

Town of Randolph, Vermont
2021 Local Hazard Mitigation Plan

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

04/08/2021

Date of Town Adoption

04/26/2021

Date of Final Approval by FEMA

CERTIFICATE OF ADOPTION
April 8, 2021
TOWN OF Randolph, Vermont Selectboard
A RESOLUTION ADOPTING THE Randolph, Vermont 2021 Local Hazard Mitigation Plan

WHEREAS, the Town of Randolph has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **2021 Randolph, Vermont Local Hazard Mitigation Plan**, which result in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Town of Randolph has developed and received conditional approval from Vermont Emergency Management (VEM) for its **2021 Randolph, Vermont Local Hazard Mitigation Plan (Plan)** under the requirements of 44 CFR 201.6; and

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

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

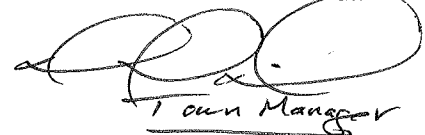
WHEREAS, adoption of this **Plan** will make the Town of Randolph eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by Town of Randolph Selectboard:

1. The **2021 Randolph, Vermont Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Randolph;
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 Randolph this 21 day of April 2021.

Selectboard Chair


Town Manager

ATTEST

Emerg. Mittell
Town Clerk 4/21/2021

[Signature]
Selectboard Member



FEMA

April 26, 2021

Stephanie A. Smith, State Hazard Mitigation Officer
Vermont Emergency Management
45 State Drive
Waterbury, Vermont 05671-1300

Dear Ms. Smith:

As outlined in the FEMA-State Agreement for FEMA-DR-4474, your office has been delegated the authority to review and approve local mitigation plans under the Program Administration by States Pilot Program. Our Agency has been notified that your office completed its review of the Town of Randolph, Vermont 2021 Local Hazard Mitigation Plan and approved it effective **April 26, 2021** through **April 25, 2026** in accordance with the planning requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended, the National Flood Insurance Act of 1968, as amended, and Title 44 Code of Federal Regulations (CFR) Part 201.

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

The plan must be updated and resubmitted to the FEMA Region I Mitigation Division for approval every five years to remain eligible for FEMA mitigation grant funding.

Thank you for your continued commitment and dedication to risk reduction demonstrated by preparing and adopting a strategy for reducing future disaster losses. Should you have any questions, please contact Melissa Surette at (617) 956-7559 or Melissa.Surette@fema.dhs.gov.

Sincerely,

Paul F. Ford
Acting Regional Administrator
DHS, FEMA Region I

PFF:ms

cc: Ben Rose, Recovery and Mitigation Section Chief, VEM

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I. Introduction

Natural and human-caused hazards may affect a community at any time. They are not usually avoidable; 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 Randolph 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 hazard by redirecting its impact by means of a structure or land treatment, (2) adapt to the hazard by modifying structures or standards or, (3) avoid the hazard through improved public education, relocating/removing buildings in the flood zone, or ensuring development is disaster resistant.

II. Purpose of the Plan

The purpose of this Local Hazard Mitigation Plan is to assist the Town of Randolph in identifying all hazards facing the town, rank them and identify strategies to begin reducing risks from known priority hazards.

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

The 2020 Randolph Local Hazard Mitigation Plan is an update from the 2015 Plan, which was the first stand-alone mitigation plan for the Town. Prior to 2015, the Town had a town-specific 2009 Annex in the Regional Pre-Disaster Mitigation Plan. The 2015 plan introduced the following new sections:

- Program eligibility subsequent to plan approval
- Authority for plan development
- Participating jurisdictions
- Funding for plan development
- Brief information about the community

For the 2020 Plan, old assumptions have been challenged throughout and new information has been added to make the plan stronger and more useful for those Randolph town officials and residents who will implement the hazard mitigation strategies in the future.

III. Community Profile

Randolph, which covers approximately 31,000 acres of hilly country in the center of the state, is dominated by an expanse of high ground in the center. Valleys run north/south on either side, with the ground rising again on the town's east/west borders. Randolph is situated in the White River Watershed. The town has numerous small streams that collect runoff from residential and commercial areas, as well as farms, fields, and forests before joining Randolph's three largest streams, Ayers Brook, Adams Brook and the Second and Third Branches of the White River.

In 2010, the population of Randolph was 4,778, down slightly from 4,853 residents in 2000. In addition to the resident population, Vermont Technical College's Randolph campus hosts approximately 800 students during the school year. About 400 of those students live on campus while attending classes. Despite the slight decrease in population, the total number of housing units in Randolph increased from 1,905 in 2000 to 2,076 in 2010. In 2010, only 101 (approximately 5 percent of total housing units) were used on a seasonal basis, and 543 (approximately 26 percent) were renter-occupied (U.S. Census). Almost half of Randolph's housing stock was constructed prior to 1944. Since then, the most significant period of growth in the town's housing stock occurred in the 1970's, when a full 20 percent of the total housing stock was created. Randolph is expected to grow due to its location on Interstate 89.

Regarding services, the Town of Randolph lies within the service area of Green Mountain Power (formerly the Central Vermont Public Service), which supplies electricity to all sections of the town. The majority of Randolph's population has access to broadband internet; however, certain areas within the town fall outside of existing coverage areas: communities within East Randolph and Randolph Center. Cell phone coverage throughout the town is available but varies and dependent on terrain.

The town is served by three fire stations; they are located in Randolph Village, Randolph Center, and East Randolph, and staffed by paid, on-call firefighters. Extraction and 100' aerial tower capabilities are maintained at the Randolph Center Fire Department. In addition to providing mutual aid services to fire departments in need of assistance, Randolph's Fire Departments also provide coverage to the Town of Braintree through a dedicated contract-for-services and to a section of the Town of Granville (East Granville) on an on-call basis.

The Randolph fire departments are overseen by the Town Manager. The departments collaborate on first responder needs, policies, and procedures and coordinate joint efforts through fire department-focused committee titled Fire Advisory. The Fire Advisory Committee is comprised of a chair; a liaison appointed by the Selectboard; a chief, and one member-at-large from each department (typically the First or Second Assistant Chief). This Committee provides uniform policies and procedures, uniform training schedules, budget review for all three Departments, and advises the Selectboard. There is a high degree of cooperation among the three departments in Randolph and fire departments of neighboring towns.

Medical rescue service in Randolph is provided by White River Valley Ambulance, Inc., (WRVA) a non-profit corporation, which is located on Route 12, just south of Randolph Village. WRVA responds to medical emergencies, accidents, and other calls for assistance. They also perform search and rescue operations, and stand-by at all reported structural fires, sports events and other public gatherings.

Randolph is home to Gifford Medical Center (Gifford), which is located in Randolph Village; Gifford is one of a few hospitals that provide service to central Vermont and capable of accommodating medivac services through the Dartmouth Hitchcock Advanced Response Team (DHART) helicopter based at Dartmouth Hitchcock Medical Center in Lebanon, New Hampshire.

The Town of Randolph receives law enforcement service through two agencies: Vermont State Police (VSP) and the Orange County Sheriff's Department (Sheriff's Dept). There is a high degree of cooperation among the two law enforcement agencies. The VSP provides law enforcement service to the portion of the town that is not included in the special police district, known locally as the Randolph Police District, located wholly within the community of Randolph Village. The Sheriff's Dept. provides law enforcement services within the Randolph Police District, and limited traffic control services throughout the town through a dedicated contract. Prior to 2018, the Police District was served by the Randolph Police Department, which has since dissolved. The Sheriff's Dept. uses as its base of operation in Randolph the facility previously occupied by the Randolph Police Department. This building is located on Salisbury Street in Randolph Village. The jail is located at the County Seat in Chelsea.

IV. The Planning Process

A. Plan Developers

Kimberly Gilbert, a Regional Planner at the Two Rivers-Ottawaquechee Regional Commission (TRORC), assisted the Town of Randolph with updating its Local Hazard Mitigation Plan.

Committee members who assisted with the revisions include:

Name	Role/Organization	How Participation Was Solicited
Adolfo Bailon	Town Manager	On 2/20/2020, Town Manager (Adolfo Bailon) sent an email to TRORC to inform staff that the Randolph Selectboard had voted to accept TRORC's bid for the plan update and had authorized him to work with TRORC staff to complete the process. On 3/25/2020 TRORC staff (Kim Gilbert) requested names for potential committee members to revise Randolph's LHMP. The Town Manager responded with a list of individuals' names and contact information on 4/01/2020. A Doodle poll invitation was sent to those individuals on 4/27/2020 and an initial introductory meeting was scheduled. Due to meeting limitations caused by Covid-19, the team had to work remotely using Zoom video meeting software. TRORC staff continued to meet with the update committee until the Local Hazard Mitigation Plan was adopted by the Selectboard. (See "Activities" section below for more details on specific meetings.)
Wayne Warner	Emergency Management Director	
Rich Doolan	Assistant Emergency Management Director	

Additional Participants in the Process:

- Randolph Conservation Commission
- Randolph Planning Commission

B. Plan Development Process

The 2009 Randolph Annex was originally part of the 2008 multijurisdictional Regional Hazard Mitigation Plan drafted by Two Rivers-Ottawaquechee Regional Commission and approved by FEMA on September 30, 2008 with its first local annex. With the 2015 Plan update, the Plan was been reconstructed as a single jurisdiction, standalone Randolph Local Hazard Mitigation Plan submitted for individual approval to FEMA.

The 2020 Plan update is also a standalone Randolph Local Hazard Mitigation Plan. It is an update to the 2015 Plan. The 2020 Plan reflects changes in the Town's priorities since 2015. Some priorities remained the same, including the hazards of structure fire, hazardous material spills, high winds, and flash flood/flood/fluvial erosion. However, tornados are no longer a priority hazard. Priority has shifted to include severe winter storms, as they are a more commonly experienced hazard in Randolph than tornados.

The changes to this 2020 Plan include:

- **General**
 - Data updates: New hazard incidents, emergency declarations;
 - Hazards have been reevaluated with the hazard ranking system used by the Vermont Division of Emergency Management and Homeland Security's 2013 Plan;
 - Status updates provided for 2015 Mitigation Actions.
- **Hazards Analysis**
 - Structure Fire, Hazardous Material Spill, High Winds, and Flash Flood/Flood/Fluvial Erosion remain some of the "top hazards," which reflects the intention/priorities of local officials to continue to focus their analysis on these hazards as it is believed that the Town is, or is likely to be, vulnerable to these hazards in the next five years;
 - The Tornado section has been removed as a result of the hazard analysis;
 - A Severe Winter Storm section has been added, which reflects the intention/priorities of local officials to expand their analysis of hazards that the Town is or may be vulnerable to in the next five years.
- **Maps**
 - A map of the Town of Randolph depicting critical facilities, town infrastructure, and the NFIP designated floodway and 100-year floodplain has been updated.

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

- **Activities and Public Participation and Involvement**
 - 3/25/2020 TRORC staff requested names for potential committee members to revise Randolph's LHMP. The Town Manager responded with a list of individuals' names and contact information on 4/01/2020. A Doodle poll invitation was sent to those individuals on 4/27/2020 and an initial introductory meeting was scheduled.

- 05/19/2020: The Local Hazard Mitigation Plan committee met with TRORC staff via Zoom Public Meeting to identify and rank hazards. No members of the public attended this meeting and no comments from the public were received.
- 06/16/2020: The Local Hazard Mitigation Plan committee met with TRORC staff via Zoom Public Meeting to discuss and identify hazard mitigation strategies for each hazard addressed in the Plan. No members of the public attended this meeting and no comments from the public were received.
- 07/23/2020: The Local Hazard Mitigation Plan committee met with TRORC staff via Zoom Public Meeting to discuss further edits and updates to the Plan. No members of the public attended this meeting and no comments from the public were received.
- 09/25/2020: The Randolph Local Hazard Mitigation Plan was sent digitally to the following organizations: Vermont Technical College; Gifford Medical Center; Randolph Schools; Randolph Center Fire Department; East Randolph Fire Department; White River Chamber of Commerce; Randolph Area Community Development Corporation; Capstone Community Action, Inc.; Stagecoach Transportation; and White River Valley Ambulance. Contact information was provided for receiving comments. No comments were received.
- **Governmental participation and involvement (44 CFR 201.6(b)(2))**
 - Sent revised draft to Randolph Selectboard Chair and provided contact information for receiving comments— 09/25/2020
 - No comments were received
 - Sent revised draft to Planning Commission Chair and provided contact information for receiving comments— 09/25/2020
 - No comments were received
 - Sent revised draft to Vermont Division of Emergency Management and Homeland Security— 09/25/2020
 - No comments were received
 - Note: Town officials were given the opportunity to review, provide feedback and approve the changes that were made through the initial Plan drafting process, and during Plan revision and FEMA review process, if applicable.
- **Neighboring community participation and involvement (44 CFR 201.6(b)(2))**
 - Notices were placed on the Two Rivers-Ottawaquechee Regional Planning Commission website indicating that Randolph was engaging in hazard mitigation planning and updating their Local Hazard Mitigation Plan. These notices contained meeting information and contact information to allow those interested in Randolph’s efforts to participate in upcoming meetings. No comments were received.
 - Braintree’s Emergency Director
 - The Town of Braintree relies on Randolph’s Fire Departments all emergency services, and all hazardous events.
 - No comments were received.

- Posted a notice in the local newspaper and the town website alerting the public to the Hazard Mitigation Planning process that was taking place. These notices contained meeting information and contact information to allow those interested in Randolph’s efforts to participate in upcoming meetings. No comments were received.
 - The Herald of Randolph, 5/14/2020; 6/11/2020
- Sent revised draft to neighboring towns’ Selectboards for comment and provided contact information for receiving comments—09/25/2020
 - Towns of: Braintree, Brookfield, Tunbridge, and Bethel
 - No comments were received
- **Review of existing plans, studies, reports, and technical information (44 CFR 201.6(b)(3))**
 - State of Vermont Hazard Mitigation Plan, 2018
 - Randolph Hazard Mitigation Plan (Adopted 08/18/2015)
 - This Plan was referenced extensively during the update process, especially in regard to the worst threats and mitigation action strategies identified in 2015.
 - Randolph Town Plan (Revised and readopted on 08/08/2019)
 - This Plan provided TRORC’s staff with background information on the community, as well as more detail on their emergency services.
 - Randolph Zoning Regulations (Last rewrite adopted on 02/13/2020)
 - The Zoning Regulations were referenced for general knowledge and for Randolph’s Flood Hazard Regulations.
 - Randolph, Vermont Town Report for Fiscal Years 2016-2019
 - The Town Report was referenced for information regarding activities and happenings during those Fiscal Years.
 - Ayers Brook Phase 1 and Phase 2 Stream Geomorphic Assessment (11/01/2006)
 - This information was incorporated into the mapping/GIS components of this Plan; specifically in determining the number of structures that are vulnerable to fluvial erosion hazards.
 - Ayers Brook River Corridor Management Plan (05/02/2007)
 - The Ayers Brook River Corridor Management Plan provided information about an important tributary to the Third Branch of the White River. The lower reaches of Ayers Brook are located in the Town of Randolph. This information was also incorporated into the mapping/GIS components of this Plan; specifically in determining the number of structures that are vulnerable to fluvial erosion hazards.
 - Flood Insurance Study: Town of Randolph, Vermont, Orange County (07/16/1991)
 - The Flood Insurance Study was referenced for general knowledge of the Second Branch of the White River, the Third Branch of the White River and Ayers Brook.
 - Brief historical information on flooding in the Town of Randolph can be found on pages 4 and 5 of the Flood Insurance Study.

- Relevant peak discharge information for the Second Branch of the White River, the Third Branch of the White River and Ayers Brook can be found on pages 7 and 8.

C. Status Updates on Mitigation Actions Identified in 2015

The following table outlines the mitigation actions that were proposed in Randolph’s 2015 Local Hazard Mitigation Plan. Participants in the new Plan update process reviewed those actions and reported on the status of each. Actions related to long-term mitigation of natural hazards are so noted.

Hazard(s) Mitigated	2015 Mitigation Actions	Local Leadership	2015 Priority Level	How (funding/support)	Time Frame	2020 Status of Mitigation Actions
All hazards	<i>Ensure that Randolph’s Local Emergency Operations Plan (LEOP) is kept up-to-date and identifies vulnerable areas and references this Plan.</i>	Town Manager	High	Local Resources	1 year from date of Plan Approval	This is done annually. There is a current 2020 LEOP in place.
	<i>Create an outline of events to which the Town is susceptible and brainstorms unique solutions to such events. Review and revise the outline regularly.</i>	Town Manager, Fire Departments	High	Local Resources	1 year from date of Plan Approval	This outline was not created. The current drafting of the 2020 LHMP will address this.
	<i>Develop a program to consistently document infrastructure damage after weather events.</i>	Fire Departments, Highway Department	High	Local Resources	1 year from date of Plan Approval	No new program was developed, but the town does document damage after all events.
Structure Fire	<i>Enact ordinances to enhance fire protection of new or existing structures which will improve fire safety and prevention (such as, warning plaques for buildings with trusses).</i>	Fire Advisory Committee, Fire Departments, Zoning Administrator	Medium	Local Resources	2-4 years from date of Plan Approval	This is addressed through certificates of compliance rather than a new ordinance.
	<i>Develop a program to install and maintain dry hydrants in strategic locations around town for structure and wildfire protection.</i>	Fire Advisory Committee, Fire Departments	High	Local Resources	1-2 years from date of Plan Approval	This has been developed.

Hazard(s) Mitigated	2015 Mitigation Actions	Local Leadership	2015 Priority Level	How (funding/support)	Time Frame	2020 Status of Mitigation Actions
High Wind/ Tornado	<i>Develop a program to perform tree-trimming along the Town's right-of-way.</i>	Highway Department	High	Local resources	1-2 years from date of Plan Approval	The highway crew regularly trims trees as needed.
High Wind/ Tornado	<i>Maintain the agreement with the utility company to regularly trim tree limbs that are close to power lines.</i>	Highway Department	On-going	Local resources	1 year from date of Plan Approval	This agreement, while not written, is still in place and the company will come trim when the Town notifies them of the need.
Flash Flood/ Flood/ Fluvial Erosion	<i>Update and expand flood hazard area regulations to address fluvial erosion hazards, and to prohibit development, including new critical public facilities, in high hazard areas.</i>	Zoning Administrator, Planning Commission	Medium	Local resources, municipal planning grants	2-4 years from date of Plan Approval	This was addressed in the most recent updates to the Town Plan and Land Use Regulations.
	<i>Replace bridge #51 on Thayer Brook Road (cannot pass high flood waters).</i>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)	2-4 years from date of Plan Approval	This bridge was not replaced. The structure's base was recently upgraded to mitigate effects of meandering waterflow and to withstand higher speed of water during periods of heavy rain flow.
	<i>Develop a program to maintain and update town bridge and culvert inventories. Regularly inspect and maintain town bridges and culverts.</i>	Highway Department	High	Local Resources, Better Back Roads grants	1 year from date of Plan Approval	Bridge and culvert inventories were last updated in 2017. This is done as needed.
	<i>Develop a program and schedule to replace undersized culverts (see Appendix B for suggestions).</i>	Highway Department	High	Local Resources, Better Back Roads grants	1 year from date of Plan Approval	Replacement is done as needed.

Hazard(s) Mitigated	2015 Mitigation Actions	Local Leadership	2015 Priority Level	How (funding/support)	Time Frame	2020 Status of Mitigation Actions
	<p><u>The following projects were identified in the Town's Better Back Roads 2012 Class III Road Inventory:</u></p> <p><i>Stabilize streambank and road embankment on North Randolph Road.</i></p>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)	2-4 years from date of Plan Approval	Town is working with representatives from VTrans and ANR to address road repairs and obtain permits to perform work within a waterway.
	<i>Replace undersized and perched culvert on Whalen Road with a hydrologically-appropriate culvert.</i>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)	2-4 years from date of Plan Approval	Not accomplished, still relevant.
Flash Flood/ Flood/ Fluvial Erosion	<i>Replace two undersized cross culverts with hydrologically-appropriate culverts and remove berm on Dugout Road.</i>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)	2-4 years from date of Plan Approval	Not accomplished, still relevant.
	<i>Replace undersized bridge on Dugout Road with a hydrologically-appropriate structure.</i>	Highway Department	Medium	Local resources, Better Back Roads grant program,	2-4 years from date of Plan Approval	Project has not been completed, but remains a site to monitor during

Hazard(s) Mitigated	2015 Mitigation Actions	Local Leadership	2015 Priority Level	How (funding/support)	Time Frame	2020 Status of Mitigation Actions
				Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)		periods of heavy rainfall.
	<i>Restore Thayer Brook floodplain, as the brook has lost access to its active floodplain and is incised. (located immediately upstream of the most downstream of the three Thayer Brook bridges).</i>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)	2-4 years from date of Plan Approval	Not accomplished, still relevant.
	<i>Determine the appropriate solution to solve/reduce the flooding issues on Howard Hill Road.</i>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)	2-4 years from date of Plan Approval	Not accomplished, still relevant.

The Town of Randolph serves as the economic and commercial hub in the immediate region and attracts visitors throughout the state of Vermont. As a result, there are greater pressures for development in Randolph Village and in other locations throughout the Town of Randolph. For example, development has occurred in in the Village with Wall-Goldfinger, a manufacturer of high-quality corporate office furniture, relocating from Northfield, Vermont to Randolph in 2012, and the expansion of Freedom Foods, a business that works with artisan food producers to develop, produce, package, and distribute these foods. The northern section of the Village is vulnerable to flooding due to its location close to the Second Branch of the White River. New development, reuse or redevelopment in that area is vulnerable

to flood damage, but the enforcement of Randolph's flood hazard regulations will help minimize this risk.

In addition, development is occurring outside of the Village. Gifford Health Care (the major health care provider in the Town of Randolph and for the region) has developed a senior living community called Morgan Orchards in Randolph Center. Morgan Orchards is comprised of 49 independent living apartments and a 30-bed skilled nursing facility. Full completion of the Morgan Orchards campus will include an assisted living facility. The skilled nursing facility is located on a hill and is not vulnerable to flood damage.

In June of 2019, the company LEDdynamics moved its headquarters into a newly constructed \$5 million, 28,000-square-foot office, engineering and production facility on Beanville Road.

A proposed development project that is on the horizon is the development of a new Hampton Inn hotel, conference center and restaurant off Route 66 near the Exit 4 interchange along Interstate 89. As of writing, this project has received an Act 250 permit to begin construction.

This development that has happened since the previous plan has neither increased nor decreased the Town's vulnerability to hazards. Vulnerability within Randolph remains the same.

D. Existing Hazard Mitigation Programs, Projects & Activities

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

	Type of Existing Authority / Policy / Program / Action	Resources: Staffing & Funding	Ability To Expand/Improve On
Community Preparedness Activities	<p>Program—Annual update of Randolph’s Local Emergency Management Plan (LEMP). Note: Prior to 2019 the LEMP was called the Local Emergency Operations Plan (LEOP).</p> <p>Last updated and approved on 4/10/2020</p>	<p>Updated by the Town Manager’s Office with assistance from TRORC and funding from Vermont DEMHS.</p>	<p>This document is reviewed and updated each year to ensure that the contact information of emergency response personnel is up-to-date. This information is sent to Vermont Division of Emergency Management Homeland Security and Local Emergency Planning Committee for their records. The current program works well, no need to expand or improve on.</p>
	<p>Ongoing Program/Action— Fire Department staff have Vermont Fire Academy Firefighter I and Firefighter II level certifications</p>	<p>Volunteer time from Fire Department staff, staff/volunteer time from the Vermont Fire Academy. Funding from local budgets and the Vermont Fire Academy. Trainings are completed in-house or at another facility.</p>	<p>There is currently no need to expand or improve on this training program, as it stands, however, there may be interest in getting additional Fire Department staff trained.</p>
	<p>Program— Participation/attendance in the Local Emergency Planning Committee District 12 (LEPC 12)</p>	<p>Staff/volunteer time from the Fire Chiefs from the Randolph Fire Departments and/or other emergency personnel; meetings convened by TRORC. Funding from Vermont DEMHS.</p>	<p>No need to expand or improve on attendance, as it is satisfactory.</p>
Insurance Programs	<p>Authority/ Program— participation in National Flood Insurance Program (NFIP)</p> <p>The Town participates and complies with the NFIP through the enforcement of their Zoning Regulations, which includes a “Flood Plain Overlay District”, and were last amended on 2/13/2020.</p> <p>[Note: This section of the Plan satisfies the requirements of 44 CFR 201.6(c)(3)(ii).]</p>	<p>The Randolph Zoning Administrator serves as the NFIP Administrator. Assistance from TRORC and Vermont ANR. Funding from local resources— annual budget.</p>	<p>Randolph’s initial Flood Hazard Boundary Map was identified on 6/28/74 and their initial Flood Insurance Rate Map (FIRM) was dated 07/16/1991. The Town’s FIRM has not been updated – the current effective map date is 07/16/1991. The Town’s Flood Insurance Study (FIS) was last completed on 07/16/1991.</p> <p>The “Flood Protection District” regulations are kept up-to-date and regulate new development in the Special Flood Hazard Area (SFHA).</p>

	Type of Existing Authority / Policy / Program / Action	Resources: Staffing & Funding	Ability To Expand/Improve On
Land Use Planning	Policy/Program— Randolph Town Plan Adopted on 08/08/2019	Volunteer time from the Planning Commission, and assistance from TRORC and other state agencies on specific subject matter. Funding from Municipal Planning Grants.	The Town Plan is reviewed/updated every eight years, as required by statute. The Planning Commission may expand or improve on any section it deems necessary, or that is required by changes in state statute.
	Policy/Program— “Ayers Brook River Corridor Management Plan—Brookfield, Braintree and Randolph, Vermont” Published 06/22/2007.	Completed with staff time from Bear Creek Environmental and the White River Partnership, and volunteer time from the Town officials. Funding from the New Hampshire Charitable Foundation, though the Upper Connecticut River Mitigation and Enhancement Fund.	There is currently no need to expand or improve on this document, but it should be reviewed periodically.
	Authority—Randolph Zoning Regulations & Subdivision Regulation Last adopted on 2/13/2020 Includes a “Flood Plain Overlay District”, and limitations/requirements for development within the Special Flood Hazard Areas.	Volunteer time from the Planning Commission, and assistance from TRORC and Vermont Agency of Natural Resources. Funding from Municipal Planning Grants.	During the Town Plan review/update period, the Zoning Regulations (the “Flood Protection District” being part of the Zoning Regulations) are also reviewed and updated if needed.
Hazard Control & Protection of Critical Infrastructure & Facilities	Policy/Program— Randolph Hazard Mitigation Plan Adopted on 8/18/2015	Updated with volunteer time from local officials and assistance from TRORC and Vermont DEMHS. Funding from DEMHS/FEMA.	The 2020 Randolph Local Hazard Mitigation Plan will replace the 2015 Plan. The 2020 LHMP has evolved from the 2015 Plan. Future iterations of the Town’s LHMP will be updated by the Town at least every five years.
	Authority— 2019 Town Road and Bridge Standards Adopted 07/2019	Adopted by the Selectboard, implemented by Highway Operations Manager and Highway Supervisor, with assistance from TRORC. Funding from VTrans and the local budget to implement.	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.
	Resources: Staffing & Funding	Ability To Expand/Improve On	Type of Existing Authority / Policy / Program / Action
	Completed Action/Program— Better Backroad culvert inventory	Staff time from the Randolph Road Operations Manager and Highway Supervisor with	The Town will use the culvert inventory to further its culvert improvement program, and seeking funding through

	<p>completed in 2013 for the Town of Randolph</p> <p>This inventory includes georeferenced locations and attributes for all culverts/drop inlets/driveway culverts in Randolph. The Town received targeted assistance in the culvert inventory and specific priority projects were identified.</p>	<p>assistance from TRORC. Funding from Better Backroads grant; local personnel time.</p>	<p>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.</p>
	<p>Completed Action/Program— 2018 Better Back Roads Program – Road erosion inventory</p>	<p>Staff time from the Randolph Highway Operations Manager and Highway Supervisor with assistance from TRORC. Funding from Better Backroads grant; local personnel time.</p>	<p>The Town will use the road erosion inventory to further its transportation network improvement program, and seeking funding through various sources for implementation projects. There is no need to expand or improve on this program at this time.</p>
	<p>Program—Projects with White River Partnership for riparian buffers, other water quality improvement projects</p>	<p>Staff time from the White River Partnership and the Town Manager’s office/other Town Office staff; possibility for volunteer hours or town match requirements (based on grant). Permission/buy-in from private landowners for some projects. Funding (state and federal) sought and obtained by the White River Partnership.</p>	<p>The White River Partnership, in coordination with the Town of Randolph has completed a number of water quality improvement projects in the past (ex. Ayers Brook Corridor Plan, 2007, among others), and continues to do so. There is no need to expand or improve on this program, as needs are identified and then funding is sought to implement the appropriate project.</p>

E. Plan Maintenance

This Plan (the Randolph 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/Town Manager will monitor the implementation of the hazard mitigation strategies outlined in this Plan, by noting those that have been completed, are in the process of completion, or any issues with initiating the activity. 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, and the comments will be incorporated when relevant.

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

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

The process of evaluating and updating the plan will include continued public participation through public notices posted on the municipal website, notice within the municipal building, and notice in The Herald of Randolph, and other official posting places throughout the town and the TRORC newsletter, inviting the public to the scheduled Selectboard (or specially scheduled) meeting. The public will be given the opportunity to comment during these public meetings. Additional stakeholders should be invited to the meeting; these include but not limited to: White River Valley Ambulance, Inc., the National Forest Service, 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 may include changes in community mitigation strategies; new town bylaws (zoning and planning strategies); 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 Selectboard meetings.

Randolph shall also 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 as of July 2014 (24 VSA Chapter 117 §4382). To do so, flood hazard and fluvial erosion hazards will be identified, and strategies and recommendations will be provided to mitigate risks to public safety, critical infrastructure, historic structures and public investments. This Local Hazard Mitigation Plan helped the town to comply with the new community flood resiliency requirement for the town plan adopted in August 2019.

It is also recommended that the process work both ways and the Town review and incorporate elements of the Local Hazard Mitigation Plan into updates for the municipal plan, zoning regulations, and flood hazard/ fluvial erosion hazards (FEH) bylaws (currently incorporated into Randolph's zoning regulations). 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 also consider reviewing any future TRORC planning documents for ideas on future mitigation projects and hazard areas.

V. Community Vulnerability by Hazard

A. Hazard Identification

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

- What bad things can happen?
- 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. By 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 Randolph a safer place.

It is important that we learn from the past in order to avoid the same disasters and their outcomes. Disasters that have occurred within the Town of Randolph, 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 Randolph might not have been impacted by a specific hazard in the past, this does not necessarily mean it will never be affected in the future. Indeed, the advance of climate change means that old weather patterns may not hold. For instance, in recent years, Vermonters have seen an increase in the number and severity of storms, especially rainfall events. Armed with historical data and a healthy respect for climate change and the unknown, we have tried our best to identify hazards and prepare for the future.

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

¹ The ranking methodology used in this Plan (see Appendix A) is closely modeled on that which is used by the Vermont Division of Emergency Management & Homeland Security (VDEMHS). The only changes made were intended to reflect the more limited geographical scope of this analysis, which is focused on a small, rural town rather than the entire State of Vermont (which is the focus of VDEMHS).

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

Hazard	Frequency of Occurrence	Warning Time	Potential Impact	Hazard Score
Structure Fire	Highly Likely	None	Major	12
Hazardous Material Spill	Highly Likely	None	Moderate	11
High Wind	Highly Likely	3-6 hours	Moderate	10
Flash Flood/Flood/Fluvial Erosion	Highly Likely	3-6 hours	Moderate	10
Landslides/Mudslides	Occasionally	None	Moderate	9
Severe Winter Storm	Highly Likely	12+ hours	Moderate	8
Tornado	Occasionally	3-6 hours	Moderate	8
Wildfire	Occasionally	None	Minor	8
Water Supply Contamination	Unlikely	None	Moderate	8
Train Derailment	Occasionally	None	Minor	8
School Safety Incident	Occasionally	None	Minor	8
Hurricanes/Tropical Storms	Likely	12+ hours	Moderate-Major	7.5
Hail Storm	Likely	3-6 hours	Negligible	7
Earthquake	Occasionally	None	Negligible	7
Dam Failure	Unlikely	None	Negligible	6
Ice Jams	Likely	12+ hours	Minor	6
Invasive Species/Infestation	Occasionally-Likely	12+ hours	Minor	5.5
Drought	Likely	12+ hours	Negligible	5
Lightning Strike Incident	Unlikely	6-12 hours	Negligible	4
Extreme Heat	Occasionally	12+ hours	Negligible	4

The Randolph Committee discussed the results of the hazard ranking activity and decided to focus on hazards that had a *Highly Likely* frequency of occurrence and have a *Major* or *Moderate* potential impact.

While Landslides/Mudslides were ranked within the top hazards, the Committee believed that landslides and mudslides occur most often in relation to flooding and the Town’s vulnerability to flooding would be adequately covered in the Flash Flood/Flood/Fluvial Erosion hazard profile.

Refer to Appendix A for definitions of the hazard ranking terms used in the above chart.

The Town of Randolph identified the following “top hazards” which they believe the community is most vulnerable to:

- Structure Fire
- Hazardous Material Spill
- High Wind
- Flash Flood/Flood/Fluvial Erosion
- Severe Winter Storm

Each of these hazards will be discussed in the following sections. Within each section, previous occurrences of each of the top hazards will be listed, including the County-wide FEMA Disaster Declarations (DR-#) when applicable. Hazards information was gathered from local sources (ex. town history book), the National Climatic Data Center’s (NCDC’s) Storm Events Database (1950-2020), the Spatial Hazard Events and Losses Database for the United States (SHELDUS) 1960-2019, and Special Reports produced by the National Weather Service in Burlington, Vermont. Each section also includes a description of each top hazard and a hazard matrix that will also include the following information:

Hazard	Location	Vulnerability	Extent	Observed/ Anticipated Impact	Likelihood/Probability
Type of hazard.	General areas in community that may be vulnerable to the hazard.	Community structures affected by hazard.	Strength or magnitude, and details of a notable event(s).	Dollar value or percentage of damages.	<u>Occasionally</u> : 1–10% probability of occurrence per year, or at least one chance in next 100 years <u>Likely</u> : >10% but <100% probability per year, at least 1 chance in next 10 years <u>Highly Likely</u> : 100% probable in a year

B. Hazard Profiles of “Top Hazards”

1. Structural 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.

Structure fires may occur at any point and are typically initiated within a single fuel object. 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.

The main concentration of population and development within the Town of Randolph is in Randolph Village. As a result, structures are located relatively close together or adjacent to one another in some areas. The area of greatest concern is the block of commercial buildings located on North Main Street; these buildings were built adjacent to one another. Some of them do not have extended fire suppression systems, though small sections of the downtown area have been equipped with sprinkler systems, including all public and town-owned buildings. However, officials in the Town of Randolph feel powerless to require installation of sprinklers in existing privately-owned buildings, and it is dependent on the scope of the renovation if they are required to be installed. The installation of sprinklers in closely spaced buildings is ongoing and the Town enforces this when possible. A major fire in this section of buildings would likely threaten the whole commercial block.

Recent History of Firefighting Efforts:

The following table contains data taken from yearly Randolph Town Reports. It shows firefighter efforts for Fiscal Years 2016-2019 for each of the three fire departments. Structure or chimney fires are highlighted.

Firefighting Efforts: July 1, 2015 - June 30, 2019				
Type of Fire	Randolph Village Fire Dept.	Randolph Center Fire Dept.	East Randolph Fire Dept.	Incident Totals
Structure or chimney	40	7	11	58
DART Responses	82	1	0	83
Vehicle Fires	5	24	4	33
Vehicle Accidents	47	104	18	169
Unpermitted Burns	14	5	4	23
Grass/Brush Fire	3	5	1	9
HAZMAT Incidents	6	6	0	12

CO-Smoke Alarm	33	49	0	82
Electric Fires	41	6	9	56
False Alarms	134	21	17	172
Mutual Aid	7	49	28	84
WRVA Assistance	28	4	1	33
Public Assistance	47	18	3	68
TOTAL	487	299	96	882

Notable Occurrences:

The following occurrences were reported by the group or obtained from local sources. Entries marked with an asterisk (*) in this section were found in the archives of the local newspaper, *The Herald of Randolph*. It is reasonable to assume that more structural fires have occurred in the period of time between the entries listed below.

Date	Event	Location	Extent
06/28/2013*	House Fire	Park Street, Randolph Village	Structure destroyed.
12/29/2012*	House Fire	Fairview Street, Randolph Village	Structure destroyed.
01/03/2013*	Chimney Fire	Randolph Avenue, Randolph Village	Minor damage.
11/22/2012*	Mobile Home Fire	Route 12A, Braintree.	Randolph Village Fire Department responded as per agreement with the Town of Braintree. Randolph Center Department also responded in mutual aid. Significant smoke damage to mobile home, small burn hole in back of the structure.
11/08/2012*	House Fire	Forest Street, Randolph Village	Contents of home totally destroyed, but main structure considered solid. Mostly smoke and heat damage. Estimated damage at \$150,000.
01/05/2012*	Barn Fire	Randolph Center	Barn completely destroyed, burned to the ground. Several farm animals killed.
06/17/2010*	Commercial Building Fire	31 North Main Street, Randolph Village	First two floors had extensive fire, smoke and water damage. The third floor was destroyed. 8+ people homeless, several businesses damaged by fire/smoke/water. It was determined that the fire was likely set by arsonists.
07/16/2009*	House Fire	South Pleasant Street, Randolph Village	Structure destroyed, completely gutted by fire.
11/06/2008*	Structure Fire	Route 66, Randolph Center	Vermont Technical College's Enterprise Center completely destroyed, displacing six local businesses.
12/01/1999	Commercial Building Fire	Pleasant Street & Pearl Street	Branchwood, Inc., located in a 135- year old historic mill was completely destroyed.
07/15/1992	Commercial Building Fire	North Main Street Randolph Village	Belmain's and the Vermont Federal Bank (Billingham Block)— completely destroyed.
01/27/1992	Commercial Building Fire	Randolph Village	The Gray Block, completely destroyed and razed.
12/26/1991	Commercial Building Fire	Main Street, Randolph Village	Original DuBois & Gay Block completely destroyed. 75-90 volunteers from 5 departments participated in the firefighting effort.

There have been four major fires involving Randolph Village's commercial block in the last 30 years. The fire that occurred on December 26, 1991 destroyed a large four-story brick commercial building that dated to 1885. Then, there were two fires in the first half of 1992, one in January and one in the spring. These three successive fires devastated the commercial viability of Randolph Village and businesses suffered as a result. Most recently, a privately-owned three-story building was set on fire by arsonists in the early morning of June 17, 2010. It heavily damaged the first and second floors of the building and destroyed the third floor. While adjacent buildings were damaged by smoke and water, the Randolph Village Fire Department and others were fortunately able to keep the fire from spreading to other adjacent buildings.

Randolph Village is a commercial hub of the wider region and is therefore depended on by residents of surrounding towns including, Braintree, Brookfield, Tunbridge, and Bethel. As evidenced by the economic downturn the Village experienced after the fires in 1991 and 1992, a major fire in the commercial block could devastate the Town's economy and vitality.

In addition, a fire in one of Randolph Village's neighborhoods can spread to other nearby structures and increasing the amount of damage caused by a structural fire. Closely spaced structures in any of Randolph's five mobile home parks and numerous housing complexes/apartment buildings are also vulnerable to the impacts of a fire spreading among structures. There is another cluster of mobile homes located on East Randolph Common off Route 14, but there is a tree buffer. These are privately individually owned. The Randolph Area Community Development Corporation (RACDC) owns five housing complexes, which include the Red Lion Inn (an elder housing complex on the top two floors of building on Merchants Row), Randolph House (an elder housing complex on North Main Street), Sass Apartments (located on Hedding Drive), Branchwood Apartments (located on Randolph Avenue & Pearl Street), and finally, Salisbury Square (located at the end of Salisbury Street & School Street). Further, there is another subsidized housing complex on Hedding Drive, called Randolph Circle, but this complex is not owned by RACDC. For the remaining areas in the Town, poor access to fires, limited water supply for firefighting outside the Village area, and the distance of homes from one of Randolph's three volunteer fire stations leave the Town of Randolph vulnerable to the impacts of structure fires.

Because of a concentrated student population, Vermont Technical College is an area of local concern. Although the Randolph Center Fire Department acquired an aerial ladder truck capable of reaching the taller buildings on campus in 2006, a hazard event at the school could easily overload Randolph's emergency services.

The Town of Randolph provides fire protection to three surrounding towns, under various conditions. The Town of Braintree contracts with the Town of Randolph to provide fire protection services. Randolph Fire services East Granville on a per-call basis and responds to fires in West Brookfield under mutual aid. The Emergency Director from the Town of Braintree, and the Fire Chief and one member-at-large (usually the Assistant Chief) from the Town of Brookfield participate in monthly Fire Advisory Committee meetings, where the previous month's events are discussed. The arrangement of the Town of Randolph providing mutual aid to three adjacent towns places more responsibility and pressure on Randolph fire departments and could run the crews thin if two large emergency events occurred in multiple Towns at the same time.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/ Probability
Structure Fire	Town-wide. Increased risk in Randolph Village, and mobile home parks.	Town and privately owned structures.	Depends on fire location and conditions.	Estimate: \$8-9 million for Randolph Village fires that occurred between 12/1991 and 07/1992.	Highly likely

2. Hazardous Material Spill

Based on available VT Tier II data, there are 24 sites in town that have sufficient types and/or quantities of hazardous materials to require reporting. In addition, the New England Central Railroad runs through the village of Randolph. There are four railroad crossings on public or Town land. At any given time, there can be hazardous materials aboard the train. Additionally, Randolph's village is located at the junction of Route 12, 12A and 66; and the Town is bisected by I-89. These roads (particularly I-89) see a heavy amount of truck traffic. There are 1,226 residences and 268 commercial & industrial buildings within 1,000 feet of a potential HAZMAT spill on the railroad, Routes 12, 12A, 14, 66 and I-89, and Vermont Class II roads. The Police Department, Town Hall and Post Office are both public buildings that are also located within 1,000 feet of a potential HAZMAT spill. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be \$13,323,180.

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

Information in the table below was retrieved from the Vermont Department of Environmental Conservation's Spill List. Information marked with an asterisk (*) was supported with research of newspaper articles or through local knowledge. Although this table reflects, mostly oil based hazardous materials that have spilled, some of which occurred in the residential setting, it is intended to demonstrate the wide range of impacts and circumstances that may follow a hazardous material spill. Unless otherwise noted, the spills were cleaned up or treated as required by law.

History of Occurrences:

Date	Event	Location	Extent
12/14/2019	Pickup truck collision with milk tractor trailer	I89 Southbound	140 gallons of diesel and gasoline spilled
01/13/2019	Fuel oil spill	Randolph High School	10 gallons fuel spilled
07/03/2018	Above ground tank leak	Rt 66	100-120 gallons of kerosene spilled
10/20/2016	Petroleum leak	Randolph Ctr. Garage	500-1000 gallons leaked; petroleum found in wastewater system that receives wastes from garage floor drains
06/11/2016	Tractor trailer punctured saddle tank	I89 Southbound roadside	150 gallons of diesel
04/20/2016	Aboveground storage tank leak	East Randolph Common	50 gallons kerosene spilled
11/26/2015	Heating oil underground storage tank leak	Vermont Technical College	1200 gallons fuel oil, kerosene leaked
07/04/2015	Tank fittings broke	Central Road	400 gallons of fuel oil spilled

Date	Event	Location	Extent
06/23/2015	Box Truck turn-over, leaking battery acid	North Randolph Road, Randolph Center	Box truck overturned on the N. Randolph Road with a cargo of batteries, which were leaking into a nearby stream. Conditions that day (during incident): heavy rain incident. Cost to clean up just for Town of Randolph (fire & highway) \$9,200.
10/17/2013	Propane release	North Main Street	Release from rooftop heating unit required the evacuation and closure of the store until the system was repaired.
07/07/2012	Tour bus engine blew apart	I-89 South	Motor oil sprayed all over southbound line, covered 2 cars. Oil slick ran from approximately mile marker 37 to mile marker 34.
05/29/2012	Tractor trailer ruptured saddle tank	I-89, Exit 4	80 gallons diesel spilled onto parking lot, into storm drains and into drainage swale.
03/14/2012	Leaking kerosene tank	School Street	Approximately 50 gallons leaked, sheen on nearby stream reported a few days later. Clean-up invoice: \$18,666.91.
09/12/2011	Drum found on riverbank	Third Branch of White River	55 gallon drum of gasoline found on riverbank. Washed downstream during Tropical Storm Irene flooding.
Fall 2010	Propane release	VT Route 12	Quantity unknown, but release required evacuation for several hours.
06/23/2009	Blown hydraulic hose	Clay White Road	8 gallons of hydraulic fluid spilled, released into soil.
08/09/2008*	New England Central Railroad train derailment	South of VT Route 12A crossing in Braintree	Last rail car dragged 4 miles, damaging rails (tore up a few miles of rail ties) and spilled 200,000 lbs. of limestone along rail bed. Train service suspended a few days for repairs.
2003*	Propane release	South Main Street	Quantity unknown but spill could have required the evacuation of Gifford Medical Center.
05/15/2002	Fuel line leak	I-89 North	20 gallons of diesel spilled.
06/29/1999	Chlorine release	School Street	120 gallons of chlorine released due to broken pipe.
03/05/1997	Diesel fuel tank leak	I-89	Diesel spill along several miles, no cleanup possible.

No major hazardous material spill has occurred in the Town of Randolph, although some areas are always at risk for a spill. These areas include Randolph Village, Routes 12, 12A, 14, and 66 corridors, and the I-89 corridor. Railroad tracks pass directly through Randolph Village, leaving the entire Village vulnerable if a hazardous material spill occurred there. Of greater concern is the response to a spill directly in the Village, or a halted train that has experienced a hazardous material spill and whose rail cars extend through the center of Randolph Village. Rail cars stopped in the Village would completely halt traffic in or out of the Village at that intersection. More importantly, response crews passing through the major route through the Village on Vermont Route 12 would be required to turn around and use I-89 to access an emergency on the other side of the train tracks. This could significantly affect and slow down the response effort, especially without advanced knowledge that the tracks are blocked in the Village. At times, a train temporarily stopped on the tracks will halt traffic in the Village, sans any accident. There is currently no framework or system to alert emergency response or emergency medical crews that a train is blocking the passage through the Village.

There is an alternative route to bypass the train tracks in Randolph Village if necessary, Stock Farm Road and Findley Bridge Road—a narrow Class 3 road with a narrow trestle bridge not suited for 18 wheelers. While not suited for all vehicles, this route is significantly shorter than going up to I-89 and then back through the Towns of Royalton and Bethel to get to the other side of the tracks in the Village.

As the major north-south route in the area, which serves both Montpelier and Burlington, many hazardous materials are transported on I-89. I-89 passes through the entire Town of Randolph, for a distance of approximately 14 miles. The level of truck traffic along this highway increases the likelihood of a HAZMAT event. While less hazardous than some other materials, sizable quantities of vehicle-related fluids, such as petroleum products, have been spilled on I-89 a number of times in the past. Petroleum-product spills will continue to occur, and it is only a matter of time before a more serious hazardous material spill will continue to occur on I-89 in the Town of Randolph. The area of Interstate 89 that runs through Randolph is served by local fire and rescue squads in the event of major accident or HAZMAT event. There is limited access to the length of the interstate.

There have also been a few large propane releases in or near Randolph Village in recent years. One was at a residence/business that could have required the evacuation of Gifford Medical Center and the Menig Extend Care Facility and Adult Day Service. The other was at the Justin Morgan Marketplace (Kinney Drugs/Shaw’s Supermarket/Aubuchon Hardware/Family Dollar/Riches Recycled) that required evacuation for several hours. Most recently, a propane leak required the evacuation and closure of a Rite-Aid until the system was repaired. In addition, propane tanks of various sizes are occasionally found in rivers and streams throughout the Town after a flooding event. Again, while these spills tend to be minor in nature, they demonstrate the frequency at which spills can occur and it may only be a matter of time before a larger and/or more hazardous spill occurs.

Hazard	Location	Vulnerability	Extent	Anticipated Impact	Likelihood/Probability
Hazardous Materials Spill	VT Routes 12, 12A, 14, 66, Interstate I-89	Road and rail infrastructure, nearby structures, Randolph Village	Initially, local impacts only; but depending on material spilled, extent of damage may spread (ex. into groundwater).	There are 1,226 residences and 268 commercial & industrial buildings within 1,000 feet of a potential HAZMAT spill on the railroad, Routes 12, 12A, 14, 66 and I-89, and Vermont Class II roads. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be \$13,323,180.	Highly Likely

3. High Wind

Generally speaking, wind is the result of differences in atmospheric pressure, and moves from an area of high pressure to an area of lower pressure. Slight or moderate winds are unlikely to be dangerous, and often have beneficial effects. However, high winds may pose a threat to lives, property, and critical utility infrastructure. Light construction, such as manufactured homes, are often the most damaged by high wind events. High winds typically occur as a result of various weather events, such as severe storms, tropical storms or hurricanes.

One of the strongest and most damaging types of high winds are straight-line winds. Unlike tornadoes, which demonstrate a rotational damage pattern, damage caused by straight-line winds tends to be very linear. This type of wind can be very strong, producing wind speeds as high as 80 to 90 mph, and can last twenty minutes or more. They often occur at the gust front of a thunderstorm or originate with a downburst from a thunderstorm. Straight-line winds are notorious for downing forest stands in linear swaths.

Another extremely dangerous weather event that produces high winds is a derecho. Derechos are widespread, long-lived windstorms that are associated with a fast-moving band of severe thunderstorms. They are also capable of producing very high, straight-line winds and even tornadic winds. They are considered a warm-weather phenomenon, as they occur most often in the summer months—spring through early fall in the Northern Hemisphere. According to a National Weather Service map, the state of Vermont, the northern half of New York State and the rest of New England, derechos have a frequency of occurring about once every four years. There have been a few derechos that have occurred in Vermont in the last 15 years: on July 14-15 of 1995 (“the Adirondacks/Ontario Derecho”), on September 7, 1998 (“the Syracuse Derecho of Labor Day 1998”), on July 4-5 1999 (“the Boundary Waters-Canadian Derecho”) and most recently on July 15, 2005. It is thought that the worst derecho to hit Vermont was the “Boundary Waters-Canadian Derecho,” killing one camper in the Northeast Kingdom.

Despite the threat of straight-line winds and derechos, the most common type of high winds, are strong, sustained winds or wind gusts or gales. These high wind events can still damage critical infrastructure or down trees, which can knock out electricity, block roads and cause bodily harm. As evidenced by the table below, strong sustained winds and/or strong gales are the most common type of high wind in the Town of Randolph.

History of Occurrences:

Date	Event	Location	Extent
09/11/2016	High Winds with thunderstorm	Town of Randolph	Scattered severe thunderstorms knocked down numerous trees and caused subsequent power outages. \$5,000 in property damage. 58 mph winds.
09/11/2013	High Winds with thunderstorm	Town of Randolph	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

Date	Event	Location	Extent
			produced damaging winds of downed trees and utility lines. \$25,000 in property damage. 63 mph winds.
09/08/2012	High Winds with thunderstorm	Town of Randolph, region-wide	Numerous trees and power lines downed by winds. \$10,000 in property damage. 20-30 mph with gusts in excess of 40 mph across the region.
08/21/2011	High Winds with thunderstorm	Town of Randolph	Downed trees and power lines. \$5,000 in property damage. (To demonstrate power of winds caused by this event: microburst near North Pawlet produced straight-line winds estimated at 70-90 mph).
05/09/2009	High Winds with thunderstorm	East Randolph, South Randolph	South Randolph: trees reported down. Magnitude: 50 knots, \$5,000 in property damage. East Randolph: State Police report trees downed by thunderstorm winds. Magnitude 50 knots. \$5,000 in property damage.
07/09/2007	High Winds with thunderstorm	Randolph Center, East Randolph, The Town of Randolph	2 reports for Randolph Center: Wind gust of 50 knots and wind gust of 58 mph reported, very minimal damage (nickel sized hail also reported). In East Randolph, numerous trees reported down, wind magnitude at 50 knots. \$10,000 in damage.
06/27/2007	High Winds with thunderstorm	Randolph, region/state wide	Trees blown down on power lines. 1000's of customers without power within the region/state. Magnitude: 50 knots.
03/06/2007	High Winds with extreme cold	County-wide	Frigid temperatures (-5 to -20 degrees) combined with 15-30 mph winds. Wind chill: -20 to -40 degrees.
02/14/2007	High Winds with snow storm	Town of Randolph, county/ region-wide	Snowfall and brisk winds of 15-25 mph created white-out conditions. Wind chill: -10 degrees and below.
08/01/2005	High Winds with thunderstorm	Town of Randolph	Numerous trees were blown down on cars. Power was out with power wires blown down. Small hail was reported with the storm. \$50,000 in property damage.
07/06/1999	High Winds with thunderstorm	Town of Randolph	Numerous trees and power lines blown down. \$5,000 in property damage
08/24/1998	High Winds with thunderstorm	Town of Randolph, county/ region-wide	Numerous trees and power lines blown down.
06/22/1997	High Winds with thunderstorm	Randolph Center, Town of Randolph	An individual was injured in Randolph Center due to a tree limb being blown down and striking them in the head. In addition, hundreds of trees were blown down and/or uprooted in Randolph Center with a silo damaged.

The utility company is required to trim around the power lines regularly. This practice helps to reduce the number of customers who lose power and the amount of damage to power lines caused by falling trees and tree limbs.

The town also clears low hanging branches, dead or dying trees, etc. from their right-of-way.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/ Probability
High Wind	Town wide	Private and public property, power, and utility infrastructure, Randolph's existing recreational structures.	Winds have often been 50-55 knots (57-64 mph) causing downed trees/power lines and power outages.	Damage costs as high as \$50,000, but more typically in the \$5,000 to \$10,000 range.	Highly likely

4. Flash Flood/Flood/Fluvial Erosion

Flooding is one of the worst threats to Randolph's residents and infrastructure. Past instances of flooding in Randolph 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).

The worst flood disaster to hit the Town of Randolph, as well as the overarching region and the State of Vermont, occurred on November 3, 1927. This event was caused by nearly 10 inches of heavy rain from the remnants of a tropical storm that fell on frozen ground. 84 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 per second (cfs) recorded at West Hartford, Vermont. Like many towns in the region, the Town of Randolph received heavy precipitation.

A more recent flood that devastated the region and the state was the result of Tropical Storm Irene, which occurred on August 28, 2011. Record flooding was reported across the state and was responsible for several deaths, and 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 one week. Despite the damage wrought, the flooding caused by Tropical Storm Irene is considered to be the second greatest natural disaster in 20th and 21st century Vermont, second only to the Flood of 1927.

The Town of Randolph suffered major damage to property and infrastructure during Tropical Storm Irene (DR-4022 VT), although no lives were lost. It is estimated that Tropical Storm Irene dropped 5-7 inches of rain over the Town of Randolph (7.28" in Randolph Center, and 5.53" in northeast Randolph) in a very short span of time, and 5-7 inches across the county. Many of Randolph's roads and culverts were damaged by the storm, including parts of: Thayer Brook Road, Brook Street, Beanville Road, Prince Street, Howard Hill Road, West Street, Hillside Lane, Menard Road, Harlow Hill Road, Tatro Hill Road, Seymour Road, Leonard Road, Vermont 14 in East Randolph, and Vermont 12A. The county-wide damage for Orange County totaled \$5 million. According to FEMA's Public Assistance Database, the Town of Randolph sustained \$814,956.12 in damages as a result of the flooding caused by Tropical Storm Irene.

The flooding in 1998 (DR-1228 VT) caused more damage in the Town of Randolph than Tropical Storm Irene. Mason Road, Howard Hill Road, Braintree Hill Road, North Randolph Road (multiple locations), Crocker Road, and Route 66 were all extensively damaged. Many of the same roads were damaged during the 1998 flooding and the Tropical Storm Irene flooding. However, the damage was reduced during the Irene flooding due to the repairs and upgrades that were made after the 1998 flooding.

Between the flooding events in 1998 and 2011, the Town of Randolph was hit by a series of July storms in 2007 that caused flooding throughout the Town (DR-1715 VT). In particular, the flooding that occurred on July 11, 2007 damaged the following areas and roads in the Town: Mason Road, Howard Hill (closed), West Street, Tatro Hill, Seymour Road, West Hill (closed), Peth Road, North Randolph Road, Fish Hill, Hebard Hill (damage in two locations), Scenic Drive, Jackson Road, and Pinnacle Road. The two

main projects that arose out of the July 2007 events were Howard Hill, with a cost of repairs totaling \$492,800.00, and West Street, with a repair bill of approximately \$80,000.00. The damage total for the 2007 flooding was approximately \$750,000.00.

Unfortunately, flooding is very common across the region, with many events impacting the Town of Randolph specifically. Flooding is a great threat to Randolph’s residents and infrastructure. The following list indicates the history of occurrence with regard to this hazard in Orange County. Given the relatively small population of Randolph, town-specific data is limited; an asterisk “*” denotes the few instances in which town-specific data is available, and federal disaster numbers are listed when appropriate.

History of Occurrences:

Date	Event	Location	Extent
10/31/2019-11/01/2019 (DR-4474)	Severe Storm and Flooding	County-wide	Damage to roads and bridges
04/15/2019 (DR-4445)	Severe Storms and Flooding	County-wide	Damage to roads and bridges
05/04/2018-05/05/2018 (DR-4380)	Severe Storm and Flooding	County-wide	Damage to roads and bridges
10/29/2017-10/30/2017 (DR-4356)	Severe Storm and Flooding	County-wide	Damage to utilities
06/29/2017-07/01/2017 (DR-4330)	Severe Storms and Flooding	County-wide	Damage to roads and bridges
04/15/2014-04/18/2014 (DR-4178)	Severe Storms and Flooding	County-wide	Damage to roads and bridges
06/25/2013—07/11/2013 (DR-4140 VT)*	Flash flooding & flooding	County-wide	Thunderstorms occurred across the region. Some storms brought very heavy precipitation and caused local flash flooding. Damage in Randolph to the following roads: Howard Hill Road, Stock Farm Road, Fish Hill Road, Braley Road, Tunbridge Road, North Randolph Road, and Hollyhock Road. Damage around \$15,000.
08/28/2011* (DR-4022 VT for period of 8/26/2011 – 9/2/2011)	Severe Flash Flooding	Randolph, County-wide	5-7” of rain across region, 7.28” in Randolph Center, 5.53” in northeast Randolph. Significant damage to roads/culverts including many town roads, and Routes 12A, and 14. There was flooding at Rt. 66/Central Street and at Ayers Brook but no damage was reported. \$814,956.12 in damages in the Town of Randolph according to FEMA’s Public Assistance database (captures at least 70% of total damage).

Date	Event	Location	Extent
05/26/2011 – 05/27/2011 (DR-4001 VT)	Flash & riverine flooding	County-wide	3-5+” of rain county-wide
10/01/2010*	Flood	Randolph	Caused by heavy rain. Route 14 was covered by water in South Randolph, reducing travel to one lane.
07/21/2008 - 08/12/2008 (DR 1790 VT)	Flooding	County-wide	Data unavailable.
07/9/2007 - 07/11/2007 (DR-1715 VT)*	Flooding	Randolph, County-wide	Randolph one of hardest hit areas. Numerous roads washed out and flooded in Randolph and Randolph Center including Mason Road, Howard Hill, Tatro Hill, Seymour Road, Hebard Hill (in two locations), among others. Spotter reported over 6 inches of rainfall in Randolph Center. \$750,000 in damage for event.
04/15/2007 - 04/21/2007 (DR-1698 VT)*	Flooding	County-wide	Snowfall in valleys 4-7” throughout the county; 13” fell in Randolph
07/21/2003 - 08/18/2003 (DR-1488 VT)	Flooding	County-wide	Data unavailable.
07/14/2000 - 07/18/2000 (DR-1336 VT)	Flooding	County-wide	Data unavailable.
09/16/1999 - 09/21/1999 (DR-1307 VT)	Flooding	County-wide	Data unavailable.
06/27/1998*	Flash flood	Randolph, County-wide	4-8” of rain across county; widespread flooding was reported in Randolph.
06/17/1998 - 07/13/1998 (DR-1228 VT)	Flooding	Randolph, County-wide	Extensive flooding damage in the Town of Randolph to Route 66, Mason Road, Howard Hill Road and Braintree Hill Road.
06/28/1973 - 06/30/1973	Flooding	Randolph, County-wide	5-8” region-wide. 7.68” in Bethel, located immediately south of Randolph.
11/02/1927 – 11/04/1927 (“The 1927 Flood”)	Flash flood	Randolph, County-wide	6-7” region-wide. Widespread damage to roads and bridges.
03/1925	Flooding	Randolph, County-wide	Spring freshet. Caused significant structural damage to a log dam, bridges and an apartment building, and caused significant erosion.

The Town of Randolph Flood Plain Overlay District prohibits new structures in the floodway and places restrictions on other types of activities within the floodway and special flood hazard area (SHFA). It also specifies land, area and structural requirements in the Flood Plain Overlay District. The Town’s Water Conservation Overlay District has a district boundary of 75 feet from top of streambank on either side of the Second and Third Branches of the White River and of Ayers Brook, which does not allow structure development, paving or filling. These buffers seek to protect the fragile riparian habitat, improve or maintain water quality and prevent soil erosion.

Based on the results of overlaying the FIRM flood maps with the location of the E911 points, there are 26 residences and 8 commercial and industrial structures within the 100-year floodplain (also known as

the Special Flood Hazard Area), which equals \$7,020,210, if all properties were damaged/destroyed in a severe flooding event. There are no critical facilities for the town located in the floodplain. Some of the Town's recreational facilities are located in the Special Flood Hazard Area. For example, Randolph's summer camps are held at the Randolph Recreation Building/Randolph-Town Recreation Center complex, on Park Street, which is located on the White River. The town pool is located on School Street and on Prince Street there is a small recreational area, both of which are vulnerable to flooding. The Ayers Brook pump station and Wastewater Treatment Facility are located just outside of the Special Flood Hazard Area.

In recent years, there have been a number of water rescues events or near events. At least half of these rescues were due to flooding, with many rescues during and after the flooding caused by Tropical Storm Irene. The Town of Randolph has responded to East Granville for a number of high water rescues due to flooding. With more frequent flooding events, this number seems to be and in the future will likely be on the rise. The Town of Randolph currently relies on the swift water rescue based in the adjacent Town of Bethel for assistance. The Randolph Fire Departments currently do not have basic equipment or the training necessary to perform its own swift water rescues.

Due to the development restrictions mountainous terrain places on an area, "at-risk populations" (such as children or the elderly), low-income housing and critical infrastructure may be located in flood hazard areas. Across Vermont, most child and elder care facilities are not registered with the State. There are five child care facilities that are licensed with the State of Vermont in the Town of Randolph. Two of these facilities are located on the edge of the floodplain. Both of the licensed child care providers operate out of the Randolph Elementary School, but it is located on top of a hill and is safe from inundation risk. In the event of severe flooding, the Elementary School would be evacuated.

There are three elder care facilities in the Town of Randolph, the Pleasant Street House (located on South Pleasant Street) and the Windover House (located on Vermont Route 66) and Joslyn House (located on Maple Street). However, none of these facilities are located in the floodplain. Finally, in general, low income housing is not registered with the State, but there are five mobile home parks that are located within the Town of Randolph. All are located outside of the floodplain; however, the mobile home park located on Park Street is just barely outside of the floodplain.

Risks also occur outside of mapped flood areas. Recent studies have shown that the majority of flooding in Vermont is occurring along upland streams, as well as along road drainage systems that fail to convey the amount of water they are receiving. These areas are often not recognized as being flood prone, and property owners in these areas are not typically required to have flood insurance (DHCA, 1998). It should be noted that, although small, mountainous streams may not be mapped by FEMA in NFIP FIRMS (Flood Insurance Rate Map), flooding along these streams is possible, and should be expected and planned for. Flash flooding in these reaches can be very 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/mountain side undercutting. Furthermore, precipitation trend analysis suggests that intense, local storms are occurring more frequently. There are 18 residential structures and 3 commercial structures in the fluvial erosion hazard zone. Roads and some residences in Randolph next to steep small streams could be and have been damaged in the past, such as West Street, Tunbridge Road, Braley Road, and Howard Hill Road. Currently, the Town of Randolph has Fluvial Erosion Hazard zones mapped for Ayers Brook.

The Town of Randolph completed an extensive culvert inventory for the entire Town, which includes private driveways in the fall of 2013. TRORC assisted the Town in the culvert inventory.

A bridge separates the Randolph Village Fire Department from the main body of the Village. In the event of a severe flood, this bridge could wash out, causing the Village to be cut off from its own fire suppression equipment and firefighters, as well as from electrical, telephone (including Emergency Response lines), and possibly sewer and water service. Bethel and Royalton could provide limited fire service for this area.

No development projects are planned in Randolph in areas that would be vulnerable to flooding. There are no repetitive loss properties in the Town of Randolph on FEMA's NFIP list.

Finally, in an effort to help reduce the Town's vulnerabilities to flooding and protect structures and road infrastructure, it is important to restore floodplain, improve areas and/or increase the number of areas for retention wherever possible. Equally important to reduce vulnerabilities to flooding is the process of stabilizing river banks in areas that are vulnerable to slides and/or have the potential to damage critical or important infrastructure. In Randolph, this could be accomplished in part by proceeding with the acquisition of properties vulnerable to flood damage. As a condition of the acquisition process, the land will be returned to open space with no or minimal development (ex. park or river access), which will help reduce the vulnerabilities to flooding elsewhere.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/Probability
Flash Flood/ Flood/ Fluvial Erosion	Several roads for flooding: Thayer Brook Road, Palmer Road, Brook Street, Beanville Road, Prince Street, Hillside Lane (connected to Howard Hill and the erosional flooding there), Dugout Road, Menard Road, Harlow Hill Road, Tatro Hill Road, Seymour Road, Leonard Road, Crocker Road, Hyde Road, Kingsbury Road, Vermont 14 in East Randolph, and Vermont 12A. For erosional flooding: West Street, Howard Hill Road, Tunbridge Road, and Braley Road.	Culverts, bridges, road infrastructure, utility infrastructure, structures. There are 26 residences and 8 commercial and industrial structures within the 100-year floodplain.	Most recent, Tropical Storm Irene- 5-7" across county (7.28" in Randolph Center). Fluvial erosion extent data unavailable.	From TS Irene: \$814,956.12 in damages in the Town of Randolph according to FEMA's Public Assistance database.	Highly likely

5. Severe Winter Storm

Severe winter storms, for the purposes of this plan, include extreme cold, snow, and ice storms.

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

Severe winter weather in some form is expected to happen each winter. The amount of property damage caused by severe winter weather varies. The table below shows the 20-year history of winter storms in Orange County where there was at least \$100,000 in property damage. It also shows history extreme cold for the same time period (for Orange County, as town-level data is unavailable). The last ice storm in Orange County took place in 1998, and that instance is also recorded in the table below.

Date	Type	Property Damage	Event
11/26/18	Winter Storm	\$100,000	Light rain changed to a pasty, heavy wet snow that resulted in downed tree limbs and power outages across VT. In Orange county, snow accumulated 6 to 12 inches
1/07/2015	Extreme cold	\$0	In Randolph, 19 degrees below zero.
12/09/2014 (DR-4207)	Winter Storm	\$125,000	Heavy, wet snowfall totals across Orange county ranged from 4 to 18 inches. The heavy, wet nature of the snow resulted in widespread power outages and vehicle accidents.
2/23/10	Winter Storm	\$250,000	A heavy wet snow fell across Vermont that resulted in snowfall accumulations of 6 to 30 inches with the higher amounts in the higher terrain of central and southern Vermont. The weight of the heavy snow accounted for widespread power outages across the region that resulted in upwards of 50,000 customers without power.
1/14/2009	Extreme Cold	N/A	County-wide, 10 to 30 degrees below zero.

3/09/2007	Extreme cold	\$0	County-wide, 10 to 34 degrees below zero.
3/06/2007	Extreme cold	\$0	County-wide, 5-20 degrees below zero.
1/25/2007	Extreme cold	\$0	County-wide, 25-40 degrees below zero.
2/14/07	Heavy Snow	\$200,000	The deep snowfall (18-30 inches) and deeper snow drifts (4-6+ feet) caused numerous problems, including the blocking of numerous heat vents that resulted in the build-up of carbon monoxide and sent dozens of people seeking treatment at area hospitals. There were additional indirect injuries resulting from this storm, including vehicle accidents and cardiac arrests due to overexertion during snow removal. Snow removal operations took several days and up to a week in some urban communities. In addition, the weight of the heavy snowfall on some weaker roofs, resulted in the partial or total collapse of 20 or more barn roofs and the deaths of more than 100 cattle.
3/5/01	Winter Storm	\$100,000	Between 15 and 30 inches of snowfall with a number of accidents reported.
1/06/1998	Ice Storm	\$80,000	Ice accumulations of ¾ an inch. Damage to trees and powerlines, leaving thousands without power. Numerous traffic accidents.

Randolph does not have an emergency shelter, but the Vermont Technical College and Randolph School facilities may potentially be used as emergency shelter options when needed.

In general, winter weather is most hazardous to travelers. Icy and snow-covered roads present multiple types of dangerous driving conditions and situations. The Town relies on Travel Advisories issued by the State of Vermont Department of Emergency Management Homeland Security and the National Weather Service to alert residents of dangerous travel weather. Despite this, it is difficult to prohibit people from driving during winter weather events. As a result, emergency services personnel must always be prepared to provide assistance to stranded drivers or to those who have been in an accident. Damages to vehicles as a result of poor driving conditions may vary from minimal damage to a totaled vehicle. Health impacts could vary significantly.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/Probability
Severe Winter Storm	Entire Town	Private and public property, utility infrastructure, road infrastructure, Randolph's elderly and disabled populations. Travelers on the road.	Snowfall of multiple feet. Ice of ¾ inch accumulation. Extreme cold temperatures	Damages as high as \$250,000	Highly likely

			as low as 40 degrees below zero.		
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VI. Mitigation

A. Mitigation Goals

1. To reduce injury and losses, including to infrastructure, structures and businesses, from the hazard of structure fire(s).
2. To reduce injury and losses, including to infrastructure, structures and businesses, from the hazard of hazardous material spills.
3. To reduce injury and losses, including to infrastructure, structures and businesses, from the natural hazard of high wind, caused by multiple weather events such as severe rainstorms, downbursts, hurricanes and tropical storms.
4. To reduce injury and losses, including to infrastructure, structures and businesses, from the natural hazard of flash flooding, flooding, and fluvial erosion caused by multiple weather events such as severe rainstorms, hurricanes and tropical storms.
5. To reduce injury and losses, including to infrastructure, structures and businesses, from the natural hazard of extreme cold, snow fall, and ice caused by severe winter storms.

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

- Safeguard natural resources and maintain and enhance open space and recreational “infrastructure” important for long-term health and quality of life for the Randolph community. (p. 8)
- Protect and enhance property values. (p. 8)
- Provide a safe, energy-efficient, well-maintained, and cost-effective transportation system integrating all modes of travel (auto and, where appropriate, pedestrian, bicycle and public transportation), to meet the needs of Randolph residents and businesses and the general public. (p. 14)
- Provide quality service from all three fire departments in terms of both qualified and adequately trained personnel and adequate equipment. (p. 16)
- Improve the town’s physical infrastructure and the various entities in town which provide services in an efficient and cost-effective manner as Randolph grows into the future. (p. 16)
- Encourage the conservation of all wetland areas and the preservation of wetland areas. (p. 21)
- Minimize the loss of life and property, disruption of commerce, and demand for extraordinary public services and expenditures which result from flood damage. (p. 22)
- Maintain and improve the quality and quantity of both surface and groundwater water resources, such as the White River and tributaries, through careful management, and through education about the threats to water resources. (p. 22)
- Minimize the spread of invasive species. (p. 23)
- Maintain participation in the National Flood Insurance Program. (p. 34)
- To increase Randolph’s resiliency in the event of a severe flood. (p. 34)
- Minimize loss of flood storage capacity in an effort to minimize potential negative impacts. These impacts include the loss of life and property, disruption of commerce, and demand for extraordinary public services and expenditures that result from flood damage. (p. 34)
- Protect municipal infrastructure and buildings from the potential of flood damage. (p. 34)

The Randolph Town Plan was adopted on August 8, 2019. It has an 8-year lifespan.

C. Hazard Mitigation Strategies: Programs, Projects, & Activities

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

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, the Randolph's need to address the issue, the cost of implementing the strategy, and the availability of potential funding. The cost of the strategy was evaluated in relation to its benefit as outlined in the STAPLEE guidelines (includes economic, political, environmental, technical, social, administrative, and legal criteria). A range of mitigation strategies was vetted by the committee, and those that were determined to be feasible are included in the table below.

Strategies given a "High" prioritization indicate that it is 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 Randolph understands that in order to apply for FEMA funding for mitigation projects that a project must meet FEMA benefit cost criteria, and 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 Randolph's long-term land use and development planning documents. In addition, the Town will review and incorporate elements of this Local Hazard Mitigation Plan into updates for the municipal plan, zoning regulations, and flood hazard/ fluvial erosion hazards (FEH) bylaws. 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 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	Possible Resources*	Time Frame
All Hazards	<i>Ensure that Randolph's Local Emergency Management Plan (LEMP) is kept up-to-date and identifies vulnerable areas and references this Plan.</i>	Town Manager	High	Local Resources	2021-2022
Structure Fire	<i>Identify areas in town where it would be appropriate to install new dry hydrants</i>	Fire Advisory Committee with support from the Zoning Department	High	Local Resources, Rural Vermont Fire Association	2021-2022
Hazardous Materials Spill	<i>Submit Tier II report</i>	Town Manager	Medium-High	Local resources	Ongoing annually (2021-2022; 2022-2023; 2023-2024; 2024-2025)
High Wind	<i>Monitor existing recreational structures for potential wind damage</i>	Recreation Director	Medium	Local Resources	2021-2022
Flash Flood/Flood/Fluvial Erosion	<i>Continue participation in NFIP</i>	Fire Advisory Committee, representatives from Towns of Braintree and Brookfield	High	Local Resources	(2021-2022; 2022-2023; 2023-2024; 2024-2025)
Flash Flood/Flood/Fluvial Erosion	<i>Relocate or elevate town salt shed</i>	Highway Superintendent	Low-Medium	Local Resources	2023-2025
Flash Flood/Flood/Fluvial Erosion	<i>Increase local flood risk awareness through a public education program</i>	Zoning administrator, TRORC	Low-Medium	Local Resources	2023-2025
Flash Flood/Flood/Fluvial Erosion	<i>Replace undersized and perched culvert on Whalen Road with a hydrologically-appropriate culvert.</i>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation	2023-2025

				(Competitive) grant program (PDM-C)	
Flash Flood/ Flood/ Fluvial Erosion	<i>Replace two undersized cross culverts with hydrologically-appropriate culverts and remove berm on Dugout Road.</i>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)	2023-2025
Flash Flood/ Flood/ Fluvial Erosion	<i>Restore Thayer Brook floodplain, as the brook has lost access to its active floodplain and is incised. (located immediately upstream of the most downstream of the three Thayer Brook bridges).</i>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)	2023-2025
Flash Flood/ Flood/ Fluvial Erosion	<i>Determine the appropriate solution to solve/reduce the flooding issues on Howard Hill Road.</i>	Highway Department	Medium	Local resources, Better Back Roads grant program, Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (Competitive) grant program (PDM-C)	2023-2025

Severe Winter Storm	<i>Increase public awareness of severe winter storms by distributing information about common winter hazards</i>	RAMAN (Randolph Area Mutual Aid Network)	Medium	Local Resources	2021-2022
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*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.

VII. Preparedness Strategies

Although the focus of this Plan is on mitigation, preparedness actions and activities can help supplement the Town of Randolph’s mitigation efforts going forward. These “Preparedness Strategies” can be found in the table below.

Hazard	Preparedness Action	Local Leadership	Prioritization	Possible Resources	Time Frame
All hazards	<i>Create a Task Force to study the impact of an accident or other emergency that severs the use of roads through Randolph’s downtown, addressing the need for alternative access means or location of facilities to ensure emergency responders are not blocked in the village or along VT 12.</i>	Town Manager, Emergency Director	Low	Local Resources	Yearly (2021-2022; 2022-2023; 2023-2024; 2024-2025)
	<i>Develop emergency communication framework for the Town of Randolph.</i>	Town Manager	Low	Local Resources	1 year from date of Plan Approval 2021-2022
	<i>Maintain a master list/database of townspeople, noting the skills/equipment they possess that may be utilized to respond to an event.</i>	Town Manager	High	Local Resources	Yearly (2021-2022; 2022-2023; 2023-2024; 2024-2025)
	<i>Create or acquire a mobile command center/ command post to be used during emergencies.</i>	Fire Department, Police Department	Low	Local Resources, Fundraising, VT DEMHS grants	2-4 years from date of Plan Approval 2023-2025
	<i>Set a goal of improving metrics through a continuous quality improvement program, which will seek to enhance emergency services over time.</i>	Fire Departments	Medium (new)	Local Resources	2-4 years from date of Plan Approval 2023-2025
Structure Fire	<i>Update and revise the Policy and Procedures Manual used by the Randolph Fire Services Advisory Committee.</i>	Fire Advisory Committee, Fire Departments	High	Local Resources	1-2 years from date of Plan Approval

					2021-2023
Hazardous Material Spill	<i>Ensure that all emergency response and management personnel (police, EMS, and Highway Dept.) continue to receive HAZMAT Awareness level training at a minimum. Ensure Fire Department personnel obtain Operations level training. Routinely train with the State HAZMAT Team so that events are coordinated in a seamless manner.</i>	Fire Departments	High	Local Resources	Yearly (2021-2022; 2022-2023; 2023-2024; 2024-2025)
	<i>Develop emergency access points to the railroad corridor in locations where access is presently difficult in the event of a derailment.</i>	Village Fire Chief	Medium	Local Resources	2-4 years from date of Plan Approval 2023-2025
	<i>Provide outreach to staff at gas stations and other sites prone to HAZMAT spills to have crash buckets (collection pails) at their facilities. Train staff on how to mitigate spills and assist in clean-up efforts.</i>	Town Manager	High	Local Resources	1-2 years from date of Plan Approval 2021-2023

Appendices

Appendix A: Hazard Ranking Methodology

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

Appendix B: Critical Stream Crossings

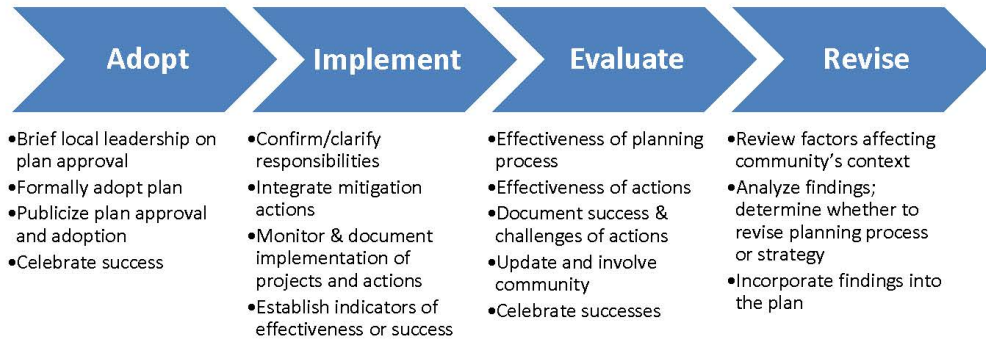
The critical crossings table below includes stream crossing structures on town highways that cross third order streams or larger. Headwater streams generally include first through third order. Third order was included as these headwater streams will have larger drainage areas and may have larger structures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

RDFLNAME	STRUCT_NUM	CATEGORY	STRUCTYPE	STRC_LBL	X_COORD	Y_COORD	STR_TYPE	CONDCOMMN	CUL_WIDTH	CUL_HEIGHT	CUL_LEN
CROCKER RD		B			-72.5922	43.8809			0	0	0
BEANVILLE RD		C			-72.6556	43.9119	30	2 rip rap	64	64	80
THAYER BROOK RD		B			-72.6834	43.9237			0	0	0
TUNBRIDGE RD		C			-72.5513	43.934	31	summer install	15	15	30
Hebard Hill RD		B			-72.6342	43.9415	1	bridge	21	25	19
N Randolph RD		C			-72.5637	43.9753	30	stone header	84	84	70
Kibbee RD		C			-72.5631	43.9758	30	stone header	84	84	40
Kibbee RD		C			-72.5672	43.9804	31	concrete slab	75	60	0
PALMER RD	100909003509091	B	TL	B35	-72.5555	43.9232			0	0	0
N RANDOLPH RD	100909003609091	B	TL	B36	-72.5619	43.975			0	0	0
PETH RD	100909003709091	B	TL	B37	-72.6515	43.9605			0	0	0
DUGOUT RD	100909003909091	B	TL	B39	-72.5656	43.9021			0	0	0
THAYER BROOK RD	100909005209091	B	TL	B52	-72.6809	43.9239			0	0	0
THAYER BROOK RD	100909005309091	B	TL	B53	-72.6883	43.9222			0	0	0
BROOK ST	100909005409091	B	TL	B54	-72.6764	43.925			0	0	0
HYDE RD	100909003409091	B	TL	CB34	-72.555	43.9162			0	0	0
BRALEY RD	100909003809091	B	TL	CB38	-72.5552	43.9285			0	0	0
KINGSBURY RD	100909004009091	B	TL	CB40	-72.582	43.8809			0	0	0

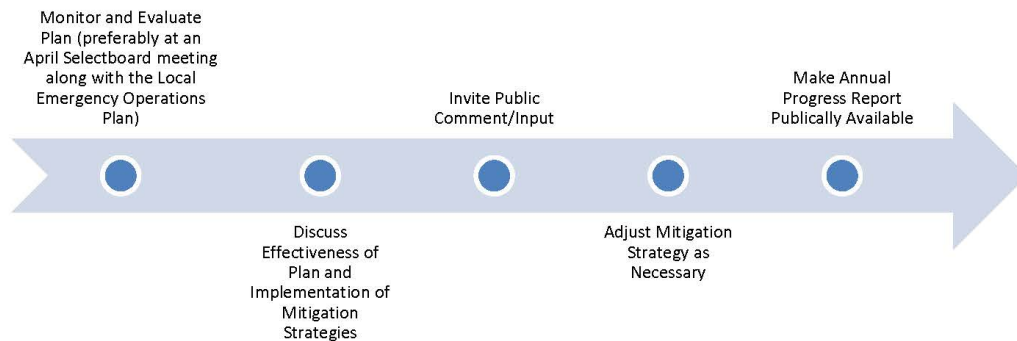
The critical crossings in the table below includes significantly undersized structures, usually culverts, which were identified from the ANR-DEC stream geomorphic assessment survey with openness ratios less than 50%. This measure refers to when structure's width is less than half of the stream bankfull width. Several of these structures may be 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.

Appendix C: Five-Year Review and Maintenance Plan

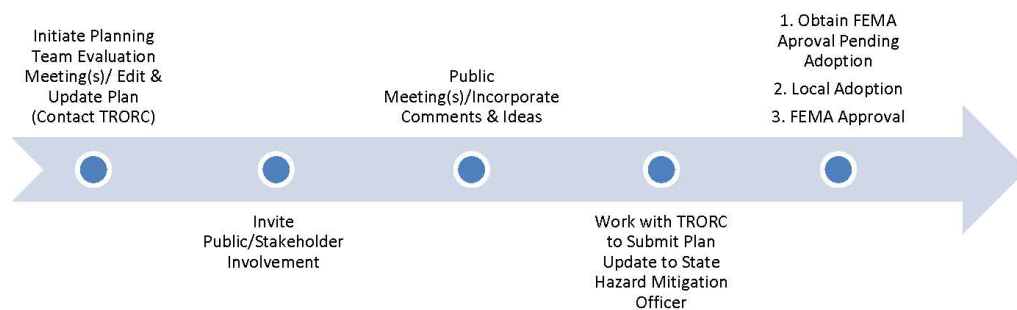
Five-Year Local Hazard Mitigation Plan Review/Maintenance



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: Randolph Town Map

Hazard Mitigation Plan Essential Services Map Randolph, Vermont

Floodplain eSITES	
Row Labels	RANDOLPH
RES	
CAMP	
MOBILE HOME	1
MULTI-FAMILY DWELLING	
OTHER RESIDENTIAL	
SEASONAL HOME	
SINGLE FAMILY DWELLING	25
COMINDPUB	
COMMERCIAL	6
COMMERCIAL FARM	
COMMERCIAL W/RESIDENCE	
CULTURAL	
EDUCATIONAL	
FIRE STATION	
GOVERNMENT	
HEALTH CLINIC	
HOUSE OF WORSHIP	1
INDUSTRIAL	
LODGING	
OTHER	
OTHER COMMERCIAL	1
Grand Total	34

- TH cls 1 (village VT rt)
- TH cls 2
- TH cls 2 gravel
- TH cls 3
- TH cls 3 gravel
- TH cls 4 gravel
- TH cls 4 primitive
- TH cls 4 impassable
- VT forest hwy
- trail
- private
- VT route
- US route
- US interstate

- Critical Facility
- Church
- Cemetery
- e911 in Floodplain
- e911 Within 1000' of Major Route
- e911 Address
- Electric Substation
- Culverts Under 18" Wide
- Critical Stream Crossing
- Significantly Undersized Structure
- Bridge

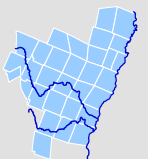
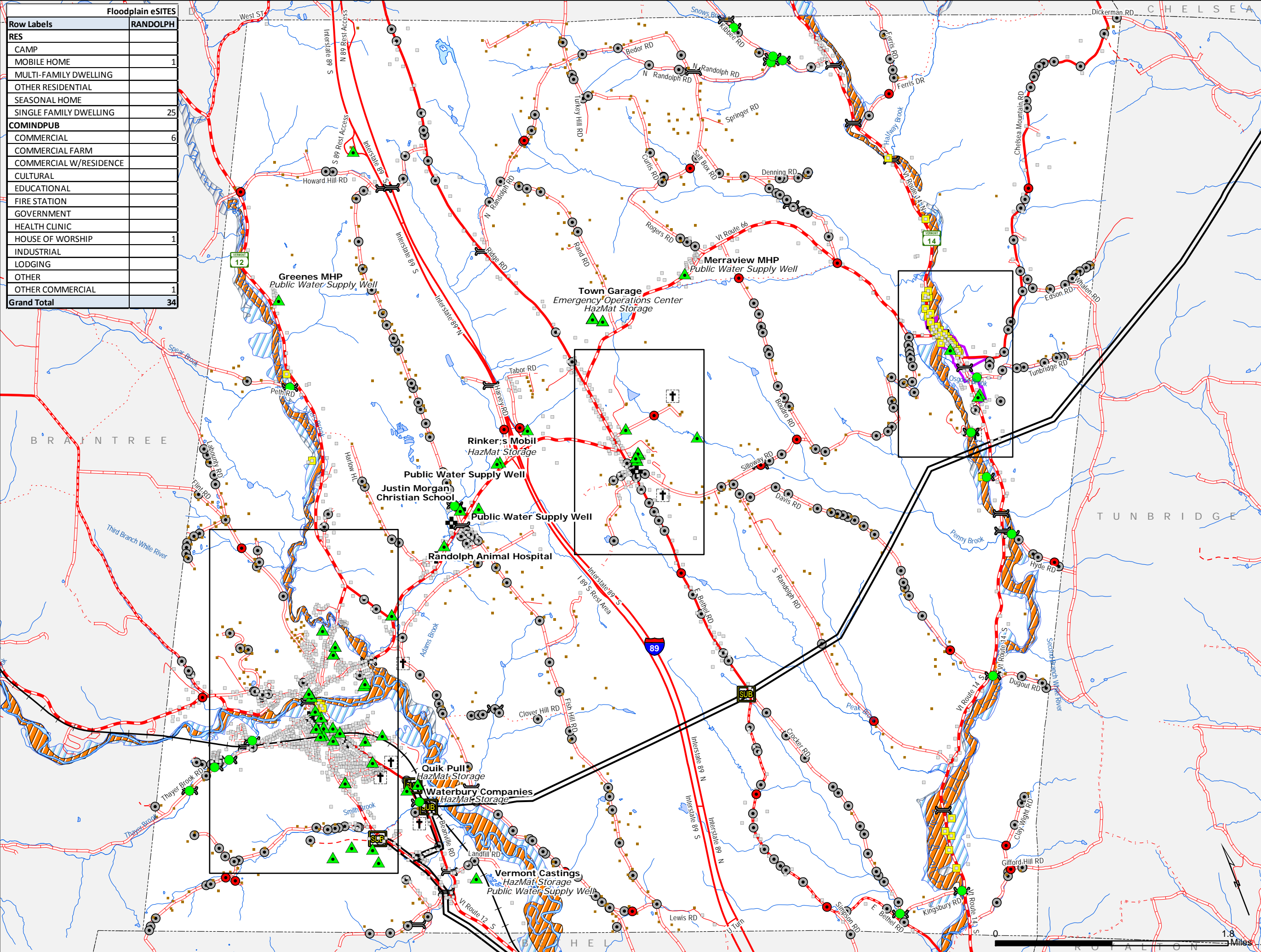
- Electric Transmission
- Village Center
- 500 Year
- 100 Year
- Floodway
- Village Inset Map

Flood Region:
National Flood Insurance Program
Digital Flood Insurance Rate Map Data

Stream Geomorphic Assessment Data:
Obtained from the Data Management Sys.
Maintained by the VANR
River Management Program

































Village Centers:
Designated by the State for
historic tax credit and other benefits,
pursuant to 24 VSA sections 2793a

TWO RIVERS-OTTAUQUECHEE
REGIONAL COMMISSION
GIS Service Center
128 King Farm Rd
Woodstock, VT 05091
802-457-3188
trorc.org

1.8 Miles

Hazard Mitigation Plan Essential Services Insets Randolph, Vermont

- TH cls 1 (village VT rt) 
- TH cls 2 
- TH cls 2 gravel 
- TH cls 3 
- TH cls 3 gravel 
- TH cls 4 gravel 
- TH cls 4 primitive 
- TH cls 4 impassable 
- VT forest hwy 
- trail 
- private 
- VT route 
- US route 
- US interstate 
- Critical Facility 
- Church 
- Cemetery 
- e911 in Floodplain 
- e911 Within 1000' of Major Route 
- e911 Address 
- Electric Substation 
- Culverts Under 18" Wide 
- Critical Stream Crossing 
- Significantly Undersized Structure 
- Bridge 
- Electric Transmission 
- Downtown District 
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- 100 Year 
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