

Town of Corinth, Vermont
2017 Local Hazard Mitigation Plan

***Prepared by the Two Rivers-Ottawaquechee Regional Commission and
the Town of Corinth***

Date of Town Adoption: September 5, 2017

Date of Final Approval by FEMA: September 21, 2017



FEMA

OCT 06 2017

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 Corinth 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 Corinth, Vermont 2017 Local Hazard Mitigation Plan and determined it meets the requirements of 44 C.F.R. Pt. 201.

With this plan approval, the Town of Corinth 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 Corinth, Vermont 2017 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 September 21, 2017** 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.

OCT 06 2017

Lauren Oates
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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 Josiah "Jay" Neiderbach at (617) 832-4926.

Sincerely,

A handwritten signature in blue ink that reads "Mark F. Gallagher for". The signature is written in a cursive style.

Paul F. Ford
Acting Regional Administrator

PFF: jn

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

Enclosure

CERTIFICATE OF ADOPTION
DATE
TOWN OF Corinth, Vermont Selectboard
A RESOLUTION ADOPTING THE Corinth VT 2017 Local Hazard Mitigation Plan

WHEREAS, the Town of Corinth has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **Corinth Vermont 2017 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 Corinth has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its **Corinth, Vermont 2017 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 Corinth; and

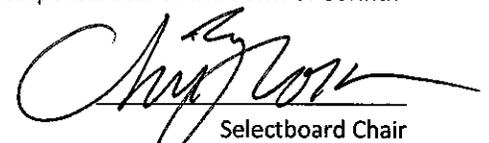
WHEREAS, the **Plan** recommends several hazard mitigation actions (projects) that will provide mitigation for specific natural hazards that impact the Town of Corinth with the effect of protecting people and property from loss associated with those hazards; and

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

RESOLVED by Town of Corinth Selectboard:

1. The **Corinth Vermont 2017 Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Corinth;
2. The respective officials identified in the mitigation action plan of the **Plan** are hereby directed to pursue implementation of the recommended actions assigned to them;
3. Future revisions and **Plan** maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as part of this resolution for a period of five (5) years from the date of this resolution; and
4. An annual report on the process of the implementation elements of the Plan will be presented to the Selectboard by the Emergency Management Director or Coordinator.

IN WITNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Corinth this 5th day of September 2017.


Selectboard Chair


Selectboard Member

ATTEST

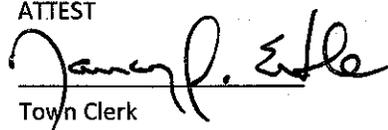

Town Clerk

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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 Corinth 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 Corinth 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 reduce public costs.

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

The 2017 Corinth Local Hazard Mitigation Plan is the first single jurisdiction mitigation plan drafted for the Town. Previously, the Town had a town-specific 2009 Annex in the Regional (multijurisdiction) 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
- Participating jurisdictions
- Funding for plan development
- Brief information about the community

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

III. Community Profile

Corinth is located in the center of Orange County, and was established in 1764. It comprises an area of 31,084 acres or 48.57 square miles. Corinth's topography is consistent with similar communities in Orange County, the Upper Connecticut River Valley, and Towns east of the Green Mountains. It exhibits rolling hills and valleys with beautiful waterways. The Town's topography and the relatively undeveloped nature of the wooded landscape have attracted many residents and visitors to Corinth. In the rugged western portions of the Town, slopes are steep and elevations exceed 2,000 feet above sea level in certain places. The largest hills in town include Garden Hill at 2,148 feet, Leech Hill at 2,076 feet, and Pike Hill at 1,964 feet. The eastern part of town is more rolling, with elevations dropping below 1,000 feet along the Town's three main waterways: the Waits River, the Tabor Branch and the South Branch of the Waits River. Pine Hill Brook, Meadow Brook, and Cookeville Brook are other important waterbodies in town.

Corinth is rural in nature with population being somewhat concentrated along existing main roads and in hamlet areas. The largest of these hamlets, East Corinth, serves as a community focal point and contains a store, library, health center, fire station, and post office. Town offices, a second post office, a fire station, and the Town Hall are located in Cookeville. The other hamlets are Goose Green, Corinth Corners, South Corinth, Corinth Center, and West Corinth.

The Town of Corinth is located entirely within the Waits River watershed and contains significant portions of the South Branch, the Tabor Branch, and the Main Stem of the Waits River. Other significant tributaries within town include Pine Hill Brook, Meadow Brook, and Cookville Brook. The Waits River and the Town of Corinth are part of the larger Connecticut River Watershed.

Corinth is bordered by eight towns, three of which share only a small segment of common boundary with Corinth. The four major neighboring towns are Topsham to the north, Bradford to the east, Vershire to the south, and Washington to the west.

The major roadway serving Corinth is Route 25, which ties in with Route 302 to the north and Route 5 and Interstate 91 in Bradford to the southeast. However, route 25 only comprises 3.96 miles in Town. Corinth has 70.44 total miles of town maintained roadways, which include 48.69 class 3 town highways and 21.75 miles of class 2 town highways. Corinth also has 21.19 miles of class 4 roads, which are owned by the Town but are not maintained to the same level of Class 3 roads and are not maintained in winter.

The Town of Corinth has a population 1,367 people according to the 2010 census. This is a 6.4% decrease in population from the population in 2000. However, overall, the population increased from 1990 by 9.9%. Corinth's recent decline in growth contrasts greatly with the growth rate in the period from 1980-2000 where Corinth's population grew by 62%.

The only public utilities available are electrical power and a telephone system. All domestic water systems and sewage disposal systems are owned and developed by the landowner. A vital local economic base will be dependent, especially in the coming years, on reliable, affordable, up-to-date public utilities. It will be

necessary for the Town to work together with the utility companies to ensure this kind of service is available to its citizens. It may become necessary, especially in the villages, to consider developing water and sewer districts.

The community is served by the Corinth Volunteer Fire Department. The department maintains two fire stations, one in East Corinth and one in Cookeville. The department has two engines, one engine tanker, and one heavy rescue truck, one wildland truck, two external defibrillators, pumps, hoses, ladders, air packs, fire rakes, and other equipment for addressing forest fires. The Fire Department has mutual aid agreements with other towns. Locatable addressing was established in 1998 and emergency help can now be summoned by calling 911.

The Town is served by a FAST squad, the CERT, consisting of volunteers from Topsham and Corinth. Members carry beepers that are linked with a radio dispatch system. A Homeland Security grant was used to fund much needed repairs to the CERT communication equipment. Members are certified by the American Red Cross in advanced first aid. They are emergency care attendants and carry CPR cards. Many, if not all of the members are EMT certified. The FAST squad is equipped with cardiac defibrillators and, when necessary, can summon a helicopter for air transport to Dartmouth Hitchcock Medical Center.

IV. The Planning Process

A. Plan Developers

Michael Storace, a Land Use Planner at the Two Rivers-Ottawaquechee Regional Commission (TRORC), assisted the Town of Corinth with updating its Local Hazard Mitigation 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
Frank Roderick	Former Highway Commissioner	<p>On 10/05/2015, Michael Storace (TRORC staff) reached out to the Corinth Selectboard (Chris Groshner, Russ Pazdro, and Steve Long). TRORC staff coordinated with Corinth town officials to set up an introductory meeting. The first meeting was scheduled for 2/16/2016. TRORC’s staff attended that meeting, followed by many more meetings in which participants revised and developed the LHMP. See below for more meeting-specific details.</p>
Dick Kelley	Planning Commission member	
Karen Galayda	Administrative Office	
Chris Groschner	Selectboard	
Joe Blodgett	Road Foreman	

B. Plan Development Process

The 2009 Corinth Annex was originally part of the 2009 multi-jurisdictional Regional Hazard Mitigation Plan, drafted by Two Rivers-Ottawaquechee Regional Commission, and approved by FEMA on September 30, 2008 with its first local annex.

The Corinth 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 Corinth 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.
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This Plan has been reconstructed now as a single jurisdiction, stand-alone Corinth 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.

The changes to this Plan include:

- **General**
 - New sections: Plan Development Process, 2009 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 Division of Emergency Management and Homeland Security.
- **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;
 - Extreme Cold/Snow/Ice Storm has 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;
 - Structural Fire has been changed to Wildfire in the list of “top hazards;”
 - 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 Corinth depicting critical facilities, town infrastructure, and the NFIP designated floodway, the 100-year and 500-year floodplain has been added.

The following represent the avenues taken to draft the Corinth Local Hazard Mitigation Plan:

- **Activities**
 - 02/16/2016: Met with Corinth LHMP committee members to introduce the update/plan development process, reviewed Corinth’s existing Hazard Mitigation Plan (adopted in January 2009), considered the status of various mitigation actions, potential hazards, and the data collection/research process. The Corinth 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.
- 02/15/2017: Michael Storace met with Corinth town officials to discuss and develop hazard mitigation strategies for each hazard identified in the Plan. Michael and the committee discussed and evaluated specific vulnerabilities to identified top hazards. The agenda for this meeting was posted in three places in Town. No public comments were received.
 - 05/02/2017: Michael Storace met with committee to discuss first draft. The Committee reviewed mitigation strategies in the Plan. The entire draft was reviewed in detail, with TRORC staff making note of any comments or errors.
 - **Public participation and involvement (44 CFR 201.6(b)(1))**
 - 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 Strafford's efforts to receive more information and how to find out about upcoming meetings. No comments were received.
 - Valley News—ran 02/08/2016
 - The Herald of Randolph— ran 02/08/2016
 - Journal Opinion— ran 02/08/2016
 - Vermont Standard— ran 02/08/2016
 - December 2016: A notice was placed in the Two Rivers-Ottawaquechee Regional Planning Commission Newsletter alerting recipients that Corinth 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 Corinth's efforts to receive more information and how to find out about upcoming meetings. No comments were received.
 - **Governmental participation and involvement (44 CFR 201.6(b)(2))**
 - Sent revised draft to the Selectboard Chair, Chris Groschner, and provided contact information for receiving comments via email/hard copy—04/12/2017
 - Comments were received and incorporated into the Plan.
 - Sent revised draft to Planning Commission Chair, Dick Kelley and provided contact information for receiving comments via email/hard copy—04/12/2017
 - Comments were received and incorporated into the Plan.
 - Sent revised final draft to Division of Emergency Management and Homeland Security—7/7/2017
 - 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))**

- 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 Corinth’s efforts to receive more information and how to find out about upcoming meetings. No comments were received.
 - Valley News—ran 02/08/2016
 - The Herald of Randolph— ran 02/08/2016
 - Journal Opinion— ran 02/08/2016
 - Vermont Standard— ran 02/08/2016
- December 2016: A notice was placed in the Two Rivers-Ottawaquechee Regional Planning Commission Newsletter alerting recipients that Corinth 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 Corinth’s efforts to receive more information and how to find out about upcoming meetings. No comments were received.
- Sent revised draft to neighboring towns’ Selectboards for comment and provided contact information for receiving comments via email/hard copy—04/12/2017
 - Towns of: Bradford, West Fairlee, Newbury, Topsham, Vershire, Chelsea, Washington, and Orange.
 - 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
 - Corinth Hazard Mitigation Plan (Adopted 03/09/2009)
 - This Plan was referenced extensively during the plan development process, especially in regard to the worst threats and mitigation action strategies identified in 2009.
 - Corinth Town Plan (Adopted 05/14/2012)
 - The Town Plan provided TRORC’s staff with background information on the community, as well as more detail on their emergency services.
 - Corinth, Flood Hazard Area Bylaw (Adopted 05/11/2015)
 - The Zoning Bylaws were referenced for general knowledge and for Corinth’s Flood Hazard Regulations.
 - Corinth Local Emergency Operations Plan (LEOP) (Adopted 04/20/2017)
 - The Corinth LEOP was referenced for general knowledge regarding the Town’s emergency operations.
 - Flood Insurance Study: Town of Corinth, Vermont (September 27, 1991)
 - The Flood Insurance Study was referenced for general knowledge of Corinth’s water bodies, Waits River, Tabor Branch, South Branch of the Waits River, the East Orange Branch of the Waits River, Meadow Brook, Cookville Brook, Pike Hill Brook and several unnamed brooks and for historic flooding information.
 - Relevant peak discharge information for Waits River and Tabor Branch of the Waits River.

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).

C. Status Update on Mitigation Actions Identified in 2009

The following table outlines the mitigation actions that were proposed in Corinth’s 2009 All-Hazard Pre-Disaster Mitigation Plan for the Town of Corinth (adopted on March 09, 2009 as an appendix to the Two Rivers-Ottawaquechee 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 (in order of 2009 priority). Actions related to long-term mitigation of natural hazards are so noted.

Mitigation Action	Who (Leadership)	When (Timeframe)	How (Funding/Support)	2017 – Status of Mitigation Actions
<u>ALL HAZARDS</u> 1. Ensure that the Rapid Response Plan (RRP) is current.	Selectboard	Yearly	With TRORC assistance	The newest iteration of the RRP is the Local Emergency Operations Plan (LEOP). The Corinth LEOP undergoes an annual update of this document and it was last updated and approved on 04/20/2017.
2. Use Pre-Disaster Mitigation (PDM) plan for Hazard Identification and Mapping.	Emergency Planning Coordinator	2010	Local Resources	The PDM Plan provided significant input into the formation of this 2017 Plan.
<u>FLASH FLOOD</u> 3. Continue the planned road maintenance program, conduct a culvert survey, and update undersized culverts and ditching.	Highway Department	Ongoing	Local resources	The Town consistently upgrades culverts and maintains its roads. The last comprehensive inventory was completed in 2006.
4. Revise flood hazard regulations.	Planning Commission and Selectboard	2009	Local resources, TRORC assistance	The Town of Corinth revised its Flood Hazard Area Bylaw in 2015, and it was adopted by the Selectboard on May 11, 2015.
5. Consider adopting Fluvial Erosion Hazard regulations.	Planning Commission and Selectboard	2009	Local resources, TRORC assistance	Fluvial Erosion Hazards Regulations are now called River Corridor Regulations. The May 11, 2015 update to Corinth’s Flood Hazard Area Bylaws includes provisions that prohibit new development in River Corridor Areas.
<u>HAZMAT</u> 6. Ensure that all emergency response and management personnel receive HAZMAT	Fire Department	Ongoing	Local resources with TRORC assistance	Emergency response personnel currently receive HAZMAT awareness training. This ongoing action has been carried over into the 2017 Plan.

Mitigation Action	Who (Leadership)	When (Timeframe)	How (Funding/Support)	2017 – Status of Mitigation Actions
awareness training as a minimum.				
<u>FIRE</u> 7. Develop additional dry hydrant sites in rural locations.	Fire Department	Ongoing	Local resources	This action has been carried over into the 2017 Plan.
<u>WINTER Storm</u> 8. Encourage utilities to continue regular tree trimming along power lines.	Emergency Planning Coordinator	Yearly	Vermont Agency of Transportation (VTTrans) and Flood Management Assistance funds	Washington Electric Coop currently maintains the majority of utility right-of-ways in Corinth. This action has been carried over into the 2017 Plan.

The 2017 Corinth Local Hazard Mitigation Plan reflects several changes in priorities from the 2009 Plan. This 2017 Plan and the 2009 Plan both recognize and detail Flash Flooding, Hazardous Material Spills, Winter Storms, and Fires as the hazards that pose the greatest risk to health and property in the Town of Corinth. However, this 2017 Plan addresses Severe Summer Weather/Hurricane/Tropical Storms as a hazard that poses a risk to the Town, which were not detailed in the 2009 Plan. This 2017 Plan also specifies its focus from Fire to Wildfire, which is a hazard that has the ability to affect Corinth on a town-wide scale. The Flash Flooding hazard, which was included in the 2009 Plan, has been expanded to include fluvial erosion, which poses a risk on smaller streams that are found throughout Corinth. This 2017 Plan identifies more detailed hazard mitigation strategies to reduce the risk to health and property as a result of the hazards that pose the greatest risk to the Town of Corinth. However, mitigation actions identified in the 2009 Plan and the previous chart that were not specifically completed were carried over into this 2017 Plan.

There is relatively minimal development occurring in the Town of Corinth. Lack of public sewer and water in the village areas is a major limiting factor for development in the village, and these factors especially limit large-scale development. There are no plans for large-scale development on the horizon. The most notable development that has occurred in the Town in the past 5 years is the Manning Subdivision, which is located on Brook Road. This subdivision into four lots and resulting development of structures are not in the special flood hazard area, and not within close proximity to the river corridor area. This development does not increase the Town’s vulnerability to flooding or fluvial erosion.

Depending on the location, new development in the Town of Corinth may be vulnerable to flooding or fluvial erosion hazards. The Town’s Flood Hazard Area Maps, which were last updated by FEMA in 1997, do not accurately portray flooding hazards in the Town. 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

Area Bylaws prevent new development of over 500 square feet in the mapped special flood hazard areas and river corridor areas. These regulations help reduce threats to new structures built near flood and fluvial erosion hazards. However, flooding and fluvial erosion hazards that extend beyond these mapped areas may post a risk to future and current development in the Town of Corinth.

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 Corinth 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 Corinth’s Local Emergency Operations Plan (LEOP). Last updated and approved on 04/20/2017.	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	Staff/volunteer time from the Town Clerk, Emergency Management Director/ Coordinator. Funding from American Red Cross.	This is a one-time action. The Town has two Red Cross Shelters located at the Town Hall and the Waits River Valley School.
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 Corinth Zoning Administrator, Karen Galayda, 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 06/28/1974. The Town’s current Flood Insurance Rate Map (FIRM) was dated 09/27/1997. The Town continues its participation in the NFIP by administering and enforcing its Flood Hazard Area Bylaws. The Town of Corinth adopted its most current Flood Hazard Area Bylaw on May 11, 2015. This bylaw regulates new construction in the Special Flood Hazard Area. The Town employs an NFIP Administrator that enforces the Flood Hazard Area Bylaws based on the 09/27/1997 FIRMs. The Town would like to request map revisions from FEMA. There is no need to expand on this action at this time.
Land Use Planning	Policy/Program— Corinth Municipal Plan Adopted on 05/14/2012,	Volunteer time from Planning Commission, and assistance from TRORC and other state agencies on	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

	includes a “Natural Resources” chapter that includes discussion about “Water Resources” and “Floodplains”.	specific subject matter. Funding from Municipal Planning Grants.	state statute. The Town Plan update will feature the inclusion of a “Flood Resiliency Element.”
	Completed Authority— Corinth Subdivision Bylaw Last amended on 09/10/2002	Volunteer time from the Planning Commission, and assistance from TRORC. Funding from Municipal Planning Grants.	During the Town Plan review/update period, the Subdivision Bylaw may also be reviewed and updated if needed.
Hazard Control & Protection of Critical Infrastructure & Facilities	Policy/Program—Corinth Hazard Mitigation Plan Adopted on 03/09/2009	Volunteer time from Town officials; assistance from TRORC and Vermont DEMHS. Funding from FEMA; Vermont DEMHS; TRORC.	The 2017 Corinth Local Hazard Mitigation Plan will replace the 2009 Plan. The 2017 LHMP has evolved from the 2009 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 road inventory and capital budget planning Completed in 2007	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 inventory completed with TRORC assistance in 2006.	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 for implementation projects. However, the Town is undergoing a road erosion inventory in 2017 to identify eroded locations and road drainage areas of improvement. This will result in a prioritized list of mitigation improvement projects, would be beneficial to the Town.
	Ongoing Action— the Fire Department distributes fire prevention fliers at the school	Time from the Volunteer Fire 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 on the Town’s website, and the Local Resource Network (LRN).	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 Corinth 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 Corinth 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. Corinth'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 will also occur within three months after every federal disaster declaration directly impacting the Town of Corinth. 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).
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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-Ottawaquechee Regional Commission (TRORC) will help with Plan updates if assistance is requested by the Town of Corinth and if funding is available. If TRORC is unable to assist the Town, then Corinth's Emergency Management Director 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 Journal Opinion and the TRORC newsletter 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 river corridor areas, and other applicable initiatives. These efforts will be coordinated by the Emergency Management Director.

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.

Corinth shall also incorporate mitigation planning into their long-term land use and development planning documents. The 2009 Corinth Annex, the previous version of this Local Hazard Mitigation Plan for the Town of Corinth, provided guidance in the development of the Corinth 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. To do so, flood hazard and fluvial erosion hazards will be identified, and strategies and recommendations will be provided 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, zoning regulations, and river corridor bylaws. 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.

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. See Appendix A for more information about the hazard ranking methodology. 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 Corinth 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 Corinth, 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 Corinth 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 Corinth.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 the Vermont Division of Emergency Management & Homeland Security (VDEMHS). The only 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 VDEMHS). Those hazards which were not found to pose the greatest threats to Corinth – including Drought, Water Supply Contamination, Extreme Heat, Tornadoes, Ice Jams, Invasive Species, Dam Failure Landslides/Mudslides/Rockslides, Avalanche, Radon, Structural fire, 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.

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

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

The Corinth 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 had the potential to occur frequently. The Corinth LHMP committee discussed the results of the hazard ranking activity and decided to focus on hazards that had the potential to be *Likely* or *Highly Likely* to occur. For the purposes of this Plan, Severe Weather and Hurricanes/Tropical Storms/Hail Storms will be combined into one hazard profile area for analysis because of the similarities they pose in exhibited weather, the risk they pose to health and property in vulnerable areas in Town, and the similar strategies that are effective in mitigating the loss of health or property in the event of their occurrence.. The Corinth LHMP committee decided not to address structural fire in the Plan because of the low impact of the hazard that typically occurs in isolated incidents.

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, earthquakes, dam failure, tornadoes, landslides/mudslides/rockslides, avalanches, radon, structural fire, invasive species infestation and water supply contamination. 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 Corinth 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
- Hazardous Material Spills
- Severe Summer Weather
- Extreme Cold/Snow/Ice Storm
- Wildfire/Brushfire

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 Corinth 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 Corinth 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 Corinth. 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 Corinth. 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..	<u>Occasionally:</u> 1–10% probability of occurrence per year, or at least one chance in next 100 years <u>Likely:</u> >10% but <100% probability per year, at least 1 chance in next 10 years <u>Highly Likely:</u> 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 Corinth 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 Corinth’s residents and infrastructure. Past instances of flooding in Corinth 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 Corinth, 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 Corinth 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 Corinth suffered some damage to property and infrastructure during Tropical Storm Irene, and no lives were lost. It is estimated that Tropical Storm Irene dropped 5-6 inches of rain over the Town of Corinth 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). Large portions of Corinth’s road infrastructure were damaged

by the storm, including parts of Brook Road at the intersection of Vermont Route 25, Richardson Road, Johnson Road, Backway Road, Bear Notch Road, Eagle Hollow Road, Turkey Hill Road, and Dearborn Hill Road. A total of \$53,455.95 was reported for Corinth from FEMA’s Public Assistance database, which captures at least 70% of total damage. Estimates from Orange County from Tropical Storm Irene amount to \$5 million.

In September of 2008, Corinth, along with the rest of Orange County and Lamoille, Essex, Caledonia, and Addison Counties experienced flooding. A total of \$114,995 was reported for Corinth from FEMA’s Public Assistance database. More recently in June 2014, periods of heavy rain resulted in flash flooding in Corinth and caused approximately \$30,604.63 in damages according to FEMA’s Public Assistance database.

Unfortunately, flooding is very common across the region, with many events impacting the Town of Corinth specifically, and Corinth has been hit hard by other flooding events that pre-date Tropical Storm Irene. As such, flooding is one of the worst threats to Corinth’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 Corinth, 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. No specific extent data was available for fluvial erosion regarding number of acres of land lost or amount of fill that was used to compensate for fluvial erosion after flooding during each event in Corinth.

History of Occurrences:

Date	Event	Location	Extent and Impacts
6/11/2014	Flood	Corinth; County-wide	Period of heavy rain resulted in flash flooding in Corinth. 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. 10 Washington Electric Cooperative (WEC) customers were affected with durations lasting from .5 to 2 hours.
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. Corinth received 7.4 inches of rain during the disaster period. There were several different outage events that occurred during the disaster period that affected Washington Electric customers in Corinth. On 6/29/13, 96 residents lost power for 2.3 hours. On 7/4/13, 11 residents lost power for over 5 hours.
08/28/2011 (DR-4022, TS Irene)*	Tropical Storm; flash flood; fluvial erosion	Corinth, 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. According to spotter’s reports, Corinth received over 6.9” of rain. In Corinth Backway Road, Dearborn Hill Road, Eagle Hollow Road, Richardson Road, and Turkey Hill Road all

Date	Event	Location	Extent and Impacts
			received significant damage. \$53,455.95 in damage total for Corinth according to FEMA's Public Assistance database (captures at least 70% of total damage)—seven projects.
07/21/2010*	Flash Flooding and Fluvial erosion	Corinth; 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. In Corinth, the second in a series of severe thunderstorms with torrential rains washed out several culverts. Corinth received 2.43 inches of rain in 24 hours. Widespread power outages occurred. 219 Washington Electric Cooperative customers lost power for over 5 hours. 83 additional customers lost power for more than 3 hours. 3 customers lost power for 1 hour.
08/21/2009*	Flash Flooding and Fluvial erosion	Corinth; County-wide	Thunderstorms produced torrential downpours in Corinth. An official NWS Cooperative Observer reported a rainfall total of 1.26 inches of rain in 24 hours. The neighboring town of Chelsea was severely affected, with the flooding of several state highways. Outage data was unavailable for this event.
08/07/2008* (Part of DR-1790 VT)	Flash Flooding and Fluvial erosion	Corinth; County-wide	Thunderstorms with heavy rainfall in a moist atmosphere moved through central and southern Vermont during the afternoon and evening hours. Approximately \$114,995.53 in damage occurred to Town roads, culverts, and town infrastructure due to stream channel erosion. Corinth experienced 2.6 inches of precipitation in 24 hours with another 1.2 inches falling the day before, resulting in a total of 3.8 inches in 48 hours. Outage data was unavailable for this event.
01/1998* (DR-1201 VT)	Flooding	Corinth; County-wide	A storm system moved from the Tennessee Valley into New England and caused precipitation amounts from 3-5 inches in 24 hours. The Waits River flooded causing damage to Route 25 in Corinth. Outage data was unavailable for this event.
06/28/1973—06/30/1973 (DR-397)	Flooding	County-wide	Heavy rainfall occurred, with as much as 6 inches in 24 hours in some locations. The State of Vermont received federal disaster declaration. .3 deaths occurred and statewide damage was estimated \$64 million. Outage data was unavailable for this event.
11/02/1927—11/04/1927 ("Flood of 1927")	Flooding	County-wide	Considered to be one of VT's most devastating events, the flood took out 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.

The Town of Corinth has standalone Flood Hazard Area Bylaws, which were updated in 2015. The flood hazard regulations are not included within the Town's Subdivision Bylaws, and the applicant is required to receive a separate flood permit for any proposed development in the Corinth Flood Hazard Overlay District. Development in the floodway is prohibited and restrictions are placed on development in the "areas of special flood hazard."

There are 37 total buildings in Corinth that are located in the special flood hazard area, the areas in town that have a 1% chance of flooding annually. This consists of 34 residential buildings (including 22 single family dwellings, 2 multi-family dwellings, 6 mobile homes, and 4 camps), 2 commercial buildings, and 1 house of worship. Of those structures, 7 are located in the floodway. There are 48 additional structures that are located in the Agency of Natural Resources' mapped River Corridor area.

If all of the residential and commercial/industrial/public properties were damaged/destroyed in a severe flooding event, the damage would equal \$8,973,140. There are no critical facilities located in the special flood hazard area in Corinth.

Across Vermont, most child and elder care facilities are not registered with the State. Most child day care in Corinth is likely private in-home care, but there are also two licensed childcare providers and one registered childcare home. These facilities are not at risk for flood and are not within any of Corinth's mapped Special Flood Hazard Areas or ANR mapped River Corridors. Low income housing is not registered with the State, and there are currently no mobile home parks located in Corinth 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. Furthermore, precipitation trend analysis suggests that intense, local storms are occurring more frequently. According to Vermont Agency of Natural Resources' river corridor³ maps issued in late 2014, there are 48 structures in Corinth that are located in the river corridor area, but *not* located in FEMA's Special Flood Hazard Area. This number includes 12 commercial structures, 1 government structure, 9 mobile homes, 9 multi-family dwellings, and 17 single-family dwellings.

Roads in town that flood frequently and are vulnerable to future flooding include Route 25 and the juncture of Village Road, Bear Notch Road, Dearborn Hill Road, Eagle Hollow Road, South America Road, Brook Road, the juncture of South Road and Camp Munn Road, and the Cookeville Road bridge near the Corinth Town office. During Tropical Storm Irene in 2011 Backway Road, Dearborn Hill Road, Eagle Hollow Road, Richardson Road, and Turkey Hill Road experienced flooding and damage.

Corinth has engaged in culvert upgrading since the 2009 Corinth Annex was drafted, and the Town is continuously upgrading culverts to allow additional floodwaters to pass through the structure. In addition, the Town's last comprehensive culvert inventory was completed in 2006, with updates made to the inventory in 2016. There are no repetitive loss properties in the Town of Corinth.

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.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/ Probability
Flash Flood/ Flood/ Fluvial Erosion	Cookeville Village; Vermont Route 25, Richardson Road, Johnson Road, Backway Road, Bear Notch Road, Eagle Hollow Road, Turkey Hill Road, and Dearborn Hill Road	Culverts, bridges, road infrastructure, public and private infrastructure. There are 37 total buildings in the special flood hazard area, which consists of 34 residential buildings (including 22 single family dwellings, 2 multi-family dwellings, 6 mobile homes, and 4 camps), 2 commercial buildings, and 1 house of worship. Specific commercial property in the SFHA includes Cobble Mountain Hammocks. If all of the structures in the SFHA were damaged/destroyed in a severe flooding event, the damage would equal \$8,973,140	Tropical Storm Irene— 4-7” across county (6.9 inches in Corinth).	\$114,995.39 in damage total for Corinth according to FEMA’s Public Assistance database (captures at least 70% of total damage) from 9/12/2008 Flooding.	Likely

2. 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.

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**.

Based on available VT Tier II data, there are five sites in town that have sufficient types and/or quantities of hazardous materials to require reporting. Vermont Route 25 is a major state highway in Vermont that is used to connect Interstate 91 with Route 302 and the Barre/Montpelier area. This state highway parallels the Waits River, and a hazardous material spill would jeopardize the water quality of the river.

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**.

No major, functioning interstate highways or railways run through or near the Town. There are 381 total structures that are located within 1,000 feet of a potential HAZMAT spill on major roads, such as Vermont 25. These structures are characterized as 335 residential (221 single-family dwellings, 3 multi-family dwellings, 64 mobile homes, 42 camps, and 5 other residential), 32 commercial structures, and 12 government/public structures. This includes two fire stations, the library, and a health clinic. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be \$3,371,850.

The State of Vermont currently has one fully-trained HAZMAT response team, with vehicles located in Lyndonville, Essex Junction, Brandon, and Putney. 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 following data was retrieved from the Vermont Department of Environmental Conservation's Spill List and by searching the archives of local newspapers. The online database of spills consists of those that have been reported. It is difficult to encompass the hazardous material spills that were not reported, and those are not reflected in the table. The table 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.

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

History of Occurrences:

Date	Event	Location	Extent and Impacts
2/17/2014	Equipment Failure	749 Village Road	Hydraulic equipment failure resulted in the release of less than 1 gallon of hydraulic oil.
4/28/1999	Hazardous Material Spill	Chelsea Road	A spill of 1 gallon of an unidentified liquid was spilled in a basement of a private residence.
8/14/1998	Line Leak	Tullar Road	A link lead to the basement resulted in 20 gallon of spilled hazardous material.
6/2/1997	Hazardous Material Spill	Topsham Road and Route 25 Juncture	Underground storage tank release resulted in an unknown quantity of released materials.
9/17/1990	Hazardous Material Spill	Cookeville Road	Oil sheen witnessed on Cookeville Brook. Unknown amount of released materials.
7/23/1993	Hazardous Material Spill	Route 25 in East Corinth	A truck accident resulted in the release of 20 gallons of diesel oil.

While only a small number of large hazardous material spills have occurred in the Town of Corinth, the potential for a major spill exists. Route 25 poses a constant threat to the Town of Corinth. This route serve as the main thoroughfares for trucks and other motor vehicles transporting a wide-range of goods, including a wide range of hazardous materials, within the confines of Corinth. A truck accident and a resulting hazardous material spill could be exceedingly disastrous for the Town and its residents. Route 25 also borders the Waits River, and a hazardous material spill would severely impact the quality of water in this river.

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

Hazard	Location	Vulnerability	Extent	Impact	Likelihood/Probability
Hazardous Materials Spill	Vermont Route 25 and local roads.	Road infrastructure, nearby structures (the library, two fire stations, and a health clinic) and the Waits River.	Initially, local impacts only; but depending on material spilled, extent of damage may spread (ex. into groundwater).	335 residential (221 single-family dwellings, 3 multi-family dwellings, 64 mobile homes, 42 camps, and 5 other residential), 32 commercial structures, and 12 government/public structures. This includes two fire stations, the library, and a health clinic. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be \$3,371,850.	Likely

3. Severe Summer Weather, Hurricanes, and Tropical Storms

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 Corinth. 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.

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**.

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 (NCDC). 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.

In Corinth, 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, Corinth 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 Corinth. 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 Corinth, 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.

History of Occurrences:

Severe Weather Date	Event					Location	Extent
	Thunderstorm / severe storm	Flooding	Hail	High Winds	Lightning		
6/11/2014	✓	✓				Corinth; County-wide	Period of heavy rain resulted in flash flooding in Corinth. 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. 10 Washington Electric Cooperative customers were affected with durations lasting from .5 to 2 hours.
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. On 6/28, 96 Washington Electric Cooperative (WEC) customers lost power for 2.3 hours. Another outage occurred on 7/4, when 11 WEC customers lost power for 1 hour. Overall during the disaster period, Corinth received 7.94 inches of rain.
9/11/2013*	✓			✓	✓	Corinth, County-wide	A weak area of low pressure embedded in an unseasonably warm and unstable air mass resulted in thunderstorms that moved across Vermont. Corinth received 1.86 inches of rain in 96 hours. Widespread power outages occurred on 9/11, 9/12, and 9/13. On 9/11 321 total WEC customers lost power, with power outages lasting from 3-6 hours. On 9/12 81 WEC customers lost power. 22 customers lost power for 1 hour, 36, and 7 customers lost power for more than 12 hours. On 9/13 121 WEC customers lost power for 1 hour.
6/2/2013	✓		✓	✓		Corinth, County-wide	Thunderstorms with pockets of damaging winds and large hail. At its peak, roughly 20k customers lost power. Corinth received .61 inches of rain in 24 hours. 14 WEC customers lost power for 15 hours, 7 WEC customer lost power for 23 hours, and 4 customers lost power for 2 days.
7/4/2012*	✓			✓	✓	Corinth, County-wide	A moderately strong upper level disturbance ahead of a surface cold front moved through Vermont on July 4. Storm caused widespread wind damage and frequent lightning. Corinth received .3 inches of rain in 24 hours. 15 WEC customers lost power for 14 hours on 7/4, and 12 WEC customers lost power for 3 hours on 7/5.
8/28/2011	✓	✓		✓		County-	Tropical Storm Irene prompted wide-

(DR-4022 VT)						wide	spread, devastating flooding throughout the region. Corinth received 6.79 inches of rain in 48 hours. Corinth had \$53,455.95 in damages. Widespread power outages occurred in Corinth from 8/28-8/30. On 8/28 724 total WEC customers lost power for durations ranging from 1 hour to more than 24 hours. The majority of residents who lost power on 8/28 were without power for 15 hours. On 8/29 622 WEC customers lost power for durations ranging from 2 hours 7 hours. The majority of power outages lasted 7 hours.
06/09/2011	✓		✓	✓		County-wide	Scattered thunderstorms and a few isolated reports of damaging winds and large hail were reported. Only one outage occurred in Corinth, which lasted 1 hour. .33 inches of rain fell in Corinth.
05/26/2011-05/27/2011 (DR-4001 VT)	✓	✓		✓		County-wide	The region was struck by severe storms and flooding. Minimal damage occurred in Corinth. Corinth received .3 inches of rain in 24 hours. 205 WEC customers lost power for 5.5 hours.
07/21/2010	✓		✓	✓		Corinth, 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 fell. Power outages affected 306 total WEC customers, and lasted 3-5 hours.
5/31/2009	✓		✓	✓		County-wide	40-55mph wind gusts and hail caused fallen trees and power outages in the region Corinth received 21.21 inches of rain in 24 hours. Power outage data was unavailable for this event.
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. Corinth reported \$114,995 in damage. Corinth 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)	✓		✓	✓	✓	Corinth; County-wide	An area of low pressure moved across Canada and south to Vermont causing thunderstorms, hail, winds, and lighting. Corinth experienced 1.65

							inches of rain in 24 hours. Power outage data was unavailable for this event.
8/30/2007	✓		✓	✓		Corinth; County-wide	A cold front moved through a warm and unstable airmass across southern and eastern Vermont. A few widely scattered thunderstorms moved across the region with nickel sized hail in Corinth. 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. 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. The thunderstorm knocked down trees along Vermont Route 25. Power outage 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 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.
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.
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.
7/6/1973 (DR-397 VT)		✓		✓		County-wide	One of the largest flood events of the 20 th 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.

Beaufort Wind Chart – Estimating Winds Speeds

Beaufort Number	MPH		Terminology	Description
	Range	Average		
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>

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The Town of Corinth 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. There is an extensive lag time for power line repairs in Corinth.

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 2014. Severe storms brought heavy rain and strong winds over a period of one week period in June. The Town of Corinth was heavily impacted by this event, and sustained over \$30,604 in damages.

There are 755 acres of mapped floodplain in the Town of Corinth, with 68 acres of mapped floodway. Two percent of the land area of the Town is the floodplain. There are 37 total structures located in the Special Flood Hazard Area in Corinth. These consist of 34 residential buildings,, 2 commercial/ public buildings, and 1 house of worship in the Special Flood Hazard Area, the areas in Town that have a 1% chance of flooding annually. There are 48 additional structures that are located in the Agency of Natural Resources’ mapped River Corridor area. If all of the residential and commercial/industrial/public properties were damaged/destroyed in a severe flooding event, the damage would equal \$8,973,140. There are no critical facilities located in the special flood hazard area In Corinth.

The Town road foreman actively updates and maintains the Town’s culvert inventory, and the Town’s work to upgrade culverts remains in process to help 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, most notably Brook Road and Meeting House Road. There are no repetitive loss structures in the Town of Corinth on FEMA’s NFIP list.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/Probability
Severe Weather	Cookeville Village; Vermont Route 25, Richardson Road, Johnson Road, Backway Road, Bear Notch Road, Eagle Hollow Road, Turkey Hill Road, South America Road, and Dearborn Hill Road	Culverts, bridges, road infrastructure, public and private infrastructure. There are 37 total buildings in the special flood hazard area, which consists of 34 residential buildings (including 22 single family dwellings, 2 multi-family dwellings, 6 mobile homes, and 4 camps), 2 commercial buildings, and 1 house of worship. Specific commercial property in the SFHA includes Cobble Mountain Hammocks. If all of the residential and commercial/industrial/public properties were	Tropical Storm Irene—4-7” across county (6.9 inches in Corinth).	\$114,995.39 in damage total for Corinth according to FEMA’s Public Assistance database (captures at least 70% of total damage) from 9/12/2008 Flooding.	Highly likely

		damaged/destroyed in a severe flooding event, the damage would equal \$8,973,140			
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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. Extreme cold in the Town of Corinth is defined as below zero degrees Fahrenheit for two or more consecutive days.

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 Corinth was impacted by this ice storm.

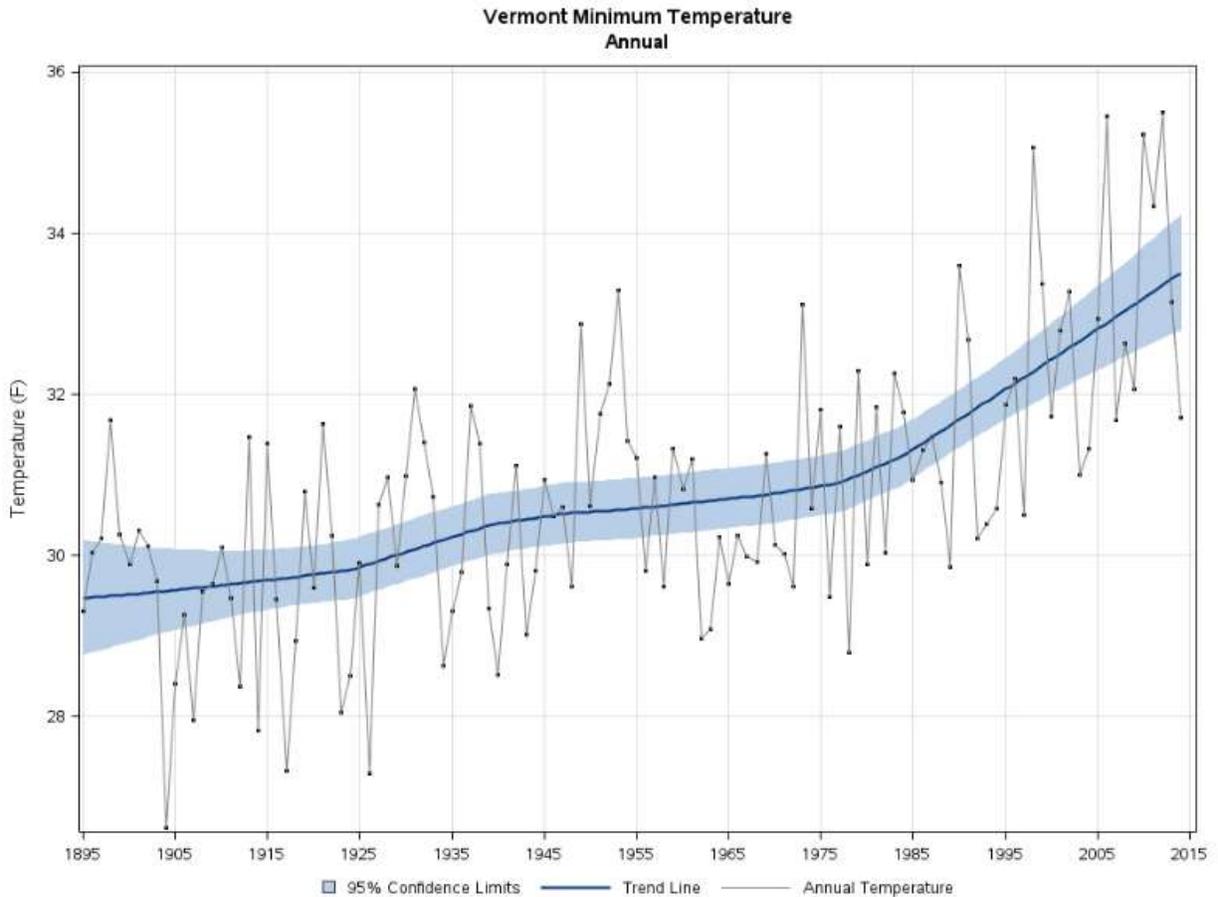
The most recent severe winter storm to hit Vermont began on December 9th, 2014 and lasted until December 11th, 2014. During this period of time, much of the state of Vermont was hit was heavy, wet snow that ranged from accumulation totals anywhere from a few inches to almost two feet along parts of the 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, Corinth 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

in the future. The following table documents the occurrence of extreme cold/snow/ice storms in the Town of Corinth 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	Corinth; 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 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 on the morning of January 8 in Orange County. Corinth registered 25 degrees below zero.
2/1/2015-2/28/2015	Cold/Wind Chill	County-State-wide	A persistent deep cold 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	Corinth; County-; region-wide	A powerful prolonged heavy, wet snow event from December 9th through December 11 th . 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 Corinth. Significant power outages occurred in Corinth to Washington Electric Cooperative (WEC). Nearly all Corinth residents were affected from 12/9-12/14 with durations lasting from 2 hours to more than 24 hours.
Period from	Snow	County-;	A major snowstorm with near blizzard conditions at times impacted portions of

03/12/2014— 03/13/2014	Storm	region-wide	northern New York on March 12th and lingered into the morning hours of March 13 th . 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 Corinth. 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. Corinth received 17.6 inches of snow and 1.32 inches of ice. Significant power outages did not occur in Corinth.
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. Corinth received 11.5 inches of snow and .7 inches of ice. Significant power outages did not occur in Corinth.
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. A widespread 10 to 15 inches of snow fell across Orange county, and Corinth received 10 inches. No power outages occurred in Corinth.
Period from 12/29/2013— 12/30/2013	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 29 th . 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 Corinth. Significant power outages occurred in Corinth to WEC customers. 113 customers were affected in total over two days. 70 customers were affected for more than 10 hours, 10 customers were affected for 7 hours, and 33 customers were affected for 2 hours.
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 18 th into the early morning of February 19 th . 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 Corinth. Specific temperature and duration data was not available for this event.
12/1/2010	Ice Storm	Corinth	Sleet and frozen rain precipitation caused significant power outages in Corinth. 1.5 inches of sleet/frozen rain precipitation occurred. Widespread power outages occurred, and overall 652 WEC customers were affected. 199 lost power for 2.5 hours, 242 lost power for 6 hours, and 134 customers lost power for over 12 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. Corinth did not experience heavy precipitation, but heavy winds caused widespread power outages. Specific outage data was not available 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 22 nd 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. Specific outage data was not available for this event.
Period from 02/26/2008— 02/28/2008	Snow Storm	County- wide; statewide	Snow overspread over Vermont during the morning of February 26 th and continued through the afternoon hours of the 27 th 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 Corinth. Specific outage data was not available for this event.
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 air mass 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 2 nd . 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. Corinth received 3.5 inches of new snow and about 1.2 inches of ice/sleet. Specific outage data was not available for this event.
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 4 th snowiest December. Specific outage data was not available 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 Corinth. Specific outage data was not available for this event.
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 15 th and changed over to snow in the afternoon, continuing into mid-morning on the 16 th . 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 Corinth. Specific outage data was not available 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. Specific outage data was not available for this event. 7.58 inches of precipitation were reported in Corinth.
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 Corinth. Specific outage data was not available for this event.
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 14 th . 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 not available for this event.
12/15/2003	Snow	County-	Snow developed Sunday afternoon, December 14th, and became heavy Sunday

	Storm	wide; statewide	night into Monday morning, December 15th. 10 inches were reported in nearby Chelsea. Specific 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 Corinth 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 company currently serving the Town of Corinth, Washington Electric Cooperative, has followed a regular tree-trimming schedule. Corinth 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 Corinth, the mountainous terrain, steep slopes, and remoteness of some roads further complicates travel. The Town relies on Travel Advisories issued by the State of Vermont Department of Emergency Management Homeland Security and the National Weather Service to alert residents of dangerous travel weather. 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.	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

5. Wildfire

A wildfire is an unplanned fire that extends out of the confines of human control by burning vegetation, such as forest, grassland, or prairie. Wildfires typically start in natural areas, but can expand their range quickly. This spread poses a threat to human infrastructure, such as public buildings and private homes, as well as to the health of people who live in their paths and the firefighters who work to limit their damage.

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 **Wildfire**.

Wildfire may be sparked by natural or human activities. Lightning is one of two main natural causes of wildfire. However, across the United States, approximately 90 percent of wildfires are started by humans. According to FEMA, there are three types of wildfire that can consume natural landscapes and man-made structures and features: surface fire, ground fire, and crown fire. Surface fires are slow moving across the forest floor, and, as a result, kill and damage trees. Ground fires are usually caused by lightning strikes, and burn on or below the forest floor. Crown fires, so called for their location in the crown of trees, effortlessly spread through tree tops, often aided by wind.

The Vermont landscape is especially vulnerable to wildfire during the period of time in early spring when all the snow has melted, vegetation has not begun to develop leaves, and the land and vegetation are very dry and/or dead. The Town of Corinth does not include any state or federally- owned forest land; all forested land is held privately. Most conserved lands in Corinth are conserved by the Vermont Land Trust and the Upper Valley Land Trust through easements. The majority of Corinth (84% of the Town's land area) is covered by forest, and forested land accounts for 25,251.96 acres in Town.

History of Occurrences:

Date	Event	Location	Extent
4/23/2007	Wildfire	Debris Burning	.5 acres
5/6/2007	Wildfire	An electric fence caused a small conflagration	.1 acres

There are three dry hydrants throughout the Town of Corinth that would be utilized to address a wildfire if it were to occur. There are 2 additional sites being considered for future dry hydrant development, in West Corinth and Corinth Corners. However, large blocks of forested areas exist in Corinth where ground-based firefighting efforts would be very difficult, due to their remoteness. This creates the potential for wildfire to impact private land, private property, and any logging operations occurring at the time of the wildfire. A wildfire would likely impact or result in the damage of wildlife habitat and recreational lands used for hunting, hiking, mountain biking, and ATV and snowmobiling trails (maintained by VAST, Vermont Association of Snow Travelers).

The Town of Corinth is 84% forested, with 26,251.96 total acres of forested land. Generally, the western portion of town is vulnerable to wildfire. Of special concern is the large amount of dead trees left over from the January 1998 ice storm that devastated and felled millions of trees over much of northern New

England, northern New York and Canada. This unconsumed fuel could create “the perfect storm” for a very destructive wildfire in the Town.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/Probability
Wildfire	Large forest blocks, woodland areas, conserved areas, western part of Corinth	Private property, town buildings, utility infrastructure	Up to this point, the extent of damage has been minimal but all that is needed are the right conditions to experience a more damaging wildfire, especially because 84% of the Town is forested.	Unknown— data gap.	Likely/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 37 total buildings in the special flood hazard area, which consists of 34 residential buildings (including 22 single family dwellings, 2 multi-family dwellings, 6 mobile homes, and 4 camps), 2 commercial buildings, and 1 house of worship. Specific commercial property in the SFHA includes Cobble Mountain Hammocks.
- **Wildfire/Bushfire**: 84% of Corinth is forested, so a wildfire has the possibility to do major damage across the Town. Generally, large forested blocks are vulnerable to wildfires. West Corinth contains large blocks and is especially vulnerable.
- **Hazardous Materials**: A truck traffic accident on Route 25 could cause a major hazardous material spill. This could threaten residents that live within proximity of Route 25 and could contaminate the Waits River;
- **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).
- **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 37 total buildings in the special flood hazard area, which consists of 34 residential buildings (including 22 single family dwellings, 2 multi-family dwellings, 6 mobile homes, and 4 camps), 2 commercial buildings, and 1 house of worship. Specific commercial property in the SFHA includes Cobble Mountain Hammocks.

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 ice jams.
- 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 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 extreme cold/snow/ice storms.

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

- Protect the public health, safety, and welfare of the Town of Corinth (page 4).
- Suitable emergency services are provided to town residents (page 15).
- Provide updated data to the Regional Planning Commission to ensure that the Town Emergency Locator maps are kept current (page 15).
- The Town should continue to support fire safety training and education of Fire Department volunteers (page 15).
- The Town should continually engage in Emergency Response planning so that unmet needs can be identified and plans can be made to address gaps (page 15).
- The Planning Commission should develop land use regulations, incentives, and an appropriate permitting process to encourage development consistent with the Ton's historic, rural character. These regulations should be designed to minimize the impact of development on town services, including roads, administration, and emergency services, and maximize open space. These regulations must be consistent with the goals and objectives of this Town Plan (page 39).
- Maintain the ecological integrity and natural beauty of Corinth's natural resources through proper land use that will minimize or prevent adverse impacts (page 43).
- The Planning Commission should consider surface water and ground water quality effects related to proposed uses of land (page 43).

The Corinth Municipal Plan was updated and adopted on 05/14/2012, and has a 5 year lifespan. It was being updated in 2017 during the development of this Local Hazard Mitigation Plan. The 2009 Corinth Annex, the previous version of this Local Hazard Mitigation Plan for the Town of Corinth, provided guidance in the development of the Corinth Municipal Plan, including directing goals, policies, and recommendations towards mitigating the effects of future hazards on health and property in the Town.

B. Hazard Mitigation Strategies: Programs, Projects & Activities

Vermont’s Division of Emergency Management & Homeland Security 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, Corinth’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 Corinth 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 Corinth’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 Corinth Planning Commission will incorporate mitigation strategies included in this Plan into the Corinth’s 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
Wildfire	<i>Install new dry hydrant in Corinth Corners to reduce the loss of life and infrastructure from wildfires. (Mitigation)</i>	Corinth Fire Department	Medium (Action #7 of 8 in 2009 Plan).	Local Resources; VT Dry Hydrant Grant Program	Summer 2019- Summer 2020
	<i>Install new dry hydrant in West Corinth to reduce the loss of life and infrastructure from wildfires. (Mitigation)</i>	Corinth Fire Department	Medium (Action #7 of 8 in 2009 Plan).	Local Resources; VT Dry Hydrant Grant Program	Spring 2020- Fall 2020
	<i>Explore the purchasing of stainless steel 2000 gallon fire tanker to allow the fire department to appropriately handle and reduce the loss of life and infrastructure from wildfire. (Mitigation).</i>	Corinth Fire Department	Low (New)	Local Resources	Spring 2022- Spring 2023
	<i>Assess and map community's overall vulnerability to wildfire to determine the highest fire hazards in Town that have a susceptibility to threaten life and infrastructure. (Mitigation)</i>	Corinth Fire Department	Low (New)	Local Resources	Spring 2022- Fall 2022
	<i>Clean debris left along rivers from flooding and spring melt to reduce the amount of combustible material that can contribute to and increase the severity of wildfires. (Mitigation)</i>	Selectboard, Volunteer Groups	High (Low)	Local Resources	Spring 2018- Summer 2018
Flash Flood/Flood/ Fluvial Erosion/ Severe Summer Weather/Hurricane/Tropical Storm	<i>Upgrade 2 poor culverts on Brook Road. Upgraded culverts appropriately handle the hydraulic capacity of streams and therefore protect town infrastructure from flooding. (Mitigation)</i>	Selectboard; Road Foreman	Medium (Action #3 of 9 in 2009 Plan).	VTrans Better Roads Grant Program; local resources; HMGP Repetitive Loss Grant	Spring 2020- fall 2020

Hazard(s) Mitigated	Hazard Mitigation Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
Flash Flood/ Flood/ Fluvial Erosion/ Severe Summer Weather/Hurricane/Tropical Storm	<i>Upgrade 3 poor culverts on Meeting House Road. Upgraded culverts appropriately handle the hydraulic capacity of streams and therefore protect town infrastructure from flooding. (Mitigation)</i>	Selectboard; Road Foreman	Medium (Action #3 of 8 in 2009 Plan).	VTrans Better Roads Grant Program; Local Resources; HMGP Repetitive Loss Grant	Spring 2020-Fall 2020
	<i>Improve ditching, culverts, and drainage on Chelsea Road.</i>	Road foreman; Selectboard	High (Action #3 of 8 in 2009 Plan).	Local resources	Fall 2017-Fall 2018
	<i>Conduct a road erosion inventory to document erosion sections on Town road infrastructure to prepare for Municipal Roads General Permit and to improve infrastructure to ensure long term mitigation of damage to town owned property from flood waters. (Mitigation)</i>	Selectboard	High (Action #3 of 8 in 2009 Plan).	VTrans Better Roads Grant Program; local resources; HMGP Repetitive Loss Grant	Summer 2017-Summer 2018
	<i>Develop a schedule and capital budgeting program to replace undersized culverts. Upgraded culverts appropriately handle the hydraulic capacity of streams and therefore protect town infrastructure from flooding. (Mitigation)</i>	Selectboard/ Road Foreman	Medium (Action #3 of 8 in 2009 Plan).	TRORC; local resources	Fall 2017-Fall 2018
	<i>Support projects to protect or restore, including riparian planting, strategic areas of floodplain to provide areas for flood storage, which will help alleviate peak flood flows and reduce the loss of property during a flood. (Mitigation)</i>	Selectboard/ Planning Commission	Medium (New)	Upper Valley Land Trust; Upper Valley Trout Unlimited; local resources	Spring 2021-Fall 2021

Hazard(s) Mitigated	Hazard Mitigation Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
	<i>Keep up-to-date with Vermont Road and Bridge Standards, which will help Corinth design structures that mitigate flood damage. (Mitigation)</i>	Road foreman/ Selectboard	High (New)	Local resources	Spring 2018- Summer 2018 (or when they are updated by VTrans)
	<i>Request an updated flood map from FEMA, which will more accurately represent frequently flooded areas and will allow the town to properly monitor and restrict the construction of infrastructure in areas that are vulnerable to flooding and severe weather. (Mitigation)</i>	Town Zoning Administrator	Medium (New)	Local resources; FEMA	Fall 2020- Winter 2021
	<i>Ensure the location of newly relocated fire department building on Fairground Road is outside the Special Flood Hazard Area. (Mitigation)</i>	Selectboard	High (Medium)	Local Resources	Fall 2018-Fall 2019
Extreme Cold/Snow/ Ice Storm	<i>Clear and maintain town road rights-of-way to protect town infrastructure. (Mitigation)</i>	Highway Department/ Selectboard	Medium (New).	Local resources	Summer 2020-Fall 2020
	<i>Encourage Washington Electric Cooperative to clear and maintain utility corridors, which will protect town and utility infrastructure. (Mitigation)</i>	Emergency Management Director	High (Action #8 of 8 in 2009 Plan).	Green Mountain Power; local resources	Fall 2017-Fall 2018

Hazard(s) Mitigated	Ongoing Actions to Support Mitigation and Preparedness Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
All Hazards	<i>Ensure that Corinth's Local Emergency Operations Plan (LEOP) is kept up-to-date and identifies vulnerable areas and references this Plan. (Preparedness)</i>	Emergency Management Director/ Selectboard	High (Action #1 of 8 in 2009 Plan).	Vermont Division of Emergency Management and Homeland Security (VT DEMHS); TRORC; local resources	Yearly
	<i>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)</i>	Emergency Management Director / Selectboard	High (New).	Vermont Division of Emergency Management and Homeland Security (VT DEMHS); TRORC; local resources	Fall 2017- January 2018
	<i>Develop a methodology to consistently document infrastructure damage after weather events. (Preparedness)</i>	Road Foreman/ Town Clerk	Medium (New).	TRORC; local resources; National Weather Service; VTrans	Ongoing
	<i>Require Corinth employees to become Incident Command System (ICS) 100 and 200 certified. (Preparedness).</i>	Selectboard, Emergency Management Director	High	Local resources	Fall 2018 and Yearly
	<i>Maintain highway and fire mutual aid agreements. (Preparedness)</i>	Highway/Fire Department	High	Local resources and with assistance from TRORC	Yearly

Hazard(s) Mitigated	Ongoing Actions to Support Mitigation and Preparedness Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
	<i>Distribute Vermont Division of Emergency Management & Homeland Security: Family Emergency Preparedness booklet at Town Meeting Day. (Preparedness)</i>	Selectboard/ Emergency Management Director	High (New)	Local resources	Ongoing and yearly
	<i>Ensure Red Cross Shelters, Town Hall and Waits River Valley School are stocked with cots, blankets, and MRE (Meals Ready to Eat) (Preparedness)</i>	Emergency Management Director	High (New)	Vermont Division of Emergency Management and Homeland Security (VT DEMHS); VT Alert; local resources	Yearly
	<i>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)</i>	Fire Chief/Fire Department	High (Action #7 of 8 in 2009 Plan).	Local Resources	Ongoing and occurs yearly.
	<i>Enlist statewide fire education trailer for use at Corinth Elementary School and at community events, which will help residents identify fire hazards in their homes. (Preparedness)</i>	Fire Chief/Fire Department	Medium (New)	Local Resources, Vermont Division of Public Safety: Division of Fire Safety	Ongoing
	<i>Distribute fire prevention fliers at the school to protect young residents from loss of life during fires. (Preparedness)</i>	Fire Chief/Fire Department	High (New)	Local resources	Ongoing. Occurs once per year in the fall.
Hazardous Material Spill	<i>Ensure that all emergency response and management personnel continue to receive HAZMAT Awareness training at a minimum. (Preparedness)</i>	Corinth Fire Department	High (Action #6 of 8 in 2009 Plan).	Newbury Fire Department resources	Yearly

Hazard(s) Mitigated	Ongoing Actions to Support Mitigation and Preparedness Actions	Local Leadership	Prioritization (Mitigation Plan Status)**	Possible Resources*	Time Frame
	<i>Continue to update and maintain an up-to-date geo-referenced culvert inventory, which will identify priority upgrade projects to protect town infrastructure. (Preparedness)</i>	Road Foreman/ Selectboard	High (Action #3 of 8 in 2009 Plan).	Better Backroads grants; TRORC; local resources	Ongoing
Flash Flood/ Flood/ Fluvial Erosion	Plan for, budget, and maintain roads for safe winter travel. (Preparedness)	Selectboard	High (Action #3 of 8 in 2009 Plan).	Local resources	Ongoing and occurs yearly.
	<i>Continue efforts throughout Town to maintain and improve ditching in rights-of-way of Town maintained roads. (Mitigation).</i>	Road Foreman	High (Action #3 of 8 in 2009 Plan).	Local Resources; Better Roads	Ongoing
Extreme Cold/Snow/ Ice Storm	<i>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)</i>	Selectboard	High (New)	Green Mountain Power; Washington Electric; local resources	1 year from date of Plan Approval
	<i>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)</i>	Selectboard, Emergency Management Director	Medium (New).	Local resources	Ongoing and occurs yearly.
	<i>Distribute safe winter driving informational materials to residents by means of Pomfret listserv. Safe winter driving mitigates the loss to human health. (Preparedness)</i>	Selectboard, Town Clerk	Low (New)	Local Resources	Year

*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.

** The 2009 project to stabilize stream banks along Corinth Road is only partially complete (priority #6 in former plan). The town has installed a box culvert but has no current plan to stabilize streambanks further at this time, being a lesser priority to the current slate of projects.

Appendices

Appendix A: Hazard Ranking Methodology

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

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.

local_id	location	label	cul_type	cul_matl	height	width	length	oa_cond
288	COOKEVILLE RD	CORINTH	30		97	120	120	56
621	S AMERICA RD	CORINTH	30		11	24	24	18
254	COOKEVILLE RD	CORINTH	30		97	48	48	54
324	EAGLE HOLLOW RD	CORINTH	30		1	60	60	48
451	MAPLEWOOD RD	CORINTH	30		97	24	24	26
534	PIKE HILL RD	CORINTH	30		1	72	72	68
B43	E ORANGE RD	CORINTH						
B28	EAGLE HOLLOW RD	CORINTH						
B31	MILLER RD	CORINTH						
B3	VILLAGE RD	CORINTH						
B22	JOE LORD RD	CORINTH						
B33	TURKEY HILL RD	CORINTH						
B24	JOHNSON RD	CORINTH						
B27	DEARBORN HILL RD	CORINTH						
B1	COOKEVILLE RD	CORINTH						
B23	HEATH RD	CORINTH						
00004	MEADOW BROOK	CORINTH	200192000409052	CONCRETE SLAB				000025
0005C	COOKVILLE BROOK	CORINTH	200192005C09052	ROLLED BEAM				000039
00008	TABOR BROOK	CORINTH	200193000809052	CONCRETE T-BEAM				000049
0010C	WAITS RIVER	CORINTH	200193010C09052	2 SPN CONT RC SLAB				000072
00007	COOKVILLE BROOK	CORINTH	100905000709051	CONCRETE T-BEAM				000050
00025	COOKVILLE BROOK	CORINTH	100905002509051	PRECAST CONC. ARCH				000022
00030	COOKVILLE BROOK	CORINTH	100905003009051	PRECAST CONC ARCH				000024
00032	SOUTH BRANCH	CORINTH	100905003209051	PRECAST CONC. SLAB				000049
00034	SO. BRANCH WAITS R.	CORINTH	100905003409051	ROLLED BEAM				000073
00036	TABOR BRANCH WAITS RIVER	CORINTH	100905003609051	RLD BM W TIMBER DK				000044
00037	SO BRANCH WAITS RIV.	CORINTH	100905003709051	3SPN CONT CANT STLBM				000071

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.

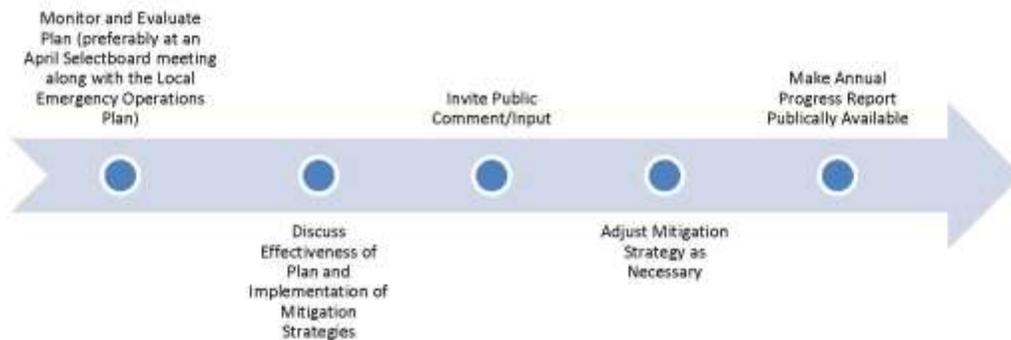
BankfullWidthPercent	CompatabilitySum	IceDebrisJam	OpennessRatio	AOPCourseScreen	RetrotillPotential	StructureType	Town	Location	GisRoadName	StreamName	ChannelWidth	StructureLength	StructureHeight	StructureWidth
19.5	5	1	5%	Red	LLL	Culvert	Corinth	Near intersection with Round House Road	CHELSEA RD	Trib to Meadow Broo	7.7	50	1.5	1.5
45.5	1	1	6%	Red	LLL	Culvert	Corinth	Highest structure of road?	PERDUE PL	Trib to Cookville Broc	3.3	40	1.5	1.5
65.2	2	1	7%	Gray	MLL	Culvert	Corinth	At mailbox 781	HAYWARD RD	Trib to South Branch	2.3	31	1.5	1.5
50	5	1	8%	Gray	MML	Culvert	Corinth	Near intersection with Round House Road	CHELSEA RD	Trib to Meadow Broo	4	53	2	2
24.7	3	1	9%	Red	LLL	Culvert	Corinth	1/2 mile above Pike Hill Road Jct.	BROOK RD	Trib to Pike Hill Brook	8.1	44	2	2
44.4	2	1	12%	Red	MLL	Culvert	Corinth	Elevation approx 1420'	MAPLEWOOD RD	Trib to Cookville Broc	4.5	34	2	2
70	3	1	12%	Red	MLL	Culvert	Corinth	Just west of Corinth / Bradford townline	ROUTE 25	Trib to Waits River	5	100	3.5	3.5
29.9	0	1	13%	Red	LLL	Culvert	Corinth	2/10 mile south of Topsham / Corinth Town Line	RICHARDSON RD	Trib to Waits River	6.7	30	1.9	2
35.7	4	1	13%	Red	MLL	Culvert	Corinth	At intersection with Weatherly Way	HUTCHINSON RD	Trib to Waits River	5.6	30	2	2
19.2	3	1	14%	Gray	LLL	Culvert	Corinth	2/10th mile east of Bliss Place Road	CHELSEA RD	Trib to Meadow Broo	15.6	63	3	3
25	1	1	14%	Red	LLL	Culvert	Corinth	Only crossing between Kyzer Place & Ryder Road	BACKWAY RD	Trib to Meadow Broo	8	28	2	2
62.5	3	1	16%	Red	MML	Culvert	Corinth	Near mailbox # 837	PAGE HILL RD	Trib to Waits River	4	39	2.5	2.5
28.7	4	1	17%	Red	LLL	Culvert	Corinth	Elevation aprox 790'	PAGE HILL RD	Trib to Waits River	8.7	37	2.5	2.5
74.5	3	1	17%	Gray	MML	Culvert	Corinth	By driveway # 3401	CHELSEA RD	Trib to Meadow Broo	4.7	72	3.5	3.5
75	3	1	17%	Gray	HHM	Culvert	Corinth	Intersection of Pike Hill Road & Richardson Road	RICHARDSON RD	Trib to Pike Hill Brook	4	52	3	3
76.7	2	1	21%	Red	HHM	Culvert	Corinth	At mailbox 2340	COOKEVILLE RD	Trib to Cookville Broc	4.3	53	3.3	3.3
34.2	5	1	21%	Gray	MLL	Culvert	Corinth	Near mailbox #5039	CHELSEA RD	Trib to Meadow Broo	11.7	75	4	4
33.3	0	1	25%	Gray	MLL	Culvert	Corinth	Only structure on road	THRESHOLD WY	Trib to Cookville Broc	9	36	3	3
74.5	4	1	28%	Red	MLL	Culvert	Corinth	Just north of intersection with Magoon Hill Road	COOKEVILLE RD	Trib to Cookville Broo	5.5	61	4.1	4.1
39	2	1	29%	Gray	MLL	Culvert	Corinth	100' above Idyll Acres Road	COOKEVILLE RD	Trib to Cookville Broc	7.7	26	2.5	3
25.8	0	1	30%	Gray	Missing Data	Bridge	Corinth	1/2 mile after leaving Brook Road	CENTER RD	Cookville Brook	9.7	25	3	2.5
48.2	4	1	30%	Gray	MLL	Culvert	Corinth	Intersection with Grist Mill Road - BM -140. West Corinth Villag	COOKEVILLE RD	Trib to Cookville Broc	8.3	46	3.5	4
41.3	1	1	36%	Red	LLL	Culvert	Corinth	At Cookeville Garage	COOKEVILLE RD	Trib to Cookville Broc	15	108	6.2	6.2
90.9	5	1	38%	Gray	HHM	Culvert	Corinth	At mailbox 2298	EAGLE HOLLOW RD	Trib to Meadow Broo	5.5	54	4.1	5
38.8	0	1	40%	Red	LLL	Culvert	Corinth	Structure between Carpenter Place & Claflin Road intersecto	RICHARDSON RD	Pike Hill Brook	10.3	40	4	4
35.4	0	1	44%	Red	MLL	Culvert	Corinth	Only structure on road	CARPENTER PL	Pike Hill Brook	11.3	36	4	4
31.7	1	1	46%	Red	MLL	Culvert	Corinth	Elevation 1400'	MAPLEWOOD RD	Trib to Cookville Broc	12.3	33	3.9	3.9
63.5	1	1	48%	Red	MML	Culvert	Corinth	At intersection with Brook Road	BROOK RD	Cookville Brook	6.3	33	4	4

Appendix C: Five-Year Review and Maintenance Plan

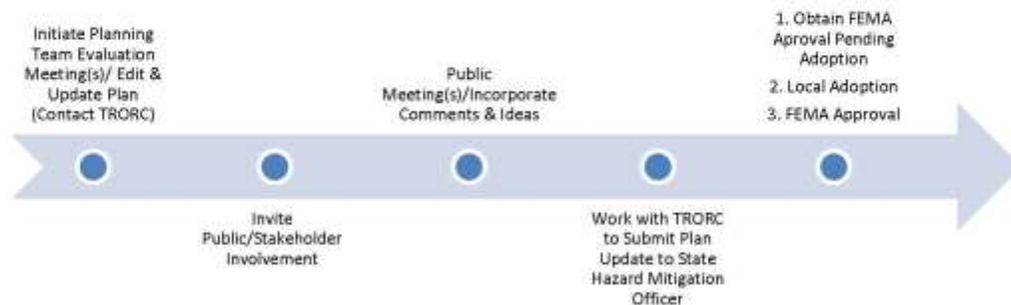
Five-Year Local Hazard Mitigation Plan Review/Maintenance



After Plan Adoption—Annually Implement & Evaluate

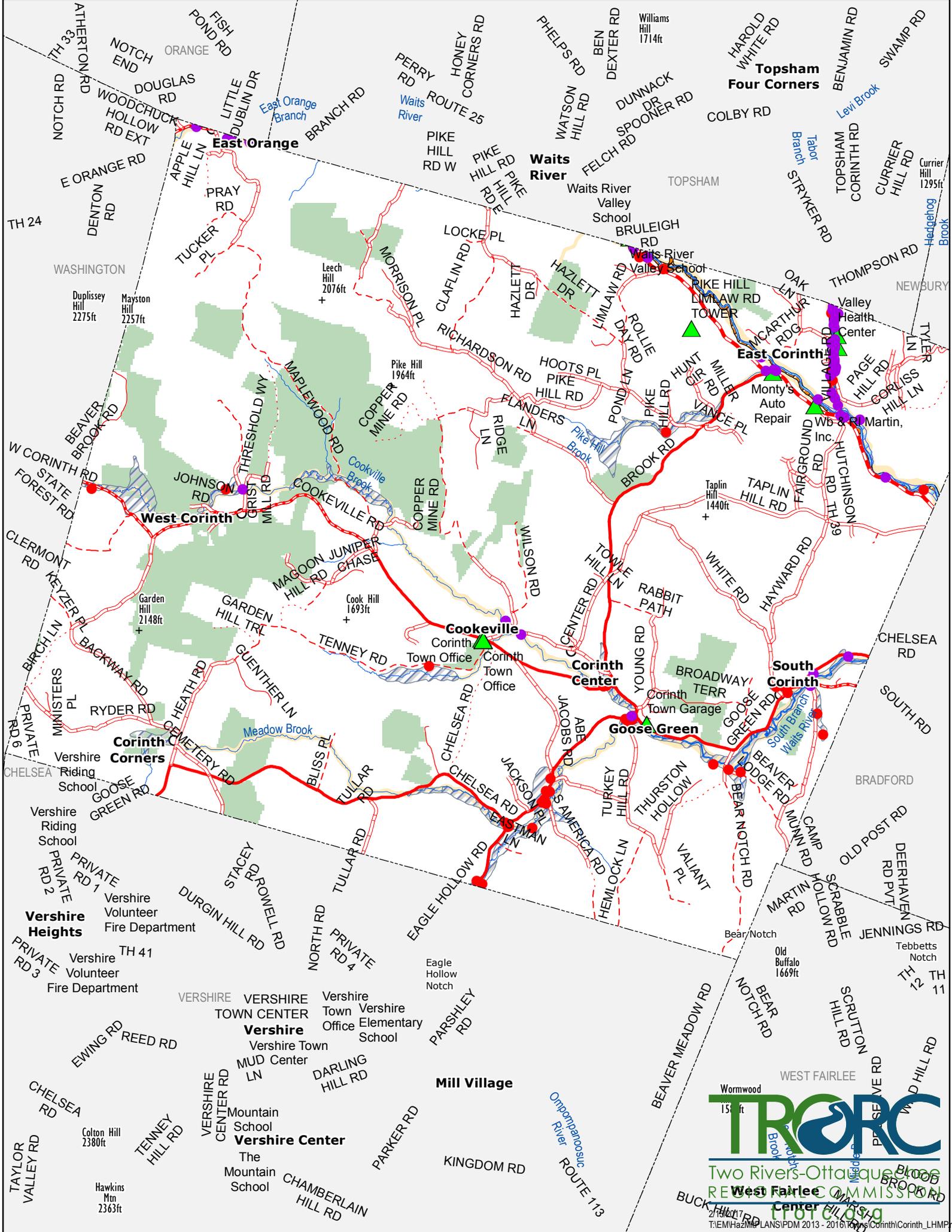


Fifth Year, and After a Major or Federally Declared Disaster Directly Impacting the Town Evaluate & Revise



Attachments

Attachment A: Map of the Town of Corinth



Wormwood 151ft

TRORC

Two Rivers-Ottawa-Bois
 REVERE COMMISSION
 West Fairlee
 Center

Watershed
 27,600 sq ft
 2013 - 2016