Danby and Mount Tabor, Vermont
2022 Multi-Jurisdiction Hazard Mitigation Plan

Little Village Road Culvert Washout - 2017

FEMA Approval Pending Adoption Date: December 19, 2022
Mount Tabor Adoption Date: January 10, 2023
Danby Adoption Date: January 12, 2023
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RUTLAND REGIONAL PLANNING COMMISSION

Other Key Partners

Rutland Natural Resources Conservation District
Poultney Mettowee Natural Resources Conservation District
Western Vermont Floodplain Manager
Vermont Department of Health
Vermont Department of Transportation District 1

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
RIVERS PROGRAM

VERMONT
DEPARTMENT OF HEALTH

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AGENCY OF TRANSPORTATION

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1 INTRODUCTION

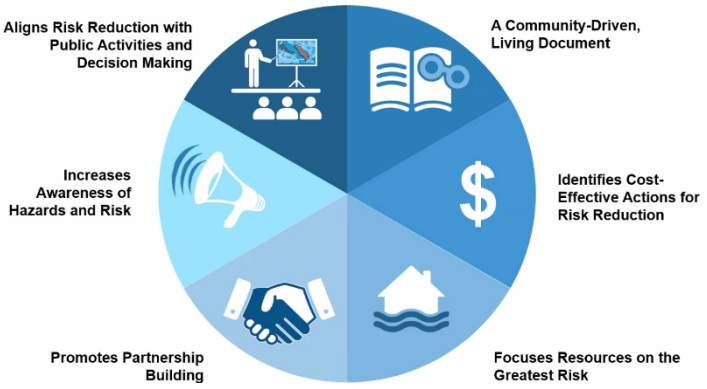
The impact of expected, but unpredictable natural events can be reduced through community planning and action. The goal of this Plan is to provide a natural hazards local mitigation strategy that makes the neighboring towns of Danby and Mount Tabor (the Towns, unless otherwise noted) more disaster resistant 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 Towns 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:



Source: FEMA LHMP Skill Share Workshop 2021

Furthermore, the Towns seek 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

Danby and Mount Tabor are neighbors in the southeast corner of Rutland County. Both towns are predominately rural, and they share several facilities such as the elementary school, volunteer fire department, municipal water supply, and US Post Office located in Danby.

There are several concentrated pockets of development in Danby. Danby Village, which has a state Village Center Designation, is the largest population and commercial center in the community, and borders Mount Tabor near US Route 7. Danby Four Corners, the second largest center and original settlement site, is in the approximate center of town. Other concentrations of residents are in Scottsville, the West Side, and Quarry Hill.

Mineral extraction is a significant source of employment in Danby. The Danby Quarry in Dorset Mountain, south of the Village, has been in operation since 1906. Several small gravel pits are also in operation. Vermont Store Fixtures is a large employer in Danby. Agricultural activities, though in decline, remain important elements of the Town's landscape, as are silvicultural activities.

The Smokey House Center, an outdoor classroom for at-risk teens and other Vermont youth, owns 1,000 acres of farmland and nearly 4,000 acres of forestland on Dorset and Woodlawn Mountains.

Permanent conservation easements have been placed on the highest elevation areas in Danby.

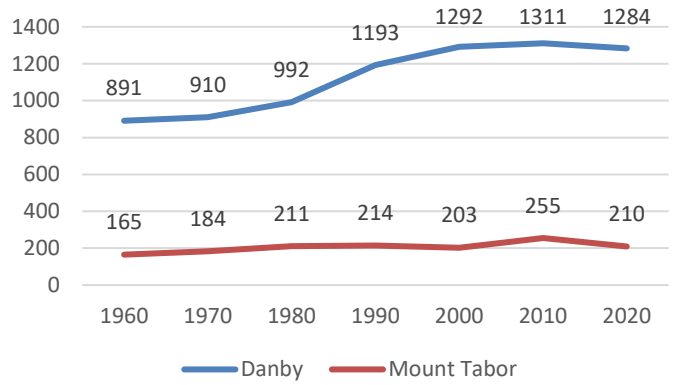
Much of the land in Mount Tabor remains in a semi-primitive and wilderness state because 90% of the town land is part of the Green Mountain National Forest. Other land uses include timber, forestry management and production, farming, hunting, fishing, snowmobiling, and other recreational activities. Like Danby, development is concentrated with most of the population living along either side of US Route 7. The only public building is the Town Office, located on Brooklyn Road.

Land Features

The Towns are mountainous, located primarily within the Taconic Mountain range, with the Vermont Valley along the Otter Creek running north/south between them. The Otter Creek Wildlife Management Area is in the northwestern portion of Mount Tabor. The woodlands in both towns are an important resource for aquifer recharge, plant and wildlife habitat, recreation, as well as timber production.

Demographics and Growth Potential

The 2020 American Community Survey Five-Year Estimates prepared by the U.S. Census Bureau shows an estimated population of 1,284 and 705 housing units in Danby and population of 210 and 113 housing units in Mount Tabor.



The median age of residents in Danby is 48.1 and 58.3 in Mount Tabor – both higher than the Vermont median age of 42.8. 26.4% of the population is 65 years and over in Danby and 42.4% in Mount Tabor, compared to 19% in Vermont. The population density in Danby is 31 people per sq mi and 5 people per sq mi in Mount Tabor compared to an overall state density of 68.

There is moderate to strong growth potential across several sectors (residential, business, and agriculture) in Danby and Mount Tabor.

There is much undeveloped land, suitable for both residential and business uses. Danby Village is experiencing modernization and rebuilding with room for expansion and reuse of existing structures. Opportunities for alternative types of farming and land use exist in areas that once supported active dairy farms. Local operations can evolve, and entrepreneurs may create new businesses given the existing infrastructure.

Precipitation and Water Features

Average precipitation is 48 inches of rain; with June being the wettest month. Average snowfall is 80 inches, with January being the snowiest month.

The mountains feed several streams and rivers. Of these, Flower Brook and Mill Brook in Danby and Otter Creek in both towns have FEMA-mapped floodplains. Smaller streams, like Big Branch and McGinn Brook in Mount Tabor, are not mapped but can pose flooding and fluvial erosion hazards.

Significant Class II wetlands are along Otter Creek and Danby Pond. These provide water absorption and holding capacity that thereby reduces flooding hazards and replenishes groundwater supplies. Several other ponds are sprinkled throughout the Green Mountain National Forest in Mount Tabor.

Drinking Water and Sanitary Sewer

Most properties draw water from private wells, except for Danby Village and Mount Tabor properties on Brooklyn Road and its junction with US Route 7. These 145 connections are served by Danby-Mount Tabor Fire District 1.

Carley Spring is the primary source for this gravity-fed public community water system with a 50,000 gallon water storage tank and ±7 miles of piping. Most of the system infrastructure was built in 1995. A drilled well and The Grady Spring are back-up sources providing redundancy in the system.

All sewer services in the Towns are served by individual on-site septic systems.

Transportation

Rail freight service passes through the Towns, paralleling US Route 7. US Route 7 provides the primary north-south access to the Towns. Aside from forest roads servicing the Green Mountain National Forest, the 4.2 mile road network in Mount Tabor allows access to a narrow strip of valley along the western edge of Town along US Route 7. In contrast, Danby maintains a 55 mile road network, with Town Highway 1 (Brook Road and Danby-Pawlet Road) serving as the main east-west route.

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 offices, and school. These routes are shown in orange in **Figure 1**.

According to the Danby Road Stormwater Management Plan, approximately 55% 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). In Mount Tabor, this percentage is 40%. Proximity to water resources can make these sections of road more vulnerable to flooding and fluvial erosion.

Danby has a total of 29 town-owned bridges. Nine (9) of these are enrolled in the VTrans Town Highway Bridge Program. Mount Tabor has a total of three (3) town-owned bridges. One (1) of these is enrolled in the VTrans Town Highway Bridge Program. The Danby transportation network is maintained by the Town Highway Department, whose garage is located at 130 Brook Road. The Mount Tabor transportation network is maintained by municipally hired contractors (there is no municipal highway department).

The Southern-Vermont Regional Airport is located to the north in nearby Clarendon.

Electric Utility Distribution System

Electric service to approximately 820 accounts in Danby and 122 accounts in Mount Tabor is provided by Green Mountain Power via one primary circuit. Average annual outage statistics between 2017 and 2021 are summarized in **Table 1**.

Table 1: Power Outage Summary

Average Annual (2017-2021)	Danby	Mt Tabor
Avg # of times a customer was without power	3.65	2.77
Avg length of an outage in hours	4.98	5.00
# of hours the typical customer was without power	18.20	13.85
2021 only		
Avg # of times a customer was without power	3.66	3.03
Avg length of an outage in hours	3.32	3.31
# of hours the typical customer was without power	12.17	10.05

The longest power outage affecting the greatest number of accounts between 2017 and 2021 in Danby was 10.7 hours and impacted 769 accounts. During this time, there was a 37.62 hour outage that impacted 57 accounts. In Mount Tabor, the longest outage affecting the greatest number of accounts was 18.15 hours and impacted 121 accounts. During this time, there was a 23.59 hour outage that impacted 1 account.

Public Safety

The Danby-Mt. Tabor Volunteer Fire Company, a private company, operates a primary fire station in Danby Village and a secondary station in Danby Four Corners. The Fire Company has mutual aid agreements with towns in Rutland and Bennington Counties. The Village fire station is the focal point for local events and an evacuation location for the Currier Memorial School.

Law Enforcement in Danby and Mount Tabor is contracted through the Rutland County Sheriff's Department.

Rutland Regional Medical Center is the nearest hospital. Rescue squads in Manchester, Wallingford and Granville, NY provide ambulance services.

Emergency Management

Danby has an appointed Emergency Management Director (EMD), while the Select Board Chair serves as EMD in Mount Tabor. Both EMDs 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.

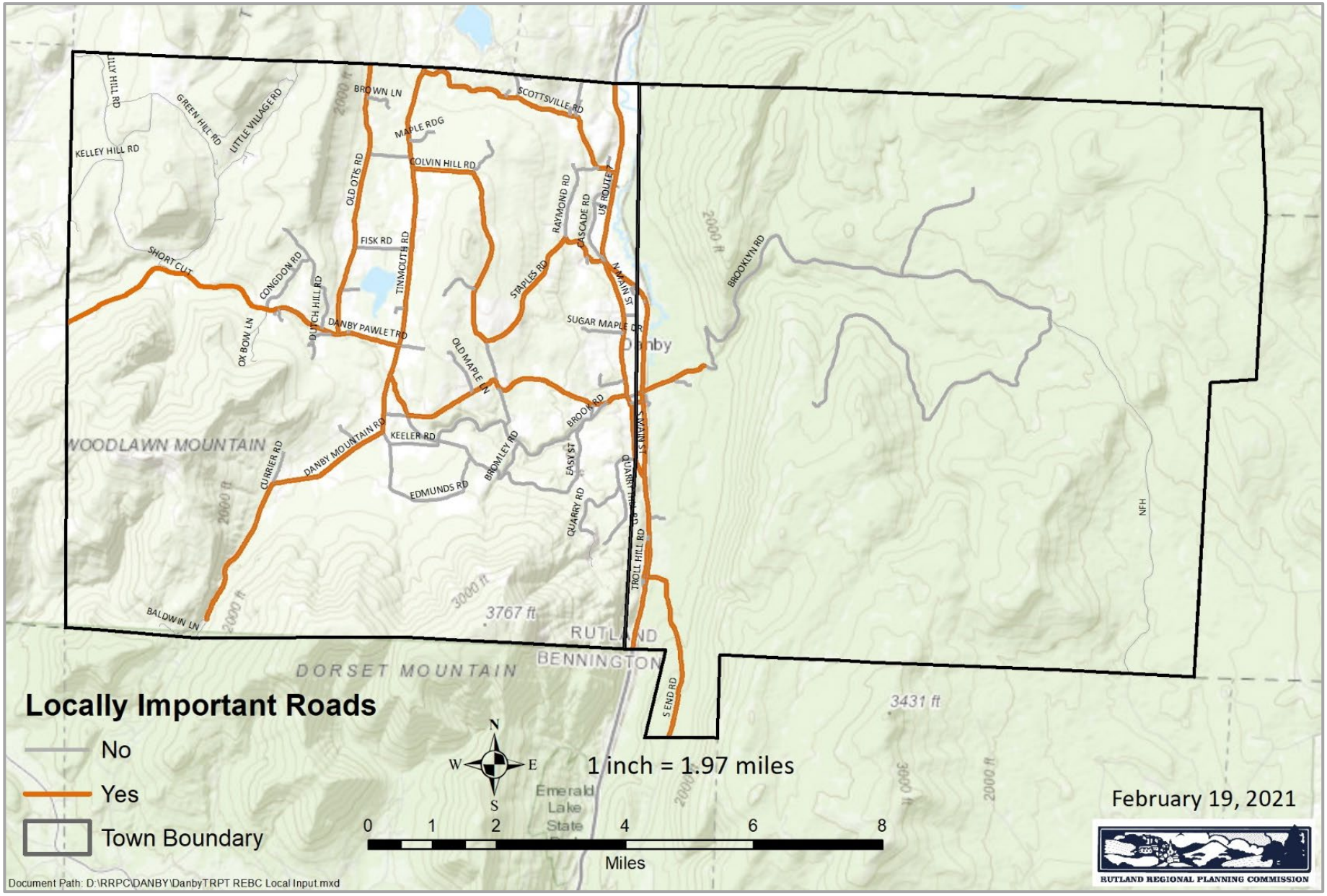


Figure 1: Locally Important Routes for Through-Ways, Detours, Short-Cuts, and Access to Critical Facilities
Shown in orange on Figure 1

4 PLANNING PROCESS

Plan Developers

Steffanie Bourque, an Emergency Management Planner at the Rutland Regional Planning Commission (RRPC), assisted the Towns with preparing this Multi-Jurisdiction Local Hazard Mitigation Plan. Pre-Disaster Mitigation Program funds from FEMA supported this process.

The Hazard Mitigation Planning Team members who assisted with the update include Select Board representatives from both towns, Danby local Emergency Management Director, Danby Road Commissioner, and representative of the Danby Planning Commission.

Plan Development Process

As is apparent from their size, the community of Mount Tabor has limited capacity to undertake development of a single jurisdiction Local Hazard Mitigation Plan. Therefore, the neighboring towns of Danby and Mount Tabor have agreed to develop a Multi-Jurisdiction Plan. Given that these towns already have several shared facilities, development of a multi-jurisdiction plan made perfect sense.

The 2022 Danby-Mount Tabor Multi-Jurisdiction Local Hazard Mitigation Plan is an update to the 2016 Danby single jurisdiction and 2009 Mount Tabor multi-jurisdiction mitigation plans. A summary of the process taken to develop the 2021 Multi-Jurisdiction Plan is provided in **Table 2**.

Table 2: Plan Development Process

July 7, 2021: Hazard Mitigation Planning Team kick-off meeting. Planning Team members were confirmed. Discussed what a LHMP is; the benefits of hazard mitigation planning; current plan status; the planning process; outreach strategy; and plan sections. Planning Team meetings were not open to the public.

July 2021: Public notice posted on RRPC and Town websites/social media (Town and Fire Dept. Facebook, Front Porch Forum)/bulletin boards (Post Office, Mt. Tabor Town Office, Mt. Tabor General Store, Nichols Store) that the Towns are engaged in hazard mitigation planning and updating their LHMP. Emailed notice to officials (Select Board and Planning Commission chairs, Town Managers and Clerks, Emergency Management Directors) in neighboring towns of Mount Holly, Wallingford, Tinmouth, Wells, Pawlet, Rupert, Dorset, Peru, and Weston as well as Key Partners (Rutland and Poultney Mettowee Natural Resources Conservation Districts, Western Vermont Floodplain Manager, Department of Health Emergency Preparedness Specialist, VTrans District 1 Program Manager). Notices included instructions to contact the Rutland Regional Planning Commission for more information on the planning process and opportunities for public input. Inquiry received from public regarding potential hazard – see **Appendix D**.

August 4, 2021: 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.

September 8, 2021: Planning Team meeting – continued work on the hazard identification and risk assessment.

October 2021: Planning team completed work on the hazard identification and risk assessment. This is a critical milestone in the plan development process and the draft plan was readied for public meeting on October 21, 2021.

October 21, 2021: Draft LHMP presented at joint public meeting of the Danby and Mount Tabor Select Boards and Planning Commissions to encourage input from local government and the public that could affect the plan's conclusions and better integrate with Town initiatives. This meeting was recorded and aired on PEGTV. Draft shared with Key Partners for input on vulnerable locations and assets. Draft posted for public comment period with instructions to email comments to Shelley Taylor. Comments were accepted until November 11, 2021 – see **Appendix D**.

November 9, 2021: Draft LHMP discussed at the Mount Tabor Select Board meeting with an opportunity to share public comments. No corrections and/or comments received from Mount Tabor.

November 12, 2021: Draft LHMP discussed at the Danby Select Board meeting with an opportunity to share public comments. This meeting was recorded and aired on PEGTV. The Danby Select Board provided several corrections on the plan contents, including locations and assets vulnerable to flooding. No additional comments were received from the public.

November 17, 2021: Planning Team meeting – discussed comments received from Danby Select Board on October draft. Determined that additional follow-up with Danby Select Board and Road Commissioner was needed to clarify input on Hazard Identification and Risk Assessment.

December 8, 2021: Planning Team meeting – continued to work through Danby Select Board and Road Commissioner input on Hazard Identification and Risk Assessment.

Due to staff limitations work paused after the December 2021 meeting. When work resumed in August 2022, all members of the Danby Selectboard participated as Planning Team members and meetings were duly warned as Special Meetings of the Danby Selectboard – see **Appendix D**.

August 18, 2022: Planning Team meeting – onboarded new Planning Team members; completed work on hazard identification and risk assessment.

September 15, 2022: Planning Team meeting – began work on hazard mitigation strategy – confirmed mitigation goals, discussed community capabilities, and updating the status of Mount Tabor 2009 and Danby 2016 mitigation actions.

September 29, 2022: Planning Team meeting – continued work on hazard mitigation strategy – completed community capabilities; updated status of previous mitigation actions; and evaluated range of possible mitigation actions.

October 18, 2022: Planning Team meeting – completed work on hazard mitigation strategy; plan maintenance; and changes since previous plans. Draft LHMP finalized for presentation to local officials and the public at Nov 4 Mount Tabor Select Board meeting and Nov 10 Danby Select Board meeting.

November 4, 2022: Final draft LHMP presented at Mount Tabor Select Board meeting for review and comment.

November 10, 2022: Final draft LHMP presented at Danby Select Board meeting for review and comment. Danby Planning Commission was invited to attend. This meeting was recorded and aired on PEGTV. Plan emailed to neighboring towns and Key Partners. Notice published in the *Vermont News Guide* (local weekly newspaper). Draft posted in both communities for public comment period with instructions to email comments to Shelley Taylor. Comments were accepted until December 13, 2022 – see **Appendix D**.

December 8 and December 13, 2022: Draft LHMP discussed at Danby Select Board meeting and Mount Tabor Select Board meeting, respectively, with opportunity to share public comments.

December 15, 2022: 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

2022 Local Emergency Management Plans
2021 FEMA NFIP Insurance Reports
2021-2017 Green Mountain Power Outage Data
2021 Flower Brook Climate Adaptation Workbook
2020 American Community Survey Five-Year Estimate
2020 Danby Town Plan
2020 Mount Tabor Road Stormwater Management Plan
2019 Danby Road Stormwater Management Plan
2018 State of Vermont Hazard Mitigation Plan
2008 Danby Flood Hazard Area Regulations
RRPC Local Liaison Reports of Storm Damage
VTrans Transportation Resiliency Planning Tool
VT Statewide Highway Flood Vulnerability and Risk Map
VTrans Town Highway Bridge Inspection Reports
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
FEMA Flood Insurance Rate Maps

Changes Since the 2016 and 2009 Plans

The 2020 Danby Town Plan is a framework and guide to support careful and strategic planning. It is based on specific objectives concerning the way the town desires to accommodate future growth and attempts to balance a wide range of competing interests and demands.

The objective of the Danby Flood Hazard Area Regulations is to establish standards and policies concerning development of land within FEMA-mapped floodplains. Together, the Town Plan and flood hazard area regulations are designed to foster a vibrant, prosperous, and socially inclusive community; promote the health, safety, and general welfare and education of residents; protect and maintain Danby's natural resources and scenic vistas; protect and conserve the value of property; encourage practical locations for residences, including affordable housing; keep a low level of tax burden on property owners by efficiently operating a town government; promote continuation of agriculture as an important part of the town's economic base; and encourage suitable commercial and industrial enterprises that align with land use designations, to promote economic development and to add to the tax base.

As described in the Community Profile section of this Plan, the population in Danby and Mount Tabor has remained relatively stable since 2000.

Although there is moderate to strong growth potential across several sectors in the communities, neither has experienced notable development in the past five years. Based on Driveway Access Permit records for the Town of Danby, there were 21 access permits issued for new residential driveways between 2017 and 2022. During this same period, the Danby Grand List added 14 declared homesteads.

There were no Driveway Access Permits issued in Mount Tabor between 2017 and 2022. During this same period, the Mount Tabor Grand List did not add any declared homesteads.

Neither community regulates development, except for that in the FEMA-mapped floodplain in Danby. According to permit records in Danby, only one project was issued a permit for development in a special flood hazard area in the last five years. It was a municipal project to replace the Parker Road Bridge, which was damaged during a flood event in July 2017 (federal disaster DR4330). The bridge replacement was funded through the FEMA Public Assistance program.

Development in Danby and Mount Tabor since 2016 has not made the communities more vulnerable to natural hazards.

Due to its size, Mount Tabor has never had a single jurisdiction local hazard mitigation plan. In 2009, they were included in the Rutland Region Multi-Jurisdictional All-Hazards Mitigation Plan. In 2009, their highest risks were identified as highway and railroad accidents.

Therefore, the 2022 update reflects a significant shift in mitigation priorities for Mount Tabor as described below.

Similarly, the Danby 2016 mitigation plan was an all-hazards (natural and human-caused) plan. Their highest risks were identified as flooding, highway and railroad accidents, structure fires, and hazardous material, radiological, chemical/biological incidents.

The 2022 multi-jurisdictional plan update focused exclusively on natural hazards defined as atmospheric, hydrologic, geologic, and wildfire phenomena. Hazards not necessarily related to the physical environment, such as infectious disease, were not considered by the Planning Team.

With the shift in focus to natural hazards in 2022, community mitigation priorities also shifted. Flooding, primarily flash flooding and fluvial erosion and to a lesser degree inundation flooding, remained one of the highest risks. Extreme cold, snow, ice and high winds associated with severe winter storms also ranked as the other highest risk hazard the communities are most vulnerable to.

In 2022, the Towns did not formally assess the risks associated with invasive species; however, they did discuss the potential hazards and risks associated with the Emerald Ash Borer (EAB) given the confirmed detection in Rutland County in October 2020. Invasive species were not included in the 2016 or 2009 Plans.

The Towns have made progress completing the mitigation actions identified in their 2016 and 2009 Plans – see **Appendix C**.

Of all their mitigation accomplishments, Mount Tabor is most proud of:

- A bank stabilization project completed in 2022 on Brooklyn Road at culvert #1-1 – the southside road bank, adjacent to the inlet side of the culvert, was eroding during high water events. With funding through the VTrans Better Roads Program, the Town reshaped approximately 70-feet of road bank at the inlet end of the culvert to create a more gradual slope to the stream and then stabilized the bank with stone to prevent future erosion.
- Drainage system improvements completed in 2020 and 2021 on Troll Hill – with funding through the VTrans Grants in Aid Program, culvert #8-1 was replaced and road segment #67082.1 was improved with stone-lined ditching and drainage/driveway culvert stabilization.
- Norse Lodge Road elevation completed in 2020 – a section of the road was elevated, and banks armored to protect it from becoming inundated during flood events.

Of all their mitigation accomplishments, Danby is most proud of:

- Numerous roadway improvements on Brook Road, Colvin Hill Road, and Danby Hill Road to control erosion and make these areas more resilient to flash flooding.
- Replacement of the Parker Road bridge damaged by flooding in July 2017 – DR4330. Work included rental of a temporary bridge and construction of a new bridge. This $491,000 project was funded through the FEMA Public Assistance program and closed out in January 2021.

Actions taken by Danby and Mount Tabor since 2016 have made the communities more prepared and less vulnerable to future natural hazard impacts.

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

As a result, the Towns have identified a range of mitigation actions to address extreme cold/snow/ice/wind, flooding, and the Emerald Ash Borer – see **Table 6**.

5 HAZARD IDENTIFICATION AND RISK ASSESSMENT

Local Vulnerabilities and Risk Assessment

One of the most significant changes from the 2009 and 2016 Plans 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[1] to determine their probability of occurring in the future (high probability events are **orange** in **Table 4**).

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**.

After engaging in discussions, the Towns identified the following "highest risk hazards" that they believe their communities are most vulnerable to:

- ***Flash flooding, fluvial erosion, and to a lesser degree inundation flooding associated with thunderstorms***
- ***Extreme cold, snow, ice, and high winds associated with winter storms***

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	
Thunderstorm Ice Jam Tropical Storm/Hurricane Tornado Landslide	**Flash Flooding/ Fluvial Erosion**	**4**	**2**	**3**	**3**	**4**	**3.00**	**12.00**
	Inundation Flooding	2	2	2	2	2	2.00	4.00
	Wind/Hail	1	1	1	1	1	1.00	1.00
	Landslide	1	1	1	1	1	1.00	1.00
Winter Storm	**Cold/Snow /Ice/Wind**	**4**	**3**	**3**	**3**	**4**	**3.25**	**13.00**
Drought	Heat	1	1	1	1	1	1.00	1.00
	Drought	1	1	1	1	1	1.00	1.00
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	**Unlikely:** <1% probability of occurrence per year	**Negligible:** isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	**Occasionally:** 1–10% probability of occurrence per year, or at least one chance in next 100 years	**Minor:** isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	**Likely:** >10% but <75% probability per year, at least 1 chance in next 10 years	**Moderate:** severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	**Highly Likely:** >75% probability in a year	**Major:** severe property and environmental damage on a community or regional scale, - multiple injuries or fatalities, significant economic impact

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

Invasive Species

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

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

Highest Risk Hazard Profiles

Inundation/Flash Flooding/Fluvial Erosion

Floods can damage or destroy 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 bed/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. 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). Ice jams are possible on the Mill Brook in Danby and Big Branch in Mount Tabor. Historically, ice jams on Mill Brook have not resulted in flooding. However, ice jams on Big Branch within the last 10 years have led to flooding with impacts on several homes on Brooklyn Road.

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 $2.6 million in property damage due to flood events.

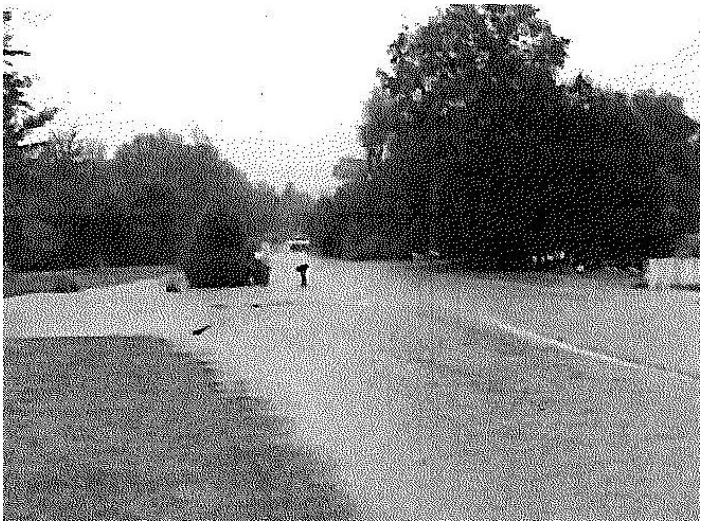
The worst flooding event in recent years came in August of 2011 from Tropical Storm Irene (DR4022), which dropped up to 10-11 inches of rain in some areas of Rutland County. Irene caused 2 deaths and $55,000,000 in reported property damage and $2.5 million in crop damage in Rutland County.

Although the storm was technically a tropical storm, the effects of the storms are profiled in this flooding section, since the storm brought only large rainfall and flooding to the Towns, 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 2020, Rutland County experienced approximately $3.5 million in property damage; 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 Danby and Mount Tabor, flooding is a risk. Damages from the July 2017 storm (DR4330) were significant, resulting in nearly $1,000,000 in impacts. In the Towns, damage due to flooding usually consists of impacts to roads, culverts, bridges, and residential dwellings.

As shown on the Local Natural Hazards and Vulnerabilities Map in **Appendix B**, Danby and Mount Tabor are not as vulnerable to inundation flooding due to the sizeable, undeveloped Otter Creek floodplain. Vulnerable locations are primarily sections of Brook Road, Little Village Road, Mount Tabor Avenue, Brooklyn Road, Norse Lodge Road, South End Road, and US Route 7.



Inundation Flooding on Brooklyn Road - 2011

Railroad Track Damage from Tropical Storm Irene

During Tropical Storm Irene, a section of US Route 7, just under a mile long from Mount Tabor Avenue north towards Holland Heights Road, was underwater. The railroad tracks that run parallel to US Route 7 in this same location (north of Brooklyn Road) were also inundated during Irene.

16 structures in Danby are in the Special Flood Hazard Area (2% of community structures); including residential and commercial structures. According to FEMA, 12% of these properties have flood insurance. In total these 2 policies cover $600,000 in value.

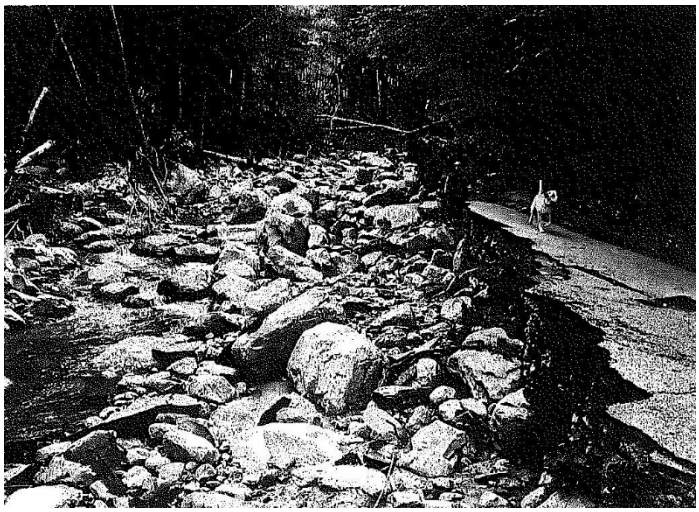
There are <u>no</u> repetitive loss properties in Danby.

3 structures in Mount Tabor are in the SFHA (2% of community structures); including residential dwellings and a communication tower. It is unknown if these structures have flood insurance as Mount Tabor is currently not enrolled in the National Flood Insurance Program (NFIP).

Of greater concern is flash flooding, which can impact areas that are located outside of designated floodplains, including along streams confined by narrow valleys. The mountainous terrain and numerous rivers in Danby and Mount Tabor make the communities especially vulnerable to flash flooding and the impacts can be devastating.

The most common flash flooding impacts are to roads, culverts, and bridges. Impacts are exacerbated by undersized culverts and inadequate ditching.

In Mount Tabor, flash flooding on Big Branch has the potential to impact 25-30 homes along Brooklyn Road. This area was severely impacted in the 1927 flood and again in 2011.



Flash Flooding Damage on Brooklyn Road - 2011

Tropical Storm Irene in 2011 resulted in significant deposition in Big Branch upstream of its confluence with Otter Creek. Properties on Brooklyn Road have experienced notable increases in basement flooding since the deposition occurred. Residents question whether the deposition has altered the groundwater table, thereby increasing the frequency of basement flooding.

Depending on the course Big Branch flood waters take, homes on the north side of Brooklyn Road can become isolated – cut off from access to Brooklyn Road by an overflow chute. This was the case in 2011. Evidence of this overflow chute is visible in current orthophoto maps of the area.

In Danby, flash flooding impacts in 2011 were equally devastating, with the notable loss of the historic Millbrook House along Mill Brook.

Remains of Historic Millbrook House - 2011

The list of roads in Danby vulnerable to flash flooding includes Bromley, Easy, Brook, Tinmouth Pond, Danby Pawlet, John Corey, Jim Towne, Lily Hill, Green Hill, and Little Village.

Flash Flooding Damage on Scottsville Road - 2017

In July 2017, the north half of Danby saw extensive flash flooding damage. Impacts under this federally declared disaster hovered around $1,000,000, including a $500,000 bridge replacement on Parker Road. Roads within the Flower Brook watershed in northwest Danby (Kelly Hill, Lily Hill, Green Hill, Parker, and Little Village) as well as Tinmouth Pond and Scottsville roads in the Baker Brook watershed were hardest hit.

Parker Road Temporary Bridge - 2017

In 2019, Danby completed an inventory of hydrologically connected roads for the Municipal Roads General Permit. Mount Tabor completed its inventory in 2020.

These inventories identified areas vulnerable to flash flooding (shown on the Local Natural Hazards and Vulnerabilities Map in **Appendix B)** based on the presence of erosion in the roadway prism.

Much of the transportation infrastructure in the communities is located near waterways, which makes it vulnerable to fluvial erosion. Stream geomorphic assessments (SGA) can help us evaluate and understand the condition of a river system. The information gathered can be used for hazard assessment to reduce property loss and damage from river erosion during flooding.

Phase I SGA of several Otter Creek tributaries, including Mill Brook, was completed in 2007. The condition of Mill Brook reaches in Danby were generally fair to poor; therefore, six were proposed for Phase 2 Assessment.

Phase 1 SGA of several other Otter Creek tributaries, including Baker Brook, was completed in 2009. Due to the high level of observed impact and reach condition, two Baker Brook reaches in Danby were proposed for Phase 2 Assessment.

Phase 2 SGA of the Mettowee River Watershed was completed in 2007. One reach on Flower Brook in the northwest corner of Danby was assessed. The SGA included a recommendation to conduct landowner outreach and site reconnaissance to evaluate the driving forces for gully formation on the tributaries and evaluate the feasibility of possible gully stabilization measures to reduce sediment mobilization to the Wells Brook.

As previously mentioned, Big Branch in Mount Tabor is experiencing significant deposition, which is believed to be exacerbating flooding impacts on Brooklyn Road.

In Danby, fluvial erosion is a concern in several areas - on Purchase Brook fluvial erosion has led to bank instability impacting Green Hill and Little Village roads; on Flower Brook it has impacted Lily Hill Road and Short Cut Road; on Mill Brook sections of Brook Road are vulnerable; and on Baker Brook sections of Scottsville Road are vulnerable.

Short Cut Road Closure - 2017

As weather patterns shift and we see larger storms and more frequent freeze-thaw cycles, the Towns 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.

As shown in **Figure 1**, Danby Pawlet and Scottsville roads are locally important routes for resident commuters and are heavily travelled. When these roads are impacted by flooding, the Highway Department coordinates with the Fire Department and State Dispatch to close the road and set up detours. Road closures create longer commute times for residents and longer emergency service response times.

The only critical facility in Mount Tabor is the Town Office, which is located on Brooklyn Road and therefore vulnerable during a significant flood event.

Access to the two Danby-Mt. Tabor Fire Stations and Currier Memorial School in Danby are not typically vulnerable to flooding. However, Brook Road to the Danby town office and town garage is.

Access to the Fire District #1 spring house is not a high risk area for flooding. However, there are four water mains strapped to bridges, which make them vulnerable during a significant flood event.

Flooding Hazard History

These are the most up to date significant events impacting Danby and Mount Tabor. Federal declarations depicted in **bold**.

7/29-30/2021: heavy rain: no reported local damage
8/24/2020 rain 2-3": no reported local damage
6/20/2019 rain 6": no reported local damage
4/15/2019 DR4445 rain 1-2" with significant snow melt: no reported local damage
7/1/2017 DR4330 rain 3-4" the previous 3-4 days with flash flooding on 7/1/17:
$1,000,000 Danby damage
Mount Tabor no reported local damage
7/11/2013 DR4140 heavy rain over multiple days:
Danby no reported local damage
Mount Tabor no reported local damage
8/28/2011 DR4022 Tropical Storm Irene with ±5" rain:
$235,086 Danby damage (FEMA PA $108,645, IA $59,434, HMGP $58,000, NFIP $9,007)
$27,141 Mount Tabor damage (FEMA PA $7,588, Individual Assistance $19,553)
$4,790 Danby-Mt Tabor Fire District #1 damage
$20,972 Danby-Mt Tabor Vol Fire Dept damage
$49,860 Mt Tabor-Danby Historical Society damage
12/16/2000 DR1358 rain 2-4":
$87,175 Danby damage
Mount Tabor no reported local damage

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 2001 to 2010, Rutland County experienced $2.7 million in property and crop damage from winter storms. 2011 to 2020 experienced $1.58 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. The Towns are prepared for a power outage during a severe winter storm, even if the outage coincided with a large scale sheltering event.

To mitigate the impacts of power outages, the Danby-Mt. Tabor Village Fire Station has been equipped with back-up power.

The Danby-Mt. Tabor Village Fire Station serves as the primary local shelter and Emergency Operations Center (EOC) for both towns. During a disaster, the municipal response is managed from the EOC, this would include all communications – from phone calls to internet browsing and 2-way radio. Connectivity is crucial in times of crisis.

Telecommunications are needed for warning systems before disaster, as well as for response during and recovery after. Power outages are the main reason for stopping communications. Back-up power at this critical facility will ensure operations at the EOC and primary local shelter are not compromised during a power outage.

Much of the towns are 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, 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 the towns' many remote and isolated homes.

In general, snow accumulation has not made the Towns vulnerable to loss of road accessibility, except for Easy Street in Danby from the Fire District #1 spring house to Bromley Road which is not maintained during the winter.

Mount Tabor's contracted plow crew and Danby's municipal fleet of snowplows ensure that most roads are accessible, even in major snow accumulation events. Roads adjacent to critical facilities are well maintained. The following roads in Danby are prone to significant drifting and they are maintained accordingly: Danby Mountain, Edmunds, Smokey House Cross Road, Danby Hill, Brook, Tinmouth, Colvin Hill, Old Otis, Danby-Pawlet, Green Hill, and Lily Hill.

Extreme Cold/Snow/Ice/Wind Hazard History

These are the most up to date significant events impacting Danby and Mount Tabor. Federal declarations depicted in **bold**.

12/16/2020 snow 38": $10,000 regional damage
2/7/2020 snow 8-12"; ice ¼": $20,000 regional damage
3/7/2018 snow 14": $20,000 regional damage
3/14/2017 snow 16": $25,000 regional damage
2/1-2/2015 Record cold month with 15 to 20+ days below zero and 12" snow: $15,000 regional damage
1/7/2015 0 to 10 degrees with winds of 15-30 mph creating wind chills colder than -20 to -30 below zero: no reported local damages
12/9/2014 DR4207 snow 14": $48,477 Danby damage
11/26/2014 snow 11": $25,000 regional damage
3/12-13/2014 snow 8-24" and wind gusts 35-40 mph: $35,000 regional damage
2/13/2014 snow 12": $20,000 regional damage
12/26/2012 Snowfall rate of 1-2" per hour with accumulations of 8-18": $20,000 regional damage
1/12/2011 snow 14": $15,000 regional damage
12/26/2010 snow 15": $15,000 regional damage
2/23/2010 snow 18": $200,000 regional damage
1/2/2010 snow 14": $15,000 regional damage
12/11/2008 snow 5-9"/glaze ice: $50,000 regional damage
4/15-16/2007 DR1698 "Nor'icane" with 3" snow and rain with 60 to 80 mph winds: $3,500,000 regional damage
12/9/2005 snow 7": $15,000 regional damage
1/23/2005 snow 8": $10,000 regional damage
3/20/2002 snow 8": $30,000 regional damage
3/5/2001 EM3167 snow 2-18": $4,415 Danby damage
12/16/2000 DR1358: $87,175 Danby damage

Vulnerability Summary

Vulnerable Assets, Extent, and Probability summaries apply to both towns unless otherwise noted.

Inundation/Flash Flooding/Fluvial Erosion

Location by Town[1]: *Inundation Flooding* – Mount Tabor Ave, US Route 7 (Danby and Mount Tabor) Brook Rd, Little Village Rd (Danby) Brooklyn Rd, Norse Lodge Rd, South End Rd (Mount Tabor)
Flash Flooding – Bromley Rd, Easy St, Brook Rd, Tinmouth Pond Rd, Danby-Pawlet Rd, John Corey Rd, Jim Towne Rd, Lily Hill Rd, Green Hill Rd, Little Village Rd, Parker Rd (Danby) Brooklyn Rd, South End Rd (Mount Tabor)
Fluvial Erosion – Purchase Brook, Flower Brook, Mill Brook, Baker Brook (Danby) Big Branch (Mount Tabor)

Vulnerable Assets[1]: Roads, culverts, bridges, homes, water mains at bridge crossings, utility podium on Little Village Rd (Danby)

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

Impact by Town: $1,000,000 local damage (Danby) / $27,141 local damage (Mount Tabor)

Probability: *Inundation Flooding* – Occasionally, 1-10% probability in a year
Flash Flooding/Fluvial Erosion – Highly likely, >75% probability in a year

Extreme Cold/Snow/Ice/Wind

Location by Town[1]: Town-wide (Danby and Mount Tabor) Drifting on Danby Mountain Rd, Edmunds Rd, Smokey House Cross Rd, Danby Hill Rd, Brook Rd, Tinmouth Rd, Colvin Hill Rd, Old Otis Rd, Danby-Pawlet Rd, Green Hill Rd, Lily Hill Rd (Danby)

Vulnerable Assets[1]: Roads, culverts, bridges, trees, power lines, telecommunications systems

Extent: Up to 38" of snow; 80 mph winds; 15 to 20+ days below zero

Impact by Town: $87,175 local damage (Danby) / $3,500,000 regional damage

Probability: Highly likely, >75% probability in a year

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

The Hazard Identification and Risk Assessment is the foundation for the mitigation strategy to reduce future losses.

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 Towns includes the most appropriate activities to lessen vulnerabilities from potential hazards.

Mitigation Goals

The Hazard Mitigation Planning Team discussed mitigation goals and identified the following as each 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.
- 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

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. Each Town'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, Danby's municipal staff that can be used for mitigation planning and to implement specific mitigation actions include: Town Clerk, Assistant Clerk, Town Treasurer, Assistant Treasurer, 3-member Highway Department. Mount Tabor's municipal staff that can be used for mitigation planning and to implement specific mitigation actions include a Town Clerk and Treasurer.

In addition to paid staff, in Danby there is a 5-member Select Board, 7-member Planning Commission, Town Health Officer, Town Tree Warden, Town Fire Warden, Fire Chief, and Road Commissioner. In Mount Tabor, there is a 3-member Select Board, Town Health Officer, and Tree Warden.

To augment local resources, both Towns have 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 local officials is effective ● strong working relationships with neighboring communities to augment local resources ● Danby Select Board members assist in the Highway Department ● both Select Boards manage town projects, as needed

Areas for Improvement: establish a maintenance program for cleaning culverts and roadside ditches as well as tree trimming within road right-of-way ● few staff in Mount Tabor perform multiple functions, this lack of redundancy makes their administrative and technical capabilities vulnerable

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 flood hazard area regulations and subdivision regulations that regulate how and where land is developed, and structures are built.

Danby Municipal Plan

Adopted September 10, 2020 (Mount Tabor has no Town Plan)
Description: A framework for reflecting the objectives and needs of the community and to be used as a guide for future growth and development in Danby.
Relationship to Natural Hazard Mitigation Planning: Includes specific goals and policies related to mitigating natural hazards.

Danby Flood Hazard Area (FHA) Regulations

Adopted June 5, 2008 (Mount Tabor has no FHA regulations)
Description: Apply to all areas in Danby 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

Danby adopted August 8, 2019
Mount Tabor adopted February 8, 2022
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.

Road Stormwater Management Plan

Danby dated December 2019
Mount Tabor dated October 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.

Fire Department ISO Rating

Description: Issued in 2018, the Danby-Mount Tabor Fire Department's ISO rating is 8B/10. This rating is a score from 1 to 10 that indicates how well-protected the community is by the local fire department.
Relationship to Natural Hazard Mitigation Planning: Everyone wants to keep family, home, and business safe from fires. The ISO rating is a measure of the effectiveness of a community's fire services.

Local Emergency Management Plan

Danby adopted July 14, 2022
Mount Tabor adopted May 10, 2022
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.

Strengths: elements of hazard mitigation are included in other local plans • replacement schedules established for equipment and buildings

Areas for Improvement: complete stormwater master planning • Danby to strengthen capacity for Flood Hazard Area regulation administration and enforcement

Financial

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

Danby's current annual town budget is approximately $1,275,147, with $791,150 to fund the Highway Department. Mount Tabor's current annual town budget is approximately $261,088, with $57,740 to fund contracted highway expenses (there is no municipal highway department).

Both Danby and Mount Tabor are eligible to incur debt through general obligation bonds to fund mitigation actions, although neither has done so in the past.

Strengths: maximize grant opportunities • tax revenues are sufficient for daily operations and for reasonable and expected improvements

Areas for Improvement: none identified at this time

Education and Outreach
Danby and Mount Tabor have several education and outreach opportunities that could be used to implement mitigation activities and communicate hazard-related information in the region:

- Danby Town Website
- Mount Tabor Community Email List
- Front Porch Forum
- Fire Department Facebook Page
- Smokey House Newsletter
- S.L. Griffith Library
- Masons
- Eastern Star
- Danby-Mount Tabor Historical Society
- Danby-Mount Tabor NOW
- Circle of Friends
- Green Mountain Climbers Snowmobile Club
- Project Currier Excellence

Strengths: both communities have well established methods for disseminating information to the public
- multiple programs/organizations are already in place in the region

Areas for Improvement: better coordination with existing programs/organizations is needed to help implement future mitigation activities

National Flood Insurance Program Compliance
Danby joined the National Flood Insurance Program (NFIP) in 1980. The effective date of the current Flood Insurance Rate Map (FIRM) is August 28, 2008.

The Administrative Officer enforces NFIP compliance through permit review requirements in its Flood Hazard Area regulations.

Danby's regulations outline detailed minimum standards for development in flood hazard areas defined as FEMA Special Flood Hazard Areas and Floodway Areas.

Danby discussed the following as possible actions to continue NFIP compliance:

1) Prepare, distribute, or make available NFIP insurance explanatory pamphlets or booklets.
2) Participate in NFIP training offered by the State and/or FEMA.
3) Establish mutual aid agreements with neighboring communities to address administering the NFIP following a major storm.

Mount Tabor's size and lack of administrative capacity limits their ability to participate in the NFIP.

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.

Danby's current ERAF rate is 7.5%. Adoption of a FEMA-approved Local Hazard Mitigation Plan will increase this rate to 12.5%.

Mount Tabor's current ERAF rate is 7.5%. Until such time as the community participates in the NFIP, the ERAF rate will remain at 7.5%.

Mitigation Action Identification

The Hazard Mitigation Planning Team discussed the mitigation strategy, reviewed projects from the 2016 and 2009 Plans, and identified possible new actions from the following categories for each of the highest risk natural hazards identified in Section 5:

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

Local Plans and Regulations

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

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

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

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

Develop a Road Right-of-Way Vegetation Management Plan: Identify community priorities and plan of action for site-specific tree and roadside forest management to increase roadside resilience.

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: 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: Help drainage systems and flood control structures function properly with 1) routine cleaning and repair; 2) cleaning debris from support bracing underneath low-lying bridges; and 3) inspecting bridges and identifying if any repairs are needed to maintain integrity or prevent scour.

Protect Infrastructure and Critical Facilities: Minimize losses to infrastructure and protect critical facilities from flood events by 1) elevating roads above base flood elevation to maintain dry access; 2) armoring streambanks near roadways to prevent washouts; 3) rerouting a stream away from a vulnerable roadway; and 4) floodproofing 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.

Protect Critical Roadways: Use snow fences or living snow fences (e.g., rows of trees or other vegetation) to limit blowing and drifting of snow.

Retrofit Critical Facilities: Critical facilities can be protected from the impacts of winter storms by 1) retrofitting critical facilities to strengthen structural frames to withstand 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 Residents about Extreme Winter Weather: Winter storms create a higher risk of car accidents, hypothermia, frostbite, carbon monoxide poisoning, and heart attacks from overexertion. Educational outreach can help minimize these risks.

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.

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

For the selected actions, the Planning Team then 1) assigned a responsible party to lead the 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 Towns will make every effort to maximize use of future Public Assistance Section 406 Mitigation opportunities when available during federally declared disasters.

Table 5: Mitigation Action Evaluation and Prioritization

Mitigation Action	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
Local Plans and Regulations									
Recommended for Implementation									
Plan for and Maintain Adequate Road and Debris Clearing Capabilities	1	1	1	1	1	1	6	1	Yes
Review VTrans Bridge Inspection Reports [1] and Plan for Identified Repairs to Prevent Scour	1	1	1	1	1	1	6	1	Yes
Integrate Mitigation into Capital Improvement Programs	0	1	1	1	1	1	5	1	Yes
Improve Stormwater Management Planning by Completing a Stormwater Master Plan	1	1	1	1	0	1	5	1	Yes
Update Road Erosion and Culvert Inventories	1	1	1	1	0	1	5	1	Yes
Plan for Road Right-of-Way Vegetation Management	1	1	1	1	0	1	5	1	Yes
Manage Development in Flood-prone Areas with Flood Hazard Area Regulations	1	1	1	1	-1	1	4	1	Yes
Not Recommended for Implementation									
Manage Development in Erosion Hazard Areas with River Corridor Bylaws	1	1	1	-1	-1	0	1	1	Yes
Structure and Infrastructure Projects									
Recommended for Implementation									
Routinely Clean and Repair Stormwater Infrastructure	1	1	1	1	1	1	6	1	Yes
Install/Re-establish Roadside Ditches	1	1	1	1	1	1	6	1	Yes
Increase Dimension of Drainage Culverts in Flood-Prone Areas	1	1	1	1	1	1	6	1	Yes
Stabilize Outfalls	1	1	1	1	1	1	6	1	Yes
Install Back-up Generators or Quick Connect Wiring at Critical Facilities	1	1	1	1	1	1	6	1	Yes
Protect Power Lines and Roadway by Inspecting and Removing Hazardous Trees in Road ROW	1	1	1	1	1	1	6	1	Yes
Remove Existing Structures from Flood-Prone Areas	1	1	1	1	0	1	5	2-3	Yes
Not Recommended for Implementation									
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 Towns complete a Stormwater Master Plan, appropriate locations may be identified and addressed accordingly.								
Bury Power Lines	1	1	1	0	-1	1	3	3	No
Use Snow Fence on Critical Roadways	1	1	1	0	1	0	4	1	No
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.								
Elevate Roads Above Base Flood Elevation to Maintain Dry Access	As described in Section 5, inundation flooding is a lower risk hazard in Danby and Mount Tabor. Few roads vulnerable to inundation flooding, 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.								

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

Mitigation Action	Life Safety	Prop Protect	Tech	Political	Admin	Other Obj	Benefit Score	Est Cost	C/B
Retrofit Critical Facilities to Strengthen Structural Frames to Withstand Wind and Snow Loads	No critical facilities that need structural retrofits, 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.								
Natural Systems Protection									
Recommended for Implementation									
Stabilize Stream Banks	1	1	1	1	1	1	6	2	Yes
Remove Berms and/or Accumulated Debris from Stream to Restore Flood Capacity	1	1	1	1	1	1	6	2-3	Yes
Not Recommended for Implementation									
Establish Vegetative Buffers in Riparian Areas	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 this practice. Towns will collaborate with Rutland and/or Poultney Mettowee Natural Resources Conservation Districts to identify and implement natural systems protection projects that meet the goals of this Plan.								
Restore Incision Areas	Planning Team did not evaluate this action because there are no known waterways subject to incision.								
Education and Awareness Programs									
Recommended for Implementation									
Educate Residents About Winter Storms	1	1	1	1	1	1	6	1	Yes
Keep the Ditches Clean Campaign	1	1	1	1	1	1	6	1	Yes
Not Recommended for Implementation									
Assist Vulnerable Populations	Towns already have a plan in place to identify and monitor the needs of vulnerable populations – see current Local Emergency Management Plans.								

Table 5 Evaluation Criteria:

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

Rank each of the above criteria in Table 5 with a -1, 0, or 1 using the following table:
1= Highly effective or feasible
0 = Neutral
-1 = Ineffective or not feasible

Estimated Cost – 1 = less than $50,000; 2 = $50,000 to $100,000; 3 = more than $100,000
C/B – Are the costs reasonable compared to the probable benefits? Yes or No

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

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

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

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

1. Power Grid
2. Fuel

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

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

1. Facilities HAZMAT, Pollutants, Contaminants

Table 6: Mitigation Action Implementation

Plan for and Maintain Adequate Road and Debris Clearing Capabilities: A leading cause of death and injury during winter storms is from auto accidents so it is important to plan for and maintain adequate road and debris clearing capabilities. This includes capital planning and annual funding to support facilities (garage and equipment) and staff needed to maintain the transportation network in Danby and funding for contracted services to maintain the transportation network in Mount Tabor.

ADDRESSED HAZARDS

Winter Storm
Primary Hazard

High Winds

Lead Party
Select Boards

Type of Project
Local Plans and Regulations

COMMUNITY LIFELINES TARGETED

Safety & Security

Transportation
Primary Lifeline

Area of Impact
Town-wide; ±55-mile road network in Danby and ±4-mile road network in Mount Tabor

FUNDING SOURCES
- Local funding

PARTNERSHIPS
- Danby Road Commissioner
- Danby Road Foreman

BENEFIT SCORE = 6

PROJECT TIMELINE
To coincide with preparing annual Town budgets each fall

Plan for Bridge Repairs: Several town bridges are vulnerable to flash flooding and/or fluvial erosion; 10 of these are town long structures inspected by VTrans. The Towns will implement a **Bridge Inspection Program** to ensure the VTrans inspection reports for all town long structures will be reviewed and used to plan for needed flood-related bridge repairs such as scour, as needed.

ADDRESSED HAZARDS

Flooding

Lead Party
Select Boards

Type of Project
Local Plans and Regulations

COMMUNITY LIFELINES TARGETED

Safety & Security

Transportation
Primary Lifeline

Area of Impact
Danby long structures: B5, B6, B7, B8, B9, B10, B32, B44, B51

Mount Tabor long structures: B2

FUNDING SOURCES
- Local funding
- VTrans Structures Program

PARTNERSHIPS
- VTrans
- Danby Road Commissioner
- Danby Road Foreman

BENEFIT SCORE = 6

PROJECT TIMELINE
Review VTrans Reports Oct 2023
Develop Plan(s), if needed July 2024

Develop a Stormwater Master Plan: Danby and Mount Tabor lack a community-wide, comprehensive assessment of flooding and erosion in their developed areas caused by rain and snowmelt. A Stormwater Master Plan can guide planning, funding, and implementing a comprehensive program for addressing current and future requirements for managing stormwater runoff, flooding problems, and the Towns' natural resources. The Towns will explore the feasibility of developing this Plan.

ADDRESSED HAZARDS

Flooding

Lead Party
Select Boards

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 = 5

PROJECT TIMELINE
Partner outreach Jul 2023

Update Road Erosion and Culvert Inventories: Road erosion inventories were completed in both towns in 2019. Culvert inventories were completed in Mount Tabor in 2019 and Danby in 2021. These inventories 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
Select Boards

Type of Project
Local Plans and Regulations

COMMUNITY LIFELINES TARGETED

Safety & Security

Transportation
Primary Lifeline

Area of Impact
±30 miles of hydrologically connected roads and ±586 culverts in Danby; ±1.5 miles of hydrologically connected roads and ±50 culverts in Mount Tabor

FUNDING SOURCES
- Local funding
- VTrans Grant Programs

PARTNERSHIPS
- Rutland RPC
- Danby Road Commissioner
- Danby Road Foreman

BENEFIT SCORE = 5

PROJECT TIMELINE
2024 and 2026 construction seasons

Develop a Road Right-of-Way (ROW) Vegetation Management Plan: Hazard trees in the road ROW can contribute to power and communication outages as well as debris in the roadway during winter storms and wind events. This hazard is exacerbated by the possibility of an Emerald Ash Borer infestation. To increase roadside resilience, the Towns will explore the feasibility of developing a plan to identify 1) community priorities and 2) plan of action for site-specific tree and roadside forest management.

ADDRESSED HAZARDS

Winter Storm
Primary Hazard

High Winds

Invasive Species

Lead Party
Select Boards

Type of Project
Local Plans and Regulations

COMMUNITY LIFELINES TARGETED

Energy
Primary Lifeline

Transportation

Communications

Area of Impact
Town-wide

FUNDING SOURCES
- Local funding

PARTNERSHIPS
- Vermont Urban & Community Forestry Program (UCF)
- USDA Forest Service
- Danby Road Commissioner
- Danby Road Foreman
- Tree Wardens

BENEFIT SCORE = 5

PROJECT TIMELINE
Partner Outreach Jan 2025

Adopt Flood Hazard Area Regulations: Flood Hazard Area Regulations ensure 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. Mount Tabor will explore the feasibility of adopting these regulations. This action was recommended for implementation in the Mount Tabor 2009 LHMP and remains a priority to address.

ADDRESSED HAZARDS

Flooding

Lead Party

Mount Tabor Select Board

Type of Project

Local Plans and Regulations

COMMUNITY LIFELINES TARGETED

Safety & Security

Transportation
Primary Lifeline

Area of Impact

Town-wide

FUNDING SOURCES

- Local funding
- Municipal Planning Grant

PARTNERSHIPS

- Rutland RPC

BENEFIT SCORE = 4

PROJECT TIMELINE

Partner outreach Jul 2023

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 catch basins, ditches, and culverts will be done according to the Danby Highway Department's maintenance schedule and the Municipal Roads General Permit (MRGP).

ADDRESSED HAZARDS

Flooding

Lead Party

Danby Road Commissioner
Mount Tabor Select Board

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED

Safety & Security

Transportation
Primary Lifeline

Area of Impact

±55-mile road network and ±586 culverts in Danby; ±4-mile road network and ±50 culverts in Mount Tabor

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Danby Road Foreman

BENEFIT SCORE = 6

PROJECT TIMELINE

See Danby Highway Department's Maintenance Schedule and MRGP

Install/Re-work Roadside Ditches: Properly installed and stabilized roadside ditches are critical to protect the integrity of the road. Although both towns have extensive ditching networks, 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

Danby Road Commissioner
Mount Tabor Select Board

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED

Safety & Security

Transportation
Primary Lifeline

Area of Impact

Danby:

1) Lily Hill (Brown's Hill to Sap House)
2) Kelley Hill (top to Pawlet line)
3) Scottsville Rd (Ezra Stone to Baker Brook)
4) Green Hill (Inter to White Birch)

Mount Tabor:

5) South End Rd (Casey Hill) and Brooklyn Rd (berm removal)
6) Troll Hill and Griffith Hill
7) Others as required by MRGP

FUNDING SOURCES

- Local funding
- VTrans Grant Programs

PARTNERSHIPS

- VTrans
- Danby Road Foreman

BENEFIT SCORE = 6

PROJECT TIMELINE

1) 2023 construction season
2) 2024 construction season
3) 2025 construction season
4) 2026 construction season
5) 2023 construction season
6) 2024 construction season
7) See MRGP

Adequately Size Drainage and Perennial Stream Culverts in Flood-Prone Areas: Undersized culverts can lead to road washouts and flooding. The Towns have identified several locations where upsized culverts are needed (or may be needed).

Addressed Hazards

Flooding

Lead Party

Danby Road Commissioner
Mount Tabor Select Board

Type of Project

Structure and Infrastructure

Community Lifelines Targeted

Safety & Security

Transportation
Primary Lifeline

Area of Impact

Danby:

1) Old Otis (north of Bretton's)
2) Lilly Hill (west of Kelley Hill)
3) Baker Brook (1st east of Tinmouth Pond)
4) Tinmouth Pond (1st)
5) Old Otis (north of Fisk Rd)
6) Danby Pawlet Rd (line west of Ken Smith)

Mount Tabor:

7) South End Rd (Casey Hill)
8) Others as required by MRGP

Funding Sources

- Local funding
- VTrans Grant Programs
- FEMA/VEM Mitigation Grant

Partnerships

- VTrans
- ANR Stream Engineer
- US Army Corps of Engineers
- Danby Road Foreman

Benefit Score = 6

Project Timeline

1) 2023 construction season
2) 2023 construction season
3) 2024 construction season
4) 2025 construction season
5) 2027 construction season
6) 2028 construction season
7) 2023 construction season
8) See MRGP

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

Addressed Hazards

Flooding

Lead Party

Danby Road Commissioner
Mount Tabor Select Board

Type of Project

Structure and Infrastructure

Community Lifelines Targeted

Safety & Security

Transportation
Primary Lifeline

Area of Impact

Danby:

1) Parish Hill (Jim Towne to Pawlet line)
2) Scottsville Rd

Mount Tabor:

3) Troll Hill (south end)
4) Others as required by MRGP

Funding Sources

- Local funding
- VTrans Grant Programs
- FEMA/VEM Mitigation Grant

Partnerships

- VTrans
- ANR Stream Engineer
- US Army Corps of Engineers
- Danby Road Foreman

Benefit Score = 6

Project Timeline

1) 2027 construction season
2) 2028 construction season
3) 2025 construction season
4) See MRGP

Install Back-up Power at Critical Facilities: Generators (standby or portable) are emergency equipment that provide a secondary source of power to a facility. The Towns have identified 4 critical facilities in need of back-up power.

ADDRESSED HAZARDS

All Hazards

Lead Party

Select Boards
Fire District 1

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED

Energy
Primary Lifeline

Area of Impact

1) Danby Town Garage/Town Office
2) Mount Tabor Town Office

FUNDING SOURCES

- Local funding
- FEMA/VEM Mitigation Grant

PARTNERSHIPS

- Danby Road Foreman

BENEFIT SCORE = 6

PROJECT TIMELINE

1) 2023 construction season
2) 2024 construction season

Remove Hazard Trees in Road Right-of-Way (ROW): Hazard trees in the road ROW can contribute to power and communication outages as well as debris in the roadway during winter storms and wind events. This hazard is exacerbated by the possibility of an Emerald Ash Borer infestation. The Towns will remove hazard trees within their road ROW and/or request removal by Green Mountain Power if also within the power line ROW in accordance with their Road ROW Vegetation Management Plan, if developed.

ADDRESSED HAZARDS

Winter Storm
Primary Hazard

High Winds

Invasive Species

Lead Party

Danby Road Commissioner
Mount Tabor Select Board

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED

Energy
Primary Lifeline

Transportation

Communications

Area of Impact

Town-wide

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Tree Wardens
- Green Mountain Power
- Danby Road Foreman

BENEFIT SCORE = 6

PROJECT TIMELINE

See Road ROW Vegetation Management Plan

Remove Existing Structures from Flood-Prone Areas: Removing structures from flood-prone areas to minimize future flood losses by acquiring and demolishing or relocating structures from voluntary property owners and preserving the land subject to repetitive flooding is a highly recommended long-term flood mitigation measure. Mount Tabor will explore the feasibility/interest in property buyouts on Brooklyn Road.

ADDRESSED HAZARDS

Flooding

Lead Party

Mount Tabor Select Board

Type of Project

Structure and Infrastructure

COMMUNITY LIFELINES TARGETED

Safety & Security

Area of Impact

1) Mount Tabor: Brooklyn Rd

FUNDING SOURCES

- Local funding
- FEMA/VEM Mitigation Grant

PARTNERSHIPS

- RRPC

BENEFIT SCORE = 5

PROJECT TIMELINE

1) Outreach to partners Oct 2023

Stabilize Stream Banks: As described in Section 5, fluvial erosion is a concern in several areas in Danby – on Purchase Brook, Flower Brook, Mill Brook, and Baker Brook. Danby will work with project partners to explore options to stabilize stream banks. This action was recommended for implementation in the Danby 2016 LHMP and remains a priority to address.

ADDRESSED HAZARDS

Flooding

Lead Party

Danby Select Board

Type of Project

Natural Systems Protection

COMMUNITY LIFELINES

Safety & Security

Transportation
Primary Lifeline

Area of Impact

1) Green Hill and Little Village Rds
2) Lily Hill and Short Cut Rds
3) Brook Rd
4) Scottsville Rd

FUNDING SOURCES

- Local funding
- VANR Water Quality Grants
- FEMA/VEM Mitigation Grant

PARTNERSHIPS

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

BENEFIT SCORE = 6

PROJECT TIMELINE

Outreach to Partners by Jul 2024

Remove Accumulated Debris to Restore Flood Capacity: Properties along Brooklyn Road in Mount Tabor are vulnerable to flooding because the carrying capacity of Big Branch (tributary to Otter Creek) has been reduced by significant deposition in the stream channel. Mount Tabor will work with project partners to explore options to restore the flood capacity of the stream channel.

ADDRESSED HAZARDS

Flooding

Lead Party

Mount Tabor Select Board

Type of Project

Natural Systems Protection

COMMUNITY LIFELINES TARGETED

Safety & Security
Primary Lifeline

Transportation

Area of Impact

Brooklyn Rd

FUNDING SOURCES

- Local funding
- VANR Water Quality Grants
- FEMA/VEM Mitigation Grant

PARTNERSHIPS

- VTrans
- ANR Stream Engineer
- US Army Corps of Engineers
- RRPC

BENEFIT SCORE = 6

PROJECT TIMELINE

Outreach to Partners by Jun 2023

Educate Residents about Severe Winter-related Hazards and Keep the Ditches Clean Campaign: Danby and Mount Tabor will undertake education and awareness efforts by publishing information on the Danby town website and community social media sites on 1) severe winter storm-related hazards (e.g., freezing pipes) and 2) the importance of keeping the municipal ditches free of yard waste and other debris.

ADDRESSED HAZARDS

All Hazards

Lead Party

Select Boards

Type of Project

Education and Awareness

COMMUNITY LIFELINES

Safety & Security

Transportation
Primary Lifeline

Area of Impact

Town-wide

FUNDING SOURCES

- Local funding

PARTNERSHIPS

- Ready.gov

BENEFIT SCORE = 6

PROJECT TIMELINE

Spring/Summer – Ditch Campaign
Fall – Winter Preparedness

Process for Incorporating Plan Requirements into Other Planning Mechanisms

For Danby and Mount Tabor to succeed in reducing long-term risks, the information and recommendations of the Local Hazard Mitigation Plan should be integrated throughout government operations in both communities.

The following are specific examples of how information and recommendations from the 2016 and 2009 Plan updates were incorporated into other plans, programs, and procedures:

- Danby Town Plan, adopted in 2020
- Local Emergency Management Plans, including a Vulnerable Populations Communication Protocol, adopted in 2022
- Local Road and Bridge Standards, adopted in 2019 in Danby and 2022 in Mount Tabor
- Culvert Inventory, completed in 2021 in Danby and 2019 in Mount Tabor
- Road Erosion Inventory, completed in 2019 in Danby and Mount Tabor

The following are specific examples of how the Towns will incorporate the 2022 Plan update into other plans, programs, and procedures:

- The Select Boards will incorporate risk assessment and hazard mitigation goals into capital planning efforts and improvement programs.

- The Danby Planning Commission will integrate the hazard mitigation goals for disaster resiliency, including NFIP compliance, into the goals and objectives of the next updates to the Town Plan and Flood Hazard Area Regulations.

- The Danby Road Commissioner and Mount Tabor Select Board will implement several mitigation infrastructure projects (e.g., upsize perennial and drainage culverts in flood-prone areas, install/re-work roadside ditches) through existing plans (2019 Road Erosion Inventory and Report for hydrologically connected road segments, 2019/2021 Culvert Inventory, and forthcoming Stormwater Master Plan which should be utilized to priorities projects).

- The Select Boards (or an appointed committee) will work with the Natural Resources Conservation Districts to identify opportunities to collaborate on implementing natural resources protection projects that meet the goals of this Plan.

- The Danby Select Board will work with the Town Clerk to provide National Flood Insurance Program (NFIP) information materials at the Town Office and on the Town's website – including promotion of flood insurance, public safety information, and development regulations.

- The Danby Select Board will encourage the Administrative Officer for the Flood Hazard Area Regulations to participate in regular NFIP-related training.

- If Mount Tabor is successful in adopting Flood Hazard Area Regulations, the Select Board will then consider enrollment in the NFIP.

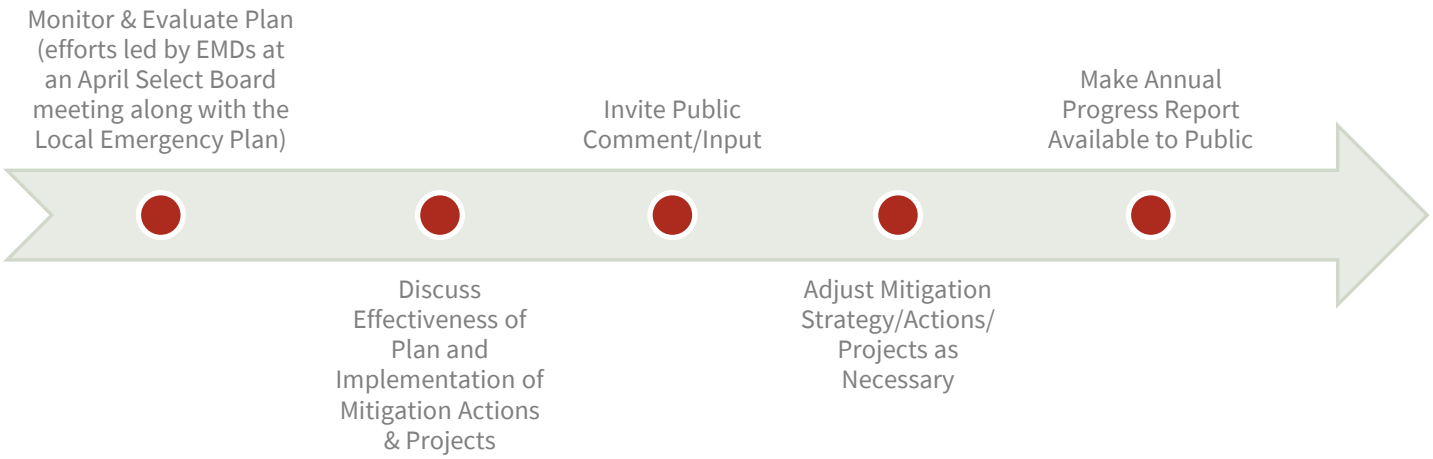
- The Danby-Mount Tabor Volunteer Fire Department will incorporate risk assessment and hazard mitigation goals into selecting locations for dry hydrant installation to provide year-round access to water sources for fire suppression. This was an action identified in the Danby 2016 LHMP and remains a priority to address wildfire and structure fires in the communities.

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 2024 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:

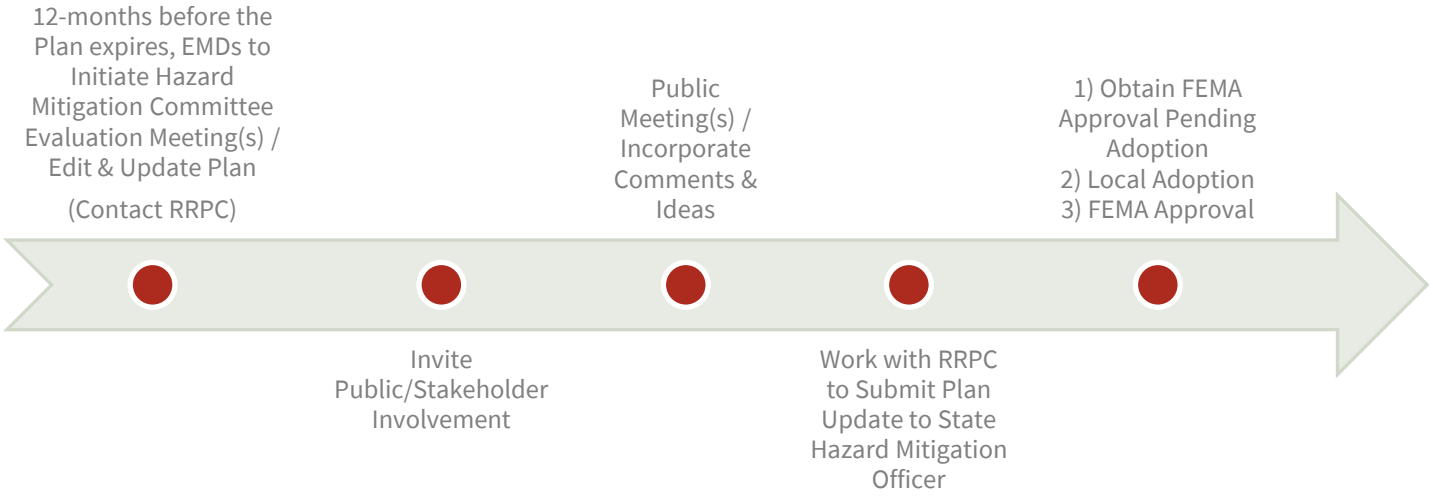


Table 7: Mitigation Action Status

Mitigation Action*	2024	2025	2026	2027	2028
Local Plans and Regulations					
Plan for and Maintain Adequate Road and Debris Clearing Capabilities					
Plan for Bridge Repairs					
Develop a Stormwater Master Plan					
Update Road Erosion and Culvert Inventories					
Develop Road Right-of-Way Vegetation Management Plan					
Adopt Flood Hazard Area Regulations (Mount Tabor)					
Structure and Infrastructure Projects					
Routinely Clean and Repair Stormwater Infrastructure					
Install/Re-establish Roadside Ditches					
Adequately Size Culverts in Flood-Prone Areas					
Stabilize Culvert Outfalls					
Install Back-up Generators or Quick Connect Wiring at Critical Facilities					
Protect Power Lines and Roadway by Inspecting and Removing Hazardous Trees in Road ROW					
Remove Existing Structures from Flood-Prone Areas (Mount Tabor)					
Natural Systems Protection					
Stabilize Stream Banks (Danby)					
Remove Accumulated Debris from Stream to Restore Flood Capacity (Mount Tabor)					
Education and Awareness Programs					
Educate Residents About Winter Storms					
Keep the Ditches Clean Campaign					

*Actions apply to both towns unless otherwise noted.

CERTIFICATE OF ADOPTION
TOWN OF Danby, Vermont Select Board
A RESOLUTION ADOPTING THE Danby-Mount Tabor, Vermont
2022 Multi-Jurisdiction Hazard Mitigation Plan

WHEREAS, the Town of Danby has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **2022 Danby-Mount Tabor, Vermont Multi-Jurisdiction 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 Danby has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its **2022 Danby-Mount Tabor, Vermont Multi-Jurisdiction 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 Danby; and

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

RESOLVED by Town of Danby Select Board:

1. The **2022 Danby-Mount Tabor, Vermont Multi-Jurisdiction Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Danby;

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 Select Board by the Emergency Management Director or Coordinator.

IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Danby this 12th day of January 2023.

Danby, Select Board Chair

ATTEST

Danby, Town Clerk

CERTIFICATE OF ADOPTION
TOWN OF Mount Tabor, Vermont Select Board
A RESOLUTION ADOPTING THE Danby-Mount Tabor, Vermont
2022 Multi-Jurisdiction Hazard Mitigation Plan

WHEREAS, the Town of Mount Tabor has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **2022 Danby-Mount Tabor, Vermont Multi-Jurisdiction 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 Mount Tabor has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its **2022 Danby-Mount Tabor, Vermont Multi-Jurisdiction 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 Mount Tabor; and

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

RESOLVED by Town of Mount Tabor Select Board:

1. The **2022 Danby-Mount Tabor, Vermont Multi-Jurisdiction Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Mount Tabor;

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 Select Board by the Emergency Management Director or Coordinator.

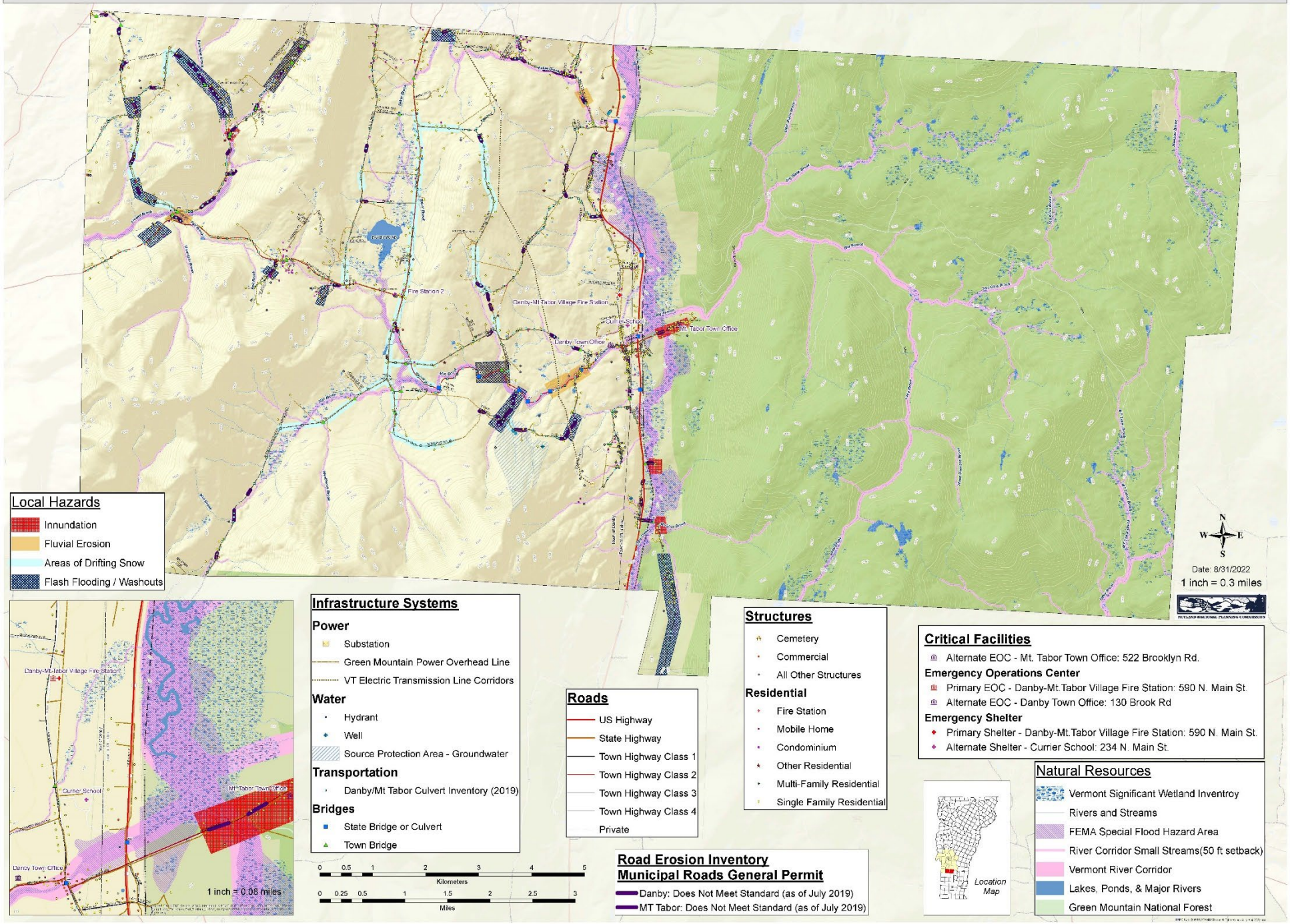
IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Mount Tabor this 10th day of January 2023.

Mount Tabor, Select Board Chair

ATTEST

Mount Tabor, Town Clerk

Danby and Mt. Tabor, Vermont: Local Natural Hazards and Vulnerabilities Map



MITIGATION ACTIONS FROM 2016 DANBY PLAN

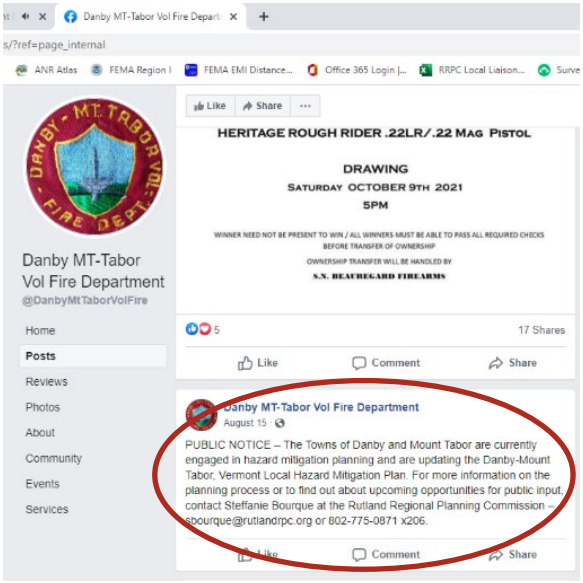
Hazards Mitigated	Mitigation Action	Local Leadership	Funding Resources	Target Start (month/year)	Target End (month/year)	2022 Status
Wildfires	Install dry hydrants to provide year-round access to water sources or fire ponds by fire equipment to mitigate wildfire threat	Fire chief	Matchinggrants RC&D	01/2016	09/2020	Incomplete – remains a priority
Flooding: inundationand fluvial erosion	Identify specific road projects to upgrade culverts and/or roadside ditches to reduce erosion and flooding	Road commissioner with community input	Town funds	12/2015	12/2017	Incomplete – remains a priority
Structure fires and wildfires	Promote public education related to fire hazard and distribute materials to school and town office	Danby/Mt. Tabor Fire Company	Town funds	01/2016	12/2018	Complete
Flooding	Upgrade undersized culverts on Danby Mountain Road and eliminate double pipes. Upgrade culverts as needed toaccommodate high water flows	Road commissioner	Town funds	12/2015	12/2020	Complete
Flooding: inundationand fluvial erosion	Stabilize stream banks (beginning with Brook Road)	Select Board and Road Commissioner	Town funds	12/2015	12/2020	Incomplete – remains a priority
Flooding: inundationand fluvialerosion	Identify specific flood-related projectsand apply for pre- disaster grants	Select Board	Town and state/federal funding, such as HMPGs	12/2015	12/2019	Incomplete – remains a priority
All hazards	Examine current Town Plan and ensure that identifiedhazard areas and needed strategies are addressed	Planning Commission	Town fundsand state/federal HMPGs	06/2018	09/2020	Ongoing
Flooding: inundationand fluvialerosion	Attend regular training sessions onfloodplain management and flood regulations administration	Select Board	Town andstate funds	12/2015	09/2020	Ongoing
Structure fires	Increase fire protection in the Historic District through education, plus maintenance and addition of water sources and firefighting equipment	Danby/Mt. Tabor Fire Company	Donations; fundraisers	01/2016	12/2019	Incomplete – although remains a priority not a natural hazard so not addressed in this plan update

Hazards Mitigated	Mitigation Action	Local Leadership	Funding Resources	Target Start (month/year)	Target End (month/year)	2022 Status
Flooding: fluvial erosion	Follow recommendations inSGAs to address fluvial erosion hazards. Create Fluvial ErosionHazard Zones	Select Board	Towns andstate funds	12/2015	12/2020	Incomplete – no longer a priority
All hazards	Incorporate proposed strategies into Annual Budget and/or Capital Improvement Plan	Select Board	Local tax revenues and/or state funds	03/2016	03/2020	Ongoing
Public health and environmental pollution	Upgrade town garage to prevent runoff of salt and sand and to relieve congestion that could pose a hazard to residents using the nearby transfer station or town office	Select Board	Tax revenues	06/2016	03/2018	Complete
Severe winter, wind or thunderstorms	Retrofit municipal buildings vulnerableto structural damage from wind and ice	Select Board	Town funds	01/2016	12/2019	Incomplete – no longer a priority
Severe winter, wind or thunderstorms	Upgrade electrical systems in municipal structures to prevent damage from surge and fluctuating current during winteror windstorms	Select Board	Town funds	01/2016	12/2017	Complete

MITIGATION ACTIONS FROM 2009 MOUNT TABOR PLAN

MITIGATION ACTION	Who is Responsible	Approx. Time Frame & Potential Funding Sources	Initial Implementation Steps	2009 Status	2022 Status
Incorporate proposed strategies into Annual Budget and Capital Improvement Plan	Select Board	• Short-Term • Local Resources	Incorporated in next Budget Cycle	Ongoing annually.	Ongoing
Update Emergency Operations Plan to enhance response capabilities in the event of a disaster.	Select Board	Short-term No funds needed	Technical assistance from RRPC	Completed; updated annually with RRPC assistance	Complete
Clarify relationship between Town and GMNF regarding maintenance of bridge across Otter Creek on Brooklyn Road, response to forest fires and winter rescues within the GMNF.	Emergency Management Coordinator	• Med-term • No funds needed	Continue to work with Forest Service	Discussions continuing.	Complete
Purchase and install emergency generators for all emergency shelters	Select Board /EMC	• Short-term • Local/State Resources	Investigate funding for generators	New in 2009. Also work with FD and town of Danby.	Complete
Create and adopt Flood Hazard Area Regulations.	Select Board	• Med-term • Local Resources	Technical assistance from RRPC	No current interest.	Incomplete – remains a priority
Continue to control traffic speed along Route 7 with the hire of special officer.	Select Board	• Short Term • Local Resources	Incorporate costs into next budget cycle	Ongoing.	Ongoing
Upgrade culverts as needed to accommodate high water flows, paying particular attention to those on South End Road and North Lodge Road (commonly flooded roadways)	Road Crew	Ongoing Local Resources	Incorporate maintenance costs into future budget cycles	Ongoing as funding allows.	Ongoing
Follow recommendations in Baker Brook SGA to address fluvial erosion hazards. Create Corridor Management Plan and Fluvial Erosion Overlay Zone	Select Board/ Agency of Natural Resources	On-going Long-term	Incorporate Fluvial Erosion Hazard Zones into pertinent land use documents.	New in 2009.	Incomplete – no longer a priority

SUMMARY OF PUBLIC COMMENTS ON DRAFT PLAN



Example notice of LHMP update kick-off from Danby-Mount Tabor Fire Department Facebook page posted on August 15, 2021.

Comments in response to plan update kick-off notice:

1) *A local resident responded to the notice posted on the Danby-Mount Tabor Fire Department Facebook page with a comment about the rail hazard posed to residents on Brooklyn Road in Mount Tabor. Specifically, if a derailment obstructed access to Brooklyn Road, then residents could be isolated (especially during winter months) and cut off from emergency response services.*

This concern will not be addressed in this Plan as it is not a natural hazard. However, it was referred to the Mount Tabor Select Board and Danby-Mount Tabor Fire Department with a recommendation to consider developing an incident specific action plan to address this scenario.

From: Steffanie Bourque
To: Steffanie Bourque
Bcc: papajonsss@vermontel.net; redtruck06@gmail.com; mthollytc@yahoo.com; jeff@chasevermont.com; m927b@aol.com; eiberner@gmail.com; Town Clerk; Town Administrator; James Bagnall; Frank Sears; mpfallar36@gmail.com; Town-Clerk, Tinmouth; Michael Fannin; Donald & Jo-Anne Preuss; chmielewskiracing@yahoo.com; wellstownclerk@comcast.net; toddfenton5@gmail.com; mbeecher.pawletsb@gmail.com; jessvanoort@gmail.com; pawletclerk@vermontel.net; Select Board Assistant; Robert Morlino; wilsoncrew5@myfairpoint.net; rupert187@myfairpoint.net; townmanager@gmail.com; wwxcski@myfairpoint.net; perutown@myfairpoint.net
Subject: PUBLIC NOTICE - Danby and Mount Tabor Engaged in Hazard Mitigation Planning
Date: Thursday, July 8, 2021 12:57:00 PM

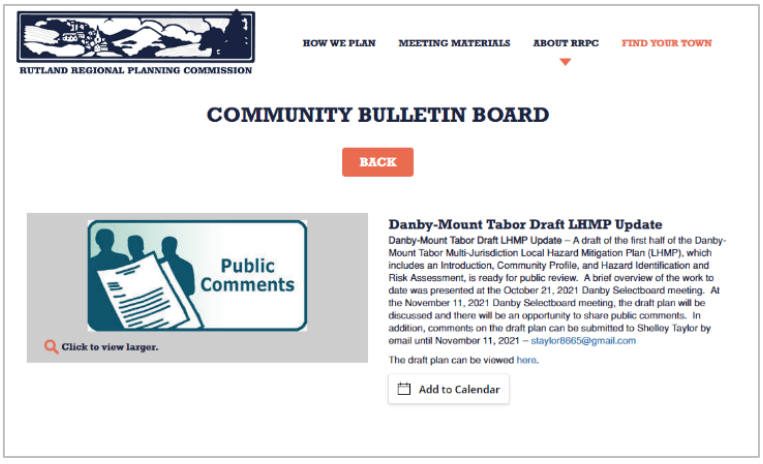
Local Officials:

As neighboring communities, we are providing you with public notice that the Towns of Danby and Mount Tabor are currently engaged in hazard mitigation planning and are updating the Danby-Mount Tabor, 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 or 802-775-0871 x206.

Steffanie Bourque
Rutland Regional Planning Commission
67 Merchants Row
PO Box 430
Rutland, VT 05702
802-775-0871 x206
****Please Note: Our new mailing address is PO Box 430****

Notice emailed to local officials in neighboring communities announcing LHMP update kick-off – dated July 8, 2021. Similar email sent to Key Partners.

No inquiries received from neighboring communities or Key Partners.



Example notice of draft plan available for public review and comment from Rutland Regional Planning Commission website posted on October 21, 2021.

The Danby Select Board provided several corrections to the October draft plan contents, including locations and assets vulnerable to flooding, during the public comment period. No additional comments on the October draft were received from the public.

From: Steffanie Bourque
To: McGuire, Nanci - NRCS-CD, Rutland, VT; Hilary Solomon; Medash, Kyle; Renee Bousquet; Krizan, Greg; Chris Taft
Cc: "Shelley Taylor"; Tom Johnston; Philip Lidstone
Subject: Danby-Mount Tabor LHMP Available for Public Comment
Date: Friday, October 22, 2021 1:28:00 PM
Attachments: Danby-Mt Tabor Draft LHMP 10-21-21.pdf

Hello, Key Partners.

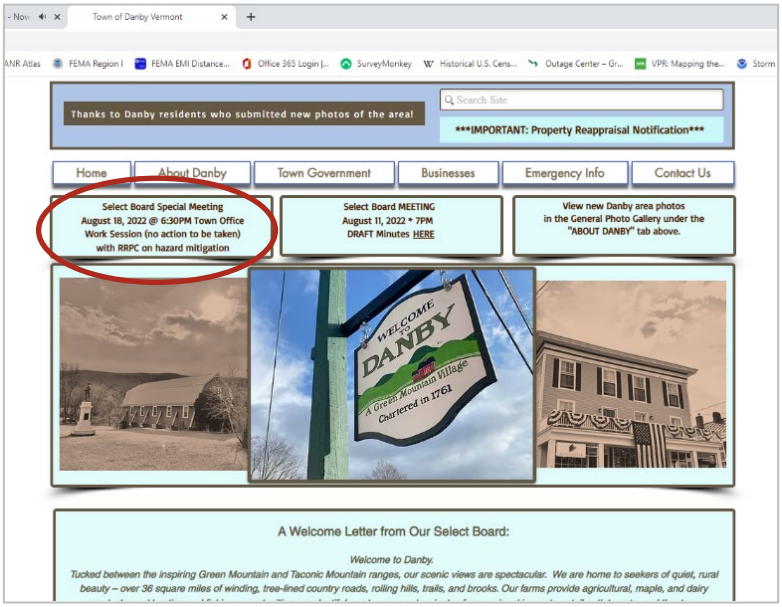
A draft of the first half of the Danby-Mount Tabor Multi-Jurisdiction Local Hazard Mitigation Plan (LHMP), which includes an Introduction, Community Profile, and Hazard Identification and Risk Assessment, is available for public review. The attached draft and a brief overview of the work to date was presented at the October 21, 2021 Danby Selectboard meeting. Comments on the draft can be submitted to me by email until November 11, 2021 – sbourque@rutlandrpc.org

I look forward to any comments you may have on the Towns' vulnerabilities to flooding/fluvial erosion and severe winter storms presented in Section 5 of the plan.

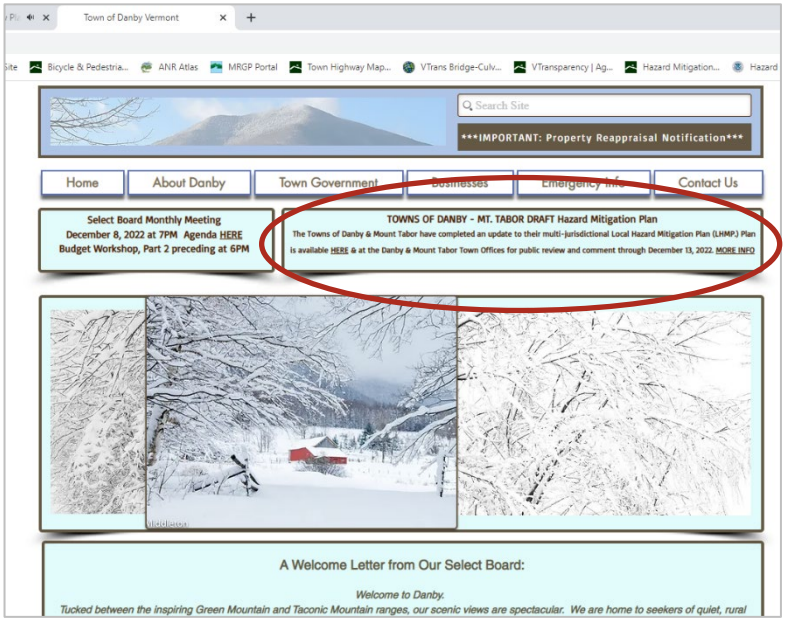
Kind regards,
Steffanie

Email to Key Partners seeking comments on draft plan, specifically Town vulnerabilities to highest risk natural hazards presented in Section 5 of the plan – dated October 22, 2021.

No comments on the October draft were received from Key Partners.



Example notice of Danby Select Board Special Meeting for LHMP Planning Team meeting held on August 18, 2022 – similar notices posted for all subsequent Planning Team meetings.



Example notice of final draft plan available for public review and comment from Town of Danby website posted on November 10, 2022.

No comments on the final draft were received from local officials or the public.

From: Steffanie Bourque
To: Steffanie Bourque
Cc: Shelley Taylor
Bcc: Select Board Assistant; Mike Beecher; pawletclerk@vermontel.net; jessvanoort@gmail.com; Robert Morlino; Wells - David Ricard; Wells SelectBoard; chmielewskiracing@yahoo.com; Todd Fenton; tinmouthtown@vermontel.net; mpfallar36@gmail.com; Michael Fannin; Bruce & Maureen Duchesne; Town Admin; townclerk@wallingfordvt.com; Jim Bagnall; ejberner@gmail.com
Subject: Danby-Mount Tabor LHMP Update - Final Draft Available for Public Comment
Date: Monday, November 7, 2022 11:26:00 AM
Attachments: image001.png
Danby-Mt Tabor Draft LHMP 11-10-22.pdf

Local Officials:

The Planning Team has completed an update to the Danby-Mount Tabor Local Hazard Mitigation Plan (LHMP) and will present their work at the November 10, 2022 Danby Select Board meeting to local officials and the public. The Plan is available for public review and comment through December 13, 2022 – see attached.

A comment session to discuss the draft Plan and receive public comments will be held on December 8 at the Danby Select Board meeting and on December 13 at the Mount Tabor Select Board meeting. In addition, comments can be submitted to Shelley Taylor, Danby Planning Commission, by email until December 13 – staylor8665@gmail.com

Look forward to any comments you may have!

Kind regards,
Steffanie

STEFFANIE BOURQUE | **Project Manager**
Rutland Regional Planning Commission
The Opera House | 67 Merchants Row
PO Box 430 | Rutland, Vermont 05702
Office: 802-775-0871 x202
Fax: 802-775-1766

Email to local officials in neighboring communities seeking comments on final draft plan – dated November 7, 2022.

No comments on the final draft were received from neighboring communities or Key Partners.