U.S. Department of Homeland Security
FEMA Region I
99 High Street, Sixth Floor
Boston, MA 02110-2132

FEMA

AUG 0 6 2018

Lauren Oates
State Hazard Mitigation Officer
Vermont Department of Public Safety
45 State Drive
Waterbury, Vermont 05671-1300

Dear Ms. Oates:

We would like to acknowledge the Town of Vershire and the State of Vermont for their dedication and commitment to mitigation planning. The Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA) Region I Mitigation Planning Team has completed its review of the Town of Vershire, Vermont 2018 Local Hazard Mitigation Plan and determined it meets the requirements of 44 C.F.R. Pt. 201.

With this plan approval, the Town of Vershire is eligible to apply to the Vermont Division of Emergency Management & Homeland Security for mitigation grants administered by FEMA. Requests for mitigation funding will be evaluated individually according to the specific eligibility requirements identified for each of these programs. A specific mitigation activity or project identified in your community's plan may not meet the eligibility requirements for FEMA funding; even eligible mitigation activities or projects are not automatically approved.

Approved mitigation plans are eligible for points under the National Flood Insurance Program's Community Rating System (CRS). Complete information regarding the CRS can be found at http://www.fema.gov/national-flood-insurance-program-community-rating-system, or through your local floodplain administrator.

The Town of Vershire, Vermont 2018 Local Hazard Mitigation Plan must be reviewed, revised as appropriate, and resubmitted to FEMA for approval within **five years of the plan approval date of August 2, 2018** in order to maintain eligibility for mitigation grant funding. We encourage the Town to continually update the plan's assessment of vulnerability, adhere to its maintenance schedule, and implement, when possible, the mitigation actions proposed in the plan.

AUG 0 6 2018

Once again, thank you for your continued dedication to public service demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please do not hesitate to contact Melissa Surette at (617) 956-7559.

Sincerely,

Douglas F. Wolcott Jr.
Acting Deputy Regional Administrator

PFF: ms

cc: Ben Rose, Recovery and Mitigation Section Chief, VT DEMHS
Stephanie Smith, Hazard Mitigation Planner, VT DEMHS

Enclosure

TOWN OF VERSHIRE
6894 VT Route 113
Vershire, VT 05079-9604
(802) 695-2227

CERTIFICATE OF ADOPTION
July 24, 2018

A RESOLUTION adopting the Vershire VT 2018 Local Hazard Mitigation Plan

WHEREAS, the Town of Vershire has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the Vershire Vermont 2018 Local Hazard Mitigation Plan, which result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Vershire has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its Vershire, Vermont 2018 Local Hazard Mitigation Plan (Plan) under the requirements of 44 CFR 201.6; and

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

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

RESOLVED by Town of Vershire Selectboard:

1. The Vershire Vermont 2018 Local Hazard Mitigation Plan is hereby adopted as an official plan of the Town of Vershire;
2. The respective officials identified in the mitigation action plan of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them;
3. Future revisions and Plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as part of this resolution for a period of five (5) years from the date of this resolution; and
4. An annual report on the process of the implementation elements of the Plan will be presented to the Selectboard by the Emergency Management Director or Coordinator.
1. IN WITNESS WHEREOF, the undersigned have affixed their signature and corporate seal of the Town of Vershire this 24th day of July, 2018.

Vernal Stone
Vernal Stone, Chair

Marc McKee, Selectboard

S. McRae Thrasher
Sarah McRae Thrasher, Selectboard

Attest: Gene Craft, Town Clerk

Town of Vershire, Vermont

2018 Local Hazard Mitigation Plan

Prepared by the Two Rivers-Ottauquechee Regional Commission and the Town of Vershire

<u>2018 Plan</u>

Date of Town Adoption:

7/24/2018

Date of Final Approval by FEMA

8/2/2018

Table of Contents

I. Introduction

Natural and human-caused hazards may affect a community at any time. Natural hazard events cannot be stopped; however, their impact on human life and property can be reduced through community planning. Accordingly, this Local Hazard Mitigation Plan (hereafter referred to simply as the Plan) seeks to provide an all-hazards mitigation strategy that will make the community of Vershire more disaster resistant.

"Mitigation" is defined as any sustained action that reduces or eliminates long-term risk to people and property from natural and human-caused hazards and their effects. Previous Federal Emergency Management Agency (FEMA), State and Regional Project Impact efforts have demonstrated that it is less expensive to anticipate disasters than to repeatedly ignore a threat until the damage has already been done. While hazards cannot be eliminated entirely, it is possible to identify prospective hazards, anticipate which might be the most severe, and recognize local actions that can be taken ahead-of-time to reduce the damage. These actions, also known as 'hazard mitigation strategies' can (1) avert the hazards through redirecting impacts by means of a structure, land treatment, or land use pattern change (2) adapt to the hazard by modifying structures or standards or, (3) avoid the hazard through improved public education, relocation/removal of buildings in the flood zone, or ensuring development is disaster resistant.

II. Purpose of the Plan

The purpose of this Plan is to assist Vershire in identifying all hazards facing the town, ranking them according to local vulnerabilities, and identifying strategies to reduce risks from vulnerabilities of highest concern. Implementation of this plan will make our community more resistant to harm and damages in the future, and it will reduce public costs.

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

The 2018 Vershire Local Hazard Mitigation Plan is the first single jurisdiction mitigation plan drafted for the Town. Previously, the Town had a town-specific 2012 Annex in the Regional (multi-jurisdiction) Pre-Disaster Mitigation Plan. This new Plan has been reorganized and new sections have been added:

- Program eligibility subsequent to plan approval
- Authority for plan development
- Existing information and Community Profile
- Funding for plan development

Old assumptions have been challenged throughout, and new information has been added to make the plan stronger and more useful for the Vershire town officials and residents who will implement the hazard mitigation strategies in the future.

III. Community Profile

Vershire is located near the center of Orange County. It consists of 36 square miles or 23,000 acres in area. It lies primarily on the eastern slope of the high ridge between the Ompompanoosuc River and the First Branch of the White River. The southwestern part of Town rises to 2,400 feet in elevation. The main ridge and several long easterly spur ridges offer spectacular views west to the central Green Mountains and east to the White Mountains in New Hampshire.

In 2010, the population of Vershire was 730 people, which is well below the historic high of 1,875 in 1880. The population was 629 people in 2000, which represents a 16% increase. The population also rose by 12.3% from 1990 to 2000, 26.7% from 1980 to 1990, and 47.8% from 1970 to 1980. The population has been increasing since its historic low of 236 in 1960.

According to Vermont Housing data, there were 300 households in Vershire in 2010. This is a 15% increase in the number of households from 2000. Washington Electric Cooperative brings power to the northern part of the town and Green Mountain Power provides power to the southern parts of Town.

Emergency medical transportation is provided by Upper Valley Ambulance, Inc. (UVA), based at the Fairlee Fire Station. UVA serves an eight-town region; each town is represented by a director appointed by that town's Selectboard. In addition to emergency transport at the paramedic level, UVA serves as the focal point for training fire departments and FAST squads from the eight-town region. UVA provides its services on a fee-per-capita basis. UVA is dispatched through Hanover Dispatch.

In 2005 the Vershire FAST Squad and the Vershire Volunteer Fire Department merged to become one organization known as the Vershire Fire & Rescue, an independent organization with tax-exempt 501(c) status. Vershire Fire and Rescue is entirely composed of volunteers, and it provides emergency fire and medical assistance for Vershire. The Vershire Fire and Rescue is also part of the mutual aid network. Calls are received and dispatched by Hanover Dispatch with Upper Valley Ambulance able to respond to all dispatch calls.

The Town of Vershire does not have a town constable and this position will remain vacant for the foreseeable future on recommendation of the Selectboard. Currently, the State Police Barracks in Bradford provides police contracted coverage to the town.

IV. The Planning Process

A. Plan Developers

Samantha Holcomb and Ellie Ray, both Land Use Planners at the Two Rivers-Ottauquechee Regional Commission (TRORC), originally assisted the Town of Vershire with updating its Local Hazard Mitigation Plan, and Michael Storace, a planner of TRORC, finished working on Plan. Committee members who assisted with the revisions include:

This section of the Plan satisfies 44 CFR 201.6(b)(1) and 201.6(c)(1) (or, A3.a and A3.b of FEMA's Local Mitigation Plan Review Guide, 2011).

Name	Role/Organization	How Participation Was Solicited
Bill Baylis	Emergency Management Director	On 5/17/2013 and 12/15/2014, Samantha Holcomb and Ellie Ray (TRORC staff) reached out to the Vershire Selectboard (Vernal Stone, Sarah Thrasher, and Marc Mckee), the Town Emergency Management Director (Bill Baylis). TRORC staff coordinated with Vershire town officials to set up an introductory meeting. The first meeting was scheduled for 2/11/2015. TRORC's staff attended that meeting, followed by several more meetings in which participants revised and developed the LHMP. See below for more meeting-specific details.
Gene Sobeck	Planning Commission Member	
Karin Straussburger	Health Officer and Zoning Administrator	
Vernal Stone	Selectboard Member	
Kenneth Bushey	Planning Commission Member	
Margaret Darrow	Planning Commission Member	
Steven Ward	Fire Chief	
Marc McKee	Selectboard Member	
Eleanor Zue	Planning Commission Member	

B. Plan Development Process

The 2012 Vershire Annex was originally part of the 2008 multi-jurisdictional Regional Hazard Mitigation Plan, drafted by Two Rivers-Ottauquechee Regional Commission, and approved by FEMA on September 30, 2008 with its first local annex. The Vershire Annex received subsequent FEMA approval, but, since it was part of a larger plan, FEMA treats its start date as September 30, 2008, meaning the Vershire Annex expired on September 30, 2013.

This section of the Plan satisfies the Element A: Planning Process requirements set out in 44 CFR 201.6.

This Plan has been reconstructed now as a single jurisdiction, stand-alone Vershire Local Hazard Mitigation Plan that will be submitted for individual approval to FEMA. As such, several sections have been added or updated to include all necessary information.

<u>The changes to this Plan include</u>:

- **General**
  - New sections: Plan Development Process, 2012 Mitigation Strategies Status Update chart, Existing Hazard Mitigation Programs, Projects & Activities, Plan Maintenance;
  - Data updates: New hazard incidents, emergency declarations, Census data;
  - Hazards have been reevaluated with the hazard ranking system used by the Vermont Department of Emergency Management.
- **Hazards Analysis**
  - Hazardous Material Spills and Flash Flood/Flood/Fluvial Erosion remain on the list of "top hazards," which reflect the local officials' belief that the Town is still vulnerable to these hazards;
  - Severe Storm/Hurricane/Tropical Storm and Extreme Snow have been added to the list of "top hazards," which reflects the intention/priorities of local officials to expand their analysis of hazards that the Town is or may be vulnerable to in the next five years;
  - For each hazard, a location/vulnerability/extent/impact/likelihood table has been added to summarize the hazard description.
- **Maps**
  - A map of the Town of Vershire depicting critical facilities, town infrastructure, and the NFIP designated floodway, the 100-year, 500-year floodplain, and River Corridor area has been added.

<u>The following represent the avenues taken to draft the Vershire Local Hazard Mitigation Plan:</u>

- **Activities and Public participation and involvement (44 CFR 201.6(b)(1))**

***Note: The meetings listed below were public sessions (the agenda was posted prior to the meeting).*

  - 2/11/2015: Met with Vershire LHMP committee members to introduce the update/plan development process, reviewed Vershire's existing Hazard Mitigation Plan (adopted in August 2012), considered the status of various mitigation actions, potential hazards, and the data collection/research process. The Vershire committee also discussed and ranked

hazards to determine the "Top Hazards" in the Town that expose our greatest vulnerabilities. Explained to the committee what the next steps in the process are (draft plan, and then schedule a meeting to review and discuss it). The agenda for this meeting was posted in three places in Town. No public comments were received.

- December 2016: A notice was placed in the Two Rivers-Ottauquechee Regional Planning Commission Newsletter alerting recipients that Vershire was engaging in hazard mitigation planning and updating their Local Hazard Mitigation Plan. Contact information was provided in the notice to allow those interested in Vershire's efforts to receive more information and how to find out about upcoming meetings. No comments were received.
- 02/9/2017: Victoria Littlefield met with the Vershire Planning Commission to overview the status of the Local Hazard Mitigation Plan, to review strategies within the Town of Vershire to mitigate hazards. She explained the overlap between flooding components of the Hazard Mitigation Plan and the Flood Resilience Element that will be included in the Vershire Town Plan update. Met with committee to discuss first draft. The agenda for this meeting was posted in three places in Town. No public comments were received
- November 2017: A notice was placed in the Two Rivers-Ottauquechee Regional Planning Commission Newsletter alerting recipients that Vershire was engaging in hazard mitigation planning and updating their Local Hazard Mitigation Plan. Contact information was provided in the notice to allow those interested in Vershire's efforts to receive more information and how to find out about upcoming meetings. No comments were received.
- 10/31/2017: Michael Storace, Peter Gregory, and Victoria Levite met with the Vershire Selectboard to reintroduce the benefits of developing a hazard mitigation plan for the Town of Vershire and described the plan development process. Town officials designated members that will participate in upcoming planning process. Public members that were in attendance at the meeting voiced their support for Vershire to develop a local hazard mitigation plan. No additional comments were received.
- 3/28/2018: Michael Storace distributed draft Vershire LHMP to Gene Craft, Vershire Town Clerk and Treasurer for his review.
- 4/11/2018: Michael Storace met with community members to review top hazards for the Town of Vershire, to review the status of previously identified hazard mitigation strategies, to review existing hazard mitigation programs, and identified future hazard mitigation strategies to include in 2018 Plan.

- **Governmental participation and involvement** *(44 CFR 201.6(b)(2)*)
  - Sent revised draft to the Selectboard Chair, Vernal Stone, and provided contact information for receiving comments via email/hard copy—04/12/2018
    - No comments were received.
  - Sent revised draft to Planning Commission Chair, Bill Baylis, and provided contact information for receiving comments via email/hard copy—04/12/2018
    - No comments were received.

- Sent revised final draft to Vermont Emergency Management—5/3/2018
  - Plan sent to FEMA
- Note: Town officials were given the opportunity to review, provide feedback and approve the changes that were made through the Plan revision and FEMA review process.

- **Neighboring community participation and involvement** *(44 CFR 201.6(b)(2)*)
  - December 2016: A notice was placed in the Two Rivers-Ottauquechee Regional Planning Commission Newsletter alerting recipients that Vershire was engaging in hazard mitigation planning and updating their Local Hazard Mitigation Plan. Contact information was provided in the notice to allow those interested in Vershire's efforts to receive more information and how to find out about upcoming meetings. No comments were received.
  - Posted a notice in four local papers alerting the public to the hazard mitigation planning process that was taking place. Contact information was provided in the notice to allow those interested in Vershire's efforts to receive more information and how to find out about upcoming meetings. No comments were received.
    - The Herald of Randolph— ran 01/15/2015
    - Journal Opinion— ran 01/15/2015
    - Valley News - ran 01/15/2015
    - Vermont Standard- ran 01/15/2015
  - December 2017: A notice was placed in the Two Rivers-Ottauquechee Regional Planning Commission Newsletter alerting recipients that Vershire was engaging in hazard mitigation planning and updating their Local Hazard Mitigation Plan. Contact information was provided in the notice to allow those interested in Vershire's efforts to receive more information and how to find out about upcoming meetings. No comments were received.
  - Posted a notice in four local papers alerting the public to the hazard mitigation planning process that was taking place. Contact information was provided in the notice to allow those interested in Vershire's efforts to receive more information and how to find out about upcoming meetings. No comments were received.
    - The Herald of Randolph— ran 4/19/2018
    - Journal Opinion— ran 4/19/2018
    - Valley News - ran 4/19/2018
  - Sent revised draft to neighboring towns' Selectboards for comment and provided contact information for receiving comments via email/hard copy—04/12/2018
    - Towns of: Chelsea, Corinth, Tunbridge, Washington, West Fairlee, and Strafford
    - No comments were received.
- **Review of existing plans, studies, reports, and technical information** (*44 CFR 201.6(b)(3)*)
  - State of Vermont Hazard Mitigation Plan, 2013
  - Vershire Hazard Mitigation Plan (Adopted 08/1/2012)

- This Plan was referenced extensively during the plan development process, especially in regard to the worst threats and mitigation action strategies identified in 2012.

This section of the Plan satisfies 44 CFR 201.6(b)(3) (or, A4.a and A4.b of FEMA's Local Mitigation Plan Review Guide, 2011).

- Vershire Town Plan (Adopted 10/31/2017)
  - The Town Plan provided TRORC's staff with background information on the community, as well as more detail on their emergency services.
- Vershire Development Ordinance (Adopted 3/6/2008)
  - The development standards were referenced for knowledge about land use regulations in Vershire.
- Vershire Flood Hazard Ordinance (Adopted 3/2/2010)
  - The Flood Hazard Ordinance was referenced for general knowledge and for Vershire's regulations to Flood Hazard Areas and other frequently flooded areas in Town.
- Vershire Local Emergency Operations Plan (LEOP) (Adopted 04/18/2017)
  - The Vershire LEOP was referenced for general knowledge regarding the Town's emergency operations.

C. Status Update on Mitigation Actions Identified in 2012

The following table outlines the mitigation actions that were proposed in Vershire's 2012 All-Hazard Pre-Disaster Mitigation Plan for the Town of Vershire (adopted on August 1, 2012 as an appendix to the Two Rivers-Ottauquechee Regional Commission's multi-jurisdictional Pre-Disaster Mitigation Plan).

This section of the Plan satisfies the requirements of 44 CFR 201.6(d)(3).

Participants in the new Plan update process reviewed these actions and reported on the status of each. Actions related to long-term mitigation of natural hazards are so noted.

Mitigation Action	Who (Leadership)	When (Timeframe)	How (Funding/ Support)	2018 – Status of Mitigation Actions
ALL HAZARDS 1. Ensure that LEOP is current	Selectboard	Yearly	With TRORC assistance	The newest iteration of the RRP is the Local Emergency Operations Plan (LEOP). The Vershire LEOP undergoes an annual update of this document and it was last updated and approved on 04/18/2017.
2. Maintain activity in VF&R Mutual Aid	Emergency Management Coordinator	Ongoing	Local resources	Vershire Volunteer Fire partakes in mutual aid programs.
3. Continue involvement with LEPC 12	Emergency Management Coordinator	Yearly	With TRORC assistance	The Town of Vershire has a chosen representative to attend bi-monthly LEPC meetings.
4. Keep Town Plan Current	Emergency Management Coordinator	2017	With TRORC assistance	The Vershire Town Plan was adopted on October 31, 2017. It has included a new Flood Resiliency Chapter.
5. Emergency training for local officials	Highway Department	Ongoing	Local resources	Town officials, along with Vershire Volunteer Fire and Rescue, partake in emergency training.
FLOOD 6. To maintain maps which reflect as accurately as possible the flood hazard areas, to assist in appropriate land use decisions.	Planning Commission/ Selectboard	2017	Local resources with TRORC assistance	The future land use and flood resiliency maps adopted during the 2017 Town Plan revision include the mapped Special Flood Hazard Areas and River Corridor areas in the Town of Vershire.
FIRE 7. Training for Fire Dept. personnel	Emergency Management Coordinator	Ongoing	Local resources	The Vershire Volunteer Fire and Rescue engages and provides training for its members and for its new recruits.

There is very minimal development occurring in the Town of Vershire. There were no records of building permits issued in Vershire since the 2012 Vershire Annex. There are no large-scale development projects proposed for the Town of Vershire. Specific development along Route 113 may be vulnerable to flooding.

Depending on the location, new development in the Town of Vershire may be vulnerable to flood or fluvial erosion hazards; fortunately, the town's slow growth rate and interest in pursuing options for reducing flood risks help reduce these risks. The Town's Flood Hazard Bylaw regulates new development within the Special Flood Hazard Area, which would help reduce threats to structures built near flood hazards. However, the areas vulnerable to flood hazards and fluvial erosion hazards are not necessarily analogous; therefore, the Town's Flood Hazard Bylaw may not protect new development from fluvial erosion hazards. Since the 2012 adoption of the Vershire Local Hazard Mitigation Plan there has been minimal development in the Town.

D. Town Capabilities for Implementing the Mitigation Strategy (Existing Hazard Mitigation Programs, Projects & Activities)

This section of the Plan satisfies the requirements of 44 CFR 201.6(c)(3).

The Town of Vershire is currently engaged in the following hazard mitigation programs, projects and activities:

	Type of Existing Authority / Policy / Program / Action	Resources: Staffing & Funding	Ability to Expand/Improve on
Community Preparedness Activities	Program—Annual update of Vershire's Local Emergency Operations Plan (LEOP). Last updated and approved on 4/28/2017.	Volunteer time from the Emergency Management Director/ Coordinator; assistance from TRORC. Funding from Vermont DEMHS.	This document is reviewed and updated each year to ensure that the contact information of emergency response personnel is up-to-date. This information is then sent to Vermont Emergency Management for their records. Current program works well, no need to expand or improve on.
	Program—Participation in LEPC #12	Volunteer time from Emergency Management Director/Coordinator and sometimes the Fire Chief. Funding from LEPC #12 and assistance from TRORC.	The Town's current participation in the LEPC #12 is satisfactory. Therefore, there is currently no need to expand or improve on this program.
	Participation in Citizens' Emergency Response Team (CERT)	Staff time from the Town Clerk	The Town feels that this would be a beneficial if there were enough people interested.
	Action— Designation of Red Cross Shelter The Town Center at 27 Vershire Center Road is a Red Cross Designated Shelter.	Staff/volunteer time from the Town Clerk, Emergency Management Director/ Coordinator. Funding from American Red Cross.	This is a one-time action. Although, the Town may want to designate other shelters as Red Cross Shelters.
Insurance Programs	Authority/ Program—participation in National Flood Insurance Program (NFIP) [Note: This section of the Plan satisfies the requirements of 44 CFR 201.6(c)(3)(ii).]	The Vershire Zoning Administrator, Bill Bayliss, serves as the NFIP Administrator. Assistance from TRORC and Vermont ANR. Funding from local resources—annual town budget.	The Town's initial Flood Insurance Rate Map (FIRM) was dated 01/17/1975. The Town's current Flood Insurance Rate Map (FIRM) was dated 04/01/2012. The Town continues its participation in the NFIP by administering and enforcing its Flood Hazard Bylaw. The Town of Vershire adopted its most current Flood Hazard Bylaw on 03/02/2010. This Flood Hazard Bylaw regulates new construction in the Special Flood Hazard Area. The Town employs a NFIP Administrator, Bill Baylis who enforces the Flood Hazard Bylaw based on the 04/01/2012 FIRMs.

	Type of Existing Authority / Policy / Program / Action	Resources: Staffing & Funding	Ability to Expand/Improve on
Land Use Planning	Policy/Program— Vershire Municipal Plan Adopted on 10/31/2017, includes a "Flood Hazard Area" land use area and a section devoted to "Flood Hazard Areas and Floodplains" in its *Flood Resiliency* chapter.	Volunteer time from Planning Commission, and assistance from TRORC and other state agencies on specific subject matter. Funding from Municipal Planning Grants.	The Town Plan is updated every eight years, as required by statute. The Planning Commission may expand or improve on any section it deems necessary, or that is required by changes in state statue.
	Completed Authority— Vershire Vermont Flood Hazard Bylaw Adopted on 03/02/2010	Volunteer time from the Planning Commission, and assistance from TRORC. Funding from Municipal Planning Grants.	During the Town Plan review/update period, the Flood Hazard Bylaw may also be reviewed and updated if needed.
	Completed Authority— Vershire Development Ordinance Adopted on 03/06/2008	Volunteer time from the Planning Commission, and assistance from TRORC. Funding from Municipal Planning Grants.	During the Town Plan review/update period, the Development Ordinance may also be reviewed and updated if needed.
Hazard Control & Protection of Critical Infrastructure & Facilities	Policy/Program—Vershire Hazard Mitigation Plan Adopted on 08/1/2012	Volunteer time from Town officials; assistance from TRORC and Vermont DEMHS. Funding from FEMA; Vermont DEMHS; TRORC.	The 2018 Vershire Local Hazard Mitigation Plan will replace the 2012 Annex. The 2018 LHMP has evolved from the 2012 Plan and has greatly expanded and improved upon it. Future iterations of the Town's LHMP will be updated by the Town at least every five years.
	Program—Town-wide Class III road inventory and capital budget planning Completed in 2012	Staff time from the Town Road Foreman; and assistance from TRORC. Funding from VTran's Better Backroad grant program.	The Town is currently using the road inventory to improve its class III roads, and seeking funding through the Better Backroads grant program for implementation projects.
	Program— Culvert and road erosion inventory completed with TRORC assistance in 2017.	Staff time from Town Road Foreman; assistance from TRORC. Funding from VTrans; local personnel time and funding.	The Town is currently using the culvert inventory to further its culvert improvement program, and seeking funding through the Vermont Agency of Transportation's Better Roads Program for implementation projects.
	Ongoing Action— Vershire Fire Department distributes fire prevention fliers at the school	Time from the Volunteer Fire and Rescue Department and funding from Fire Department budget.	This is an ongoing action and there is no need to expand upon it at this time.
	Ongoing Action— the Town places emergency-related information in the Annual Report and on the Town's website (when active)	Staff time from Town Office personnel and funding from the Town's budget.	This is an ongoing action and there is no need to expand upon it at this time.

E. Plan Maintenance

This Plan (the Vershire Local Hazard Mitigation Plan) will be updated and evaluated by discussing its effectiveness and making note to incorporate any necessary revisions in the update process. This update and evaluation will occur annually at an April Selectboard meeting along with the annual review of the Local Emergency Operations Plan (LEOP). At this meeting, the Selectboard will monitor the implementation of the hazard mitigation and preparedness strategies outlined in this Plan by noting those that have been completed, and identifying the next steps required to implement the Plan's remaining strategies. Comments from local officials and the public will be incorporated when relevant. This meeting will constitute an opportunity for the public and other town officials to hear about the town's progress in implementing mitigation strategies and to give input on future activities and Plan revisions. The public will be given the opportunity to comment at this meeting. Evaluation of the Local Hazard Mitigation Plan will consist of a thorough analysis of the status of mitigation and preparedness strategies and whether they are being implemented according to the time frames included in tables in this Plan. The Town of Vershire will evaluate the status of mitigation strategies to assess that goals of the Local Hazard Mitigation Plan are being met. Adherence to the mitigation, preparedness, and ongoing strategy implementation tables included in this Plan will constitute the degree of effectiveness of the Plan. The Town will also evaluate the status of vulnerabilities detailed in this Plan to evaluate their validity. The update of the Plan will bring up to date materials that have become outdated due to the passage of time. Vershire's Emergency Management Director will be the principal point of contact and will take primary responsibility for the monitoring, evaluation, and update process described here. He or she will bring the Plan's maintenance activities to the Selectboard's agenda and discussions.

Updates and evaluation of this Plan by the Selectboard and the local Emergency Coordinator/Director will also occur within three months after every federal disaster declaration directly impacting the Town of Vershire. The Town will monitor, evaluate and update this Local Hazard Mitigation Plan at an April Selectboard meeting and after every federally declared disaster directly impacting the Town according to the graphic in Appendix C. The Town shall reference the Local Hazard Mitigation Plan when working on Town Plan amendments or changes to the Town's bylaws.

This section of the Plan satisfies 44 CFR and 201.6(c)(4)(i), 201.6(c)(4)(ii), and 201.6(c)(4)(iii).

At least one year before the Plan expires, the update process will begin (through annual updates, monitoring of progress and evaluation that will occur at the April Selectboard meeting). For this next Plan update, the Two Rivers-Ottauquechee Regional Commission (TRORC) will help with Plan updates if assistance is requested by the Town of Vershire and if funding is available. If TRORC is unable to assist the Town, then Vershire's Town Clerk, Administrative Assistant, or Selectboard will update the Plan, or the Selectboard may appoint a committee of interested citizens (including the current local Emergency Coordinator/Director) to draft changes. Ultimately, it will be the Town's responsibility to update their Local Hazard Mitigation Plan.

The process of evaluating and updating the plan will include continued public participation through public notices posted on the municipal website (if active), notice within the municipal building, and notice in The Herald of Randolph and the TRORC newsletter and blog, inviting the public to the scheduled Selectboard (or specially scheduled) meeting. The public will be given the opportunity to comment during this process. Additional stakeholders may be invited to the meeting these include: First Branch Ambulance, VTrans, and the Vermont Agency of Natural Resources (VT ANR). VT ANR may be invited because they can provide assistance with NFIP outreach activities in the community, models for stricter floodplain zoning regulations, delineation of fluvial erosion hazard areas, and other applicable initiatives. These efforts will be coordinated by the Town Clerk.

Updates will address changes in community mitigation strategies; new town bylaws, zoning and planning strategies if appropriate; progress on the implementation of initiatives and projects; effectiveness of implemented projects or initiatives; and evaluation of challenges and opportunities including overall effectiveness of plan goals and actions in reducing vulnerabilities. If new actions are identified in the interim period, the plan can be amended without formal re-adoption during regularly scheduled Selectboard meetings.

Vershire shall also incorporate mitigation planning into their long-term land use and development planning documents. The 2012 Vershire Annex, the previous version of this Local Hazard Mitigation Plan for the Town of Vershire, provided guidance in the development of the Vershire Municipal Plan, including directing goals, policies, and recommendations towards mitigating the effects of future hazards on health and property in the Town. The 2013 Vermont Legislature passed a law requiring all towns to incorporate flood resiliency elements into their town plans as of July 2014. Vershire incorporated Flood Resiliency information into the 2017 Town Plan revision, including flood hazard and fluvial erosion hazard identification, and strategies and recommendations to mitigate risks to public safety, critical infrastructure, historic structures and public investments. This Local Hazard Mitigation Plan will help the town to comply with the new community flood resiliency requirement for town plans adopted after July 2014.

It is also recommended that the process work both ways and the Town review and incorporate elements of the Local Hazard Mitigation Plan into updates for the municipal plan and flood hazard/ River Corridor bylaws. The Town shall also consider reviewing any future TRORC planning documents for ideas on future mitigation projects and hazard areas. The Vershire Planning Commission will incorporate hazard mitigation strategies developed and identified in this Local Hazard Mitigation Plan directly into goals, policies, and recommendations in future updates to the Vershire Town Plan. Mitigation strategies will directly influence goals, policies, and recommendations in future updates to the Vershire Town Plan. The incorporation of the goals and strategies listed in the Local Hazard Mitigation Plan into the municipal plan, and flood hazard/River Corridor bylaws will also be considered after declared or local disasters.

V. Community Vulnerability by Hazard

A. Hazard Identification

Mitigation efforts must be grounded in the rational evaluation of hazards to the area and the risks these hazards pose. This is done through a process, which in essence asks and answers three basic questions:

- What bad things can happen, given the town's vulnerabilities?
- How likely are they to occur?
- How bad could they be?

This process, which is laid out in the table below, is an attempt to inventory the known hazards, establish the likelihood of them occurring in the future, and then assess the community's potential vulnerability to each. In performing this analysis, we are then able to prioritize actions that are designed to mitigate the effects of each of these disaster types and ultimately make Vershire a safer place.

It is important that we learn from the past in order to avoid the same disasters and their outcomes. Disasters that have occurred within the Town of Vershire, the larger region, and the State of Vermont can give us good information about what types of disasters we can expect in the future and what kinds of damage they might cause. However, while this historical data can inform our perspective of what might happen in the future, it is by no means a prophecy. While Vershire might not have been impacted by a specific hazard in the past, this does not necessarily mean it will never be affected in the future. Indeed, the advance of climate change means that old weather patterns may not hold. For instance, in recent years, Vermonters have seen an increase in the number and severity of storms, especially rainfall events. Armed with historical data and a healthy respect for climate change and the unknown, we have tried our best to identify hazards and prepare for the future.

The following table reflects the hazards that we believe can be expected, or are at least possible, in the central Vermont area. We have considered factors such as frequency of occurrence, warning time and potential community impact to rank each and determine which hazards pose the greatest threats to life and property in Vershire.[1] The worst threats (bolded in the table, below) are then followed-up with discussion and mitigation strategies throughout the rest of this Plan.[2] It should be noted that hazards assigned with the same "Hazard Score" are not in order and their placement in the table should not be assumed to reflect their potential to create hazards for the town.

[1] The ranking methodology used in this Plan (see Appendix A) is closely modeled on that which is used by Vermont Emergency Management (VEM). Those hazards which were not found to pose the greatest threats to Vershire - including Drought, Extreme Heat, Tornadoes, Hail Storms, water supply contamination, dam failure, wildfires, avalanches, radon, Invasive Species Infestation, ice jams, Landslides/Mudslides/Rockslides, and Earthquakes - were not addressed in this plan due to low probability of impact and scarce community resources (time and money). For these hazards, please review the Vermont State Hazard Mitigation Plan. The changes made were intended to reflect the more limited geographical scope of this analysis, which is focused on a small, rural town rather than the entire State of Vermont (which is the focus of VEM).

[2] It's important to note that those hazards which were not found to pose the greatest threats may still occur in Vershire's future; however, they are not the focus of this Plan.

Hazard	Frequency of Occurrence	Warning Time	Potential Impact	Hazard Score
Flash Flood/Flood/Fluvial Erosion	***Highly Likely***	***3-6 Hours***	***Major***	***11***
Hazardous Material Spill	***Likely***	***None-minimal***	***Major***	***11***
Severe Weather (Thunderstorm, Lightning, High Wind, Hail, and Flooding) *** Note: We have defined 'Severe Weather' to include two or more of the above hazards. The Hazard Mitigation Committee decided to combine this hazard with Hurricane/Tropical Storm.**	***Likely***	**3-6 hours**	**Major**	**10**
Extreme Cold/Snow/Ice Storm	***Highly Likely***	***6-12 hours***	***Moderate***	**9**
Structural Fire	Likely	None-minimal	Minor	8
Ice Jams	Occasionally	6-12 hours	Moderate	8
Landslides/Mudslides/Rockslides	Occasionally	6-12 hours	Moderate	7
Invasive Species/Infestation	Highly Likely	12+ hours	Minor	7
Hail Storms	Occasionally	None-minimal	Negligible	7
Hurricanes/Tropical Storms	Occasionally	12+ hours	Major	7
Wildfire	Unlikely	None-minimal	Minor	7
Drought	Likely	12+ hours	Minor	6
Earthquake	Highly Unlikely	None-minimal	Negligible	5
Water Supply Contamination	Unlikely	12+ Hours	Minor	4
Tornado	Highly Unlikely	12+ Hours	Negligible	2
Extreme Heat	Highly Unlikely	12+ hours	Negligible	2
Dam Failure (There are no high hazard dams in the Town of Vershire or upstream, and the committee decided to remove this from the ranking activity.)	Unlikely	None	Negligible/Minor	N/A

The Vershire LHMP committee discussed the results of the hazard ranking activity and decided to focus on hazards that had the potential to impact the Town on a town-wide scale, and/or hazards that are

Likely or ***Highly Likely*** to occur, and would have a moderate, minor, or major impact on the health and/or property of Vershire. For the purposes of this Plan, Severe Weather and Hurricanes/Tropical Storms will be combined into one hazard profile area for analysis due to their overlapping events and potential impacts to the Town. Due to low probability of impact, small potential impact, and scarce community resources (time and money), the mitigation committee chose not to detail the following hazards in this LHMP: extreme heat, drought, water supply contamination, earthquakes, ice jams dam failure, tornadoes, wildfires/brushfires, landslides/mudslides/rockslides, and invasive species infestation. Refer to Appendix A for definitions of the hazard ranking terms used in the above chart.

After engaging in discussions using their best available knowledge, the Town of Vershire identified the following "top hazards" (based on frequency of occurrence and potential impact) that they believe their community is most vulnerable to:

- Flash Flood/Flood/Fluvial Erosion
- Severe Storm, Hurricane, and Tropical Storm
- Hazardous Material Spills
- Extreme Cold/Snow/Ice Storm

The impact of a loss of services is a common element of the hazards discussed in this Plan. These include not only large scale services such as the loss of transportation and communication ability, but also the loss of services more directly associated with basic needs such as water, food preparation, and heat. Loss of power for an extended period of time has the potential to greatly impact households who are entirely reliant on a functional power supply in order to prepare food, heat the household, and ensure that the water supply is available. While many residences in Vershire utilize a variety of methods to ensure these basic needs, it is important to be aware that a number of households rely on electricity alone for all of these functions. In addition to the plans described in the Vershire LEOP, it is important to reinforce the need for adequate generators in this Plan, so that the town is prepared to ameliorate the effects of a sustained power loss in Vershire. Included in this would be an adequate supply of fuel for these generators.

A further focus that is important to address in this Plan includes the awareness of the population demographics of Vershire. This includes a comprehensive idea regarding the number of individuals in the town who may require assistance in the event of a severe weather incident. Age and ability should be factors taken into account, and as discussed in the LEOP, there should be individuals responsible for creating and updating such a list, including members of the ambulance service, town offices, the health officer, and service officer.

Each of these "top hazards" will be discussed in the following sections. Within each section, previous occurrences of each hazard will be listed, including the County-wide FEMA Disaster Declarations (DR-#), where applicable. Hazards information was gathered from local sources (ex., town history book), the National Climatic Data Center's (NCDC's) Storm Events Database (1950-2012 and 2006-2012), the Spatial Hazard Events and Losses Database for the United States (SHELDUS) 1960-2012, and Special Reports produced by the National Weather Service in Burlington, Vermont. This section also includes a

description of each “top hazard” and a hazard matrix that will also include the following information (please see each hazard profile for a hazard-specific matrix):

Hazard	**Location**	**Vulnerability**	**Extent**	**Observed Impact**	**Likelihood/Probability**
Type of hazard.	General areas in community that may be vulnerable to the hazard.	Community structures, systems, populations, or other assets as defined by the community that are susceptible to damage and loss from hazard events.	The strength or magnitude and details of the most notable event(s).	Financial impact from an event and/or the number of structures that are impacted	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years Likely: >10% but <100% probability per year, at least 1 chance in next 10 years Highly Likely: 100% probable in a year

B. Hazard Profiles for Hazards Posing Highest Vulnerabilities

1. Flash Flood/Flood/Fluvial Erosion

The most frequent form of flooding in the State of Vermont and the Town of Vershire is riverine flooding, or overbank flooding, which occurs to rivers when they receive more rain or snowmelt from their watershed than they typically experience. Flooding causes the inundation of land that is normally dry. Overbank flooding is experienced more frequently in mountainous and hilly areas where water moves with higher velocities. Flash floods occur when severe storms drop high amounts of rainfall in short periods of time. Flash floods occur more frequently in areas with steep slopes and narrow stream valleys. Riverine erosion is the gradual wearing away of land masses by rivers and streams. River channels are constantly changing. As rivers flow and water moves downstream, water exerts energy upon riverbanks and causes erosion.

Flooding is one of the worst threats to Vershire's residents and infrastructure. Past instances of flooding in Vershire have included rain and/or snowmelt events that cause flooding in the major rivers' floodplains and intense rainstorms over a small area that cause localized flash-flooding. Both kinds of events can be worsened by the build-up of ice or debris, which can contribute to the failure of important infrastructure (such as culverts, bridges, and dams).

This section of the Plan satisfies the requirements of 44 CFR 201.6(c)(2)(i), 201.6(c)(2)(ii), and 201.6(c)(2)(iii) for **Flash Flood/Flood/Fluvial Erosion**.

The worst flood disaster to hit the Town of Vershire, as well as the overarching region and the State of Vermont, occurred on November 3, 1927. This event was caused by up to 10 inches of heavy rain from the remnants of a tropical storm that fell on frozen ground. Eighty-four Vermonters, including the Lieutenant Governor, were killed. The flooding in the White River valley was particularly violent, with an estimated 120,000 to 140,000 cubic feet/second (cfs) flowing out of the White River at West Hartford, Vermont. Like many towns in the region, the Town of Vershire received heavy precipitation, seeing roughly 7-8 inches of rainfall over the storm period.

A more recent flooding event that devastated the region and the state was the result of Tropical Storm Irene, which occurred on August 28, 2011. Record flooding was reported across the state and was responsible for several deaths, as well as hundreds of millions of dollars of home, road and infrastructure damage. Due to the strong winds, 50,000 Vermont residents were initially without power, and many did not have electricity restored to their homes and businesses for over a week. Despite the damage wrought, the flooding caused by Tropical Storm Irene is considered to be the second greatest natural disaster in 20th and 21st century Vermont, second only to the Flood of 1927.

The Town of Vershire suffered major damage to property and infrastructure during Tropical Storm Irene, and no lives were lost. It is estimated that Tropical Storm Irene dropped 6.79 inches of rain over the Town of Vershire in a very short span of time, some of the highest precipitation totals in Orange County (which averaged 5-7+ inches over its land area). The county-wide damage for Orange County totaled $5 million. The Town of Vershire received a significant amount of damage during Tropical Storm Irene

(approximately $113,743.71 according to FEMA's Public Assistance database). Specific roads that were damaged during Tropical Storm Irene include Eagle Hollow Road, Eastern Crossroad, North Road, Parker Road, South Vershire Road, and Vershire Center Road.

Unfortunately, flooding is very common across the region, with many events impacting the Town of Vershire specifically, and Vershire has been hit hard by other flooding events that pre-date Tropical Storm Irene. As such, flooding is one of the worst threats to Vershire's residents and infrastructure. The following list indicates the history of occurrence with regard to this hazard in Orange County (given the small population of Vershire, town-specific data is limited); an asterisk "*" denotes the instances in which town-specific data is available, and federal disaster numbers are listed where appropriate. Specific extent data regarding the physical size of the most significantly eroded area and number of acres of land lost to erosion were not available for events in Vershire.

History of Occurrences:

Date	Event	Location	Extent and Impacts
6/29/2017-7/1/2017 (DR-4330 VT)	Flooding, Severe Storm, and Fluvial Erosion	Vershire; County-wide	Severe storms featured intense rainfall that fell within short periods and led to flooding and erosion. Heavy precipitation fell in Orange county on already saturated soils. On July 1 a severe thunderstorm and associated rain showers moved across central Vermont causing flash flooding. Vershire experienced 4.77 inches over the disaster period, including 2.38 inches in 24 hours. Vershire experienced damage on North Road and Vershire Center Road. Orange county experienced $839,514. Minimal power outages occurred during this event. Specific extent data in terms of the physical size of most significantly eroded area is not available for this event.
6/11/2014	Flood and Fluvial Erosion	County-wide	Period of heavy rain resulted in flash flooding in Vershire. The neighboring town of Corinth received 1.26 inches of rain on 5/23 and experienced another 1.64 inches of rain 4 days earlier, resulting in 2.9 inches of rain in less than a week. The event caused $30,604.63 in damages according to FEMA's Public Assistance Database. No Green Mountain Power (GMP) customers lost power during this event. 46 Washington Electric Cooperative (WEC) customers were affected with durations lasting over 2 hours. Specific extent data in terms of the physical size of most significantly eroded area is not available for this event.
Period from 06/25/2013—07/11/2013 (DR-4140)*	Severe Storms, Flooding, and Fluvial Erosion	County-; region-wide	Severe storms caused flooding throughout the region, causing damage to some infrastructure and facilities. $504,855 in damages occurred in Orange County. The neighboring Town of Corinth experienced 7.4 inches during the disaster period. 6 WEC customers were affected for 2 hours and 45 minutes in Vershire. During the period 48 GMP customers were affected in Vershire, with durations lasting 1 hour and 40 minutes to over 2 hours. Specific extent data in terms of the physical size of most significantly eroded area is not available for this event.
08/28/2011 (DR-4022, TS Irene)*	Tropical Storm, Flooding, and Fluvial Erosion	Vershire, County-wide	Widespread rainfall amounts of 3-5 inches occurred across Vermont with 5 to 7+ inches across much of southern, central Vermont. Devastating flash flooding occurred across much of central and southern Vermont mountain valleys with substantial and some record breaking flood stages on larger rivers. This flood event will likely rank second to the November 1927 flood in the scope of meteorological and hydrological conditions/impacts as well as loss of life (84 in 1927), but likely first in monetary damage ((approx. $500. million statewide vs $350. million (1927 in 2010 dollars)). There were nearly 2400 roads, 800 homes/businesses, 300 bridges and a half dozen railroad tracks destroyed or damaged from the flooding caused by Irene. Wells River Village experienced widespread flooding and was completely isolated. According to spotter's reports, Vershire received over 5.7" of rain in 24 hours and 6.79 inches of

Date	Event	Location	Extent and Impacts
			rain in 48 hours. $113,743.71 in damage total for Vershire according to FEMA's Public Assistance database (captures at least 70% of total damage). 22 WEC customers lost power for 18 hours and 14 WEC customers lost power for 3 hours. Minimal GMP power outages occurred. Specific extent data in terms of the physical size of most significantly eroded area is not available for this event.
07/21/2010*	Flash Flooding	Vershire; County-wide	Several storms strengthened into super cells that produced widespread wind damage to trees, power poles and structures as well as large hail in excess of golf ball size in diameter. Very heavy localized rains caused some temporary problems in many communities. The neighboring town of Corinth received 2.43 inches of rain in 24 hours. On 7/22 15 WEC customers lost power for 5 hours and 20 minutes and 7 WEC customers lost power for 11 hours. Minimal Green Mountain Power customers lost power.
08/21/2009	Flash Flooding	Vershire; County-wide	Thunderstorms produced torrential downpours in nearby Chelsea, who experienced significant damage on several roads due to flash flooding. Damage was not as severe in Vershire, which received 1.26 inches in precipitation. Outage information was not available for this event.
08/07/2008* (Part of DR-1790 VT)	Flash Flooding and Fluvial Erosion	Vershire; County-wide	Thunderstorms with heavy rainfall in a moist atmosphere moved through central and southern Vermont during the afternoon and evening hours. Vershire reported $9,345.17 in damage. Vershire received 2.6 inches of rain in 24 hours with an additional 1.22 inches of rain in the previous 24 hours. Outage information was not available for this event. Specific extent data in terms of the physical size of most significantly eroded area is not available for this event.
9/12/2003	Flooding	Vershire; County-wide	Vershire experienced $5,472.87 in damages. Precipitation and outage information was not available for this event.
06/28/1973—06/30/1973 (DR-397)	Flooding	County-wide	Rainfall as much as 6 inches in 24 hours occurred in some locations and led to a State declared disaster area. 3 deaths occurred and $64 million in damage occurred in Vermont. Outage information was not available for this event.
11/02/1927—11/04/1927 ("Flood of 1927")	Flooding	County-wide	Considered to be on of VT's most devastating events, the flood took our 1285 bridges, miles of roads and railways, and countless homes and buildings. 84 people were killed, including Lt. Gov. S. Hollister Jackson. Rainfall totaled 4-9" statewide, following a month with 150% the normal amount of rain. Outage information was not available for this event.

There are several locations in Vershire that are specifically vulnerable to flooding. The floodplain to the east of Vermont Route 113, Eagle Hollow Road, Eastman Cross Road, North Road, Parker Road, South Vershire Road, and Vershire Center Road are roads that are vulnerable to flooding.

The Town of Vershire has a standalone Flood Hazard Bylaw that limits development within areas of potential flooding. The Flood Hazard Overlay District prohibits development in the Floodway. Restricted development in the special flood hazard area is permitted. See the Vershire Zoning Regulations for specific details. The Vershire Zoning Regulations were adopted on March 3, 2010.

There are 11 total properties that are located within the mapped Special Flood Hazard Areas. These consist of 8 single-family residences, 1 camp, 1 mobile home, and 1 other residence. If all of these properties were destroyed in a flood, the resulting damage would equal approximately $1,442,090. Vershire has mapped Special Flood Hazard Areas along the Ompompanoosuc River.

Across Vermont, most child and elder care facilities are not registered with the State. Most child day care in Vershire is likely private in-home care, but there is one licensed childcare provider, a private provider operated by Kelly Ward. This facility is not located within the mapped special flood hazard area or the mapped ANR River Corridor. There is currently no mobile home parks located in Vershire that are registered with the State.

Recent studies have shown that the majority of flooding in Vermont is occurring along upland streams, as well as along road drainage systems that fail to convey the amount of water they are receiving. These areas are often not recognized as being flood prone, and property owners in these areas are not typically required to have flood insurance. It should be noted that, while small, mountainous streams may not be mapped by FEMA in NFIP FIRMs (Flood Insurance Rate Maps), flooding along these streams is possible, and should be expected and planned for. Flash flooding in these reaches can be extremely erosive, causing damage to road infrastructure and to topographic features including stream beds and the sides of hills and mountains. The presence of undersized or blocked culverts can lead to further erosion and stream bank/mountainside undercutting.

Vershire has mapped River Corridor Areas[3] for the upper reaches of the Ompompanoosuc River, the main stem of the Ompompanoosuc River, the West Branch of the Ompompanoosuc River, an unnamed tributary of the Ompompanoosuc River, and Old City Brook.

Flooding events are highly likely to occur in the future in Vershire. Precipitation trend analysis suggests that intense, local storms are occurring more frequently and will continue to do so in the future. More localized severe weather storms will occur in the Town of Vershire, which will be high intensity and will likely result in increased flooding. Due to Vershire's topography of steep slopes and narrow river valleys, fluvial erosion also has a high probability of future occurrence.

According to the Vermont Agency of Natural Resources' mapped River Corridor Area, there are 25 total properties that are within the mapped River Corridor but are *not* located in the Special Flood Hazard Area. These consist of 20 single-family residences, 1 multi-family residence, 3 mobile homes, and 1 property classified as other. If all of the properties located in the mapped river corridor were damaged or destroyed in a flood, the resulting damage would total $3,215,798.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/ Probability
Flash Flood/	Vershire; properties along	Culverts, bridges, road infrastructure, public and	Tropical Storm	$113,743.71 from Tropical Storm Irene	Likely

[3] River corridors encompass an area around the present channel for fluvial erosion, channel evolution and down-valley meander migration are most likely to occur. River corridor widths are calculated to represent the narrowest band of valley bottom and riparian land to accommodate the least erosive channel and floodplain geometry (i.e. equilibrium conditions) that would be created and maintained naturally within a given valley setting. Vermont DEC Flood Hazard Area and River Corridor Protection Procedures; Draft October 06, 2014; pages 6-7.

Flood/ Fluvial Erosion	the Ompompanoosuc River and 113.	private infrastructure. Roads such as Eagle Hollow Road, Eastman Cross Road, North Road, Parker Road, South Vershire Road, and Vershire Center Road are vulnerable to flooding. There are 11 properties in the Special Flood Hazard Area residential (including 8 single-family dwelling, 1 camp, 1 mobile home, and 1 other residential. If all of the properties were damaged/destroyed in a severe flooding event, the damage would equal $1,442,090.	Tropical Storm Irene—4-7" across Orange county (5+" in Vershire).	in damage total for Vershire according to FEMA's Public Assistance database (captures at least 70% of total damage).	

2. Severe Weather, Hurricanes, and Tropical Storm

Severe weather consists of thunderstorms, lightning, hail, and intense winds. Often it consists of multiple events that combine to create hazardous conditions that pose a threat to communities in the State of Vermont and the Town of Vershire. Severe weather can be incredibly unpredictable. More common than hurricanes or tropical storms are severe thunderstorms (usually in the summer), which can cause flooding as noted above, and are associated with lightning, high winds, hail and tornadoes. Hailstorms have occurred in Vermont, usually during the summer months. While local in nature, these storms are especially significant to area farmers, who can lose entire fields of crops in a single hailstorm. Large hail is also capable of property damage. 382 hail events were recorded between 1950 and 2008 in the state, making hail an annual occurrence in some part of the state. Most of these events had hail measuring .75 inches, but many had hail at least 1.5 inches in size. The largest hail during the period was 3-inch hail that fell in Chittenden County in 1968. Tennis ball-sized hail was reported in the town of Chittenden during a storm in the summer of 2001. Thunderstorms can generate high winds, such as hit the region on July 6, 1999, downing hundreds of large trees in a few minutes.

This section of the Plan satisfies the requirements of 44 CFR 201.6(c)(2)(i), 201.6(c)(2)(ii), and 201.6(c)(2)(iii) for **Severe Weather**.

In Vershire, severe weather is quite common, typically in the late spring and summer months when the region experiences high temperatures. Severe thunderstorms tend to bring other hazards such as high winds, hail, lightning, and flooding, and these hazards are often experienced in combinations which create many unique weather and emergency management situations. Over the years, Vershire has been hit with high winds that have downed and uprooted numerous trees, and knocked out electricity to residents in the Town. Town specific wind data could not be found, but the "Remarks" section of NCDC Database helps to illuminate the impact strong winds can have on Vershire. Sizeable hail has also accompanied storms moving through the Town and region.

The following list indicates the history of occurrence with regard to this hazard in Orange County (given that small population of Vershire, town-specific data is limited); an asterisk "*" denotes the few instances in which town-specific data is available, and federal disaster numbers are listed when appropriate. In an attempt to capture the individual hazards that may arise, and the different circumstances caused by the hazards in concert, the separate hazards are documented in the table below.

The impact experienced in Vershire from Hurricane/Tropical Storms has mostly been from rainfall and only in the form of a Tropical Storm, not a hurricane. Therefore, wind speed extent for Hurricane/Tropical Storm is not available. Where wind extent data is available, it is given in the form of the Beaufort Wind Chart.

Beaufort Wind Chart – Estimating Winds Speeds

Beaufort Number	MPH Range	MPH Average	Terminology	Description
0	0	0	Calm	Calm. Smoke rises vertically.
1	1-3	2	Light air	Wind motion visible in smoke.
2	4-7	6	Light breeze	Wind felt on exposed skin. Leaves rustle.
3	8-12	11	Gentle breeze	Leaves and smaller twigs in constant motion.
4	13-18	15	Moderate breeze	Dust and loose paper is raised. Small branches begin to move.
5	19-24	22	Fresh breeze	Smaller trees sway.
6	25-31	27	Strong breeze	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult.
7	32-38	35	Near gale	Whole trees in motion. Some difficulty when walking into the wind.
8	39-46	42	Gale	Twigs broken from trees. Cars veer on road.
9	47-54	50	**Severe gale**	**Light structure damage.**
10	55-63	60	**Storm**	**Trees uprooted. Considerable structural damage.**
11	64-73	70	**Violent storm**	**Widespread structural damage.**
12	74-95	90	**Hurricane**	**Considerable and widespread damage to structures.**

Webpage: http://www.weather.gov/iwx
Twitter: @nwsiwx
Facebook: NWSNorthernIndiana

History of Occurrences:

Severe Weather Date	Event					Location	Extent
	Thunderstorm / severe storm	Flooding	Hail	High Winds	Lightning		
10/29/2017-10/30/2017 (DR-4356 VT)	✓	✓		✓		Vershire; County-wide	A cold front, supported by an associated upper level system moved into the eastern United States causing intense wind. Sustained winds were observed of 25-35 mph, with wind gusts of 50-75 mph. Wind experienced in this event was ranked as 6 and 7 on the Beaufort Wind Scale which classify as Strong Breeze to near gale. The event exhibited wind gusts that ranged in the 9, 10, and 11 ranking that classified it as a severe gale, storm, and violent storm on the Beaufort Wind Chart. There were numerous downed branches and power outages that occurred. Specific Vershire power outage information was unavailable. Vershire experienced 1.78 inches on 10/30, and experienced 2.9 inches on 10/35 and 1.19 inches on 10/27. Orange county damage totaled $191,823.
6/29/2017-7/1/2017 (DR-4330 VT)	✓	✓				Vershire; County-wide	Severe storms featured intense rainfall that fell within short periods and led to flooding and erosion. Heavy precipitation fell in Orange county on already saturated soils. On July 1 a severe thunderstorm and associated rain showers moved across central Vermont causing flash flooding. Vershire experienced 4.77 inches over the disaster period, including 2.38 inches in 24 hours. Specific wind speed data was unavailable for this event. Vershire experienced damage on North Road and Vershire Center Road. Orange county experienced $839,514. Minimal power outages occurred during this event.
6/11/2014	✓	✓				Vershire; County-wide	Period of heavy rain resulted in flash flooding in Vershire. Vershire received 1.26 inches of rain on 5/23 and experienced another 1.64 inches of rain 4 days earlier, resulting in 2.9 inches of rain in less than a week.

							Specific wind speed data was unavailable for this event. The event caused $30,604.63 in damages according to FEMA's Public Assistance Database. 16 Washington Electric Cooperative customers were affected with durations lasting from3 hours and 30 minutes. Minimal GMP outages occurred.
6/25/2013-7/11/2013* (DR-4140 VT)	✓	✓	✓	✓		County-wide	Severe storms over a nearly one month period. Rains caused flooding in the region, winds downed trees, power outages were reported. Wind speed data was unavailable for this event. On 6/26, 16 Green Mountain Power (GMP) customers lost power for 1.73 hours, on 7/2 8 GMP customers lost power for 2 hours, on 7/5 25 customers lost power for 1.6 hours, and on 7/6 10 GMP customers lost power for 3.25 hours. On 6/25 6 WEC customers lost power for 2 hours and 45 minutes and on 7/11 3 WEC customers lost power for 1 hour. Overall during the disaster period, Vershire received 7.94 inches of rain.
9/11/2013*	✓			✓	✓	Vershire, County-wide	A weak area of low pressure embedded in an unseasonably warm and unstable air mass resulted in thunderstorms that moved across Vermont. Specific wind speed data was unavailable for this event. Trees were downed around Halls Lake with some structural damage occurring to camps and homes. Vershire received 1.86 inches of rain in 96 hours. Widespread power outages occurred, on 9/11, 3 WEC customers lost power for 8 hours and 11 WEC customers lost power for 13 hours. On 9/12 88 GMP customers lost power for 10 hours
6/2/2013	✓		✓	✓		Vershire, County-wide	Thunderstorms with pockets of damaging winds and large hail. At its peak, roughly 20k customers lost power. Specific wind speed data was unavailable for this event. Vershire received .61 inches of rain in 24 hours. Widespread outages occurred in Vershire on to GMP and WEC customers. Overall, 37 total WEC customers lost power for durations more than 24 hours. Overall 94 GMP

							customers were without power during the storm event, with durations lasting 12 hours to 21 hours.
7/4/2012*	✓			✓	✓	Vershire, County-wide	A moderately strong upper level disturbance ahead of a surface cold front moved through Vermont on July 4. Specific wind speed data was unavailable for this event. Storm caused widespread wind damage and frequent lightning. Vershire received .3 inches of rain in 24 hours. 69 GMP customers lost power for 1 hour. Only 1 WEC customer was affected for less than 1 hour.
8/28/2011 (DR-4022 VT)	✓	✓		✓		County-wide	Tropical Storm Irene prompted wide-spread, devastating flooding throughout the region. Vershire received 6.79 inches of rain in 48 hours. Wind speeds during the Tropical Storm ranged from 50-65 mph and ranked as 9 and 10 on the Beaufort Wind Scale, which classifies as severe gale and storm. Vershire had $113,743 in damages. 36 WEC customers lost power for durations ranging from 3 hours to 19 hours.
06/09/2011	✓		✓	✓		County-wide	Scattered thunderstorms and a few isolated reports of damaging winds and large hail were reported. Specific wind speed data was unavailable for this event. Minimal power outages occurred in Vershire. .33 inches of rain fell in Vershire.
05/26/2011-05/27/2011 (DR-4001 VT)	✓	✓		✓		County-wide	Region struck by severe storms and flooding. Minimal damage occurred in Vershire. Specific wind speed data was unavailable for this event. Vershire received .3 inches of rain in 24 hours. Minimal power outages occurred during this event.
07/21/2010*	✓		✓	✓		Vershire, County-wide	Thunderstorms hit the area along with high winds, developing into supercells that caused widespread damage to trees, power poles and structures. Also, golf ball-sized hail precipitated in the area. Specific wind speed data was unavailable for this event. Thunderstorm winds damaged scattered trees in Vershire and along Route 113. 22 WEC customers in Vershire were affected for durations ranging from 5 to 10 hours.

5/31/2009	✓		✓	✓		County-wide	40-55mph wind gusts and hail caused fallen trees and power outages in the region. Power outage data was unavailable for this event. Neighboring town of Corinth received 21.21 inches of rain in 24 hours.
7/21/2008-8/12/2008 (DR-1790 VT)*	✓			✓		County-wide	Thunderstorms with heavy rainfall in a moist atmosphere moved through central and southern Vermont during the afternoon and evening hours. Vershire reported $9,345.00 in damage. Specific wind speed data was unavailable for this event. Vershire received 2.6 inches of rain in 24 hours with an additional 1.22 inches of rain in the previous 24 hours. Power outage data was unavailable for this event.
07/09/2007-07/11/2007 (DR-1715 VT)	✓		✓	✓	✓	Vershire; County-wide	An area of low pressure moved across Canada and south to Vermont causing thunderstorms, hail, winds, and lighting. Specific wind speed data was unavailable for this event. Vershire experienced 1.65 inches of rain in 24 hours. Power outage data was unavailable for this event.
8/30/2007	✓		✓	✓		County-wide	A cold front moved through a warm and unstable arimass across southern and eastern Vermont. A few widely scattered thunderstorms moved across the region with nickel sized hail in experienced in neighboring town of Corinth. Specific wind speed data was unavailable for this event. Power outage data was unavailable for this event.
04/15/2007-04/21/2007 (DR-1698 VT)	✓	✓		✓		County-wide	Severe storms and flooding impacted Orange and surrounding counties. 7.5 inches of wet heavy snow mixed with warming temperatures led to flooding. Specific wind speed data was unavailable for this event. Power outage data was unavailable for this event.
7/18/2006	✓			✓		County-wide	A strong mid-level atmospheric disturbance moved into a marginally unstable airmass across Vermont to cause severe thunderstorms. Specific wind speed data was unavailable for this event. Specific precipitation data was unavailable for this event.

8/2/2006	✓			✓	✓	County-wide	A mid-atmospheric disturbance moved into a very warm, humid and unstable airmass across Vermont during the afternoon of the 2nd, which lead to the development of scattered thunderstorms. Some of these thunderstorms were locally severe and produced damaging winds that knocked down trees and powerlines. Power outage data was unavailable for this event. Specific wind speed data was unavailable for this event. Specific precipitation data was unavailable for this event.
8/29/2004*	✓			✓	✓	Vershire, County-wide	A frontal boundary across northern Vermont helped focus thunderstorms across this area. The airmass was very humid along and south of the front. Very heavy rainfall accompanied the sometimes severe thunderstorms, which caused blown down trees in Vershire. Specific power outage data was unavailable for this event. Specific wind speed data was unavailable for this event. Specific precipitation data was unavailable for this event.
07/21/2003-08/18/2003 (DR-1488 VT)	✓	✓		✓		County-wide	Severe storms and flooding impacted Orange and surrounding counties. Specific precipitation and outage data was unavailable for this event. Specific wind speed data was unavailable for this event.
07/14/2000-07/18/2000 (DR-1336 VT)	✓	✓		✓		County-wide	Severe storms and flooding impacted Orange and surrounding counties. Specific precipitation and outage data was unavailable for this event. Specific wind speed data was unavailable for this event.
9/16/1999-9/21/1999 (DR-1307 VT)	✓	✓		✓		County-wide	Tropical Storm Floyd's rains and winds caused road and culvert washouts. Specific precipitation and outage data was unavailable for this event. Specific wind speed data was unavailable for this event.
7/6/1973 (DR-397 VT)		✓		✓		County-wide	One of the largest flood events of the 20th century in VT. Landslides reported in the region.
11/3/1927	✓	✓				County-wide	"Great Flood of 1927." Worst recorded flood in VT. The White River crested at a record of 29.30 feet.

The Town of Vershire is very prone to strong winds, particularly microburst events that sweep through the region. Power outages are the most common occurrence in the wake of such wind events, usually occurring as a result of tree limbs falling on local power lines.

The other main hazard caused by severe weather throughout the Town is flooding. The most recent major flooding event to occur in the region was in the summer of 2017. Severe storms brought heavy rain and strong winds to the Town. The flooding was widespread and severe enough for a federal Disaster Declaration, DR-4330 VT, to be issued for Orange and other counties in Vermont. The Town of Vershire was impacted by this event, and experienced heavy rainfall

There are 128 acres of floodplain in the Town of Vershire, with no mapped floodway. 1% of the Town is the floodplain. There are 11 total properties that are located within the mapped Special Flood Hazard Areas. These consist of 8 single-family residences, 1 camp, 1 mobile home, and 1 other residence. If all of these properties were destroyed in a flood, the resulting damage would equal approximately $1,442,090. Vershire has mapped Special Flood Hazard Areas along the Ompompanoosuc River.

According to the Vermont Agency of Natural Resources' mapped River Corridor Area, there are 25 total properties that are within the mapped River Corridor but are *not* located in the Special Flood Hazard Area. These consist of 20 single-family residences, 1 multi-family residence, 3 mobile homes, and 1 property classified as other. If all of the properties located in the mapped river corridor were damaged or destroyed in a flood, the resulting damage would total $3,215,798.

The Town underwent a comprehensive culvert inventory in 2017, which developed a prioritized list of culverts in need of upsizing. This inventory will help the Town to identify and prioritize culverts to upgrade and upsize. This work to upgrade culverts will help to lessen the adverse impacts of flooding events that are often attributable to severe storms. There are a number of existing culverts the Town intends to upgrade in the near future. There are no repetitive loss structures in the Town of Vershire on FEMA's NFIP list.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/ Probability
Severe Weather	Town-wide for wind, hail, high winds, lightning and thunderstorm impacts. The following areas are regularly or sometimes impacted by flooding: Eagle Hollow Road, Eastern Cross Road, North Road, Vershire Center Road, Parker Road, South Vershire Road, and the Town Garage.	Town and private buildings, and utilities; culverts, bridges, road infrastructure. There are 11 total properties that are located within the mapped Special Flood Hazard Areas. These consist of 8 single-family residences, 1 camp, 1 mobile home, and 1 other residence. If all of these properties were destroyed in a flood, the resulting damage would equal approximately $1,442,090.	Tropical Storm Irene—4-7" across Orange county (5+" in Vershire).	$113,743.71 in damage total for Vershire according to FEMA's Public Assistance database (captures at least 70% of total damage).	Highly likely

3. Hazardous Material Spill

Hazardous materials include any biological, chemical, or physical substances that can harm human beings or the environment. [4] These materials can be released in a variety of different ways to varying degrees of severity. When hazardous materials are released, response is required in order to minimize the extent of contamination and to reduce the impact on human health and property

Based on available VT Tier II data, there are four sites in town that have sufficient types and/or quantities of hazardous materials to require reporting. These sites include the Vershire Town Office, the Town Center, the Vershire Town Garage, and The Mountain School. The Town of Vershire, and the majority of its inhabitants live along Route 113. Route 113 serves as the predominant throughway through Vershire, and it connects the Town to neighboring Chelsea and West Fairlee. Route 113 borders the Ompompanoosuc River through the Town of Vershire and is vulnerable to contamination in the event of a hazardous material spill. No major, functioning interstate highways or railways run through or near the Town. There are 6 critical facilities in the Town of Vershire. There are 163 total structures that are located within 1000 feet of a potential HAZMAT spill on major roads, such as 113. These consist of 148 residential, 8 commercial, 3 other, and 4 government/houses of worships. This includes the Volunteer Fire Station, Town Office, and Town Center. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be $957,969.

This section of the Plan satisfies the requirements of 44 CFR 201.6(c)(2)(i), 201.6(c)(2)(ii), and 201.6(c)(2)(iii) for **Hazardous Materials Spill**.

It should also be noted that the State of Vermont currently has one fully-trained HAZMAT response team, with vehicles located in Essex Junction, Brandon, and Windsor. The HAZMAT crew chief is available within minutes of a call for the team but on-scene response would be a matter of hours. In the event of a serious accident in Town, there would be little time for evacuation and response would be difficult.

The Town of Vershire also has two significant sources of hazardous materials contamination that pose a hazard to the Town. The first is the Ely Mine Site, an abandoned cooper mining site, that is currently a Superfund Site managed by the Environmental Protection Agency (EPA). The site encompasses 350 acres of historic mining activities, including 30 acres of waste material containing waste rock, tailings, ore beds, slag heaps, and smelter waste. The site includes over 3,000 linear feet of underground mine workings, shafts, adits, a 1,400-foot-long smoke flue, a smelter plant, and flotation mill. The site is currently being assessed by the EPA, who are working to characterize the extent of the contamination associated with the historic mining operation. The site's long-term remediation includes consolidation, placement, and covering of waste rock piles, the removal of contaminated sediments in Ely Brook and two small ponds, and site remediation. Investigations and cleanup planning in the site's underground tunnels and former smelter area are ongoing. Land use restrictions were placed on the site in 2012 to

[4] Tufts University. (2016). *Hazardous materials spill.* Office of Emergency Management. Retrieved from http://emergency.tufts.edu/guide/hazardous-spill/

prevent residential development of contaminated areas and to prevent consumption of contaminated groundwater.

The other source of potential contamination in the Town of Vershire is the Allen Auto Salvage yard, located near the Vershire/Chelsea border on Vermont Route 113. The site consists of numerous old and abandoned cars, trucks, automobiles, and other machinery. Evidence of contamination has been experienced by residents who have witnessed coloration and runoff from the site in local streams and brooks in Town.

The following data was retrieved from the Vermont Department of Environmental Conservation's Spill List and by searching the archives of local newspapers. The table above is used to illustrate the ease with which trucks and the day-to-day activities in the Town have the potential to create a hazardous material spill and dangerous conditions for emergency responders and town residents.

History of Occurrences:

Date	Event	Location	Extent and Impacts
5/27/2015	Unknown spill	3908 Vermont Route 113	A report was made about six inches of foam on the Ompompanoosuc River. The source of the contamination was unknown.
1/2/2008	Antifreeze Spill	9615 Route 113	Ward's Garage, an ongoing auto repair office, was found guilty of routinely dumping used antifreeze in the ground.
4/25/2005	Leaking UST	9246 Vermont 113	A leaking underground storage tank was reported which resulted in an unknown amount of oil leakage.
7/14/2013	Motor Oil Spill	Route 113	There was evidence of a leak at Allen's Auto Salvage, but no concentrated contamination areas were detected requiring cleanup.
9/3/2007	UST Spill	Route 113	A historical spill at Pioneer Apartments occurred during the extraction of an underground storage tank. No record of amount of material spilled was available.
3/25/1996	Diesel Oil contamination	Vershire Town Garage, Route 113	The alleged dumping of waste diesel oil occurred at the Vershire Town Garage. The extent of the contamination was unknown.
1/27/1992	Heating Oil Spill	Route 113	2 gallons of oil were spilled to the overfilling of a underground storage tank.
1/17/1983	Diesel oil spill	Mountain School	6 gallons of oil were observed in the Mountain School Skating Pond. The oil was discovered in the pond ice and snow.
11/28/1973	Truck accident	Route 113	A truck accident resulted in the release of 1,000 gallons of oil.

While only a small number of large hazardous material spills have occurred in the Town of Vershire, the potential for a major spill exists. Route 113, particularly at its points of intersection, pose constant threats to the Town of Vershire. This routes serve as the main thoroughfare for trucks and other motor vehicles transporting a wide-range of goods, including a wide range of hazardous materials, within the confines of Vershire. A truck accident and a resulting hazardous material spill could be exceedingly disastrous for the Town and its residents. Route 113 also borders he Ompompanoosuc River, and a hazardous material spill would severely impact the quality of water in the river.

In order to prepare for hazardous material spills in Vershire, most members of the Vershire Fire Department are trained to the HAZMAT Awareness level.

Hazard	Location	Vulnerability	Extent	Impact	Likelihood/ Probability
Hazardous Materials Spill	Vermont Route 113, and local roads.	Road infrastructure, nearby structures (The Vershire Town Office and Vershire Post Office) and the Ompompanoosuc River	Initially, local impacts only; but depending on material spilled, extent of damage may spread (ex. into groundwater).	There are 163 total structures that are located within 1000 feet of a potential HAZMAT spill on major roads, such as Route 113. These consist of 148 residential, 8 commercial, 3 other, and 4 government/houses of worships. This includes the Volunteer Fire Station, Town Office, and Town Center. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be $957,969.	Likely

4. Extreme Cold/Snow/Ice Storm

Winter storms are a regular occurrence in Vermont. However, severe winter storms can cause serious damage, including collapse of buildings due to overloading with snow or ice, brutal wind chills, downed trees and power lines, and stranded vehicles. People can be at risk of freezing in extended power outages if they lack wood heat or backup power, and individuals shoveling large accumulations of snow can also be at risk from frostbite, hypothermia, and heart attacks caused by cold and overexertion. While snow removal from the transportation system is standard fare in Vermont winters, extreme snow or ice can close rail and road systems, further jeopardizing any stranded persons that are in danger of freezing or needing medical assistance.

This section of the Plan satisfies the requirements of 44 CFR 201.6(c)(2)(i), 201.6(c)(2)(ii), and 201.6(c)(2)(iii) for **Extreme Cold/Snow/Ice Storm**.

Severe winter storms include a blizzard on February 15-17 in 1958, which dumped over 30 inches and resulted in 26 deaths in New England. On December 26-27 in 1969, another blizzard left 18-36 inches of snow in northwestern Vermont and a whopping 45 inches in nearby Waitsfield. A string of storms in March 2001 hit the state, beginning with 15-30 inches on March 5-6th (later declared a federal disaster), 10-30 inches on the 22nd, and 10-20 inches on the 30th. Recent years have seen wet snow storms that have toppled trees and caused widespread power outages.

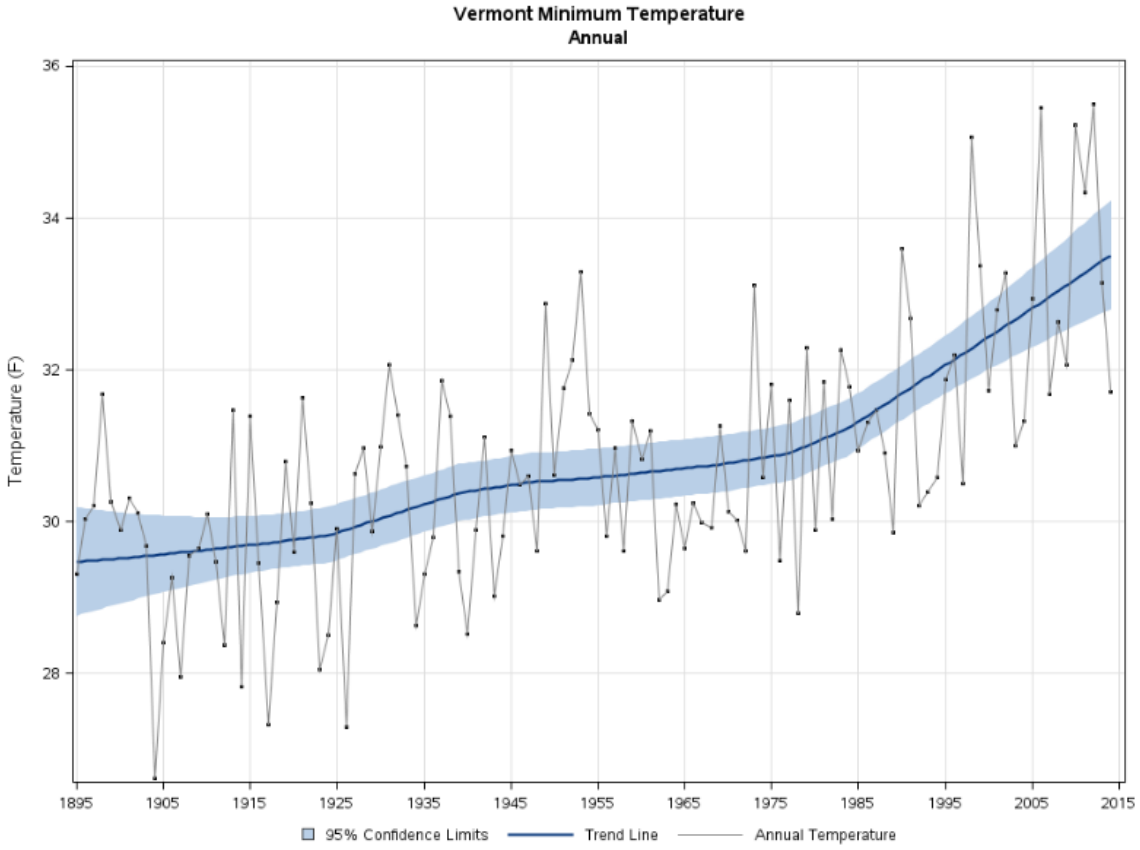
The worst winter storm in terms of damage to hit the state recently was not a snow storm, but an ice storm. In January of 1998, just the right combination of precipitation and temperature led to more than three inches of ice in spots, closing roads, downing power lines, and snapping thousands of trees. This storm was estimated as a 200-500 year event. Power was out up to 10 days in some areas, and 700,000 acres in of forest were damaged in Vermont. Amazingly, there were no fatalities in Vermont, unlike Quebec where 3 million people lost power and 28 were killed. The Town of Vershire was impacted by this ice storm.

The most recent winter storm to hit Vermont began on December 9th, 2014 and lasted until December 11th, 2014. During this period of time, much of the state of Vermont was hit was heavy, wet snow that ranged from accumulation totals anywhere from a few inches to almost two feet along parts of the Green Mountains. The heavy, wet snow stuck to tree limbs and power lines which led to widespread power outages and significant damage to the state's power infrastructure. Over 100,000 customers were without power statewide, some for multiple days, and the damage to power infrastructure caused by the storm surpassed that which was incurred as a result of the 1998 ice storm or Tropical Storm Irene. In addition to damage to power infrastructure, towns hit by the storm had significant amounts of debris clean up and removal to contend with in the spring of 2015.

Over the past few winters, Vershire has received numerous snow storms that have dropped significant amounts of snow over a day or two day period. However, the details of these events and the damage they caused are overshadowed by winter weather events of the past. This is not to say such extreme events will not repeat themselves. It should be assumed that extreme winter weather events will occur at some point in the future. The following table documents the occurrence of extreme cold/snow/ice storms in the Town of Vershire and in Orange County

ICE DAMAGE INDEX	DAMAGE AND IMPACT DESCRIPTIONS
0	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
2	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
3	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
4	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
5	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

(Sperry-Piltz Ice Accumulation Index (SPIA), 2009).



History of Occurrences:

Date	Event	Location	Extent and Impacts
1/7/2015-1/8/2015	Extreme Cold	County-wide; state-wide	An arctic cold front pushed across Vermont with plummeting temperatures and brisk strong winds of 15-30 mph caused dangerously cold wind chills of 25-40 degrees Fahrenheit below zero during the evening of January 7 and morning of January 8. Temperatures in the morning of January 8 were 15-25 degrees below zero. Vershire registered 25 degrees below zero. Significant outages did not occur.
2/1/2015-2/28/2015	Cold/Wind Chill	County; state-wide	A persistent deep could trough settled across the northeast United States for the month of February, which registered the coldest month on Vermont record since December 1989 or January 1994. Many towns recorded 15 to 20 days below zero in the month, and several days with dangerously cold wind chills of 30 below zero or colder.
Period from 12/09/2014—12/12/2014 (DR-4207 VT)	Snow/ Winter Storm	Vershire; County-; region-wide	A powerful prolonged heavy, wet snow event from December 9th through December 11th. Snowfall totals ranged from a few inches to almost 2' near Warren, VT. The snow to liquid ratios ranged from 5-7" of snow to 1" of rain, which lead to the snow sticking to trees and power lines. Approximately 6 inches of snow and 1.89 inches of ice fell in neighboring Corinth. Significant power outages occurred in Vershire from 12/9 to 12/13 with nearly every resident in town affected and losing power. Many outages lasted more than 24 hours.
Period from 03/12/2014—03/13/2014	Snow Storm	County-; region-wide	A major snowstorm with near blizzard conditions at times impacted portions of northern New York on March 12th and lingered into the morning hours of March 13th. Numerous motor vehicle accidents, school and business closures resulted due to the storm on both March 12th and 13th. Snowfall totals across Orange county were generally 15 to 20+ inches. Significant power outages did not occur in Vershire. Nearby Corinth received 16.2 inches of snow and 1.46 inches of ice.
Period from 02/13/2014—02/14/2014	Winter Storm	County-; region-wide	A Winter storm, responsible for record ice and snow across the southeast United States on February 12th, moved and redeveloped off the southeast United states coastline on February 13th. Snowfall across Orange county was 12 to 18 inches. Neighboring Corinth received 17.6 inches of snow and 1.32 inches of ice. 22 Green Mountain Power (GMP) customers lost power for durations lasting 1-6 hours.
02/05/2014	Snow Storm	County-; region-wide	Snowfall was at its peak during both the morning and afternoon/evening commutes causing hazardous travel. Eight to twelve inches of snow fell across Orange county. Neighboring Corinth received 11.5 inches of snow and .7 inches of ice. Significant power outages did not occur in Vershire.
Period from 12/29/2014—12/30/2014	Winter Storm	County-; region-wide	Snow mixed with rain developed across southern Vermont during the late afternoon and changed to snow during the evening hours of December 29th. A wet, heavy 5 to 10 inches of snow fell across Orange county. 7.8 inches of snow and .72 inches of ice fell in neighboring Corinth. 11 GMP power customers lost power for 5.88 hours.
Period from 12/14/2013—12/15/2013	Snow Storm	County-; region-wide	This was the first widespread snowfall of the 2013-14 winter season. The typical impacts associated with this storm were the numerous vehicle accidents, especially being the first storm of the season. Vershire received A widespread 10 to 15 inches of snow fell across Orange county, and neighboring Corinth received 10 inches. Significant power outages did not occur in Vershire.
2/19/2011	Cold Front; Strong Winds	County; region-wide	A strong cold front associated with a powerful storm across Canada moved across Vermont the night of February 18th into the early morning of February 19th. Strong west to northwest winds of 20 to 30 mph and gusts of 40-50 mph caused numerous power outages. Significant power outages did not occur in Vershire.
12/1/2010	Ice Storm	Vershire; county-wide	Sleet and frozen rain precipitation caused significant power outages in Vershire. 1.5 inches of sleep/frozen rain precipitation occurred. 233 Washington Electric Cooperative (WEC) customers lost power for 6 hours, 9 WEC customers lost power for 2.5 hours, and 13 WEC customers lost power for 22 hours.

Period from 11/27/2009-11/28/2009	Winter Storm	County; region-wide	A strong area of low pressure combined with a cold upper atmospheric low moved across Vermont causing snow and strong gusty winds. Snowfall occurred heavily on the eastern slope of the Green Mountains and wind gusts occurred in excess of 40 mph. Vershire did not experience heavy precipitation, but heavy winds caused widespread power outages. Specific outage data was unavailable for this event.
Period from 2/22/2009-2/23/2009	Winter Storm	County; region-wide	Light snow overspread Vermont during the morning of February 22nd and became moderate to heavy across much of central and eastern Vermont during the evening hours to early morning on 2/23. Snowfall totals ranged from 10 to 18 inches in central and eastern Vermont. The nearby Town of Corinth received 13 inches of snow. Vershire did not experience significant power outages.
Period from 02/26/2008—02/28/2008	Snow Storm	County-wide; statewide	Snow overspread over Vermont during the morning of February 26th and continued through the afternoon hours of the 27th before tapering to scattered snow showers in the evening. Storm totals ranged from 3 to 6 inches in the St. Lawrence River Valley, 5 to 10 inches across northern New York and 6 to 12 inches across Vermont with the heaviest along those favored northwest slopes of the northern Green Mountains as well as some higher elevations in south central Vermont. 10 inches were reported in the neighboring town of Corinth. Vershire did not experience significant power outages.
02/01/2008	"Mixed" Winter Storm	County-wide; statewide	This storm system transported a great deal of moisture and milder air above a surface that had a cold, dry airmass established across the region. This resulted in a significant wintery mix of snow, sleet, and freezing rain across north central and northeast Vermont. Snow began late morning February 12 in Vermont and changed to sleet and freezing rain during the afternoon and continued into the night. The precipitation turned back to snow shower during the night and continued into the morning of February 2nd. Snowfall reports were generally 2 to 5 inches with localized amounts up to 7 inches. In addition, one quarter to one half of ice accumulation (accretion) occurred as well. Finally, strong south to southeast winds around 3000 feet and above transferred to a few hilltops along the western slopes and produced wind gusts in excess of 50 mph. Numerous reports of motor vehicle accidents throughout the region. Neighboring Corinth received 3.5 inches of new snow and about 1.2 inches of ice/sleet. Significant power outages did not occur in Vershire.
12/31/2007	Snow Storm	County-wide; statewide	Snow began to overspread New York and Vermont around Midnight Monday (31st) with snowfall rates rapidly increasing to near an inch per hour at times, but this was a quick-hit storm with steady accumulating snowfall ending across much of Vermont and northern New York by mid-morning. The storm contributed to Burlington's 4th snowiest December. 6 inches were reported in neighboring Town of Corinth. Specific outage data was unavailable for this event.
Period from 12/16/2007—12/17/2007	Snow Storm with Freezing Rain	County-wide; statewide	Snowfall totals from this pre-winter storm ranged from 6 to 12 inches in southern Vermont, where a prolonged period of sleet and/or freezing rain occurred, to a rather uniform 12 to 18 inches across the rest of Vermont and northern New York. 9.1 inches of snow and 1.07 inches of rain/sleet were reported in neighboring Corinth. Significant power outages did not occur in Vershire.
Period from 04/15/2007—04/16/2007	Winter/ Snow Storm	County-wide; statewide	A powerful Nor'easter drifted east of New England and caused a mixture of snow and rain over Vermont. The storm started a mixture in the morning on the 15th and changed over to snow in the afternoon, continuing into mid-morning on the 16th. Snowfall totals were generally 4 to 7 inches in the valleys with locally up to a foot along the east-facing slopes of the higher elevations of the Green mountains. This was a heavy, wet snow that caused numerous power outages, as well as extremely slick and treacherous roads that resulted in numerous vehicle accidents. 7.5 inches of snow and .73 of rain/sleet occurred in neighboring Corinth. Specific outage data was unavailable for this event.

Period from 04/04/2007—04/05/2007	Snow Storm	County-wide; statewide	Rain mixed with and then changed to sleet and snow across Vermont during the afternoon of the 4th and continued through midday on the 5th.|Combined snow and sleet accumulations ranged from 4 to 12 inches with the higher amounts in the higher elevations. This caused some hazardous travel as well as some scattered power outages due to fallen tree limbs and branches. Significant power outages did not occur in Vershire. 7.58 inches of precipitation were reported in nearby Chelsea.
03/17/2007	Snow Storm	County-wide; statewide	Heavy snow started in southern Vermont by late evening and reached the rest of the region by Midnight Saturday (17th) with snowfall rates of 1 to 2 inches per hour at times. 10 inches of snow were reported in neighboring Corinth. Significant power outages did not occur in Vershire.
02/14/2007	Snow Storm	County-wide; statewide	Low pressure developed over the central Appalachians and pushed north into Vermont at around midnight on the 14th. Snow fell through the night into the morning and was very heavy at times, and continued into the afternoon and evening. Snowfall rates as heavy as 2 to 4 inches per hour and brisk winds of 15 to 25 mph caused whiteout conditions, blowing and drifting snows, and impassible roads. Snowfall totals ranged from 15 to 25 inches in the Connecticut River valley. 19 inches were reported in neighboring Chelsea. Specific outage data was unavailable for this event.
12/15/2003	Snow Storm	County-wide; statewide	Snow developed Sunday afternoon, December 14th, and became heavy Sunday night into Monday morning, December 15th. 10 inches were reported in nearby Chelsea. Power outage data was not available for this event.
01/03/2003	Snow Storm	County-; state-wide	A storm system over Virginia Friday morning (1/3/03) moved to coastal New Jersey Friday evening and then to near Cape Cod Saturday morning (1/4/03). Snow spread across the area late Friday afternoon, and became heavy at times late Friday night into Saturday morning. 8.2 inches were reported on 1/4 and another 3.3 inches were reported on 1/5 in nearby Chelsea. Power outage data was not available for this event.

The Town of Vershire is no stranger to winter weather and the hazards that it brings. Depending on the event, though especially with heavy, wet snow or ice, and sometimes in combination with high winds, electricity may be knocked out for a few hours or days. The utility companies currently serving the Town of Vershire, Green Mountain Power and Washington Electric Coop, have followed a regular tree-trimming schedule. Vershire town officials believe this is satisfactory to mitigate damage and the power outages caused by downed trees and tree limbs during a heavy, wet snow or ice event. In the event of an extended power outage, the Town would open its emergency shelter. More often, those without power would seek accommodations with friends or relatives.

Another complication of falling utility poles is the potential loss of the telephone line. If the landlines are impacted, the possibility presents itself that there is no reliable means of communication in the affected parts of Town as cell reception can be spotty. If the power is out, an internet connection is unlikely to be available.

Heavy, wet snow or large quantities of snow may also leave structures vulnerable to roof collapse. Roof collapse occurs when the structural components of a roof can no longer hold the weight of snow. Flat roofs are most vulnerable to collapse because they do not drain well and the snow on the roof soaks up water like a sponge, increasing the weight that the roof must bear. More common, it seems, is the

collapse of barns commonly used for livestock sheltering and other agricultural purposes. Unfortunately, livestock in the barn are often killed, and equipment stored in the barn may be damaged or ruined. It is difficult to determine whether a residential structure or a barn would be rebuilt after a roof collapse because the decision to rebuild would likely depend on the extent of damage. The collapse of a barn roof is likely to be a total loss, and the collapse of a house roof may be a 50% loss.

In general, winter weather is most hazardous to travelers. Icy and snow-covered roads present multiple examples of dangerous driving conditions and situations. In Vershire, the mountainous terrain, steep slopes, and remoteness of some roads further complicate travel. The Town relies on Travel Advisories issued by Vermont Emergency Management and the National Weather Service to alert residents of dangerous travel weatherhom Despite this, it is difficult to prohibit people from driving during winter weather events. As a result, emergency services personnel must always be prepared to provide assistance to stranded drivers or to those who have been in an accident.

Hazard	**Location**	**Vulnerability**	**Extent**	**Observed Impact**	**Likelihood/ Probability**
Extreme Cold/ Snow/ Ice Storm	Town wide	The entire Town is vulnerable, including road infrastructure, town and privately owned buildings, utility infrastructure.	Snow fall has varied, from a few inches to over a foot or more. Heavy snow and wind downed trees and power lines. Snow/ice contributed to hazardous driving conditions. Cold temperatures extended to 25 degrees below zero Fahrenheit and have decreased to 30 degrees below zero including wind chill.	For roof collapse, monetary damages will depend on each structure, but collapse of barn roof is often a total loss. This does not include the loss of livestock. Collapse of a house roof may be a 50% loss. For car crashes due to poor driving conditions, minimal damage to vehicle to totaled vehicle and operator injury. Health impacts could vary significantly.	Highly likely

C. Vulnerability Summary

As a result of the above profile of hazards, the town believes the following vulnerabilities to be of highest concern because of their potentially severe consequences and potential likelihood:

- **Flash flood/Flood/Fluvial erosion**: One of the worst threats, flooding impacts roads throughout Town, especially those bordering streams brooks, and rivers. Under-sized bridges and culverts factor into the threat, as do outdated flood hazard mapping. Furthermore, flood hazard mapping (Special Flood Hazard Areas) does not adequately encompass all areas that could be flooded, and does not incorporate fluvial erosion, thus potentially making some residents too complacent in regard to the threat. There are 11 total buildings in the special flood hazard area, which consists of 8 single-family dwellings, 1 camp, 1 mobile home, and 1 other residential structure. Total damage to structures located in the SFHA would total $1,442,090. There are 25 additional structures located in the mapped river corridor area, including 20 single-family dwellings, 1 multi-family dwelling, 3 mobile homes, and 1 other structure. Total damage to structures located in the river corridor area would be $3,215,798.
- **Severe Summer Weather/Hurricane/Tropical Storm:** Damage to public and private property and municipal infrastructure can be extensive during severe weather events. Prolonged power outages and downed cellular communications can greatly hamper public and businesses services for indeterminate periods of time. There are 11 total buildings in the special flood hazard area, which consists of 8 single-family dwellings, 1 camp, 1 mobile home, and 1 other residential structure. Total damage to structures located in the SFHA would total $1,442,090. There are 25 additional structures located in the mapped river corridor area, including 20 single-family dwellings, 1 multi-family dwelling, 3 mobile homes, and 1 other structure. Total damage to structures located in the river corridor area would be $3,215,798.
- **Hazardous Materials**: A truck traffic accident on Routes 113 could threaten residents that live within proximity to Route 113 and could contaminate the Ompompanoosuc River. There are 163 total structures that are located within 1000 feet of a potential HAZMAT spill on major roads, such as Route 113. These consist of 148 residential, 8 commercial, 3 other, and 4 government/houses of worships. This includes the Volunteer Fire Station, Town Office, and Town Center. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be $957,969.
- **Extreme Cold/Snow/Ice Storm**: Heavy snow loads can down power lines, communications, and collapse roofs. Lack of access to power and telecommunication services throughout the Town could severely impede response efforts and could be especially harmful to vulnerable populations (e.g. the elderly and disabled)

VI. Mitigation

A. Mitigation Goals

- To reduce injury and losses, including loss of life and to infrastructure, structures and businesses, from the natural hazard of flash flooding, flooding and fluvial erosion
- To reduce injury and losses, including loss of life and to infrastructure, structures and businesses, from the natural hazard of severe weather, hurricanes, and Tropical Storms.
- To reduce injury and losses, including loss of life and to infrastructure, structures and businesses, from the hazard of hazardous material spill(s).
- To reduce injury and losses, including loss of life and to infrastructure, structures and businesses, from the natural hazard of extreme cold/snow/ice storms.

B. Excerpted Town Plan Goals & Objectives Supporting Local Hazard Mitigation

- Supply quality community facilities within an expressed plan at a minimum cost, i.e., roads, fire protection and police protection (page 5).
- To provide emergency and police protection services for town residents (page 26).
- Ensure that the Vershire Basic Emergency Operations Plan is kept up-to-date (page 26).
- Develop an emergency shelter and develop the disaster plan, including chain of command, command center, and relationship to county and state services (page 26).
- It is in the public interest to maintain the town's current highways, bridges, and related facilities, as it is necessary to ensure the current level of service (page 35).
- To maintain Class 1, 2, and 3 roads according to the requirements of State Statute and to maintain Class 4 roads only to the extent required by law (page 36).
- New development within the limits of the 100-year floodplain is discouraged. Improvements to existing structures in the floodplains are acceptable, provided that careful planning is to insure against unnecessary loss of property or public endangerment (page 44).
- Consider revising the Development Ordinance to require Board of Adjustment review of any development other than agriculture in the Flood Hazard Area (page 45).
- To identify and encourage land use development practices that avoid or mitigate adverse impacts on significant wetlands (page 47).
- Significant development or intensive land uses are discouraged from locating in significant wetlands or within buffer zones to significant wetland s (page 47).
- Development adjacent to wetlands should be planned so as not to result in undue disturbance to wetland areas or their function> Mitigating measures to protect the function of a wetland are an acceptable measures (page 47).
- Maintain Vershire's participation in the National Flood Insurance Program (page 49).
- To enhance and maintain wise use of flood hazard areas as open space, greenways, non-commercial recreation and/or agricultural land (page 49).

- To ensure no net loss of flood storage capacity in order to minimize the loss of life and property, disruption of commerce, and demand for extraordinary public services and expenditures which result from flood damage (page 49).
- To maintain maps which reflect as accurately as possible the flood hazard areas, to assist in appropriate land use decisions (page 49).
- To recognize that upland areas adjacent to unstable rivers and to steep streams may be at risk of erosion during floods (page 49).
- It is the policy of the town that the preferred uses for flood hazard areas shall be for open space, greenbelts, and non-commercial recreation or agricultural uses (page 49).
- Any land use activity (filling, or removal of earth or rock) within the flood hazard areas which would result in net loss of flood storage or increased or diverted flood levels or increased risk to adjacent areas should be prohibited (page 49).
- Utilities or facilities serving existing development may be located within these areas only when off-site options are not feasible and provided that their placement is deemed to be relatively protected from flooding damage (page 49).
- Flood hazard regulations should be extended to areas identified as at risk to flood erosion (page 49).
- Preservation of the natural state of streams should be encouraged by protection of adjacent wetlands and natural areas, protection of natural scenic qualities, and maintenance of existing streambank and buffer vegetation including trees, together with wildlife habitat (page 51).

The Vershire Municipal Plan was updated and adopted on 10/30/2017, and has an 8 year lifespan.

C. Hazard Mitigation Strategies: Programs, Projects & Activities

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

This section of the Plan satisfies the requirements of 44 CFR 201.6(c)(3)(ii), 201.6(c)(3)(iii) and 201.6(c)(3)(iv).

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

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

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

The following strategies will be incorporated into the Town of Vershire's long-term land use and development planning documents. In addition, the Town will review and incorporate elements of this Local Hazard Mitigation Plan into updates for the municipal plan, zoning regulations, and flood hazard/ river corridor bylaws. Specifically, the Vershire Planning Commission will incorporate mitigation strategies included in this Plan into the Vershire Town Plan's goals, policies, and recommendations. The incorporation of the goals and strategies listed in the Local Hazard Mitigation Plan into the municipal plan, zoning regulations and flood hazard/river corridor bylaws will also be considered after declared or local disasters. The Town shall also consider reviewing any future TRORC planning documents for ideas on future mitigation projects and hazard areas.

Hazard(s) Mitigated	Hazard Mitigation Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
All Hazards	*Provide information at Town Meeting about VT Alert and encourage residents to sign up.*	Town Clerk	High	Vermont Emergency Management (VEM); VT Alert; local resources	April 2019-April 2020
	Ensure new location for the Vershire Town Garage is not located in the Special Flood Hazard Area (SFHA) and River Corridor. This will reduce the vulnerability of new Town Garage from flooding and erosion.	Selectboard	Medium	Local Resources	July 2022 – July 2023
Hazardous Material Spill	*Continuously stock gear to help contain small spills when they occur (booms, absorbent materials, etc.). (Mitigation)*	Vershire Fire Department	High	Vershire Fire Department resources	October 2019
	Continue to support the assessment and remediation of the Ely Copper Mine site. (Mitigation)	Selectboard	High	Local resources, EPA	September 2018 – September 2019
	Support the Brownfield assessment of the LaFlamme to reduce the threat to health of town residents from runoff of hazardous materials. (Mitigation)	Selectboard	High	Local resources, VT DEC, TRORC	September 2018 – September 2019
Flash Flood/Flood/ Fluvial Erosion/Severe Weather/Hurricane/Tropical Storm	*Replace culvert at juncture on Chamberlin Road and Vershire Center Road. Upsize culvert and improve drainage to appropriately handle the hydraulic capacity of streams and therefore protect town infrastructure from flooding. (Mitigation)*	Selectboard	Low (New)	VTrans; local resources	September 2023-September 2024

Hazard(s) Mitigated	Hazard Mitigation Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
	Continue to Improve ditching and draining on Eastman Cross road. Improved ditching minimizes vulnerability or road infrastructure from flooding and erosion and therefore protect town infrastructure from flooding. (Mitigation)	Selectboard/ Road Foreman	Medium (New)	TRORC; local resources	June 2023 – September 2024
	Continue efforts throughout Town to maintain and improve ditching in rights-of-way of Town maintained roads. Improved ditching minimizes vulnerability or road infrastructure from flooding and erosion and therefore protect town infrastructure from flooding. (Mitigation).	Road Foreman	High (New).	Local Resources; Better Roads	Ongoing
	Update Vershire's flood hazard area regulations to ensure that they are compliant and consistent with state and federal guidelines and statutes. (Mitigation)	Planning Commission	Low (New)	Municipal Planning Grant; TRORC; local resources	October 2025- October 2026
Flash Flood/ Flood/ Fluvial Erosion/Severe weather	*Support projects to protect or restore rivers and water quality, including riparian plantings and conservation of strategic areas of floodplain to provide areas for flood storage, which will help alleviate peak flood flows. Riparian restoration and conservation will help increase the resiliency of the watershed and reduce the damage to property in Town. (Mitigation)*	Selectboard/ Planning Commission/ Road Foreman	Medium (new)	White River Partnership; White River Natural Resources Conservation District; local resources	May 2022- September 2022

Hazard(s) Mitigated	Hazard Mitigation Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
	Upgrade two culverts on Darling Hill Road and stone-line ditches. Upgraded culverts appropriately handle the hydraulic capacity of streams and therefore protect town infrastructure from flooding. (Mitigation)	Selectboard/ Town Clerk/Road Foreman	Medium (new)	FEMA HMGP grants; Vermont DEMHS; TRORC; local resources	September 2021-September 2022
	Upsize culverts on Durgin Hill Road. Upgraded culverts appropriately handle the hydraulic capacity of streams and therefore protect town infrastructure from flooding. (Mitigation)	Selectboard/ Town Clerk	Low (new)	FEMA HMGP grants; Vermont DEMHS; TRORC; local resources; Better Roads	June 2024-June 2025
	Upsize culverts and improve drainage on Vershire Center Road. Upgraded culverts appropriately handle the hydraulic capacity of streams and therefore protect town infrastructure from flooding. (Mitigation)	Selectboard/ Town Clerk/Road Foreman	Medium (new)	FEMA HMGP grants; Vermont DEMHS; TRORC; local resources; Better Roads	April 2021-April 2022
Extreme Cold/Snow/ Ice Storm	*Clear and maintain town road rights-of-way to protect town infrastructure. (Mitigation)*	Highway Department/Selectboard	Medium (New)	Local resources	June 2020-September 2020
	Encourage Washington Electric Cooperative and Green Mountain Power to clear and maintain utility corridors, which will protect town and utility infrastructure. (Mitigation)	Emergency Management Director	High (New)	Green Mountain Power; Washington Electric Coop; local resources	April 2019-June 2020

*Depending on the mitigation action, local resources may include the following: personnel/staff time; volunteer time; budget line items, donations, cash from capital campaigns, among others.

Hazard(s) Mitigated	Ongoing Actions to Support Mitigation and Preparedness Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
All Hazards	*Ensure that Vershire's Local Emergency Operations Plan (LEOP) is kept up-to-date and identifies vulnerable areas and references this Plan. (Preparedness)*	Emergency Management Director/ Selectboard	High (Action #1 of 7 in 2012 Plan)	Vermont Emergency Management (VEM); TRORC; local resources	Yearly
	Continue to maintain Vershire Town Plan so that it remains current, updated, and effective. (Preparedness)	Planning Commission	High (Action #4 of 7 in 2012 Plan)	Municipal Planning Grant; local resources	November 2025 – November 2026
	Continue to partake in LEPC 12. (Preparedness)	Emergency Management Director	High (Action #3 of 7 in 2012 Plan)	Local resource	Yearly
	Alert residents to upcoming hazards, bad weather, and potentially treacherous travel conditions by posting the VTrans Live Update Road Condition webpage on the Regional Local Resource Network (LRN). These resources will be used to give residents important information about upcoming hazards and potentially treacherous travel conditions. This town-wide notification system will reduce the loss of life during a hazard. (Preparedness)	Emergency Management Director / Selectboard	High (New)	Vermont Emergency Management (VEM); TRORC; local resources	Fall 2019-January 2020
	Develop a methodology to consistently document infrastructure damage after weather events. (Preparedness)	Road Foreman/ Town Clerk	Medium (New)	TRORC; local resources; National Weather Service; VTrans	Ongoing
	Require Vershire employees to become Incident Command System (ICS) 100 and 200 certified. (Preparedness).	Selectboard, Emergency Management Director	High (Action #5 and 7 of 7 in 2012 Plan)	Local resources	Yearly

Hazard(s) Mitigated	Ongoing Actions to Support Mitigation and Preparedness Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
	Maintain highway and fire mutual aid agreements. (Preparedness)	Highway/Fire Department	High (Action #2 of 7 in 2012 Plan)	Local resources and with assistance from TRORC	Yearly
	Distribute Vermont Emergency Management: Family Emergency Preparedness booklet at Town Meeting Day. (Preparedness)	Selectboard/ Emergency Management Director	High (New)	Local resources	April 2019
	Ensure Town Shelters, (Town Center, Town Office, Town Garage, and Fire Station) are stocked with cots, blankets, and MRE (Meals Ready to Eat) (Preparedness)	Emergency Management Director	High (New)	Vermont Emergency Management (VEM); VT Alert; local resources	Yearly
	Maintain existing dry hydrants, by checking, servicing, flushing, and opening them annually. Proper maintenance of hydrants will reduce the loss of life and infrastructure from structure fires. (Preparedness)	Fire Chief/Fire Department	High (New)	Local Resources	Ongoing and occurs yearly.
	Distribute fire prevention fliers at the school to protect young residents from loss of life during fires. (Preparedness)	Fire Chief/Fire Department	High (New)	Local resources	Ongoing. Occurs once per year in the fall.
Hazardous Material Spill	*Ensure that all emergency response and management personnel continue to receive HAZMAT Awareness training at a minimum. (Preparedness)*	Corinth Fire Department	High (Action #5 of 7 in 2012 Plan).	Vershire Fire Department resources	Yearly
	Continue to update and maintain an up-to-date geo-referenced culvert inventory, which will identify priority upgrade projects to protect town infrastructure. (Preparedness)	Road Foreman/ Selectboard	High	Better Backroads grants; TRORC; local resources	Ongoing

Hazard(s) Mitigated	Ongoing Actions to Support Mitigation and Preparedness Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
Flash Flood/ Flood/ Fluvial Erosion	Plan for, budget, and maintain roads for safe winter travel. (*Preparedness*)	Selectboard	High (New).	Local resources	Ongoing and occurs yearly.
Extreme Cold/Snow/ Ice Storm	*Develop a periodic program to clear tree limbs and maintain town road rights-of-way, and work with local utilities to ensure that utility corridors are cleared and maintained. (Preparedness)*	Selectboard	High (New)	Green Mountain Power; Washington Electric; local resources	May 2020
	Update and maintain existing list of populations that are vulnerable to extreme cold and other hazards. Call and visit vulnerable residents, if necessary, in the event that a hazard occurs. By maintaining this list, the health of vulnerable populations will be protected. (Preparedness)	Selectboard, Emergency Management Director	Medium (New)	Local resources	Ongoing and occurs yearly.
	Distribute safe winter driving informational materials to residents by means of Vershire listserv. Safe winter driving mitigates the loss to human health. (Preparedness)	Selectboard, Town Clerk	Low (New)	Local Resources	Yearly

Appendices

Appendix A: Hazard Ranking Methodology

Frequency of Occurrence Probability	Warning Time Amount of time generally given to alert people to hazard	Potential Impact Note: Severity of damage and disruption generally correlates with magnitude (extent) of event
1 = *Unlikely* <1% probability of occurrence in the next 100 years 2 = *Occasionally* 1–10% probability of occurrence per year, or at least one chance in next 100 years 3 = *Likely* >10% but <100% probability per year, at least 1 chance in next 10 years 4 = *Highly Likely* 100% probable in a year	1 = More than 12 hours 2 = 6–12 hours 3 = 3–6 hours 4 = None–Minimal	1 = *Negligible* Isolated occurrences of minor property damage, minor disruption of critical facilities and infrastructure, and potential for minor injuries 2 = *Minor* Isolated occurrences of moderate to severe property damage, brief disruption of critical facilities and infrastructure, and potential for injuries 3 = *Moderate* Severe property damage on a neighborhood scale, temporary shutdown of critical facilities, and/or injuries or fatalities 4 = *Major* Severe property damage on a metropolitan or regional scale, shutdown of critical facilities, and/or multiple injuries or fatalities

Appendix B: Critical Stream Crossings

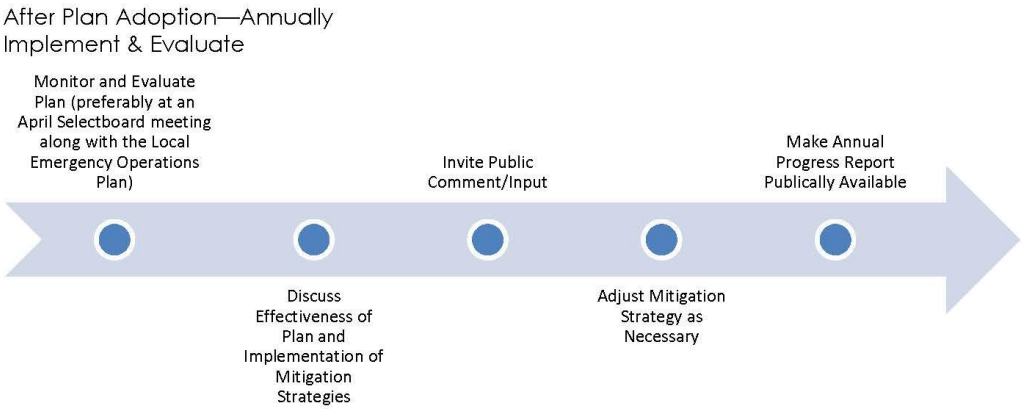
Critical crossings group one includes stream crossing structures on town highways that cross third order streams or larger. Headwater streams generally include first through third order. Third order was included as these headwater streams will have larger drainage areas and may have larger structures that are more difficult to replace and have a larger impact on the road network. Most of these are bridges.

road_descr	town_highw	local_id	latitude	longitude	culvert_ty	culvert_ma	height	width	length
BOBBINSHOP RD	4	29	44.00608791530	-72.46852077170	Round	Concrete Sectional	36	36	50
CORINTH RD	22	6	44.01440350790	-72.42468039210	Round	Steel Corrugated	48	48	30
BEACON HL	43	1	43.99473937150	-72.48811824780	Round	Steel Corrugated	144	144	60
BROOK RD	3	1	43.97122945330	-72.47989557890	Round	Steel Corrugated	120	120	50
BROOK RD	3	39	44.00249358740	-72.49075485670	Round	Steel Corrugated	72	72	40
BROOK RD	3	30	43.99616263910	-72.48879831590	Round	Steel Corrugated	120	120	30
BLACKHAWK RD	26	2	43.99421675120	-72.42807740770	Round	Steel Corrugated	36	36	25
HALL RD	58	1	43.97111273370	-72.43251805980	Round	Steel Corrugated	144	144	30
CORINTH RD	22	13	44.01256682760	-72.41725302580	Round	Steel Corrugated	48	48	35
E RANDOLPH RD	1	4	43.96330444780	-72.47223172040	Round	Steel Corrugated	120	120	80
E RANDOLPH RD	1	13	43.97137863290	-72.48234686790	Round	Steel Corrugated	72	72	80
WASHINGTON TPKE	15	9	44.01665935190	-72.44146845110	Round	Pipe, Metal	48	48	25
UPPER VILLAGE RD	2	13	44.00711702220	-72.43766157620	Round	Steel Corrugated	144	144	60
DOYLE RD	15	3	44.03158371540	-72.45605667240	Round	Pipe, Metal	48	48	20
HOLT HILL RD	70	5	43.94960092440	-72.44505661030	Round	Steel Corrugated	36	36	15

Critical crossings group two includes significantly undersized structures, usually culverts, were identified from the ANR-DEC stream geomorphic assessment survey with openness ratios less than 50%. This measure refers to when structure's width is less than half of the stream bankfull width. Several of these structures may have been damaged during TS Irene or other events and may have been replaced. The town, at some point, should look at these sites and assess their status and need for repair/upgrades.

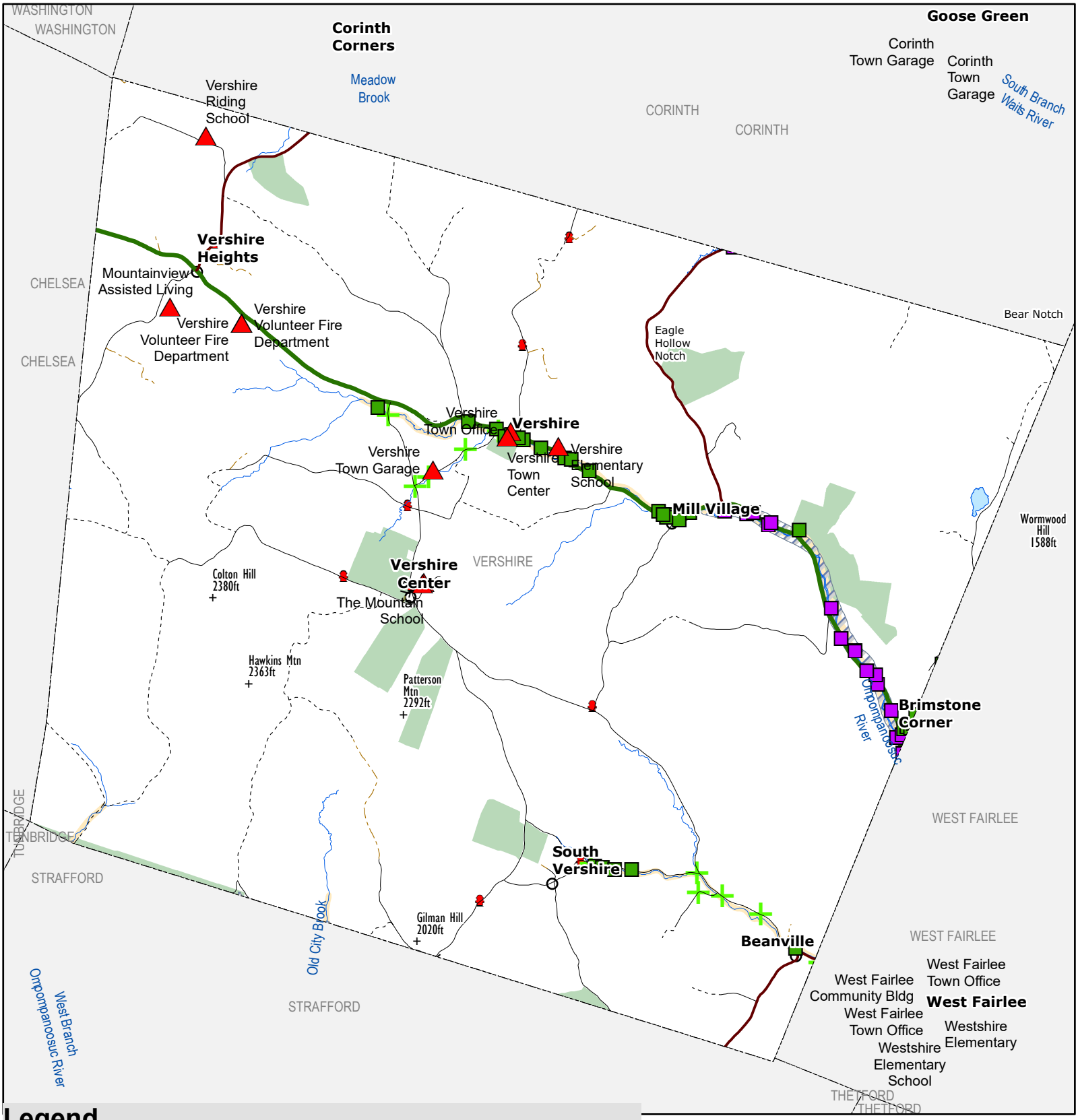
Latitude	Longitude	CATEGORY	RDFLNAME	GNIS_NAME	ChannelWid	CUL_LEN	CUL_HEIGHT	CUL_WIDTH	GROUP_TWO
43.990310	-72.463250	C	BEACON HILL		6.000000	31.000000	1.500000	1.583333	Y
44.049820	-72.517620	C	WILLIAMSTOWN RD	Tributary to First Branch	10.000000	53.000000	1.916667	3.000000	Y
44.024850	-72.494130	C	DODGE RD		5.000000	33.000000	1.916667	2.083333	Y
44.037830	-72.481650	C	EDWARDS RD	Tributary to First Branch	6.000000	44.000000	2.500000	2.500000	Y
44.009000	-72.489750	C	PENT RD		6.000000	37.000000	2.666667	2.000000	Y
43.988720	-72.462190	C	BEACON HILL		3.000000	25.000000	2.000000	2.000000	Y
44.003810	-72.445970	C	BARAW HILL RD	Tributary to First Branch	6.000000	33.000000	2.833333	3.000000	Y
43.986160	-72.462520	C	BEACON HILL		6.000000	29.000000	3.083333	2.666667	Y
43.963230	-72.470850	C	E RANDOLPH RD		3.000000	36.000000	3.666667	3.500000	Y
43.994160	-72.428070	C	BLACKHAWK RD		11.000000	29.000000	2.916667	4.000000	Y
44.012650	-72.506670	C	BROOK RD		8.000000	30.000000	3.666667	3.333333	Y
44.033170	-72.454960	C	DOYLE RD	Hart Hollow	8.000000	24.000000	3.000000	3.583333	Y
43.971860	-72.501390	C	E RANDOLPH RD		13.000000	76.000000	5.833333	6.000000	Y
44.007330	-72.499330	C	BROOK RD		4.000000	51.000000	4.166667	5.833333	Y
44.004480	-72.494680	C	BROOK RD	Cram Brook	17.000000	50.000000	4.000000	6.000000	Y

Appendix C: Five-Year Review and Maintenance Plan



Attachments

Attachment A: Map of the Town of Vershire



Legend

Critical Facilities

- Vershire Critical Facilities

Flood Sites

- Sites in Flood Hazard Area
- Sites in River Corridor
- Bridges
- Hydrants

Special Flood Hazard Areas

- A,
- AE,
- AE, FLOODWAY
- River Corridor Area
- Conserved Areas

0 0.3 0.6 1.2 1.8 2.4 Miles

N

Two Rivers-Ottauquechee REGIONAL COMMISSION
trorc.org

4/12/2018
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