Town of Rochester, Vermont

2020

Local Hazard Mitigation Plan

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

Adopted by Town

March 23, 2020

Approved by FEMA

April 1, 2020

CERTIFICATE OF ADOPTION
<<DATE>>
TOWN OF Rochester, Vermont Selectboard
A RESOLUTION ADOPTING THE Rochester, Vermont 2020 Local Hazard Mitigation Plan

WHEREAS, the Town of Rochester has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **Rochester, Vermont 2020 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 Rochester has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its **Rochester Vermont 2020 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 Rochester; and

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

RESOLVED by Town of Rochester Selectboard:

1. The **Rochester, Vermont 2019 Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Rochester;

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.

IN WITHNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Rochester this 23 day of MARCH 2020.

ATTEST

Selectboard Chair

Town Clerk

Selectboard Member

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

FEMA

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 Rochester, Vermont 2020 Local Hazard Mitigation Plan and approved it effective **April 1, 2020** through **March 31, 2025** 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,

WILLIAM R WEBSTER
Digitally signed by WILLIAM R WEBSTER
Date: 2020.07.10 12:16:22 -04'00'

Captain W. Russ Webster, USCG (Ret.), CEM
Regional Administrator
FEMA Region I

WRW: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 Rochester more disaster resistant.

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

II. Purpose of the Plan

The purpose of this Plan is to assist Rochester in identifying all hazards facing the town, ranking them, and identifying strategies reduce risks from known priority hazards.

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

The 2013 Rochester Local Hazard Mitigation Plan was the first stand-alone mitigation plan drafted for the Town. Previously, the Town had a town-specific 2009 Annex in the Regional Pre-Disaster Mitigation Plan. This new Plan has been reorganized and new sections have been added:

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

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

III. Community Profile

Rochester is located in the center of Vermont and in the northwest corner of Windsor County. It includes a gore-like portion on the western side and is abutted by eight towns and three counties. The main stem of the Upper White River runs north to south through the Town, and the West Branch flows in from the west along VT 73. There are mountain ranges on both sides of the River, with the western side of the valley bounded by the spine of the Green Mountains, creating a narrow valley through which Vermont Route 100 runs. The picturesque village is located approximately in the center of the town. The Town contains approximately 36,000 acres, and of that, about one-third is Green Mountain National Forest (GMNF) land owned by the U.S. Forest Service (USFS). The Town works cooperatively with the governments of the United States and the State of Vermont to prevent and respond to fires.

According to the U.S. Census data from 2010, Rochester had a population of 1139 residents, and the American Census Survey Data from 2017 reports a population drop to 1061 residents. Between 1970 and 1990 Rochester's population was steadily increasing from 884 up to 1181 residents, and since then Rochester's population has hovered around 1150 residents. The median age is 53.2, which is around 25 percent higher than the median age of Vermont (of 42.8). There are 11.7 percent of persons below the poverty line, which includes 18 percent of children under 18 years old and 5 percent of seniors 65 years or older.

Vermont Housing Data reports that there were 418 year-round housing units, 124 rental units, and 266 seasonal housing units in Rochester in 2017, totaling 808. In 2010, there were 832 total units. This marks a slight decrease in housing units. About a third of these buildings were built prior to 1939. The Town receives its power from Green Mountain Power, which supplies electrical power to all sections of town. According to the Rochester Capital Budget and Program Report, the town currently operates both a leach field-based sewage system and a water system for the village area. For major repairs, the Town bonds through Vermont Municipal Bond Bank. There are also concerns related to storm drains along Route 100; however, it is believed that these drains may actually be VTrans' responsibility as opposed to the Town's.

The Town's internet service is largely provided by Consolidated Communications, which provides reasonable DSL coverage, although there are still parts of town that do not have access. Consolidated is regularly expanding their range, and Comcast XFINITY covers parts of the village and other areas north of Town. A local ISP, EC Fiber, currently connects much of town with high speed fiber to the home and is slowly expanding. Cellular coverage is deemed to be poor by many, and many experience dead zones. AT&T currently has a cell tower in the church steeple, and some residents utilize a tower based out of Granville. In the event of an emergency, communication to neighboring towns and state resources is essential; when both internet and cellular coverage are down, the radio tower is used to send and receive messages.

The construction of a new fire station was completed in the summer of 2013. The new fire station is a 4-bay structure with a kitchen, handicap bathroom, and training area. It is equipped with a generator and sprinklers. The department is chartered for up to 30 members, all of whom are required to attend firefighting classes. Executive officers are elected biannually, consisting of a Chief, a First and Second

Assistant Chief, one Captain, one Lieutenant, Secretary, Treasurer, and two Stewards. Town officials believe that the fire station could be adaptable for future use and can be setup as an emergency command center; however, the Hazard Mitigation group discussed that the Town Office should serve as the emergency command center to avoid crowding the fire station. The Town Office now has an EC Fiber connection, but the group discussed that to serve as a well-equipped Emergency Command Center, the Town Office also needs a generator.

Emergencies are reported using 9-1-1 for the Town. Royalton State Police Barracks acts as the system's dispatching service. Volunteers are equipped with portable pagers. Neighboring towns of Hancock, Stockbridge and Rochester respond to all structure fires as mutual aid is important due to daytime manpower shortages. Cooperation among towns is also important due to the rising costs of firefighting equipment. The Rochester volunteer fire department also serves with the White River Valley Ambulance to assist in their response. For part-time police service, the town now contracts with the Windsor County Sheriff.

Vermont State Police may be reached by calling 9-1-1. Town residents may call upon the Vermont State Police (Troop D), with barracks in Royalton or the Windsor County Sheriff's Department, for assistance. At the present time, the law enforcement procedures in Rochester are considered adequate for Rochester's present population.

After years of service, Rochester's main emergency medical service provider, Valley Rescue Squad, disbanded at the end of June 2013. Another local ambulance squad, White River Valley Ambulance Inc. (WRVA), now provides service to the town from their Bethel base station, in addition to Granville First Response. It is the intention of WRVA to serve Rochester and the other Vermont Route 100 corridor towns out of this station. The closest hospital is Gifford Medical Center, located in Randolph. Medivac services are available by the DHART helicopter.

The town has a small highway department with a foreman and a couple employees. The town is discussing constructing a new town garage and is currently looking at possible locations.

IV. The Planning Process

A. Plan Developers

Paige Greenfield, a Planner at the Two Rivers-Ottauquechee Regional Commission (TRORC), assisted the Town of Rochester with updating its Hazard Mitigation Plan. Members who assisted with the revisions include:

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

Name	Role/Organization	How Participation Was Solicited
John Champion	Rochester Road Foreman	On 3/29 TRORC contacted Vic Ribaudo Emergency Management Director from Rochester to begin the process in updating and developing their Hazard Mitigation Plan. TRORC staff coordinated on 4/21, 4/25, and 5/9 and with Rochester town officials to set up an introductory meeting. The first meeting was scheduled for 6/19/2019. TRORC's staff attended that meeting, followed by many more meetings in which participants revised and developed the HMP. See below for more meeting-specific details.
Terry Severy	Rochester Fire Chief, Sewer/Water Manager	
Rob Gardner	Rochester Emergency Management Coordinator	
Pat Harvey	Rochester Selectboard	
Vic Ribaudo	Rochester Emergency Management Director	
Jan McCann	Nurse and Shelter Manager	

B. Plan Development Process

The 2009 Rochester Annex was originally part of the 2008 multi-jurisdictional Regional Hazard Mitigation Plan, drafted by Two Rivers-Ottauquechee Regional Commission, and approved by FEMA on September 30, 2008 with its first local annex. The Rochester Annex received subsequent FEMA approval, but since it was part of a larger plan, FEMA treats its start date as September 30, 2008 and so the Rochester Annex expired on September 30, 2013.

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

In 2014, the Plan was reconstructed as a single jurisdiction, standalone Rochester Local Hazard Mitigation Plan that was submitted for individual approval to FEMA. It was approved on June 16, 2014 and expired on June 16, 2019.

This Plan includes a ranking of the hazard identification table and updates to the history of occurrences for the top hazards.

The changes to this plan include:

- **General**
  - New sections: Plan Development Process, 2014 Mitigation Strategies Status Update chart, Existing Hazard Mitigation Programs, Projects & Activities, Plan Maintenance;
  - Data updates: New hazard incidents, emergency declarations, census data;
  - Hazards have been reevaluated with the hazard ranking system used by the Vermont Emergency Management.
  - Primarily, we are concerned with the VT 100 corridor because of flooding and transportation access in and out of town.
- **Hazards Analysis**
  - Flash Flood/Flood/Fluvial Erosion; Severe Weather: High Winds, Hurricanes, Tropical Storms; and Extreme Heat & Cold/Snow/Ice Storm/Winter Storm are now on the list of "top hazards;"
  - Extreme heat was added to the Extreme Cold category as a top hazard to reflect the community's vulnerability to the impacts of severe heat.
  - Severe Weather events are depicted in a chart that shows the multiple hazards involved during each event;
  - For each hazard, a location/vulnerability/extent/impact/likelihood summarizes the hazard description.
- **Maps**
  - A map of the Town of Rochester depicting utilities and facilities, town infrastructure, zoning map including the Flood Hazard Area, the 2007 Flood Insurance Rate Map including the NFIP designated floodway.

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

- **Activities**
  - 6/19/2019: Met with Rochester Town Officials to introduce the update/plan development process, reviewed parts of Rochester's existing Hazard Mitigation Plan (adopted in April 2014), potential hazards, and the data collection/research process. During this meeting, the Rochester Town Officials also discussed and ranked hazards. Also reviewed the "Top Hazards" in the Town. Explained to the committee what the next steps in the process were (determine mitigation actions, draft plan, then schedule a meeting to review and discuss it). A notice regarding this meeting was posted on the Rochester website, outside on the bulletin board, and on the Rochester/Rochester/Hancock Front Porch Forum.
  - 7/10/2019: Met with Rochester Town Officials to devise a list of hazard mitigation actions to address the Town's top five hazards, as determined during the hazard ranking exercise on 6/19/2019. The group came up with new mitigation goals and actions to add to address their top hazards. A flyer was made to invite the general public, and a notice

regarding this meeting was posted on the Rochester website, along with outside on the bulletin board.

- 8/29/2019: Met with Rochester Town Officials to review first draft of Hazard Mitigation Plan. Reviewed next steps for outreach, community engagement going into public hearings, and next round of edits.
- TRORC staff attended a Selectboard meeting to inform Rochester residents about the work that had been done to update the Town's Hazard Mitigation Plan. The Selectboard agenda is posted at the Town Office. TRORC staff also asked for comments at the meeting, but none were received.

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

***Note: The meetings listed below were public sessions.*

- 4/22/2019: TRORC staff discussed important community members to invite to be a part of Hazard Mitigation process. Potential members included representation from school board, health, Selectboard, shelter, road, water, and other general public. Rochester Emergency Director began outreach to these community members to gauge involvement with the Hazard mitigation Process.
- 6/19/2019, 7/10/2019, 8/08/2019: Meeting notices were posted to front porch forum, along with town website, and town hall bulletin board. All Hazard mitigation meetings held were held in the Town Offices, open and encouraged to be joined by general public.
- One member of the public attended the 7/10/2019 and the 8/08/2019 meetings. The member's comments were incorporated into the plan update.
- 7/10/2019 Outreach flyer was created to advertise meeting #2 to general public
- 8/22/2019 Notice was posted to Herald of Randolph to engage public in 3rd meeting before draft is sent for public hearing
- Notice was posted to Herald of Randolph alerting the public to available draft of Hazard Mitigation Plan, posted to town website and TRORC website. Comments were solicited from the general public.

- **Governmental participation and involvement** *(44 CFR 201.6(b)(2)*)
  - Rochester Selectboard member served on the Hazard Mitigation Plan update group
  - Sent revised draft to Selectboard and Planning Commission members and encouraged members to submit comments on the draft
    - Plan edits discussed at Selectboard Meeting
    - Plan edits discussed at Planning Commission
  - Sent a digital copy to the U.S. Forest Service, Green Mountain National Forest
  - Sent revised draft to Vermont Emergency Management
  - Note: Town officials were given the opportunity to review, provide feedback and approve the changes that were made through the Plan revision and FEMA review process.

- **Neighboring community participation and involvement** *(44 CFR 201.6(b)(2)*)
    - Notices were placed on the Hancock/Rochester/Rochester Front Porch Forum for each public meeting: 6/19/2019, 7/10/2019, 8/23/2019.
    - Herald of Randolph reporter attended 7/10/2019 meeting and wrote an article about Rochester's Hazard Mitigation Plan update and how to get involved, published in the Herald of Randolph later that week.
    - Notices were posted in the Herald of Randolph for hazard mitigation meeting 8/22/19 to invite Rochester and surrounding towns to review updated plan and how to provide comments.
    - Sent revised draft to neighboring towns' Selectboards for comment
        - Towns of: Pittsfield, Bethel, Randolph, Braintree, Hancock, Stockbridge, Granville, Chittenden and Goshen.
        - No comments were received
- **Review of existing plans, studies, reports, and technical information** (*44 CFR 201.6(b)(3)*)
    - Vermont State Hazard Mitigation Plan, 2018
        - This Plan was referenced for knowledge of the state's Hazard Mitigation Planning processes and description of top hazards for the State of Vermont.
    - Rochester Hazard Mitigation Plan (Adopted 4/14/2014)
        - This Plan was referenced extensively during the plan development process, especially in regard to the worst threats and mitigation action strategies identified in 2009.
    - Rochester Local Emergency Management Plan (LEMP): Updated 4/22/2019
        - To reference resources, contacts, and response plans for emergency management
    - Rochester Town Plan (Adopted April 9, 2018)
        - The Town Plan provided TRORC's staff with background information on the community, as well as more detail on their emergency services.
    - Rochester's Capital Budget and Program Report (Adopted 02/23/2015)
        - Annual Report provided TRORC's staff with an overview of Rochester's fiscal plans and investments.
    - Rochester's Well-Head Protection Plan- amended March 15, 2015
        - Referenced when drafting the Water Supply Contamination section of this plan

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

C. Status Update on Mitigation Actions Identified in 2014

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

The following table outlines the mitigation actions that were proposed in Rochester's 2014 Local Hazard Mitigation Plan (adopted on April 14, 2014 by FEMA). These were reviewed to develop the new mitigation actions at the end of this plan. Most of the priorities remained the same; however, actions were updated by hazard.

Participants in the new Plan update process reviewed these actions and reported on the status of each:

Mitigation Action	Who (Leadership)	Priority	How (Funding/ Support)	When	2019 – Status of Mitigation Actions
<u>All Hazards:</u> 1. Continue to work with Red Cross on maintaining operations of Emergency Shelter.	Selectboard	Medium	Local resources/ Red Cross resources	Ongoing	Local shelter established in 2014/15.
2. Utilize social media to alert the public to hazards and hazardous situations.	Selectboard/ Fire Department	Medium	Local resources	1-3 yrs.	Town uses Front Porch Forum and VT alerts to alert citizens of hazardous situations. Posts signs at shelter, school, and on town bulletin board.
<u>Flooding/Severe Weather</u>: 3. Continue consideration to strengthen floodplain management/flood hazard regulations.	Planning Commission	Medium	Local resources, with TRORC assistance, Municipal planning grants	1-3 yrs.	In progress. Rochester is currently revising its Town Plan, which includes updated language around flood hazards.
4. Upgrade culvert at Brook Street Brook and Cushman Road.	Selectboard/ Road Commissioner	Medium	Structures grants, HMGPC, local resources	2-4 yrs.	Construction planned to begin in Fall.
5. Upgrade culvert at Brook Street Brook and Middle Hollow Road.	Selectboard/ Road Commissioner	High	Structures grants, HMGPC, local resources	1-4 yrs.	Construction to begin after culvert upgrade at Brook Street Brook & Cushman Road.
6. Upgrade culvert at Wing Brook and Maple Hill Road.	Selectboard/ Road Commissioner	High	Structures grants, HMGPC, local resources	1-4 yrs.	Construction took place in Fall 2018.
7. Upgrade culvert at River Brook Drive.	Selectboard/ Road Commissioner	Low	Structures grants, HMGPC, local resources	2-5 yrs.	To be updated after culverts listed above are upgraded.
8. Seek out and attend NFIP trainings offered by the State.	Selectboard	Medium	Local Resources	1-3 yrs.	Selectboard and Zoning Admin will seek out NFIP trainings in the future.
<u>Severe Weather (wind); Extreme Cold/Snow/Ice Storm/Winter Storm</u> 9. Clear and maintain town road rights-of way, and work with local utilities to ensure that utility corridors are cleared and maintained.	Selectboard/ Highway Department	Medium	Local resources/ highway budget	Yearly/1 year	GMP updates area around power lines, moves poles out to road and provide line area clearing.

Mitigation Action	Who (Leadership)	Priority	How (Funding/ Support)	When	2019 – Status of Mitigation Actions
<u>Extreme Cold/Snow/Ice Storm/Winter Storm</u> 10. Continue to plan for, budget and maintain town roads for safe winter travel.	Selectboard/ Highway Department	High	Local resources	Yearly/1 year	Ongoing progress. Town of Rochester budgets and maintains safe roads through all seasons, including winter travel.
11. Create list/plan and identify town residents who are vulnerable to severe winter weather, including freezing temperatures and power outages.	Fire Department	High	Local resources	Yearly if necessary / 1-2 years	Town has an informal list- used in necessary for search and rescue by fire department, forest service, and emergency services. These vulnerable groups also involve backcountry travelers, RASTA bikers, snowmobilers.
<u>Hazard Materials Spill</u> 12. Seek out and attend Operations training for members of the Fire Department.	Fire Department	Medium	Local resources	1-2 yrs.	Fire department members attend trainings year-round.
13. Survey fuel oil tanks for proper anchoring or the need for improved anchoring.	Fire Department	Low	Local resources and individual property owners	4-5 yrs.	Done, all tanks have been surveyed.
14. Acquire additional containment booms and spill containment equipment.	Fire Department	Low	Local resources	4-5 yrs.	Can call if additional resources are anticipated. Can work with CV Oil company for oil and propane requests.
15. Continue to maintain and update Wellhead Protection Plan.	Water System Operator	Low	Local resources	4-5 yrs.	Plan was updated in 2018.

D. Existing Hazard Mitigation Programs, Projects & Activities

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

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

	Type of Existing Authority / Policy / Program / Action	Resources: Staffing & Funding	Ability to Expand/Improve On
Community Preparedness Activities	Program—Annual update of Rochester's Local Emergency Management Plan (LEMP). Last updated and approved on 4/10/2019.	Volunteer time from the Selectboard/E911 Coordinator; assistance from TRORC. Funding from Vermont DEMHS.	This document is reviewed and updated each year to ensure that the contact information of emergency response personnel is up-to-date. This information is then sent to Vermont Emergency Management for their records. There is no need to expand on this program at this time.
	Program—attendance/participation at Local Emergency Planning Commission (LEPC) #12 meetings	Volunteer time from the Rochester E911 Coordinator. Funding from Vermont DEMHS.	No need to expand or improve on attendance, as it is satisfactory.
	Fire Department	Volunteers	Continued outreach to residents.
	Ongoing Action—The Town of Rochester has a website.	Time from the Town Office. Funding from local budgets.	There is no need to expand or improve on this action.
Insurance Programs	Authority/ Program—participation in National Flood Insurance Program (NFIP) The Town of Rochester participates in and is compliant with the NFIP by enforcing its Flood Hazard Bylaw based on the 09/28/2017 FIRM. [Note: This section of the Plan satisfies the requirements of 44 CFR 201.6(c)(3)(ii).]	Time from Floodplain Administrator. Assistance from TRORC and Vermont ANR. Funding from local resources—annual budget.	The Town's Flood Insurance Rate Map (FIRM) was dated 8/19/1991 and has not been updated since this date.
Land Use Planning	Policy/Program – Rochester Town Plan (Adopted 4/9/2018).	Volunteer time from Planning Commission, and assistance from TRORC and other state agencies on specific subject matter.	The Town Plan is updated every eight years, as required by statute. The Planning Commission is currently in the process of updating the Town Plan and may expand or improve upon any section it deems necessary, or that is required by changes in state statute.

	Type of Existing Authority / Policy / Program / Action	Resources: Staffing & Funding	Ability to Expand/Improve On
	Authority – Rochester Flood Hazard Bylaw (Adopted 9/28/2009).	Volunteer time from Planning Commission, and assistance from TRORC and VT ANR.	The Town of Rochester's Flood Hazard Bylaw is somewhat outdated and would benefit from an update. This action has been carried over into the 2019 Plan.
	Policy/Program—Community Wildfire Protection Plan (Adopted 07/2008	Volunteer time from Planning Commission, and assistance from TRORC and VT ANR.	Continued outreach to residents.
	Policy/Program—Rochester Subdivision Bylaw (Adopted 11/22/2010)	Volunteer time from Planning Commission, and assistance from TRORC	There is no need to expand or improve on this action.
	Policy/Program—Rochester's Well-head Protection Plan (Adopted 10/11/2002, Last Amended 3/15/2015)	Volunteer time from Planning Commission, and assistance from TRORC and VT ANR.	There is no need to expand or improve on this action.
Hazard Control & Protection of Critical Infrastructure & Facilities	Authority— Town Road and Bridge Standards (Adopted 02/18/2013)	Adopted by the Selectboard, implemented by the Road Commissioner. 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.
	Policy/Program—Rochester Hazard Mitigation Plan (Adopted on 04/14/2014)	Volunteer time from Town officials; assistance from TRORC and VEM. Funding from FEMA; Vermont VEM; TRORC.	The 2019 Rochester Local Hazard Mitigation Plan will replace the 2014 Plan. The 2019 LHMP has evolved from the 2014 Plan, including data updates and improvements to mitigation actions. Future iterations of the Town's LHMP will be updated by the Town at least every five years.
	Action – Up-to-date culvert inventory.2015	Time from Road Commissioner; Funding from local budget.	The Town updates the culvert inventory on an as needed basis and uses this inventory to inform subsequent culvert upgrades. Recent updates have included upsizing culverts.
	Action – Road Erosion Inventory (Completed 12/31/201)9	Rochester staff time with TRORC assistance. Funding from VTrans.	The Town received funding to complete a road erosion inventory, which it finished work on in 2019. The inventory analyzed town road locations that have experienced erosion. The Town can use the information collected in this inventory to prioritize road upgrades and infrastructure investments.

	Type of Existing Authority / Policy / Program / Action	Resources: Staffing & Funding	Ability to Expand/Improve On
	Action – Completed full construction to Bethel Mountain Road, which was damaged in April 2019	Time from the Town Office. Funding from local budgets.	Monitor culvert improvements for storm performance
Education Public Outreach	Action – Community Recovery Partnership Meeting (1/30/2012)	Time from town officials, partnering with the State and surrounding communities.	The Town can continue to participate in recovery meetings as needed.
	Action – Compare hazardous material storage tanks to flood hazard areas.	Volunteer time from town officials.	In areas of overlap between hazardous material storage and flood hazard areas, the Town can expand upon their efforts by raising awareness on risk factors during floods through targeted outreach.
	Action – emergency wireless communication hotspot powered by solar power on the Town Office property	Volunteer time from town officials.	There is no need to expand or improve on this action.
	Action – Town wide radio communications	Volunteer time from town officials.	There is no need to expand or improve on this action.

E. Plan Maintenance

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

This Plan (the Rochester Local Hazard Mitigation Plan) will be evaluated annually at a May Selectboard meeting, along with the review of their Local Emergency Management Plan (LEMP). The Board will discuss it effectiveness and will make note to incorporate any necessary revisions in the next five year update process. At this meeting, the Selectboard will monitor the implementation of the hazard mitigation and preparedness strategies outlined in this Plan by noting those that have been completed, and identifying the next steps required to implement the Plan's remaining strategies. Comments from local officials and the public will be incorporated when relevant. This meeting will constitute an opportunity for the public and other town officials to hear about the town's progress in implementing mitigation strategies and to give input on future activities and Plan revisions. The public will be given the opportunity to comment at this meeting. Evaluation of the Local Hazard Mitigation Plan will consist of a thorough analysis of the status of mitigation and preparedness strategies and whether they are being implemented according to the time frames included in tables in this Plan. The Town of Rochester will evaluate the status of mitigation strategies to assess that goals of the Local Hazard Mitigation Plan are being met. Adherence to the mitigation, preparedness, and ongoing strategy implementation tables included in this Plan will constitute the degree of effectiveness of the Plan. The Town will also evaluate the status of vulnerabilities detailed in this Plan to evaluate their validity. The update of the Plan will bring up to date materials that have become outdated due to the

passage of time. Rochester's Emergency Management Director will be the principal point of contact and will take primary responsibility for the monitoring, evaluation, and update process described here. The EMD will bring the Plan's maintenance activities to the Selectboard's agenda and discussions.

Updates and evaluation of this Plan by the Selectboard and the local Emergency Coordinator/Director will also occur within three months after every federal disaster declaration. The Town shall reference the Local Hazard Mitigation Plan when working on Town Plan amendments or changes to the Town's bylaws. The process of evaluating and updating the plan will include continued public participation through public notices posted on the municipal website, notice within the municipal building, and notice in The Herald of Randolph and the TRORC newsletter and blog, inviting the public to the scheduled Selectboard (or specially scheduled) meeting. Additional stakeholders shall be invited to the meeting; these include: 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 Clerk.

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 regularly scheduled Selectboard meetings.

At least one year before the Plan expires, the update process will begin (though monitoring of progress, and evaluation throughout the 5-year cycle, will occur at the annual April Selectboard meeting). For this next Plan update, the Two Rivers-Ottauquechee Regional Commission (TRORC) will help with Plan updates if assistance is requested by the Town of Rochester and if funding is available. If TRORC is unable to assist the Town, then Rochester's Town Clerk, Administrative Assistant, or Selectboard will update the Plan, or the Selectboard may appoint a committee of interested citizens (including the current local Emergency Director) to draft changes. Ultimately, it will be the Town's responsibility to update their Local Hazard Mitigation Plan.

Rochester 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. The Town Plan adopted April 2018 addresses flood residency and fulfils the requirements passed by Vermont Legislature. 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. 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, which in essence 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 previous table, is an attempt to inventory the known hazards, establish the likelihood of them occurring in the future, and then assess the community's potential vulnerability to each. In performing this analysis, we are then able to prioritize actions that are designed to mitigate the effects of each of these disaster types and ultimately make Rochester 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 Rochester, 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 Rochester 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 Rochester.[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]

We selected hazards based on the impact, and chose not to address other hazards because we were not as concerned with vulnerability in this ranking. We chose those hazards with major or moderate impacts. Rochester town officials discussed the results of the hazard ranking activity and decided to focus on hazards that had the potential to impact the Town on a town-wide scale and/or had the potential to occur frequently.

[1] The ranking methodology used in this Plan (see Appendix A) is closely modeled on that which is used by the Vermont Emergency Management (VEM). 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 VEM).

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

Hazard	Frequency of Occurrence	Warning Time	Potential Impact
Flash Flood/Flood/Fluvial Erosion	**Highly Likely**	**3-6 hours**	**Major**
Severe Weather: High Winds, Hurricanes, Tropical Storms	**Highly Likely**	**3-6 hours**	**Major**
Extreme Cold/Snow/Ice Storm/Winter Storm	**Highly likely**	**12+ hours**	**Moderate**
Extreme Heat	**Likely**	**12+ hours**	**Moderate**
Hazard Materials Spill	**Occasionally**	**None**	**Major**
Water Supply Contamination	**Occasionally**	**None**	**Major**
Structure Fire	Highly Likely	None	Minor
Lightning	Highly Likely	None	Minor
Wildfire	Occasionally	None	Negligible
Tornado	Unlikely	None	Minor
Ice Jams	Occasionally	3-6 hours	Minor
Hail Storm	Likely	Minimal/None	Negligible
Landslide/Mudslides	Likely	None	Moderate
Earthquakes	Occasionally	None	Negligible
Invasive Species/Infestation	Occasionally	12+ hours	Minor
Drought	Unlikely	12+ hours	Negligible
Avalanche	Unlikely	N/A	N/A
Tsunami (Vermont is landlocked)	N/A	N/A	N/A
Volcano (Vermont has no active volcanoes.)	N/A	N/A	N/A
Dam Failure (no dams in Rochester)	N/A	N/A	N/A

After engaging in discussions using their best available knowledge, the Town of Rochester identified the following "top hazards" which they believe their community is most vulnerable to:

- Flash Flood/Flood/Fluvial Erosion
- Severe Weather: High Winds, Hurricanes, Tropical Storms
- Cold/Snow/Ice Storm/Winter Storm
- Extreme Heat

Less Likely Top Hazards with Large Impacts

- Hazardous Materials Spill
- Water Supply Contamination

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

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

Due to low probability of impact, small potential impact, and scarce community resources (time and money), the mitigation committee chose not to detail the following hazards in this LHMP: Structure Fire, Lightning, Wildfire, Tornado, Ice Jams, Hail Storm, Landslide/Mudslides, Earthquakes, Invasive Species/Infestation, Drought and Avalanche.

B. Hazard Profiles for "Top Hazards"

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

1. Flash Flood/Flood/Fluvial Erosion

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

The worst flood disaster to hit the Town of Rochester, 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. Eighty-four Vermonters, including the Lieutenant Governor, were killed. The flooding in the White River valley was particularly violent, with an estimated 120,000 to 140,000 cubic feet/second (cfs) flowing out of the White River at West Hartford, Vermont. Like many towns in the region, the Town of Rochester received heavy precipitation.

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

The Town of Rochester suffered major damage to property and infrastructure during Tropical Storm Irene, although no lives were lost. It is estimated that Tropical Storm Irene dropped 6-7 inches of rain over the Town of Rochester in a very short span of time, some of the highest precipitation totals in Windsor County (which averaged 3-5 inches over its land area). It is thought that the flooding that occurred as a result of the storm was close to being or was a full-fledged 500-year flood.

Many of Rochester's roads and culverts were damaged by the storm, including parts of the following: Little Hollow Road, North Hollow Road, Brook Street, Fiske Road, Marsh Brook Road, Bethel Mountain Road, and Bingo Road. The county-wide damage totaled $32.5 million, and Town-wide damage was over $3 million. Following the flood damage, the State of Vermont and FEMA have been coordinating on the home buy-out process across the state. There are four home buy-outs in Rochester: two on North Main Street, one on Robinson Avenue and one on Quarry Hill Road.

Unfortunately, flooding is very common across the region, with many events impacting the Town of Rochester specifically. Flooding is one of the worst threats to Rochester's residents and infrastructure. The following list indicates the history of occurrence with regard to this hazard in Windsor County (given the small population of Rochester, town-specific data is limited. Federal disaster numbers are listed where appropriate. There have been 55 recorded flooding and flash flooding events in Windsor county

since 1950. The events are either federally declared disasters or specifically mention Rochester or North/West/Northwest Windsor County.

The most recent flooding event in Rochester was the April 15 2019 event. This spring rain storm combined with snow melt hit central Vermont very hard and resulted in federal disaster declarations in several counties. Both sides of Camp Brook and Bethel Mountain Road were damaged. The lower section of Bethel Mountain Road was heavily damaged resulting in closure from April to October and over 3 million in repairs to the culverts and ditches. New larger culvert and uphill ditches were added and the lower bank was stabilized in places.

History of Occurrences:

Date	Event	Location	Extent
Period of 4/15/2019 (DR-4445 VT)	Severe Flash Flooding	Rochester, Windsor County; Vermont	Widespread 0.5 to 1.5 inches of rain and significant melting snow at mid and upper elevations caused flash flooding across portions of southern and central Vermont VEM Sit Rep reported major impacts in Rochester, Bethel, Royalton with several town roads closed due to water over roads and isolated washouts.
06/2013—07/2013 (DR-4140)*	Flooding, Flash Flood	Rochester, Vermont	Showers and thunderstorms developed on a daily basis in the summertime heat, and rainfall rates as high as two to three inches in an hour were observed, and flash flooding resulted in several areas where storms remained stationary or repeatedly moved across the same area. Flash flooding from thunderstorms closed a portion of Route 100 near Rochester
Period from 08/27/2011—09/02/2011 (DR-4022 VT)	Severe Flash Flooding	Rochester, County/region-wide	Tropical Storm Irene. 4-7'' of rain in Rochester. Severe damage to state and town road infrastructure including VT Route 100. Several communities between Rutland and Windsor and within Windsor county were isolated due to loss infrastructure. Dozens of homes and businesses experienced severe flooding as well as major losses to farms and livestock.
5/26/2011-5/27/2011 (DR-4001)	Flooding	County-wide	3-5+'' of rain county-wide
10/01/2010	Flooding	Rochester	Heavy rain spread into Vermont late on September 30th and continued October 1st, and eventually produced four to five inches of rain. Flooding along the upper reaches of the White River closed Route 100 just north of Rochester near Quarry Hill Road
08/06/2008 (07/21/2008—08/12/2008 (DR 1790 VT))	Flash Flooding	County-wide	3-5" of rain across southern Green Mountains. Damage to road infrastructure. Flood waters traveled down the White River, through Rochester to Stockbridge. In Stockbridge, portions of Route 100 were flooded and the road was closed to traffic. A one-mile section of Bingo Road in Rochester was washed out and several other roads flooded. Two bridges were damaged which stranded a private residence and some campers.

Date	Event	Location	Extent
05/14/2006	Flooding	County-wide	Widespread rainfall totals in Windsor county were 3 to 6 inches with 3 inches in Bethel, 3.68 inches in Woodstock, 4.62 inches in Springfield and 6 inches in Cavendish.
1/18/2006	Flooding	County-wide	Widespread rainfall of 1.5 to 2.5 inches on the night of the 17th through early afternoon of the 18th increased run-off into area watersheds. In addition to field flooding and ponding of water on area roadways, there was some flooding along Route 12 in Hartland.
10/09/2005	Flooding	County-wide	Heavy rain from late on October 7th through early October 9th resulted in minor flooding in Windsor county.
03/28/2005	Flooding		Ice jam on the north branch of the Black River in Reading (Windsor county) resulting in minor flooding and chunks of ice on Route 106
10/29/2003	Flooding	County-wide	Streams and rivers rose rapidly with a few resulting in some flooding. In particular, the upper reaches of the White River resulted in low land and field flooding in Rochester and Royalton.
04/13/2002	Flooding	County-wide	The heaviest rainfall was in the south half of Vermont. In Windsor county, flooding was reported from the White River and its branches in the towns of Sharon, Bethel and Rochester with some road washouts. In Royalton, 2 people were rescued after their vehicle was moved by flood waters.
12/17/2000 (DR-1358)	Flash Flood	County-wide	Small streams overflowed their banks with some road flooding and low land flooding.
7/31/2000	Flooding	Statewide, County-wide	Portions of Route 133 was washed out in Middletown Springs where over 5 inches of rain fell. In Windsor county, flooding was reported around the Ludlow area.
Period from 07/14/2000—07/18/2000 (DR-1336 VT)	Flooding	County-wide	An upper level low over the eastern Great Lakes and western New York and its related surface low pressure system resulted in showers and thunderstorms across Vermont during the afternoon and night of Sunday July 16th. Slow moving thunderstorms resulted in especially heavy rainfall, especially across the mountainous portions of the county.
04/04/2000	Flash Flood	County-wide	Steady rain combined with melting mountain snows. Water was on VT Route 100 in Rochester in late morning/early afternoon. A mudslide was reported near VT Route 73 near Rochester.
03/28/2000	Flash Flood	County-wide	Steady rain and melting snow resulted in rising water levels on county rivers and streams, especially in the south portion of the county. The north branch of the Williams River in and around the Chester, Vermont area was over its banks during the late morning and early afternoon of March 28th.
Period from 06/17/1998—07/13/1998 (DR-1228 VT)	Flooding	County-wide	3-6” of rain. Extensive flooding occurred along the White River and its branches. In the Vermont towns of Rochester and Bethel, extensive flooding resulted in massive road damage and washouts. National Guard members were sent in to aid with relief.

Date	Event	Location	Extent
10/21/1996*	Flooding	Rochester, County-wide	Rainfall storm totals were generally between 2" to 4.5," with the heaviest rain along and east of the Green Mountains. The White River flooded portions of Route 100 to a depth of several inches in the Rochester, VT area (eastern Windsor County) between 9:15 AM EST and 3 PM EST.
5/11/1996	Flooding	County-wide	Rain spread across the region Saturday and Sunday with between 1 1/2 and 3 1/2 inches of rainfall. The rain mixed with wet snow above the 2000 foot level Sunday with 1 to 3 inches of snow accumulating in the mountains. Some field flooding was reported along the Otter Creek from Rutland to Middlebury and along portions of the Black River in Windsor County.
06/28/1973—06/30/1973 (DR-397)	Flooding	Rochester, County-wide	Rainfall as much as 6 inches in 24 hours in some locations. 8.53" reported in Rochester. State declared disaster area. 3 deaths occurred and resulted in $64 million in damage. Power outage time data for this event are not known. Extensive flooding occurred along the White River and its branches. In the Vermont towns of Rochester and Bethel, extensive flooding resulted in massive road damage and washouts.
11/3/1927—11/7/1927 "The Great Flood of 1927"	Severe flooding, landslides	County-wide	Considered to one of VT's most devastating events, the flood took out 1285 bridges, miles of roads and railways, and countless homes and buildings. 84 people were killed, including Lt. Gov. S. Hollister Jackson. Rainfall totaled 4-9" statewide, following a month with 150% the normal amount of rain. Power outage time data for this event are not known. Approximately 7" in Rochester.

The Town of Rochester Floodplain Overlay District prohibits new structures in the floodplain and places restrictions on other types of activities within the floodplain. It also specifies land, area and structural requirements in the Floodplain Overlay Districts. The town bylaw has a 50-foot setback prohibition of structures being located from the top of any river or perennial stream bank within the Overlay District. These buffers seek to protect the fragile riparian habitat, improve or maintain water quality and prevent soil erosion.

There are 32 residences and 13 commercial structures within the 500-year floodplain, which equals $7,173,820 if all properties were damaged/destroyed in a severe flooding event. There are also a few critical facilities for the town located in the floodplain, such as the Rochester Town Garage and Rochester Water System infrastructure. The 500-year floodplain was chosen as a basis for this analysis to demonstrate the large number of Rochester properties that are or may be vulnerable to flooding. In addition, the flooding that occurred as a result of Tropical Storm Irene is considered to be slightly less than or equal to a 500-year flood. Therefore, in order to be more forward-looking, the damage to structures in the 500-year floodplain area is documented in this plan.

Due to the development restrictions mountainous terrain places on an area, “at-risk populations,” such as children or the elderly, loss 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. Most child day care is private and in-home in Rochester and there are currently no licensed facilities in the Town. The Park House is a private elder care facility in Rochester, but it is not located in the floodplain. Finally, low-income housing is not registered with the State, and there are no mobile home parks in Rochester.

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. In the Town of Rochester, there are 15 commercial or public structures, including a pump station, and 6 residential structures located in the fluvial erosion hazard area. 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. Extent data for fluvial erosion is unknown.

A number of culverts have been replaced or upgraded since Rochester’s 2009 Annex was adopted. In an attempt to improve the flow of floodwater through the Town, Rochester upgraded culverts on the following roads: Marsh Brook Road, Cemetery Road, Little Hollow Road, South Hollow Lane, North Hollow Lane, Moose Run Road, Oak Lodge Road, Flanders Hill Road, and at Brook Street Brook and Cushman Road. A 70-foot bridge was also replaced with a 90 foot bridge to permit larger qualities of water to flow through. Since the 2014 plan update, West Hill Road, Townline Road, and Woodlawn Road have also been upgraded. There are two Town roads which flood regularly by inundation flooding: Beans Bridge Road and Bingo Road. All other Town roads are subject to erosional flooding when heavy rain events drop large amounts of rain in a short period of time.

The last official culvert inventory completed for the Town of Rochester was in October 2015; Rochester updates its culvert inventory in-house each year.

Since the 2014 Rochester Local Hazard Mitigation Plan there has been minimal development in the Town. No development projects are planned in Rochester in areas that would be vulnerable to flooding. There are no repetitive loss properties in Rochester on FEMA’s NFIP list.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/ Probability
Flooding	Regular inundation flooding: Beans Bridge Road and Bingo Road. Beans Bridge Road repaired 3-4 times per year. All other roads in the Town subject to erosional flooding.	Culverts, bridges, road infrastructure. 32 residential and 13 commercial and industrial buildings in 500 year floodplain.	Most recent, Tropical Storm Irene- 5-7" across county (9" in Rochester, according to local reports).	From TS Irene: $3,010,499.39 for Rochester from FEMA's Public Assistance database.	Highly likely

2. Severe Weather (High Winds, Hurricanes, Tropical Storms)

In Rochester, severe weather is quite common, typically in the late spring and summer months when the region experiences high temperatures. Severe thunderstorms tend to bring other hazards, such as high winds, hail, and lightning, and flooding. These hazards are often experienced in combinations that create many unique weather and emergency management situations.

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

Over the years, Rochester has been hit with high winds that have downed and uprooted numerous trees, and knocked out electricity to residents in the Town. Town-specific wind data could not be found, but the "Remarks" section of NCDC Database helps to illuminate the impact strong winds can have on the Town of Rochester.

In Rochester, effects of Hurricane/Tropical Storms have mostly been from rainfall and only in the form of a Tropical Storm, not a hurricane. Therefore, wind speed extent for Hurricane/Tropical Storm is not available. When available, wind extent data is given based off of the Beaufort Wind Chart.

The following list indicates the history of occurrence with regard to this hazard in Windsor County. Federal disaster numbers are listed when appropriate. In an attempt to capture the individual hazards that may arise, and the different circumstances caused by the hazards in concert, the separate hazards are documented in the table below.

Beaufort Wind Chart – Estimating Winds Speeds

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

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

History of Occurrences:

Severe Weather Date	Event				Location	Extent
	Thunderstorm/ severe storm	Flooding	High Winds	Lightning		
11/27/2018			✓			Winter weather advisory noticed for much of Vermont. Strong winds over central and southern mountains with gusts up to 50 mpg. Knocked out power to up to 74% of GMP customers until restored on November 29.
Period from 06/25/2013 – 07/11/2013 (DR-4140)*	✓	✓			Rochester; Orange, Washington and Windsor Counties	This disaster declaration included Orange, Washington and Windsor Counties. VT Rt. 100 washed out and closed for several days.
08/28/2011 (DR 4022 VT for period of 08/26/2011 – 09/2/2011)	✓		✓		Rochester, County-wide	Tropical Storm Irene. 9" of rain in Rochester according to local reports. Severe damage to state and town road infrastructure including VT Route 100. $3,010,499.39 in damages according to FEMA's Public Assistance Database (captures at least 70% of the total damage).
Period from 05/26/2011— 05/27/2011 (DR-4001 VT)	✓	✓			County-wide	Some 25,000+ customers lost power during these storms. ||In addition, several rounds of thunderstorms traversed the same areas in central Vermont near the Route 2 corridor between Middlesex and Lunenburg. The end result of 3 to 5+ inches of rainfall and severe flash flooding and resultant river flooding as well.
02/26/2010			✓		County-wide	Strong easterly winds of 80 to 100 mph along the peaks of the Vermont's Green Mountains and New Hampshire's White Mountains flowed downward across exposed higher terrain and western slope valleys with 45 to 60+ mph wind gusts. Numerous communities witnessed downed tree limbs. branches and some trees that resulted in downed power lines and power outages. Power outages in Vermont ranged from 20,000 to 40,000 customers.

Severe Weather Date	Event				Location	Extent
08/06/2008 (DR 1790)	✓		✓		Rochester, County/ region- wide	A severe thunderstorm developed in Addison county by mid to late afternoon and then traveled southeast into Windsor county and produced hail ranging from marble (1/2 inch diameter) to nickel size (0.88 inch diameter). 3-5" of rainfall. Damage to road infrastructure. $425,000 in damage.
2/17/2006			✓		Region-wide	Sustained winds of 30 to 40 mph with strong and damaging wind gusts in excess of 55 mph moved across eastern Vermont during the afternoon. There were widespread reports of trees and power lines down blocking roads and causing structural damage in some communities. There were numerous power outages across the area, with an estimated 50,000 customers statewide in Vermont without power.
09/29/2005			✓		Region-wide	The front was accompanied by showers and thunderstorms. Large scale damaging winds preceded and followed the front. Trees and power lines were blown down countywide across the counties of Orange and Windsor, with numerous power outages. Winds were generally sustained at an estimated 35 to 45 mph with higher gusts Across Windsor county trees and lines were down in Bethel, White River Jct and Springfield.
06/29/2003	✓		✓		Rochester	Trees and power lines blown down by wind, resulting in the loss of power. $5,000 in damage.
05/01/2003	✓		✓		Rochester	Tree limbs blown down by winds. $5,000 in damage.
05/03/2002			✓		Region-wide	Strong winds on the backside of this system resulted in some wind damage in portions of eastern Vermont. Several trees were blown down in Quechee (Windsor county).
02/01/2002			✓		Region-wide	Strong winds impacted Windsor County of Vermont during the late evening hours. Power was reported out to a number of customers.

Severe Weather Date	Event				Location	Extent
09/16/1999			✓		Rochester, Region-wide	Strong winds combined with saturated soils from heavy rain resulted in many trees and power lines being blown down with approximately 2,750 people without power countywide. Rochester had many trees blown down with schools closed Friday.
7/6/1973 (DR 397 VT)	✓	✓			Rochester, County-wide	8.53" reported in Rochester. Severe storms; landslides in region.

The Town of Rochester has experienced high wind events in the past. Thankfully, the damage caused by high winds has been has been relatively minimal. Often power outages occur as a result of trees and tree limbs falling on power lines. However, the utility companies currently serving the Town of Rochester, including Green Mountain Power, have followed a regular tree-trimming schedule. Rochester officials believe this is satisfactory to mitigate damage and the power outages caused by downed trees and tree limbs during a high wind event.

The main hazard caused by severe weather throughout the Town is flooding. Prior to the flooding from Tropical Storm Irene, spring of 2011 was particularity wet, and a pre-Memorial Day storm caused widespread flooding throughout Windsor County. The road and other infrastructure damaged during this flooding event included 32 roads, sewers, athletic fields, tennis courts, and a cemetery, among others. The following roads were among the most heavily damaged during Tropical Storm Irene: Little Hollow Road, North Hollow Road, Brook Street, Fiske Road, Marsh Brook Road, Bethel Mountain Road, and Bingo Road. During "regular" flooding events, there are two Town roads which flood regularly because of inundation flooding: Beans Bridge Road and Bingo Road. Beans Bridge Road is one of the most frequently flooded roads in the Town, having to be repaired 3-4 times a year, on average. All other Town roads are subject to erosional flooding when heavy rain events drop large amounts of rain in a short period of time.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/ Probability
Severe Weather	Town wide for wind, hail, high winds, lightning and thunderstorm impacts; for "regular" inundation flooding: Beans Bridge Road and Bingo Road. All other roads may be subject to erosional flooding, especially in steep areas.	Town and private buildings, and utilities; culverts, bridges, road infrastructure	Most recent, Tropical Storm Irene- 5-7" across county (9" in Rochester, according to local reports).	From TS Irene: $3,010,499.39 for Rochester from FEMA's Public Assistance database.	Highly likely

**_Note_: The main hazard caused by severe weather is typically flooding (though not always). In addition, flooding is often the most expensive hazard caused by severe weather. Therefore, the Extent and Impact categories for Severe Weather will reflect the data reported in the Flash Flood/Flood/Fluvial Erosion, as it represents the higher limits of damage caused by severe weather.

3. Cold/Snow/Ice Storm/Winter Storm

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

Winter storms are a regular occurrence in Vermont. However, severe winter storms can cause serious damage, including collapse of buildings due to overloading with snow or ice, brutal wind chills, downed trees and power lines and stranded vehicles. People can be at risk of freezing in extended power outages if they lack wood heat or backup power, and individuals shoveling large accumulations of snow can also be at risk from frostbite, hypothermia and heart attacks due to 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.

National Centers for Environmental Information (NOAA) Weather Prediction Center is developing a new Winter Storm Severity Index to classify severity of storms, ranging from limited to extreme damage. This tool looks at snow amount, snow load, blowing snow, ice accumulation, ground blizzard, and flash freeze.

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

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

Figure 1 Sperry-Piltz Ice Accumulation Index

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

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

Winter Storm/Extreme Cold/Ice Storms/Blizzard

Date	Event	Location	Extent
01/7/2015	Extreme Cold/Wind Chill	Statewide, Regionwide	Temperatures by early evening of January 7th were zero to 10 above zero with winds of 15 to 30 mph that created wind chills colder than 20 to 30 below zero through the overnight into the morning hours of January 8th. Actual morning low temperatures on January 8th were 10 below to 20 below zero in Windsor county, including 21 degrees below zero in Rochester.
2/13/2014	Heavy Snow	Statewide	Snowfall across Windsor county was 12 to 20+ inches with 21 inches in Norwich and Ludlow, 20 inches in Springfield, 18 inches in Windsor and Rochester, 16 inches in Bethel and Hartland, 15 inches in Woodstock and 14 inches in Chester and Wilder.
2/5/2014	Heavy Snow	Statewide	A widespread 5 to 12 inches of snow fell across Vermont with the higher totals in the central and southern Green Mountain communities. Snowfall was at its peak during both the morning and afternoon/evening commutes causing hazardous travel.
12/9/2014	Winter Storm	Region-wide, Statewide	The heavy, wet nature of the snowfall with snow to water ratios of 8:1 or less accounted for snow-loaded trees that resulted in more than 175,000 power outages in the region from December 9th through December 12th. This was the 2nd most power outages due to weather in the state of Vermont.
11/26/2014	Winter Storm	Rochester, Regionwide	Snowfall totals were generally 8 to 12 inches across much of Vermont with only 3 to 6 inches in northwest Vermont Rochester recorded 12 inches. The timing of the storm was at its worst, due to holiday commuters, that caused numerous vehicle accidents across the state.
12/11/2008 (DR-1816)	Winter Storm	Region-wide, Statewide	Combined snow and sleet accumulation in central and northern Vermont ranged from 5 to 9 inches along with a glaze coating of ice. Ice accumulation across southern Vermont ranged from one quarter to one half an inch. This storm caused hazardous driving conditions, numerous school closings, civic and government closings, and power outages on the evening of December 11th and during the day on December 12th.
03/06/2007	Extreme Weather/Windchill	Statewide, Regionwide	These frigid temperatures, accompanied by winds of 15 to 30 mph created dangerously cold wind chills of 20 to 40 degrees below zero. Brisk winds with temperatures around zero continued through the daylight hours of the 6th with wind chill readings in the 20s to around 30 degrees below zero. Overnight minimum temperatures of 10 to 30 degrees below zero. The morning low was -8 degrees in Rochester (Windsor)
12/30/2007	Heavy Snow	Statewide	Snow overspread southern Vermont before Midnight on the 31st and continued until daybreak on the 31st, when it tapered to snow showers before ending by mid-morning. Snowfall amounts across southern Vermont were generally 5 to 8 inches.

Date	Event	Location	Extent
Period from 4/15/2007-4/21/2007 (DR-1698)	Winter storms	Vermont, Windsor County	Snowfall totals were generally 4 to 7 inches in the valleys with locally up to a foot along the east-facing slopes of the higher elevations of the Green mountains. This was a heavy, wet snow that caused numerous power outages, as well as extremely slick and treacherous roads that resulted in numerous vehicle accidents.
2/14/2007	Winter Storm	Windsor County/Region-wide	Snowfall rates of 2 to 4 inches per hour and brisk winds of 15 to 25 mph caused near whiteout conditions at times, along with considerable blowing and drifting of the snow, making roads nearly impassable. Further, temperatures in the single numbers above zero combined with these brisk winds created wind chill values of 10 degrees below zero or colder. Snowfall totals ranged from 15 to 25 inches in the Connecticut river valley to 20 to 35 inches elsewhere across Vermont. In addition, the storm total of 25.7 inches was the 2nd heaviest storm total snowfall on record, behind the 29.8 inches received on December 25th through 28th, 1969. 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.
2/27/2002	Heavy Snow	Statewide	Generally, between 3 and 6 inches of snow fell in the hilly terrain, with a few locally higher amounts. This included the western slopes of the Green Mountains in the Eastern portions of both Addison and Chittenden counties and northwest Windsor county.
3/5/2001-3/7/2001 (EM-3167)	Snow Storm		Many schools were closed and many towns postponed their Town meeting day. Several accidents were reported. Portions of I-91 were closed for a time in Windsor county. A building roof collapsed in Springfield VT. Generally, between 20 and 30 inches of snow fell. Snowfall reports included 28 inches in Windsor county.
03/21/1998	Snow Storm	Rochester; County/Region-wide	Snow was heavy Saturday night into Sunday morning with a number of traffic accidents reported and brief power outages. The snow tapered off to snow showers Sunday night. Snow accumulations were generally 15 to 20 inches across northwest and north central Vermont with around a foot elsewhere across the area.
04/04/2007	Winter Storm	Rochester; County/Region-wide	Combined snow and sleet accumulations ranged from 4-12” with the higher amounts in the higher elevations. This caused some hazardous travel as well as some scattered power outages due to fallen tree limbs and branches. 7” of accumulation in Rochester.
Period from 03/05/2001—03/07/2001 (EM-3167)	Winter/Ice Storm	County/Region-wide (Windsor, Rutland, Windsor Counties)	Some impacts included: Many schools were closed and many towns postponed their Town meeting day. Several accidents were reported. Portions of I-91 were closed for a time in Windsor county. Generally, between 20 and 30 inches of snow fell.
Period from 01/06/1998—01/16/1998 (DR-1201)	Ice Storm	County/Region-wide (Windsor, Orange, Windsor Counties)	Ice accumulations during this event were generally 3/4 of an inch or less. The impact on the region ranged from ice accumulations damaging tens of thousands of trees. Downed power lines resulted from the weight of the ice with several thousand without power. Farmers who lost electricity were unable to milk cows with loss of income and damage to cows. Automobile travel was negatively impacted with a number of roads closed due to ice and fallen trees. There were numerous traffic accidents.

The Town of Rochester is no stranger to winter weather and the hazards that it brings. Depending on the event, although particularly with heavy, wet snow or ice, electricity may be knocked out for a few hours or days. The utility company currently serving the Town of Rochester, Green Mountain Power, has followed a regular tree-trimming schedule. Rochester town officials believe this is satisfactory to mitigate damage and the power outages caused by downed trees and tree limbs during a heavy, wet snow or ice event. In the event of an extended power outage, the Town would open its emergency shelter. This process has not been formalized yet, but the Town is working to create such a policy.

Heavy, wet snow or large quantities of snow may also leave structures vulnerable to roof collapse. Roof collapse occurs when the structural components of a roof can no longer hold the weight of snow. Flat roofs are most vulnerable to collapse because they do not drain well and the snow on the roof soaks up water like a sponge, increasing the weight that the roof must bear. More common, it seems, is the collapse of barns commonly used for livestock sheltering and other agricultural purposes. Unfortunately, livestock in the barn are often killed and equipment stored in the barn may be damaged or ruined. It is difficult to determine whether a residential structure or a barn would be rebuilt after a roof collapse, because the decision to rebuild would likely depend on the extent of damage. The collapse of a barn roof is likely to be a total loss, and the collapse of a house roof may be a 50% loss. While roof collapse has not occurred in Rochester recently, very heavy snow in the region on February 14, 2007 resulted in the partial or total collapse of 20 or more barn roofs, and led to the deaths of more than 100 cattle.

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

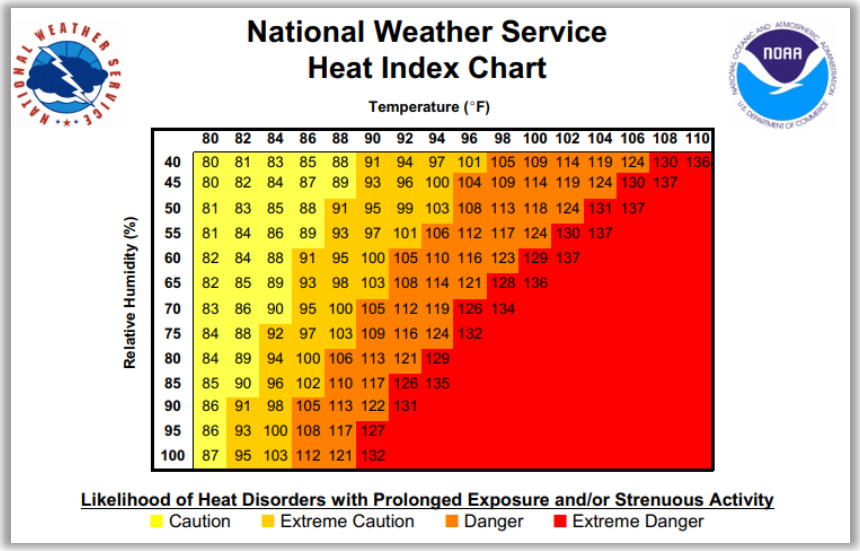
Hazard	**Location**	**Vulnerability**	**Extent**	**Observed Impact**	**Likelihood/ Probability**
Extreme Cold/Snow/ Ice Storm	Town wide	The entire Town is vulnerable, including road infrastructure, town and privately owned buildings, utility infrastructure.	Snow fall has varied, from a few inches to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

4. Extreme Heat

Heat waves are reported from Burlington Weather Service. The National Weather Service defines a heat wave as three or more consecutive days with highs 90 degrees or higher.

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

According to NOAA, between 1895 and 2015, the average annual temperature in Vermont increased by 2.6°F, 0.2°F per decade. Data from NOAA further suggest that Vermont's average annual maximum and minimum temperatures increased by approximately 0.4°F and 0.6°F, respectively, per decade since 1960, representing an increasing trend in temperature increases within the State.



The Heat Vulnerability in Vermont report suggests that Vermonters are at a greater risk for serious, heat-related illness – potentially even death – when the statewide average temperature reaches or exceeds 87°F. The Department of Health has created a Heat Vulnerability Index based on six heat vulnerability themes (population demographics of a town, socioeconomic status, health status of town residents, environmental characteristics, the ability of town residents to acclimate to hot temperatures and emergency room visits for heat illness) and vulnerability for each. In general, those at higher risk during hot weather include older adults and children, people with chronic medical conditions, people active outdoors, people without air conditioning, and people living in more urbanized parts of Vermont.

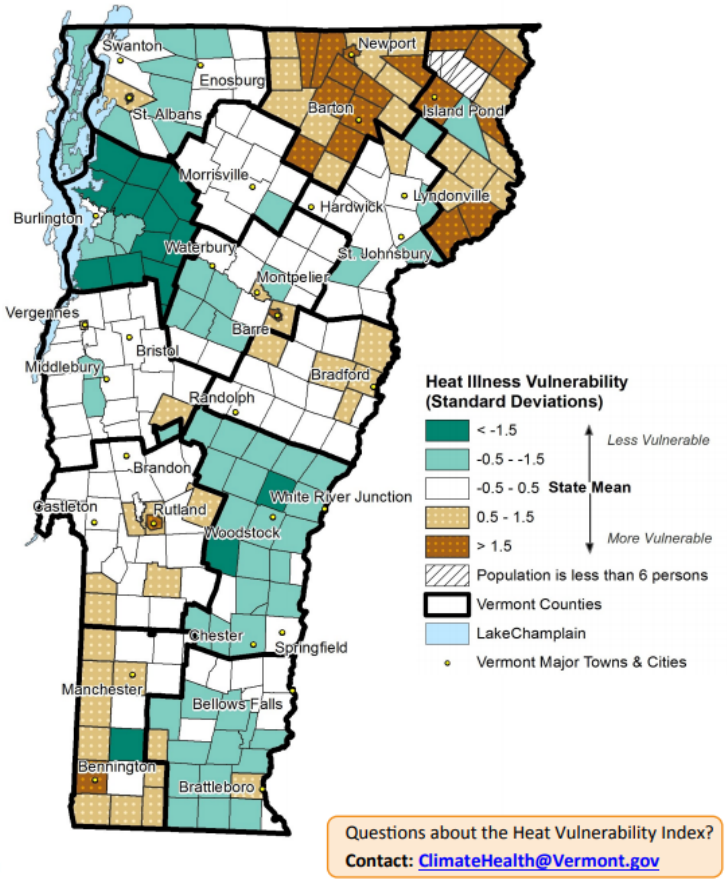
In Rochester, Town Officials are trying to understand how to protect their most vulnerable populations from extreme heat; many of which may be living without air conditioning. The Emergency Management team is exploring locations for a cooling shelter, and working to better communicate heat emergency warnings to the Rochester community. The team is considering locations like Pierce Hall, which has air conditioning, bathrooms, and handicap accessibility.

History of Occurrences:

National Oceanic and Atmospheric Association recorded 144 winter storm, heavy snow, blizzard, extreme cold, and ice storm events since 1950. There were 124 winter storms recorded for Windsor County since 1950 from National Oceanic and Atmospheric Association, so the winter storms that are

included below came with significant damage. Heat Wave events were obtained from Burlington Weather Service. Town data for heat emergencies was not available.

The full impact and vulnerability of Rochester to extreme heat is still being realized. While statewide and national heating trends exist, instances of extreme heat have not been recorded for Rochester. Overall, it is possible that climate change will exacerbate effects and frequency of extreme heat events. Rochester will continue to monitor changes in heat patterns, and the vulnerability of Rochester's sensitive populations.



Heat Events

Date	Event	Location	Extent
6/30/18-7/5/18	Heat Wave	Statewide	Five consecutive days at higher than 90 degrees, the highest reaching 97 degrees.
9/24/17-9/27/17	Heat Wave	Statewide	Four consecutive days at higher than 90 degrees, the highest reaching 92 degrees.
8/17/15-8/20/15	Heat Wave	Statewide	Four consecutive days at higher than 90 degrees, the highest reaching 91 degrees.
7/15/13-7/18/13	Heat Wave	Statewide	Five consecutive days at higher than 90 degrees, the highest reaching 98 degrees.

Hazard	Location	Vulnerability	Extent	Observed Impact	Likelihood/ Probability
Extreme Heat	Town wide	The entire Town is vulnerable, with specific populations more at risk including elderly and children.	Five consecutive days at higher than 90 degrees, the highest reaching 98 degrees.	Unknown	Likely

4. Hazardous Materials Spill

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

Based on available VT Tier II data, there are three sites in town that have sufficient types and/or quantities of hazardous materials to require reporting. Rochester's village is located on Route 100, which sees a moderate quantity of truck traffic. There are 276 residential and 65 commercial, industrial or public buildings within 1,000 feet of a potential HAZMAT spill on Route 100 and Route 73. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be $2,796,960. 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 Rochester Fire Department is trained and equipped for hazardous spill events, and would be the first to respond. The following data was retrieved from the Vermont Department of Environmental Conservation's Spill List.

The following occurrences were retrieved from the Vermont Department of Environmental Conservation's Spill List. There were 31 recorded incidents listed on the Spill List, so most of the incidents listed below are those spills that had a recorded type of product released and a spill larger than five gallons.

History of Occurrences:

Date	Event	Location	Extent
05/25/2018	#2 Fuel Oil Spill from above ground tank line piping, fitting, and filter leak.	635 Town Line Road at McCandless residence	~5 gallons spilled.
9/21/2017	A gasoline tank truck tipped over from Rt.100 onto the meadow near the water well head in Rochester village. No gas was spilled.	Rt. 100 in Rochester Village near the Well Head	No gas spilled.
10/16/2012	Drum of unspecified petroleum found on riverbank and leaking. Likely deposited by flooding on 08/28/2011.	Route 100 South, across from Riverbend Farm	55 gallon drum spill, exact quantity unknown.
07/09/2012	Drum of unspecified petroleum and 2 compressed gas cylinders found. Likely deposited during Tropical Storm Irene flooding.	Route 100, Tupper Terraces	55 gallon drum spill, exact quantity unknown.
9/4/2011	Drum of used motor oil spill during Tropical Storm Irene flooding, leaving contaminated sediments all over floor.	Route 100, at VTrans Garage	55 gallon drum of waste oil spilled
05/08/2007	Drum rusted through and leaked onto ground. Site in proximity of tributary to White River	Fiske Road, Quarry Hill	Quantity spilled unknown. Lyman Hall Inc was the responsible party.

Date	Event	Location	Extent
04/14/2005	AST Leak	3106 North Hollow Road	Above ground storage tank leaked 50 gallons at the Wilbur residence
09/25/1996	Gasoline found in monitoring well	Main Street, Parrish Station	Unknown quantity.
09/08/1996	Vandalism at Skip Mart	Route 100	40 gallons of kerosene was spilled. No responsible party was recorded.
05/03/1994	Heating oil fuel spill	Route 100 S	259 gallons spilled at the Clark residence.
01/24/1993	Spill from broken pipe connection on kerosene tank	Fisk Road	Approximately 500 gallons of diesel spilled at the Scoggsboeg residence.
05/11/1987	Truck accident that led to a diesel spill	Route 73	No responsible party recorded

Although no major spills consisting of hundreds of gallons of hazardous material have occurred in the Town of Rochester, the potential for a major spill exists. The major highway along the eastern side of the Green Mountains is Vermont Route 100. Route 100 generally runs north through the Town of Rochester for 8.3 miles, entering in the southeastern corner and extending up to the upper-northwest portion of the Town. Therefore, the majority of hazardous materials transported through the area by tractor trailer occur along Route 100. The Village of Rochester has been built up along Route 100, including the elementary school, creating the potential for a larger population and more infrastructure to be heavily impacted by a hazardous materials spill in or nearby the village center. At one point in recent years, the Department of Transportation installed caution signs during construction that discouraged tractor trailer use on Bethel Mountain Road and Camp Brook Road. The signs have been taken down, and it is not likely that the Department of Transportation will put them back up.

Route 73 intersects Route 100 in the Town of Rochester, just north of the village of Talcville, Vermont. Beginning at Route 74 near the Ticonderoga-Larrabees Point Ferry to New York, Route 73 travels east west through the southern part of the Green Mountains before ending in the Town of Rochester. Approximately 9 miles of Route 73 is located within the Town of Rochester. With the exception of Route 125, Route 73 is one of the only east-west routes in the Rochester-Stockbridge- Pittsfield area. Therefore, it can be expected that trucks carrying hazardous materials into Rochester from the west will use Route 73. While much of the length of Route 73 in Rochester passes through the Green Mountain National Forest, a spill throughout this corridor could impact those living along Route 73 and east-west travel in the region.

In order to prepare for hazardous material spills in Rochester, all members of the Rochester Fire Department have up-to-date HAZMAT Awareness Level training. Additionally, some members are trained to the HAZMAT Operations Level. The Fire Department participates in the Operations training yearly.

Hazard	Location	Vulnerability	Extent	Estimated/Potential Impact	Likelihood/ Probability
Hazardous Materials Spill	Route 100 and 73 corridors	Road and rail infrastructure, nearby structures, Rochester Village	Initially, local impacts only; but depending on material spilled, extent of damage may spread (ex. into groundwater)	There are 276 residential and 65 commercial, industrial or public buildings within 1,000 feet of a potential HAZMAT spill on Route 100 and Route 73. In the event that 5% of these structures were involved in a HAZMAT incident, the estimated damage would be $2,796,960.	Occasionally

5. Water Supply Contamination

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

The majority of town and individuals in Vermont use groundwater as their primary source of water. While groundwater is more protected from contamination than surface water and is generally of a high quality, groundwater is still at risk of contamination from a number of point and non-point sources. Sources of surface contamination located directly above the aquifer may leach through the soil and into the groundwater. Additionally, groundwater contamination from another distant source could migrate, and consequently, contaminate a town or individual's water supply.

The migration of contaminates is made more complex because the patterns of groundwater movement, and their relationship to surface water movement, are not completely understood. This creates the potential for groundwater supplies to become contaminated from discrete and unknown sources. It is important to protect groundwater supplies from contamination to the greatest extent possible, because once contaminated, it is difficult and expensive to clean them to the point where they are again suitable for drinking water. The following data was retrieved from the Vermont Department of Environmental Conservation(DEC)'s Spill List. It has been copied from the Hazard Materials Spill discussed above because the spilling of any hazardous materials also has the potential to contaminate the water supply for the town of Rochester.

The following data was retrieved from various sources, including the NCDC Database, publications issued by the State of Vermont, Water Quality Compliance Reports from the DEC, and from local knowledge reported by Rochester residents.

History of Occurrences:

Date	Event	Location	Extent
10/16/2012	Drum of unknown petroleum found on riverbank, and leaking. Likely deposited by flooding on 08/28/2011	Route 100 South, across from Riverbend Farm	55 gallon drum (exact quantity leaked unknown)
07/09/2012	Drum of unspecified petroleum and 2 compressed gas cylinders found. Likely deposited during Tropical Storm Irene flooding.	Route 100, Tupper Terraces	55 gallon drum (exact quantity leaked unknown)
09/05/2011	Transformer oil release onto concrete and into soil by Central Vermont Public Service (CVPS), now Green Mountain Power	Peavine Drive	10 gallons released
09/04/2011	Drum of used motor oil spilled during Tropical Storm Irene flooding, leaving contaminated sediments all over floor.	Route 100, at VTrans Garage	55 gallon drum
07/22/2008	Oil in holding tank of wastewater treatment facility. Isolated tank from others and removed oil with pads.	Rochester Wastewater Treatment Facility	Unknown.

Date	Event	Location	Extent
05/08/2007	Drum rusted through and leaked onto ground. Site in proximity of tributary to White River.	Fiske Road, Quarry Hill	Unspecified. Likely a 55 gallon drum.
09/25/1996	Gasoline found in monitoring well.	Main Street, Parrish Station	Unknown.
01/24/1993	Spill occurred due to broken pipe connection on kerosene tank.	Fiske Road	500 gallons

Hazard	Location	Vulnerability	Extent	Estimated/Potential Impact	Likelihood/ Probability
Water Supply Contamination	Village of Rochester, private homes and businesses located throughout the Town.	Approximately 440 people connected to the Rochester Water Supply System.	Depends on the amount of and location of the source of contamination—may impact one individual's well or the public water supply.	For individual homeowners who experience a heating oil spill, and the groundwater becomes contaminated: $90,000 (according to the Massachusetts Dept. Environmental Protection). For the public water supply, it would depend on the type and extent of contamination. (To clean a very small water system of MTBE (a gasoline additive) over a 10 year period are estimated at $500,000- $1,000,000.) A new supply may also be sought ($3/1000 gallons in small system and community wants a 65,000 gallon capacity) = $195,000. The costs of medical treatment are not factored in here, but could be substantial	Occasionally

The Village of Rochester has a public water system, the Rochester Water Supply System, which currently has about 180 connections and serves approximately 440 people. As a requirement of Vermont state law, the Rochester Water Supply System has developed a Wellhead Protection Plan. It was last amended on March 15, 2015. In the Wellhead Protection Plan, the potential sources of contamination are identified, as well as the actions that have been taken to minimize the risk of groundwater contamination. The Town's water supply well is located 216 feet away from Vermont Route 100, and it is recognized that the proximity of the well to Route 100 creates the potential for contamination in the event of a hazardous materials spill.

A Wellhead Protection Area has also been established. It operates similar to a zoning district overlay, and prohibits certain activities that may contaminate the wellhead area, such as using herbicides.

Property owners located in Rochester's Wellhead Protection Area are informed of that fact, and offered assistance in the ways they can help minimize contamination into the groundwater supply. The list of hazardous materials spills, particularly on or near Route 100, demonstrates the threat of contamination facing the Rochester Water Supply System's wellhead, despite their well-intentioned efforts.

Private well contamination also threatens those residents and business owners who are not located in the village of Rochester, and maintain their own well for drinking water. As private wells are not required to develop a Wellhead Protection Plan or Wellhead Protection Area, the activities nearby a property owner's well are not necessarily regulated. While an individual property owner may only be affected by his or her well-being contaminated by a small contamination source, a hazardous material spill may impact multiple wells. The list of hazardous material spills in the Town of Rochester demonstrates the ease with which private wells could be contaminated, even with a few gallons of hazardous material.

It is important to note that groundwater supplies can also become contaminated by bacteria from a number of sources. These sources may include: a poorly designed leach field, a ruptured septic tank, or over-application or improper storage of manure or fertilizer.

C. Vulnerability Summary

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

- **Flash Flood/Flood/Fluvial Erosion:** One of the worst threats, flooding impacts roads and the village center, especially facilities for children, elders, and community emergency shelters. Under-sized bridges and culverts factor into the threat, with Rochester being home to many known, problematic choke points (as identified by the LHMP Committee). Out-dated flood hazard mapping for Windsor County also compounds existing threats. Furthermore, flood hazard mapping (Special Flood Hazard Areas) does not adequately encompass all areas that could be flooded, thus potentially making some residents too complacent in regard to the threat. In addition, numerous homes and public facilities are located in the 500-year floodplain and could be impaired by a major flood event. Specific vulnerable roads include Bethel Mountain Road, Rt. 100, Beans Bridge Road, and River Brook Drive.
- **Severe Weather: High Winds, Hurricanes, Tropical Storms:** Damage to public and private property and municipal infrastructure can be extensive during severe weather events. Prolonged power outages and downed cellular communications can greatly hamper public and business services for indeterminate periods of time. Specific vulnerable roads include Bethel Mountain Road and Middle Hollow Road.
- **Extreme Cold/Ice Storm/Heavy Snow:** Lack of access to power and telecommunication services throughout the Town could severely impede response efforts and could be especially harmful to vulnerable populations (e.g., the elderly and disabled). One specific vulnerable area to this hazard is the Park House.
- **Extreme Heat:** This threat could be especially harmful to vulnerable populations especially if power is lost for air conditioning (e.g., the elderly and disabled). One specific vulnerable area to this hazard is the Park House.
- **Hazard Materials Spill:** Lack of access to power and telecommunication services throughout the Town could severely impede response efforts and could be especially harmful to vulnerable populations (e.g., the elderly and disabled). Specific vulnerable roads include Bethel Mountain Road and Rt. 100.
- **Water Contamination:** Lack of access to power and telecommunication services throughout the Town could severely impede response efforts and could be especially harmful to vulnerable populations (e.g., the elderly and disabled). Specific vulnerable roads include Rt. 100 and could likely occur as a spill down by the Pump House.

VI. Mitigation

A. Goals

1. To reduce injury and losses from the natural hazard of flash floods/floods/fluvial erosion
2. To reduce injury and losses from the natural hazard of severe weather/high winds/hurricanes/tropical storms.
3. To reduce injury and losses from the natural hazard of extreme temperatures, both hot and cold, along with ice storms and heavy snow
4. To reduce injury and losses from the natural hazard of secondary hazards: hazardous materials spill and water supply contamination.

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

- To protect existing and future housing from flood damage (pg 31)
- It is the policy of the Town to retain Class 4 roads, trails, and other public rights-of-way as public resources (pg 56).
- It is the policy of the Town to require development on private road to adhere to Town access standards and to provide safe year-round access to town services particularly town future and rescue (pg 56).
- It is the policy of the Town to maintain a reliable and up to date inventory of existing culverts and structures, coupled with a short and long range plan for replacement and upsizing (pg 56).
- The Selectboards should develop a town highway capital plan and schedule that will guide maintenance and road infrastructure investments in the future (pg 57).
- It is the policy of the town that the Selectboard maintain an up to date emergency operations plan (pg 70).
- It is the policy of the town to work with the TRORC to properly plan for hazard events (pg 70).
- The Selectboard should update the Local Emergency Operations Plan on a yearly basis (pg 70).
- The Selectboard should adopt a Hazard Mitigation Plan with assistance from TRORC (pg 70).
- Maintain and improve the quality of Rochester's surface and ground waters (pg 93).
- Enhance and maintain use of flood hazard areas as open space, greenways, non-commercial recreation, and or agricultural land (pg 93).
- Ensure no net loss of flood storage capacity 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 (pg 93).
- Allow Rochester to be resilience in the event of a severe flood (pg 93).
- Protect municipal infrastructure and buildings from the potential of flood damage (pg 93).
- Use sound planning practices to address flood risks so that Rochester's citizens, property, economy, and the quality of the town's rivers as natural and recreational resources are protected (pg 93).

Rochester has recently revised and adopted a new Town Plan in April 2018, and has an 8 year lifespan.

C. Hazard Mitigation Strategies: Programs, Projects & Activities

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

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

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, Rochester'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.

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

These projects in the table below are dependent on local and external grant funding, landowner concerns and willingness as well as many other factors. This list does not bind the Selectboard to complete these projects but instead reminds them and the Town that these are important mitigation priorities.

The Town of Rochester understands that, in order to apply for FEMA funding for mitigation projects, a project must meet more formal FEMA benefit cost criteria. The Town must have a FEMA-approved Hazard Mitigation Plan as well.

The following strategies will be incorporated into the Town of Rochester'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 Action	Local Leadership	Prioritization	Possible Resources	Time Frame
All Hazards	Partner with the Red Cross in future town emergencies, utilize and maintain Emergency Shelter	Shelter Team	High	Local resources/ Red Cross Resources	Fall 2020-Summer 2022
	Utilize social media and other forms of communication (Front Porch Forum, VT Alert) to alert the public to hazards and hazardous situations.	Selectboard, Fire Department	Medium	Local resources	Fall 2020-Fall 2021
	Acquire a generator for the emergency command center (Town Office)	Emergency Preparedness Team	Medium	Local resources	Fall 2020-Spring 2022
Flooding/Severe Weather	Revise flood hazard regulations, including a full river corridor bylaw.	Planning Commission	Medium	Local resources, with TRORC assistance, municipal planning grants	Fall 2020-Fall 2022
	Upgrade culvert at Brook Street Brook and Cushman Road	Selectboard/ Road Commissioner	Medium	Structures grants, HMGPC, local resources	Fall 2020
	Upgrade culvert at Brook Street Brook and Middle Hollow Road.	Selectboard/ Road Commissioner	High	Structures grants, HMGPC, local resources	Fall 2019-Summer 2020
	Upgrade culvert at River Brook Drive.	Selectboard/ Road Commissioner	Low	Structures grants, HMGPC, local resources	Fall 2020-Summer 2021
Severe Weather: High Winds, Hurricanes, Tropical Storms	Clear and maintain town road rights-of way, and work with local utilities (Green Mountain Power) to ensure that utility corridors are cleared and maintained.	Selectboard/ Highway Department	Medium	Local resources/ Highway budget	Fall 2020-Spring 2021
Extreme Heat	Create a list of locations for a cooling shelter.	Emergency Preparedness Team	Medium	Local resources	Fall 2020-Summer 2021
Hazardous Materials Spill	Attend Operations training for members of the Fire Department.	Fire Department	Medium	Local resources	Fall 2020-Fall 2022

Hazard(s) Mitigated	Mitigation Action	Local Leadership	Prioritization	Possible Resources	Time Frame
	Acquire additional containment booms and spill containment equipment.	Fire Department	Low	Local resources	Fall 2023-Fall 2024
	Enforce for better control of tractor trailer/truck through traffic on Bethel Mountain Road/Camp Brook Road.	Selectboard/ Highway Department	Medium	Local resources	Fall 2022-Summer 2023
Water Supply Contamination	Update Wellhead Protection Plan.	Water System Operator	Medium	Local resources	Fall 2020-Fall 2021

CERTIFICATE OF ADOPTION
<<DATE>>
TOWN OF Rochester, Vermont Selectboard
A RESOLUTION ADOPTING THE Rochester, Vermont 2020 Local Hazard Mitigation Plan

WHEREAS, the Town of Rochester has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of the hazards profiled in the **Rochester, Vermont 2020 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 Rochester has developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for its **Rochester Vermont 2020 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 Rochester; and

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

RESOLVED by Town of Rochester Selectboard:

1. The **Rochester, Vermont 2019 Local Hazard Mitigation Plan** is hereby adopted as an official plan of the Town of Rochester;

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.

IN WITHNESS WHEREOF, the undersigned have affixed their signature and the corporate seal of the Town of Rochester this ____ day of _____ 2020.

ATTEST

_____

Selectboard Chair

_____

Town Clerk

_____

Selectboard Member

Appendices

Appendix A: Hazard Ranking Methodology

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

Appendix B: Critical Stream Crossings

This critical stream crossings table 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	INV_FIPS	CATEGORY	STRUCTYPE	STRC_LBL	X_COORD	Y_COORD
MARSH BROOK RD		27075	C			-72.7981	43.9084
BROOK ST	401415001714151	0	B	TS	B17	-72.8051	43.8751
MARSH BROOK RD	401415001914151	0	B	TS	B19	-72.8123	43.9058
CORPORATION RD	101415002514151	0	B	TL	B25	-72.8484	43.844
QUARRY HILL RD	401415002614151	0	B	TS	B26	-72.8198	43.8979
W HILL RD	101415002814151	0	B	TL	B28	-72.8992	43.853
BEANS BRIDGE RD	101415002914151	0	B	TL	B29	-72.8103	43.8843
BINGO RD	101415003114151	0	B	TL	B31	-72.8849	43.8715
BINGO RD	101415003214151	0	B	TL	B32	-72.8773	43.8651
BINGO RD	101415003314151	0	B	TL	B33	-72.9249	43.8797
RIVER BROOK DR	101415003414151	0	B	TL	B34	-72.8087	43.8774
LIBERTY HL	101415003514151	0	B	TL	B35	-72.8004	43.8387
STATE GARAGE RD	101415003614151	0	B	TL	B36	-72.806	43.8585

Attachments

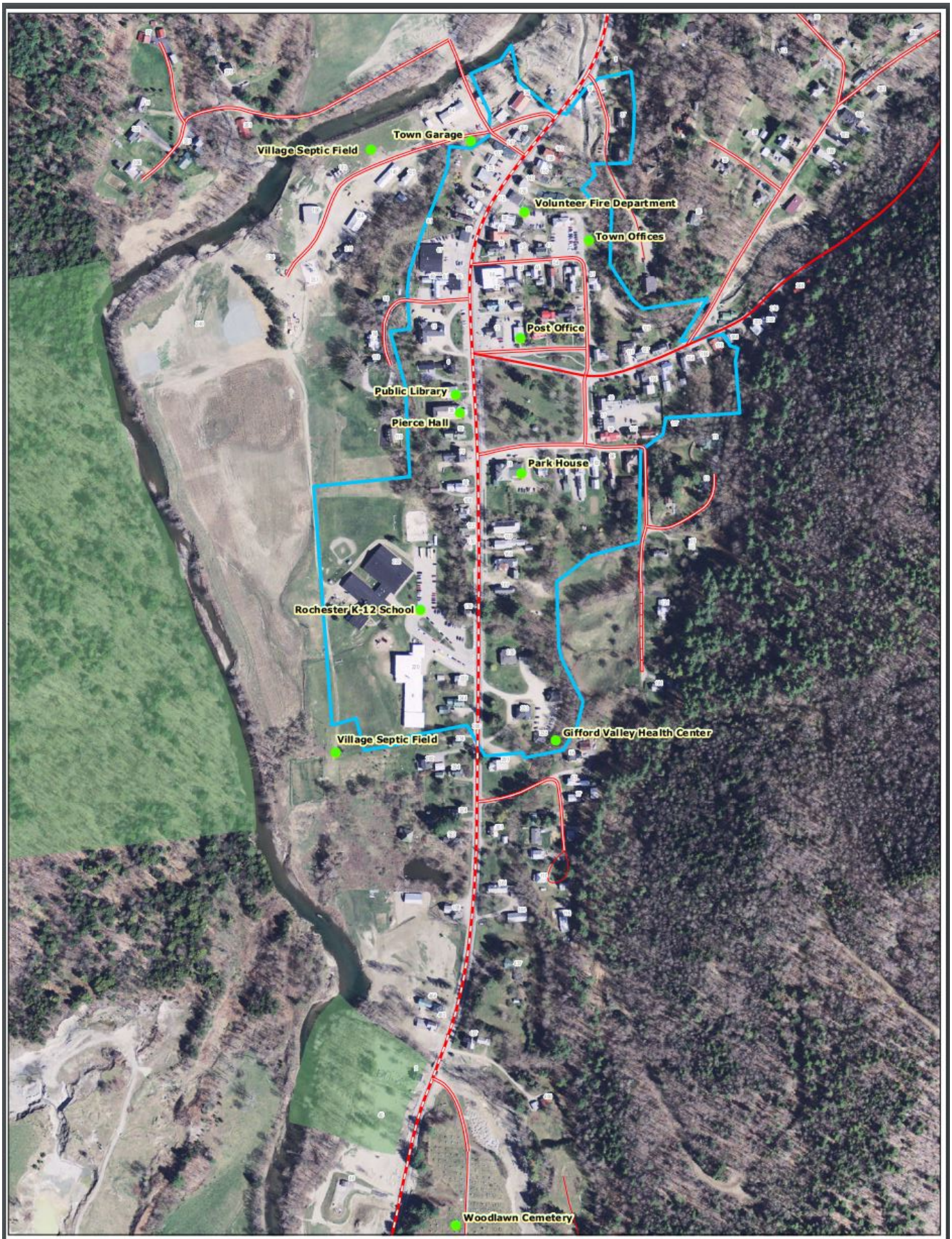
Attachment A: Maps of Rochester

-Map 1: Rochester Utilities and Facilities

-Map 2: Rochester Zoning Map

-Map 3: Rochester Flood Insurance Rate Map (FIRM)

-Map 4: Rochester Stream Alteration Permit Size Map



Utilities, Facilites & Education

Rochester, Vermont *Map 2 of 5*

- VT route/TH cls 1
- TH cls 2
- TH cls 2 gravel
- TH cls 3
- TH cls 3 gravel
- TH cls 4
- trail
- private
- US route
- US interstate
- VT forest hwy
- Village Designation Boundary

Adopted: April 9, 2018

N

1:3,839

1 inch = 320 feet

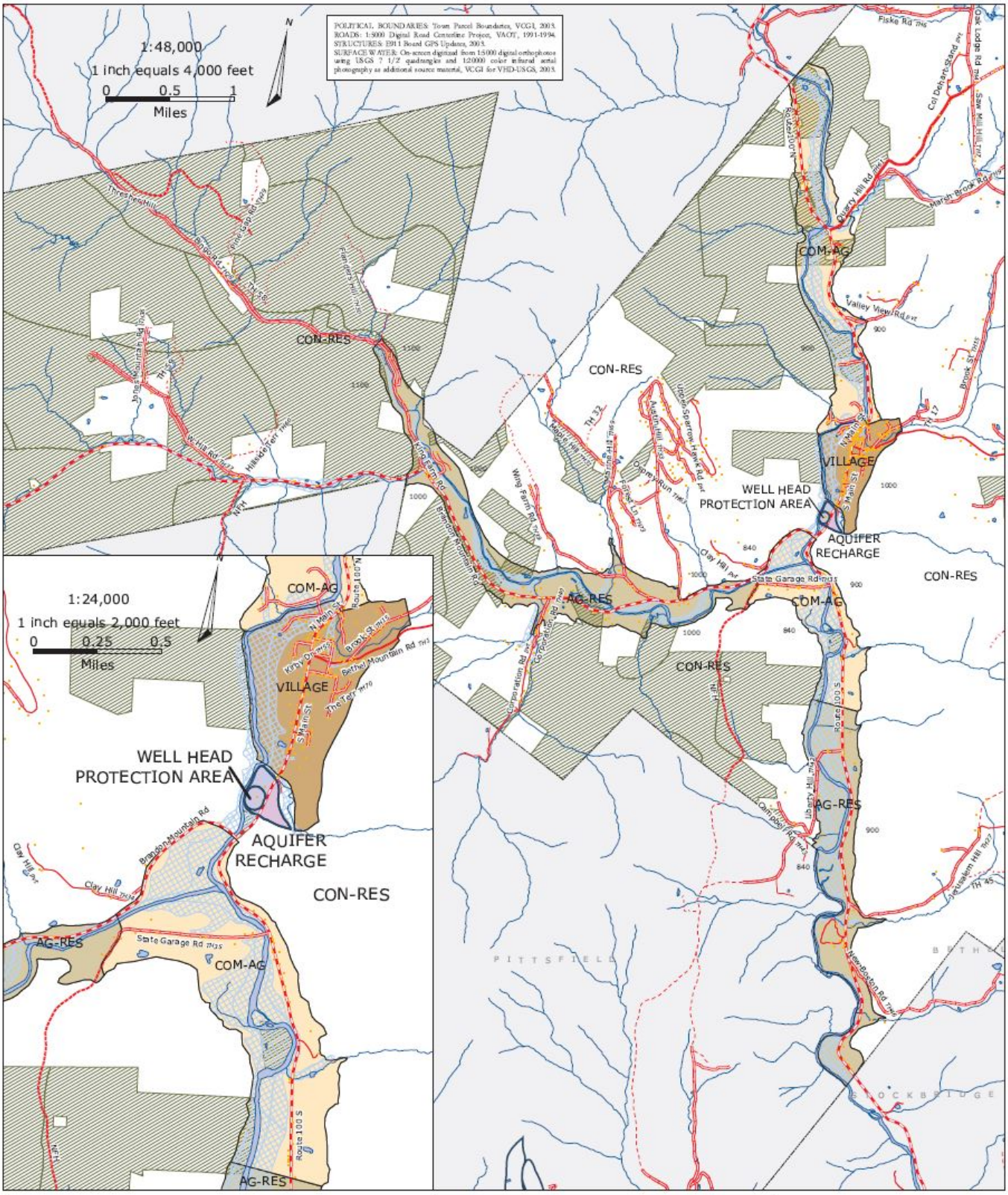
0 250 500

Feet

TRORC

Two Rivers-Ottauquechee REGIONAL COMMISSION

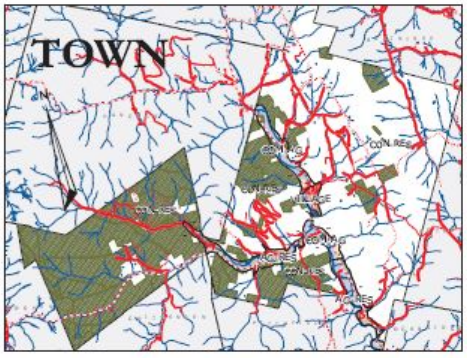
trorc.org



Zoning Districts
Rochester, Vermont

- CON-RES
- COM-AG
- AG-RES
- VILLAGE
- AQUIFER RECHARGE
- FLOOD HAZARD
- 1000 ZONE CONTOURS
- conserved lands

- 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
- e911 addresses
- surface water



Adopted and Effective March 30, 2004

VT State Plane, Meters, NAD 83

GIS for info & data www.vcgi.org

For planning purposes only. Not for regulatory interpretation.

TWO RIVERS-OTTAUQUECHEE REGIONAL COMMISSION
GIS Service Center
Municipal Planning
3117 Rose Hill
The King Farm
Woodstock, VT 05091
802-457-3188
info@trorc.org
www.trorc.org

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PIN
- Approximate location based on user input and does not represent an authoritative property location

MAP PANELS
- Selected FloodMap Boundary
- Digital Data Available
- No Digital Data Available
- Unmapped

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*
- Otherwise Protected Area
- Coastal Barrier Resource System Area

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth
- Regulatory Floodway *Zone AE, AO, AH, VE, AR*

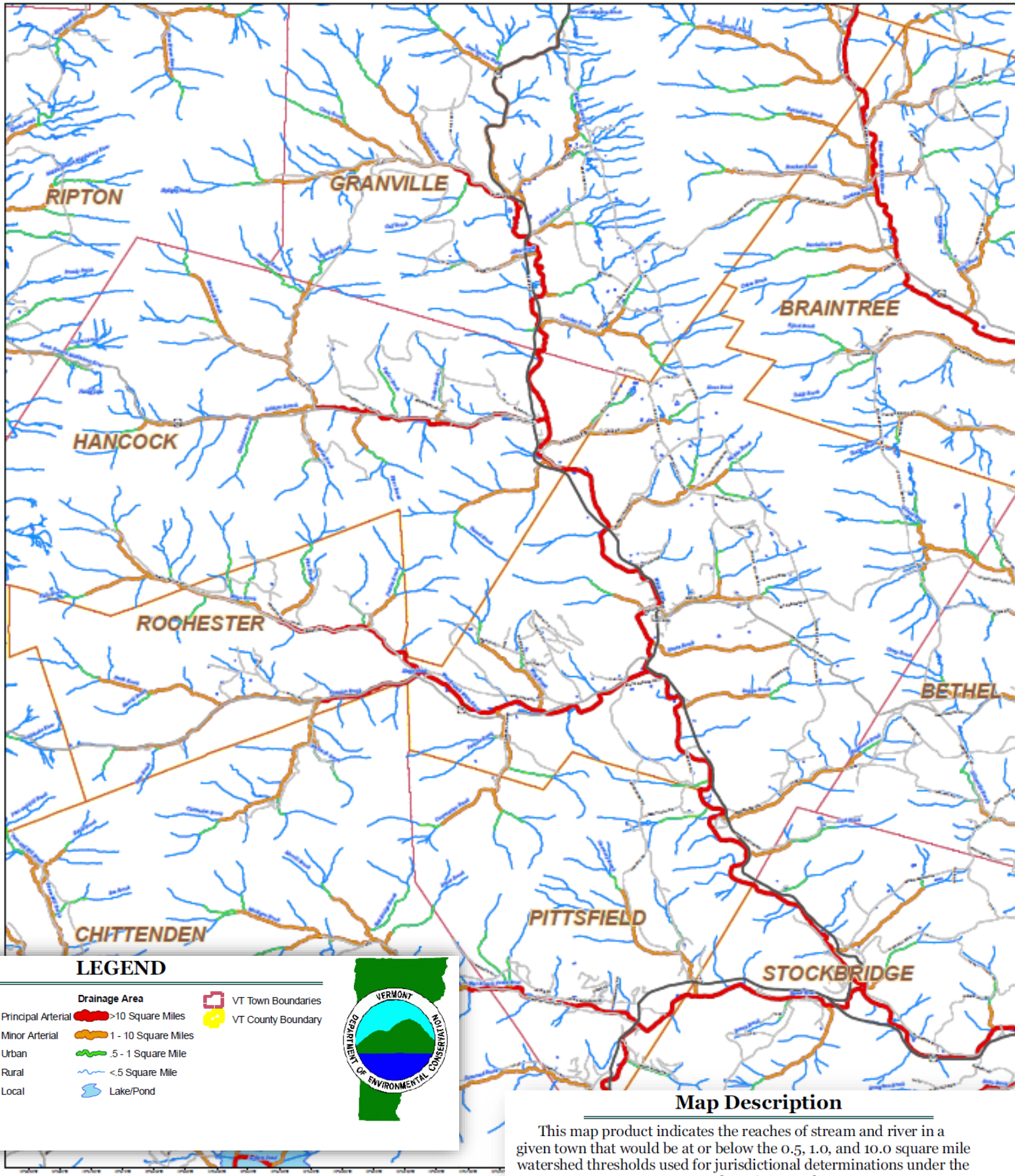
OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

Watershed Sizes Used as Guidance in Stream Alteration Regulations

ROCHESTER



LEGEND

Roads
- Principal Arterial
- Minor Arterial
- Urban
- Rural
- Local

Drainage Area
- >10 Square Miles
- 1 - 10 Square Miles
- .5 - 1 Square Mile
- <.5 Square Mile
- Lake/Pond

- VT Town Boundaries
- VT County Boundary

N

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Map Description

This map product indicates the reaches of stream and river in a given town that would be at or below the 0.5, 1.0, and 10.0 square mile watershed thresholds used for jurisdictional determinations under the Vermont ANR Stream Alteration Regulatory Program.

RMP contacts and information about the Stream Alteration GP may be obtained at: http://www.anr.state.vt.us/dec/waterq/rivers/htm/rv_management.htm

Map Created by, Erik Engstrom. ANR GIS. April 1st, 2011.

Map Disclaimer