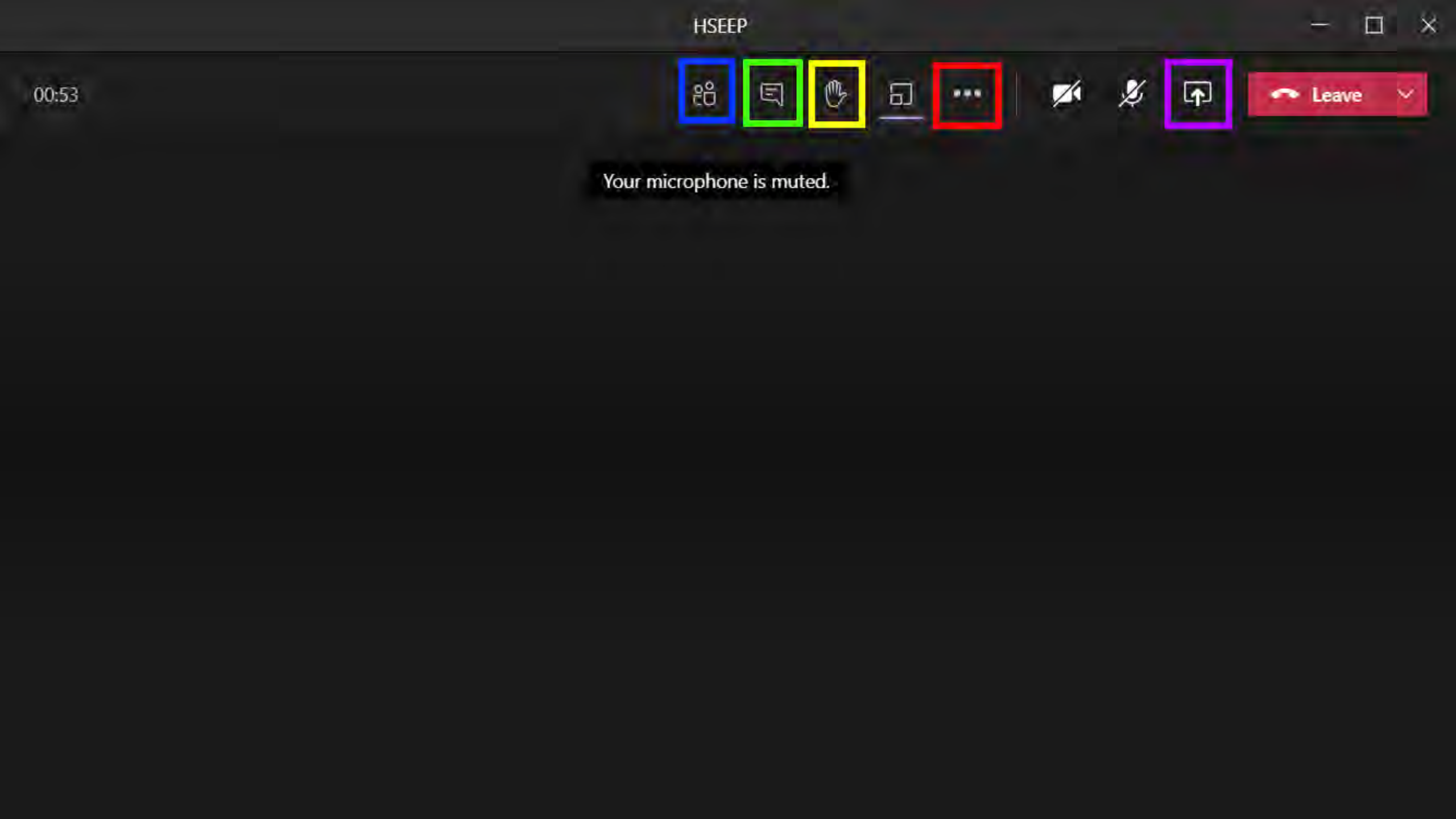
Spring Flood/Ice Jam Seminar

February 2021

PURPOSE: The purpose of this seminar is to provide local jurisdictions and regional entities with information about conditions that may result in spring flooding and proactive measures to prepare for, respond to, and recover from such events.


HSEEP
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Leave
Your microphone is muted.

Agenda

- National Weather Service
- Vermont Emergency Management
- Vermont Agency of Transportation
- Vermont Agency of Natural Resources
- Vermont National Guard
- Division of Fire Safety
- Regional Planning Commissions

NWS Burlington 2021 Spring Flood Outlook

VT Emergency Management
Annual Spring Flood Meetings

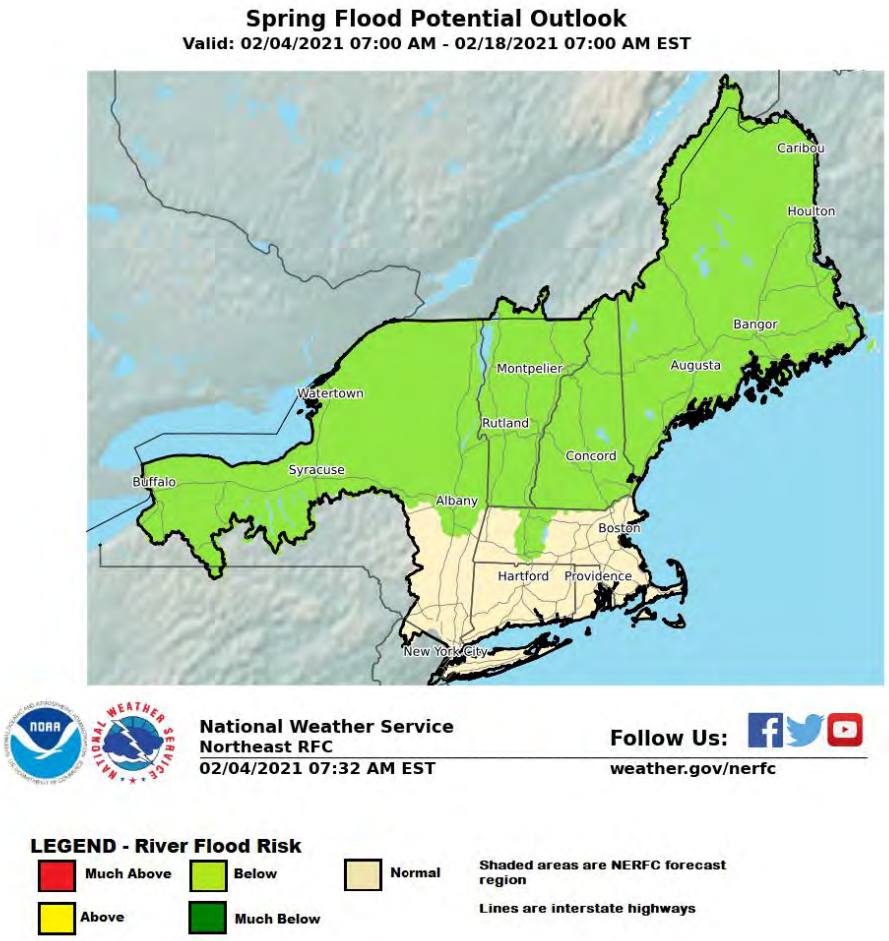
9-10 February 2021

John Goff – john.goff@noaa.gov
Maureen Hastings – maureen.hastings@noaa.gov
National Weather Service – Burlington, VT

24/7 Contact Information
802-658-0207/802-658-0150
nwsbtv.info@noaa.gov

Outline

- **Winter/Spring Flooding Climatology**
  - Time of year
  - Causes
- **Current Recap of Winter 2020-21**
- **Spring Flood Outlook**
  - Below normal



Winter – Spring Flood Climatology

- **Most common: late February thru April**
  - Due to snow melt and heavy rainfall or heavy rainfall only

- **Early season (December – January)**
  - Same as above or **"Freeze-up"** or **BOTH** (January 2018)

- **More notable recent Winter/Spring flooding**
  - **2020-21:** December 25-26th (Otter Creek)
  - **2019-20 :** January 12th (Missisquoi R., Coventry, Lamoille R.)
  - **2018-19 :** December 22nd, April 15th
  - **2017-18:** January 13th (Melt-Rain & Freeze-up), mid-late February
  - **2016-17:** February 25-26th
  - **2015-16:** February 25th

- **Multiple or mid-winter events are becoming more common**

Flooding damages Tunbridge fairgrounds

Recent Winter/Spring Flooding

Two Different Events – Similar Outcomes

Mid-Season (Heavy Rain/Snowmelt/Ice Jams) - Jan 2018

vs.

End of Year (T-storms/Total Loss of Snowpack) – Apr 2019

Event #1 - 13-15 January 2018 Flooding

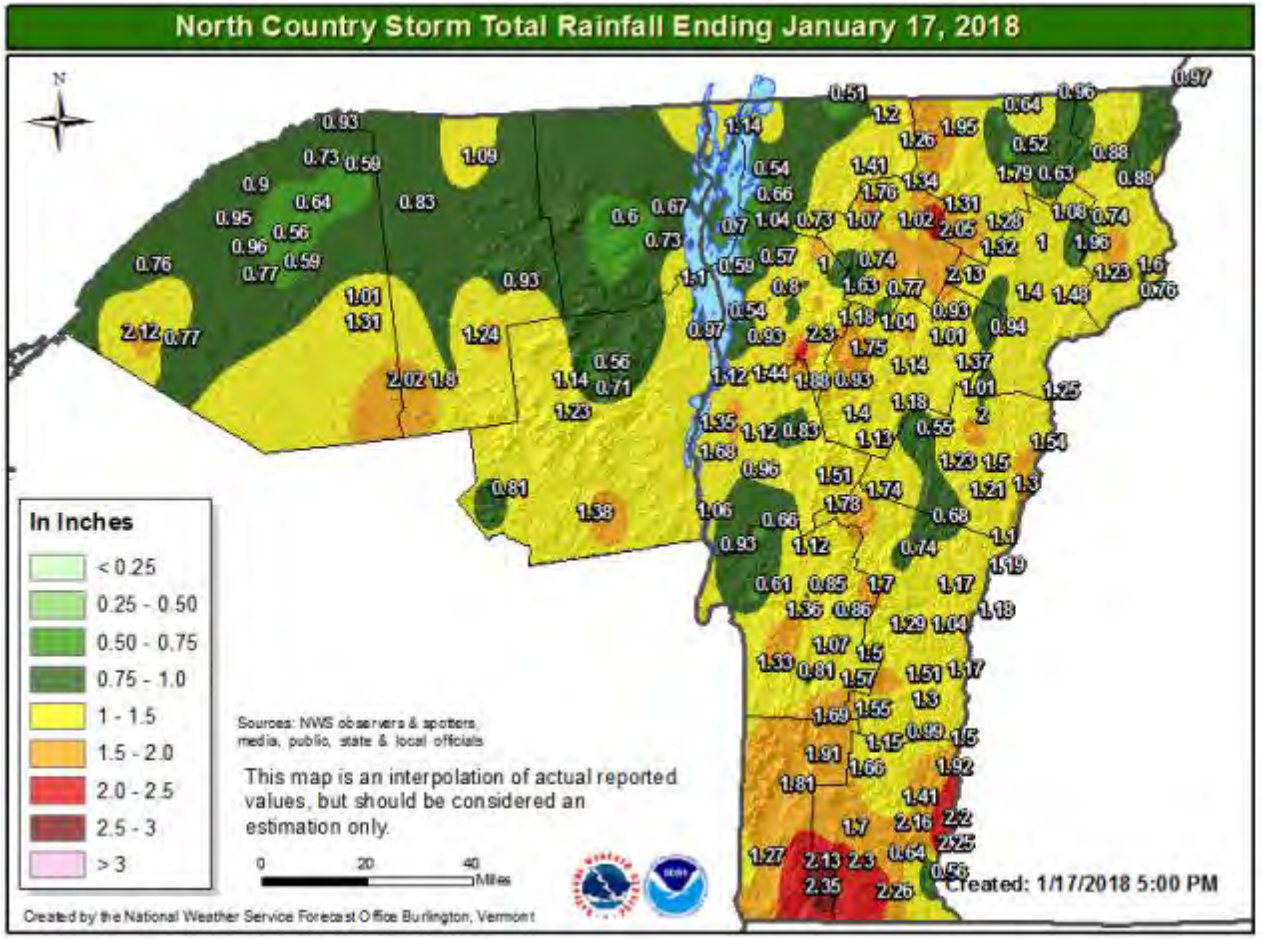
Widespread 1 to 2 inches of rainfall

8-16 inches of snow depth lost…perhaps 1-2″ water equivalent

Snowpack still remains

Primarily ICE JAM Related Flooding

- Missisquoi
- Winooski
- Lamoille
- Passumpsic
- Mad
- New Haven
- Connecticut



13-15 January 2018

Record Cold with Normal to Above Normal Snowfall then Rapid Thaw

Lamoille River

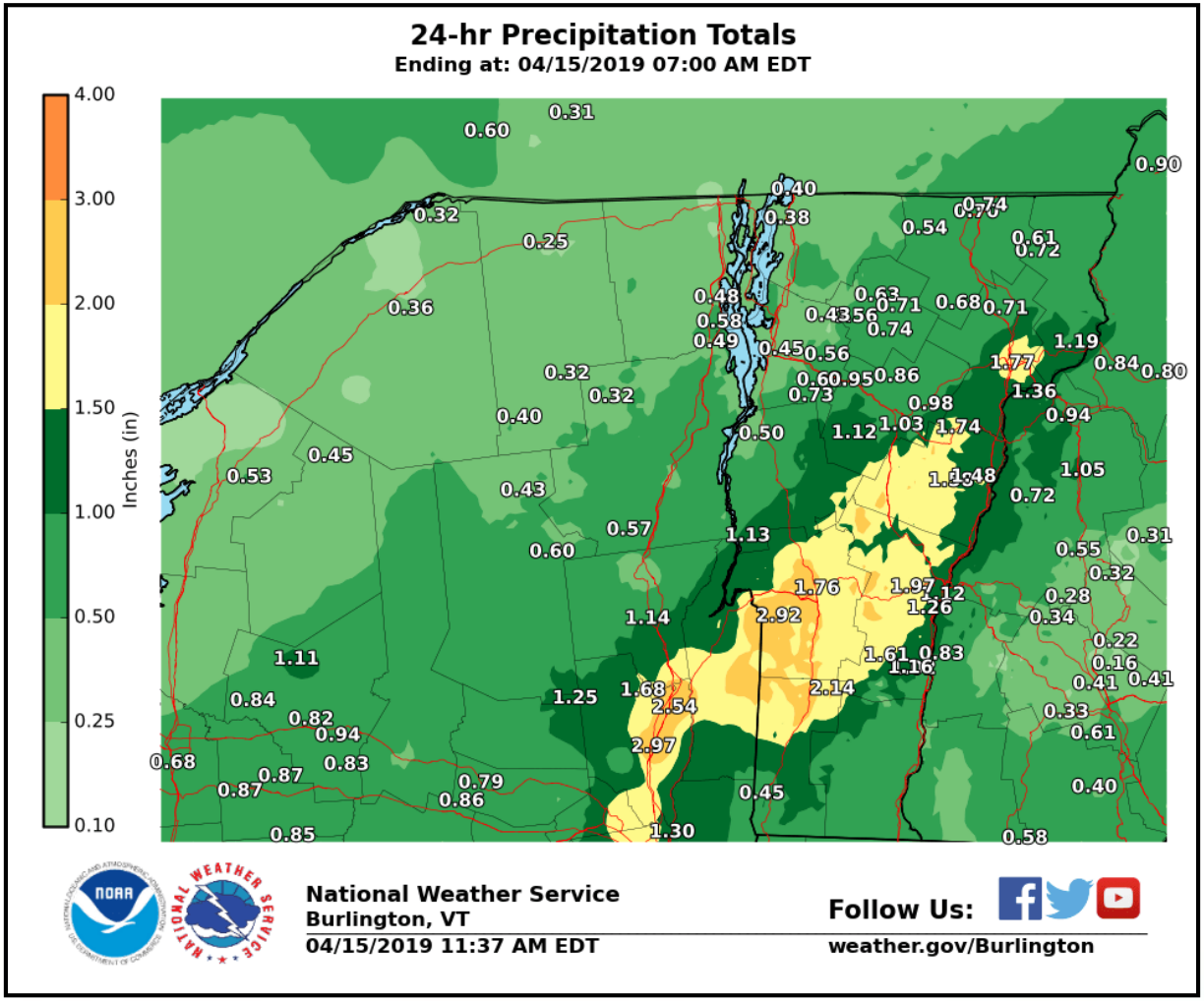
Lamoille River at Johnson

Winooski at Montpelier

Missisquoi River

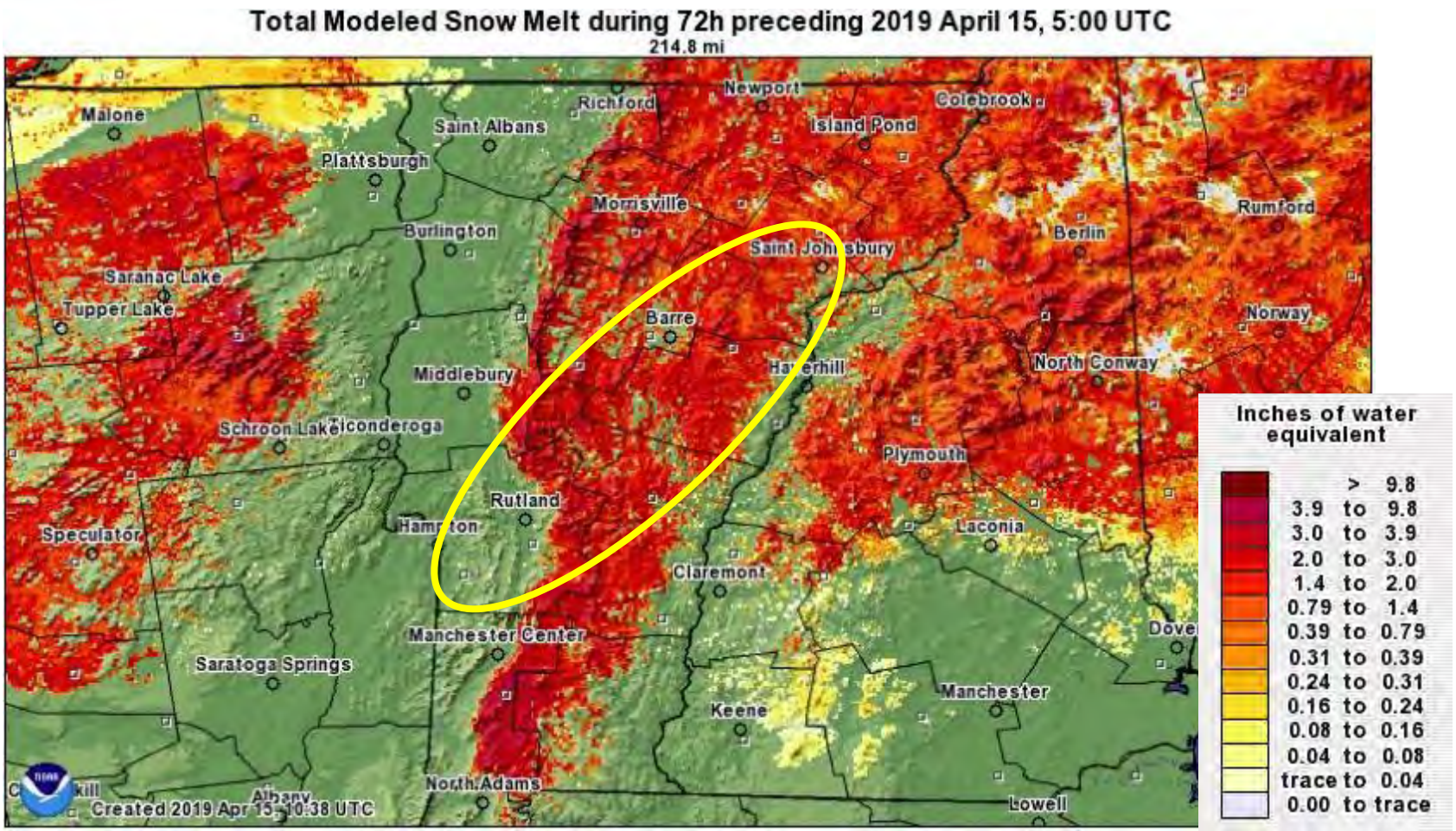
Event #2 - 15 April 2019 Flooding

- **Corridor of 1.5 to 3″ of convective rainfall across southern/eastern VT**
  - 8-16″ of snow depth lost from high elevations: perhaps an additional 2-3″ of water input into watersheds
- **Primarily open water flooding**
  - Otter Creek – major flood level
  - Winooski R.
  - Passumpsic R.
  - Wells R.
- **Some flash flooding noted**



14-15 April 2019 Snowmelt

Widespread 2-3 inches with localized up to 5 inches of water equivalent melted into streams/rivers

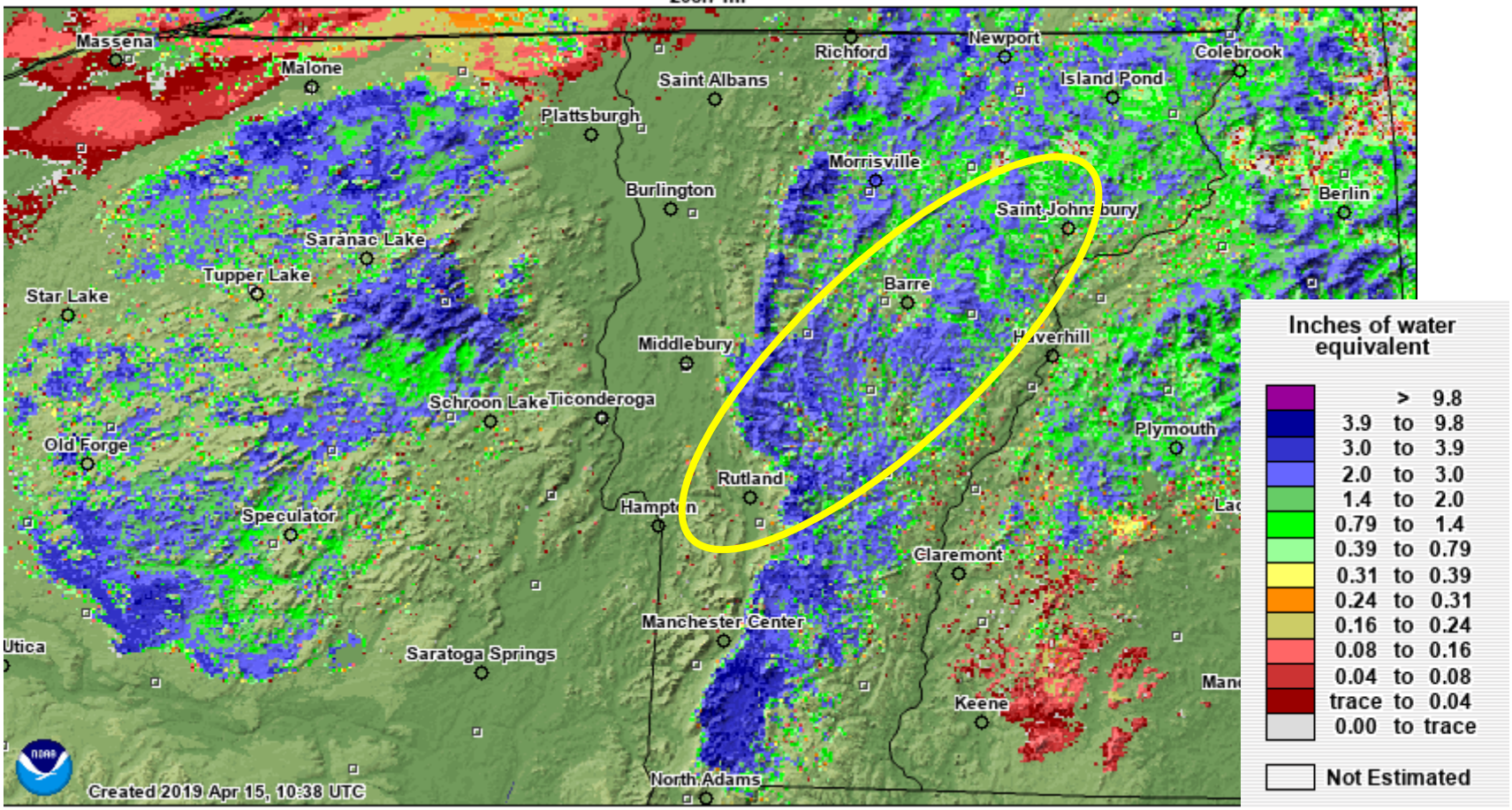


14-15 April 2019 Snowmelt

Widespread 2-3 inches with localized up to 5 inches of water equivalent melted into streams/rivers

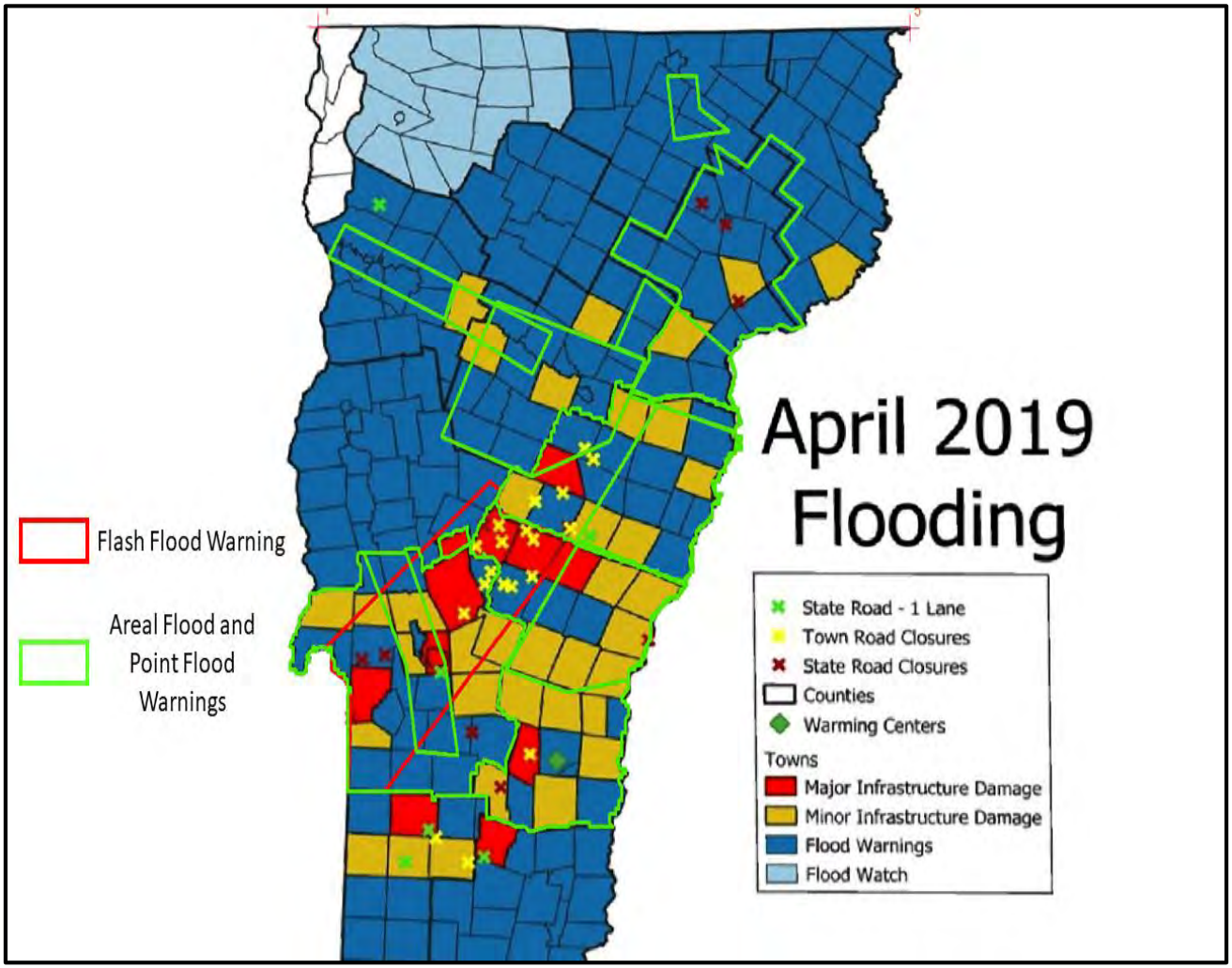
Total Modeled Snow Melt during 72h preceding 2019 April 15, 5:00 UTC

208.7 mi

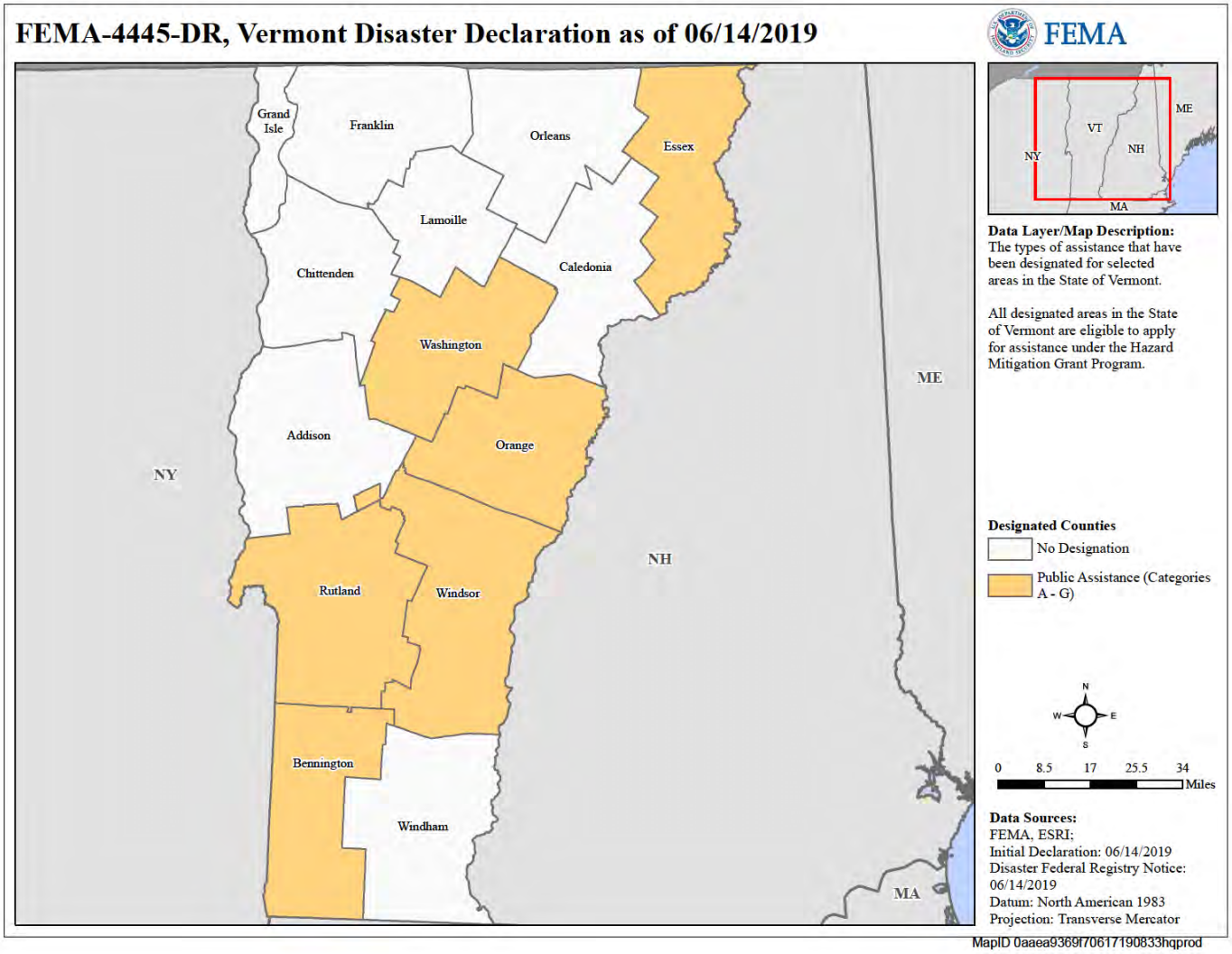


Significant Impacts from high water

- **Significant damage to roads and bridges**
  - Mainly across south central/east-central VT
- **Some structures impacted/affected**
- **FEMA/Federal disaster, mainly for public assistance (DR-4445)**



FEMA DR-4445


FEMA-4445-DR, Vermont Disaster Declaration as of 06/14/2019
FEMA
Grand Isle
Franklin
Orleans
Essex
Lamoille
Chittenden
Caledonia
Washington
Addison
Orange
Rutland
Windsor
Bennington
Windham
NY
NH
ME
MA
VT
Data Layer/Map Description:
The types of assistance that have been designated for selected areas in the State of Vermont.
All designated areas in the State of Vermont are eligible to apply for assistance under the Hazard Mitigation Grant Program.
Designated Counties
No Designation
Public Assistance (Categories A - G)
N
W
E
S
0
8.5
17
25.5
34
Miles
Data Sources:
FEMA, ESRI;
Initial Declaration: 06/14/2019
Disaster Federal Registry Notice: 06/14/2019
Datum: North American 1983
Projection: Transverse Mercator
MapID 0aaea9369f70617190833hqprod

15 April 2019 - Snapshots

White River @ Stockbridge, VT

Weston, VT flooding

Royalton, VT

Killington, VT water rescue (courtesy Rutland Herald)

Winter-Spring Flooding Causes

"It's All About the Rainfall"

- **Precursors –**
  - **Normal -> Above Normal Snowpack**
    - Snow Depth and Water Content
  - **Substantial Ice Thickness**
    - Existing Ice Jam?
  - **Race between breakup vs. melt out**

- **Causative Event**
  - **Significant Warm-up**
    - Promoting snowmelt, increase water flows
    - Ability to lift, move, break-up and ice jams
  - **Heavy Rainfall****

***Most important*

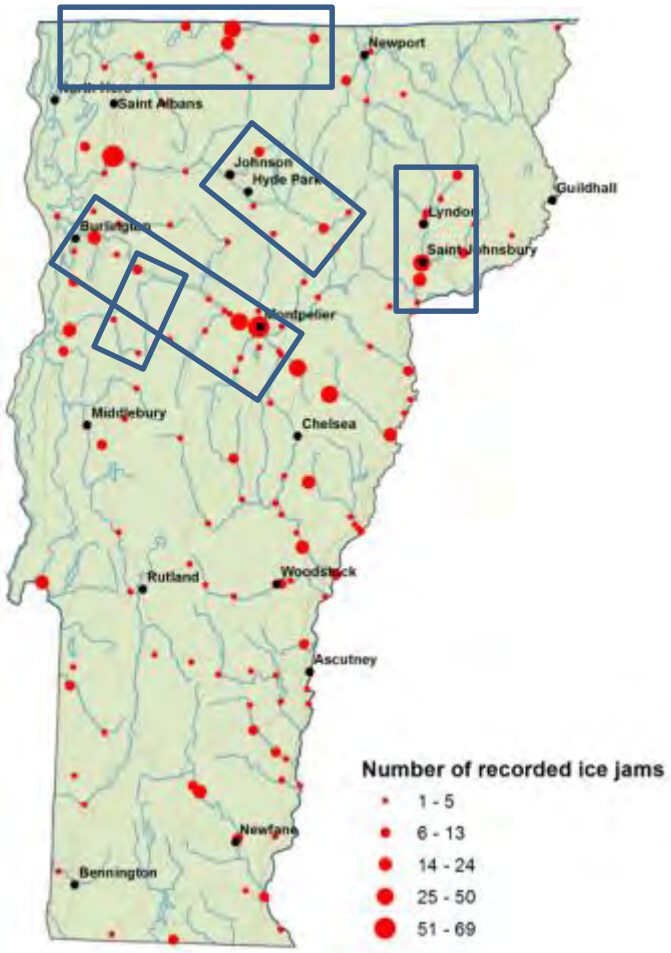
Ice Jams and Ice Out Scenarios

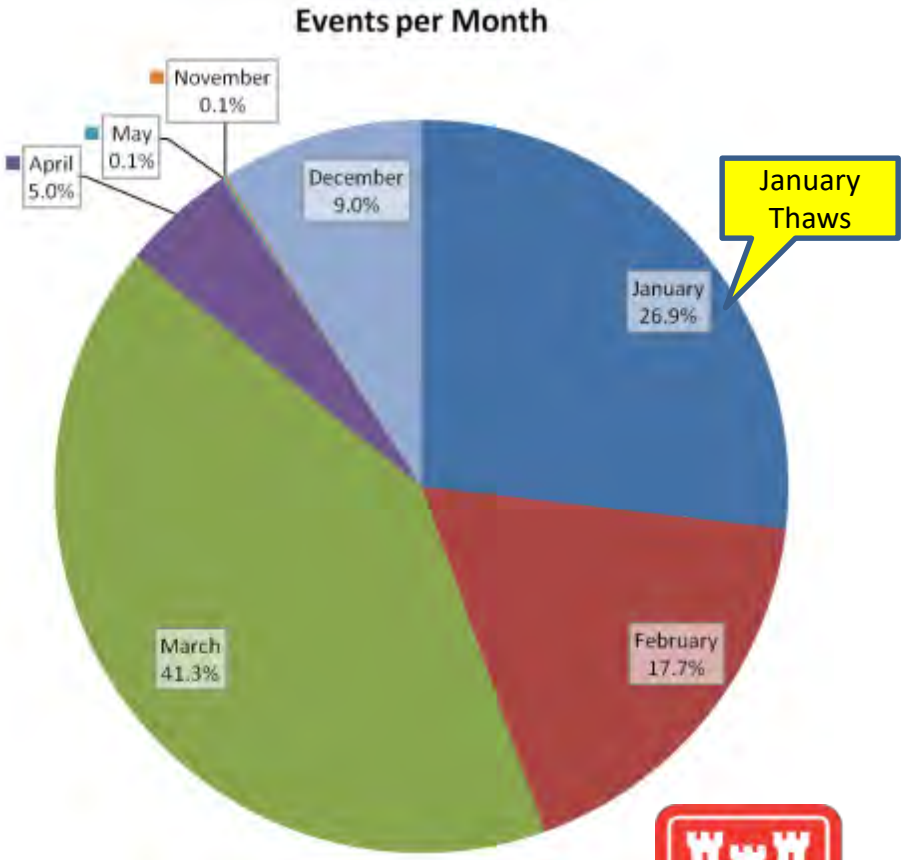
Thermal ("Melt out")

vs.

Mechanical ("Breakup")

Recorded Ice Jams in Vermont





Ice Out Scenarios - Thermal

Annual Race of Thermal vs. Mechanical…usually ends up BOTH!!!

Thermal ("Melt out")

- Mild, sunny days/Cool, sub-freezing nights (Lasting few days)
- Long duration, gradual warmth with no significant rainfall
- Ice cover thins, weakens and melts in place, or forms minor jams. Sunshine is the biggest role player.
- Open channels
- Mitigation efforts by communities
  - Leaf debris, public wastewater

Ice Out Scenarios - Mechanical

Annual Race of Thermal vs. Mechanical…usually ends up BOTH!!!

Mechanical ("Breakup")

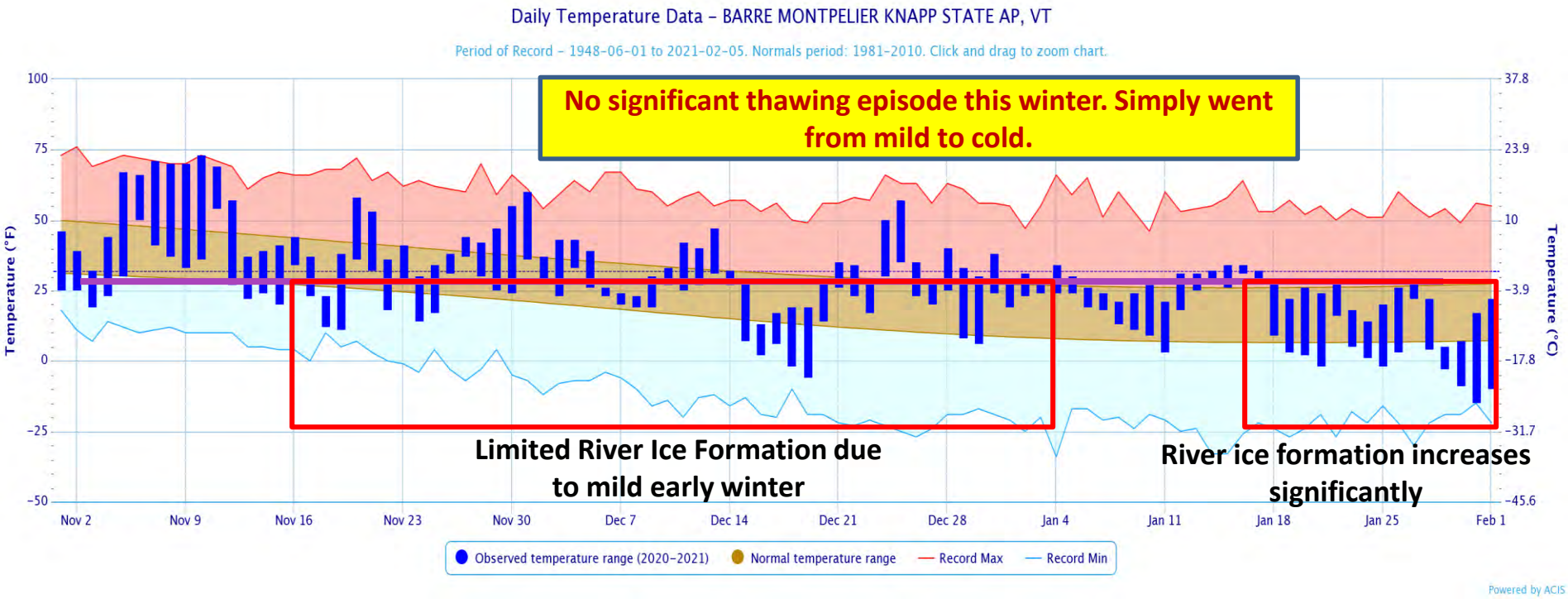
- **Significant ice thickness**
  - Extended period of freezing temperatures
  - Limited thawing
- **Sudden increase in river flow**
  - Rainfall and/or snowmelt
  - Ice break up or water running over ice
  - Snowmelt along usually doesn't do it
  - Need river rise ≥ 3X ice thickness
- **Jam Site – ice stops moving and blocks channel due to:**
  - Change of channel slope
  - Intact ice cover – site of freeze-up jam
  - Impediment – bridge piers

Now to the Current…

- **Winter recap thus far**
- **Winter/Spring Flood Outlook**

Meteorological Winter So Far…

Montpelier, VT



River Ice coverage

- Current ice jam threat minimal.
- River ice coverage and thickness continues to increase due to recent cold weather.
- Some open channels on the Winooski River and southern watersheds.
- Overall ice coverage nearing normal but thickness remains somewhat below average for early February (6-9”).
- Long term ice jam flood threat is now normal.

Current Conditions – Snow Data

Snow Depths

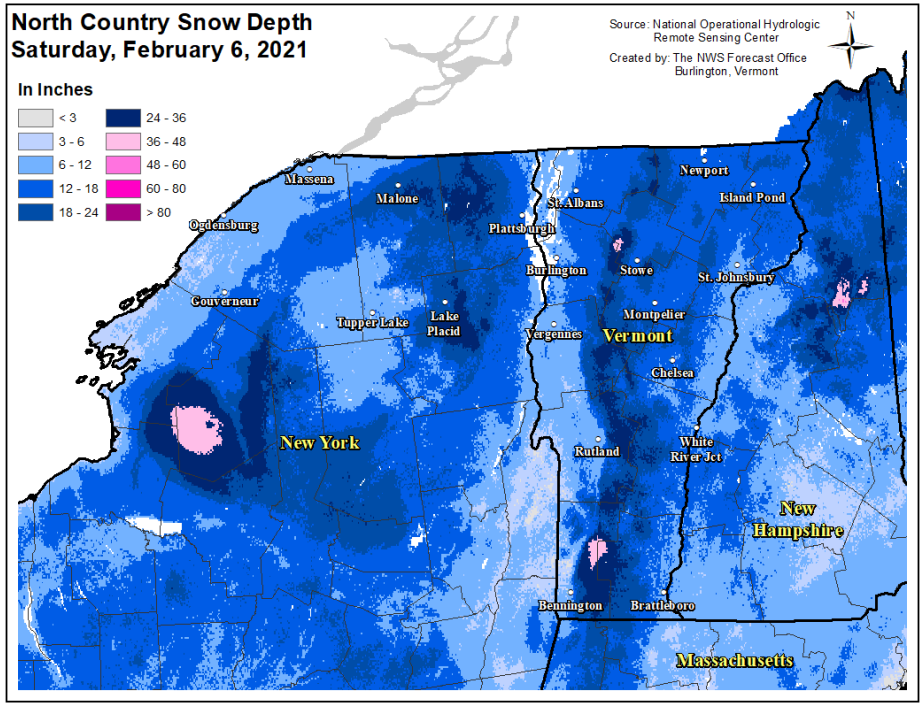
Champlain, Lower CT and St. Lawrence Valleys: **8 - 18”**

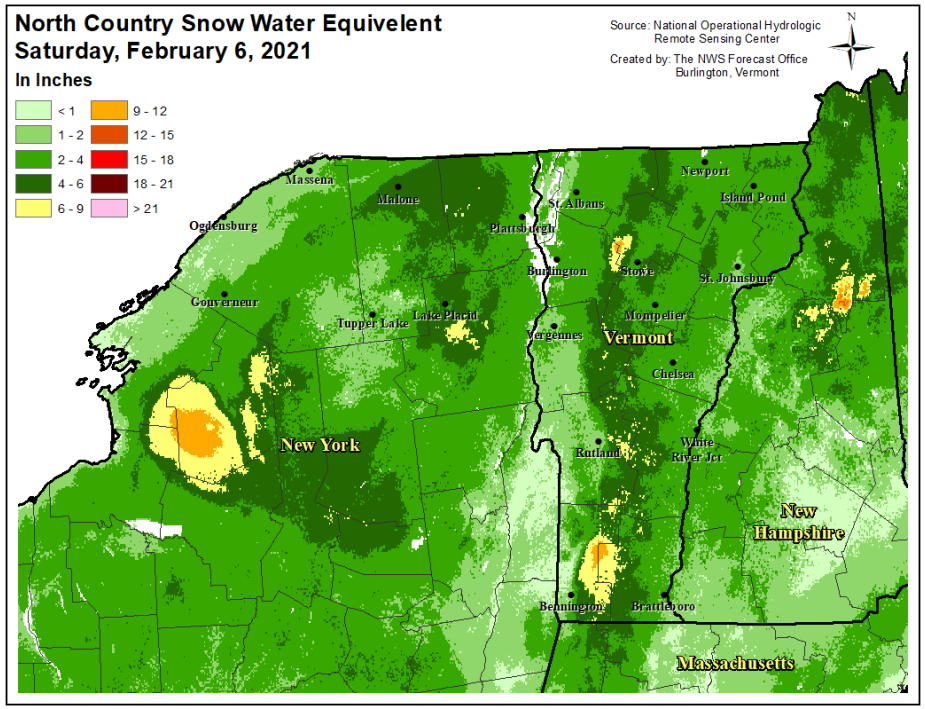
Northeast VT and mid-terrain (1500-2500’): **15 - 25”**

Higher terrain and summits (> 2500’) : **20 – 30”+**

Near normal broad valleys

Below normal mid and high terrain





Water Equivalents (Water Content)

Areas below 1500’ including Champlain, Lower CT and St. Lawrence Valleys : **1.5 – 3.5”**

Mid-terrain (1500-2500’): **2.5 – 4.5”**

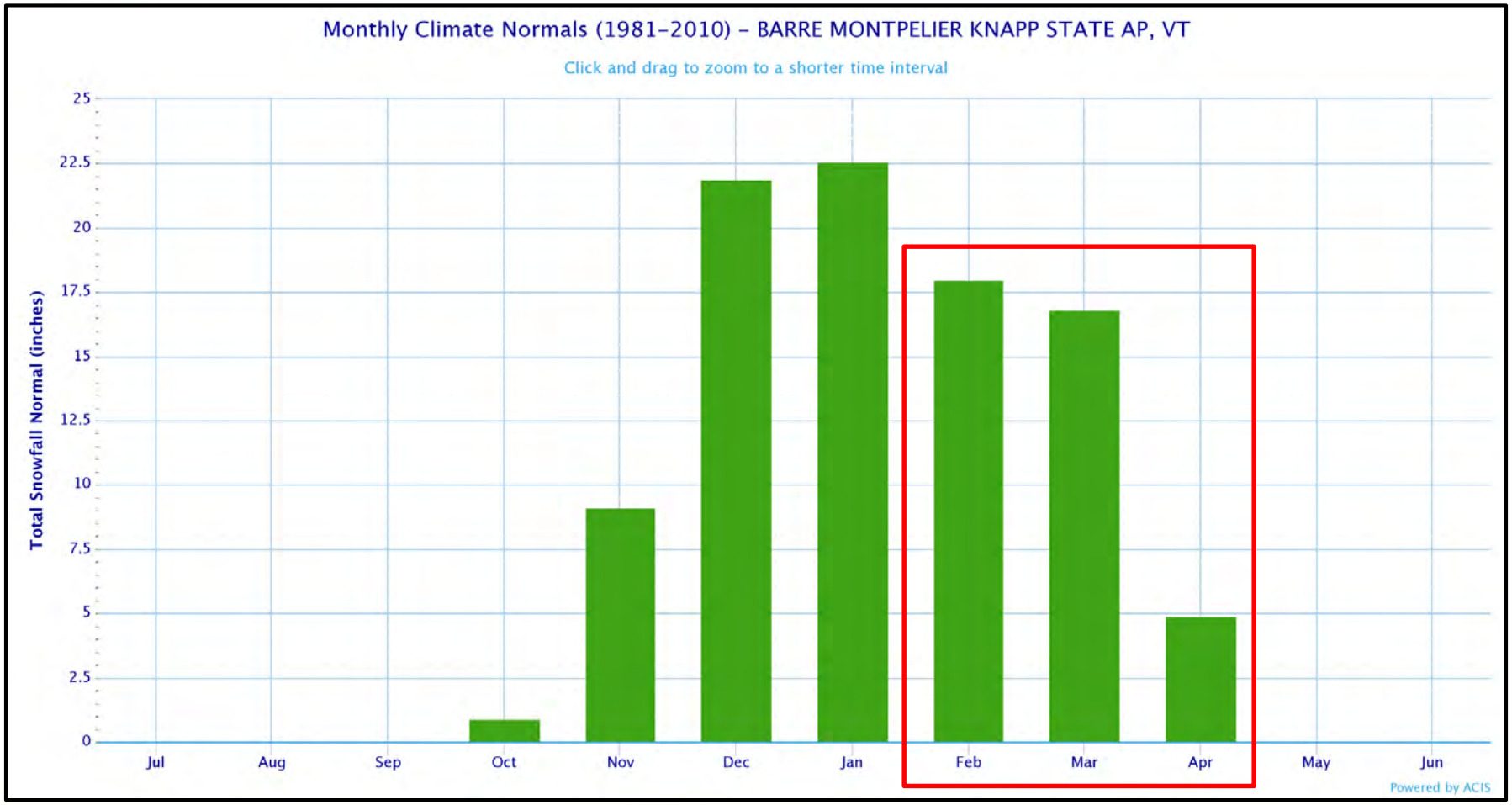
Higher Summits: **5-6”**

Near Normal valleys

Below Normal mid and high terrain

It's Still Winter…

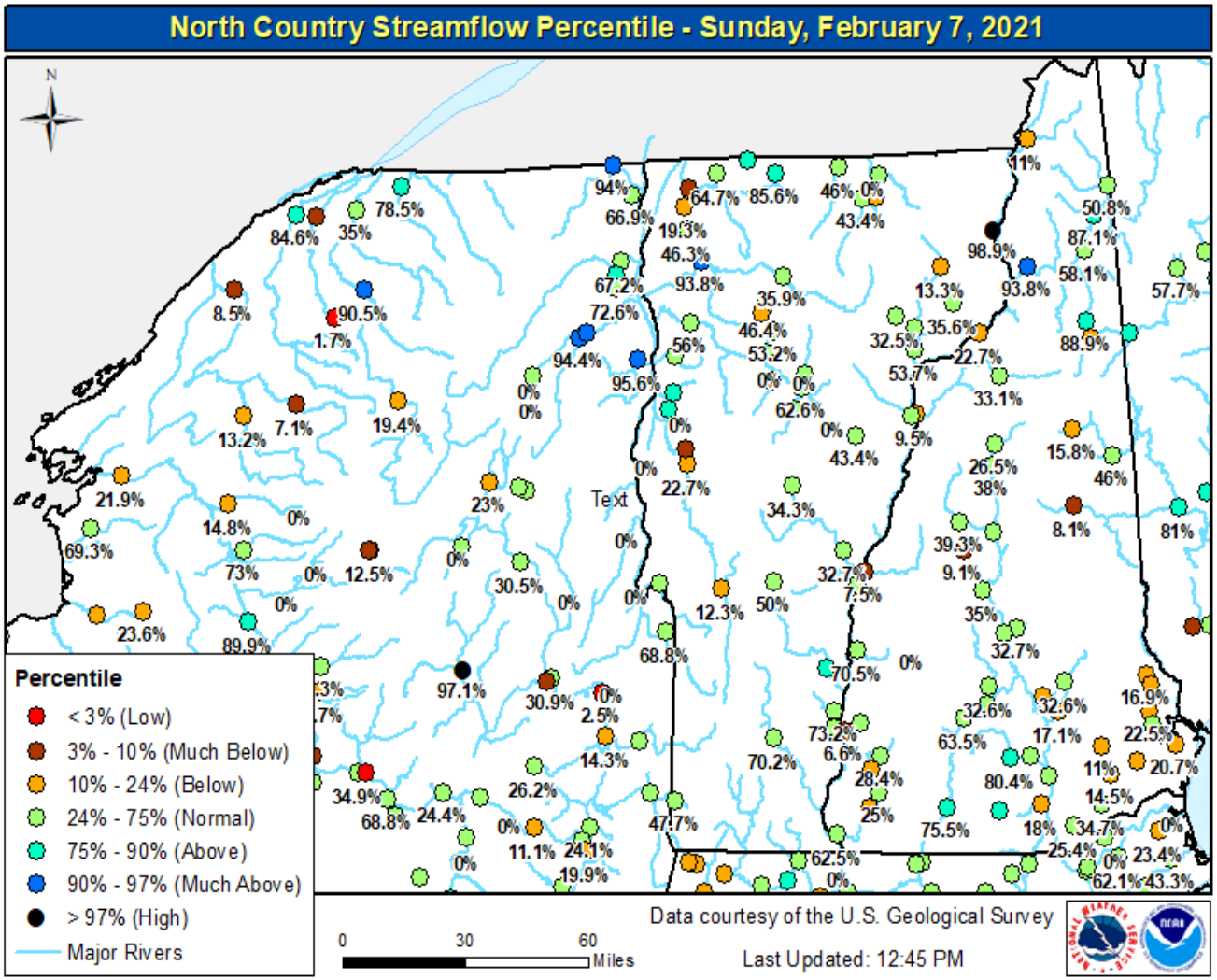
>35% of Snowfall occurs after February 2nd



Current conditions: Stream flows

Near normal with below normal ice coverage

- Streamflows a mix of normal to below normal levels.
- Some lingering effects of drought.
- Melting of extant snowpack will help to recharge ground moisture in spring.

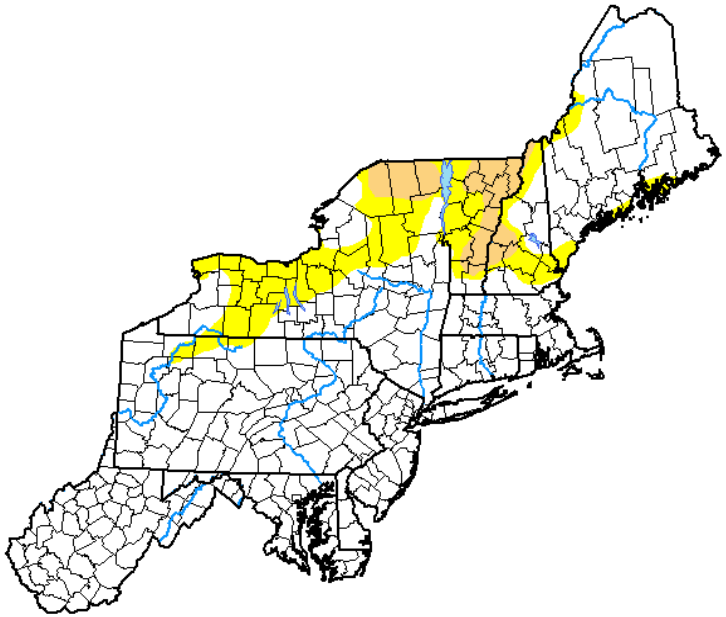


National Drought Monitor Map

- Abnormally dry to moderate drought conditions persist across most of the state.
- Improvement in future months heavily dependent on spring rains.
- Capacity of soil to absorb moisture may aid in lessening overall flood threat.

U.S. Drought Monitor

Northeast



February 2, 2021

(Released Thursday, Feb. 4, 2021)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	81.52	18.48	4.60	0.00	0.00	0.00
Last Week *01-26-2021*	79.65	20.35	4.60	0.00	0.00	0.00
3 Months Ago *11-03-2020*	38.83	61.17	37.14	6.25	0.59	0.00
Start of Calendar Year *12-29-2020*	77.61	22.39	3.63	0.00	0.00	0.00
Start of Water Year *09-29-2020*	29.83	70.17	45.34	26.30	3.91	0.00
One Year Ago *02-04-2020*	98.49	1.51	0.00	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

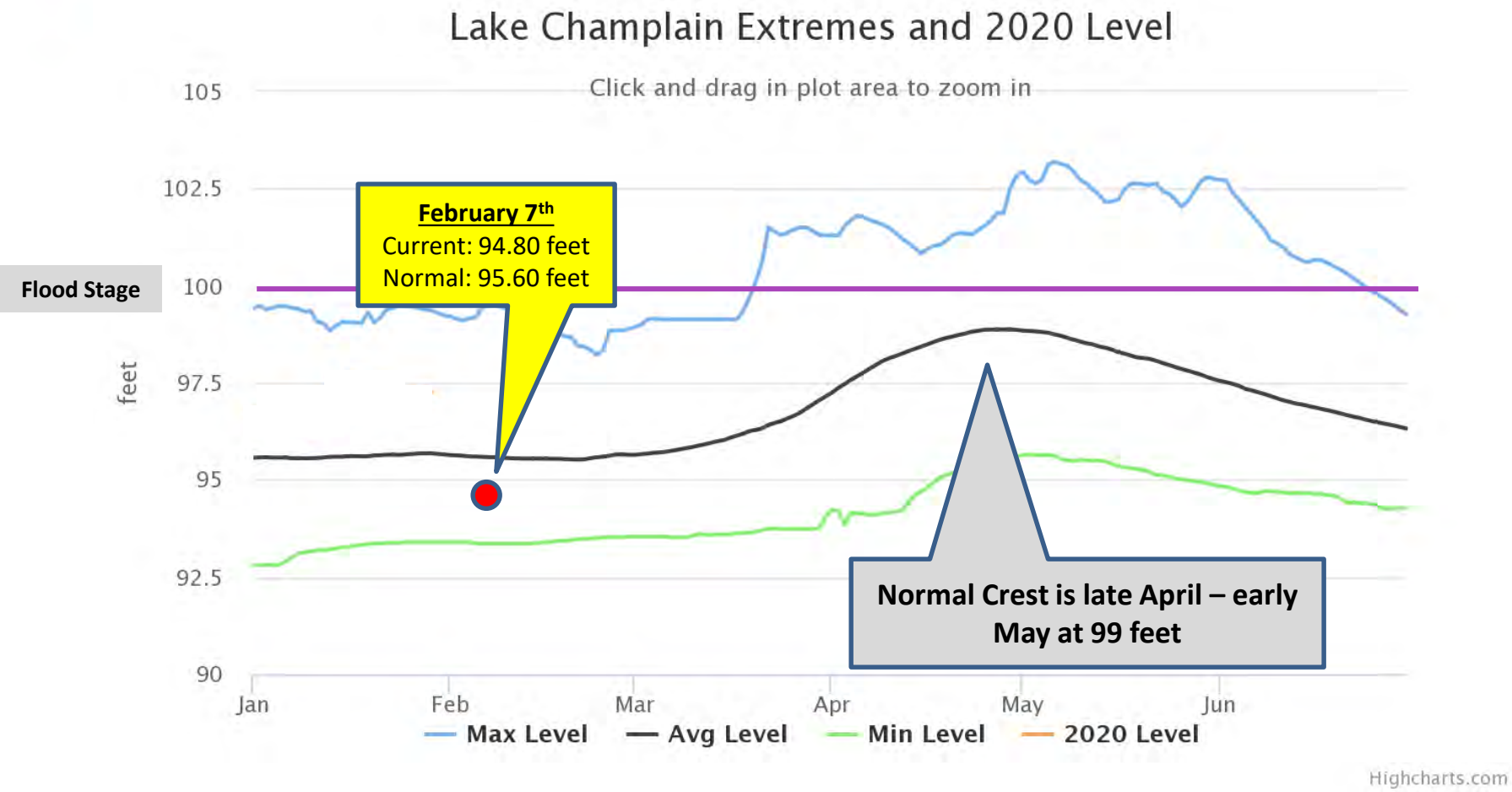
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:
Brad Rippey
U.S. Department of Agriculture

droughtmonitor.unl.edu

Lake Champlain

No Immediate Concerns – ALL About Future Precipitation through May

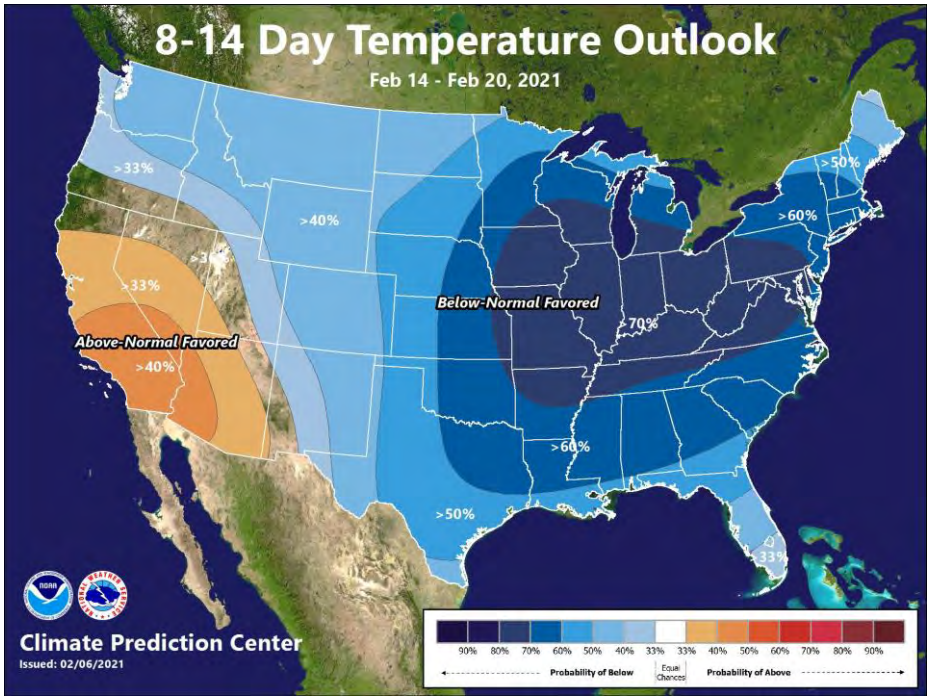


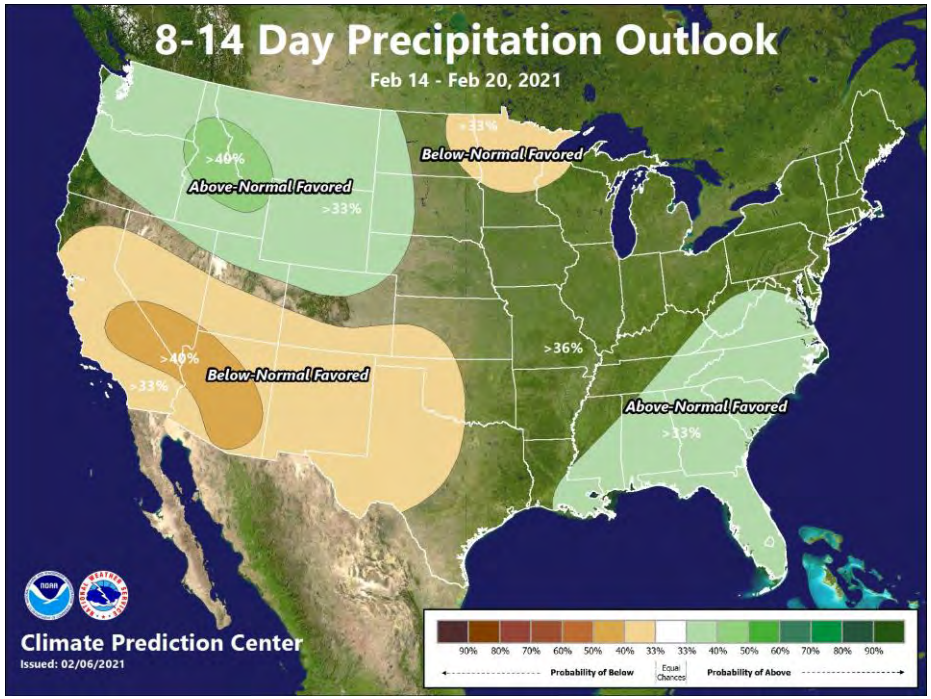
8-14 Day Outlooks

Normals - Highs: 20s to Lower 30s **Lows:** 8-15°

TEMPERATURES: Below Normal

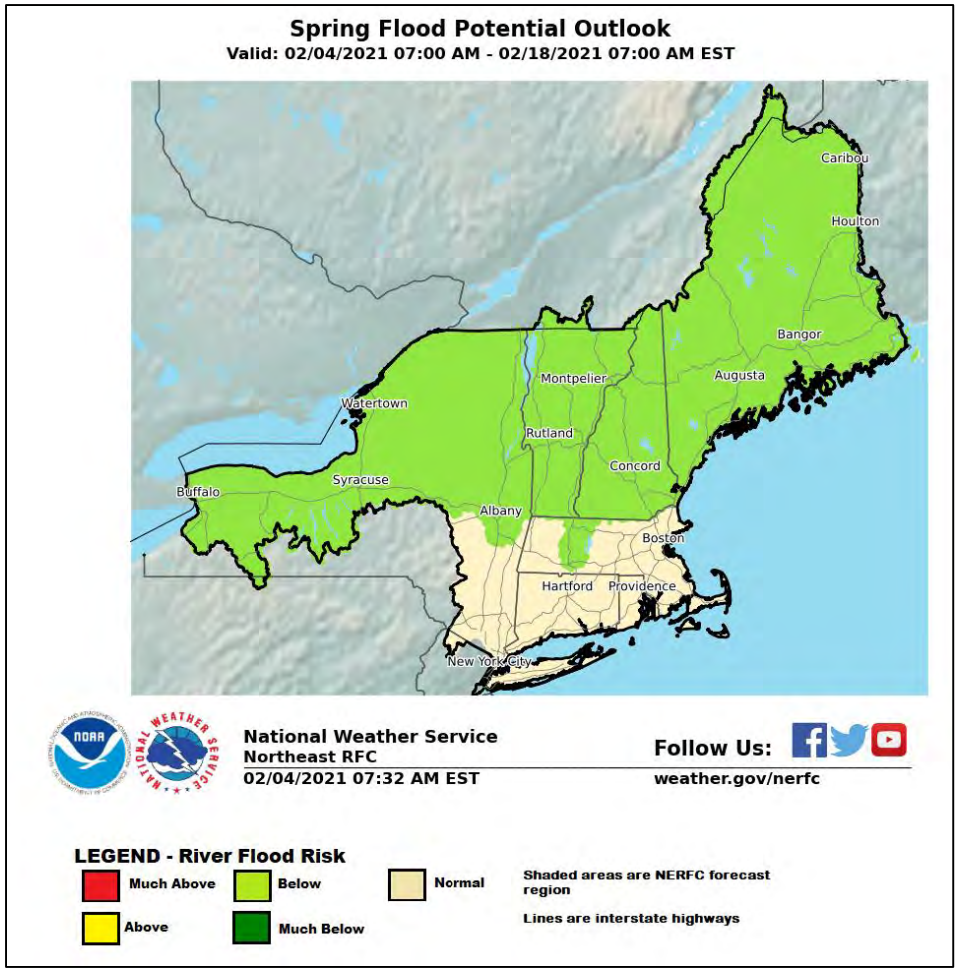
PRECIPITATION: Near to Below Normal





Spring Flood Outlook SUMMARY

Issued every 2 weeks on Thursday – NEXT is February 18th



- **BELOW NORMAL over the next 2 weeks due to normal to below normal snowpack and expectation of cold temperatures limiting melt potential.**
- **Long term flood threat (late Feb/Mar) NEAR NORMAL.**
- **Current Conditions**
  - Near to below Normal Snow packs
  - Below Normal River Ice thickness
- **Greatest Threat to Flooding**
  - Above Normal Rainfall +
  - Sudden Warm-up / Melting
- **Monitor Future Forecasts and River Ice conditions**

http://www.weather.gov/nerfc/springfloodpotential (Graphic)
http://w1.weather.gov/data/BTV/ESFBTV (Text)

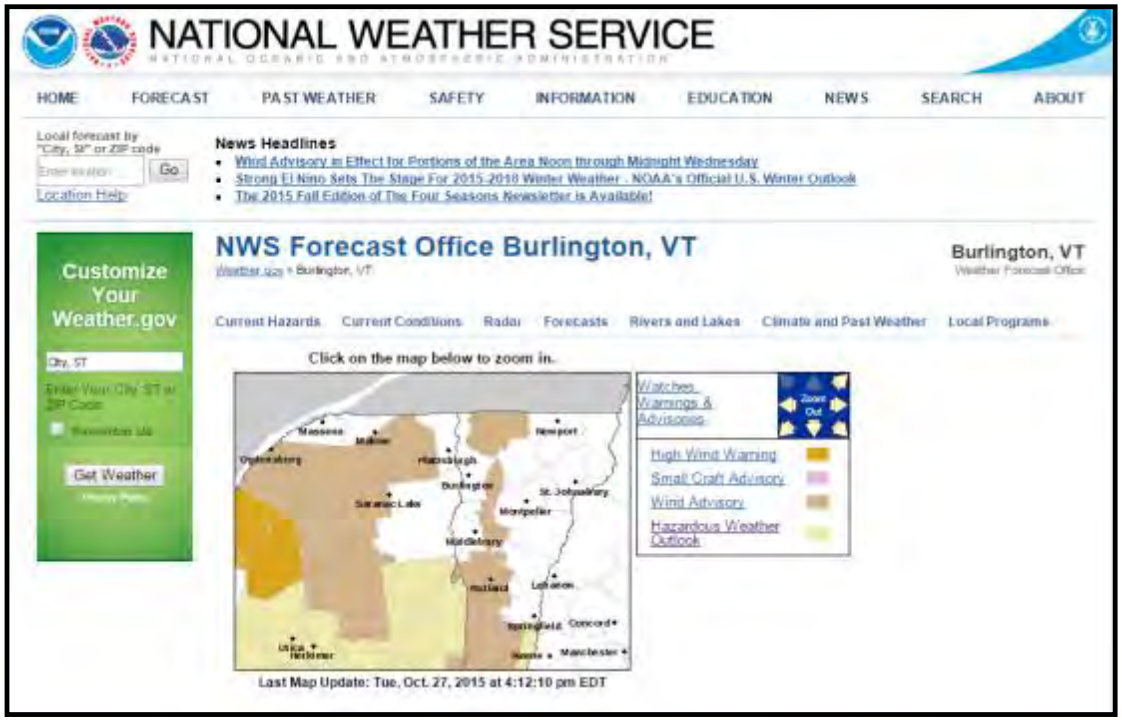
Questions???

Please feel free to contact us 24/7 via:

1. Telephone: 802-863-4279

2. NWSChat for eligible & registered users at https://nwschat.weather.gov/live/

3. Email: nwsbtv.info@noaa.gov **New e-mail address**



Vermont Emergency Management

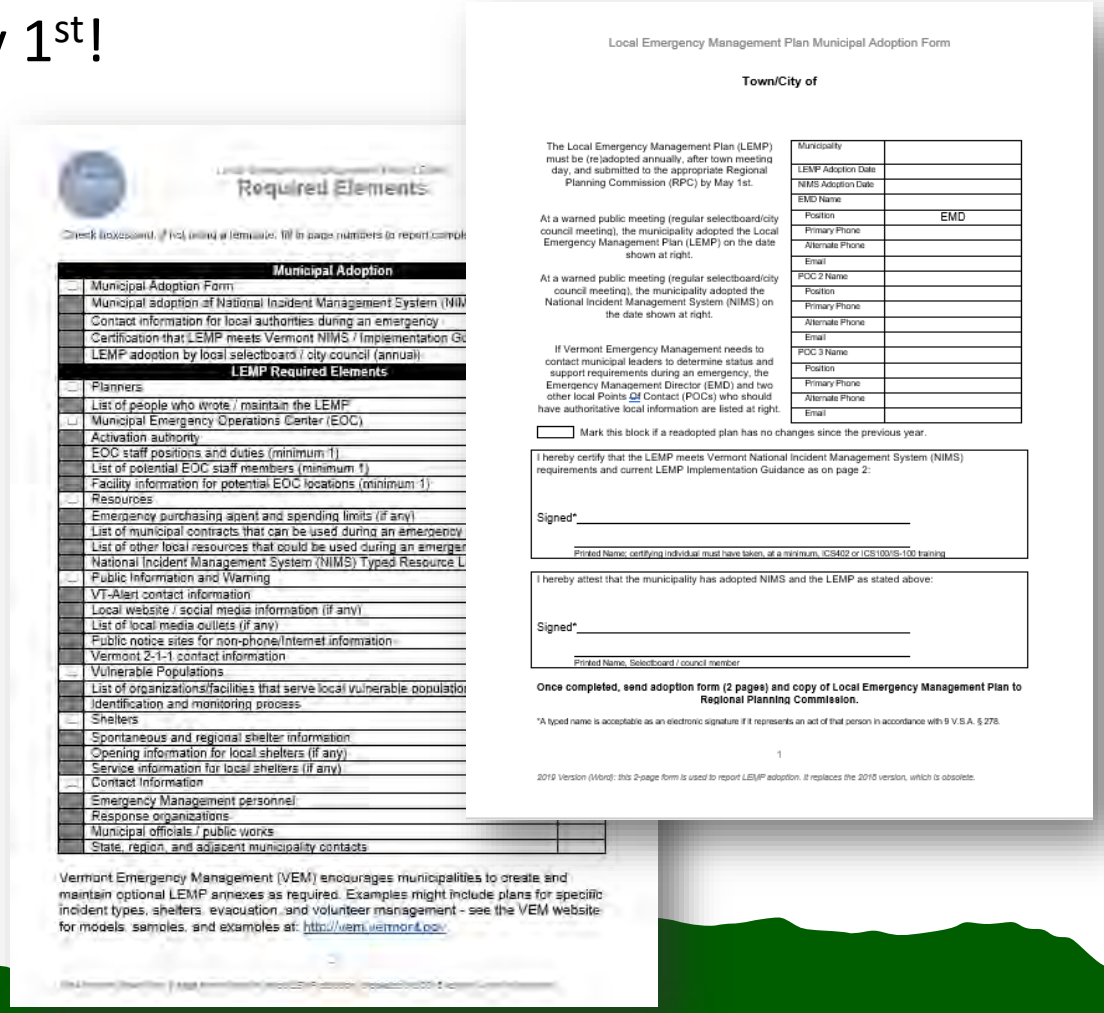
COVID-19

- Focus: Spring Floods/Ice Jams
- Up-to-date guidance: https://vem.vermont.gov/coronavirus
- *Schools (as buildings) could still be used as emergency shelters as designated in your Local Emergency Management Plans. In a situation where a shelter needs to be opened, the town should make sure its emergency location adheres to social distancing guidelines.*
- *Prior to the commencement of each work shift, pre-screening, including temperature checks and a health survey, shall be required to verify each employee has no symptoms of respiratory illness (fever, cough, and/or shortness of breath). For more information, refer to the Agency of Commerce and Community Development guidance.*

Local Emergency Management Plan

Due May 1st!

- Your plan should address:
  - Local agency and private sector stakeholders
  - Public Information/Warning
  - Local Emergency Operations Center (EOC)
    - Organization
    - Resourcing
  - Vulnerable Populations
  - Significant Threats and Hazards
  - High Risk Areas
  - Shelter Locations
  - Evacuation Process
  - Required: Municipal Adoption Form & LEMP



Required Elements

	Municipal Adoption
	Municipal Adoption Form
	Municipal adoption of National Incident Management System (NIM
	Contact information for local authorities during an emergency
	Certification that LEMP meets Vermont NIMS / Implementation Gu
	LEMP adoption by local selectboard / city council (annual)
	LEMP Required Elements
	Planners
	List of people who wrote / maintain the LEMP
	Municipal Emergency Operations Center (EOC)
	Activation authority
	EOC staff positions and duties (minimum 1)
	List of potential EOC staff members (minimum 1)
	Facility information for potential EOC locations (minimum 1)
	Resources
	Emergency purchasing agent and spending limits (if any)
	List of municipal contracts that can be used during an emergency
	List of other local resources that could be used during an emerger
	National Incident Management System (NIMS) Typed Resource L
	Public Information and Warning
	VT-Alert contact information
	Local website / social media information (if any)
	List of local media outlets (if any)
	Public notice sites for non-phone/Internet information
	Vermont 2-1-1 contact information
	Vulnerable Populations
	List of organizations/facilities that serve local vulnerable populatio
	Identification and monitoring process
	Shelters
	Spontaneous and regional shelter information
	Opening information for local shelters (if any)
	Service information for local shelters (if any)
	Contact Information
	Emergency Management personnel
	Response organizations
	Municipal officials / public works
	State, region, and adjacent municipality contacts

Vermont Emergency Management (VEM) encourages municipalities to create and maintain optional LEMP annexes as required. Examples might include plans for specific incident types, shelters, evacuation, and volunteer management - see the VEM website for models, samples, and examples at: http://vem.vermont.gov

Local Emergency Management Plan Municipal Adoption Form

Town/City of

The Local Emergency Management Plan (LEMP) must be (re)adopted annually, after town meeting day, and submitted to the appropriate Regional Planning Commission (RPC) by May 1st.

At a warned public meeting (regular selectboard/city council meeting), the municipality adopted the Local Emergency Management Plan (LEMP) on the date shown at right.

At a warned public meeting (regular selectboard/city council meeting), the municipality adopted the National Incident Management System (NIMS) on the date shown at right.

If Vermont Emergency Management needs to contact municipal leaders to determine status and support requirements during an emergency, the Emergency Management Director (EMD) and two other local Points Of Contact (POCs) who should have authoritative local information are listed at right.

Municipality	
LEMP Adoption Date	
NIMS Adoption Date	
EMD Name	
Position	EMD
Primary Phone	
Alternate Phone	
Email	
POC 2 Name	
Position	
Primary Phone	
Alternate Phone	
Email	
POC 3 Name	
Position	
Primary Phone	
Alternate Phone	
Email	

☐ Mark this block if a readopted plan has no changes since the previous year.

I hereby certify that the LEMP meets Vermont National Incident Management System (NIMS) requirements and current LEMP Implementation Guidance as on page 2:

Signed*_____

Printed Name; certifying individual must have taken, at a minimum, ICS402 or ICS100/IS-100 training

I hereby attest that the municipality has adopted NIMS and the LEMP as stated above:

Signed*_____

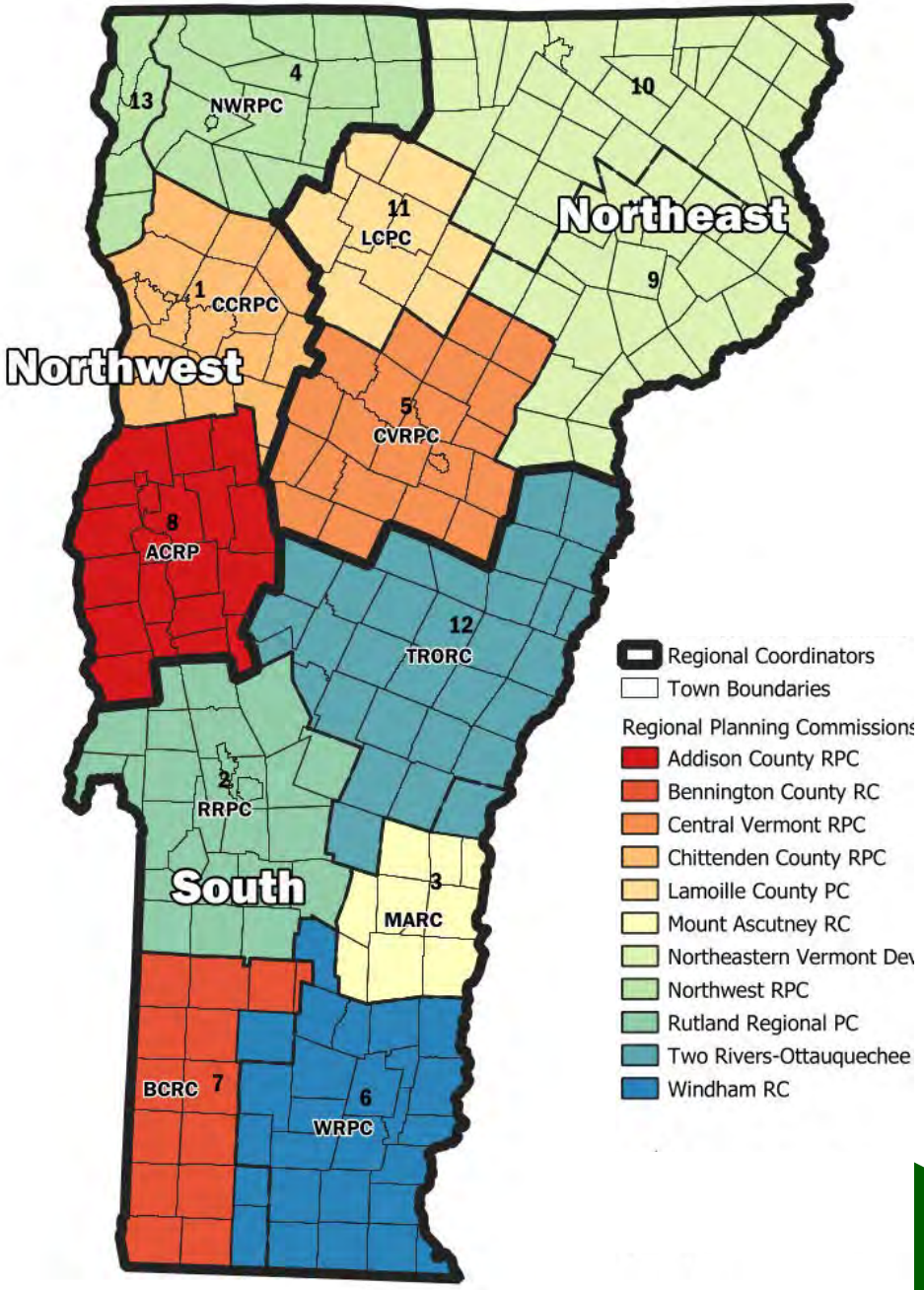
Printed Name, Selectboard / council member

Once completed, send adoption form (2 pages) and copy of Local Emergency Management Plan to Regional Planning Commission.

*A typed name is acceptable as an electronic signature if it represents an act of that person in accordance with 9 V.S.A. § 278.

1

2019 Version (Word): this 2-page form is used to report LEMP adoption. It replaces the 2018 version, which is obsolete.



Regional Coordinators

Northwest: Max Kennedy

- Contact: Emily Harris

Northeast: Harry Schoppmann

Southern: Rich Cogliano

VEM Watch Officer Program

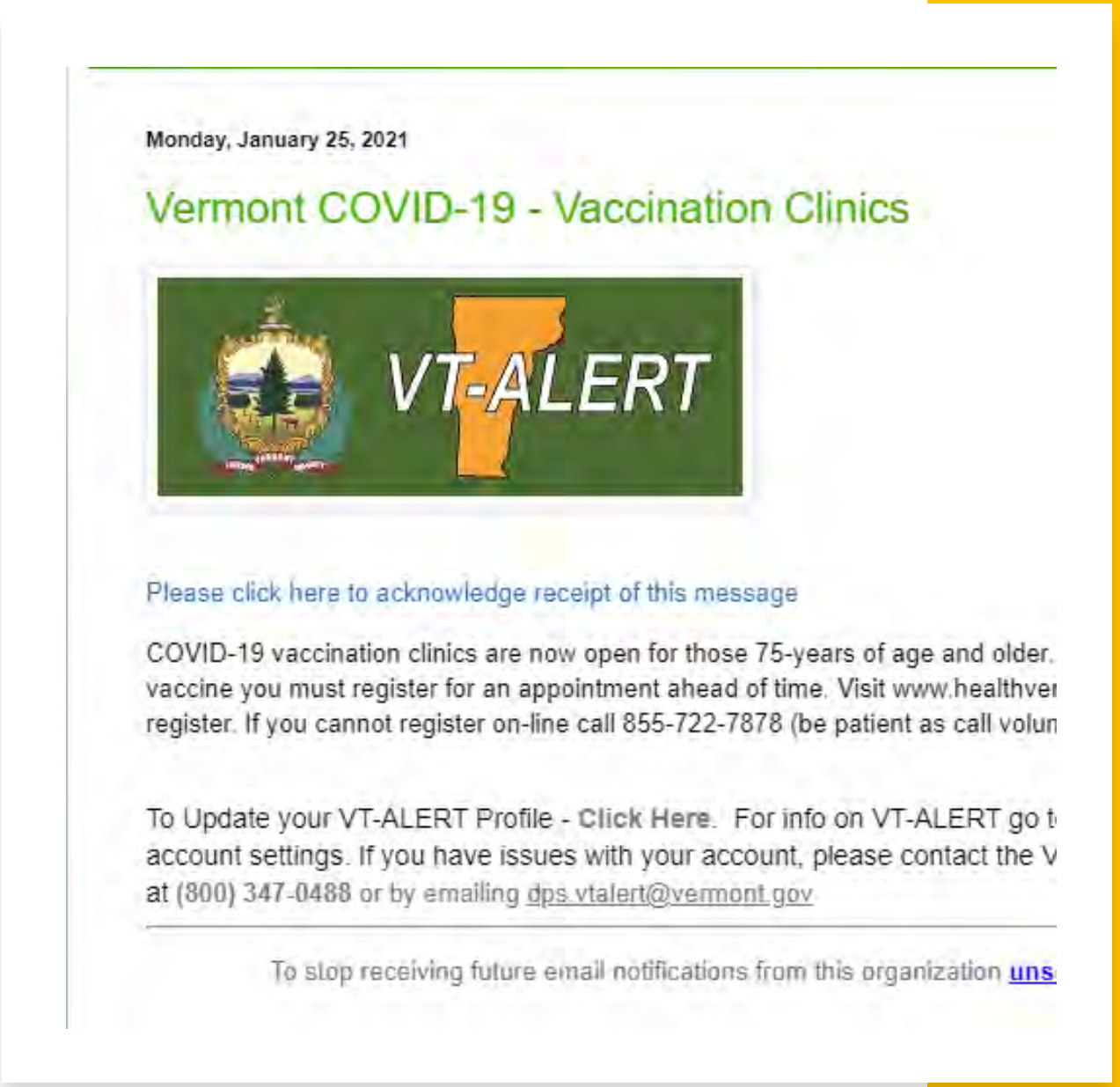
Watch Officer on duty 24/7
1-800-347-0488
Resource Coordinator for:

- **State Teams**
  - Swiftwater / Flood Response
  - HAZMAT
- **Sandbag Caches**
- **Assists with Messaging the Public**
  - VT ALERT
  - Social Media
  - Press Releases

VT ALERT – Guidelines and Usage

VT ALERT is a statewide, all hazards, alerting system
Currently used by 61 municipalities, 29,814 registered users,156,266 residential E911 lines and 267,659 business E911 lines.

- **What will VT ALERT provide subscribers?**
  - Location specific alerts based on subscriber chosen areas
  - Specific types of alerts chosen by the subscriber
  - Timely updates of important emergency situations
  - Alerts communicated on devices the subscriber has specified
  - Accurate and authorized alerts pertinent to Vermonters
  - The ability to prioritize notifications by specifying the order of communication type and method
- www.vtalert.gov



Monday, January 25, 2021

Vermont COVID-19 - Vaccination Clinics

VT-ALERT

Please click here to acknowledge receipt of this message

COVID-19 vaccination clinics are now open for those 75-years of age and older.
vaccine you must register for an appointment ahead of time. Visit www.healthver
register. If you cannot register on-line call 855-722-7878 (be patient as call volun

To Update your VT-ALERT Profile - **Click Here**. For info on VT-ALERT go t
account settings. If you have issues with your account, please contact the V
at (800) 347-0488 or by emailing dps.vtalert@vermont.gov

To stop receiving future email notifications from this organization uns

Reporting Damage and Current Status

- Local Liaisons contact municipalities.
  - RPCs coordinate with VTrans District Technicians
  - RPCs submit damage information to VEM/SEOC
- Residents encouraged to contact VT211 with residential damage information.
- State estimates if there is enough damage to request an emergency or major disaster declaration.

Federal Emergency Management Agency
Public Assistance Grant Program

VERMONT
Emergency Management

Public Assistance Program and Policy Guide

FP 104-009-2 / January 1, 2017

FEMA

PA Eligibility Thresholds (FFY'21)

Statewide

- $1.55 per capita…
- = $1 million

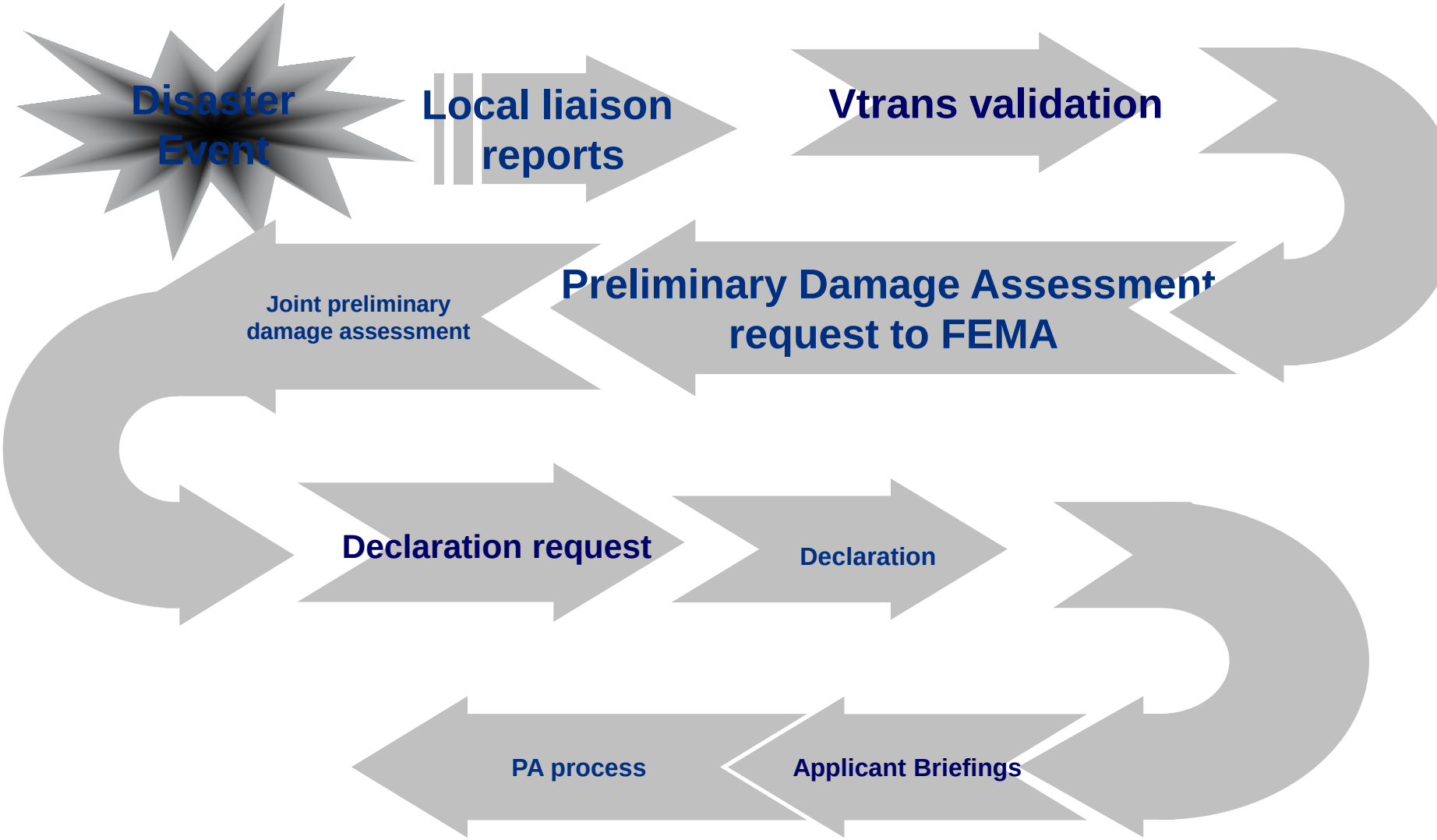
AND…

By County

- $3.89/capita x 2010 county census

Addison	143,234
Bennington	144,416
Caledonia	121,473
Chittenden	608,960
Essex	24,530
Franklin	185,732
Grand Isle	27,113
Lamoille	95,208
Orange	112,561
Orleans	105,929
Rutland	239,787
Washington	231,587
Windham	173,156
Windsor	220,446

The initial process when a disaster strikes



SAMPLE -- Disaster Fact Sheet

Disaster number: DR4330-VT

Declaration date: Declared on August 16, 2017

Type of disaster: ”Severe Storms and Flooding
Public Assistance and Hazard Mitigation Assistance”

Incident period: June 29- July 1, 2017

Designated counties: Addison, Bennington, Caledonia, Orange, Rutland Washington, Windsor

VERMONT
Emergency Management

Federal Emergency Management Agency

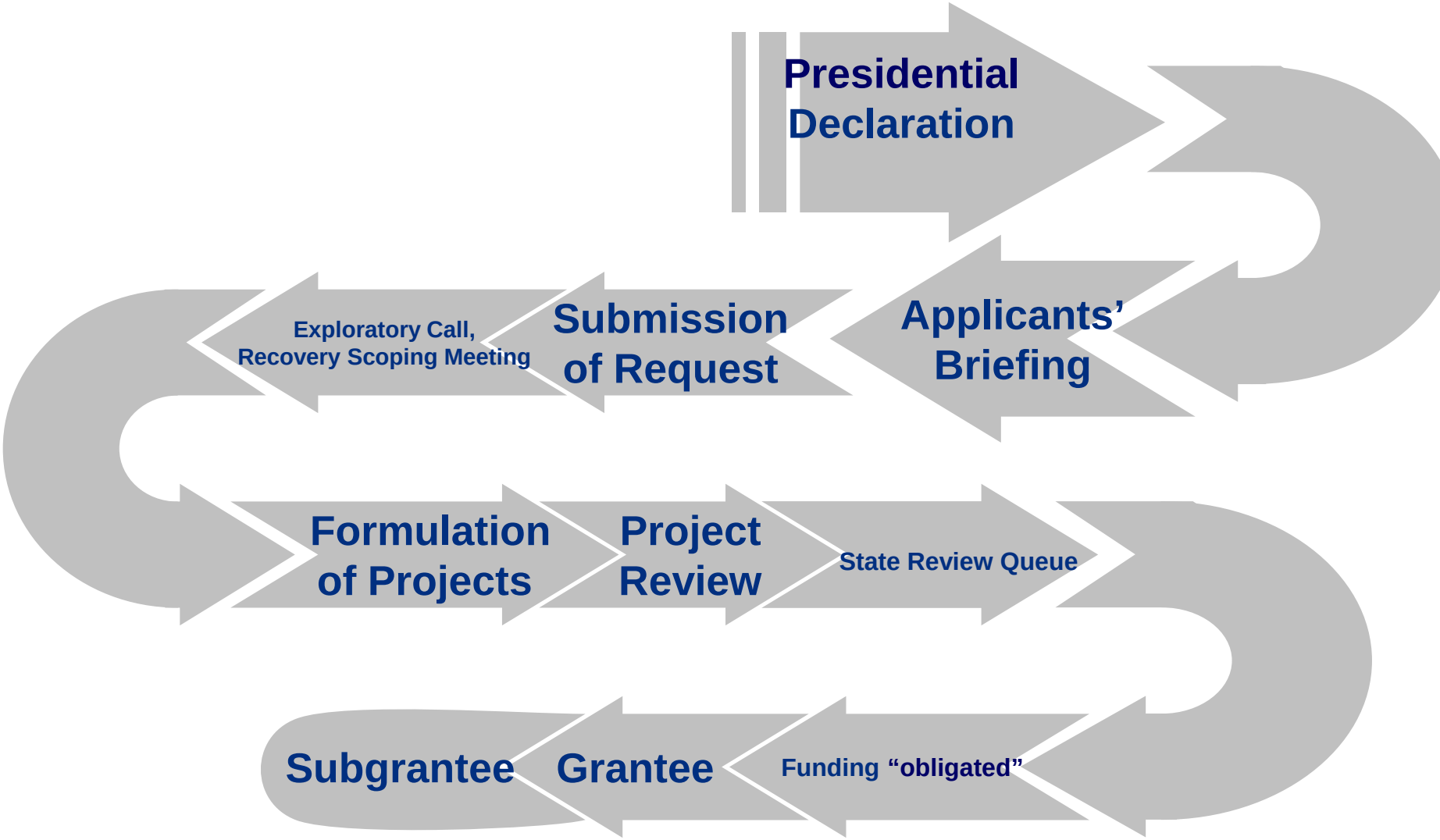
FEMA's Public Assistance Grant Program and Grants Portal

EM-3437 / DR-4532

Applicant Briefing #3 – 05-04-20

FEMA

The Public Assistance Process



Four considerations for eligibility

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

REQUEST FOR PUBLIC ASSISTANCE

O.M.B. NO. 1660-0017
Expires April 30, 2013

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 10 minutes. Burden means the time, effort and financial resources expended by persons to generate, maintain, disclose, or to provide information to us. You may send comments regarding the burden estimate or any aspect of the collection, including suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (OMB Control Number 1660-0017). You are not required to respond to this collection of information unless it displays a valid OMB number. **NOTE: Do not send your completed questionnaire to this address.**

APPLICANT (Political subdivision or eligible applicant)	DATE SUBMITTED
COUNTY (Location of Damages. If located in multiple counties, please indicate)	DUNS NUMBER

APPLICANT PHYSICAL LOCATION

STREET ADDRESS			
CITY	COUNTY	STATE	ZIP CODE

MAILING ADDRESS (If different from Physical Location)

STREET ADDRESS			
POST OFFICE BOX	CITY	STATE	ZIP CODE

Primary Contact/Applicant's Authorized Agent	Alternate Contact
NAME	NAME
TITLE	TITLE
BUSINESS PHONE	BUSINESS PHONE
FAX NUMBER	FAX NUMBER
HOME PHONE (Optional)	HOME PHONE (Optional)
CELL PHONE	CELL PHONE
E-MAIL ADDRESS	E-MAIL ADDRESS
PAGER & PIN NUMBER	PAGER & PIN NUMBER

Did you participate in the Federal/State Preliminary Damage Assessment (PDA)? ☐ YES ☐ NO

Private Non-Profit Organization? ☐ YES ☐ NO

If yes, which of the facilities identified below best describe your organization? _____

Title 44 CFR, part 206.221(e) defines an eligible private non-profit facility as: "... any private non-profit educational, utility, emergency, medical or custodial care facility, including a facility for the aged or disabled, and other facility providing essential governmental type services to the general public, and such facilities on Indian reservations." "Other essential governmental service facility means museums, zoos, community centers, libraries, homeless shelters, senior citizen centers, rehabilitation facilities, shelter workshops and facilities which provide health and safety safety services of a governmental nature. All such facilities must be open to the general public."

Private Non-Profit Organizations must attach copies of their Tax Exemption Certificate and Organization Charter or By-Laws. If your organization is a school or educational facility, please attach information on accreditation or certification.

OFFICIAL USE ONLY: FEMA - _____ -DR- _____ - _____ FIPS# _____ DATE RECEIVED _____

Two Types of Eligible Work

Emergency Work

- Category A – debris removal
- Category B – emergency protective measures

Permanent Work…

VERMONT
Emergency Management

Permanent Work- categories C-G

C- Roads and Bridges

D- Water control facilities

E- Buildings and Equipment

F- Utilities

G- Parks, Recreation and Public Cemeteries

VERMONT
Emergency Management

Project Completion Deadlines

Time limits for project completion begin on the disaster declaration date.

- Emergency work – 6 months
- Permanent work – 18 months

The State has authority to extend the period of performance for an additional 6 months for emergency work and up to an additional 30 months for permanent work on a case-by-case basis. Beyond that, only FEMA Region 1 can authorize additional extensions.

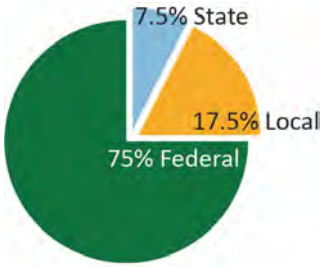
Applicants must submit a Time Extension request to the State before the Period of Performance runs out.

VERMONT
Emergency Management

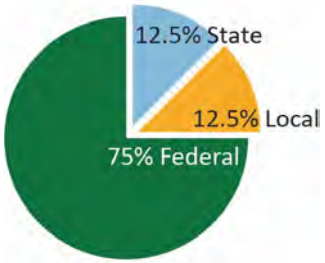
Emergency Relief & Assistance Fund (ERAF) Criteria

Public Assistance Funding Post-Disaster:

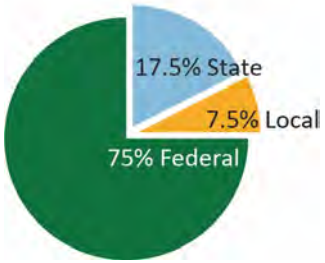
- No Action/Not Meeting All Criteria



- National Flood Insurance Program
- Road and Bridge Standards
- Local Emergency Management Plan
- Local Hazard Mitigation Plan



- River Corridor Protection [or]
- Community Rating System



http://floodready.vermont.gov/

Undersized structure destroyed by Irene and replaced to meet standards

Wilmington, VT -- Hayes Road Bridge
Town Highway #17 Bridge 46

The original version of the PW for the Haynes Road bridge was for $190,000 for repairs. The total actual cost captured in the close-out version was $517,867.

Flexiblity to rebuild better/stronger/more resilient…

Improved Projects

- Increasing size, capacity, or adding additional functions
- Applicants must fill out a request or an Improved project and submit with a letter from the Town to the State for FEMA's approval.
- Improvements are at applicant's expense
- Must be approved PRIOR to construction

Alternate Projects

- Doing something different instead of replacing!
- Applicants must fill out a request with all necessary documentation for the new project, and submit with a letter from the Town for FEMA's approval.
- Must be approved PRIOR to construction

VERMONT
Emergency Management

Questions?

Ben Rose
Recovery and Mitigation Section Chief
Ben.Rose@vermont.gov

(802) 585-4719

VERMONT
Emergency Management

Hazard Mitigation

...huh?

Hazard Mitigation is:

Any sustained action taken to reduce or eliminate long-term risk to people and property due to natural or man-made disasters.

…so basically, **removing the vulnerability**.

Mitigation Planning

VERMONT STRONGER

Vermont's 2018 State Hazard Mitigation Plan

A SAFE AND RESILIENT VERMONT

in the face of climate change and natural disasters.

Local Hazard Mitigation Plans

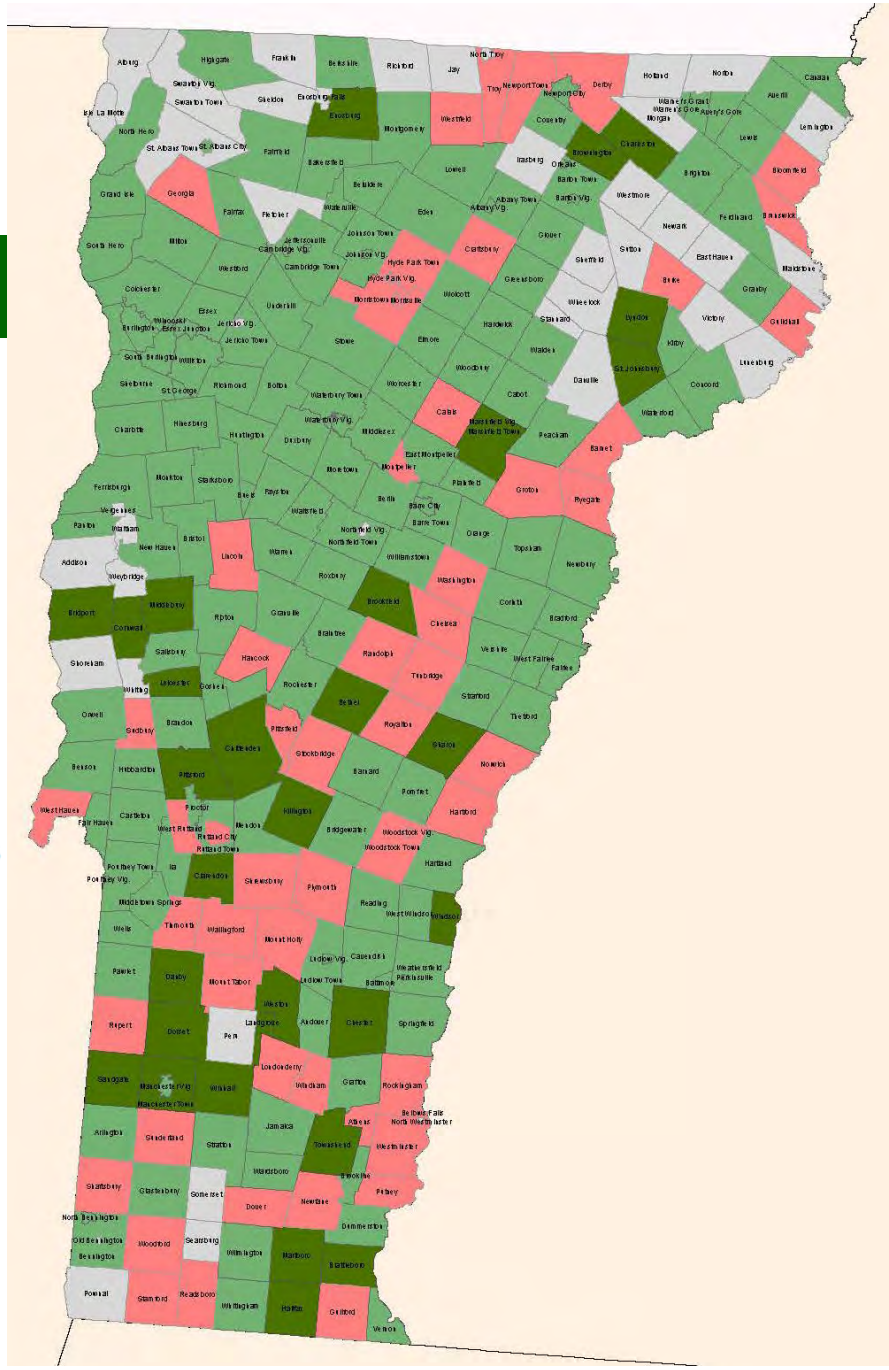
FEMA Approved (63.2%)

Expired (22.8%)

Never Approved (13.9%)

Legend

- No Plan
- Approved, not expiring within 1 year
- Approved, expiring within 1 year
- Awaiting Revisions
- Expired



Mitigation Projects

Buyouts

Floodplain Restoration

Flood-Proofing:

Other Project Ideas:

- Culvert Upsizing
- Road Relocation
- Structural Elevation
- Generators for Critical Facilities
- Planning

Mitigation Funding

Funding Sources:

- **Hazard Mitigation Grant Program (HMGP)**
  - Funding based on disaster declarations
  - 15% of public assistance allocation
  - **Next round of applications due February 26, 2021 (DR-4474)**
- **Building Resilient Infrastructure and Communities (BRIC)**
  - Annual competitive funding cycle with changing priorities
- **Flood Mitigation Assistance (FMA)**
  - Annual competitive funding cycle for municipalities participating in NFIP

Additional Info:

- 75% Federal share, 25% local match
- Available to municipalities and state agencies (and non-profits under HMGP)
- Benefit Cost Analysis (BCA) typically required

Contact:

Stephanie A. Smith | State Hazard Mitigation Officer
(802) 989-6793 | **Stephanie.A.Smith@vermont.gov**

- State Hazard Mitigation Plan: **vem.vermont.gov/plans/SHMP**
- Hazard Mitigation Grants: **vem.vermont.gov/funding/mitigation**

Caroline Massa | State Hazard Mitigation Planner
(802) 585-5246 | **Caroline.Massa@vermont.gov**

- Local Hazard Mitigation Planning: **vem.vermont.gov/plans/LHMP**

Vermont Agency of Transportation

VTrans Working to Get You There
Vermont Agency of Transportation

Preparation

- How does Vtrans help towns prepare for potential flooding?
  - Support assessment of town infrastructure
    - Where are the problems?
      - General interaction with town officials
      - Road Erosion Inventories (REI)
    - Evaluation of current conditions
      - Look at town infrastructure ditches, culverts, road surface
    - Prioritize issues
  - Promoting preventative maintenance
    - Town Road and Bridge Standards
  - Know your contacts

Response/Recovery

- What is the Vtrans' role during response/recovery?
  - Perform damage assessment
    - Where are the damages?
    - Are damages on a Federal-aid highway?
    - What is the severity of damages?
  - Does the town need assistance in obtaining necessary resources such as materials or contractors?
  - Technical assistance
  - Assist with documentation
  - Are there any additional funding sources for impacted communities?

Other Disaster Funding Sources

- Emergency Relief Program – Federal Highway Administration (FHWA)
  - Eligibility – damaged as a direct result of natural disaster and damaged highway must be either:
    - Functionally classified as a rural major collector or higher
    - Functionally classified as an urban collector or higher within federal-aid urban area
  - Overall disaster eligibility threshold: minimum $700,000
  - Per site repair cost threshold: minimum $5,000
  - Two types of work:
    - Emergency
    - Permanent

Other Disaster Funding Sources

- Town Highway Emergency Fund
  - State aid for non-federal disasters
  - To qualify, damages > 10% of the town's non-winter maintenance budget
  - Reimbursement is the greater of either:
    - 90% of repair/replacement costs OR
    - Eligible repair/replacement costs, minus an amount equal to 10% of the overall total highway budget minus the town's winter maintenance portion

Vtrans District Contacts

District Project Managers:

D1: Chris Taft, 802-379-2266, christopher.taft@vermont.gov

D2: Marc Pickering, 802-380-0190, marc.pickering@vermont.gov

D3: Brian Sanderson, 802-779-3861, brian.sanderson@vermont.gov

D4: Chris Bump, 802-356-7678, chris.bump@vermont.gov

D5: Ashley Bishop, 802-363-1182, ashley.bishop@vermont.gov

D7: Shauna Clifford, 802-535-5317, shauna.clifford@vermont.gov

D8: Jim Cota, 802-782-0802, jim.cota@vermont.gov

D9: Jason Sevigny, 802-535-7767, jason.sevigny@vermont.gov

Stream Alteration Permitting

Preparation and response to ice jams and spring flooding

Missisquoi River, Swanton 01/2018

Gihon River, Johnson 02/01/2018

Ice scour, Winooski River, Moretown 01/15/2018

Managing Ice Jams

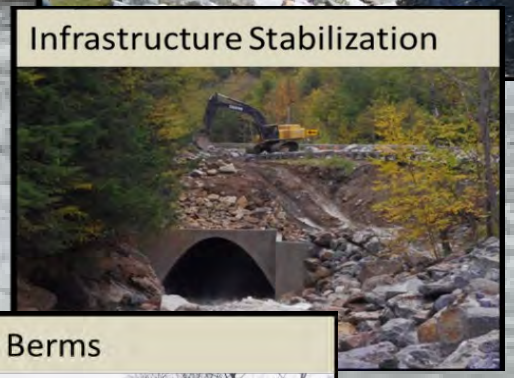
- Plan for ice jams where they frequently occur
- Know what equipment is available
  - Stage or have on call
- May have limited ability regardless of equipment

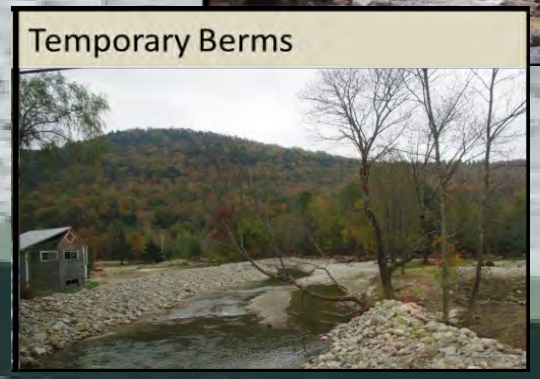
Banks of Winooski River, Montpelier, 01/29/2018

Emergency Protective Measure Responses

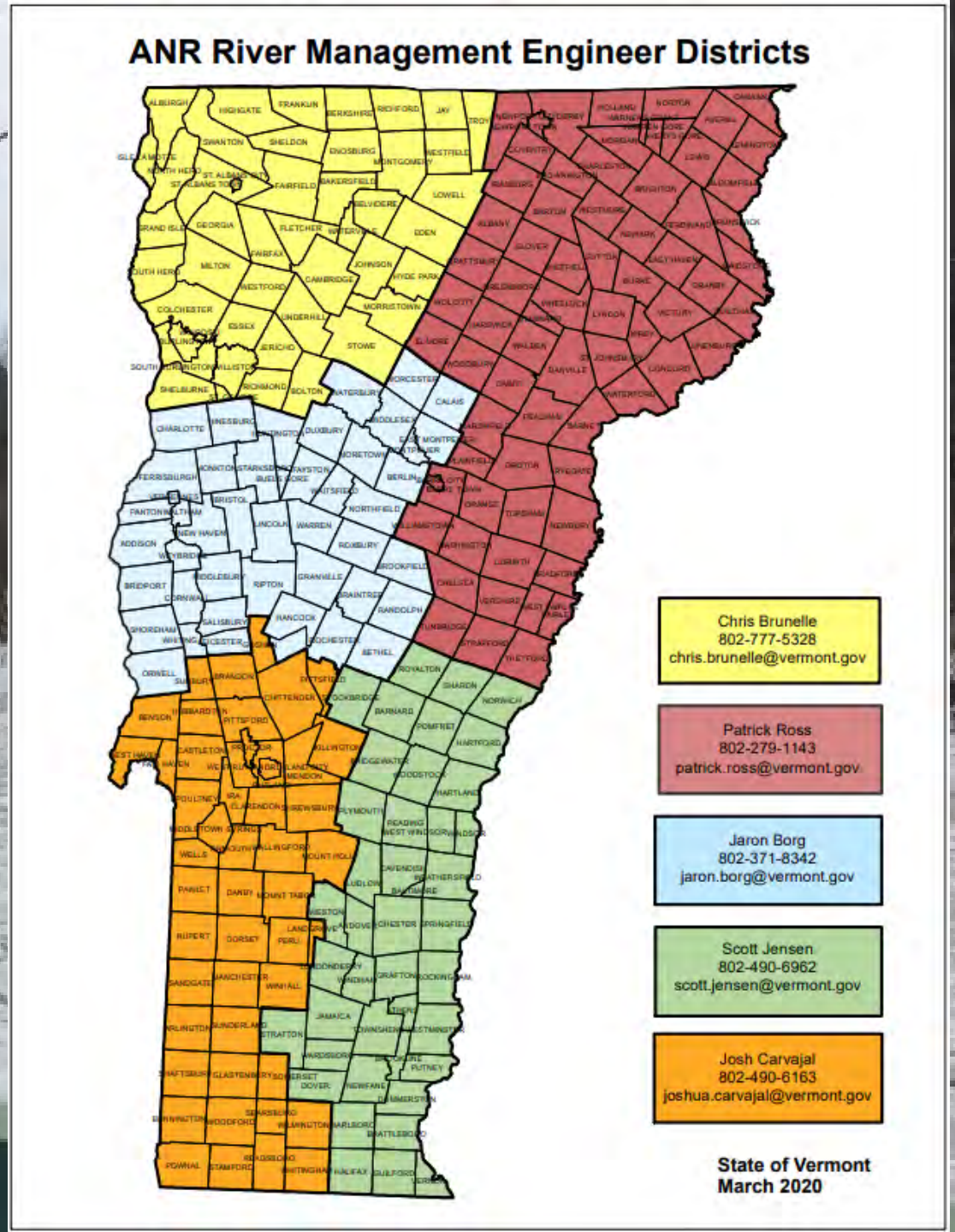
FOUR Allowable activities:

- *Removal of Flood-Related Deposits*
- *Streambed and Streambank Fills*
- *Temporary Stabilization / Restoration of Infrastructure*
- *Construction of Temporary Berms*





5 Regional River Management Engineers



Hazard Area Jurisdiction

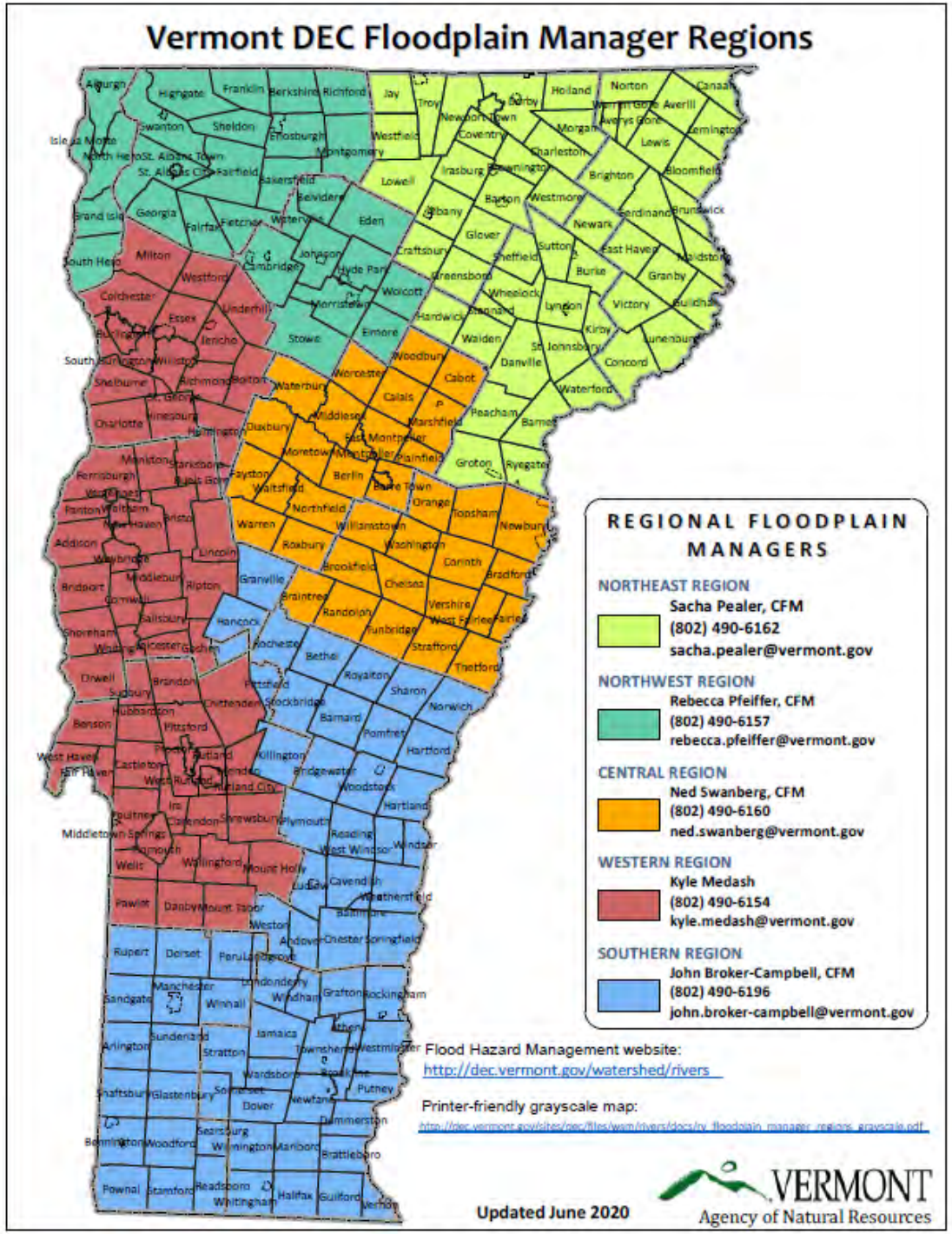
- Municipal Permits (National Flood Insurance Program)
- State Floodplain Rule
- Act 250 and Section 248

Local Regulation

National Flood Insurance Program (NFIP) participating communities must:

- Adopt and enforce a flood hazard bylaw containing federal minimum standards
- Key standards include:
  - Prohibit encroachment within the regulatory floodway without supporting engineering analysis
  - Permit all ‘development’ or man-made change to the landscape
- Additional information can be found at www.floodready.vermont.gov

5 Regional Floodplain Managers



Vermont National Guard Support to the State of Vermont

COL Randall Gates

Director of Military Support

Three Missions of the National Guard

Federal - Staff, train and equip combat units to meet federal missions and to mobilize and deploy when ordered by the Federal Government.

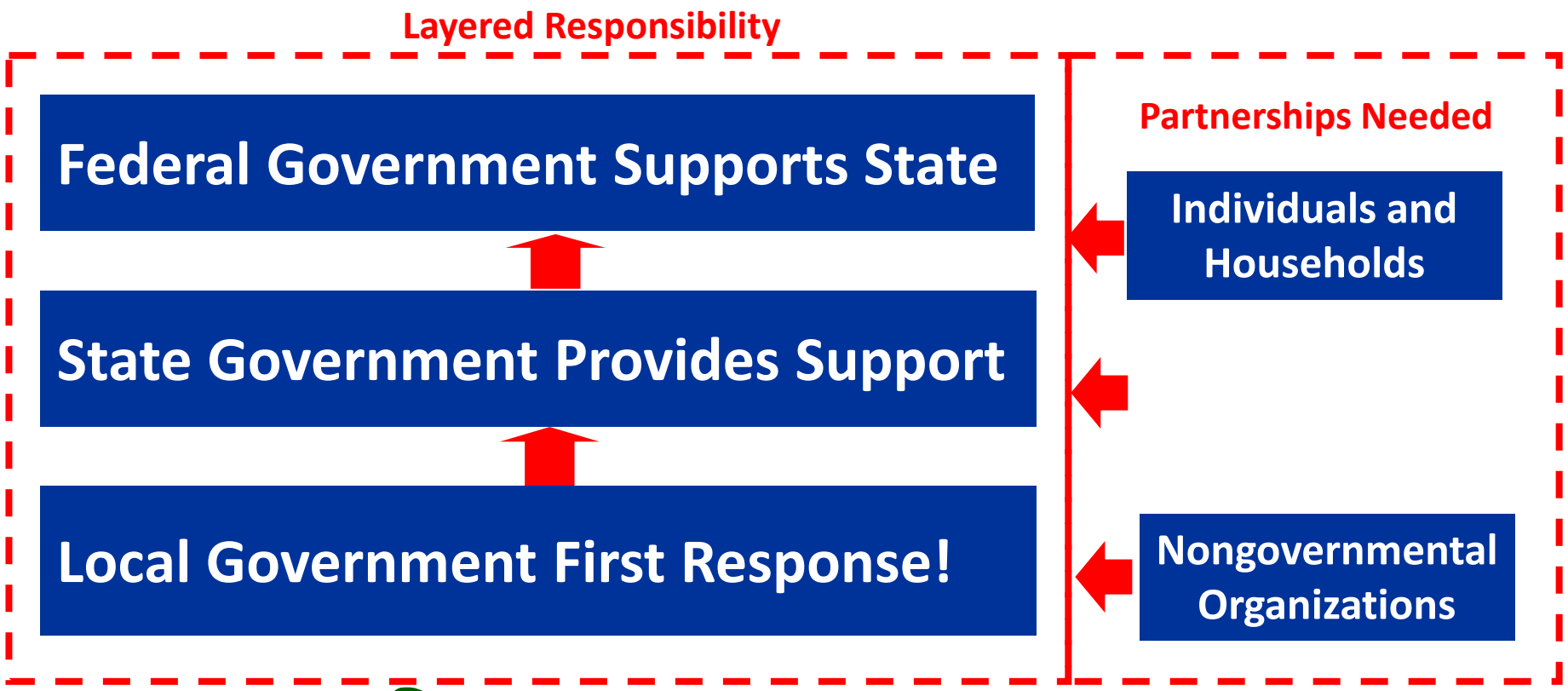
State - Provide trained and equipped units to protect life and property in order to preserve peace, order, and public safety upon the direction of the Governor.

Community - To participate in local and state programs that add value to our communities.

VERMONT NATIONAL GUARD

National Response Framework

Tiered Response System



Vermont National Guard EMAC Plan

VTNG Response Capabilities

- Civil Disturbance Ops
- **Community Liaison**
- Site & Area Security
- Critical Facility Security
- Traffic Control
- Emergency Shelter
- **Emergency Power**
- **Water Purification**
- Customs Inspection
- Counterdrug Ops
- **Engineering**
- **Logistical Support**
- **Transportation Support**
- **Aviation Support**
- Firefighting
- Search and Rescue
- Medical Evacuations
- Medical Treatment
- Border Closure Ops
- **Debris Clearing**
- **Cyber Response**

VERMONT
NATIONAL GUARD

Mission	CAT 1	CAT 2	CAT 3	CAT 4	CAT 5	EMAC Requirement	EMAC Providers to Vermont (Informal)	EMAC Exportable	EMAC Committed to other states (Informal)
JFHQ/C2						NGB JET (when requested) from neighboring States and supporting states REQ-A Team	CTNG(I):RSG	JOC Staff Augmentation Cell, LNOs	NYNG(II): IBCT Staff augmentation
Transportation						2x Medium Trans Co. for evacuation 4x Medium/Heavy Trans. Co. for distro	MANG(I):164th Trans Co. NJNG(II): x1 CTC VANG(III): x1 Trans Co VANG(III): x1 CTC	2x Plt. LMTV/MTV	NHNG(I):1Plt MTV/LMTV RING(I):1Plt MTV/LMTV
Communications						1x Signal Co. 1x JISCC	MANG(I): JISCC VANG(III): Sig Co. DENG(III): JISCC DENG(III):198th ESB *2019 dep	1x JISCC	MANG(I): JISCC
Aviation						**3x UH-60 Co** x CH47 Co (MEDEVAC/Air Ambulance SAR, Aerial Damage Assessment, H1Transportation)	NHNG(I): x2 UH60 NJNG(II): x4(+) UH60 CTNG(I): x2 UH60 NYNG(II): x2 UH60 PANG(II): x2 UH60/HH60 MING(V): x4(+) UH60 CTNG(I): CH47 NYNG(II): x3 CH47 PANG(II): x2 CH47 MDNG(III): x1 CH47 MING(V): x2 CH47	2x UH-72	
Logistics						3x Co. Size LOG Force Packages	NYNG(II): x2 Dist Co. WING(V): x1 Dist Co.	1x Co. Size LOG	RING(I): Dist Co. NHNG(I): Dist Co. MENG(I): Dist Co. MDNG(III): Dist Co.
Security						3x MP Co.	RING(I): 1 MP Co. MDNG(III): 1 MP Co. MNNG(V): 34th MP Co. LANG(VI): 1 MP Co.	1x MP PLT	MDNG(III): 1 MP Plt.
Engineering						3x Horiz. EN Co. MR Bridge Co.	CTNG(I): 250th EN CO. (Bridge) MENG(I): 1 Horz EN Co. NJNG(II): BEB LANG(VI): EN Co.	1x BEB 1x CES	RING(I): BEB MANG(I): EN Co. DCNG(III): Snow Pkg DENG(III): EN Co. PANG(III): EN Co.
Medical						1x Medical Co.	MDNG(III): Med. Co. VANG(III): Med. Co. INNG(V): Med. Co. LANG(VI): Med. Co.	1x Med Group 1x Med Det.	RING(I): Medical Det. LANG(VI): Med Group II
Maintenance						1x Maint. Co.	NJ(II): x1 BMC LANG(VI): Maint. Co		NYNG(II): BMC NJ(II): BMC DENG(III): CRC
CBRNE CST / CERFP / WMD						1x CST (Situation Dependent) 1x CERFP (Situation Dependent)	MA, CT, ME, NH, RI, NY x1 CST	1x CST	MA, CT, ME, NH, RI, NY Multiple CST
JRSOI						Theater Sustainment Brigade or similar to conduct JRSOI of significant NG or AD Forces, AD JRSOI to be conducted at Westover AFB or FT Drum	TXNG(VI): SUST BDE	None	
Power Generation						2x Generators per each Public Safety District (A, B, C and D)	MENG(I): x2 60 kW Gen. NYNG(II): x4 60kW Gen.	15x Mobile Comm 30kW Generators	CTNG(I): Generators (30 kW)
Cyber						(Situation Dependent)	MA, CT, ME, NH, RI	CNDT, CIT, 229 COS	

National Guard Missions

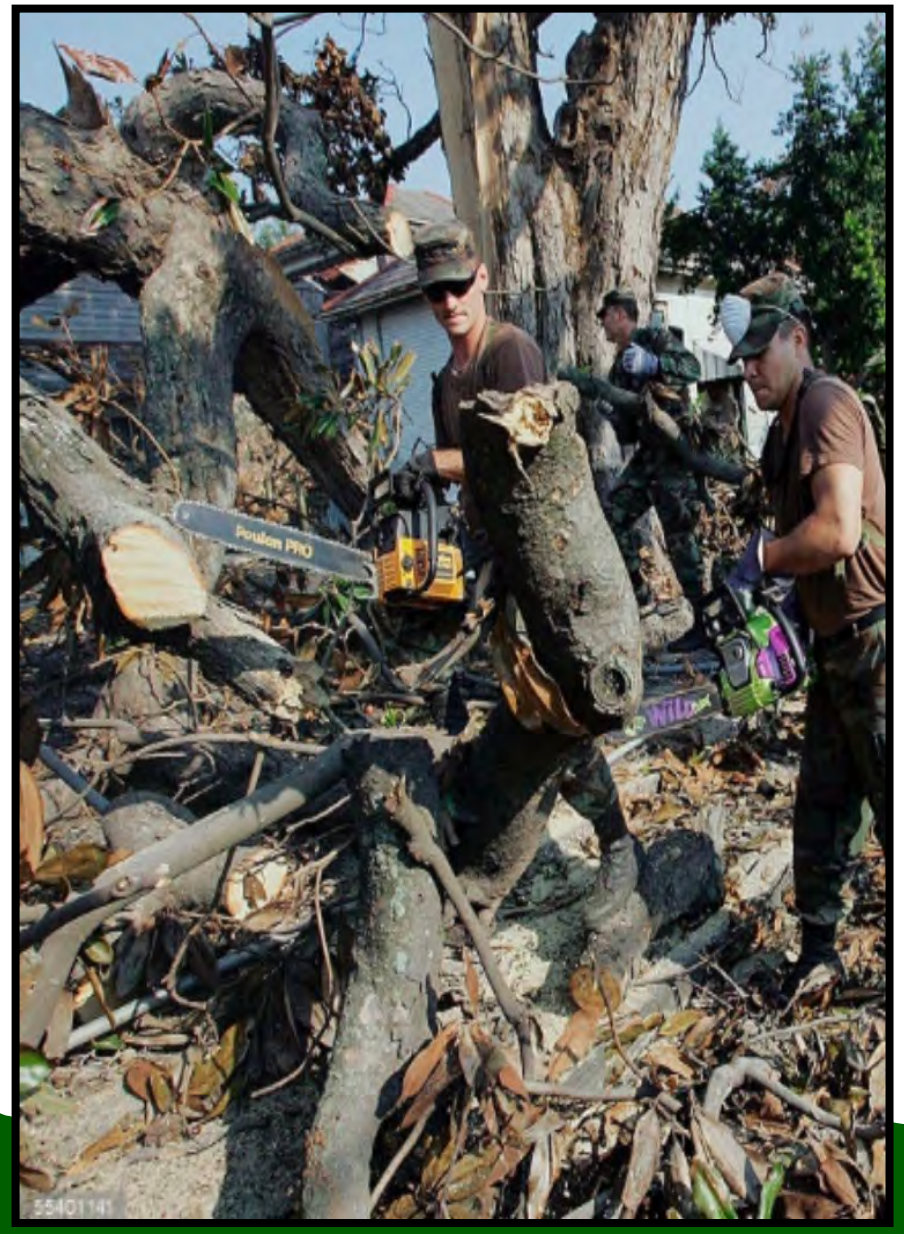
VERMONT
NATIONAL GUARD

National Guard Missions

VERMONT
NATIONAL GUARD

National Guard Missions

National Guard Missions



VERMONT NATIONAL GUARD

National Guard Missions

VERMONT NATIONAL GUARD

National Guard Missions

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National Guard Missions

VERMONT NATIONAL GUARD

Military Response Authority & Restrictions

- Military always under direction of civilian authorities
- Military fills civilian response capability gaps
- Military adds more capacity to response & recovery
- Military must ask for reimbursement from civilian emergency management authorities

VERMONT NATIONAL GUARD

VERMONT
NATIONAL GUARD

Vermont Department of Public Safety

DIVISION OF FIRE SAFETY

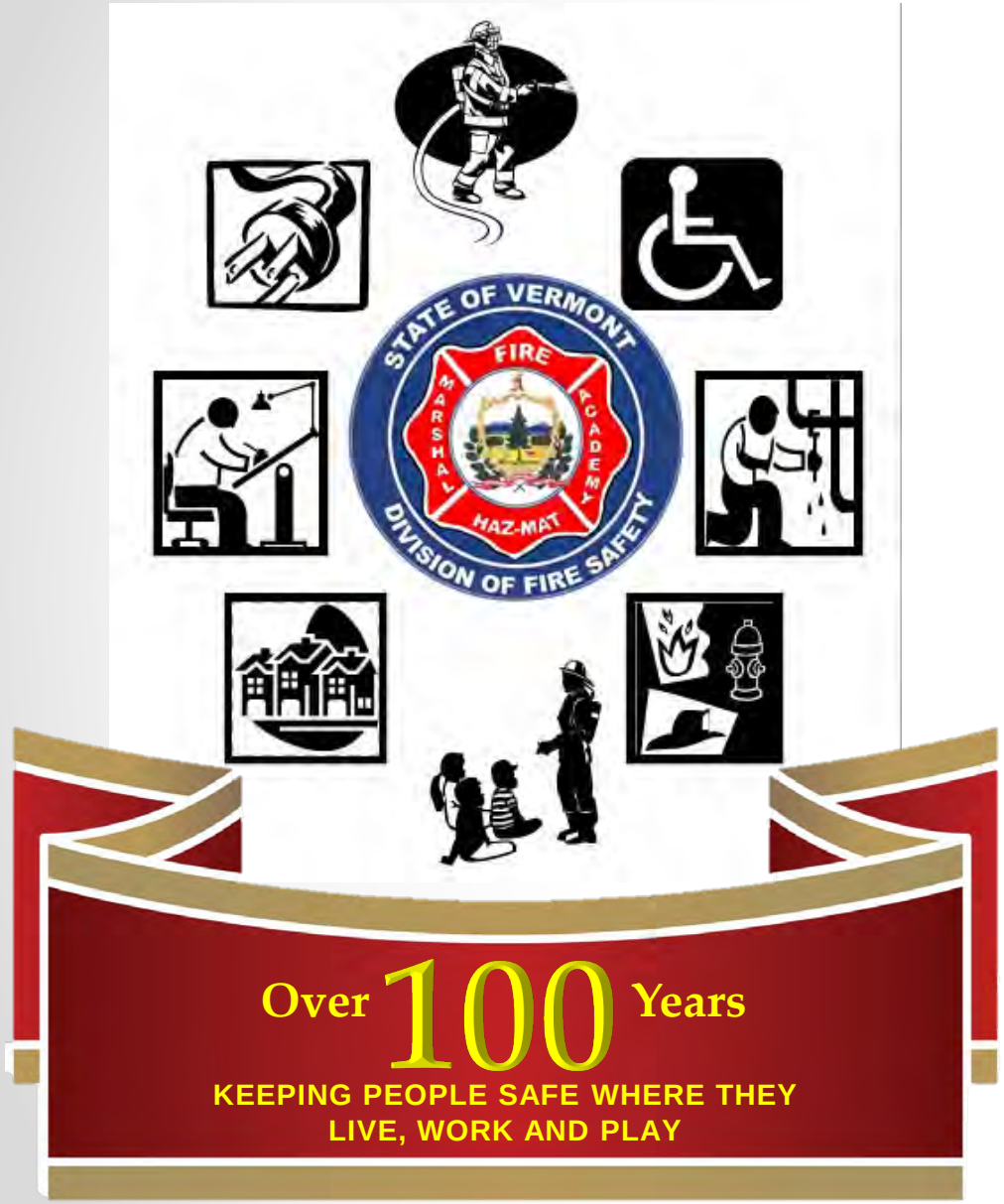
VERMONT

FIRESAFETY.VERMONT.GOV

FLOOD RESPONSE ACTIVITIES

2021

SERVICES AND RESOURCES



The Division of Fire Safety (DFS) provides numerous services related to the safety of residents and guests of the State.

The mission of DFS is to protect the public and fire service through coordinated efforts in Code Enforcement, Fire Service Training, Public Education, Hazardous Materials Response, Fire Investigation and Urban Search and Rescue.

These efforts maximize life safety and property conservation and minimize environmental impacts due to fire, natural disasters and other emergencies in the State of Vermont.

Special Operations

During disasters and other emergencies, the Division's special operations section provides specialized response activities to meet the operational and resource needs of Vermont's emergency services and local governments.

DFS Personnel respond to disaster events in a variety of ways, from working to mitigate the effects of flooding on populated areas to supporting the fire service in fire control, rescue and recovery efforts and working in the Mission and Resource Support Section of the State Emergency Operations Center (SEOC)

To request DFS special operations response or other assistance after hours contact the VT Emergency Management Watch Officer at

1-800-347-0488

VT State Hazardous Materials (HAZ-MAT) Response Team

The purpose for the Team's creation was and remains to work with the fire chiefs before, during and after hazardous materials events in their municipalities.

By having HAZMAT Technicians located across the entire State supported with four HAZMAT response vehicles, the Vermont HAZMAT Response Team (VHMRT) endeavors to have highly trained and equipped personnel on scene quickly when requested by the Incident Commander.

Urban Search And Rescue (USAR VT-TF1)

The primary mission of Vermont Task Force One is to provide advanced technical search and rescue capabilities to victims trapped or entombed in structurally damaged buildings.

To this endeavor VT-TF1 members pledge to the citizens of the State of Vermont to provide efficient and effective rescue technologies in a planned and measured response system that mirrors the Federal Emergency Management Agencies guidelines on Urban Search and Rescue and the appropriate National Fire Protection Association Standards

Urban Search And Rescue (USAR VT-TF1)

Swiftwater / Flood Response

Vermont Urban Search and Rescue Task Force – 4 swiftwater boats,

one 14 person NIMS Type I swiftwater team or two, 8 person NIMS Type II swiftwater teams.

This capability also includes four (4) live-find FEMA/SUSAR live-find canines

There are currently 10 swiftwater rescue teams geographically located with MOU's thru VEM ranging from Type I (14 person team), thru Type II and III (8-4 person teams).

The teams can be activated thru the VEM Watch Officer during floods, ice jams and other severe weather events.

Department of Public Safety

Fire & Explosion Investigation Unit (FEIU)

The Department of Public Safety Fire & Explosion Investigation Unit (FEIU) brings together the strengths of both the Division of Fire Safety and the Vermont State Police to address the issues identified in fire investigation.

It is the Fire Chief's responsibility by law to investigate all fires. The Fire Chief should call for assistance when he/she cannot determine what started the fire or for help determining the origin and cause.

VERMONT ARSON TIP AWARD PROGRAM

1 800-32-ARSON

DFS FIELD ASSISTANCE AND INCIDENT SUPPORT

DFS Fire Marshal teams may mobilize to provide a wide range of technical field assistance and incident support to state, local municipalities and other organizations.

State Fire Marshals can be a technical resource for building safety and fire safety issues at the incident command post. They also can help determine initial damage assessment or help with public education.

RAPID BUILDING SAFETY ASSESSMENTS

Rapid building assessments are to determine structural, electrical, fuel storage and heating plant safety of affected areas.

- **Activation based on initial assessment and/or a local request from incident commander.**
- **Building Safety Teams of a Fire Marshal and Electrical Inspector assess structures.**
- **Buildings are posted for limited entry or no entry as necessary. The posting and inspection reports are mandatory requirements for public buildings but only advisory for non-public buildings.**
- **Structural assessments may also be performed if needed.**
- **Hazards are documented and owners are informed.**

RAPID BUILDING SAFETY ASSESSMENTS

- All affected public buildings may be evaluated, including commercial, residential rental units and others.
- Single-family owner-occupied homes can be included in assessments.
- ‘Municipal Condemned to Be Destroyed Order’ available to assist with removal of dangerous structures.
- Building Assessments are reported to VEM and other partners .

ATC RATING SYSTEM PLACARDS

– UNSAFE (RED)

An "unsafe" building has been evaluated and eminent safety hazards have been identified which makes the building unsafe for anyone to enter or occupy.

– LIMITED ENTRY (YELLOW)

A "limited entry" building has been evaluated and obvious safety hazards have been identified which limit the use or occupancy of a building. Volunteer cleanup workers, tenants, customers, and the public would not be permitted in public buildings. Specific limitations, or special allowances may be noted on the poster

– INSPECTED (GREEN)

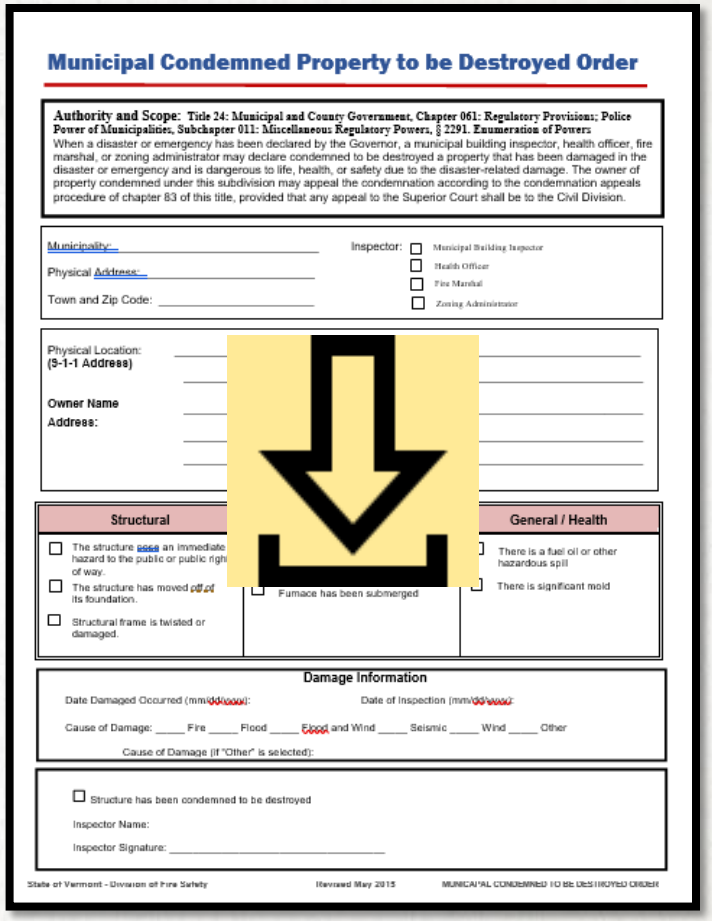
"inspected" building has been evaluated and no apparent hazards identified which would restrict its use or occupancy. The inspected classification allows a building to continue with its prior use and be open to the public

MUNICIPAL CONDEMNED PROPERTY TO BE DESTROYED ORDER

Title 24: Municipal and County Government, Chapter 061: Regulatory Provisions; Police Power of Municipalities, Subchapter 011: Miscellaneous Regulatory Powers, § 2291. Enumeration of Powers

When a disaster or emergency has been declared by the Governor, a municipal building inspector, health officer, fire marshal, or zoning administrator may declare condemned to be destroyed a property that has been damaged in the disaster or emergency and is dangerous to life, health, or safety due to the disaster-related damage.

The owner of property condemned under this subdivision may appeal the condemnation according to the condemnation appeals procedure of chapter 83 of this title, provided that any appeal to the Superior Court shall be to the Civil Division.



Municipal Condemned Property to be Destroyed Order

Authority and Scope: Title 24: Municipal and County Government, Chapter 061: Regulatory Provisions; Police Power of Municipalities, Subchapter 011: Miscellaneous Regulatory Powers, § 2291. Enumeration of Powers
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Municipality: _____
Physical Address: _____
Town and Zip Code: _____

Inspector:
- ☐ Municipal Building Inspector
- ☐ Health Officer
- ☐ Fire Marshal
- ☐ Zoning Administrator

Physical Location: (9-1-1 Address) _____
Owner Name _____
Address: _____

Structural		General / Health
☐ The structure poses an immediate hazard to the public or public right of way.		☐ There is a fuel oil or other hazardous spill
☐ The structure has moved off of its foundation.	☐ Furnace has been submerged	☐ There is significant mold
☐ Structural frame is twisted or damaged.		

Damage Information

Date Damaged Occurred (mm/dd/yyyy): Date of Inspection (mm/dd/yyyy):

Cause of Damage: ____ Fire ____ Flood ____ Flood and Wind ____ Seismic ____ Wind ____ Other

Cause of Damage (if "Other" is selected):

☐ Structure has been condemned to be destroyed

Inspector Name:

Inspector Signature: _____

State of Vermont - Division of Fire Safety Revised May 2015 MUNICIPAL CONDEMNED TO BE DESTROYED ORDER

https://firesafety.vermont.gov/buildingcode/permits

DFS FIRE SAFETY OPERATIONS CENTER (FSOC)

When activated the FSOC provides centralized and coordinated DFS support to Local towns, state agencies as well as the responders.

Primary functions of staff in FSOC include:

- **Collecting and disseminating information.;**
- **Supporting resource needs and requests, including allocation and tracking.**
- **Coordinating plans and determining the current and future needs.**
- **Provides a link to the SEOC, and improve information flow, communication and coordination between the Incident commander and the SEOC.**
- **Provide additional resources and subject matter expertise needed to support an incident.**

EVACUATION/DISASTER SHELTER SAFETY SURVEY

When the Red Cross or other agencies establish a shelter due to a flood or other disaster, the Division or local fire department will make a site visit before sleeping can occur in that shelter. The inspection will make sure a few basic fire and life safety items are in place.

Some locations have been pre-approved as regional shelters and the set up is pre-planned.

If you have identified a building which could be used to shelter people in your town, ask one of the Fire Marshals to visit so it could be approved to be used as a shelter before the disaster hits.

PUBLIC FIRE SAFETY INFORMATION AT A MULTI-AGENCY RESOURCE CENTER (MARC)

Multi-Agency Resource Centers (MARCs) is an efficient way to deliver services to individuals and families affected by a disaster.

It brings together multiple service providers in a single location to assist communities by providing a centralized location for services for victim's unmet needs.

The division will answer safety questions in addition, to providing resources and safety education to help people stay safe in their home.

DFS REGIONAL OFFICES

Williston Regional Office
380 Hurricane Lane Suite 101 Williston, VT 05495
802-879-2300 or 1-800-366-8325
Fax: 802-879-2312

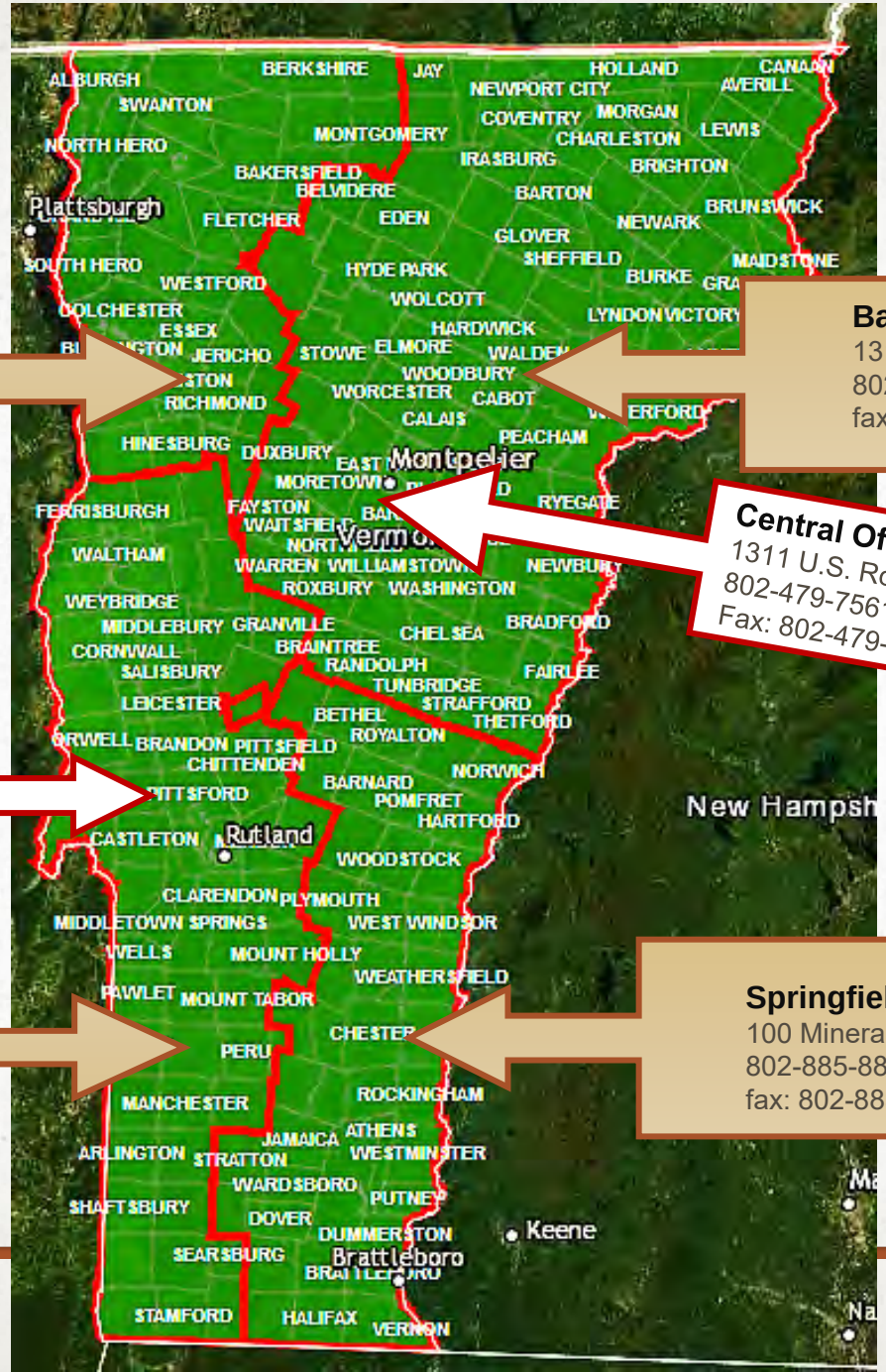
Barre Regional Office
1311 U.S. Route 302 - Berlin Suite 500 BERLIN, VT
802-479-4434 or 1-888-870-7888
fax: 802-479-4446

Central Office
1311 U.S. Route 302 - Suite 600 Barre, VT 05641
802-479-7561 or 1-800-640-2106
Fax: 802-479-7562

Vermont Fire Academy
93 Davison Drive Pittsford, VT 05763
802-483-2755 or 1-800-615-3473
fax: 802-483-2464

Rutland Regional Office
56 Howe Street Building A Ste. 200 Rutland, VT 05701
786-5867 or 1-888-370-4834
fax: 802-786-5872

Springfield Regional Office
100 Mineral Street Suite 307 Springfield, VT 05156-3168
802-885-8883 or 1-866-404-8883
fax: 802-885-8885



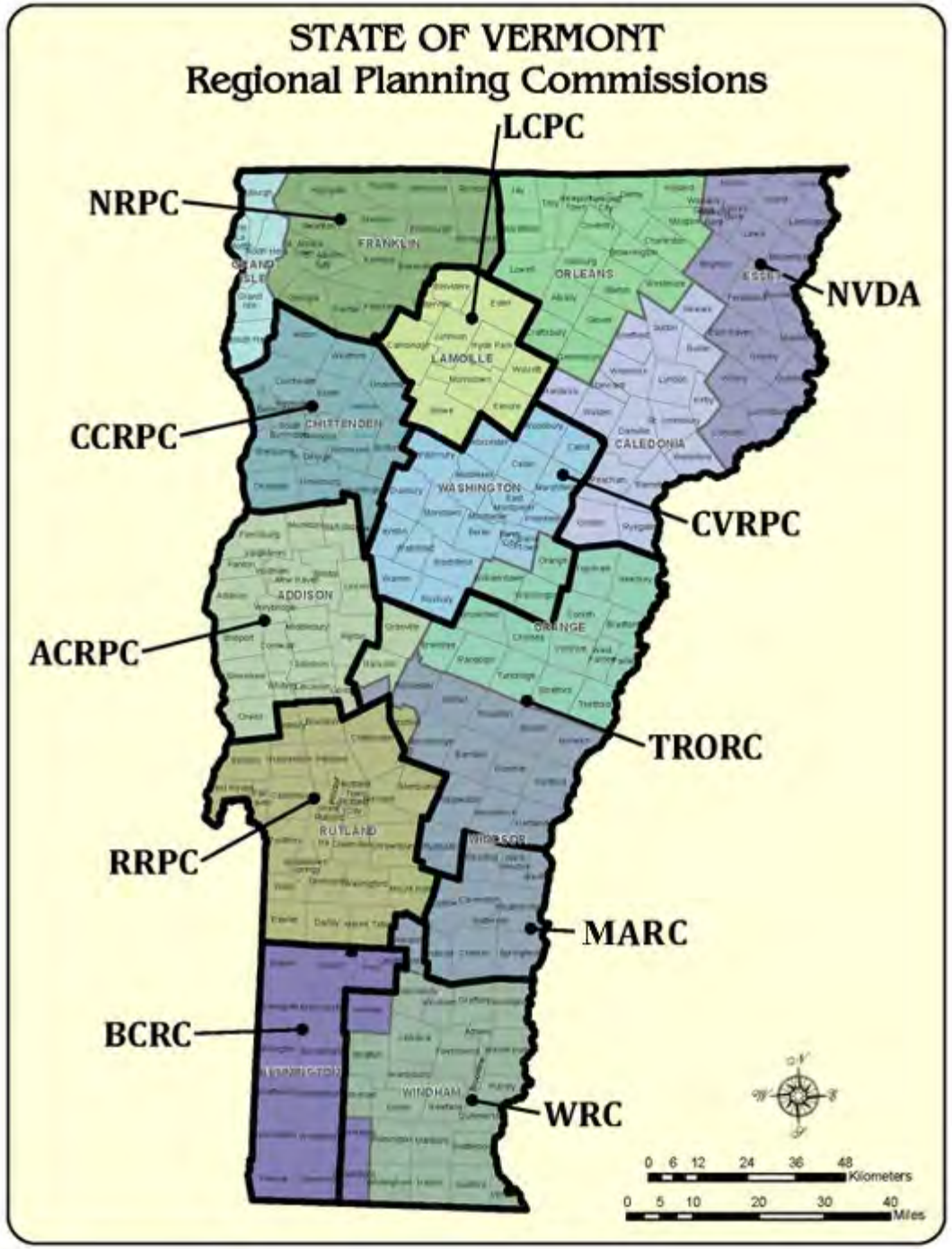
THANK YOU

QUESTONS, COMMENTS OR CONCERNS

Please help make every day a fire safe day! Fire is everyone's fight!

Regional Planning Commissions

Bruce Melendy, Northeastern Vermont Development Association



Addison County Regional Planning Commission: 802-388-3141

Bennington County Regional Commission: 802-442-0713

Central Vermont Regional Planning Commission: 802-229-0389

Chittenden County Regional Planning Commission: 802-846-4490

Lamoille County Planning Commission: 802-888-4548

Mount Ascutney Regional Commission: 802-674-9201

Northeastern Vermont Development Association: 802-748-5181

Northwest Regional Planning Commission: 802-524-5958

Rutland Regional Planning Commission: 802-775-0871

Two Rivers-Ottauquechee Regional Commission: 802-457-3188

Windham Regional Commission: 802-257-4547

Thank you!

National Weather Service

- Lead Meteorologist: John.Goff@noaa.gov
- Lead Meteorologist: Maureen.Hastings@noaa.gov

Vermont Emergency Management

- Engagement Section Chief: Emily.Harris@vermont.gov
- Southern Regional Coordinator: Richard.Cogliano@vermont.gov
- Northeastern Regional Coordinator: Harry.Schoppmann@vermont.gov
- Recovery & Mitigation Chief: Ben.Rose@vermont.gov
- Hazard Mitigation Officer: Stephanie.A.Smith@vermont.gov
- Hazard Mitigation Planner: Caroline.Massa@vermont.gov

Agency of Transportation

- District 7: Shauna.Clifford@vermont.gov

Agency of Natural Resources

- Jaron.Borg@vermont.gov
- John.Broker-Campbell@vermont.gov
- Ned.Swanberg@vermont.gov

Vermont National Guard

- Randall.k.gates.mil@mail.mil

Division of Fire Safety

- Deputy Director: Robert.Sponable@vermont.gov
- Assistant State Fire Marshall: Micheal.Greenia@vermont.gov
- State HAZMAT Team: Patrick.McLaughlin@vermont.gov
- State USAR Team: Michael.Cannon@vermont.gov

Regional Planning Commission

- Emergency Management Specialist: BMelendy@nvda.net