Department and Vermont State Police, as needed.

Pittsford First Response provides immediate care and patient stabilization. The nearest hospital is the Rutland Regional Medical Center. Ambulance service is provided by Regional Ambulance Service.

Emergency Management

The Town has an appointed Emergency Management Director (EMD) and Emergency Management Coordinator (EMC). They are supported by a team comprised of representatives from town government and each of the town’s emergency and municipal service agencies.

The Emergency Management Team assists with mitigation, preparedness, response, and recovery actions such as keeping the Local Emergency Plan up-to-date and coordinating with nearby towns on regional emergency planning efforts.

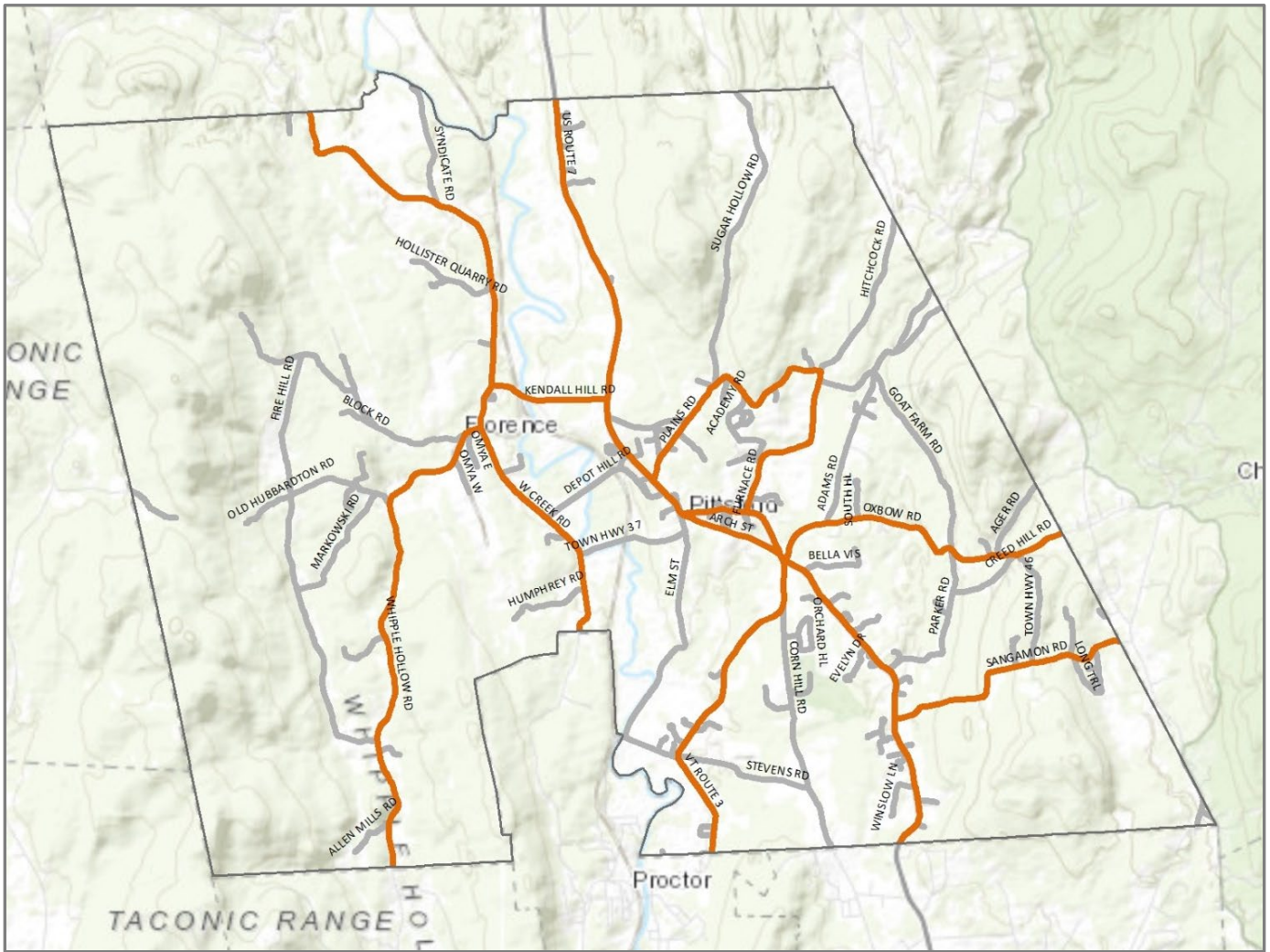


Figure 1: Locally Important Routes for Through-Ways, Detours, Short-Cuts, and Access to Critical Facilities
Shown in orange on Figure 1

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 Planning Team members who assisted with the update include the Town Manager, Town Clerk, Road Foreman, Police Chief, local Emergency Management Director, and representatives from the Selectboard and Planning Commission.

Plan Development Process

The 2021 Pittsford Local Hazard Mitigation Plan is an update to the single jurisdiction mitigation plan drafted for the Town in 2016.

A summary of the process taken to develop this Plan is provided in **Table 2**.

Table 2: Plan Development Process

July 22, 2020: Hazard Mitigation Planning Team kick-off meeting. Planning Team members were confirmed. Discussed what a LHMP is; the benefits of hazard mitigation planning; current plan status; the planning process; outreach strategy; and plan sections. Planning Team meetings were not open to the public.

July - August 2020: Public notice posted on RRPC and Town websites and at the Town Office, Pittsford Post Office, and Keith's Country Store that the Town is engaged in hazard mitigation planning and updating their LHMP. Notice was also published in the local newspaper, the *Brandon Reporter*. Emailed notice to officials in neighboring towns of Brandon, Chittenden, Rutland Town, Proctor, West Rutland, Castleton, Hubbardton, and Sudbury. Name and contact information provided in notices for more information. No inquiries were received from the public or neighboring towns.

August 26, 2020: Planning Team meeting – confirmed the plan purpose and completed work on community profile and hazard risk assessment. Began work on storm history and identifying assets vulnerable to the highest risk natural hazards.

September 23, 2020: Planning Team meeting – completed work on storm history and assets vulnerable to the highest risk natural hazards. Completion of the hazard identification and risk assessment is a critical milestone in the plan update process. Draft readied for public meeting on October 7.

October 7, 2020: Working draft LHMP presented at joint public meeting of the Pittsford Selectboard and Planning Commission to encourage input from local government and the public that could affect the plan's conclusions and better integrate with Town initiatives. Members of the public attended. Plan posted on RRPC and Town websites. Public notice included instructions to email comments on the draft to John Haverstock. Comments were accepted until October 23. Comments received from the Pittsford Planning Commission and incorporated into the Plan.

October 7, 2020: Working draft LHMP shared with Vermont Hazard Mitigation Officer, Rutland and Poultney Mettowee Natural Resources Conservation Districts for review and comment. Comments received from Poultney Mettowee NRC and incorporated into the Plan.

October 28, 2020: Planning Team meeting - incorporated comments received on the working draft; completed work on the hazard identification and risk assessment. Began work on hazard mitigation strategy – confirmed mitigation goals; identified community capabilities; and began developing mitigation actions.

December 2, 2020: Planning Team meeting – continued work on hazard mitigation strategy – completed community capabilities and mitigation action evaluation.

December 30, 2020: Planning Team meeting – completed work on hazard mitigation strategy; plan maintenance; and changes since the 2016 plan. Draft LHMP finalized for presentation to local officials and the public at the February 3, 2021 Selectboard meeting.

February 3, 2021: Final draft LHMP presented at joint public meeting of the Pittsford Selectboard and Planning Commission for review and comment. Members of the public attended. Final draft LHMP emailed to neighboring towns, Rutland and Poultney Mettowee Natural Resources Conservation Districts for review and comment. Plan posted on RRPC and Town websites and Facebook. Public notice included instructions to email comments to John Haverstock. Comments on the draft plan were accepted until February 17, 2021. Positive feedback received from PMNRC and Chittenden EMD.

February 18, 2021: Final draft LHMP submitted to Vermont Emergency Management for Approval Pending Adoption.

In addition to the local knowledge of Planning Team 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**.

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

2020 Local Emergency Management Plan
2020 FEMA NFIP Insurance Reports
2019 Zoning Regulations
2019 Transportation Resiliency Planning Tool
2019-2015 Green Mountain Power Outage Data
2018 State of Vermont Hazard Mitigation Plan
2018 American Community Survey Five-Year Estimate
2018 Castleton River Headwaters Stormwater Master Plan
2018 Pittsford Road Erosion Inventory Report
2018 Pittsford Town Plan
2018 Wastewater Department Asset Management Plan
2017 Water Department Asset Management Plan
2012 Stormwater Infrastructure Mapping Project
2011 Flood Hazard Area Regulations
RRPC Local Liaison Reports of Storm Damage
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
United States Drought Monitor
FEMA Flood Insurance Rate Maps

Changes Since the 2016 Plan

Pittsford's Town Plan and land use development regulations aim to coordinate the pattern of development and preserve and protect the Town's assets while providing a future vision for town officials, businesses, and citizens.

As described in the Community Profile section of this Plan, the Town has not experienced any significant change in population or development since 2016.

The Town's Zoning Bylaws ensure that growth occurs in a way that will not make the community more vulnerable to natural hazards by:

- 1) Featuring Flood Hazard Area regulations as Attachment A to the Town's Zoning Bylaws.
- 2) Requiring Site Review (required in Section 11.18) of permit applications contemplating either a) substantial amounts of material extraction or adding of fill or b) creation of slopes more than 12%.

According to the Pittsford Zoning Administrator, zoning permits issued over the last decade document development activity for the following:

Commercial Projects: New commercial investments and expansion of existing businesses totaled 55 projects.

Residential Projects: Forty-nine (49) new Single Family Homes were constructed (or older structures removed and replaced) during this period. This represents a relatively high average (5 new homes per year) for a smaller town in Rutland County. There has also been a notable trend for additions and renovations to existing housing stock, involving 102 permits. This possibly reflects a trend for senior-friendly modifications and plans to stay-in-place.

Subdivision Projects: Forty-four (44) subdivision and lot line adjustment permits were issued, resulting in 31 new parcels.

Miscellaneous Construction: This category includes accessory structures (mostly detached sheds and garages), farm buildings, fences, fill and excavation, swim pools, etc. These smaller projects represent most numerous type of permit, with 179 projects approved during this period.

Development in Pittsford since 2016 has not made the community more vulnerable to natural hazards.

The Town's mitigation priorities shifted a bit. In 2016, the Pittsford Local Hazard Mitigation Plan was an all-hazards (natural and human-caused) plan. Flooding, fluvial erosion, severe thunderstorms, and snow/ice storms posed the greatest risks to Pittsford.

The 2021 Plan update focused exclusively on natural hazards. The Town again ranked severe thunderstorms (with associated inundation/flash flooding and fluvial erosion) and severe winter storms (with associated extreme cold, snow, ice) as the community's highest risk natural hazards. In addition, they ranked high winds and drought as other highest risk natural hazards.

In 2020, the Town did not formally assess the risk associated with invasive species; however, they did discuss the potential hazards and risks associated with the Emerald Ash Borer (EAB) given the confirmed detection in Rutland County in October 2020. Invasive species were not included in the 2016 Plan.

Pittsford has made some progress in completing the mitigation projects identified in the 2016 Plan – see **Appendix C**. A significant mitigation accomplishment was the installation of two larger, storm-resilient box culverts on Fire Hill Road and one on Chittenden Road. A significant preparedness action was the creation of an Emergency Contact “op-in” – a smart phone alert system that notifies residents of impending storms, targeted especially to vulnerable populations (the elderly and childcare providers).

Actions taken by Pittsford since 2016 have made the community more prepared and less vulnerable to future natural hazard impacts.

Nonetheless, due to an increase in the frequency and intensity of weather events, the Town remains vulnerable to inundation and flash flooding, fluvial erosion, high winds, severe winter storms, and drought, as well as invasive species (particularly the Emerald Ash Borer).

As a result, the Town has identified a range of mitigation actions to address flooding, severe winter storms, high winds, drought, and invasive species – see **Table 6**.

5 HAZARD IDENTIFICATION AND RISK ASSESSMENT

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

Local Vulnerabilities and Risk Assessment

One of the most significant changes from the 2016 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 Planning Team conducted an initial analysis of known natural hazard events¹ to determine their probability of occurring in the future.

The Planning Team then ranked the hazard impacts associated with the known natural hazard events 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**.

- *Thunder and Tropical Storms with associated flash flooding, fluvial erosion, inundation flooding, and high winds – and to a much lesser degree hail.*
- *Winter Storms with associated extreme cold, snow, ice, and high winds.*
- *Drought with associated water shortage.*

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

The “lower 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				Average	Score
			Life	Economy	Infrastructure	Environment		
Thunderstorm	Flash Flooding/Fluvial Erosion	4	1	1	3	4	2.25	9.00
Landslide	Inundation Flooding	4	1	1	1	3	1.50	6.00
Ice Jam	High Winds	4	2	2	2	3	2.25	9.00
Tornado	Hail	2	1	2	1	1	1.25	2.50
Winter Storm	Cold/Snow/Ice/Wind	3	3	2	2	3	2.50	7.50
Drought	Heat	3	1	1	1	3	1.50	4.50
	Drought	3	1	3	2	3	2.25	6.75
Wildfire	Wildfire	2	1	1	2	3	1.75	3.50
Earthquake	Earthquake	1	1	1	1	1	1.00	1.00

*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

¹ This Plan defines natural hazards as atmospheric, hydrologic, geologic, and wildfire phenomena. Hazards not necessarily related to the physical environment, such as infectious disease, were excluded from consideration by the Planning Team.

Invasive Species

The Planning Team did not formally assess the risk associated with invasive species; however, they did discuss the potential hazards and risks associated with the Emerald Ash Borer (EAB) specifically.

Vermont’s EAB infestation was first detected in 2018 in northern Orange County. In October 2020, a new detection of EAB in West Rutland was confirmed. This is the first confirmed detection in Rutland County, making Pittsford a town in the Confirmed Infested Area for EAB. An inventory of trees within the road right-of-way is needed to determine how many Ash trees are at risk. The potential risk to private woodlots and impacts on the local economy have not been quantified.

Highest Risk Hazard Profiles

Inundation/Flash Flooding/Fluvial Erosion

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.

As noted in the State Hazard Mitigation Plan, “Flooding is the most common recurring hazard event in Vermont” (2018: 55). There are two types of flooding that impact communities in Vermont: inundation and flash flooding. Inundation is when water rises onto low lying land. Flash flooding is a sudden, violent flood which often entails fluvial erosion.

Inundation 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.

While inundation-related flood loss can be a significant component of flood disasters, the more common mode of damage in Vermont is associated with fluvial 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 of naturally occurring unstable stream banks, 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). The Town does not have a high incidence or probability of ice jams.

Several major flooding events have affected the state in recent years, resulting in multiple Presidential Disaster Declarations (noted as DR# in this Plan). 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 (DR4022), 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 large rainfall and flooding to the Town, not high winds. This caused most streams and rivers to flood in addition to severe fluvial erosion.

From 2012 to 2019, Rutland County experienced approximately \$3.5 million in property damages; with \$1.9 million due to a flash flood event in July 2017 (DR4330) and \$1 million due to a flash flood event in April 2019 (DR4445).

In Pittsford, flooding is a risk. Damages from Tropical Storm Irene were moderate compared to other towns in the region, resulting in approximately \$176,000 in impacts (\$65,535 in Individual Assistance; \$61,590 in Public Assistance; \$48,860 in National Flood Insurance). In Pittsford, damage due to flooding usually consists of impacts to roads, culverts, bridges, and homes along Otter Creek.



Inundation Flooding on Gorham Bridge Road

As shown on the Local Natural Hazards and Vulnerabilities Map in **Appendix B**, inundation flooding is predictable in Pittsford, particularly along Otter Creek – a slow-rising river with a wide floodplain. Annual spring flooding brings enough water to overtop the riverbanks and temporarily flood roads, including West Creek, Depot Hill, Elm Street, Gorham Bridge Road, and Syndicate.

37 structures are in the Special Flood Hazard Area (2% of community structures); including residential dwellings, commercial properties, and the municipal wastewater treatment plant. According to FEMA, 12% of these properties have flood insurance. In total, these 8 policies cover \$1,043,900 in value.

There are no repetitive loss properties.

Inundation flooding concerns are primarily road closures that restrict access and response times for emergency vehicles; damage to roads and structures is typically minimal. The main issue is with a cluster of houses built outside of the floodplain but surrounded by floodplain. To date, there has not been any flood damage to the structures, but isolation is possible due to restricted access should Elm Street and Gorham Bridge Road be impassible.

The municipal well house and wastewater treatment plant are vulnerable to inundation flooding. To mitigate these risks, the well house was upgraded in 2010 to better withstand high water events, through improved drainage. The wastewater treatment facility was upgraded in 2012 including improvements to make it more resilient to high flow events associated with downpours and springtime snow melt.

While, the lower Depot Hill Road sewer pump station lies just outside of the mapped floodplain, none of the three pump stations have experienced inundation flooding, even during Tropical Storm Irene. Historically, the pump stations had experienced infiltration during high water events, but this no longer is an issue since the Elm Street pump station was replaced in 2011 and the two Depot Hill Road stations are scheduled for replacement in 2020-2021.

Flash flooding can impact areas in Town that are located outside of designated floodplains, including along streams confined by narrow valleys. Flash flooding periodically washes out sections of Sugar Hollow; Barnard; Goat Farm at the Adams/Furnace Road intersection; Oxbow, including at the Oxbow/Creed Hill intersection; Parker; Beech, Humphrey; Fire Hill; Old Hubbardton, including at the Old Hubbardton/Markowski intersection; Allen Mills; and Corn Hill Road.



Allen Mills Road Flash Flooding Damage



Goat Farm Road Perennial Stream Culvert Washout

In 2018, the Town completed an inventory of hydrologically-connected roads for the Municipal Roads General Permit. This inventory identified areas vulnerable to flash flooding and recommended corrective actions to make these areas more resilient.

Phase 1 Stream Geomorphic Assessment (SGA) of several Otter Creek Watershed tributaries, including Furnace Brook, Sugar Hollow Brook, and Little Brook, was completed in 2009. This assessment focused on the current condition of the stream system and generated data for prioritizing reaches for Phase 2 SGA.

In addition, it recommended development and implementation of a River Corridor Management Plan as a tool for reducing fluvial erosion hazards, minimizing land use conflicts, and providing structure for identifying river restoration and corridor protection projects.

A section of streambank along Sugar Hollow Brook was armored in 2009 to mitigate the impacts of fluvial erosion on the Town's recreation area.

A Stormwater Master Plan for the Castleton River Headwaters was completed in 2018. The Plan's goal was to evaluate approximately 30,000 acres in the Castleton River watershed to identify sources of increased stormwater runoff. The work involved identifying sources of stormwater, prioritizing sources based on various criteria, and designing projects to mitigate those sources. One project was identified on Allen Mills Road in Pittsford.

As weather patterns shift and we see larger storms and more frequent freeze-thaw cycles, the Town will monitor for signs that rivers that have historically been stable becoming less stable, with increased erosion, widening, trees falling in from its banks, etc.

High 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 more than 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 2019, thunderstorms resulted in just under \$2.2 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 ¼ - 2" 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 damage to automobiles and crops.

Violent windstorms are possible here; Pittsford is susceptible to high directional winds; particularly on Fire Hill, Furnace, Markowski, Old Hubbardton, and Sangamon Roads. Many storms with high winds result in downed trees, damaged phone and power lines, buildings, and other property. Pittsford is vulnerable to power outages and they present a potentially significant risk to many residents.

To mitigate the impacts of power outages, the following public buildings/critical facilities have been equipped with back-up power: Town Office (alternate local emergency operations center); Fire Station (primary local emergency operations center); Highway Garage; and municipal well house.

The wastewater treatment facility and each of the three pump stations are equipped with transfer switches capable of accepting power from a portable generator. The Town would prefer a stand-by generator at the wastewater treatment facility.

Lothrop Elementary School, which serves as the community's primary local shelter, does not have back-up power making the Town vulnerable to a power outage if it coincided with a large scale sheltering event.

In July 2015, the Town acquired the Pittsford First Response facility on Arch Street. This facility also does not have a back-up power supply and would be vulnerable during an outage.

Extreme Cold/Snow/Ice/Wind

In the Rutland Region, most winter weather events occur between 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 2019, Rutland County experienced \$1.5 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).

Typically, towns' vulnerability to snow and ice storms are power outages and loss of road accessibility. As previously described, the Town is prepared for a power outage caused by ice/wet snow accumulation on power lines or trees falling on powerlines due to weight of ice accumulation in a storm, even if an outage coincided with a large scale sheltering event.

In general, snow accumulation has not made the Town vulnerable to loss of road accessibility. The Town's fleet of snowplows has ensured that roads are accessible, even in major snow accumulation events. Areas prone to significant drifting (Kendall Hill Road, Corn Hill Road, Depot Hill Road, and Elm Street) are maintained accordingly.

Drought

Drought, in the most general sense, is a period of lower-than-average precipitation that results in a water shortage.

It is typically a slow-onset natural hazard that can last for months or years. Drought is a natural part of the climate cycle. Higher temperatures, water demands that exceed availability, low winter snowpack and lack of rainfall are all causes that can lead to a significant drought.

The USDA rates droughts from D0-D4, depending on the severity of the drought, the amount of time it will take for vegetation to return to normal levels, and the possible effects of the drought on vegetation and water supply:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

In addition to the obvious effects on the quantity and quality of drinking water, drought can compromise food and nutrition; increase incidents of illness and disease; and diminish the ability of water ecosystems to properly function.

Municipal water supply and delivery, municipal wastewater, transportation systems, and parks and recreational facilities can be adversely impacted by drought.

There may be situations where water-intensive industries and agricultural production shift to different locations due to lack of water. Other industries directly affected include energy, tourism, and fisheries. The wide-ranging impacts of drought can include job losses, business failures, and lost investments.

When different natural hazards overlap, such as drought and flood, it can lead to cascading hazards, with one event compounding the other. Drought is particularly likely to be part of a cascading hazard because it can cover a large area and go on for a long time.

In the Rutland region, there have been several instances of moderate drought (D1) and one instance in the last 20 years of severe drought (D2). The region is in a moderate drought at the time of this writing.

Drought impacts of concern in Pittsford include the following:

- Loss of snow cover with moderate to severe impacts on ski and snowmobile recreation, tourism, and the local economy.
- Reduced fall foliage with moderate impacts on the local tourism economy.
- Increased occurrences of wildland fires with minor to moderate impacts on human life, built infrastructure, and the natural environment (particularly for spruce/fir forests and deer wintering areas).
- Interruption of water supply with minor to moderate impacts on drinking water supplies and surface waters for fire suppression.

- Crop and agricultural losses with minor to moderate impacts on maple syrup production and minor impacts on hay production, perennial fruit and orchards, and livestock.
- Low water level and poor water quality in local water bodies – Otter Creek, Sugar Hollow Brook and the pond at the Pittsford Rec Area that it feeds – with minor impacts on water recreation.
- Increases in human/wildlife conflict with minor impacts due to shift from natural food systems (mast crops, etc.) to human food sources and habituation.

Highest Risk Hazard History

Note: These are the most up to date significant events impacting Pittsford. Federal declarations are depicted in **bold**.

Inundation/Flash Flooding/Fluvial Erosion

4/15/2019: DR4445 1-2” rain with significant snow melt: **\$12,072 local damage**

7/1/2017: DR4330 3-4” rain the previous 3-4 days with flash flooding on 7/1/17: **no reported local damage**

1/12/2014: rain and snow melt: \$10,000 regional damage

6/25-7/11/2013: DR4140 heavy rain over multiple days: **no reported local damage**

8/28/2011: DR4022 Tropical Storm Irene ±5” rain: **\$175,985 local damage** (\$65,535 Individual/\$61,590 Public/\$48,860 NFIP)

High Wind

2/24/2019: 48 mph winds: \$25,000 regional damage

5/4/2018: 50 mph wind: \$10,000 local damage

4/1/2018: 55 mph winds: \$50,000 regional damage

10/30/2017: 40 mph wind: \$100,000 regional damage

9/5/2017: 65 mph winds: \$35,000 local damage

9/11/2016: 50 mph wind: \$5,000 local damage

7/8/2014: 50 mph wind: \$20,000 local damage

6/23/2013: 60 mph wind: \$20,000 local damage

6/8/2011: 55 mph wind: \$10,000 local damage

5/26/2010: 55 mph wind: \$25,000 regional damage

8/25/2007: 60 mph wind: \$600,000 regional damage

Extreme Cold/Snow/Ice/Wind

1/19/2019: 15” snow: \$10,000 regional damage

2/13/2018: 19” snow: \$10,000 regional damage

3/14/2017: 22” snow: \$25,000 regional damage

2/1/2015: 9” snow; record cold month with 15 to 20+ days below zero: \$15,000 regional damage

1/7/2015: 0 to 10 degrees with winds of 15-30 mph creating wind chills colder than -20 to -30 below zero: no damages

12/9/2014: DR4207 11” snow: **\$200,000 regional damage**

11/26/2014: 9” snow: \$25,000 regional damage

2/13/2014: 22” snow: \$10,000 regional damage

12/26/2012: 10” snow: \$10,000 regional damage

2/23/2010: 6-30” snow: \$200,000 regional damage

4/15-16/2007: DR1698 “Nor’icane” 3” snow and rain with winds of 60 to 80 mph: **\$16,060 local damage**

2/14/2007: 33” snow: \$75,000 regional damage

3/5/2001: EM3167 2-18” snow: **\$5,785 local damage**

12/16/2000: DR1358: \$5,522 local damage

Drought

11/11/2020: USDA Disaster S4869 2020 Crop Year

Jun – Aug 2020: D1 drought in 50-100% of county

Jun – Sept 2018: D1 drought in 50-100% of county

Sept 2016 – Feb 17: D1 drought in 50-100% of county

Oct – Nov 2016: D2 drought in 60% of county

Sept 2001 – Mar 02: D1 drought in 50-100% of county

Vulnerability Summary

Inundation/Flash Flooding/Fluvial Erosion

Location¹: *Inundation Flooding* – annual spring flooding on Syndicate, Depot Hill, and Elm Streets; W Creek Rd
Flash Flooding – Sugar Hollow; Barnard; intersection of Goat Farm/Adams/Furnace Brook; Oxbow Rd, including Oxbow/Creed Hill intersection; Parker; Beech; Humphrey; Fire Hill, including Fire Hill/Old Hubbardton intersection; Old Hubbardton, including Old Hubbardton/Markowski intersection; Corn Hill; and Allen Mills
Fluvial Erosion – along Sugar Hollow Brook at Rec Area

Vulnerable Assets¹: Roads, culverts, bridges, residential properties, municipal well house; municipal wastewater treatment plant; municipal recreation area

Extent: ±5” rain; extent data for fluvial erosion is unavailable

Impact: \$175,985 local damage

Probability: >75% chance per year

High Wind

Location¹: Town-wide; Fire Hill, Sangamon, and Furnace Brook Roads

Vulnerable Assets¹: Phone and power lines; buildings; other property; trees

Extent: 65 mph winds

Impact: \$600,000 regional / \$35,000 local damage

Probability: >75% chance per year

Extreme Cold/Snow/Ice/Wind

Location¹: Town-wide; Drifting on Kendall Hill, Corn Hill, and Elm Street

Vulnerable Assets¹: Roads, culverts, bridges, trees, power and phone lines

Extent: Up to 30” of snow; 80 mph winds, 15 to 20+ days below zero

Impact: \$200,000 regional / \$16,060 local damage

Probability: >10% but <75% chance per year

Drought

Location¹: Town-wide

Vulnerable Assets¹: Water supplies, natural ecosystems, agriculture

Extent: D2 drought in 60% of county for 2 months

Impact: Data on financial impacts is unavailable

Probability: >10% but <75% chance per year

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

6 HAZARD MITIGATION STRATEGY

The highest risk natural 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 Planning Team 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.
- Consider 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. Pittsford's mitigation capabilities that reduce hazard impacts or that could be used to implement hazard mitigation activities are listed below.

Administrative and Technical

In addition to the Emergency Management staff described in Section 3, municipal staff that can be used for mitigation planning and to implement specific mitigation actions include: Town Manager, Town Clerk, Police Chief, Water/Sewer Superintendent, and Road Foreman.

In addition to paid staff, there is a 5-member Selectboard, 7-member Planning Commission, Heath Officer, Tree Warden.

To augment local resources, the Town has formal mutual aid agreements for emergency response - fire, EMS, police, and 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 also available through the State ANR for floodplain administration and VTrans Districts for hydraulic analyses.

Strengths: Staff are trained on hazards and mitigation, with fully one-third FTE's having participated in the development of this Plan update (Haverstock, McKinlay, Eugair, and Warfle) ● coordination between departments is both necessary (small staff which frequently collaborates on projects) and effective ● very successful in securing State and Federal grants for public infrastructure improvements (culverts, stone-lined ditching, salt shed, sidewalks, dam removal) ● robust highway maintenance program for preserving infrastructure against storms

Areas for Improvement: Sheltering agreement with Red Cross needs to be updated or replaced with other plan(s) ● Highway Department staff could benefit from training in online mapping and asset management resources

Planning and Regulatory

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

Strengths: Active and engaged 7-member local Planning Commission and a seasoned Zoning Officer ● existing land use ordinances are effective at reducing hazard impacts and they are adequately administered and enforced ● elements of hazard mitigation included in other local plans (e.g., LEMP, Road and Bridge Standards, MRGP compliance) ● COVID-19 prompted development and adoption of municipal Continuity of Operations Plan

Areas for Improvement: Planning Commission should be tasked to work with the Selectboard to implement hazard mitigation goals set forth in this Plan

Zoning Regulations: Adopted March 20, 2019

Description: Establish standards and policies concerning development of land, which further the goals of the Pittsford Town Plan.

Relationship to Natural Hazard Mitigation Planning: Promote orderly growth in Pittsford in conjunction with the Town Plan.

Flood Hazard Area (FHA) Regulations: Adopted June 2011

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 July 3, 2019

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

Relationship to Natural Hazard Mitigation Planning: 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: Issued on August 25, 2014

Description: The Pittsford Fire Department's ISO rating is 05/5X. 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 February 7, 2018

Description: A framework to preserve the Town's historical character by encouraging residential and commercial growth within existing village centers while promoting continued permitted uses of surrounding lands.

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

Local Emergency Management Plan: Last adopted on May 6, 2020

Description: Establishes lines of responsibility and procedures to be implemented during a disaster and identifies high risk populations, hazard sites, and available resources.

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

Road Erosion Inventory Report: December 2018

Description: Prioritizes those infrastructure projects necessary to improve transportation network resiliency and water quality.

Relationship to Natural Hazard Mitigation Planning: Improvements are designed to minimize or eliminate flood impacts on hydrologically-connected road segments regulated under the Municipal Roads General Permit.

Castleton River Headwaters Stormwater Master Plan: January 31, 2018

Description: Identify current stormwater inputs and develop prioritized projects to mitigate stormwater water quality problems.

Relationship to Natural Hazard Mitigation Planning: Projects accomplish multiple goals – water quality and mitigation.

Financial

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

Pittsford's current annual budget is approximately \$3,484,330, with \$1,151,480 to fund the Highway Department. In addition to property tax revenues, the Town collects fees for water and sewer services. 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: Annual review of dedicated reserve funds and capital plans to assure funds are available for capital needs ● aggressively and successfully seek out grant opportunities ● critical departments have vehicle/equipment replacement funds with scheduled replacement of important vehicles and equipment

Areas for Improvement: None identified at this time

Education and Outreach

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

- Town website, quarterly newsletter, local newspapers, televised Selectboard meetings, Facebook, Historical Society newsletter, MacLure Library newsletter, Village Farm newsletter
- Pittsford Historical Society
- MacLure Library Board

Strengths: Multiple communications platforms already in place in the community ● good website and a popular quarterly newsletter

Areas for Improvement: Town should take steps to improve its social media presence

National Flood Insurance Program Compliance

The Town joined the National Flood Insurance Program (NFIP) in 1988. The Zoning Administrator enforces NFIP compliance through permit review requirements in its Flood Hazard Area regulations. Pittsford's regulations outline detailed minimum standards for development in flood hazard areas defined as FEMA Special Flood Hazard Areas and Floodway Areas.

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

- 1) Provide information to residents on safe building initiatives and availability of flood insurance.
- 2) Adopt river corridor protection language in the flood hazard regulations bylaw.
- 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 as described below.

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

- 1) NFIP participation
- 2) Town Road and Bridge Standards
- 3) Local Emergency Management Plan (LEMP)
- 4) Local Hazard Mitigation Plan (LHMP)

17.5% funding for eligible communities that also participate in FEMA's Community Rating System OR adopt Fluvial Erosion Hazard or other river corridor protection bylaw that meets or exceeds the Vermont ANR model regulations.

Pittsford's current ERAF rate is 12.5% because they have adopted all four mitigation measures. Pittsford could increase their ERAF rate to 17.5% by adopting river corridor protection bylaws.

Mitigation Action Identification

The Hazard Mitigation Planning Team discussed the mitigation strategy, reviewed projects from the 2016 Plan, and identified possible new actions from the following categories for each of the highest 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 community support for 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 and injury 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.

Develop a Drought Contingency Plan: A strategy or combination of strategies for monitoring the progression of a drought and preparing a response to potential water supply shortages resulting from severe droughts or other water supply emergencies.

Structure and Infrastructure Projects

Remove Existing Structures from Flood Hazard Areas: FEMA policy encourages and may provide funding for the removal of 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 green stormwater management practices; 2) increasing dimensions of undersized 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 maintain integrity or 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; 2) armoring the banks of streams near roadways to prevent washouts or 3) rerouting a stream away from a vulnerable roadway; and 4) 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.

Retrofit Water Supply Systems: Improve water supply and delivery systems to save water. Consider 1) upgrading existing water delivery systems to eliminate breaks and leaks, and 2) investing in infrastructure (like dry hydrants) to expand water supplies for fire suppression to ensure adequate supply during times of drought.

Natural Systems Protection

Protect and Restore Natural Flood Mitigation Features: Natural conditions often provide floodplain protection, riparian buffers, groundwater infiltration, 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; 4) minimizing impervious area development; and 5) 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. Consider: 1) educating building owners on how to protect their pipes, and 2) informing homeowners that keeping water in the pipes moving by letting a faucet drip may prevent freezing and the buildup of pressure in the pipeline, avoiding bursting.

Assist Vulnerable Populations: Ensure vulnerable populations are adequately protected from the impacts of natural hazards, such as: 1) organize outreach and 2) establish and promote accessible heating or cooling centers in the community.

Educate Residents on Drought-related Hazards and Water Saving Techniques: Increase awareness of drought-related hazards - brush fire, diminished water quality and quantity. Encourage residents to take water-saving measures, such as 1) install low-flow water saving showerheads and toilets; 2) check for leaks in plumbing or dripping faucets; and 3) install rain-capturing devices for irrigation.

Mitigation Action Evaluation and Prioritization

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

Mitigation Action Implementation

After careful evaluation and prioritization, the Planning Team agreed on a list of acceptable and practical actions 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 Planning Team 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	0	1	1	1	1	1	5	1	Y
Update Road Erosion and Culvert Inventories	0	1	1	1	1	1	5	1	Y
Develop a Drought Contingency Plan	0	1	1	1	1	1	5	1	Y
Improve Stormwater Management Planning by Completing a Stormwater Management Plan	0	1	1	0	1	1	4	1	Y
Manage Development in Erosion Hazard Areas with River Corridor Bylaws	0	1	1	-1	1	1	3	1	Y
	The Planning Team did not recommend this action for implementation because it lacks political will/public support at this time.								
Plan for and Maintain Adequate Road and Debris Clearing Capabilities	The Town is already doing this, so the Planning Team did not evaluate this action.								
Review VTrans Bridge Inspection Reports ¹ and Plan for Identified Repairs to Prevent Scour	The Town is already doing this, so the Planning Team did not evaluate this action.								
Structure and Infrastructure Projects									
Protect Power Lines and Roadway by Inspecting and Removing Hazardous Trees in Road ROW	1	1	1	1	1	1	6	1	Y
Install Back-up Generators or Quick Connect Wiring at Critical Facilities	1	1	1	1	1	1	6	1	Y
Increase Drainage/Absorption Capacities with Green Stormwater Management Practices	0	1	1	1	1	1	5	1	Y
Stabilize Outfalls	0	1	1	1	1	1	5	1	Y
Install/Re-establish Roadside Ditches	0	1	1	1	1	1	5	1	Y
Routinely Clean and Repair Stormwater Infrastructure	0	1	1	1	1	1	5	1	Y
Increase Dimension of Drainage Culverts in Flood-Prone Areas	0	1	1	1	1	1	5	1-2	Y
Bury Power Lines	1	1	1	-1	1	1	4	3	N
Invest in Infrastructure to Reduce System Losses or Expand Water Supplies	0	1	1	-1	1	1	3	3	N
Elevate Roads Above Base Flood Elevation to Maintain Dry Access	1	1	1	-1	1	-1	2	3	N
Remove Existing Structures from Flood-Prone Areas	There are no repetitive loss properties, so the Planning Team did not evaluate this action.								
Routinely Clear Debris from Support Bracing Underneath Low-Lying Bridges	There are no municipal low-lying bridges, so the Planning Team did not evaluate this action.								
Floodproof Critical Facilities	There are no critical facilities that require floodproofing, so the Planning Team did not evaluate this action.								
Retrofit Critical Facilities to Strengthen Structural Frames to Withstand Wind and Snow Loads	There are no critical facilities that require structural retrofits, so the Planning Team did not evaluate this action.								
Anchor Roof-Mounted Mechanical Equipment on Critical Facilities	There are no critical facilities with roof-mounted mechanical equipment, so the Planning Team did not evaluate this action.								
Natural Systems Protection									
Establish Vegetative Buffers in Riparian Areas	The Planning Team did not evaluate these actions because there are no known areas; however, the Town will collaborate with the Poultney Mettowee and Rutland Natural Resources Conservation Districts to identify and implement natural systems protection projects that meet the goals of this Plan.								
Stabilize Stream Banks									
Remove Berms									
Restore Incision Areas									

¹ VTrans inspects all town-owned bridges in the State's Town Highway Bridge Program every two years. Bridge inspection reports are available on the VTrans website.

Mitigation Action	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
Education and Awareness Programs									
Educate Property Owners about Freezing Pipes	0	1	1	1	1	1	5	1	Y
Keep the Ditches Clean Campaign	0	1	1	1	1	1	5	1	Y
Educate Residents on Drought-related Hazards and Water Saving Techniques	0	1	1	1	1	1	5	1	Y
Assist Vulnerable Populations	Pittsford already has a system in place to assist vulnerable populations – see 2020 Local Emergency Management Plan.								

Table 5 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 \$50,000; 2 = \$50,000 to \$100,000; 3 = more than \$100,000

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

Table 6 Community Lifelines Description: A Community Lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security. The primary objective of lifelines is to ensure the delivery of critical services that alleviate immediate threats to life and property when communities are impacted by disasters. These critical services are organized into one of seven lifelines:



1. Law Enforcement
2. Fire Service
3. Search & Rescue
4. Government Service
5. Community Safety



1. Food
2. Water
3. Shelter
4. Agriculture



1. Medical Care
2. Public Health
3. Patient Movement
4. Medical Supply Chain
5. Fatality Management



1. Power Grid
2. Fuel



1. Infrastructure
2. Responder Communications
3. Alerts, Warnings, & Messages
4. Finance
5. 911 & Dispatch



1. Highway/Road/ Motor Vehicle
2. Mass Transit
3. Railway
4. Aviation
5. Maritime



1. Facilities HAZMAT, Pollutants, Contaminants

Table 6: Mitigation Action Implementation

Update Road Erosion and Culvert Inventories: These inventories were completed in 2017 and 2016, respectively and serve as the basis for asset management and should be kept up-to-date annually, with a full re-assessment every 5 years. Driveway culverts should be included in the 2022 culvert inventory re-assessment.

ADDRESSED HAZARDS**Flooding****Lead Party**

Road Foreman

Type of Project

Local Plans and Regulations

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**

Primary Lifeline

Area of Impact

Town-wide; ±36 miles of hydrologically-connected roads and ±390 culverts

FUNDING SOURCES

- Local funding
- VTrans Better Roads

PARTNERSHIPS

- Rutland Regional Planning Commission (RRPC)

BENEFIT SCORE = 5**PROJECT TIMELINE**

Re-assessment summer 2022

Develop a Drought Contingency Plan: A Drought Contingency Plan is a strategy or combination of strategies for monitoring the progression of a drought and preparing a response to potential water supply shortages resulting from severe droughts or other water supply emergencies. Pittsford will explore the feasibility of developing this Plan.

ADDRESSED HAZARDS**Drought****Lead Party**

Town Manager

Type of Project

Local Plans and Regulations

COMMUNITY LIFELINES**Safety & Security****Food, Water, Shelter**

Primary Lifeline

Area of Impact

Areas outside of the municipal drinking water service area; areas underserved with fire hydrants

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Water Utility Operator
- VT Drinking Water and Groundwater Protection Division (DWGWPD)
- Volunteer Fire Department

BENEFIT SCORE = 5**PROJECT TIMELINE**

Outreach to DWGWPD to explore technical assistance in Oct 2021

Develop a Stormwater Management Plan: A Stormwater Management Plan can guide the town in planning, funding, and implementing a comprehensive program for addressing current and future requirements for managing stormwater runoff, flooding problems, and the Town's natural resources. Pittsford will explore the feasibility of developing this Plan.

ADDRESSED HAZARDS**Flooding****Lead Party**

Town Manager

Type of Project

Local Plans and Regulations

COMMUNITY LIFELINES**Safety & Security****Transportation**

Primary Lifeline

Area of Impact

Otter Creek Watershed Tributaries – Furnace Brook, Sugar Hollow Brook, and Little Brook

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Rutland Natural Resources Conservation District (NRCD)
- Selectboard
- Planning Commission

BENEFIT SCORE = 4**PROJECT TIMELINE**

Outreach to Rutland NRCD to explore funding and technical assistance in Jul 2021

Remove Hazardous Trees in Road Right-of-Way: Hazardous trees in the road right-of-way can contribute to power and communication outages as well as debris in the roadway during winter storms and high wind events. This hazard is exacerbated by the possibility of an Emerald Ash Borer infestation. Pittsford will 1) develop an ash tree inventory and 2) remove hazardous trees within their road right-of-way as they are identified and/or request removal by Green Mountain Power if also within the power line right-of-way.

ADDRESSED HAZARDS**Winter Storm****High Winds****Lead Party**

Road Foreman

Type of Project

Infrastructure

COMMUNITY LIFELINES TARGETED**Energy**

Primary Lifeline

**Transportation****Communications****Area of Impact**

Town-wide

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Tree Warden
- Green Mountain Power
- Town Manager

BENEFIT SCORE = 6**PROJECT TIMELINE**

Ash Tree Inventory in 2023
construction season
As needed

Install Back-up Power at Critical Facilities: Generators are emergency equipment that provide a secondary source of power to a facility. Pittsford has identified two critical facilities in need of back-up power.

ADDRESSED HAZARDS**All Hazards****Lead Party**

Selectboard – First Response
Schoolboard – Elementary

Type of Project

Infrastructure

COMMUNITY LIFELINES TARGETED**Energy**

Primary Lifeline

**Food, Water, Shelter****Area of Impact**

- 1) Wastewater Treatment Facility
- 2) Pittsford First Response Facility
- 3) Elementary School (local shelter)

FUNDING SOURCES

- Local funding
- FEMA HMGP

PARTNERSHIPS

- None

BENEFIT SCORE = 6**PROJECT TIMELINE**

- 1) 2022 construction season
- 2) 2026 construction season
- 3) 2026 construction season

Install Green Stormwater Management Practices: Green infrastructure uses vegetation, soils, and other elements and practices to restore some of the natural processes required to manage stormwater runoff and control flooding. Pittsford proposes to install practices in the following locations and/or in accordance with a Stormwater Management Plan, when complete.

ADDRESSED HAZARDS**Flooding****Lead Party**

Road Foreman

Type of Project

Infrastructure

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**

Primary Lifeline

Area of Impact

- 1) Behind the Fire Station – Install bioretention pond
- 2) Others as identified in Stormwater Management Plan, when complete

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Town Manager
- Vermont Youth Conservation Corp (VYCC)
- Rutland NRC
- Poultney Mettowee NRC

BENEFIT SCORE = 5**PROJECT TIMELINE**

- 1) 2022 construction season
- 2) See Stormwater Management Plan

Stabilize Culvert Outfalls: Erosion at the outlet of culverts is common and can cause structural failure with serious downstream consequences. Properly stabilized outfalls protect channel bank stability and reduce erosion. Pittsford has identified the following locations where culvert outlet stabilization is needed.

ADDRESSED HAZARDS**Flooding****Lead Party**

Road Foreman

Type of Project

Infrastructure

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

- 1) Furnace Brook Rd @ Adams Rd intersection
- 2) Fire Hill Rd
- 3) Others as required by MRGP

FUNDING SOURCES

- Local funding
- VTrans Better Roads
- Grants-In-Aid
- FEMA HMGP

PARTNERSHIPS

- Town Manager
- ANR Stream Engineer
- US Army Corps of Engineers

BENEFIT SCORE = 5**PROJECT TIMELINE**

- 1) 2022 construction season
- 2) 2022 construction season
- 3) See MRGP

Re-work Roadside Ditches: Properly installed and stabilized roadside ditches are critical to protect the integrity of the road. Although Pittsford has an extensive network of ditches, the areas noted below either need new ditches or have ditches that need to be re-worked to bring them up to current municipal Road Standards.

ADDRESSED HAZARDS**Flooding****Lead Party**

Road Foreman

Type of Project

Infrastructure

COMMUNITY LIFELINES TARGETED**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

- 1) Allen Mills Rd
- 2) Sugar Hollow Rd
- 3) Fire Hill Rd
- 4) Others as required by MRGP

FUNDING SOURCES

- Local funding
- VTrans Better Roads
- Grants-In-Aid

PARTNERSHIPS

- Town Manager

BENEFIT SCORE = 5**PROJECT TIMELINE**

- 1) 2021 construction season
- 2) 2021 construction season
- 3) 2022 construction season
- 4) See MRGP

Routinely Clean and Repair Stormwater Infrastructure: Regular maintenance is one of the most effective ways to mitigate the impacts of flooding. Routine cleaning and repairs of ditches, culverts, and catch basins will be done according to the Highway Department's maintenance schedule and the Municipal Roads General Permit (MRGP).

ADDRESSED HAZARDS**Flooding****Lead Party**

Road Foreman

Type of Project

Infrastructure

COMMUNITY LIFELINES**Safety & Security****Transportation**
Primary Lifeline**Area of Impact**

Town-wide; ±66 mile road network and ±390 culverts

FUNDING SOURCES

- Local funding
- VTrans Better Roads
- Grants-In-Aid

PARTNERSHIPS

- Town Manager

BENEFIT SCORE = 5**PROJECT TIMELINE**

See Highway Department's Maintenance Schedule and MRGP

Adequately Size Drainage and Perennial Stream Culverts in Flood-Prone Areas: Undersized culverts can lead to road washouts and flooding. Pittsford has identified several locations where upsized culverts are needed.

ADDRESSED HAZARDS**Flooding****Lead Party**

Road Foreman

Type of Project

Infrastructure

COMMUNITY LIFELINES**Safety & Security****Transportation**

Primary Lifeline

Area of Impact

- 1) Fire Hill Rd – replace double culvert with open bottom concrete structure
- 2) Five remaining culverts rated as “Poor” in Culvert Inventory
- 3) Others, including driveway culverts, as required by MRGP

FUNDING SOURCES

- Local funding
- VTrans Better Roads
- VTrans Structures Grant
- Grants-In-Aid
- FEMA HMGP

PARTNERSHIPS

- Town Manager
- ANR Stream Engineer
- US Army Corps of Engineers

BENEFIT SCORE = 5**PROJECT TIMELINE**

- 1) 2021 construction season
- 2) (1) in 2021 construction season;
(2) in 2022 construction season;
(2) in 2023 construction season
- 3) See MRGP

Establish Vegetative Buffers in Riparian Areas, Stabilize Stream Banks, Restore Incised Reaches,

Remove Berms: Pittsford will work with the Rutland and Poultney Mettowee Natural Resources Conservation Districts to identify areas for collaboration to pursue these actions.

ADDRESSED HAZARDS**Flooding****Lead Party**

Town Manager

Type of Project

Natural Systems Protection

COMMUNITY LIFELINES TARGETED**Safety & Security**

Primary Lifeline

**Transportation****Area of Impact**

- 1) Otter Creek Watershed
- 2) Otter Creek Watershed Tributaries
– Furnace, Sugar Hollow, Little Brooks
- 3) Castleton River Headwaters

FUNDING SOURCES

- Local funding
- VTrans Better Roads
- VANR Water Quality Grants

PARTNERSHIPS

- Road Foreman
- Rutland NRCD
- Poultney Mettowee NRCD
- ANR Stream Engineer
- US Army Corps of Engineers

PROJECT TIMELINE

Assemble a committee to work with the Natural Resource Conservation Districts to identify areas for collaboration in Jan 2022

Educate Property Owners about Severe Winter and Drought-related Hazards; Emerald Ash Borer; and Keep the Ditches Clean Campaign: Pittsford will undertake education and awareness efforts on 1) severe winter storm-related hazards (e.g., freezing pipes); 2) drought-related hazards (e.g., brush fires, diminished water quality, water conservation); 3) the Emerald Ash Borer and the impacts of infestation; and 4) the importance of keeping the municipal ditches free of yard waste and other debris.

ADDRESSED HAZARDS**Winter Storm****Drought****Invasive Species****Flooding****Lead Party**

Town Manager

Type of Project

Education and Awareness

COMMUNITY LIFELINES**Safety & Security**

Primary Lifeline

**Transportation****Food, Water, Shelter****Area of Impact**

Town-wide

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Tree Warden
- Water Utility Operator
- Road Foreman
- Emergency Management Director

BENEFIT SCORE = 6**PROJECT TIMELINE**

Spring 2021 – Emerald Ash Borer educational outreach in *Quarterly Newsletter* and town website
 Summer 2021 – Drought educational outreach in *Quarterly Newsletter* and town website
 Fall 2021 – Keep the Ditches Clean educational outreach in *Quarterly Newsletter* and town website
 Winter 2021 – Winter Storm educational outreach in *Quarterly Newsletter* and town website
 Winter 2021 – Winter Storm Preparedness Workshop

Process for Incorporating Plan Requirements into Other Planning Mechanisms

For Pittsford 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:

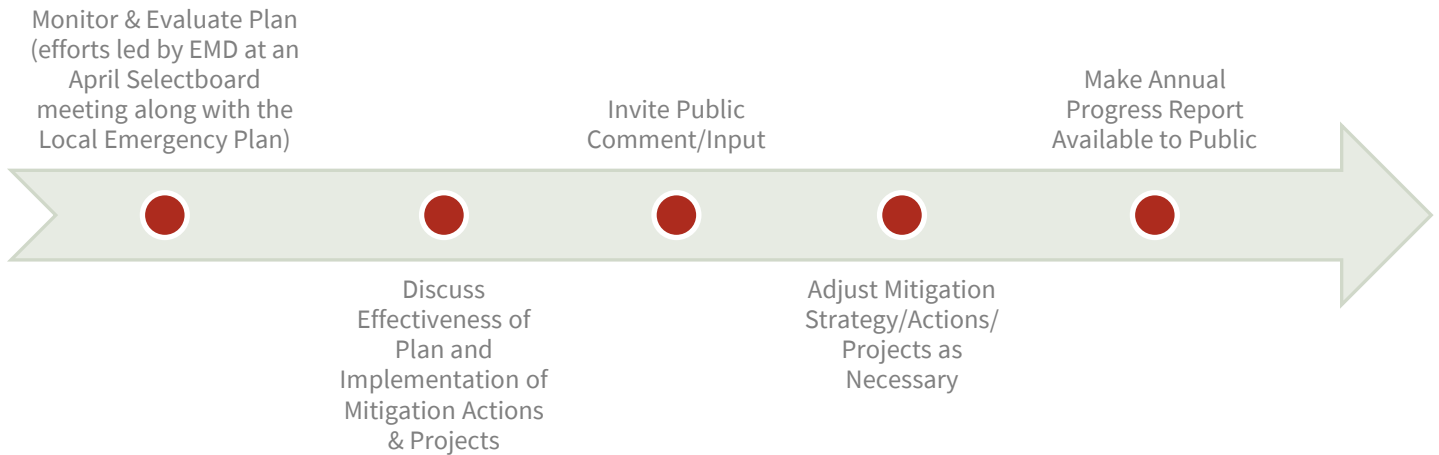
- The Town Manager will work with the Road Foreman and Water/Sewer Utility Operators to incorporate risk assessment and hazard mitigation goals into capital planning efforts and improvement programs.
- The Planning Commission will integrate the hazard mitigation goals for disaster resiliency into the goals and objectives of the next updates to the Town Plan and Flood Hazard Area Regulations.
- In the next update to the Flood Hazard Area Regulations, the Planning Commission will consider increasing the height for elevating the lowest floor above base flood elevation to at least 2-feet for new development.
- The Road Foreman will implement several infrastructure mitigation projects (e.g., upsize perennial and drainage culverts in flood-prone areas, re-work roadside ditches) through existing plans (2018 Road Erosion Inventory Report and 2018 Castleton River Headwaters Stormwater Master Plan).
- The Town Manager (or an appointed committee) will work with the Rutland and Poultney Mettowee Natural Resources Conservation Districts to identify opportunities to collaborate on addressing Natural Systems Protection projects that achieve the mitigation goals of this Plan.

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 starting in 2022 in accordance with the following process:



The status (e.g., in progress, complete) of each mitigation action should be recorded in **Table 7**. If the status is “in progress” note whether the action is on schedule. If not, describe any problems, delays, or adverse conditions that will impair the ability to complete the action.

Updating

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

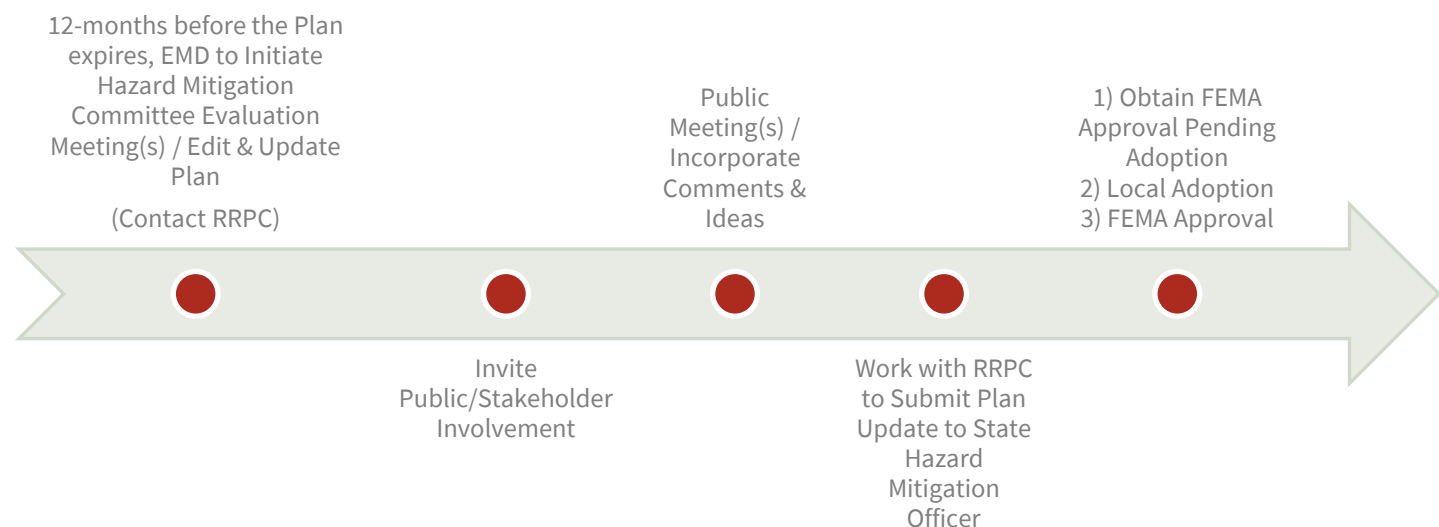


Table 7: Mitigation Action Status

Mitigation Action	2022	2023	2024	2025	2026
Local Plans and Regulations					
Update Road Erosion and Culvert Inventories					
Develop a Drought Contingency Plan					
Develop a Stormwater Management Plan					
Structure and Infrastructure Projects					
Remove Hazardous Trees in Road ROW					
Install Back-up Power at Critical Facilities					
Install Green Stormwater Management Practices					
Stabilize Culvert Outfalls					
Re-work Roadside Ditches					
Routinely Clean and Repair Stormwater Infrastructure					
Adequately Size Drainage and Perennial Stream Culverts in Flood-Prone Areas					
Natural Systems Protection					
Establish Vegetative Buffers in Riparian Areas					
Stabilize Stream Banks					
Restore Incised Reaches					
Remove Berms					
Education and Awareness Programs					
Severe Winter Storm Preparedness Outreach					
Drought-related Hazards Educational Outreach					
Emerald Ash Borer Educational Outreach					
Keep the Ditches Clean Campaign					

CERTIFICATE OF ADOPTION
TOWN OF Pittsford, Vermont Selectboard
A RESOLUTION ADOPTING THE Pittsford, Vermont 2021 Local Hazard Mitigation Plan

WHEREAS, the Town of Pittsford has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **2021 Pittsford, 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 Pittsford has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its **2021 Pittsford, 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 Pittsford; and

WHEREAS, the **Plan** recommends several hazard mitigation actions (projects) that will provide mitigation for specific natural hazards that impact the Town of Pittsford 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 Pittsford eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by Town of Pittsford Selectboard:

1. The **2021 Pittsford, Vermont Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Pittsford;
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.

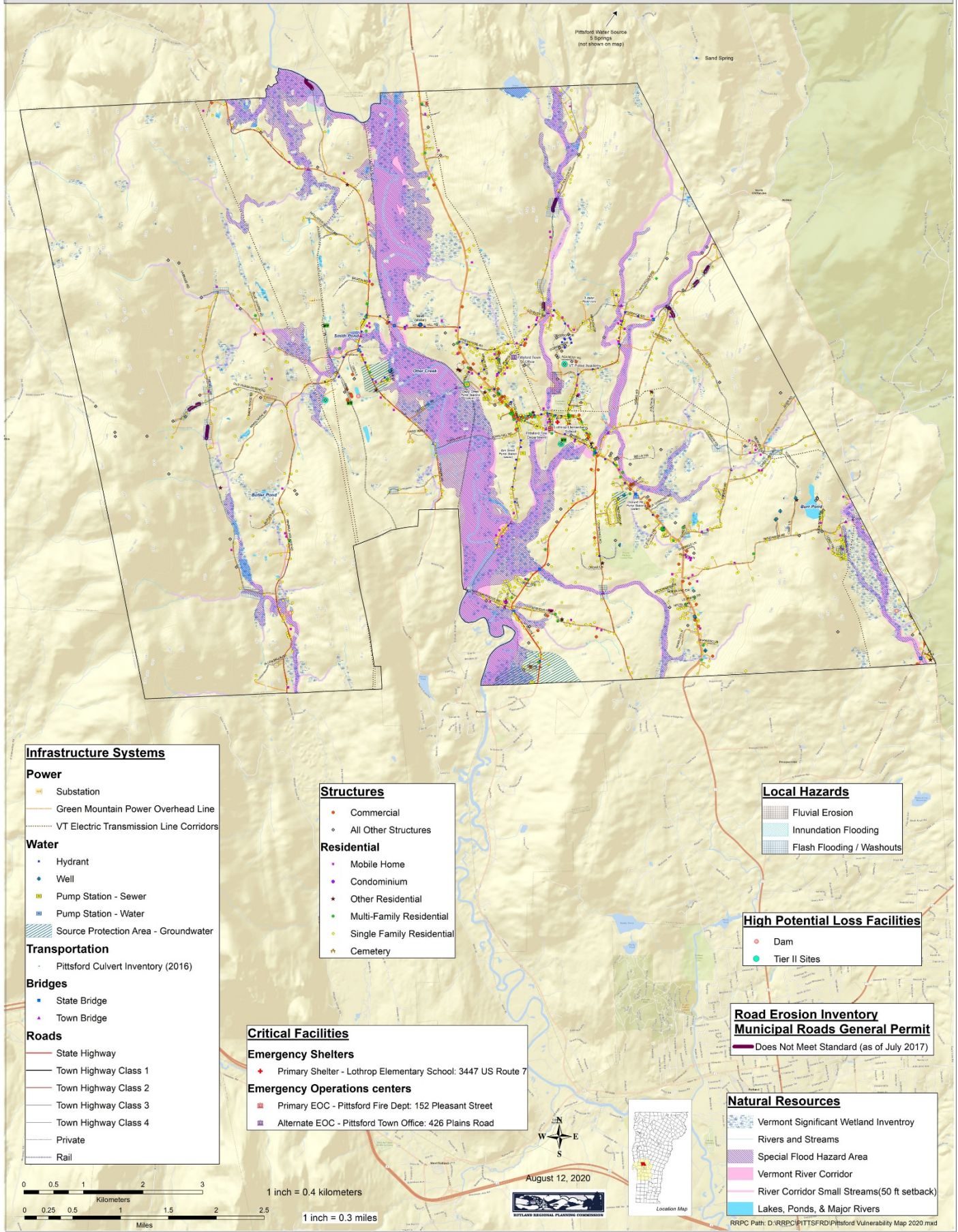
IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Pittsford this 21st day of April 2021.

Selectboard Chair

ATTEST

Town Clerk

Pittsford, Vermont: Local Natural Hazards and Vulnerabilities Map



2016 Mitigation Actions and Projects

Vulnerability: Flooding of Bridges and Low Lying Areas

Flooding of the town's rivers, especially the Otter Creek, can cut off access to Elm Street, West Creek Road, and the Cooley and Gorham bridges. This is not only a problem for residents who wish to access their home or who wish to flee the area in a major storm, but it also causes problems for emergency vehicles that need to gain access.

Priority	Mitigation Action	Local Leadership	Funding Resources	Target Start/End	2021 Status
High	Culvert Upsizing on Fire Hill Rd and Chittenden Rd. The current culverts are not large enough to handle storm flows, and will be replaced with box culverts, which will significantly increase the culvert's ability to handle storm flows and decrease the likelihood of blockage from debris, resulting in a more resilient infrastructure, thereby improving long-term flood resilience.	Selectboard, Highway Foreman	VTrans Structures Grant	May 2016-September 2016	Complete
High	Culvert Upsizing on Fire Hill Road and Chittenden Road. Many culverts will need to be replaced with box culverts. Box culverts will again increase flows and increase resiliency, as mentioned above.	Selectboard, Highway Foreman	VTrans. HMGP	May 2017-September 2017	Incomplete – Fire Hill Rd remains a priority
High	Culvert Upsizing/Replacement. There are 15 culverts in Pittsford, in addition to the ones mentioned above, that are graded as "poor" and need to be replaced. These upgrades will again increase flows and increase resiliency, as mentioned above.	Selectboard, Highway Foreman	VTrans. HMGP	May 2018-September 2020	Incomplete – remains a priority
Moderate	Replace the bridge in the town's recreation area. The footings and abutments of the bridge are too close together, and therefore the bridge constricts the flow of water in Sugar Hollow Brook. This constrictions speeds up the flow of the water and causes erosion. Replacing the bridge with one that has wider footings will increase flows, reduce erosion, and overall increase the resiliency of the structure and the river ecosystem.	Selectboard	HMGP	June 2019 – September 2019	Complete - erosion issues were addressed with vegetative buffers Incomplete - bridge replacement is no longer a priority
Moderate	Plantings along the Sugar Hollow Brook, to lessen the impact of the erosion caused by the narrow bridge (discussed above)	Selectboard, Town Manager	HMGP	June 2019 – September 2019	Complete
Moderate	Revise Zoning to require that new development be built to BFE + 2'.	Planning Commission, Select Board	MPG	September 2016-March 2018	Incomplete – remains a priority
Moderate	Revise Zoning to Ensure New Development will not be Vulnerable to Flooding or Erosion. This includes adopting State River Corridor Protection Language	Planning Commission, Select Board.	MPG	September 2016-March 2018	Incomplete – the adoption of River Corridor Bylaws was evaluated in 2020 and determined that it lacked political will/public support
Low	Elevate Elm Street and Gorham Covered Bridge		HMGP, VTRANS		Incomplete – elevating roads above BFE was evaluated in 2020 and determined that it lacks political will/public support, and the costs are not reasonable compared to the expected benefits
	(Preparedness Action) Conduct exercises with First Responders to ensure that emergency vehicles will be placed within areas that may be cut off from vehicle access during a large rain/flood event.	Fire / Police / EMS / EMD			Ongoing

Vulnerability: Power Outages to Homes and Critical Facilities

Priority	Mitigation Action	Local Leadership	Funding Resources	Target Start/End	2021 Status
High	Generator for the Wastewater Treatment Plant. This plant uses the same electric that the Water Department Offices use. Therefore, a generator would not only keep the Wastewater treatment plant open, but it would also keep the water department offices open. This has public health implications and is viewed as a critical mitigation action by the town.	Water and Sewer Commission	HMGP	September 2015 – April 2016	Incomplete – remains a priority
Low	Burying of Powerlines East of Rt 7. By burying power lines, the town will prevent loss of power to homes that are located east of Route 7. These homes experience a higher frequency of power outages than other homes in the town, and by burying power lines, the town will ensure that the electricity will not be affected by trees downed by wind storms or ice storms.	Select Board, Town Manager	HMGP	May 2018- September 2019	Incomplete – this action was evaluated in 2020 and determined that it lacks political will/public support, and the costs are not reasonable compared to the expected benefits.
Moderate	Revise the Zoning Regulations to Delineate a Wildfire Overlay District. This District will identify the areas that are more prone to wildfire, and will provide extra stipulations for new construction in the district, so as to reduce the number of homes that will be vulnerable to wildfire.	Planning Commission, Select Board	MPG	September 2016-March 2018	Incomplete – no longer a priority

Vulnerability: Vulnerable Populations – the elderly and children

Priority	Mitigation Action	Local Leadership	Funding Resources	Target Start/End	2021 Status
	(Preparedness Action). Emergency Contact “op-in”. Create a smart phone alert system that would notify residents of impending storms. This would be advertised especially to vulnerable populations – the elderly and childcare providers.	Town Manager, Town Web Host		2016/2017	Complete – the Fire Dept maintains a “check-in” list; in addition to Town utilizes VTAlert