

Tinmouth, Vermont  
Local Hazard Mitigation Plan



McCoy Road Washout – July 2017

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**Other Key Partners**

Rutland Natural Resources Conservation District

Poultney Mettowee 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 Tinmouth (the Town) more disaster resistant and more resilient after a disaster.

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 prevent future loss of life and property.

The benefits of mitigation planning include:

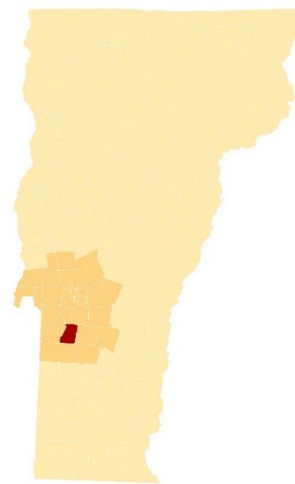
- Identifying actions for risk reduction that are agreed upon by stakeholders and the public.
- Focusing resources on the greatest risks and vulnerabilities.
- Increasing education and awareness of threats and hazards, as well as their risks.
- Reducing the degree of injury and inconvenience to the townspeople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

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

## 3 COMMUNITY PROFILE

### Land Use and Development Patterns

The small hamlet in the center of the Town is the only area of concentrated residences and civic structures. Outside this hamlet, the rural lands of Tinmouth are affected by a variety of land uses. The continued conversion of farm acreage to residential uses has raised the possibility that the character of Tinmouth may become suburban in nature, with a population commuting elsewhere to work, and single fields becoming multiple lawns or filling in with trees. While the number of working farms has continued to decline in Tinmouth, dairy farming is still a predominant land use. In addition, Tinmouth has a considerable amount of undeveloped open land and forest areas.



The impact of commercial uses is minimal within the Town. A seasonal snack-bar and garage are in the hamlet of Tinmouth, but most commercial uses are dispersed throughout the southern part of Tinmouth Valley. These consist of a garage, seasonal cottages, a seasonal guest lodge, and a gravel and sand pit.

The public and quasi-public land under local ownership is associated with the municipal buildings, firehouse, church, and cemeteries. Of significant importance, is an extensive land holding under the ownership of the State of Vermont. This tract contains approximately 1,400 acres and includes almost all the Tinmouth Channel Wetland.

Another land holding of some importance is the powerline right-of-way owned by Green Mountain Power, which extends the entire length of the Tinmouth.

In addition, the community, in collaboration with the Vermont Land Trust and others, has been very active in conserving land. Approximately 6,646 acres, including the 200-acre Town forest and recreation area on top of Tinmouth Mountain, have been placed under conservation restrictions which prohibit subdivision or development, and limit uses to agriculture and forestry. This accounts for 35.8% of the total 18,531 acres of land in Tinmouth.

43% of the Town's land has been protected from development by conservation easements, which includes those held by the Vermont Land Trust and State land set aside to safeguard Tinmouth Channel; an additional 29% is acreage enrolled in the Vermont Land Use Tax program, which also limits development.

Tinmouth is rural-residential in character. The density of settlement is very low, and its distribution has been influenced by the physical composition of the land. Tinmouth Valley contains the major concentration of settlement. At its center is a small hamlet which serves as the focus of community activity. Besides containing numerous residences, this hamlet is the location of the Town's community facilities. These include the town offices and sheds, the fire station, the elementary school, community center, and the church. Several small commercial establishments also exist here.

The southern portion of the valley has a relatively high proportion of settlement, mostly occurring along town roads. This area is also the location of a major concentration of seasonal dwellings which ring the shoreline of Tinmouth Pond (aka Chipman Lake).

Other concentrations of settlement occur in the valleys along the southwest and northwest boundaries of the Town. Because of the ridge formed by Tinmouth Mountain, the West Tinmouth area is quite remote from the eastern portion of the Town.

A major portion of the Town is relatively inaccessible and therefore has remained unsettled. These areas consist of the uplands of Tinmouth Mountain, Clark Mountain, the Purchase and Spoon Mountain.

### Land Features

The Town lies at the northern limits of the Taconic Mountain Range. As a result, its terrain presents an extreme contrast in form and elevation.

Tinmouth Valley, which ranges in elevation from 1,000 to 1,500 feet, is broad and U-shaped in cross-section, runs north-south through the central part of the Town. The valley floor is characterized by flat to undulating land with slopes generally less than 10 percent in steepness.

Enclosing Tinmouth Valley are two dominant ridgelines, the highest peaks reaching almost 3,000 feet. The slopes forming the walls of this mountain ridge generally are steeper than 20 percent (20 feet in 100 feet) with the upper east-facing slopes becoming very precipitous at the higher elevations.

The northwest and southwest corners of the Town are characterized by very narrow lowland valleys, while the west-central area consists of undulating upland valley between Tinmouth Mountain and Spoon Mountain. Because of the ridge formed by Tinmouth Mountain, these areas are physically separated from the eastern half of the town. The only connection occurs through a gap in the northern part of the ridge.

### Demographics and Growth Potential

The 2018 American Community Survey Five-Year Estimates prepared by the U.S. Census Bureau shows an estimated population of 637 and 379 households. Between 2010 and 2018, the population has held relatively steady. The median age of Tinmouth residents is 44.1 years old. This is slightly higher than the Vermont median age of 42.8. The portion of the population over 60 is 29%, compared to 25% in Vermont and 20.9% in the country.

As previously mentioned, the Town has a unique and special character derived from the continued historic rural nature of the community. This character tends to retain the multi-generational Vermonter while welcoming others who also appreciate this sense of community and quiet lifestyle. This is not compatible with rapid growth and intrusive development.

*Tinmouth's demographics and low population density make it unattractive to retail and industrial development. Growth potential is also limited by several other factors including limited highway access, limited utility availability (including cell service), land ownership and control, and natural conditions.*

### Precipitation and Water Features

Average precipitation is 44 inches of rain; with July being the wettest month. Average snowfall is 79 inches, with January being the snowiest month.

The Tinmouth Channel is the major drainage for all surface waters in Tinmouth. The Channel is significant, because of its classification as the largest Class I Wetland in Vermont, approximately 450 acres. Flowing north, it becomes the Clarendon River, which is a major tributary of Otter Creek. The headwaters of the Poultney River originate in the northwest corner of Town. Wells Brook is in the southwest corner. Tinmouth Pond, in the southeast corner, known also as Chipman Lake, is the only significant water body. It is approximately 75 acres in surface area and drains into the Tinmouth Channel.

### Drinking Water and Sanitary Sewer

The Town has a municipal water system that serves the fire department, school, and town office. Residences and businesses rely on drilled wells or springs.

The Town does not have a municipal sewer system. Developed properties dispose of sewage through septic tanks and drainage fields, or other similar in-ground designs.

### Transportation

Roads in Tinmouth generally follow the topography, and settlement patterns have naturally followed roads to facilitate access and maintenance. There are 39.68 miles of roads in the Town, most of which are maintained locally. VT Route 140 is the main east-west route, serving Tinmouth Center and providing an important link with the adjacent municipalities of Wallingford and Middletown Springs. East Road, North East Road, Mountain View Road, North End Road, VT Route 133, and, seasonally, the Gulf Road offer north-south passage through Tinmouth, at lesser volumes, and connect the community to the towns of Clarendon and Ira to the north, and Wells, Danby, and Pawlet to the south.

Several roads 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**.

According to the Town's Road Stormwater Management Plan, approximately 38% of the Town's road mileage is hydrologically connected - meaning it is within 100-feet of a water resource (i.e., perennial/intermittent stream, wetland, lake, or pond). Proximity to water resources can make these sections of road more vulnerable to flooding and fluvial erosion.

There are 8 town-owned bridges in the Tinmouth highway network, as well as ±360 culverts. One bridge has a span over 20 feet; this bridge is part of the VTrans Town Highway Bridge Program. The local transportation network is maintained by the Town Highway Department, whose garage is located at 537 VT Route 140.

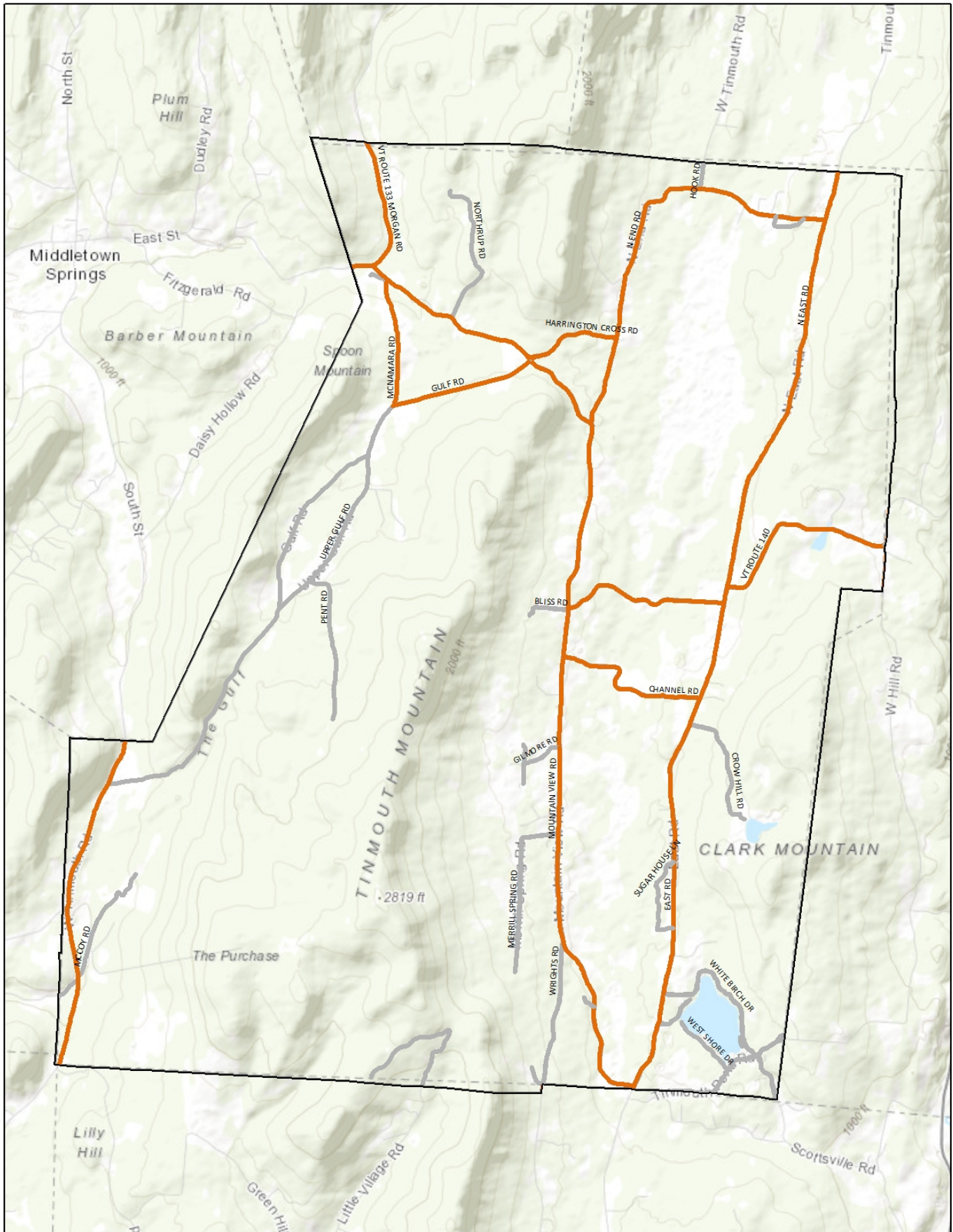


Figure 1: Locally Important Routes for Through-Ways, Detours, Short-Cuts, and Access to Critical Facilities  
Shown in orange on Figure 1

## Electric Utility Distribution System

Electric service to approximately 390 accounts is provided by Green Mountain Power via one primary circuit. Average annual outage statistics between 2015 and 2019 are summarized in **Table 1**.

Table 1: Power Outage Summary

<b>Average Annual (2015-2019)</b>	
Avg # of times a customer was without power	3.09
Avg length of an outage in hours	5.24
# of hours the typical customer was without power	16.22
<b>2019 only</b>	
Avg # of times a customer was without power	4.59
Avg length of an outage in hours	4.34
# of hours the typical customer was without power	19.93

The longest power outage affecting the greatest number of accounts between 2015 and 2019 was 64.13 hours long and impacted 6 accounts. During this same period, there was a 32.48 hour long outage that impacted 132 accounts.

## Public Safety

The Tinmouth Fire Department is a volunteer organization. It belongs to a Mutual Aid Pact with the Clarendon, Danby, Middletown Springs, Pawlet, Poultney, Ira, Wallingford, and Wells Fire Departments. The Department is well equipped with a range of firefighting resources. The recently refurbished Fire Station is in Tinmouth Center next to the Town Office and all fire protection equipment is owned by the Department. Tinmouth has seven hydrants: one wet hydrant and six dry ones.

The Town contracts with the Rutland County Sheriff's Department for law enforcement.

The eastern portion of Tinmouth is covered by Wallingford Rescue Squad, which is five miles away. The western part of Tinmouth is served by the Poultney and Granville Rescue Squads.

The distances of these services from the Town is a limiting factor in providing immediate emergency aid. The Town also participates in the state E-911 numbering system. The nearest hospital is the Rutland Regional Medical Center.

## Emergency Management

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

## 4 PLANNING PROCESS

### Plan Developers

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

The Hazard Mitigation Planning Team members who assisted with the update include the local Emergency Management Director, Emergency Management Coordinator, Selectboard Chair, Town Clerk, Road Commissioner, and Assistant Fire Chief.

### Plan Development Process

The 2021 Tinmouth Local Hazard Mitigation Plan is an update to the 2015 single jurisdiction mitigation plan. A summary of the process taken to develop the 2021 update is provided in **Table 2**.



## Table 2: Plan Development Process

**September 1, 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.

**September 2020:** Public notice posted on RRPC and Town websites/social media (Facebook, Front Porch Forum) that the Town is engaged in hazard mitigation planning and updating their LHMP. Notice also included in *Tales of Tinmouth* community newsletter – see Appendix D. Emailed notice to officials in neighboring towns of Ira, Clarendon, Wallingford, Danby, Pawlet, Wells, and Middletown Springs. Name and contact information provided in notices for more information. No inquiries received from the public or neighboring towns.

**September 29, 2020:** Planning Team meeting – confirmed the plan purpose and completed work on the community profile. Began work on the community hazard risk assessment, storm history, and identifying assets vulnerable to the highest risk natural hazards.

**October 20, 2020:** Planning Team meeting – completed work on the 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 November 12, 2020.

**Early November 2020:** LHMP update on plan development process and November 12, 2020 public meeting posted on RRPC website and Facebook.

**November 2, 2020:** Working draft LHMP shared with Vermont Hazard Mitigation Officer, Rutland and Poultney Mettowee Natural Resources Conservation Districts, and the Tinmouth Selectboard, Planning Commission, and Conservation Commission for review and comment.

**November 12, 2020:** Working draft LHMP presented at joint public meeting of the Tinmouth 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. Public notice included instructions to email comments on the draft to Steffanie Bourque. Comments on the draft plan were accepted until November 30, 2020. Comments received from the Poultney Mettowee NRCDC and incorporated into the Plan.

**December 1, 2020:** Planning Team meeting – discussed comments received on the November working draft from Poultney Mettowee NRCDC; completed work on hazard identification and risk assessment. Began work on hazard mitigation strategy – confirmed mitigation goals and began to identify community capabilities.

**December 29, 2020:** Planning Team meeting – continued work on hazard mitigation strategy – completed community capabilities and began mitigation action evaluation.

**February 9, 2021:** Planning Team meeting - completed work on hazard mitigation strategy; plan maintenance; and changes since the 2015 plan. Draft LHMP finalized for presentation to local officials and the public at the April 8, 2021 Selectboard meeting.

**March 2021:** LHMP update on plan development process and April 8, 2021 public meeting article in the *Tales of Tinmouth* – see Appendix D.

**April 8, 2021:** Final draft LHMP presented at joint public meeting of the Tinmouth Selectboard and Planning Commission for review and comment. Members of the public attended. Final draft LHMP emailed to Tinmouth Conservation Commission, neighboring towns, Rutland and Poultney Mettowee Natural Resources Conservation Districts for review and comment. Plan posted on RRPC and Town websites, Facebook, Front Porch Forum. Public notice included instructions to email comments to Steffanie Bourque. Comments on the draft plan were accepted until April 22, 2021. Planning Team responded to a question from the Planning Commission regarding Community Capabilities. No other comments were received.

**April 26, 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
2020 Tinmouth Town Plan
2020 Road Stormwater Management Plan
2019 Transportation Resiliency Planning Tool
2019-2015 Green Mountain Power Outage Data
2018 State of Vermont Hazard Mitigation Plan
2018 Rural Road Resilient Right-of-Ways Vegetation Assessment
2018 American Community Survey Five-Year Estimate
2010 Flood Hazard Area Regulations
2010 Zoning & Subdivision Regulations
2007 Phase 1 Stream Geomorphic Assessment Tributaries to the Otter Creek
2006 Poultney River Geomorphic Assessment and Stream Corridor Plan
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
U.S. Geological Survey National Water Information System-Stream Gage Data
FEMA Flood Insurance Rate Maps

## Changes Since the 2015 Plan

Tinmouth's Town Plan and land use development regulations aim to guide the direction of growth in a way that is both economically feasible and environmentally acceptable.

As described in the Community Profile section of this Plan, the Town has not experienced any significant change in population or development since 2015.

According to the Tinmouth Zoning Administrator, the Town issued 13 permits for houses/camps/mobile home replacement and 115 permits for sheds, garages, additions, decks, etc. between 2015 and 2020. No commercial permits were issued during this timeframe.

*Development in Tinmouth since 2015 has not made the community more vulnerable to natural hazards.*

The Town's mitigation priorities shifted a bit. In 2015, the Tinmouth Local Hazard Mitigation Plan was an all-hazards (natural and human-caused) plan. Climate change, temperature extremes, domestic terrorism, and snow and ice storms posed the greatest risks to Tinmouth.

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

In 2021, 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 2015 Plan.

Tinmouth has made some progress in completing the mitigation projects identified in the 2015 Plan – see **Appendix C**.

Other significant accomplishments were transportation projects on McCoy Road and Gulf Road. As described in Section 5, McCoy Road is vulnerable to flash flooding and fluvial erosion. This dead-end gravel road runs along Wells Brook and serves several residential dwellings. A section of Wells Brook was encroaching on McCoy Road and all the culverts on this road were undersized. As a result, the road was in frequent need of repairs. In 2017 a flash flooding event (DR4330) basically destroyed the road – see example damage on plan cover photo.

To mitigate the fluvial erosion encroaching on the road, the Town armored a section of the stream bank in 2016. Using FEMA Public Assistance under DR4330, the Town upsized all the culverts on McCoy Road to mitigate the impacts of future flash flooding. According to the Tinmouth Road Commissioner, the mitigation actions have significantly improved the resiliency of McCoy Road. Subsequent storms have not resulted in road washouts because the culverts are properly sized to convey stormwaters.

The section of Gulf Road between VT Route 140 and McNamara Road is similarly vulnerable to flash flooding. This gravel road had no ditching, grader berms, no crown, undersized culverts, and trees growing in the road shoulder. Even minor storms would plug the culverts and wash out the road. As shown in Figure 1, this section of Gulf Road is considered locally important for use as a through-way, detour, or short-cut so frequent wash-outs were problematic.

In 2018, the Town completely reworked approximately 3,700 feet of Gulf Road – grader berms and trees in the road shoulder were removed, the crown was restored, two culverts were upsized, ditching was installed and stabilized with stone in areas greater than 5% slope. The improvements have performed exceptionally in subsequent storms.

*Actions taken by Tinmouth since 2015 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 flash flooding, fluvial erosion, and inundation flooding, high winds, and severe winter storms, 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, 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 2015 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 events<sup>1</sup> 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**.

- *Thunderstorms with associated flash flooding, fluvial erosion, and high winds and to a lesser degree inundation flooding.*
- *Winter Storms with associated extreme cold, snow, ice, and high winds.*

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					Score
			Life	Economy	Infrastructure	Environment	Average	
<b>Thunderstorm</b>	<b>Flash Flooding/ Fluvial Erosion</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>2.50</b>	<b>7.50</b>
Ice Jam								
Tropical Storm/Hurricane	Inundation Flooding	3	1	1	2	3	1.75	5.25
Tornado	<b>Wind/Hail</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2.75</b>	<b>11.00</b>
Landslide	Landslide	1	1	1	1	1	1.00	1.00
<b>Winter Storm</b>	<b>Cold/Snow /Ice/Wind</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3.00</b>	<b>12.00</b>
Drought	Heat	2	1	1	1	1	1.00	2.00
	Drought	2	1	1	2	2	1.50	3.00
Wildfire	Wildfire	1	1	1	1	1	1.00	1.00
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	<b>Unlikely:</b> <1% probability of occurrence per year	<b>Negligible:</b> isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	<b>Occasionally:</b> 1–10% probability of occurrence per year, or at least one chance in next 100 years	<b>Minor:</b> isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	<b>Likely:</b> >10% but <75% probability per year, at least 1 chance in next 10 years	<b>Moderate:</b> severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	<b>Highly Likely:</b> >75% probability in a year	<b>Major:</b> severe property and environmental damage on a community or regional scale, - multiple injuries or fatalities, significant economic impact

<sup>1</sup> 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 Tinmouth a "High Risk Area" for EAB. The Town worked with the Vermont Urban & Community Forestry Program to complete a *Rural Road Resilient Right-of-Ways Vegetation Assessment* in 2018. This assessment includes recommendations regarding EAB management and roadsides with plentiful or prominent Ash trees. The potential risk to private woodlots and impacts on the local economy have not been quantified.

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 has a low incidence and probability of ice jams. Jams have occurred in the past at the culvert (B15) at the McNamara Rd / VT Route 140 intersection and damages were narrowly avoided.

Several major flooding events have affected the state in recent years, resulting in multiple Presidential Disaster Declarations. From 2003 to 2010, Rutland County experienced roughly \$1.4 million in property damages due to flood events.

## Highest Risk Hazard Profiles

### **Inundation/Flash Flooding/Fluvial Erosion**

Floods can damage or destroy property; disable utilities; destroy or make impassable roads and bridges; 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, heat, or communication 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 Vermont communities: 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 (stream bank erosion).

Inundation flooding of land adjoining the normal course of a stream or river is a natural occurrence. If these floodplain areas are in their natural state, floods likely would not cause significant damage.

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 storm are profiled in this flooding section, since the storm brought only large rainfall and flooding to the Town, not the high winds typically associated with tropical storms. This caused most streams and rivers to flood in addition to widespread and 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 Tinmouth, flooding is a risk. Damages from the July 2017 storm were significant, resulting in just under \$63,000 in impacts. In Tinmouth, damage due to flooding usually consists of impacts to roads, culverts, bridges, and residential driveways.*

**9 structures are in the Special Flood Hazard Area (3% of community structures); including residential dwellings and camps. It is unknown how many of these properties have flood insurance, if any.**

***Tinmouth is currently enrolling in the National Flood Insurance Program (NFIP).***

As shown on the Local Natural Hazards and Vulnerabilities Map in **Appendix B**, Tinmouth is vulnerable to inundation flooding on Gulf Road and Wells Brook Road along Wells Brook; N End Road, Mountain View Road, N East Road, and VT Route 140 at crossings with unnamed tributaries to the Tinmouth Channel; and Channel Road at the crossing of the Tinmouth Channel (inundation flooding here is mainly tied to beaver activity).



Inundation Flooding on VT Route 140 Near N East Road

Wetlands, like the Tinmouth Channel, can be instrumental in mitigating large flood events. During Tropical Storm Irene, the Tinmouth Channel was able to temporarily store a huge volume of flood waters and slowly release it; thereby protecting downstream property from flood damage. Tinmouth is fortunate to have this sizeable natural system for flood control.

Phase I Geomorphic Assessment of several Otter Creek tributaries, including the Clarendon River, was completed in February 2007. The objectives of the assessment were to 1) provide an overview of the general physical characteristics of the tributaries and determine which reaches may be in adjustment and 2) select reaches for Phase 2 Assessment. The condition of reaches in Tinmouth were generally good; therefore, none were proposed for Phase 2 Assessment.

Phase 2 Geomorphic Assessment on 13 reaches of the Poultney River mainstem and a subsequent Stream Corridor Plan was completed in 2006. One reach in the northwest corner of Tinmouth was assessed and determined to be in “good” geomorphic condition. The Plan included recommendations to protect the river corridor with landowner agreements, planting stream buffers, and stabilize stream banks.

*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.*

The McCoy Rd / VT Route 133 / Wells Brook Rd area in the southwest corner of Tinmouth along Wells Brook is vulnerable to fluvial erosion. A section of the stream bank was armored in 2016 on McCoy Rd. This same road was significantly impacted by flash flooding in 2017. Following this storm, all the culverts on McCoy Rd were upsized to mitigate the impacts of future flash flooding.

Flash flooding can impact areas in Town that are located outside of designated floodplains, including along streams confined by narrow valleys. Sections of several roads are periodically washed out – VT Route 140, East, N East, Wright’s, Merrill Springs, Gilmore / Pucker, Harrington Cross, VT Route 133, Pent, Journey’s End, Upper Gulf, Gulf, and McNamara. Flash flooding impacts roads, culverts, bridges, and driveways. Impacts are exacerbated by undersized culverts and inadequate ditching.



Debris from Flash Flooding at Gulf / Upper Gulf Road Intersection

In 2020, 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.

### 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 and communication 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; the resulting damage usually takes form in uprooted trees, downed power and communication lines, and damage to automobiles and crops.

*Violent windstorms are possible here; Tinmouth is susceptible to high directional winds town-wide. Many storms with high winds result in downed trees, damaged phone and power lines, buildings, and other property. Tinmouth is vulnerable to power outages and they present a potentially significant risk to many residents.*



Wind Damage on North East Road

Much of the Town is served by a land line phone service that has converted from copper wire to fiber optic service. When the power goes out, an in-home battery provides the electricity necessary to make a call. The battery life is about eight hours, whether the phone is used or not.

Due to the natural terrain in Tinmouth, there are many areas that cannot receive cell service. In the event of an emergency during a power outage many cannot contact the fire department, police, or ambulance service. This is of great concern given Tinmouth's many remote and isolated homes.

To mitigate the impacts of power outages, the following public buildings/critical facilities have been equipped with back-up power: Tinmouth Community Center (alternate local emergency operations center and primary local shelter) and Fire Station.

The Town Office (primary local emergency operations center); Tinmouth Community Church (alternate local shelter); and Town Garage remain vulnerable to power outages.

### **Extreme Cold/Snow/Ice/Wind**

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

The costs of these storms come in the form of power outages due to heavy snow or ice accumulations, damaged trees, school closings and traffic accidents.

From 2002 to 2010, Rutland County experienced \$1.1 million in property and crop damages from winter storms. 2011 to 2019 experienced \$1.5 million in property damage, with \$300,000 due to a 10" - 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, except for the serious issue of loss of land line telephone communication, 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, especially if the 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 on Gulf Rd, Upper Gulf Rd, East Rd, N East Rd, Bliss Rd, and VT Route 140 are prone to significant drifting and are maintained accordingly.



Ice Accumulation – February 2020



## Highest Risk Hazard History

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

### Inundation/Flash Flooding/Fluvial Erosion

6/20/2019: 6" rain; \$20,000 local damage

**4/15/2019: DR4445** 1-2" rain with significant snow melt: **no reported local damage**

**7/1/2017: DR4330** 3-4" rain the previous 3-4 days with flash flooding on 7/1/17: **\$62,784 local damage**

**6/25-7/11/2013: DR4140** with heavy rain over multiple days: **local damage costs not tracked**

**8/28/2011: DR4022** Tropical Storm Irene with ±5" rain: **\$16,790 local damage** (\$16,790 FEMA PA)

8/21/2009: rainfall rates of over 2" per hr: local damage costs not tracked

8/10/2008: flash flood producing rain: local damage costs not tracked

**12/16/2000: DR1358** 2-4" rain: **\$19,265 local damage**

### High Wind

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

4/1/2018: 63 mph winds: \$50,000 regional damage

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

5/5/2017: 64 mph winds: \$500,000 regional damage

12/1/2010: 52 mph wind: \$100,000 regional damage

8/18/2008: 50 mph wind: \$2,000 local damage

2/17/2006: 37 mph wind: \$75,000 regional damage

9/29/2005: 35 mph wind: \$100,000 regional damage

### Extreme Cold/Snow/Ice/Wind

2/7/2020: 8-12" snow/up to ¼" ice: \$20,000 regional damage

2/1/2015: Record cold month with 15 to 20+ days below zero: no reported impact

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

**12/9/2014: DR4207** with 10-20" snow: **\$100,000 regional damage**

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

2/13/2014: 24" snow: \$20,000 regional damage

12/26/2012: Snowfall rate of 1-2" per hour with accumulations of 8-18": \$20,000 regional damage

2/23/2010: 6-30" snow: \$100,000 regional damage

12/11/2008: 5-9" snow/glaze ice: \$50,000 regional damage

**4/15-16/2007: DR1698** "Nor'icane" with 3" snow and rain with winds of 60 to 80 mph: **\$3,500,000 regional damage**

**3/5/2001: EM3167** 2-18" snow: **\$2,137 local damage**

## Vulnerability Summary

### Inundation/Flash Flooding/Fluvial Erosion

**Location<sup>1</sup>:** *Inundation Flooding* – Gulf and Wells Brook Rds along Wells Brook; N End, Mountain View, N East, and VT Route 140 along tributaries to Tinmouth Channel; Channel Rd at Tinmouth Channel crossing

*Fluvial Erosion* – McCoy Rd, Wells Brook Rd, VT Route 133 along Wells Brook

*Flash Flooding* – VT Route 140, East, N East, Wright's, Merrill Springs, Gilmore / Pucker, Harrington Cross, VT Route 133, Pent, Journey's End, Upper Gulf, Gulf, and McNamara

**Vulnerable Assets<sup>1</sup>:** Roads, culverts, bridges, driveways

**Extent:** ±6" rain; extent data for fluvial erosion is unavailable

**Impact:** \$62,784 local damage

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

### High Wind

**Location<sup>1</sup>:** Town-wide

**Vulnerable Assets<sup>1</sup>:** Phone and power lines; buildings; other property; trees

**Extent:** ±64 mph winds

**Impact:** \$500,000 regional / \$2,000 local damage

**Probability:** >75% chance per year

### Extreme Cold/Snow/Ice/Wind

**Location<sup>1</sup>:** Town-wide; Drifting on Gulf Rd, Upper Gulf Rd, East Rd, N East Rd, Bliss Rd, VT Route 140; potential for ice jams at culvert (B15) at the McNamara / VT Route 140 intersection

**Vulnerable Assets<sup>1</sup>:** Roads, culverts, bridges, trees, power and phone lines

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

**Impact:** \$3,500,000 regional / \$2,137 local damage

**Probability:** >75% chance per year

<sup>1</sup> 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

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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.
- Encourage the adoption and implementation of existing mitigation resources, such as River Corridor Plans and Fluvial Erosion Hazard Maps, if available.
- Recognize the connections between land use, stormwater management, 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; existing land use and the capacity of the community to implement them.

### Community Capabilities

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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. Tinmouth'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 Clerk, Road Commissioner, and Selectboard Assistant.

In addition to paid staff, there is a 3-member Selectboard, 9-member Planning Commission, Town Health Officer, Town Tree Warden and Deputy Tree Warden, Town Fire Warden and Deputy Fire Warden, Fire Chief, and 7-member Conservation Commission.

To augment local resources, the Town has formal mutual aid agreements for emergency response – fire 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

- coordination between departments is effective
- past success in securing grants for public infrastructure projects
- strong working relationships with neighboring communities to augment local resources

**Areas for Improvement:** record keeping system for road maintenance/repairs

- maintenance programs to reduce risk could be more robust, particularly that for cleaning out culverts and roadside ditches
- develop an emergency communications plan because cell coverage is poor and fiber optic land line batteries last only 8-hours
- periodic tabletop and field exercise to test and strengthen operational coordination
- few staff perform multiple functions – lack of redundancy makes Town's administrative and technical capabilities vulnerable
- highway department staff could benefit from training in online mapping and asset management resources – ANR Atlas, VTCulverts, and MRGP REI portal

## 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:** existing land use ordinances are effective at reducing hazard impacts and they are adequately enforced ● codes and standards are adequately administered and enforced ● elements of hazard mitigation are included in other local plans

**Areas for Improvement:** capital planning ● continuity of operations planning

**Zoning and Subdivision Regulations:** Adopted June 21, 1977 and February 11, 1988, last amended November 2010

**Description:** Provide for orderly community growth.

**Relationship to Natural Hazard Mitigation Planning:** Establish site plan review requirements and zoning districts with specific standards for proposed development. Requirements are designed to prevent overdevelopment; to mitigate the negative impacts to the natural and human environment; and minimize effects to the historical and aesthetic character of the community.

**Flood Hazard Area (FHA) Regulations:** Adopted November 2010

**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 September 12, 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:** The standards include management practices and are designed to ensure the safety of the traveling public, minimize damage to road infrastructure during flood events, and enhance water quality protections.

**Municipal Plan:** Adopted January 9, 2020

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

**Relationship to Natural Hazard Mitigation Planning:** Includes specific goals and policies related to mitigating natural hazards.

**Local Emergency Management Plan:** Last adopted on June 11, 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 Stormwater Management Plan:** December 2020

**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.

## Financial

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

Tinmouth's FY22 town general budget is \$234,590, with \$548,250 to fund the Highway Department. Although the Town has not done so in the past, it is eligible to incur debt through general obligation bonds to fund mitigation actions. For example, in 2020 the town voted to bond to fund the construction of a new Town Garage.

**Strengths:** equipment replacement schedule with dedicated reserve fund ● maximize grant opportunities for public infrastructure projects

**Areas for Improvement:** comprehensive capital plan to combine various bits and pieces of information into one document

## Education and Outreach

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

- Active community/civic groups: Tinmouth Community Church, Volunteer Fire Dept Booster Club, Historical and Genealogical Society, Cemetery Association, Community Fund, Community Center, Library
- Active municipal committees: Energy Committee, Tree Policy Committee, Safety and Wellness Committee, Solid Waste and Recycling Committee, Tinmouth Website Committee
- *Tales of Tinmouth* monthly newsletter

**Strengths:** strong social media presence ● monthly town newsletter ● multiple programs/organizations already in place in the community

**Areas for Improvement:** better coordination is needed to help implement future mitigation activities

## National Flood Insurance Program Compliance

The Town has not yet joined the National Flood Insurance Program (NFIP); however, work on this LHMP update renewed the Town's interest. On October 27, 2020, the Tinmouth Selectboard adopted a resolution of intention to participate in the NFIP. This resolution along with the application must be submitted to the ANR Regional Floodplain Manager to begin the enrollment process.

Once the application is approved, the ANR Regional Floodplain Manager will work with the Town to ensure their Flood Hazard Area Regulations, which were based on the State model at the time they were adopted, meet or exceed the requirements in 44 CFR 60.3.

Once enrolled, NFIP compliance is essentially regulating new development and substantial improvements to existing structures in the Special Flood Hazard Area.

## State Incentives for Flood Mitigation

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

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

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

17.5% funding 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.

*Tinmouth's current ERAF rate is 7.5%. Enrollment in the NFIP and adoption of a FEMA-approved Local Hazard Mitigation Plan will increase this rate to 12.5%.*

## Mitigation Action Identification

The Hazard Mitigation Planning Team discussed the mitigation strategy, reviewed projects from the 2015 Plan, and identified possible new actions from the following categories for each of the 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.

### 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.

### **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. Education and Awareness Programs for property owners may include: 1) educating building owners on how to protect their pipes, including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls and 2) informing homeowners that keeping water in the pipes moving by letting a faucet drip during extreme cold weather may prevent freezing and the buildup of excessive pressure in the pipeline, avoiding bursting.

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

### **Mitigation Action Evaluation and Prioritization**

For each mitigation action identified, the Hazard Mitigation 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 upon a list of actions that are acceptable and practical for the community to implement.

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

For the selected actions, the 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
<b>Local Plans and Regulations</b>									
Enroll in the National Flood Insurance Program	1	1	1	1	1	1	6	1	Yes
Integrate Mitigation into Capital Improvement Programs	1	1	1	1	1	1	6	1	Yes
Plan for and Maintain Adequate Road and Debris Clearing Capabilities	1	1	1	1	1	1	6	1	Yes
Update Road Erosion and Culvert Inventories	1	1	1	1	1	1	6	1	Yes
Review VTrans Bridge Inspection Reports <sup>1</sup> and Plan for Identified Repairs to Prevent Scour	1	1	1	1	1	1	6	1	Yes
Improve Stormwater Management Planning by Completing a Stormwater Management Plan	1	1	1	0	0	1	4	1	Yes
Manage Development in Erosion Hazard Areas with River Corridor Bylaws	1	1	1	-1	0	1	3	1	Yes
<b>Structure and Infrastructure Projects</b>									
Routinely Clean and Repair Stormwater Infrastructure	1	1	1	1	1	1	6	1	Yes
Stabilize Outfalls	1	1	1	1	1	1	6	1	Yes
Install/Re-establish Roadside Ditches	1	1	1	1	1	1	6	1	Yes
Install Back-up Generators or Quick Connect Wiring at Critical Facilities	1	1	1	1	1	1	6	1	Yes
Increase Dimension of Drainage Culverts in Flood-Prone Areas	1	1	1	1	1	1	6	1-2	Yes
Protect Power Lines and Roadway by Inspecting and Removing Hazardous Trees in Road ROW	1	1	1	1	1	1	6	1-2	Yes
Retrofit Critical Facilities to Strengthen Structural Frames to Withstand Wind and Snow Loads	1	1	1	1	1	1	6	3	Yes
Elevate Roads Above Base Flood Elevation to Maintain Dry Access	1	1	1	-1	1	1	4	2-3	No
Bury Power Lines	1	1	1	-1	0	1	3	3	No
Increase Drainage/Absorption Capacities with Green Stormwater Management Practices	1	1	1	1	1	1	6	1	Yes
	Planning Team did not recommend this action for implementation due to lack of information about appropriate locations for these practices. Once the Town completes a Stormwater Management Plan, appropriate locations may be identified and addressed accordingly.								
Remove Existing Structures from Flood-Prone Areas	No known repetitive loss properties or other structures in flood-prone areas that should be removed, so the Planning Team did not evaluate this action.								
Routinely Clear Debris from Support Bracing Underneath Low-Lying Bridges	No low-lying bridges with support bracing, so the Planning Team did not evaluate this action.								
Floodproof Critical Facilities	No critical facilities that require floodproofing, so the Planning Team did not evaluate this action.								
Anchor Roof-Mounted Mechanical Equipment on Critical Facilities	No critical facilities with roof-mounted mechanical equipment, so the Planning Team did not evaluate this action.								
<b>Natural Systems Protection</b>									
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									

<sup>1</sup> 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
<b>Education and Awareness Programs</b>									
Educate Property Owners about Freezing Pipes	1	1	1	1	1	1	6	1	Yes
Keep the Ditches Clean Campaign	1	1	1	1	1	1	6	1	Yes
Assist Vulnerable Populations	Tinmouth 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:








 <p><b>Safety and Security</b></p> <ol style="list-style-type: none"> <li>1. Law Enforcement</li> <li>2. Fire Service</li> <li>3. Search &amp; Rescue</li> <li>4. Government Service</li> <li>5. Community Safety</li> </ol>	 <p><b>Food, Water, Shelter</b></p> <ol style="list-style-type: none"> <li>1. Food</li> <li>2. Water</li> <li>3. Shelter</li> <li>4. Agriculture</li> </ol>	 <p><b>Health and Medical</b></p> <ol style="list-style-type: none"> <li>1. Medical Care</li> <li>2. Public Health</li> <li>3. Patient Movement</li> <li>4. Medical Supply Chain</li> <li>5. Fatality Management</li> </ol>	 <p><b>Energy (Power &amp; Fuel)</b></p> <ol style="list-style-type: none"> <li>1. Power Grid</li> <li>2. Fuel</li> </ol>	 <p><b>Communications</b></p> <ol style="list-style-type: none"> <li>1. Infrastructure</li> <li>2. Responder Communications</li> <li>3. Alerts, Warnings, &amp; Messages</li> <li>4. Finance</li> <li>5. 911 &amp; Dispatch</li> </ol>	 <p><b>Transportation</b></p> <ol style="list-style-type: none"> <li>1) Highway/Road/ Motor Vehicle</li> <li>2) Mass Transit</li> <li>3) Railway</li> <li>4) Aviation</li> <li>5) Maritime</li> </ol>	 <p><b>Hazardous Materials</b></p> <ol style="list-style-type: none"> <li>1. Facilities HAZMAT, Pollutants, Contaminants</li> </ol>
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Table 6: Mitigation Action Implementation

**Enroll in the National Flood Insurance Protection Program (NFIP):** The NFIP provides a source of flood insurance for buildings in communities that choose to participate. Tinmouth will enroll in the NFIP to make this insurance available to its residents.

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

Selectboard

**Type of Project**

Local Plans and Regulations

**COMMUNITY LIFELINES TARGETED****Safety & Security****Area of Impact**

Town-wide; Special Flood Hazard Areas

**FUNDING SOURCES**

- Local funding

**PARTNERSHIPS**

- State Floodplain Manager

**BENEFIT SCORE = 6****PROJECT TIMELINE**

Adopt resolution in Oct 2020

Submit application in Mar 2021

**Plan for and Maintain Adequate Road and Debris Clearing Capabilities:** This includes capital planning and funding to support the appropriate number of staff and equipment needed to maintain the transportation network in Tinmouth.

**ADDRESSED HAZARDS****Winter Storm**

Primary Hazard

**High Winds****Lead Party**

Selectboard

**Type of Project**

Local Plans and Regulations

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

Primary Lifeline

**Area of Impact**

Town-wide; ±36 mile road network

**FUNDING SOURCES**

- Local funding

**PARTNERSHIPS**

- Road Commissioner

**BENEFIT SCORE = 6****PROJECT TIMELINE**

To coincide with preparing annual

Town budget each Dec-Jan

**Update Road Erosion and Culvert Inventories:** These inventories were completed in 2020 and serve as the basis for asset management and should be kept up-to-date annually, with a full re-assessment every 5 years.

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

Road Commissioner

**Type of Project**

Local Plans and Regulations

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

Primary Lifeline

**Area of Impact**

Town-wide; ±15 miles of hydrologically-connected roads and ±360 culverts

**FUNDING SOURCES**

- Local funding
- VTrans Better Roads

**PARTNERSHIPS**

- Rutland Regional Planning Commission

**BENEFIT SCORE = 6****PROJECT TIMELINE**

Re-assessment during 2025 construction season

**Plan for Bridge Repairs:** Every two years, VTrans inspects all town-owned bridges that are in the State’s Town Highway Bridge Program. These inspection reports will be reviewed and used to plan for any identified flood-related bridge repairs. In addition, the Town will inspect all other town-owned bridges and plan for any identified flood-related repairs.

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

Road Commissioner

**Type of Project**

Local Plans and Regulations

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

Bridge #6 – Town Highway Bridge Program

Seven (7) other town-owned bridges

**FUNDING SOURCES**

- Local funding

**PARTNERSHIPS**

- Selectboard
- VTrans

**BENEFIT SCORE = 6****PROJECT TIMELINE**

Review VTrans Report in Jan 2021  
 Develop Plan for B6 Repairs, if needed, by Jun 2021  
 Inspect other town-owned bridges in Jun 2021  
 Develop Plan(s) for repairs, if needed, by Nov 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. Tinmouth will explore the feasibility of developing this Plan.

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

Selectboard

**Type of Project**

Local Plans and Regulations

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

Town-wide

**FUNDING SOURCES**

- Local funding

**PARTNERSHIPS**

- Rutland Natural Resources Conservation District (NRCD)
- Poultney Mettowee NRCD

**BENEFIT SCORE = 4****PROJECT TIMELINE**

Outreach to Rutland and Poultney Mettowee NRCDs to explore funding and technical assistance in Jul 2021

**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 Commissioner

**Type of Project**

Infrastructure

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

Town-wide; ±36 mile road network and ±360 culverts

**FUNDING SOURCES**

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

**PARTNERSHIPS**

- Selectboard

**BENEFIT SCORE = 6****PROJECT TIMELINE**

See Highway Department’s Maintenance Schedule and MRGP

**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. Tinmouth has identified the following locations where culvert outlet stabilization is needed.

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

Road Commissioner

**Type of Project**

Infrastructure

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

- 1) McNamara Rd (#13-02)
- 2) Mountain View Rd (#2-25)
- 3) Others as required by MRGP

**FUNDING SOURCES**

- Local funding
- VTrans Better Roads
- Grants-In-Aid
- FEMA Hazard Mitigation Grant

**PARTNERSHIPS**

- Selectboard
- ANR Stream Engineer
- US Army Corps of Engineers

**BENEFIT SCORE = 6****PROJECT TIMELINE**

- 1) 2021 construction season
- 2) 2024 construction season
- 3) See MRGP

**Install/Re-work Roadside Ditches:** Properly installed and stabilized roadside ditches are critical to protect the integrity of the road. Although Tinmouth 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 Commissioner

**Type of Project**

Infrastructure

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

- 1) Merrill Springs Rd
- 2) N East Road
- 3) Others as required by MRGP

**FUNDING SOURCES**

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

**PARTNERSHIPS**

- Selectboard

**BENEFIT SCORE = 6****PROJECT TIMELINE**

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

**Install Back-up Power at Critical Facilities:** Generators or quick connections are emergency equipment that provide a secondary source of power to a facility. Tinmouth has identified three critical facilities in need of back-up power.

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

Selectboard

**Type of Project**

Infrastructure

**COMMUNITY LIFELINES TARGETED****Energy**  
Primary Lifeline**Food, Water, Shelter****Area of Impact**

- 1) Town Office (local EOC)
- 2) Tinmouth Community Church (alternate local shelter)
- 3) Town Garage

**FUNDING SOURCES**

- Local funding
- FEMA Hazard Mitigation Grant

**PARTNERSHIPS**

- Tinmouth Community Church

**BENEFIT SCORE = 6****PROJECT TIMELINE**

- 1) 2025 construction season
- 2) 2026 construction season
- 3) 2021 construction season

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

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

Road Commissioner

**Type of Project**

Infrastructure

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

- 1) N End Rd (#9-18)
- 2) McNamara Rd / Rt 140 (B-15)
- 3) Others as required by MRGP

**FUNDING SOURCES**

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

**PARTNERSHIPS**

- Selectboard
- ANR Stream Engineer
- US Army Corps of Engineers

**BENEFIT SCORE = 6****PROJECT TIMELINE**

- 1) 2021 construction season
- 2) 2025 construction season
- 3) See MRGP

**Structural Retrofits to Critical Facilities to Withstand Wind and Snow Loads:** Public buildings and critical facilities can be retrofitted to withstand wind and snow loads and prevent roof collapse. The Town Garage roof does not meet current building codes for wind and snow loads, in addition to other deficiencies. Tinmouth has voted to bond to construct a new town garage.

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

Selectboard

**Type of Project**

Infrastructure

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

Town Garage

**FUNDING SOURCES**

- Local funding
- Vermont Municipal Bond Bank

**PARTNERSHIPS**

- Road Commissioner

**BENEFIT SCORE = 6****PROJECT TIMELINE**

Construct in 2021

**Dry Hydrant Installations:** Installation of dry hydrants to expand the fire protection system in the community remains a priority of the Tinmouth Volunteer Fire Department from the 2015 Local Hazard Mitigation Plan.

**ADDRESSED HAZARDS****Wildfire****Lead Party**

Tinmouth Fire Department

**Type of Project**

Infrastructure

**COMMUNITY LIFELINES TARGETED****Safety & Security****Area of Impact**

- 1) Route 140 (north side of the road in the vicinity of Baleau Swamp – this location will serve both Tinmouth and West Hill Road in Wallingford)
- 2) N End Road (1/4 mile off Route 140)

**FUNDING SOURCES**

- Local funding
- Rural Fire Protection Program

**PARTNERSHIPS**

- Selectboard
- Road Commissioner

**PROJECT TIMELINE**

- 1) Funding request in 2021; finish construction by Nov 2022
- 2) Need landowner permission

**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. Tinmouth will 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. Tinmouth will develop a plan for managing Ash tree removal. Work will be in accordance with the Road Resilient Right-of-Ways Vegetation Assessment.

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

Road Commissioner

**Type of Project**

Infrastructure

**COMMUNITY LIFELINES TARGETED****Energy**

Primary Lifeline

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

Town-wide

**FUNDING SOURCES**

- Local funding

**PARTNERSHIPS**

- Tree Warden
- Conservation Commission
- Tree Policy Committee
- Green Mountain Power
- Selectboard

**BENEFIT SCORE = 6****PROJECT TIMELINE**

Tree Removal - As needed

Ash Tree Plan - complete in 2021

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

**Remove Berms:** Tinmouth will work with the Poultney Mettowee and Rutland Natural Resources Conservation Districts (NRCs) to identify areas for collaboration to pursue these actions, especially those in the Phase 1 geomorphic assessment of several Otter Creek tributaries, include the Clarendon River, and the Phase 2 geomorphic assessment of the Poultney River.

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

Selectboard

**Type of Project**

Natural Systems Protection

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

Primary Lifeline

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

- 1) Clarendon River Corridor
- 2) Poultney River Corridor

**FUNDING SOURCES**

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

**PARTNERSHIPS**

- Road Commissioner
- NRCs
- ANR Stream Engineer
- US Army Corps of Engineers

**PROJECT TIMELINE**

Assemble Selectboard-appointed committee to work with NRCs on areas for collaboration in Jan 2022

## Educate Property Owners about Severe Winter Storm Hazards; Emerald Ash Borer; and Keep the

**Ditches Clean Campaign:** Tinmouth will undertake education and awareness efforts on 1) severe winter storm-related hazards (e.g., freezing pipes); 2) the importance of keeping the municipal ditches free of yard waste and other debris; and 3) the Emerald Ash Borer and the impacts of infestation.

### ADDRESSED HAZARDS



**Winter Storm**



**Flooding**



**Invasive Species**

### COMMUNITY LIFELINES TARGETED



**Safety & Security**



**Transportation**  
Primary Lifeline

### Area of Impact

Town-wide

### FUNDING SOURCES

- Local funding

### PARTNERSHIPS

- Tree Warden
- Emergency Management Director
- Road Commissioner

### BENEFIT SCORE = 6

### PROJECT TIMELINE

Fall 2021 – Keep the Ditches Clean educational outreach in *Tales of Tinmouth* and Front Porch Forum  
 Winter 2021 – Winter Storm educational outreach in *Tales of Tinmouth* and Front Porch Forum  
 Spring 2021 – Emerald Ash Borer educational outreach in *Tales of Tinmouth* and Front Porch Forum

### Lead Party

Selectboard

### Type of Project

Education and Awareness

## Process for Incorporating Plan Requirements into Other Planning Mechanisms

For Tinmouth 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 will enroll in the National Flood Insurance Protection Program.
- The Selectboard will work with the Road Commissioner to incorporate risk assessment and hazard mitigation goals into capital planning efforts and improvement programs.
- The Road Commissioner and Selectboard will implement several mitigation infrastructure projects (e.g., upsize perennial and drainage culverts in flood-prone areas, re-work roadside ditches) through existing plans (2020 Road Stormwater Management Plan for hydrologically-connected road segments).

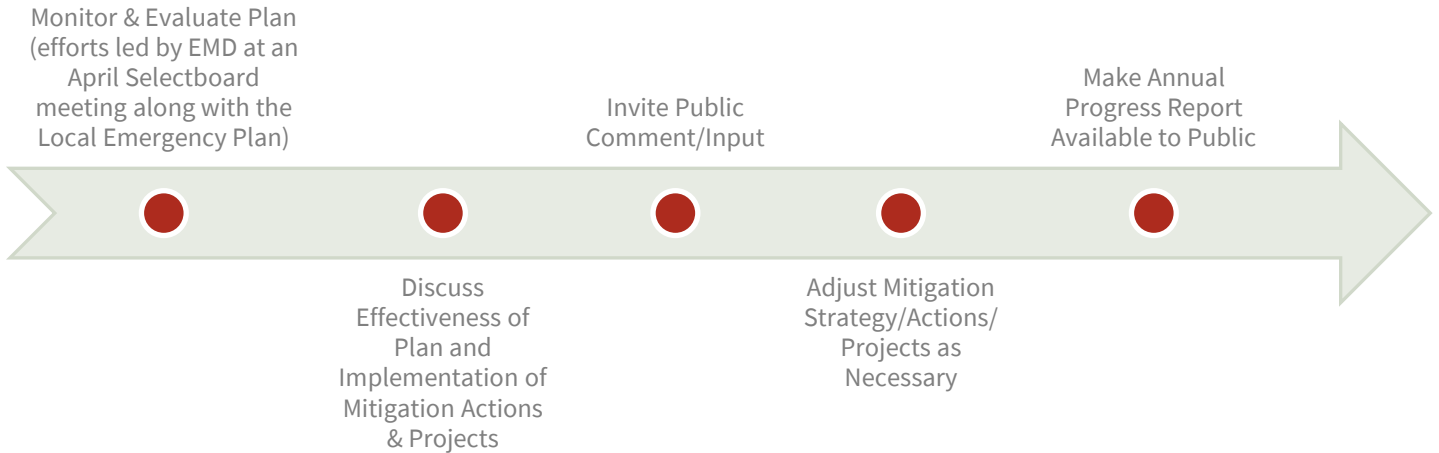
- The Selectboard (or an appointed committee) will work with the Poultney Mettowee and Rutland Natural Resources Conservation Districts to identify opportunities to collaborate on addressing natural system protection projects that meet the goals of this Plan.
- The Planning Commission will integrate 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.

## 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:

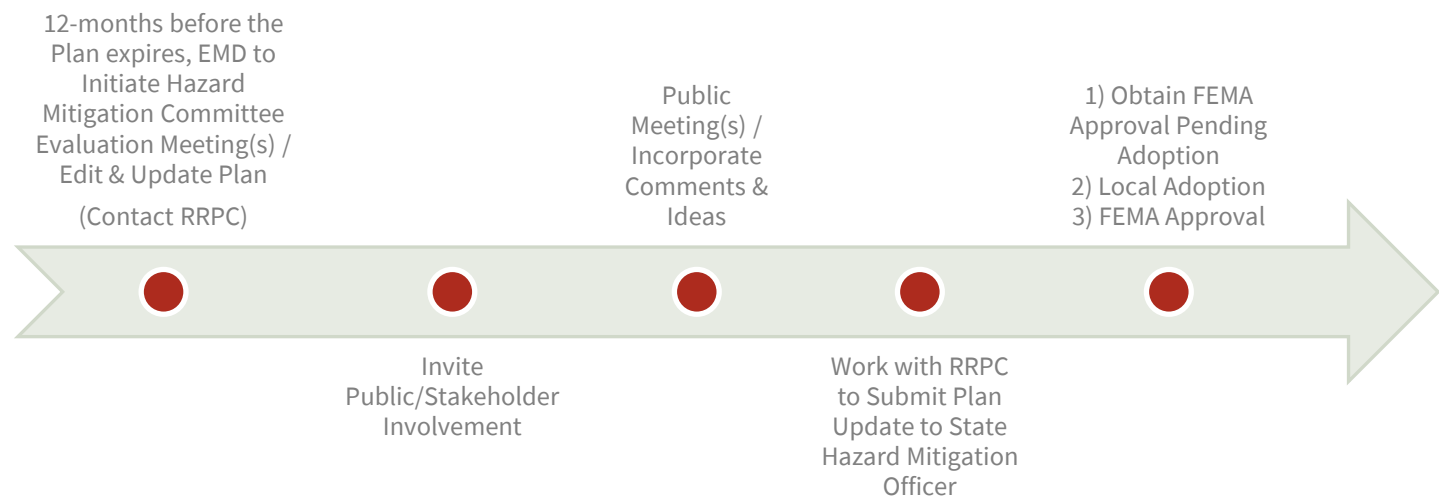


Table 7: Mitigation Action Status

Mitigation Action	2022	2023	2024	2025	2026
<b>Local Plans and Regulations</b>					
Enroll in the National Flood Insurance Protection Program					
Plan for and maintain adequate road and debris clearing capabilities					
Update road erosion and culvert inventories					
Plan for bridge repairs					
Develop a stormwater management plan					
<b>Structure and Infrastructure Projects</b>					
Routinely clean and repair stormwater infrastructure					
Stabilize culvert outfalls					
Install/Re-work roadside ditches					
Install back-up power at critical facilities					
Adequately size drainage and perennial stream culverts in flood-prone areas					
Construct new town garage					
Dry hydrant installations					
Remove hazardous trees in road right-of-way					
<b>Natural Systems Protection</b>					
Establish Vegetative Buffers in Riparian Areas					
Stabilize Stream Banks					
Restore Incised Reaches					
Remove Berms					
<b>Education and Awareness Programs</b>					
Severe Winter Storm Preparedness Outreach					
Emerald Ash Borer Educational Outreach					
Keep the Ditches Clean Campaign					



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

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

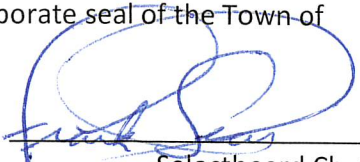
WHEREAS, the **Plan** recommends several hazard mitigation actions (projects) that will provide mitigation for specific natural hazards that impact the Town of Tinmouth with the effect of protecting people and property from loss associated with those hazards; and

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

RESOLVED by Town of Tinmouth Selectboard:

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

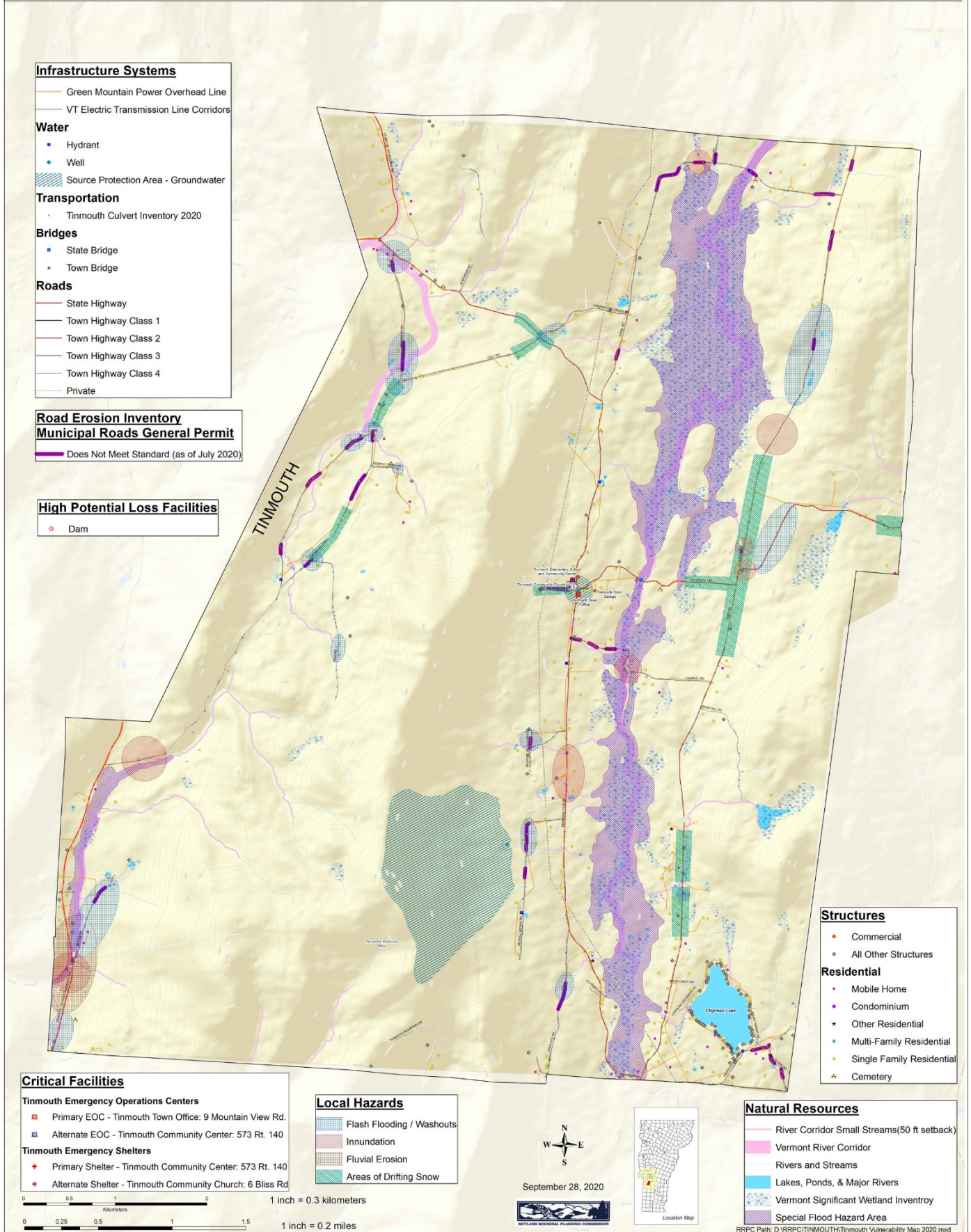
IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Tinmouth this 25 day of May 2021.

  
\_\_\_\_\_  
Selectboard Chair

ATTEST

  
\_\_\_\_\_  
Town Clerk

# Tinmouth, Vermont: Local Natural Hazards and Vulnerabilities Map



## 2015 Mitigation Actions and Projects

Priority Score	Hazards Mitigated	Mitigation Action	Local Leadership & Funding Resources	Target Start / End (month/ year)	2021 Status
31	Wildfires	Complete dry hydrant installation. One per year. [5 dry hydrant installations have been funded by the Rural Fire Protection Program – one in 2000, 2001, 2003, 2007, and 2010. Funding for an installation was received in 2018 at Chipman Lake, but the project fell through.]	Local Leadership: Fire chief  Funding: Fire Department funds; partner with Rural Fire Protection Task Force and VT Association of Conservation Districts	Start: 7/2015  End: 12/2020	Although wildfires were not considered one of the highest risk natural hazards in in 2021, the installation of dry hydrants remains a priority of the Fire Department.
20	Flooding	Follow state's recommendations in River Corridor Plans and SGAs to address fluvial erosion hazards. Create additional Fluvial Erosion Hazard Zones if needed	Local Leadership: Selectboard  Funding: VT ANR funding	Start: 7/2015  End: 12/2017	Remains a priority
15	Flooding	Once NFIP participation is finalized, use traditional and social media, such as <i>Tales of Tinmouth</i> and <i>Front Porch Forum</i> , to educate public about the program. The town will also send letters to affected landowners.	Local Leadership: Selectboard  Funding: Town funds	Start: 10/2015  End: 12/2020	In progress – resolution to join the NFIP adopted in Nov 2020; application pending

## 2015 Preparedness Actions and Projects

Priority Score	Hazards Mitigated	Mitigation Action	Local Leadership & Funding Resources	Target Start / End (month/ year)	2021 Status
36	Hazardous materials accidents	Work with surrounding Fire Departments in identifying locations and response issues related to Tinmouth Hazardous Materials sites	Local Leadership: Fire chief, Emergency Management Coordinator  Funding: Town funds; VT DEMHS grant, HMPG	Start: 7/2015  End: 6/2018	This is not a natural hazard, so is no longer addressed in this Plan.
28	Flooding, severe thunderstorms, winter storms	Incorporate proposed strategies into Annual Budget. Create Capital Budget Plan	Local Leadership: Selectboard  Funding: Town funds	Start: 03/2015  End: 12/2020	Remains a priority
27	All hazards	Protect town records	Local Leadership: Town Clerk  Funding: Town funds	Start: 7/2015  End: 12/2018	Progress has been made to fire-proof the vault

# TALES OF TINMOUTH

September 2020  
Vol. 34 Number 9

Tinmouth  
Vermont

## Editors' Notes:

*Apologies for this issue being more than a bit tardy.  
If all goes well, October Tales will be along in about a week!*

Many, many thanks for all recent donations and kind words of encouragement. All are appreciated!

The deadline for submissions is the 20<sup>th</sup> of the preceding month. Please email your information to *Tales of Tinmouth* (tinmouthtales@vermontel.net) or drop it off at the Town Office. Thanks.

*Pat Psholka, Helen Mango & Gail Fallar, Editors*

## ~ August Primary Election ~

51% of voters in both the Rutland-2 and Rutland-Bennington Districts cast ballots in the August Primary. 67% voted by early/absentee, thank you kindly. Rut-2 has 96 voters, 49 voted – 28 Democratic and 20 Republican. Rut-Benn has 284 voters, 146 voted – 77 Democratic and 67 Republicans.

Thank you to the election workers and for everyone's cooperation. Voting at the Old Fire House allowed one-way traffic and social distancing.

## ~ November 3rd General Election ~

General Election ballots will be mailed by the Vermont Secretary of State's Office to all active voters the last week of September. You can mail these to the town office (a prepaid postage envelope will be included), drop them off into the special ballot box inside the town office, or bring them with you to vote in person on November 3<sup>rd</sup>.

Voting is a right, but it's also a responsibility. Your vote is your voice, make sure you are heard!

## ~ Property Taxes Due September 17th ~

First half property tax payments are due on Thursday, September 17<sup>th</sup>. Please send by mail if you can, you can leave them in the drop box at the town office, or you can pay in person if you have a mask. The Town Office will be open 9-12 and 1-5.

## ~ Local Hazard Mitigation Planning ~

This is public notice that the Town of Tinmouth is currently engaged in hazard mitigation planning and is updating the Tinmouth, Vermont Local Hazard Mitigation Plan.

For more information on the planning process or opportunities for public input, contact Steffanie Bourque at the Rutland Regional Planning Commission—[sbourque@rutlandrpc.org](mailto:sbourque@rutlandrpc.org) or 802-775-0871 x206.

## ~ FREE Face Coverings ~

Tinmouth has received cloth face coverings (masks) to distribute to residents. Please stop by the town office to pick them up. They are washable. The town office is normally open Monday and Thursday 9-12 and 1-4:30 and most Saturday mornings. If ye olde clerk's car is there in between times, please feel free to stop in. Or call 446-2498 and we can make other arrangements. **THEY ARE FREE!**

We would like to pass these along as soon as possible. They are provided courtesy of the State of Vermont and SWANA (the Solid Waste Association of North America - they offered and we said yes).

## ~ From the Community Center Board ~

"Dear community members, on behalf of the Tinmouth Community Center (TCC) Board, I want to thank you for your understanding as the building remains closed at this time due to the COVID-19 pandemic. We understand that the TCC is at the heart of our community and that so many of you regularly enjoy the space for meals, sports, and other social gatherings. The thoughtful decision to close the TCC through the months of September and October was not an easy one and we know the disappointment that this decision may cause you.

The reasons for this decision included state and federal guidelines, available epidemiology data, and the demographic of our community members. We considered the impact that an outbreak may have on the Tinmouth community and decided the risk for losing a neighbor was greater than the temporary inconvenience of closing the TCC.

The board will continue to meet monthly to evaluate the opportunity to reopen the TCC as soon as possible. In the meantime, you may contact any of the board members with questions or concerns."

Sincerely,

*Amy Martone*, CCB Member

## ~ No Game Supper in November ~

The Tinmouth Volunteer Fire Department has cancelled the Game Supper this year, due to concerns regarding the corona virus. They thank you for all the past support, it is very much appreciated.

*Please Recycle or Pass Along Tales!!*



~ Tinmouth Community Church ~

TINMOUTH CHURCH

What can't we do when we have the heart and work together! That was in evidence again as we saw the successful landing of the Perseverance Rover on Mars. This technological feat felt like another big step for humankind, infusing us with hope for the living of these days.

How far we have come in such a short period of human history. When I was growing up in northeastern Pennsylvania, most of my relatives still used an outhouse in the backyard and a coal-fired, cast-iron stove in the kitchen. And here we are with microwaves, cell phones, and computers that make possible pin-point landings on celestial bodies. Impressive, but not enough. Our inner moorings need to keep up with and guide our outer endeavors, if they are to serve humankind's common good.

Teilhard de Chardin, commenting on our ingenuity and future said, "Someday, after mastering winds, waves, tides and gravity, we shall harness the energy of love; and for the second time in the history of the world, [we] will have discovered fire." Sounds like Pentecost to me. And hope.

My father and grandfather saw first-hand what the harnessing of firepower does when put to war. De Chardin was redirecting us to use a fire-power that puts an end to war and addresses the sufferings and needs of humankind. That power is love, cultivated in the inner spaces of our hearts and minds, and applied to all spheres of life. The purifying, healing, invigorating, creative energies of love, matured in our soul and realized in our relationships, creates cultures of compassion that will yet be humankind's greatest realization. And in exploring the mystery that is our depthless inner space of spirit, we may just discover the source of all love, Love Divine, all loves excelling.

*Blessings,  
Pastor John*

Sunday Services online at [www.tinmouthchurch.org](http://www.tinmouthchurch.org)  
Evening Prayer, Tuesdays and Thursdays, on Tinmouth Community Church Facebook page

Rev. John Hardman-Zimmerman  
(802) 282-7532 (cell, preferred)  
(802) 884-8249 (parsonage)  
[hzfam@hotmail.com](mailto:hzfam@hotmail.com)

~ Community News ~

*Get Well Wishes* are sent to Jo Reynolds, Kate Start, Rod Start, John Squier, Shannon Squier and Carol Bohlin.

*Heartfelt Sympathies* are sent to Tyler Dana and Trisha Warfle and families for the loss of their grandmother, Pat Morton. And to family and friends of Ramsey Yoder, longtime benefactor for the enhancement of sense of community for Tinmouth – he will be missed.

If you are high risk for COVID-19, the Tinmouth Volunteer Fire Department needs to know so they can respond appropriately and minimize any additional risk if there is an emergency at your house.

Please let the Fire Department know by calling Sherry at 446- 3307 or email [vtsjohnson@icloud.cloud](mailto:vtsjohnson@icloud.cloud).

Your information will be kept confidential by TVFD.

~ Local Hazard Mitigation Planning ~

This is public notice that the Town of Tinmouth is currently engaged in hazard mitigation planning and is updating the Tinmouth, Vermont Local Hazard Mitigation Plan.

The LHMP Committee has completed a draft Plan that will be presented to the Select Board, Planning Commission and Conservation Commission on Thursday April 8<sup>th</sup> (regular Select Board meeting date.)

If you would like to review this document, please call the town office and an electronic version will be sent to you. There will also be a two week time for public input.

For more information on the planning process or opportunities for public input, contact Steffanie Bourque at the Rutland Regional Planning Commission–[sbourque@rutlandrpc.org](mailto:sbourque@rutlandrpc.org) or 802-775-0871 x206.

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