

***Town of Bethel, Vermont***  
***2021 Local Hazard Mitigation Plan***

***Prepared by the Town of Bethel***

***Date of Town Adoption: June 14, 2021 - prior plan was adopted June 13, 2016.***

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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 Bethel 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 Bethel 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 Bethel's Plan seeks to be in accordance with the strategies, goals, and objectives of the State Hazard Mitigation Plan, last updated in 2018.

The 2021 Bethel Local Hazard Mitigation Plan is the second single jurisdiction mitigation plan drafted for the Town, the first was in 2015. This new Plan has been updated and a new section has been added:

- Infectious Diseases

New information has been added to make the Plan stronger and more useful for the Bethel town officials and residents who will implement the hazard mitigation strategies in the future.

### III. Community Profile

The Town of Bethel, consisting of approximately 29,144 acres, is situated on the eastern slopes of the Green Mountains. The main village is located at the confluence of the Third and Main Branches of the White River. Commercial and Public facilities are located along Route 12 with residences scattered more widely throughout the Town. In 2019, the population of Bethel was 2,093, making it one of the few towns in the TRORC region to surpass the population boom of the 1800's. Because of its proximity to Interstate 89, the town is likely to experience consistent growth into the future.

According to the 2010 U.S. Census Reports, there were a total of 1,043 housing units in the Town of Bethel. In 1990, there were 888 units. The overall increase during this period (1990 – 2010) was 17.5%. The overall increase for the Two Rivers-Ottawaquechee Region during this period was roughly equivalent at 17%. Of the 1,043 housing units in the Town, 37% percent of these buildings were built prior to 1939.

The Town lies within the service area of Green Mountain Power (GMP), which supplies electrical power to all sections of town. At present, the Town receives its power from a substation located in Royalton. A new 12-kilovolt line has been constructed parallel to Route 12 north of the town center. Eventually, this will connect into the Pleasant Street Randolph substation. Two benefits will be derived from this: line serviceability will be greatly enhanced, and a second source of power will be available to the Town in times of power outages. The Town recently executed a contract to participate with NOVUS energy development for solar power with the Royalton Town and School District.

The Town is served by a single volunteer fire department that responds to fires and other emergencies in Bethel and neighboring towns. Neighboring communities' departments are called in on large fires requiring outside resources per mutual aid agreements. The Bethel Fire Department is located in a fairly new station house on Pleasant Street (Vermont Route 12) near the school. This space should be adequate for the foreseeable future. Water pressure and the location of some of the hydrants throughout the town were upgraded in the \$2.8 M Waterline Project in 2020-2021, as the Town invests money into their infrastructure.

The Fire Department's emergency vehicles consist of a 2001 E-1 Pumper, 2000 F-550 First Rescue truck with extrication equipment Truck, a 2013 Kenworth pumper/tanker, a 2018 Pumper/Tanker, two all-terrain vehicles and a swift water rescue boat. In 2019, the Fire Department received \$124,286 in federal grant funding ("Assistance to Firefighters Grant") to purchase 20 air packs and 25 masks. In 2020 they are applying to the same grant program for a compressor and fill station to replenish air bottles. The Town of Bethel Water Department inspects and repairs all fire hydrants annually, and replaces two per year. The Bethel Fire Department has developed a twenty- five-year capital budget that addresses the need to upgrade equipment.

The Town of Bethel does not require a full-time police force. Appointed constables provide limited police security and traffic control services when needed. All other police functions may be performed by the Windsor County Sheriff or Vermont State Police, Troop "D," which is located off Route 107 south of the Bethel/Royalton Town Line in Royalton.

Medical emergencies are handled well by the private, non-profit White River Valley Ambulance (WRVA), Inc. located in Bethel, which has three ambulances and fully stocked Mass Casualty Incident trailer. The closest hospital is Gifford Medical Center (GMC), located in Randolph. Medivac services are available by the DHART helicopter.

## IV. The Planning Process

### A. Plan Developers

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, 2016).

Name	Role/Organization	How Participation Was Solicited
Therese Kirby	Bethel Town Manager/ Emergency Management Director	<p>The Town's Emergency Management Committee met to review the plan and updated data, provided input on the plan and the Hazard Assessment Ranking Criteria.</p> <p>The Town's Planning Commission was also provided a copy and the opportunity to provide input.</p>
Eric Benson	Planning Commission Chair	
David Aldrighetti	Bethel Fire Chief	
Tim Mills	Utility Director	
Kelly Hill	Administrative Assistant/Public Information Officer	
Allen Patton	Public Works	
Geary Coogler	Assistant Fire Chief	

#### Additional Participants in the Process:

- Bethel Selectboard: Chris Jarvis, David Eddy, Lindley Brainard, Gene Kraus, and Paul Vallee.

## B. Plan Development Process

The 2009 Bethel Annex was originally part of the 2008 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 Bethel 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 Bethel Annex expired on September 30, 2013.

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

This Plan was reconstructed as a single jurisdiction, stand-alone Bethel Local Hazard Mitigation Plan that was approved by FEMA on June 24, 2016. To keep the plan current, we updated the plan in 2021 by including updating studies and technical information. All sections have been updated and we have added a new section on Infectious Diseases.

Bethel looked closely at the State of Vermont's Hazard Mitigation Plan and incorporated their Hazard Assessment Ranking Criteria into Bethel's plan. While snow, ice and cold remain issues for all Vermont Towns, Bethel feels flooding, structure fires (due to the age and condition of some of our downtown properties), and hazard material spills (by way of train derailment) remain our largest threats.

The changes to this Plan include:

### General

- New section: Infectious Diseases;
- Data updates: New hazard incidents, emergency declarations, census data, Mitigation Strategies Status Update chart, Existing Hazard Mitigation Programs, Projects & Activities, Plan Maintenance;
- 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, Structural Fire, 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 Storms have been removed from the list of "top hazards", as Bethel is fully prepared for winter events and very few vulnerabilities remain due to repeated winter hazard events, improved resilience from previous experience and our excellent working relationships with other town road crews;
  - Severe Weather 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 vulnerable to in the next five years;
  - Severe Weather events are now depicted in a chart that shows the multiple hazards involved during each event;
  - 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 Bethel depicting critical facilities, town infrastructure, and the NFIP designated floodway and 100-year floodplain has been added.

*The following represent the avenues taken to update the Bethel Local Hazard Mitigation Planning 2021:*

- **Activities**
  - May 6, 2021: The LEMP Committee members reviewed the 2016 and 2021 draft Plan and provided input to discuss any changes/upgrades, including reevaluating the Hazard Identification ranking. This meeting was warned and open to the public.
- **Public participation and involvement (44 CFR 201.6(b)(1))**
  - January 2021: A notice was placed in the Two Rivers-Ottawaquechee Regional Commission Newsletter alerting recipients that Bethel 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 Bethel's efforts to receive more information and how to find out about upcoming meetings. No comments were received.
  - The Town of Bethel posted a notice in two local papers, on Front Porch Forum, on their website and Facebook page, 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 Bethel's efforts to receive more information and how to find out about upcoming meetings. Any comments received were incorporated into the Plan.
    - Valley News—ran 4/15/2021
    - The Herald of Randolph—ran 4/15/2021
    - Front Porch Forum- posted 4/8/2021
    - Facebook – posted 4/8/2021
    - Town of Bethel website – posted 4/8/2021
  - March 2021: A notice was placed in the Two Rivers-Ottawaquechee Regional Commission Newsletter alerting recipients that Bethel 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 Bethel'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))**
  - Town Manager sent the revised draft to the Selectboard Chair, and reviewed it with them at their 5/10/2021 meeting. Any comments received were incorporated into the Plan.
  - Town Manager sent the revised draft to Planning Commission, Reviewed it with them at their 5/13/2021 meeting. Any comments received were incorporated into the Plan.

- The Town Manager sent the revised draft to Division of Emergency Management and Homeland Security on April 12, 2021. Comments received were incorporated into the Plan.
- **Neighboring community participation and involvement (44 CFR 201.6(b)(2))**
  - January 2021: A notice was placed in the Two Rivers-Ottauquechee Regional Commission Newsletter alerting recipients that Bethel 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 Bethel’s efforts to receive more information and how to find out about upcoming meetings. No comments were received.
  - The Town of Bethel posted a notice in two local papers, on Front Porch Forum, on their website and Facebook page, 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 Bethel’s efforts to receive more information and how to find out about upcoming meetings. No comments were received.
    - Valley News—ran 4/15/2021
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    - Town of Bethel website – posted 4/8/2021
  - March 2021: A notice was placed in the Two Rivers-Ottauquechee Regional Commission Newsletter alerting recipients that Bethel 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 Bethel’s efforts to receive more information and how to find out about upcoming meetings. No comments were received.
  - The Town of Bethel sent the revised draft to neighboring towns’ Selectboard’s for comment and provided contact information for receiving comments via email on 4/12/2021. Any comments received were incorporated into the Plan.
    - Towns of: Barnard, Randolph, Braintree, Rochester, Royalton, and Stockbridge.
- **Review of existing plans, studies, reports, and technical information (44 CFR 201.6(b)(3))**
  - Bethel Hazard Mitigation Plan (Adopted 6/13/2016)
    - This Plan was referenced extensively during the plan development process, especially in regard to the worst threats and mitigation action strategies identified in 2009.
  - Bethel Town Plan (Adopted 11/23/2020)
    - The Town Plan provided updated background information on the community, as well as more detail on their emergency services, population and housing data, and mitigation goals.
  - Bethel Zoning Bylaws (Adopted 6/2017)

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).

- The Zoning Bylaws were referenced for general knowledge and for Bethel’s Flood Hazard Regulations.
- Bethel Local Emergency Management Plan (LEMP) (Adopted 04/12/2021)
  - The Bethel LEOP was referenced for general knowledge regarding the Town’s emergency operations, staff updates and to help identify hazards.
- Bethel Water System Source Protection Plan & Contingency Plan (Updated 4/2021)
  - The Source Protection Plan was referenced when drafting the Hazardous Material Spill section.
- Bethel Wastewater Treatment Facility Operation, Management and Emergency Response Plan (Updated 1/8/2021)
  - The Emergency Management Plan was referenced when for general knowledge and when drafting the Hazardous Material Spill Section.
- Flood Insurance Study for Windsor County, Vermont (Dated 09/28/2007)
  - The Flood Insurance Study was referenced for general knowledge of the White River and peak discharge information.
  - Relevant peak discharge information for the White River can be found on pages 26 and 27 of Volume 1.
  - This information was incorporated into the mapping/GIS components of this Plan; specifically in determining the number of structures that are vulnerable to SFHA, and into the Flash Flood/Flood/Fluvial Erosion and Severe Weather sections of this Plan.

**C. Status Update on Mitigation Actions Identified in 2021**

The following table outlines the mitigation actions that were proposed in Bethel’s 2016 Hazard Mitigation Plan for the Town of Bethel (adopted on 06/13/2016).

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 2016 priority). The Town of Bethel has seen the potential impact of infectious diseases and climate change weather extremes in the years leading up to this plan update, and priorities for hazard mitigation planning reflect not only the new data, but lived experiences. Actions related to long-term mitigation of natural hazards are so noted:

Mitigation Action	Who (Leadership)	When (Timeframe)	How (Funding/Support)	2021 – Status of Mitigation Actions
<u>ALL HAZARDS</u> 1. Ensure that the Rapid Response Plan (RRP) and Local Emergency	Town Manager	Yearly	With TRORC assistance	The newest iteration of the RRP is the Local Emergency Management Plan (LEMP). The Town of Bethel adopted their updated their LEMP on 04/12/2021.

Management Plan (LEMP) is current.				
<u>FLOOD</u> 2. Develop an inspection and road erosion improvement planning program that addresses culvert survey and upgrade and ditching. (Mitigation)	Road Foreman and Town Manager	2/28/2021 and ongoing	Local resources, TRORC and VTrans grants as applicable	Road Erosion & culvert inventory completed by TRORC on 2/28/2021.
3. Identify frequently flooded roads and bridges. (Mitigation)	Road Foreman & State of Vermont	2020	Local resources & VTrans grants	In 2019 & 2020, many of the normally vulnerable roads were built up, culverts upsized and stone lined ditches were installed. A grant was written in 2020 to repair Bridge # 32 & install rip rap along the river banks.
4. Replace state bridge (#38) over Gilead Brook on VT Route 12. (Mitigation)	VTrans	2018-2020	HMGP or PDM-C and state resources	This work was complete and the new bridge was open in 2020
5. Stabilize Gilead Brook riverbank behind White River Valley Ambulance (WRVA). (Mitigation)	WRVA	Unknown	HMGP or PDM-C, state and private resources	Not complete. This action has been carried over into the 2021 Plan & will be dependent on WRVA securing funding.
6. Replace Camp Brook Road bridge (#34) on VT Route 12 to address aggradation and structure inadequacy. (Mitigation)	VTrans	Unknown	HMGP or PDM-C and state resources	Not complete. This bridge washed out during Tropical Storm Irene. This action has been carried over into the 2021 Plan. The State of VT currently has no timeline to replace this bridge.
<u>FIRE</u> 7. Develop additional dry hydrant sites in rural locations. (Mitigation)	Fire Department	Ongoing	Local resources, RC&D	In process. There are still a few voids in service in some areas.
8. Replace existing water main on Main St. and provide adequate sizing and location of distribution mains for future installation of fire sprinkler systems in the closely spaced historic downtown structures.	Sewer/Water Department with Town Manager	2020-2021	Local resources, State & Federal Grants	Project completed in summer of 2021.
<u>WINTER STORM</u> 9. Educate citizens on preparedness for	Emergency Management Coordinator	Ongoing	Local resources & VT Alert	Winter weather preparedness information can be found in the Town's Annual Report, on the

winter travel and extended power outages.				Town's website and Facebook page.
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Partially due to its location near Interstate 89, and at the intersection of Vermont Routes 12 and 107, the Town of Bethel has a relatively more developed Village than some of the surrounding towns. In the summer of 2020, construction began on a \$2.8 million water infrastructure project. A new water main was installed on Main Street from Green Mountain Feeds to just past Bethel Mills, as well as on the corresponding side streets. New stormwater infrastructure was also installed and some upgrades were made to existing stormwater infrastructure along the same route. The Village of Bethel is home to the majority of the Town's commercial and industrial development. The Town's Village Center Area, part of the Vermont Downtown Program's Village Center Designation, encourages new growth within the Village Center, instead of in the less-developed areas of town, thereby discouraging sprawl development. There are some sections of the Village that are vulnerable to flooding, and some businesses just outside of the Village area were inundated during Tropical Storm Irene. However, due to the elevation above the Third Branch of the White River, much of the commercial and residential development within the Village center is relatively safe from flood damage. Also located within the Town of Bethel are two hamlet areas, East Bethel and the Locust Creek area. East Bethel is primarily residential and is vulnerable to flooding. The Locust Creek area (intersection of Routes 12 and 107) is a mix of residential and a few businesses, and is also vulnerable to flooding, in large part from Locust Creek, which is not mapped by the Federal Emergency Management Agency (FEMA).

The Planning Commission updated the Town Plan in 2020. The Planning Commission and Development Review Board are currently meeting to update/amend the Zoning Bylaws, to better reflect the Town Plan. In 2020 the Town of Bethel approved two curb cut/driveway access permits, fifteen building permits and one subdivision permit. The majority of these permits were issued in the Medium Density and Village zoning districts. In the first four months of 2021, one curb cut/driveway access, permit, seven building permits and no subdivision permits have been issued. Growth continues to occur in the Medium Density and Village districts.

## D. Town Capabilities for Implementing Mitigation Strategy

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

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

	Type of Existing Authority / Policy / Program / Action	Resources: Staffing & Funding	Ability to Expand/Improve on
<b>Community Preparedness Activities</b>	<p>Program—Annual update of Bethel’s Local Emergency Management Plan (LEMP).</p> <p>Last updated and approved on 04/12/2021.</p>	Updated by the Town Manager, Fire Chief and Emergency Management Planning Committee.	This document is reviewed and updated each year to ensure the contact information of emergency response personnel is up-to-date. This information is then sent to Vermont Emergency Management and Homeland Security (VEMHS) for their records. The current program works well, no need to expand or improve on.
	Action– Red Cross Shelter	Utility Director	The generator installed in 2013 receives annual maintenance and is tested regularly.
	Program— Participation/attendance in the Local Emergency Planning Committee District 12 (LEPC 12)	Volunteer time from the Bethel Fire Chief& Town Manager; meetings convened by TRORC. Funding from Vermont DEMHS.	No need to expand or improve on attendance, as it is satisfactory.
	<p>Authority/ Program—participation in National Flood Insurance Program (NFIP)</p> <p>The Town participates and complies with the NFIP through their enforcement of the “Flood Hazard Overlay District” part of the Town’s Zoning Bylaws, which was last adopted on 6/2017.</p> <p>[Note: This section of the Plan satisfies the requirements of 44 CFR 201.6(c) (3) (ii).]</p>	The Bethel Zoning Administrator serves as the NFIP Administrator. Assistance from TRORC and Vermont ANR. Funding from local resources— annual budget.	<p>The Town’s initial Flood Hazard Boundary Map (FHBM) was dated 2/8/74. The Town’s initial Flood Insurance Rate Map (FIRM) was dated 8/5/91. The Town’s FIRM and Flood Insurance Study (FIS) has been updated, and the current effective date for both is 09/28/07.</p> <p>The Flood Hazard Area Bylaw is kept up-to-date and regulates new development in the Special Flood Hazard Area (SFHA).</p>
	<p>Policy/Program— Bethel Town Plan</p> <p>Adopted on 11/6/2020, includes a “Flood Hazard Land Use Area” discussion within the “Land Use” element’s “Proposed Land Use Settlement Patterns” section.</p>	Volunteer time from the Planning Commission, Selectboard, assistance from TRORC and other state agencies on specific subject matter. Funding from Municipal Planning Grants.	The Town Plan is reviewed/updated every five years, as required by statute. The Planning Commission may expand or improve on any section it deems necessary, or that is required by changes in state statute.

<p><b>Insurance Programs</b></p>	<p>Policy/Program— Bethel Zoning Bylaws</p> <p>Last amended in 6/2017, includes a “Flood Hazard Overlay District” zoning district. The Zoning Bylaws are currently being reviewed to be amended in 2021.</p>	<p>Volunteer time from the Planning Commission assistance from TRORC and other state agencies on specific subject matter. Funding from Municipal Planning Grants.</p>	<p>After the Town Plan review/update period in 2020, the Zoning Bylaws are currently being reviewed and amended.</p>
<p><b>Land Use Planning</b></p>	<p>Authority— Bethel Subdivision Regulations</p> <p>Adopted on 6/2017.</p>	<p>Volunteer time from the Planning Commission. Funding from Municipal Planning Grants.</p>	<p>The Subdivision Regulations are currently being reviewed along with the Zoning Bylaws.</p>
	<p>Policy/Program— Bethel Local Hazard Mitigation Plan</p> <p>Adopted on 6/13/2016. Final approval from FEMA on 6/24/2016.</p>	<p>Updated with volunteer time from local officials and assistance from Vermont DEMHS.</p>	<p>The 2021 Bethel Local Hazard Mitigation Plan will replace the expired 2016 Plan.. Future iterations of the Town’s LHMP will be updated by the Town at least every five years.</p>
	<p>Authority— 2021 Town Road and Bridge Standards</p> <p>Adopted 03/22/2021</p>	<p>Adopted by the Selectboard, implemented by the Road Foreman, with assistance from TRORC. Funding from VTrans and the local budget to implement.</p>	<p>Specifies minimum construction standards for roadway, ditches, culverts and bridges and guardrails. VTrans updates the Town Road and Bridge Standards on a fairly regular basis. The Town has the authority to require above-and-beyond what is written in the policy. Needs to be recertified each year.</p>
<p><b>Hazard Control &amp; Protection of Critical Infrastructure &amp; Facilities</b></p>	<p>Program—Culvert and Road Erosion inventory completed 2/28/2021 for the Town of Bethel</p> <p>This inventory includes georeferenced locations and attributes for all culverts/drop inlets and inventories roads that need ditching in Bethel. The Town received targeted assistance in the culvert inventory and specific priority mitigation projects were identified.</p>	<p>Staff time from the Bethel Road Foreman; assistance from TRORC. Funding from Better Backroads grant; local personnel time.</p>	<p>The Town is currently using the culvert inventory to further its culvert improvement program, and seeking funding through various sources for implementation projects. Routine in-house updates occur on an on-going basis. There is no need to expand or improve on this program at this time. The Town also uses this information to install and/or maintain ditches, including stone lining some.</p>
	<p>Action- Information on VT Alert is posted on the Town’s website &amp; listed in the annual Town Report</p>	<p>Staff time from Town Manager’s Office</p>	<p>The Town did outreach at the March 2020 Town Meeting to get residents signed up. They also included information in a water/sewer mailing in 2019. They will do that annually starting in 2021.</p>
	<p>Action/Program— Emergency Preparedness and Preparation information is posted on the Town’s website for both residents and business owners.</p>	<p>Staff time from Town Manager/Town Clerk’s office Information from the Bethel Fire Department. Funding from local budgets (Town/, emergency services).</p>	<p>Flood insurance information is also posted. This is an ongoing action/program, and currently works well.</p>

<p><b>Education/ Public Outreach</b></p>	<p>Action/Program – During COVID 19 outbreak the Town created, printed &amp; distributed a mailer providing residents with prevention/protection information and contact numbers for assistance. Information was placed on Town’s website &amp; they partnered with residents who were distributing information as Bethel Strong.</p>	<p>Town Manager, Fire Chief, Town Office Staff, Selectboard &amp; volunteers</p>	<p>As COVID-19 is an ongoing issue, we keep updated information on our website and release important information on our Facebook page as needed.</p>
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## E. Plan Maintenance

This Plan (the Bethel 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, annually at an April Selectboard meeting, along with the review of their Local Emergency Management Plan (LEMP). At this meeting, the Selectboard will monitor the implementation of the hazard mitigation strategies outlined in this Plan, by noting those that have been completed. Any 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.

Updates and evaluation of this Plan by the Selectboard and the local Emergency Coordinator/Director will also occur within three months after every federal disaster declaration directly impacting the Town of Bethel. 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 D. The Town shall reference the Local Hazard Mitigation Plan when working on Town Plan amendments or changes to the Town's bylaws.

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

At least one year before the Plan expires, the update process will begin (through annual updates, monitoring of progress, and evaluation that will occur at the April Selectboard meeting). Two Rivers-Ottawaquechee Regional Commission (TRORC) will help with Plan updates if assistance is requested by the Town of Bethel, and if funding is available. If TRORC is unable to assist the Town, then Bethel's Town Manager will update the Plan, along with the Emergency Management Committee, Fire Chief and Utility Director. The Selectboard may appoint a committee of interested citizens (including the current local Emergency Coordinator/Director) to draft changes if necessary. 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, notice within the municipal building, and notice in The Herald of Randolph and the TRORC newsletter, inviting the public to any scheduled Selectboard (or specially scheduled) meetings. The public will be given the opportunity to comment during this process. Additional stakeholders may be invited to the meeting; these include: local businesses (e.g., GW Plastics and Vermont Hearth & Home), VTrans, and the Vermont Agency of Natural Resources (VT ANR). VT ANR will be invited because they can provide assistance with NFIP outreach activities in the community, models for stricter floodplain zoning regulations, delineation of fluvial erosion hazard areas, and other applicable initiatives. These efforts will be coordinated by the Town Manager.

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. If new actions are identified in the interim period, the plan can be amended without formal re-adoption during regularly scheduled Selectboard meetings.

Bethel has and will continue to incorporate mitigation planning into their long-term land use and development planning documents. The 2013 Vermont Legislature passed a law requiring all towns to incorporate flood resiliency elements into their town plans for all plans adopted after July 1, 2014, which the Town of Bethel complied with in their 2016 update. This Local Hazard Mitigation Plan helps the town remain compliant with the flood resiliency requirements.

The Town should review and incorporate elements of the Local Hazard Mitigation Plan into updates for the municipal plan, zoning regulations, and flood hazard/ fluvial erosion hazards (FEH) bylaws when they are reviewed in 2020/21. Mitigation strategies will directly influence goals, policies, and recommendations in future updates to the Bethel Town Plan. The incorporation of the goals and strategies listed in the Local Hazard Mitigation Plan into the municipal plan, zoning regulations and flood hazard/FEH bylaws will also be considered after declared or local disasters. The Town shall consider reviewing any 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. 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 Bethel a safer place.

It is important we learn from the past in order to avoid the same disasters and their outcomes. Disasters that have occurred within the Town of Bethel, 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 Bethel 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. 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 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 Bethel.<sup>1</sup> The worst threats (bolded in the table, below) are then followed-up with discussion and mitigation strategies throughout the rest of this Plan.<sup>2</sup> It should be noted 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.

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<sup>1</sup> 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 Bethel - including Drought, Extreme Heat, Tornadoes, Hail Storms, Extreme Cold/Snow/Ice Storms, Landslides/Mudslides/Rockslides, and Earthquakes - were not addressed in this plan. For these hazards, please review the Vermont State Hazard Mitigation Plan.

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

Hazard	Probability	Potential Impact					* Score
		Infrastructure	Life	Economy	Environment	Average	
Structure Fire	3	4	1	2	2	2.25	6.75
Hazardous Material Spill	3	1	1	1	2	1.25	3.75
Severe Weather (Thunderstorm, High Winds, Heavy Rain)	4	2	2	1	1	1.5	6
Wildfire/Brush Fire	3	1	1	1	3	1.5	6
Flood/Fluvial Erosion/ Inundation Flooding	4	4	2	4	4	3.5	14
Water Supply Contamination (Infrastructure Failure)	2	4	1	2	3	10	2.5
Tornado	1	2	2	1	2	1.75	1.75
Landslide/Mudslide/Rockslide	1	2	1	1	1	1.25	1.25
Hurricane/Tropical Storm	2.5	3	2	3	3	2.75	6.87
Hail Storm	3	1	1	1	1	1	3
Extreme Cold/Ice/Snow/ Ice Jam	4	1	1	2	2	1.5	6
Earthquake	1	3	2	2	2	2.25	2.25
Extreme Heat/Drought	1.5	1	3	2	2	2	3
Infectious Disease	4	1	4	4	1	2.5	10

\*Score = Probability x  
Average Potential Impact

The Bethel LHMP committee discussed the results of the hazard ranking activity and decided to focus on hazards that had the potential to occur frequently, and had a *Minor* impact. While the committee believed that *Hurricane/Tropical Storms* had the potential to occur on an *Occasional-Likely* basis, and would have a *Moderate* impact, the committee believed the two main hazards caused by hurricanes /tropical storms are flooding and wind damage, and those hazards would be addressed adequately in the *Flood/Fluvial Erosion/Inundation Flooding* and *Severe Weather* hazard profiles, respectively. In addition, the Bethel LHMP committee chose to focus on the natural hazard of *Flood/Fluvial Erosion/Inundation Flooding* instead of *Wildfire/Brushfires* because flooding hazards are more likely to occur and are more likely to cause damage (sometimes extensive) than wildfire/brushfires, which are usually contained fairly quickly and cause minimal damage. The LHMP committee did not include an in-depth analysis of *Extreme Cold/Ice/Snow/Ice Jam* in this plan update, as capabilities exist to address winter hazards and no further mitigation is necessary. Flooding impacts related to extreme cold/ice/snow/ice jam are included in the *Flood/Fluvial Erosion/Inundation Flooding* hazard profile and risk assessment.

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

- Structure Fire
- Hazardous Material Spill
- Severe Weather
- Flood/Fluvial Erosion/Inundation Flooding
- Infectious Disease

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 the water supply is available. While many residences in Bethel 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 Bethel LEMP, it is important to reinforce the need for adequate generators, including their fuel supply, in this Plan, so t the town is prepared to ameliorate the effects of a sustained power loss in Bethel.

A further focus that is important to address in this Plan, includes the awareness of the population demographics of Bethel. 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 LEMP, 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. Information about these hazards 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 include the following information (please see each hazard profile for a hazard-specific matrix):

**Hazard Assessment Ranking Criteria**

<p>Frequency of Occurrence: Probability of a plausibly significant event</p>	<p>Potential Impact: Severity and extent of damage and disruption to population, property, environment and the economy</p>
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1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	Likely: >10% but <75% probability per year, at least 1 chance in next 10 years	Moderate: severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	Highly Likely: >75% probability in a year	Major: severe property and environmental damage on a community or regional scale, multiple injuries or fatalities, significant economic impact

## B. Hazard Profiles for “Hazards Posing Highest Vulnerabilities”

### 1. Structure Fire

Vermont has one of the highest per capita death rates from fire in the nation. This is, in fact, the deadliest form of disaster throughout the state. In 2019, there were 2302 reported structural fires in the state, which included 5 fatalities and \$215 million dollars in damage. There have been requirements for smoke detectors in rental housing for over 20 years, and requirements for smoke detectors in single-family dwellings since 1994, and legislation in 2005 requiring CO alarms in all buildings where people sleep.

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 **Structure Fire**.

Structure fires may occur at any point, and are typically initiated within a single fuel object. Cooking fires and appliances continue to be the leading cause of structure fires in Vermont. Smoke produced by the burning object forms a smoke plume and rises, creating a layer of smoke while also transporting heat to the smoke layer. Fire then spreads quickly by radiation from the flames, or from the smoke layer. Once other objects are engulfed, more smoke plumes are formed and heat radiates to other objects. Fire burns and moves across different materials depending on the material’s composition, orientation, surface-to-mass ratio, and air supply in the structure/room. Heat from a fire rises at 90 feet per second or 60 mph and doubles in size every minute.

The majority of the Town of Bethel’s growth is centered in the village area that extends out from Routes 107 and 12 along the White River. The Town is typified by a number of old wooden and brick town buildings, residences, and a number of commercial spaces. A review of the fires listed in the “History of Occurrences” chart below demonstrates the potential for structures located in the rural Town of Bethel to be completely or severely destroyed by fire.

The following occurrences were reported by the Committee or obtained from local sources. It is reasonable to assume that more structural fires have occurred in the period of time between the entries listed below, and that such fires have caused varying extents of property damage.

#### **History of Occurrences:**

<b>Date</b>	<b>Event</b>	<b>Location</b>	<b>Extent and Impacts</b>
03/15/2020	Structure Fire	Finley Bridge Road	A shed fire started by a barrel fire. Shed was a total loss.
01/25/2020	Structure Fire	Pleasant Street	Fire a single family residence, porch, trellis and section of siding involved. Called in Arson Investigator. Believed to be caused by stove pipe ember. Minor damage.
09/08/2019	Structure Fire	Gage Road	
06/29/2019	Structure Fire	North Main Street	A fire at a multi-unit (rental) apartment building, caused by lightning storm, resulted in major damage to structure.
05/08/2018	Structure Fire	Camp Brook Road	A fire at a single family residence, unknown cause, major damage. Resident transported to hospital due to smoke inhalation.
01/22/2018	Structure Fire	River Street	A fire at a restaurant, the kitchen and ceiling were fully involved. Damage to kitchen was severe, the rest of the building was not affected.
11/04/2017	Structure Fire	Woodland Road	A kitchen fire, moderate damage to kitchen and heavy smoke damage. It was caused by an electrical issue.
02/13/2015	Structure Fire	Findley Bridge Road	A fire destroyed an old two-story farmhouse, attached garage, and barn. The cause of the fire could not be determined due to the extent of damage.
09/22/2013	Structure Fire	Church Street	A fire at a multi-family (rental) residence resulted in major damage to the structure. The cause of the fire was undetermined.
09/13/2012	Structure Fire	Findley Bridge Road	A fire at a camp, caused by a wood stove, resulted in a total loss of the structure.
03/01/2012	Structure Fire	Gage Road	A newly renovated home in East Bethel was destroyed in a daytime fire that was likely caused by electrical problems. Mutual aid from Barnard and E. Randolph was called in, and firefighters remained on the scene for 4-5 hours. Total loss of the structure.
12/08/2010	Structure Fire	Royalton Hill Road	A fire at a single family residence, caused by a wood stove, resulted in minor damage to the structure.
10/02/2010	Structure Fire	Pleasant Street	Fire at a dairy barn resulted in a total loss of the structure. The cause of the fire was undetermined.
12/22/2009	Structure Fire	Dearing Road	A fire at a single family (rental) residence, caused by a woodstove, resulted in major damage to the structure.
02/17/2009	Structure Fire	Gilead Brook Road	Rekindle of the 02/16/2009 fire, which resulted in a total loss of the structure.
02/16/2009	Structure Fire	Gilead Brook Road	A fire, caused by a fireplace, resulted in moderate damage to the structure.
07/22/2008	Structure Fire	Sunrise Road	A fire at a single family residence caused major damage to the garage/workshop and moderate damage to the residence.
02/15/2008	Structure Fire	Camp Brook Road	A fire caused by a wood stove resulted in minor damage at a single family residence.
02/13/2006	Structure Fire	Peavine Boulevard	A fire in the furnace/chimney of a multi-family residence resulted in minor damage to the structure.
12/19/1945	Block Fire	Main Street	West side of Main Street burned.
1938	Block Fire	Main Street	West side of Main Street burned. Assistance was called in from Randolph to attack the blaze in the business district. A wooden building with about 7 storefronts and two more on the right end facing the parking lot of the railroad station burned.
12/10/1877	Structure Fire	Main Street	A catastrophic fire along Main Street, believed to have been ignited by a spark from a passing locomotive, swept the west side of the street from the former Weston Mill to the south of the present-day Depot.



As noted, recognized fire protection problems for the community include the following: development in areas distant from the village center of the Town, development on class 3 and 4 roads, distance from water sources (rivers, hydrants and/or fire ponds), inaccessibility to fires that may spread from more forested areas, and inadequate snow removal (for building access). While structure fires can occur at any time of the year, a number of the structure fires in the Town of Bethel have occurred in the colder, winter months when the heating of residents' homes and apartments is critical. Poorly maintained furnaces, fireplaces and/or wood stoves, unattended fires, and careless activities leave structures in the Town of Bethel and in surrounding towns (to which the Bethel Fire Department may provide mutual aid) vulnerable to structure fires during the winter months.

Scouting for additional rural locations for new hydrants in Bethel is an on-going process, and the Town installed one new dry hydrant within town limits in the past three years. It was installed at a private pond on Campbell Road. There are additional areas that could potentially be utilized to this end, and there are areas that are lacking in such fire safety installations, such as the Lympus area of the Town. A comprehensive survey of the Town may prove an effective means of determining if and where more sites are needed throughout Bethel.

To help combat structure fires in the Town of Bethel, members of the Bethel Fire Department receive Fire Fighter 1 certifications through the Vermont Fire Academy. At the end of 2020, out of the 23 members 11 have been trained at the Firefighter 1 level or equivalent and 3 have been trained at the Firefighter 2 level or equivalent. Planning is underway to increase that number. Training is also provided at the Bethel Fire Department and current training requirements are for 24 hours per year in-house, in structural firefighting, as well as 24 hours Swift Water/ rescue. Additionally, each firefighter receives 12 hours of Hazmat refresher and have begun receiving Incident Command instruction and exercises.

	Frequency of Occurrence: Probability of a plausibly significant event	Potential Impact: Severity and extent of damage and disruption to population, property, environment and the economy
1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	Likely: >10% but <75% probability per year, at least 1 chance in next 10 years	Moderate: severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	Highly Likely: >75% probability in a year	Major: severe property and environmental damage on a community or regional scale, multiple injuries or fatalities, significant economic impact

## 2. Hazardous Material Spill

Based on available VT Tier II data, there are seven sites in town that have sufficient types and/or quantities of hazardous materials to require reporting.

Bethel’s village is located along Routes 12 and 107. Interstate 89 passes through the northeast corner of the Town of Bethel.

In addition, New England Central Railroad operates the railroad tracks that pass directly through the Village, behind

the main block of commercial buildings on the street level with residences on the upper floors. The railroad tracks pass over Vermont Route 107 as they enter the Village and then over two trestle bridges spanning the Third Branch of the White 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.**

New England Central Railroad transport a variety of commodities including lumber, panels & plywood, poles, newsprint, printing paper, compressed gas, chemicals, fuel oils, road salt, ferrous and non-ferrous metals, fabricated metals, resins, TOFC/COFC, finished vehicles, feed mill ingredients, machinery and equipment, recyclables, ash, construction debris, foodstuffs and non-metallic minerals. Amtrak’s “Vermont” route also passes through the Village of Bethel twice a day.

There are 27 critical facilities in the Town of Bethel, which includes the seven Tier II hazardous material storage facilities. There are 531 residential and 74 commercial, industrial public or governmental buildings within 1,000 feet of a potential HAZMAT spill on major roads, such as Route 12, Route 107, Interstate 89 and the railroad tracks. This includes the Town Office, the Town Hall, the Bethel Fire Department, the Bethel Water and Wastewater Departments and the White River Unified District School. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be over six million dollars. It should be noted the State of Vermont currently has one fully-trained HAZMAT response team, with vehicles located in Essex Junction, Brandon, and Windsor. The HAZMAT crew chief is available within minutes of a call for the team but on-scene response would be a matter of hours. In the event of a serious accident in Town, there would be little time for evacuation and response would be difficult.

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

### History of Occurrences:

Date	Event	Location	Extent and Impacts
04/22/2019	Diesel Fuel Spill	River Street	A single vehicle truck accident puncture the fuel tank. Approximately 35 gallons of diesel was spilled.
3/28/2018	Unknown	221 Main Street	Three 55 gallon drums – ended up containing rags with oi – no spill

3/17/2018	Diesel Fuel Spill	137 Main Street	Fuel dispenser release failed – 4 gallons spilled.
1/7/2018	Gasoline Spill	137 Main Street	Failed shut off – 6 gallons spilled
4/14/2017	Hydraulic Oil Spill	64 Vermont Castings Road	Line leak on TT unit. – 2 gallons spilled
6/3/2016	Diesel Spill	1592 Camp Brook Road	Truck accident. 35 gallons of diesel was spilled.
12/4/2015	Fuel Spill	88 North Road	#6 fuel oil leak discovered during excavation. 200 gallons released.
10/23/2014	Hydraulic Oil Spill	1796 River Street	Blown hydraulic hose spilled approx.
11/20/2013	Hydraulic Oil Spill	VT Route 12	Blown hydraulic hose spilled 2-3 gallons of hydraulic fluid.
09/30/2013	Gasoline Spill	Main Street	An underground storage tank was overfilled. Approximately 50 gallons of gasoline released.
07/11/2012	Waste Oil Spill	Findley Bridge Road	A partial drum of waste oil was knocked over, approximately 2 gallons of waste oil spilled.
09/30/2011	Hydraulic Oil Spill	McIntosh Hill Road and Gilead Brook Road Main Street	Flooding as a result of Tropical Storm Irene washed transformer oil down river after it was downed. Approximately 10 gallons of hydraulic oil released. An underground storage tank was overfilled. Approximately 50 gallons of gasoline released.
09/14/2011	Oil Spill	Richard's Mobile Home Park (Route 12) Findley Bridge Road	Parts of mobile home park damaged, multiple tanks tilted and upended. One tank with broken, and fill pipe that had a small spill (<1 cup): A partial drum of waste oil was knocked over, approximately 2 gallons of waste oil spilled.
08/30/2011	Oil Spill	Pleasant Street	Oil on water - 65 feet from town well. Paul Daly reported 150 gallons of oil. 8-9 drums onsite of waste. EPA later reported that 8 drums of waste from pumping tank and sludge, and one was oil rags. EPA also reported that PID = 18.7 ppm ambient, 31 ppm near undisturbed soil, and that pools of oil were still present. Approximately \$3,660 in invoices to Vermont ANR for spill.
05/19/2010	Oil Spill	Church Street	Capacitor main leak released approximately 3 gallons of oil onto Vermont Route 12 and some into soil.
01/27/2010	Hydraulic Oil	Route 107	Snow plow had hose fail while plowing Route 107. Plowed from mm .70 - 3.30 before leak discovered. Approximately 30 gallons released.
08/04/2009	Hazardous Material Spill	I-89; MM 26 North	Drum leak on truck released approximately 20 gallons onto roadway.

04/24/2009	Diesel Spill	Route 107; McCullough Pit	Truck tipped over. Saddle tank leak. Soils contaminated. Approximately 7 gallons of diesel released.
02/15/2008	Kerosene Spill	James Place	217 gallons of kerosene released due to leak in an above-ground storage tank. Snow contaminated from top to ground. GW contamination limited to area around release and contamination decreased/naturally attenuated with time.
10/03/2000	Gasoline Spill	Route 12	Truck accident resulted in a fire. Approximately 8,000 gallons of gasoline released, but most of it was consumed in the fire. No migration to stream. The driver perished.

While only a small number, or no major hazardous material spills have occurred in the Town of Bethel, the potential for a major spill exists. Route 12, Route 107, Interstate 89, and the railroad tracks through the Village of Bethel pose constant threats to the Town. These routes serve as the main thoroughfares for trucks, other motor vehicles, and trains transporting a wide-range of goods, including a variety of hazardous materials, within the confines of Bethel. A truck or train accident and a resulting hazardous material spill could be exceedingly disastrous for the Town and its residents, especially in the Village. The majority of Routes 12 and 107 in the Town of Bethel are built very close to the Third Branch and Main Stem of the White River, which could create additional water contamination problems if a hazardous material spill were to occur on either of these major routes. In addition, the railroad tracks pass over the Third Branch of the White River and closely follow the River north into the Town of Randolph.

Among the Bethel LEMP committee's concerns about hazardous material spills in the Town, is the impact such a spill could or would have on the Village's water supply. Depending on the quantity of hazardous material released during a spill and the location of the spill, the Bethel Water Department's well heads may be impacted. The Bethel Water Department services a combined 352 homes and businesses. The Bethel Water System maintains and updates its Source Protection Plan & Contingency Plan every three years as required by law. In order to help protect the water system from contamination, source protection areas are established surrounding the water system's wellheads. According to the Source Protection Plan, the Bethel Water System has two source protection areas and there are no known sources of contamination in either. However, the Source Protection identifies a number of potential sources of contamination, including the Bethel School System; a mobile home park; the Bethel Fire Department; a commercial lot housing a used car dealership and plumbing shop; Vermont Route 12; agricultural lands; and residential properties.

Despite these potential sources of contamination, the present and future threat of contamination is considered low. Regardless, the Source Protection Plan provides recommendations for managing present and future risks of contamination, which include annual inspections of both source protection areas; new sources or new potential sources of contamination will be identified and located on the

source protection area map(s); notification to customers in the event of actual or perceived contamination; and preventing any future land uses or activities within 200 feet of the wells.

In order to prepare for hazardous material spills in Bethel, members of the Bethel Fire Department receive Fire Fighter 1 certification, which includes training at the Hazardous Material Operations level.

	Frequency of Occurrence: Probability of a plausibly significant event	Potential Impact: Severity and extent of damage and disruption to population, property, environment and the economy
1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
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### 3. Severe Weather

More common than hurricanes or tropical storms are severe thunderstorms (usually in the summer), which can cause flooding as noted above, and are associated with lightning, high winds, hail and tornadoes. Hailstorms have occurred in Vermont, usually during the summer months. While local in nature, these storms are especially significant to area farmers, who can lose entire fields of crops in a single hailstorm. Large hail is also capable of property damage. Between 2014 and 2020, there were 85 hail events recorded in the state of Vermont, making hail an annual occurrence in some part of the state. Thunderstorms can also generate high winds, such as the event that hit Bethel in the summer of 2014 that produced straight-line winds which leveled trees in large swathes.

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

In Bethel, 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, Bethel 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 is sometimes difficult to find, nevertheless, the “Remarks” section of NCDC Database helps to illuminate the impact strong winds can have on Bethel. 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 Windsor County (given that small population of Bethel, town-specific data is limited); an asterisk "\*" denotes the 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:**

Date	Event					Location	Extent and Impacts
	Thunderstorm /Severe Storm	Flooding	Hail	High Winds	Lightning		
08/04/20	✓			✓		County-wide	Tropical storm Isiah. 40-50mph wind gusts, scattered tree damage and power outages. 100k in property damage
11/01/19	✓			✓		County-wide	High winds, gusts up to 50mph, saturated soils and wind caused down trees and power lines. 10-15k people without power.
04/15/19		✓				County-wide	Flash flooding. Damage to several roads and bridges county wide. Major flood event.
09/03/18				✓	✓	Bethel	Strong thunder storm, damaging winds, downed trees, on Campbrook and watershed road
10/30/17		✓				County-wide	40-50mph wind gusts, downed trees and power lines.
07/01/17		✓				County-wide	3-4 inches of rain, pre saturated soils. Flash flooding, damaged roads throughout the county.
05/05/17				✓		State wide	Wind gusts up to 45-55mph, thousands without power
07/23/16				✓	✓	County-wide	Strong thunder storms, high winds, downed trees and power lines \$50,000 in damage
02/29/16				✓		County-wide	High winds 40-50 mph gusts. Downed trees and power lines.
08/03/15	✓		✓	✓	✓	County-wide	Thunder storm with downed trees, wind damage. 1 inch diameter hail
05/10/15	✓			✓		County-wide	Thunder storm with strong winds. Several reports of downed trees.

Date	Event					Location	Extent and Impacts
	Thunderstorm /Severe Storm	Flooding	Hail	High Winds	Lightning		
07/23/2014	✓			✓		Bethel	Straight line winds occurred on Lilliesville Brook Road. Many trees were knocked down on Lilliesville Brook Road and in other areas; Lilliesville Brook Road was blocked from any thru-traffic. The Town received assistance from a local contractor to clean up the downed trees, which cost \$2,150. Most affected customers sustained power outages for 1.75 hours, but extended outages for 20 customers lasted 20 hours.
10/07/2013	✓			✓		County-wide	Scattered wind gusts of 50 mph or greater across portions of Vermont produced numerous downed trees or tree limbs on utility lines and resulted in more than 25,000 customers without power at the peak. Power outages lasted 3 to 6 hours in Bethel.
09/11/2013	✓			✓		County-wide	A weak area of low pressure traveling along a stationary front, draped across NY and VT, embedded in an unseasonably warm and unstable air mass resulted in a series of thunderstorms that moved across Vermont during the late afternoon and evening. Some of these thunderstorms produced damaging winds of downed trees and utility lines. Extended power outages in Bethel lasted from 23 to 42 hours.
07/10/2013 (Part of 6/25/2013— 07/11/2013 (DR-4140 VT))*	✓	✓				Bethel, County-wide	Showers and thunderstorms developed on a daily basis in the summertime heat, rainfall rates as high as two to three inches in an hour were observed, and flash flooding resulted in several areas where storms remained stationary or repeatedly moved across the same area. High water from flash flooding closed a portion of Route 14 in northern Windsor County (East Bethel). Overall, Bethel sustained approximately \$30,000 in damage during the period specified under DR-4140 VT. Widespread power outage occurred in Bethel on 6/28/2013, affecting 375 customers and lasting more than 1 hour.

Date	Event					Location	Extent and Impacts
	Thunderstorm /Severe Storm	Flooding	Hail	High Winds	Lightning		
05/29/2012*	✓		✓	✓		Bethel, County-wide	A warm front moved across Vermont during the morning hours of May 29th, which lead to numerous thunderstorms with heavy rain, damaging lightning, and some isolated large hail and strong winds. Some of these thunderstorms deposited up to 2 inches of rainfall in portions of north-central and northeast Vermont. Quarter size hail was reported in Bethel. Power outages in Bethel only affected 3 customers, but lasted 2.25 hours.
08/21/2011*	✓		✓	✓		Bethel, County-wide	On the afternoon of August 21st, a cold front, supported by a strong mid-atmospheric disturbance, moved across an unstable air mass throughout Vermont. Numerous showers and thunderstorms developed during the afternoon with some containing large hail and damaging winds. Quarter size hail were reported in Bethel Center. This storm also produced a microburst with straight line winds estimated, by a NWS Storm Damage team, between 70 and 90 mph. Widespread power outages in Bethel lasted 1.5 hours.
07/06/2011*	✓			✓	✓	Bethel, County-wide	A well-established squall line moved across Vermont during the afternoon with numerous reports of wind damage, as well as lightning strikes. As a result of these storms, more than 15,000 customers in Vermont lost power. There were numerous reports of trees down in Bethel, which caused approximately \$10,000 in damages. Power outages in Bethel lasted 1 hour for most customers, but extended for as long as 9 hours for some people.
5/31/2009	✓		✓	✓		County-wide	40-55mph wind gusts and hail caused fallen trees and power outages in the region. Power outages did not affect a large number of power customers in Bethel, but lasted more than 11 hours.



Date	Event					Location	Extent and Impacts
	Thunderstorm /Severe Storm	Flooding	Hail	High Winds	Lightning		
05/08/2009*	✓		✓	✓		Bethel, County-wide	Severe thunderstorms and a developing squall line produced large hail up to an inch in diameter, as well as damaging winds that knocked down trees and power lines to portions of central Vermont. State Police reported trees down by thunderstorm winds. Power outages in Bethel continued into 5/9/2009 and lasted 16 hours for some customers.
7/21/2008— 8/12/2008 (DR 1790 VT)	✓			✓		County-wide	Severe storms and flooding impacted Windsor and surrounding counties. Power outages occurred during this time frame, but only lasted 1 hour for most users.
08/25/2007*	✓			✓		Bethel, County-wide	Numerous reports of tree and power line damage across Bethel-Royalton vicinity. Approximately \$50,000 in damages was reported. Power outages during this event were severe, and lasted 43 hours for some Green Mountain Power customers.
08/16/2007*	✓			✓		Bethel, County-wide	A large tree down and several branches, as well as a few power lines down on Oxbow road in Bethel. Approximately \$10,000 in damages was reported. Power outages lasted 8 hours for most customers, but extended 16 hours for some customers.
07/11/2007* (DR 1715 VT)	✓	✓				Bethel, County-wide	Localized heavy rainfall exceeded 3 inches within a two hour time frame with some localized storm totals approached 6 inches across a very hilly/mountainous terrain, which resulted in flash flooding of several communities. Bethel was among one of the hardest hit areas. Numerous roads flooded and washed out in and around Bethel, which included Lilliesville Rd., River Rd. and Route 107. A NWS BTV spotter reported 5.27 inches of rainfall in Bethel. Storm damage overall totaled over \$3 million, and approximately \$250,000 in Bethel. Power outages in Bethel lasted 18 hours in some areas.

Date	Event					Location	Extent and Impacts
	Thunderstorm /Severe Storm	Flooding	Hail	High Winds	Lightning		
06/27/2007*	✓			✓		Bethel, county-wide	There were numerous reports of wind damage in the form of downed trees and power lines across the state, which resulted in thousands without power. Power outages for Bethel lasted 4 hours. A few trees down along Interstate 89 near Exit 3. Wind measured at 50 knots. Property damage was estimated at \$2,000.
06/19/2006*	✓			✓			Some of these storms were severe and produced damaging winds that knocked down trees onto powerlines in Bethel. Power outages in Bethel lasted 8 hours.
9/16/1999— 9/21/1999 (DR 1306 VT)		✓		✓		County-wide	Tropical Storm Floyd’s rains and winds caused road and culvert washouts.
7/6/1973 (DR 397 VT)		✓		✓		County-wide	One of the largest flood events of the 20 <sup>th</sup> century in VT. Landslides reported in the region.
11/3/1927	✓	✓				County-wide	“Great Flood of 1927.” Worst recorded flood in VT. White River crested at a record of 29.30 feet.

As demonstrated in the table of previous occurrences above, high winds have caused damage in Windsor County and in the Town of Bethel specifically. Damage caused by high winds have included downed trees and power lines, and, as a result, power outages. Power outages can be particularly serious for “power critical customers” that do not have the luxury of having a generator. However, in general, high winds cause relatively minor damage on a town-wide scale.

One of the main hazards caused by severe weather throughout the Town is flooding. The most recent flooding event occurred on April 15, 2019. The flooding was widespread and severe enough for a Federal Disaster Declaration, DR-4445 to be issued for Windsor and other counties in Vermont. The road and infrastructure damaged during this flooding event was located throughout the Town. Bethel sustained over \$1.5 million dollars in damage.

In the spring of 2021, the Town of Bethel completed a geo-referenced culvert and road inventory and erosion control with assistance from Two Rivers-Ottawaquechee Regional Commission. The Town plans to maintain the new culvert and road inventory in-house, and use it as a way to plan and prioritize culvert and road upgrade projects. The Town of Bethel’s work to upgrade roads and culverts remain in process. A considerable number of culverts have been upgraded in the Town of Bethel as part of the Town’s recovery from the April 2019 storm.

The main hazard caused by severe weather is typically flooding (though not always). In addition, flooding is often the most expensive hazard caused by severe weather. Therefore, the Extent and

Impact categories for Severe Weather will reflect the data reported in the Flood/Fluvial Erosion/Inundation Flooding, as it represents the higher limits of damage caused by severe weather.

	Frequency of Occurrence: Probability of a plausibly significant event	Potential Impact: Severity and extent of damage and disruption to population, property, environment and the economy
1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	Likely: >10% but <75% probability per year, at least 1 chance in next 10 years	Moderate: severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	Highly Likely: >75% probability in a year	Major: severe property and environmental damage on a community or regional scale, multiple injuries or fatalities, significant economic impact

#### 4. Flood/Fluvial Erosion/Inundation Flooding

Flooding is one of the worst threats to Bethel’s residents and infrastructure. Past instances of flooding in Bethel 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 Bethel, 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 Bethel received heavy precipitation, seeing roughly 7-8 inches of rainfall over the storm period.

On April 15, 2019, Bethel and the surrounding counties received over 3.0 inches of rain. Once that rain combined with a rapid snowmelt, the Town of Bethel sustained over 1.5 million dollars in damage to their roads and culverts. Some residents were initially without power, but it was restored in most outlying areas in less than a week.

On August 28, 2011, a flooding event that devastated the region and the state was the result of Tropical Storm Irene. 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 20<sup>th</sup> and 21<sup>st</sup> century Vermont, second only to the Flood of 1927.

The Town of Bethel suffered major damage to property and infrastructure during Tropical Storm Irene, although no lives were lost. It is estimated that Tropical Storm Irene dropped 5-7 inches of rain over the Town of Bethel, with greater accumulations possible in the higher elevations, in a very short span of time. The precipitation totals averaged 4-7 inches over Windsor County. In some areas, it is thought that the flooding that occurred as a result of Tropical Storm Irene was close to being or was a full-fledged 500-year flood. No detailed data are available for fluvial erosion damage in Bethel in terms of numbers of acre lost during each event.

Unfortunately, flooding is very common across the region, with many events impacting the Town of Bethel specifically, and Bethel has been hit hard by other flood events that pre-date Tropical Storm Irene. Flooding is one of the worst threats to Bethel’s residents and infrastructure. The following list indicates the history of occurrence with regard to this hazard in Windsor County (given the small population of Bethel, 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.

**History of Occurrences:**

<b>Date</b>	<b>Event</b>	<b>Location</b>	<b>Extent and Impact</b>
04/15/2019	Flood	Bethel, County-wide	Heavy rain event and snow melt caused flooding throughout the region, although Bethel was the hardest hit in our county. Bethel sustained over \$1.5 million in damage during the period specified under DR-4445. *Bethel experienced over 3 inches of rain during a 24 to 36 hour period. The extent of fluvial erosion data was not available.
07/23/2014	Wind Event	Bethel, County-wide	The high winds caused heavy wind and the Town spent \$2,000 to clean up trees and debris.

<b>Date</b>	<b>Event</b>	<b>Location</b>	<b>Extent and Impact</b>
06/25/2013— 07/11/2013 (DR-4140 VT)*	Severe Storms and Flooding	Bethel, County-wide	Severe storms caused flooding throughout the region, and damaged some infrastructure and facilities. Bethel sustained approximately \$30,000 in damage during the period specified under DR-4140 VT. *Bethel experienced 8.3 inches during this 16 -day period. The extent of fluvial erosion data was not available.
08/28/2011 (DR-4022 VT, TS Irene)*	Tropical Storm	Bethel, County-wide	Widespread flooding hit the region, striking Bethel particularly badly. Homes, businesses, and roads were flooded throughout Windsor County. *Bethel saw 5-7” of rainfall, which damaged homes, roads, bridges, and culverts. Four properties in the town were purchased as part of the FEMA buy-out process. There was \$6,060,521 for FEMA projects and \$1,377,204 for Federal Highway projects in Bethel alone. The extent of fluvial erosion data was not available.

<b>Date</b>	<b>Event</b>	<b>Location</b>	<b>Extent and Impact</b>
04/27/2011	Flood	County-wide	Heavy rains, snowmelt from an above-normal snowpack, and high temps caused significant flooding in the region. * Bethel received 2.7 inches of rain in a seven day period. The extent of fluvial erosion data was not available.
10/01/2010	Flood	County-wide	Heavy rains from the remnants of TS Nicole hit Vermont, dumping multiple inches of rain in the White River Valley, and washing out local roads.* Bethel experienced 4.78 inches of rain in two days. The extent of fluvial erosion data was not available.
07/21/2008— 08/12/2008 (DR-1790 VT)	Flood	County-wide	Showers and thunderstorms produced significant rainfall across the region, causing sever flash flooding in places. Flood waters originating in Addison County traveled down the White River, causing portions of Route 100 to flood. *Bethel received 9 inches of rain during the disaster period. The extent of fluvial erosion data was not available.
07/11/2007* (DR 1715 VT)	Flash Flood	Bethel, County-wide	Localized heavy rainfall exceeded 3 inches within a two hour time frame with some localized storm totals approaching 6 inches across a very hilly or mountainous terrain, which resulted in flash flooding of several communities. Bethel was among one of the hardest hit areas. Numerous roads flooded and washed out in and around Bethel, which included Lilliesville Rd., River Rd. and Route 107. * A NWS BTV spotter reported 5.27 inches of rainfall in Bethel. Storm damage overall totaled over \$3 million, and approximately \$250,000 in Bethel. The extent of fluvial erosion data was not available.
04/15/2007— 04/21/2007 (DR-1698 VT)	Severe Storms and Flooding	County-wide	Severe storms caused flooding throughout the region and damage to some infrastructure and facilities.* A mixture of 7 inches of snow and 2 inches of rain in Bethel caused flooding in the five day period. The extent of fluvial erosion data was not available.
05/14/2006*	Flood	Bethel, County-wide	Rainfall totals from a large storm system brought 3-6" of precipitation to the county, leading to flooding and minor washouts on several roads in the region and overflowing banks of streams and rivers.* 3" overall were reported in Bethel, and a total of \$25k in county-wide damages was reported. The extent of fluvial erosion data was not available.
01/18/2006	Flood	County-wide	*A powerful storm and rising temperatures led to rainfall of 1.5-2.5" and additional snowmelt. This caused field flooding and ponding of water on area roadways in the region. \$3,000 in damages was reported for Windsor County. The extent of fluvial erosion data was not available.
10/07/2003— 10/09/2003	Flood	County-wide	Heavy rains resulted in minor flooding throughout Windsor County and caused \$20,000 in property damage. The extent of fluvial erosion data was not available.
10/29/2003	Flood	County-wide	Heavy rains fell on already-heavily saturated soils, and streams and rivers, including the White River, rose rapidly. Low land and field flooding occurred in the watershed. *Bethel experienced 3.17 inches of rain in 4 days. The extent of fluvial erosion data was not available.
07/21/2003— 08/18/2003	Severe Storms and Flooding	County-wide	Severe storms caused flooding throughout the region and damaged some infrastructure and facilities.* Bethel received more than 7 inches of rain during this period. The extent of fluvial erosion data was not available.
04/13/2002— 04/14/2002	Flood	Bethel, County-wide	*Snowmelt and 1-3" of rainfall across the region led to flooding along the White River and its branches in Bethel and other towns. \$50,000 in damages was reported throughout the county. The extent of fluvial erosion data was not available.

<b>Date</b>	<b>Event</b>	<b>Location</b>	<b>Extent and Impact</b>
07/11/2001 (DR-1715)	Flash Flood	County-wide	Tropical-like showers and thunderstorms caused heavy localized flooding. *Rainfall exceeded 3" within a 2 hour time frame, with some areas getting close to 6". There were many washed out roads, flooded basements, and homes that were damaged or destroyed. The extent of fluvial erosion data was not available.
12/17/2000	Flash Flood	County-wide	Small streams overflowed their banks and some roads and low lands flooded. Caused \$5k in damage throughout Windsor County. The extent of fluvial erosion data was not available.
07/31/2000	Flash Flood	County-wide	*Heavy rainfall of 1.35 inches caused many small rivers to reach or exceed their banks throughout the county. \$10,000 in damage was reported. The extent of fluvial erosion data was not available.
07/14/2000— 07/18/2000 (DR-1336)	Flash Flood	County-wide	Slow-moving thunderstorms resulted in heavy rainfall, particularly across mountainous portions of the region. Flooding ensued, causing a reported \$500k in damage across Windsor County.* Bethel received 3.1 inches during this period. The extent of fluvial erosion data was not available.
04/04/2000*	Flash Flood	Bethel, County-wide	*A storm system moved across New York and New England Tuesday, April 4th, with steady rain, which accumulated 1.75 inches in a day. Mild temperatures resulted in melting mountain snows. As a result, many streams and rivers rose to bank full or above with some flooding. Specifically, in Windsor county, Route 14 in East Bethel was closed due to flood waters on the road from the second branch of the White River from approximately 10 AM to 2 PM. \$10,000 in damage was reported across Windsor County. The extent of fluvial erosion data was not available.
03/28/2000	Flash Flood	County-wide	Steady rains and melting snows led to rising water levels in many rivers and streams in the county. Led to a reported \$5,000 in damages county-wide. *Rainfall accumulated to almost an inch over one day. The extent of fluvial erosion data was not available.
09/16/1999— 09/21/1999 (DR-1307)	Severe Storms and Flooding	County-wide	TS Floyd brought heavy rains, high winds, and flooding to the region, causing extensive damage to public property.* 5.23 inches of rain fell in one day in Bethel. The extent of fluvial erosion data was not available.
06/27/1998*	Flash Flooding	Bethel, County-wide	An area of low pressure tracked across New York and New England during the late night of Friday (June 26) and morning of Saturday (June 27). * Heavy convective rains fell with 3 to 6 inches across northern portions of the county. Extensive flooding occurred along the White River and its branches. In Bethel, extensive flooding resulted in massive road damage and washouts, which led to approximately \$1 million in damages. The extent of fluvial erosion data was not available.
07/13/1996	Flood	County-wide	Remnants of Tropical Storm Bertha moved into the region, bringing heavy rainfall that caused road washouts and mudslides in the county. \$10,000 in damage was reported county-wide.* 4.07 inches of rain fell in Bethel in 5 days. The extent of fluvial erosion data was not available.
05/11/1996— 05/12/1996	Flood	County-wide	Rain and snowmelt led to many rivers swelling and minor field flooding in places. \$5,000 in damage was reported in the county. *2.23 inches fell in Bethel over these two days. The extent of fluvial erosion data was not available.
01/19/1996— 01/20/1996	Flood	County-wide	A deadly storm brought above normal temperatures, strong winds, and flooding to the region. Snowmelt and rainfall hit the region, washed out numerous roads, and flooded other areas. Numerous power outages were reported. \$900k in damage was reported for the county. * More than 1 inch of rain fell in a day, which accompanied melted heavy snowfall of close to a foot that had accumulated early in January. Power outage time data for this event are not known. The extent of fluvial erosion data was not available.

Date	Event	Location	Extent and Impact
06/28/1973— 06/30/1973 (DR-397)	Flooding	County-wide	*As much as 6 inches in rainfall fell in 24 hours in some locations. The State declared disaster area. There were 3 deaths and \$64 million in damage. The extent of fluvial erosion data was not available.
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.* Bethel and the nearby vicinity saw between 7-8" of rainfall during the storm. The extent of fluvial erosion data was not available.

The Town of Bethel does not have standalone flood hazard regulations; the flood hazard regulations are included within the Town's Zoning Regulations. The Town's Zoning Regulations restrict development in flood-prone areas within the designated Flood Hazard Overlay District

There are 40 residential (19 single family dwellings, 4 multi-family dwellings, and 17 mobile homes) and 11 commercial/industrial/public structures in the 500-year floodplain. If all of the residential and commercial/industrial/public properties were damaged/destroyed in a severe flooding event, the damage would be over eight million dollars. 6. There are five critical facilities located in the 500-year floodplain, including an emergency operations center, the fire station, and two public water supply wells. Disruption of the critical services in the 500-year floodplain could drastically hamper future response and relief efforts in the Town, and cause major disruption to business continuity of operations. Putting such an event into context, the flooding that occurred as a result of Tropical Storm Irene is considered to be greater than a 100-year flood event, and likely closer to a 500-year flood. In an effort to help protect structures and road infrastructure, it is important to restore floodplain, to increase the number of areas for retention of floodwaters, and to reduce the risk to structures and road infrastructure wherever possible.

Across Vermont, most child and elder care facilities are not required to be registered with the State. Most child day care is private in-home care in Bethel, but currently there is one registered childcare home. There are no elder care facilities in the Town of Bethel, but there is one affordable senior housing community, Depot I, in the village. There are currently two mobile home parks located in Bethel, Richards Mobile Home Park and Sargent's Trailer Park, that are registered with the state. Homes in Richards Mobile Home Park were heavily damaged during Tropical Storm Irene, and continue to be vulnerable to future flood damage. Finally, there is an affordable rental housing community located in the village, called Depot II, and can be found next door to Depot I. Neither Depot I, nor Depot II, are directly vulnerable to flood damage.

Recent studies have shown that the majority of flooding in Vermont occurs 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 (DHCA, 1998). 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. There are no residential structures, commercial structures, or camp sites located in Bethel’s fluvial erosion hazard zone.

Bethel maintains an up-to-date list of culverts and culvert conditions, and has engaged in culvert upgrading prior to 2009. Approximately 75-100 culverts have been upgraded since Tropical Storm Irene occurred in 2011 and the April 15, 2019 flood, and the last full culvert inventory will be completed by the spring of 2021. The process of upgrading culverts is ongoing. No development projects are planned in Bethel in areas that would be vulnerable to flooding. There are no repetitive loss properties in the Town of Bethel on FEMA’s NFIP list. There were four zoning applications between 2019 and 2021 for development in the River Corridor, and only 2 of those permits were granted by the Development Review Board, after receiving input from the Vermont Department of Environmental Conservation’s Regional Floodplain Manager.

	Frequency of Occurrence: Probability of a plausibly significant event	Potential Impact: Severity and extent of damage and disruption to population, property, environment and the economy
1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	Likely: >10% but <75% probability per year, at least 1 chance in next 10 years	Moderate: severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	Highly Likely: >75% probability in a year	Major: severe property and environmental damage on a community or regional scale, multiple injuries or fatalities, significant economic impact

## 5. Infectious Disease

COVID-19 is the disease caused by a new coronavirus called SARS-CoV-2. The World Health Organization first learned of this new virus on 31 December 2019, following a report of a cluster of cases of ‘viral pneumonia’ in Wuhan, People’s Republic of China. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes.

We were all advised to stay safe by taking some simple precautions, such as physical distancing, wearing a mask, especially when distancing cannot be maintained, keeping rooms well ventilated, avoiding



crowds and close contact, regularly cleaning your hands, and coughing into a bent elbow or tissue. Checking local advice where you live and work was achieved through the State of Vermont/Vermont Department of Health’s interactive dashboard.

Date	Event	Location	Extent and Impact
2019/2020	Outbreak	Bethel	As of 1/11/2021, there were 201 known cases of COVID19 in Bethel and 0 deaths.

In March 2020, COVID-19 became a much larger threat than originally thought. The Town Office closed to the public, the Emergency Operation Center was opened, and immediate steps were taken to advise the public. The Town Office partnered with a group of local volunteers who started a website called Bethel Strong. The two worked together to disseminate information on where residents could find up-to-date information on the disease, the spread and prevention. We also put out a mailer to Bethel residents providing them with the hours of the Bethel Food Shelf, numbers to call for assistance and necessities, as well as COVID relief links.

	Frequency of Occurrence: Probability of a plausibly significant event	Potential Impact: Severity and extent of damage and disruption to population, property, environment and the economy
1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	Likely: >10% but <75% probability per year, at least 1 chance in next 10 years	Moderate: severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	Highly Likely: >75% probability in a year	Major: severe property and environmental damage on a community or regional scale, multiple injuries or fatalities, significant economic impact

### C. Vulnerability Summary

As a result of the above profiled hazards, the Town believes the following vulnerabilities to be of highest concern due to their potentially severe consequences and potential likelihood:

- **Structure Fire:** Structure fire is particularly pernicious because of the lack of warning ahead of an event. With the great many old, wooden structures in Town (including portions of the Village’s main block of stores), many homes are particularly vulnerable.

- **Hazardous Material Spill:** Hazardous material spills, particularly along major roadways like Routes 107, Route 12, and Interstate 89, could pose a serious harm to the Town. Areas surrounding the railroad tracks are vulnerable to spills from railroad accidents. Damage to the village water supply and contamination to the Main Stem and the Third Branch of the White River, its tributaries, and local brooks and streams are of particular concern. The locations of hazardous materials storage facilities include GW Plastics at 239 Pleasant Street, Vermont Hearth & Home off Route 107, and these places are also vulnerable to a potential spill.
- **Severe Weather:** Damage to public and private property and municipal infrastructure can be extensive during severe weather events. The entire town, especially the village, is susceptible to flooding as a result of severe weather, although not all of it is within the mapped Special Flood Hazard Area. Especially susceptible municipal infrastructure includes the Fire station and the public water supply, which are within the Special Flood Hazard Area. Other vulnerable municipal buildings include the Town Hall, Town Office, and the U.S. Post Office which are located close to the confluence of the Third Branch with the Main Stem of the White River. Municipal road infrastructure that is vulnerable includes Lilliesville Brook Road, Gilead Brook Road, Camp Brook Area include Evertree Industries, Blossom Firewood and Logging, Robert Tracy Plumbing & Heating, Bethel Mills. Prolonged power outages and downed cellular communications can greatly hamper public and business services for indeterminate periods of time.
- **Flood/Fluvial Erosion/Flood Inundation:** Flooding is one of the worst threats to Bethel, and impacts roads and the village center, especially facilities for children, elders, and low-income housing. Under-sized bridges and culverts factor into the threat, particularly where the Third Branch meets the main stem of the White River. Furthermore, flood hazard mapping (Special Flood Hazard Areas) does not adequately encompass all areas that could be flooded, thus potentially making some residents too complacent in regard to the threat. In addition, the emergency operations center, fire station, and two public wells located in the 500-year floodplain could be impaired by a major flood event.
  - Some of the most vulnerable for fluvial erosion include, Camp Brook Road, Gilead Brook Road, and Lilliesville Brook Road. For inundation flooding, vulnerable areas include, Peavine Boulevard, and Vermont Routes 12 and 107.
  - Vulnerable municipal buildings include the fire station, public wells, the town hall, and the town office. Also, the White River Supervisory Union, Bethel Campus, which is an emergency shelter, is vulnerable to flooding.
  - Commercial buildings in the Special Flood Hazard Area include Evertree Industries, Blossom Firewood and Logging, Robert Tracy Plumbing & Heating, Bethel Mills.
  - There are 40 residential (19 single family dwellings, 4 multi-family dwellings, and 17 mobile homes) that are located in the Special Flood Hazard Area and are vulnerable to flooding.
- **Infectious Disease:** After COVID 19, it has become apparent how this threat impacts Bethel's residents and economy. Since this can happen without much advance warning, it makes this hazard much more difficult to prepare for.

## VI. Mitigation

### A. Mitigation Goals

- To reduce injury and losses, including loss of life and to infrastructure, structures and businesses, from the hazard of structural fire.
- 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 severe weather.
- 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 livelihood to residents and businesses alike, from the hazard of infectious diseases.

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

- It is the policy of the Town that the Selectboard maintain an up-to-date Emergency Operations Plan (page 47).
- It is the policy of the Town to work with the Two Rivers-Ottawaquechee Regional Commission to properly plan for hazard events and keep the Hazard Mitigation Plan up-to-date (page 47).
- To maintain or improve surface water quality (page 75).
- It is the policy of the Town that all proposed development must be reviewed for appropriate location away from brooks, streams, tributaries and wellhead recharge areas. (page 76).
- To identify and encourage land use development practices that avoid or mitigate adverse impacts on significant wetlands (page 77).
- To enhance and maintain use of flood hazard areas and river corridors as open space, greenways, non-commercial recreation and/or agricultural land (page 92).
- It is the policy of the Town that new utilities or new facilities serving existing development (e.g. water lines, electrical service, waste disposal systems, roads, bridges and other municipal services) may be located within the special flood hazard area or river corridor only when off-site options are not feasible and provided these utilities or facilities meet the flood-proofing requirements in Bethel's Zoning Bylaws (page 93).
- It is the policy of the town that new development within the 100-year floodplain is discouraged excluding properly designed outbuildings and renovations that meet the requirements for Flood Hazard regulation as stipulated by the Federal Emergency Management Agency (page 93).
- To provide and maintain a safe, energy-efficient and well-maintained transportation network in a cost-effective manner, integrating all modes of travel (auto, pedestrian, bicycle, rail and public transit) so they are mutually supporting and meeting the needs of the public in a manner consistent with the other goals, policies and recommendations of this Town Plan (page 70-72).

The Bethel Town Plan was updated and adopted on November 9, 2020 and has a 5 year lifespan.

## B. Hazard Mitigation Strategies: Programs, Projects & Activities

Vermont’s Division of Emergency Management encourages a collaborative approach to achieving mitigation at the local level through partnerships with Vermont Agency of Natural Resources, Vermont Department of Transportation, 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, Bethel’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. The committee also determined preparedness, response, and recovery strategies, which have been included in the table following mitigation actions.

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 Bethel 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 Bethel’s long-term land use and development planning documents, including the municipal plan, zoning regulations, and flood hazard/fluvial erosion hazards (FEH) bylaws. These changes will begin with the Planning Commission and after public hearing will be sent to the Selectboard for consideration, and adoption after additional public hearing. The municipal plan incorporated changes, in their November 23, 2020 revision. The Town of Bethel has a capital budget and program, which reflects mitigation strategies listed in this Plan. The incorporation of the strategies listed in this Local Hazard Mitigation Plan will also be considered in recovery efforts, including replacement, upgrading, or relocation of facilities and structures 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	Mitigation Actions	Local Leadership	Prioritization (Mitigation Project Status)	Possible Resources*	Time Frame
Structure Fire	<p><i>Install dry hydrants in the following locations to protect town infrastructure from structural fires:</i></p> <ul style="list-style-type: none"> <li>• <i>Lympus area of town</i></li> <li>• <i>Findley Bridge Road</i></li> <li>• <i>East Bethel</i></li> </ul>	Bethel Fire Department	Medium	Local resources; Bethel Fire Department; Vermont Rural Fire Protection Task Force	Summer 2022-Fall 2023
Hazardous Material Spill	<p><i>Maintain the Bethel Water System's Source Protection Plan to prevent the contamination of drinking water sources, therefore protecting the health of Bethel residents.</i></p>	Utility Director	Medium	Local resources	Complete May 2021 and every 3 years thereafter
Severe Weather (High Wind)	<p><i>Collaborate with local utilities to request that utility corridors are cleared and maintained, as needed. This will help protect utility infrastructure and to reduce power outages.</i></p>	Road Foreman	Medium	Local resources; Green Mountain Power	April 2021. Currently there is a crew in Bethel.
	<p><i>Develop a program to clear and maintain town road rights-of-way to prevent damage to town infrastructure.</i></p>	Road Foreman	Medium	Local resources	Road Erosion & Culvert Inventory completed February 2021
Flash Flood/ Flood/ Fluvial Erosion// Severe Weather	<p><i>Develop a schedule and capital budgeting program to replace undersized culverts to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i></p>	Town Manager/ Road Foreman	Medium	Local resources	March 2021 to November 2021, then updated annually

<b>Hazard(s) Mitigated</b>	<b>Mitigation Actions</b>	<b>Local Leadership</b>	<b>Prioritization (Mitigation Project Status)</b>	<b>Possible Resources*</b>	<b>Time Frame</b>
	<i>Develop a plan for the reuse of Bethel's Tropical Storm Irene buyout properties as river access or green space, and maintain the undeveloped character of the land to allow for future flooding.</i>	Selectboard & Conservation Commission	Low (new)	Local resources; HUD's Community Development Block Grants; White River Partnership	Fall 2025
Flood/ Flood Inundation/ Fluvial Erosion// Severe Weather	<i>Provide public outreach on flood resilience, preparedness and awareness, which will educate citizens about hazards to help prevent risks to public health during hazards.</i>	Town Manager	Low	Local resources; FEMA	Ongoing efforts via website and Town Reports
	<i>Per the Town's 2021 Better Backroads culvert and road erosion inventory, upgrade four undersized culverts on Sanders Road to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i>	Town Manager/ Road Foreman	High	Local resources; VTrans Better Roads implementation grants	Complete by October 31, 2021
	<i>Per the Town's 2021 Better Backroads culvert inventory, upgrade two undersized culverts on Factory Hill Rd and one on Randolph Ctr. Rd to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i>	Town Manager/ Road Foreman	High	Local resources; VTrans Better Roads implementation grants	Completed by June 30, 2022
	<i>Per the Town's 2021 Better Backroads culvert inventory, upgrade two undersized culverts on Christina Hill to allow for greater volumes of water to be cleared.</i>	Town Manager/ Road Foreman	High (new)	Local resources; VTrans Paving grants	Completed by October 31, 2021

Hazard(s) Mitigated	Mitigation Actions	Local Leadership	Prioritization (Mitigation Project Status)	Possible Resources*	Time Frame
Flood/ Flood Inundation/ Fluvial Erosion// Severe Weather	<i>Per the Town's 2021 Better Backroads culvert inventory, upgrade two undersized culverts on Trout Brook Road to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i>	Town Manager/ Road Foreman	Low (new)	Local resources; VTrans Better Backroads implementation grants	Completed by October 2023
	<i>Per the Town's 2021 Better Backroads culvert inventory, upgrade six undersized culverts on Macintosh Hill Road to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i>	Town Manager/ Road Foreman	Medium (new)	Local resources; VTrans Better Backroads implementation grants	Completed by October 2024
	<i>Per the Town's 2021 Better Backroads culvert inventory, upgrade five undersized culverts on Peavine Boulevard to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i>	Town Manager/ Road Foreman	Medium (new)	Local resources; VTrans Better Backroads implementation grants	Completed by October 2025
	<i>Per the Town's 2021 Better Backroads culvert inventory, upgrade one undersized culvert on Whittier Road to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i>	Town Manager/ Road Foreman	High (new)	Local resources; VTrans Better Backroads implementation grants	Completed by October 2026

<b>Hazard(s) Mitigated</b>	<b>Mitigation Actions</b>	<b>Local Leadership</b>	<b>Prioritization (Mitigation Project Status)</b>	<b>Possible Resources*</b>	<b>Time Frame</b>
	<i>Per the Town's 2021 Better Backroads culvert inventory, upgrade two undersized culverts on North Main Street to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i>	Town Manager/ Road Foreman	Low (new)	Local resources; VTrans Better Backroads implementation grants	Completed by October 2026
Flood/ Flood Inundation/ Fluvial Erosion// Severe Weather	<i>Per the Town's 2021 Better Backroads culvert inventory, upgrade undersized culvert on Findley Bridge Road to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i>	Town Manager/ Road Foreman	Medium (new)	Local resources; VTrans Better Backroads implementation grants	Completed by October 2027
	<i>Upgrade undersized culverts on Perham Road to allow for greater volumes of water to be cleared, therefore protecting town infrastructure.</i>	Town Manager/ Road Foreman	Medium (new)	Local resources; VTrans Better Backroads implementation grants	Completed by October 2027
	<i>Replace State Camp Brook Road bridge (#34) on VT Route 12 to address aggradation and structure inadequacy to allow for greater volumes of water to be cleared, therefore protecting state infrastructure. This is a state-owned structure.</i>	Town Manager/ Selectboard	Low	Local resources; VTrans	As of 1/2021, VTrans has no timeline to replace this bridge



Hazard(s) Mitigated	Preparedness, Response, or Recovery Actions	Local Leadership	Prioritization (Mitigation Project Status)	Possible Resources*	Time Frame
All Hazards	<i>Ensure that Bethel's Local Emergency Management Plan (LEMP) is kept up-to-date and identifies vulnerable areas and references this Plan.</i>	Town Manager/ Emergency Management Director	High	Local resources; TRORC; VT DEMHS	Spring 2021 and every spring annually
	<i>Maintain a methodology to consistently document infrastructure damage after weather events.</i>	Administration & Department Heads	High	Local resources	Summer 2021
Structure Fire	<i>Maintain mutual aid agreements with surrounding towns.</i>	Bethel Fire Department	High	Local resources; Bethel Fire Department	On going
Hazardous Material Spill	<i>Ensure that all emergency response and management personnel continue to receive HAZMAT Awareness training at a minimum.</i>	Bethel Fire Department	High	Local resources; Bethel Fire Department; Vermont Fire Academy	Fall 2022
Flash Flood/ Flood/ Fluvial Erosion// Severe Weather	<i>Stabilize Gilead Brook riverbank behind White River Valley Ambulance (WRVA).</i>	Town Manager/ Selectboard	Low	WRVA	Unknown, dependent on WRVA securing funding

\*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.

**CERTIFICATE OF ADOPTION**

**TOWN OF Bethel, Vermont Selectboard  
A RESOLUTION ADOPTING THE Bethel, Vermont 2021 Local Hazard Mitigation Plan**

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

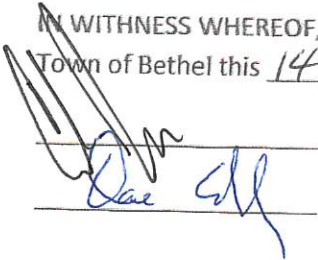
WHEREAS, the **Plan** recommends several hazard mitigation actions (projects) that will provide mitigation for specific natural hazards that impact the Town of Bethel with the effect of protecting people and property from loss associated with those hazards; and

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

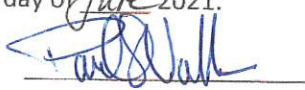
RESOLVED by Town of Bethel Selectboard:

1. The **Bethel, Vermont 2021 Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Bethel;
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 Bethel this 14 day of June 2021.



A handwritten signature in blue ink, appearing to be "Dae", written over a horizontal line.



A handwritten signature in blue ink, appearing to be "ant", written over a horizontal line.



A handwritten signature in blue ink, appearing to be "Lundy", written over a horizontal line.

## Appendices

### Appendix A: Hazard Ranking Methodology

	Frequency of Occurrence: Probability of a plausibly significant event	Potential Impact: Severity and extent of damage and disruption to population, property, environment and the economy
1	Unlikely: <1% probability of occurrence per year	Negligible: isolated occurrences of minor property and environmental damage, potential for minor injuries, no to minimal economic disruption
2	Occasionally: 1–10% probability of occurrence per year, or at least one chance in next 100 years	Minor: isolated occurrences of moderate to severe property and environmental damage, potential for injuries, minor economic disruption
3	Likely: >10% but <75% probability per year, at least 1 chance in next 10 years	Moderate: severe property and environmental damage on a community scale, injuries or fatalities, short-term economic impact
4	Highly Likely: >75% probability in a year	Major: severe property and environmental damage on a community or regional scale, multiple injuries or fatalities, significant economic impact

## 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.

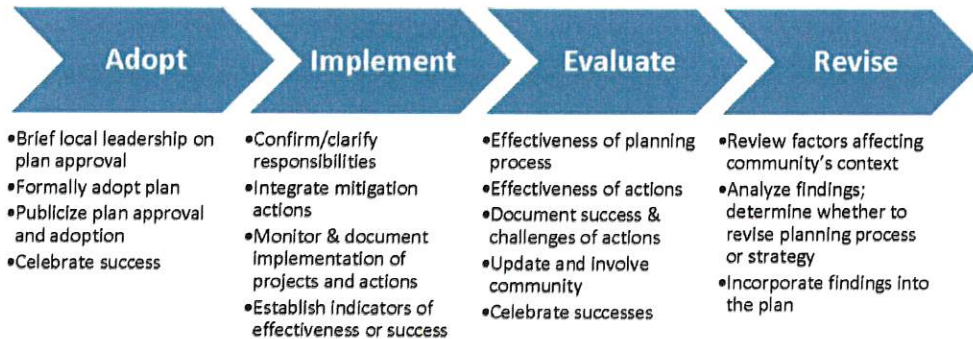
RDFLNAME	GROUP_TWO	STRUCT_NUM	CATEGORY	STRUCTYPE	STRC_LBL	X_COORD	Y_COORD
GILEAD BROOK RD		101404003514041	B	TL	B35	-72.7127	43.8836
GILEAD BROOK RD		101404003714041	B	TL	B37	-72.7108	43.8821
GILEAD BROOK RD		101404004314041	B	TL	B43	-72.7024	43.878
GILEAD BROOK RD		101404003814041	B	TL	B38	-72.6966	43.8779
GOODALE RD		101404004014041	B	TL	B40	-72.6854	43.8707
PINELLO RD		101404005214041	B	TL	B52	-72.6785	43.8709
MITCHELL DR		101404004214041	B	TL	B42	-72.6725	43.8768
RANDOLPH CENTER RD		101404000414041	B	TL	B4	-72.5883	43.8751
STORE HILL RD		101404003914041	B	TL	B39	-72.5867	43.8721
FINDLEY BRIDGE RD		101404004414041	B	TL	B44	-72.6462	43.8548
WATERSHED RD		101404003214041	B	TL	B32	-72.652	43.853
CAMP BROOK RD		401404000314041	B	TS	B3	-72.6563	43.8542
SUGAR HILL RD		401404004114041	B	TS	B41	-72.6647	43.8556
CAMP BROOK RD		401404000214041	B	TS	B2	-72.6659	43.8552
DARTT HILL RD		101404003114041	B	TL	B31	-72.6874	43.8444
CAMP BROOK RD		401404000114041	B	TS	B1	-72.7054	43.8503
LILLIESVILLE BROOK RD		401404002614041	B	TS	B26	-72.7052	43.8208
LILLIESVILLE BROOK RD		101404003314041	B	TL	B33	-72.6844	43.8061
LILLIESVILLE BROOK RD		101404003414041	B	TL	B34	-72.6839	43.8014
OLD ROUTE 12		101404004814041	B	TL	B48	-72.6526	43.7986
PEAVINE BLVD		101404004514041	B	TL	B45	-72.6356	43.8275

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 bank full 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.

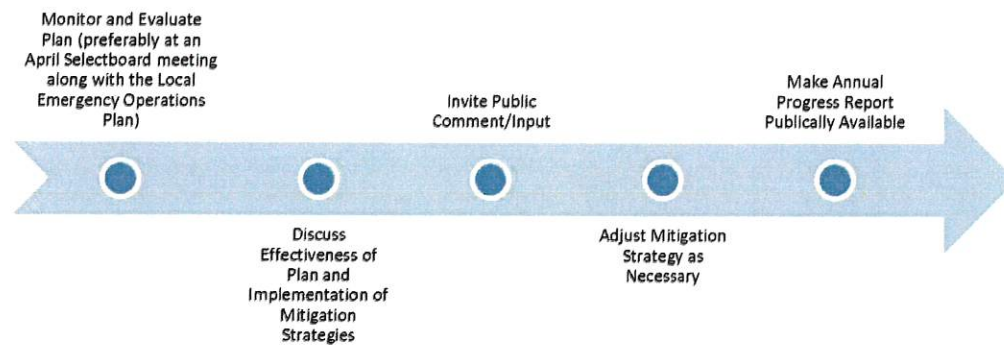
RDFLNAME	GROUP_TWO	CATEGORY	X_COORD	Y_COORD	CUL_WIDTH	CUL_HEIGHT	CUL_LEN	OpennessR	ChannelWid
FINDLEY BRIDGE RD	Y	C	-72.6348	43.8693	48	24	24	0.361111	13
DEARING RD	Y	C	-72.5922	43.8634	36	36	30	0.3	8
DEARING RD	Y	C	-72.5922	43.8634	48	36	27	0.388889	9
CHRISTIAN HILL RD	Y	C	-72.6051	43.8515	48	60	84	0.227348	0
N MAIN ST	Y	C	-72.6429	43.8481	60	36	31	0.467742	11
CAMP BROOK RD	Y	C	-72.6929	43.8498	72	36	65	0.282051	10
CAMPBELL RD	Y	C	-72.7251	43.8365	36	36	31	0.330323	5
BRYANT RD	Y	C	-72.7237	43.8262	36	36	20	0.4455	8
DART HILL RD	Y	C	-72.714	43.8283	36	36	36	0.25	5
GAY HILL RD	Y	C	-72.7239	43.8189	24	24	42	0.130952	7.68

## Appendix C: Five-Year Review and Maintenance Plan

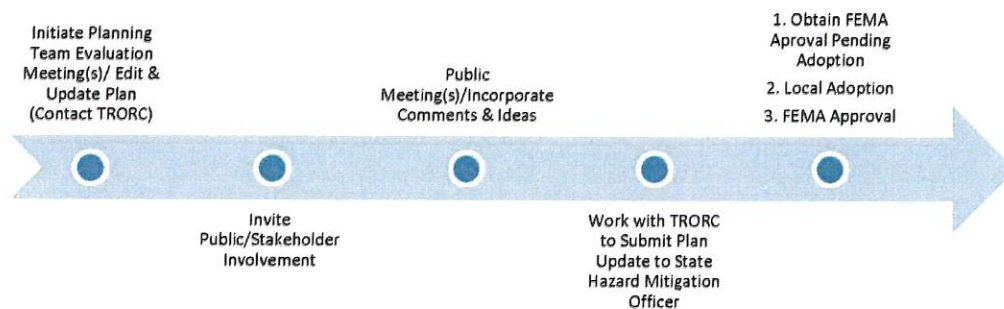
### Five-Year Local Hazard Mitigation Plan Review/Maintenance



#### 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 Bethel

