

REPETITIVE FLOODING IN VERMONT 2023-2024

National Academies Board on Atmospheric Sciences and
Climate – May 6, 2025

*Helene Floods, Los Angeles Fires, Phoenix Heat: Lessons Learned for More
Resilient Communities*

Presented by Chris Company, Executive Director
Windham Regional Commission

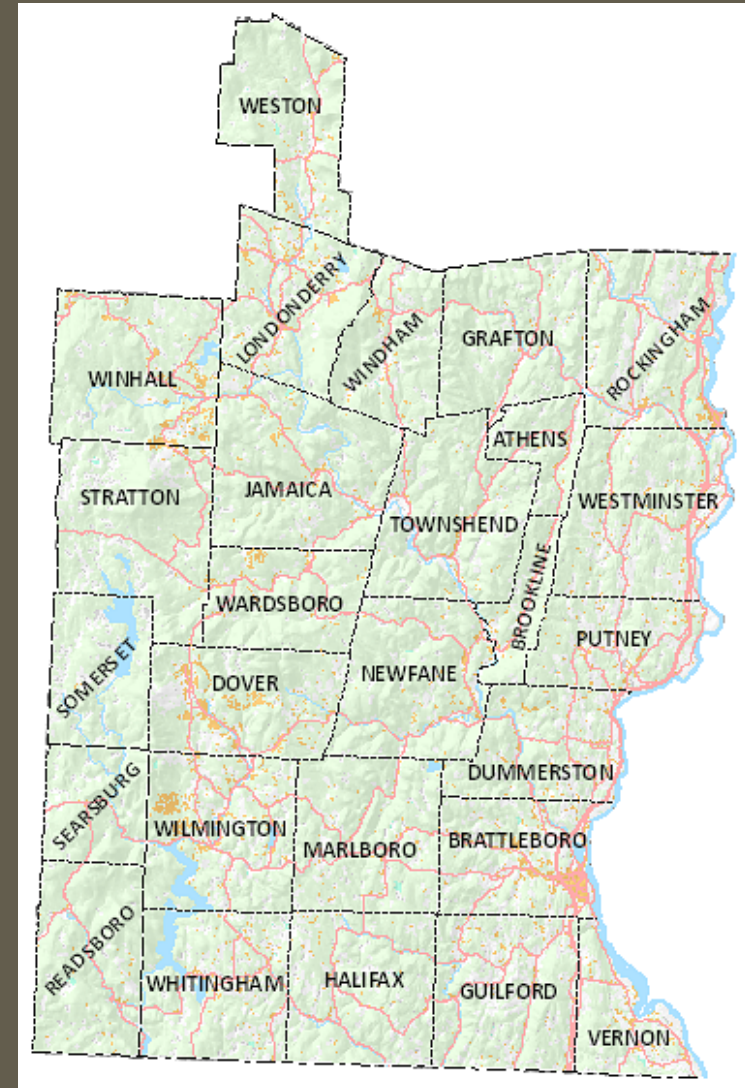


WHAT IS THE WINDHAM REGIONAL COMMISSION?

Serves 27 towns over 920 sq. miles in southeast Vermont.

Mission: to assist towns in southeastern Vermont with providing effective local governance and to work collaboratively with them to address regional issues.

In the absence of county government, Vermont's 11 regional planning commissions provide an essential link between local, state, and federal government.



VERMONT 9,615 SQUARE MILES



- population: 643,077
- median household income: \$81,211
- poverty: 9.7% & consistent across age groups
- total households: 279,612
- total housing units: 334,318
- median age: 43.7 years
- older population: 22.2%

RAIN, WIND, SNOW...

- 13 weather-related Federal disaster declarations since 2019
- “FEMA’s [database](#) lists 20 major disaster declarations for Vermont during the study’s timeframe (2011-2023), the vast majority from severe storms leading to floods. That means that despite Vermont’s modest size — it ranks 45th in land area for states — only Arkansas, Iowa, Mississippi, Oklahoma, Tennessee, and California were issued more federal disaster declarations.” — [VT Digger, 7/29/24](#)
- More than \$680 per capita in federal disaster aid received since 2010.

HAZARDS RANKED PER STATE HAZARD MITIGATION PLAN

Table 3: Hazard Assessment

Hazard Impacts	Probability	Potential Impact					Score*:
		Built Environment	People	Economy	Natural Environment	Average:	
Fluvial Erosion	4	4	4	4	4	4	16
Inundation Flooding	4	4	4	4	2	3.5	14
Heat	4	2	4	3	2	2.75	11
Wind	4	3	2	2	2	2.25	9
Snow	4	2	3	2	1	2	8
Ice	3	2	3	3	2	2.5	7.5
Drought	3	1	3	3	3	2.5	7.5
Infectious Disease Outbreak	3	1	4	4	1	2.5	7.5
Cold	3	2	3	2	2	2.25	6.75
Invasive Species	3	2	1	3	3	2.25	6.75
Landslides	3	3	2	1	2	2	6
Wildfire	2	3	3	3	3	3	6
Earthquake	2	2	2	2	2	2	4
Hail	3	1	1	2	1	1.25	3.75

*Score = Probability x Average Potential Impact

FLUVIAL EROSION



Flood damage in Plainfield, Vermont, after Hurricane Beryl, July 2024. Flooding destroyed the Mill Street Bridge and most of an adjoining apartment building. CHARLES KRUPA / AP PHOTO

INUNDATION



Flooding in Montpelier, Vermont, July 2023. JOHN TULLY / THE WASHINGTON POST VIA GETTY IMAGES

LANDSLIDES

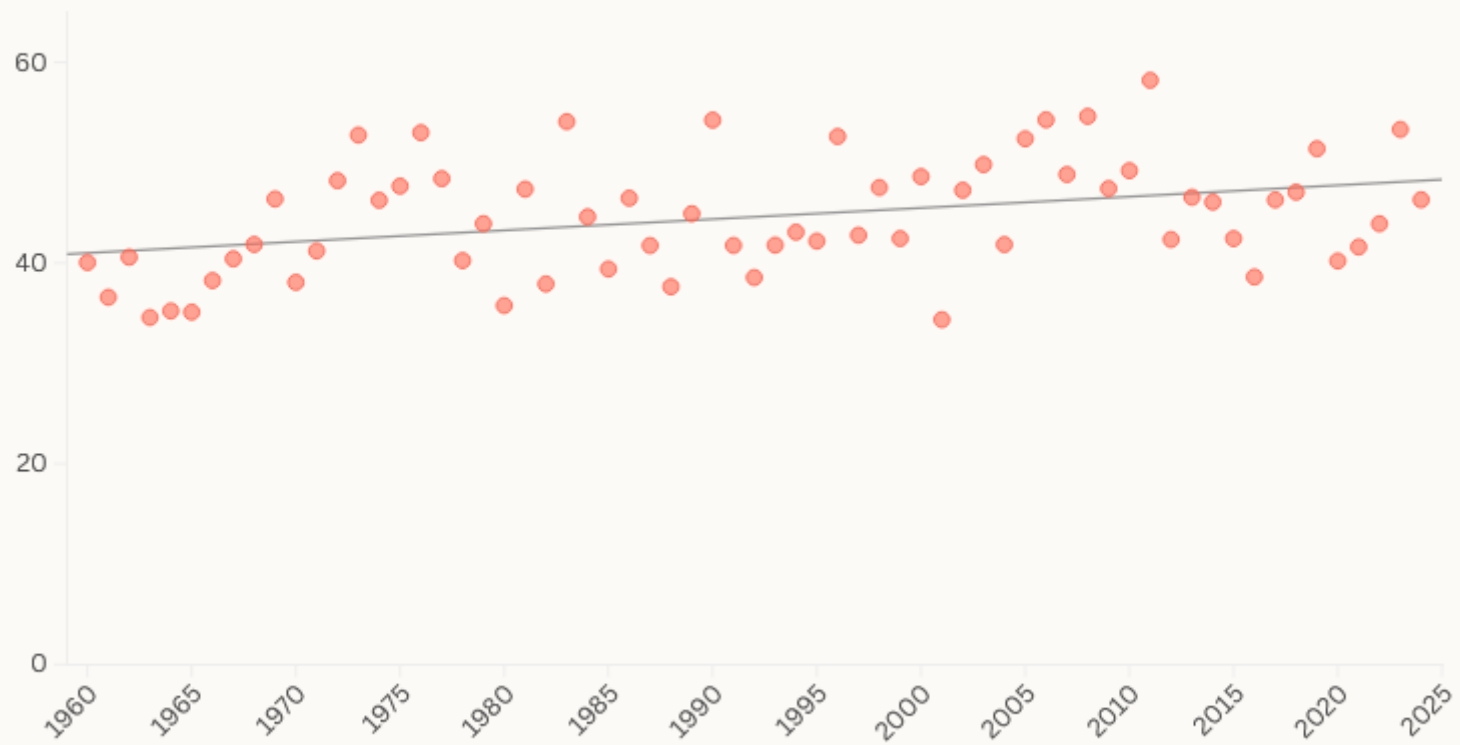


Flood damage along Route 124 in Ripon on Saturday, July 16, 2011. Photo by Caleb Koma for VTDigger.

MORE RAIN, HIGHER FREQUENCY, HIGHER INTENSITY

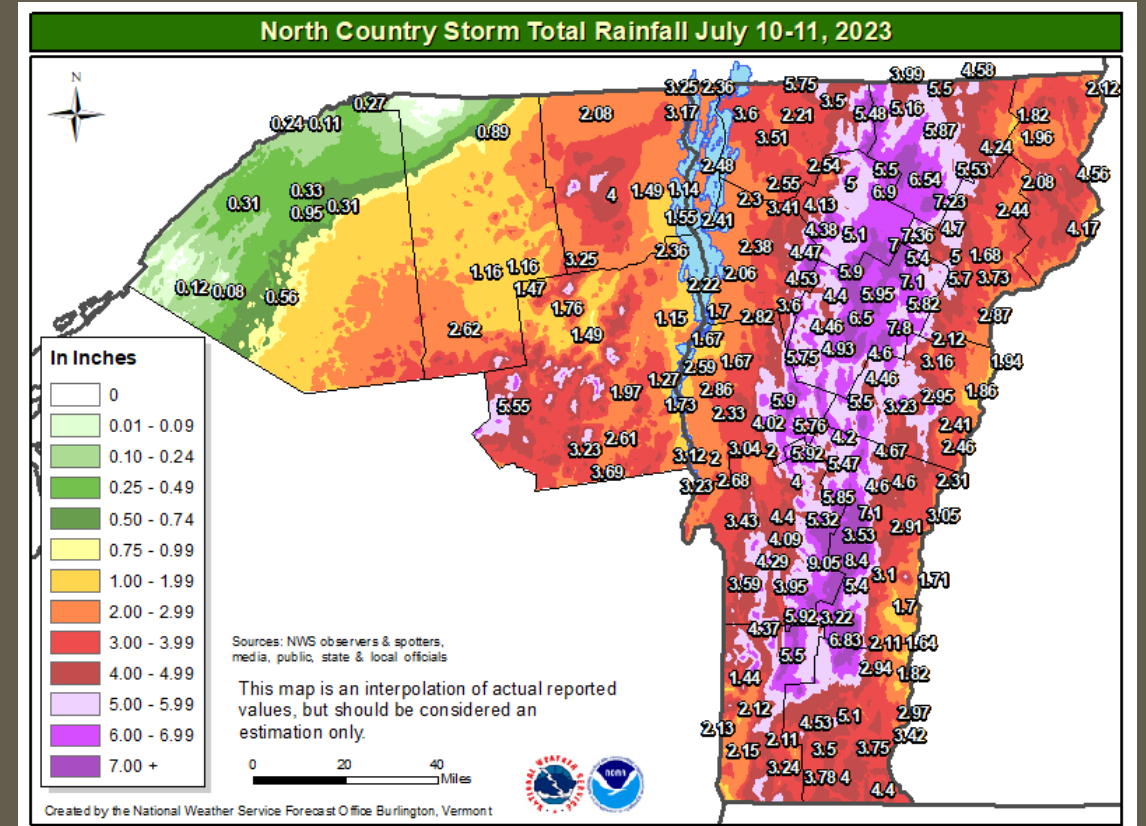
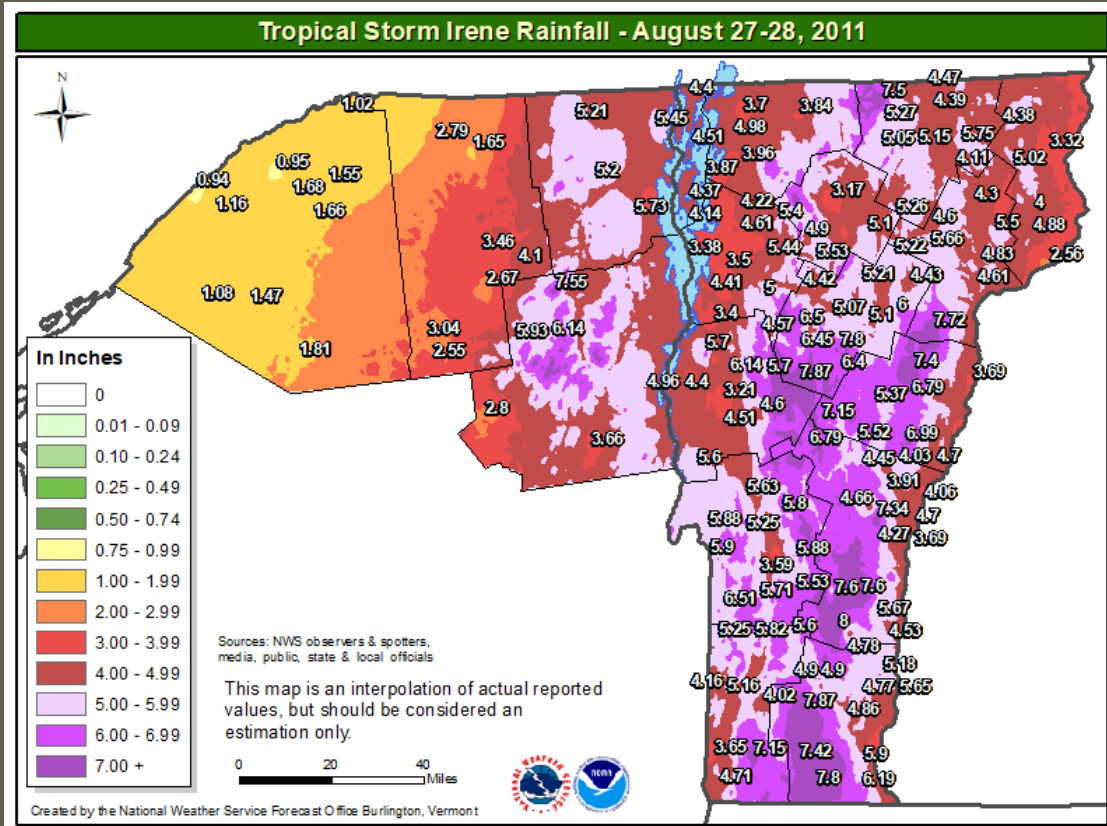
Vermont Rainfall

Yearly inches of rain

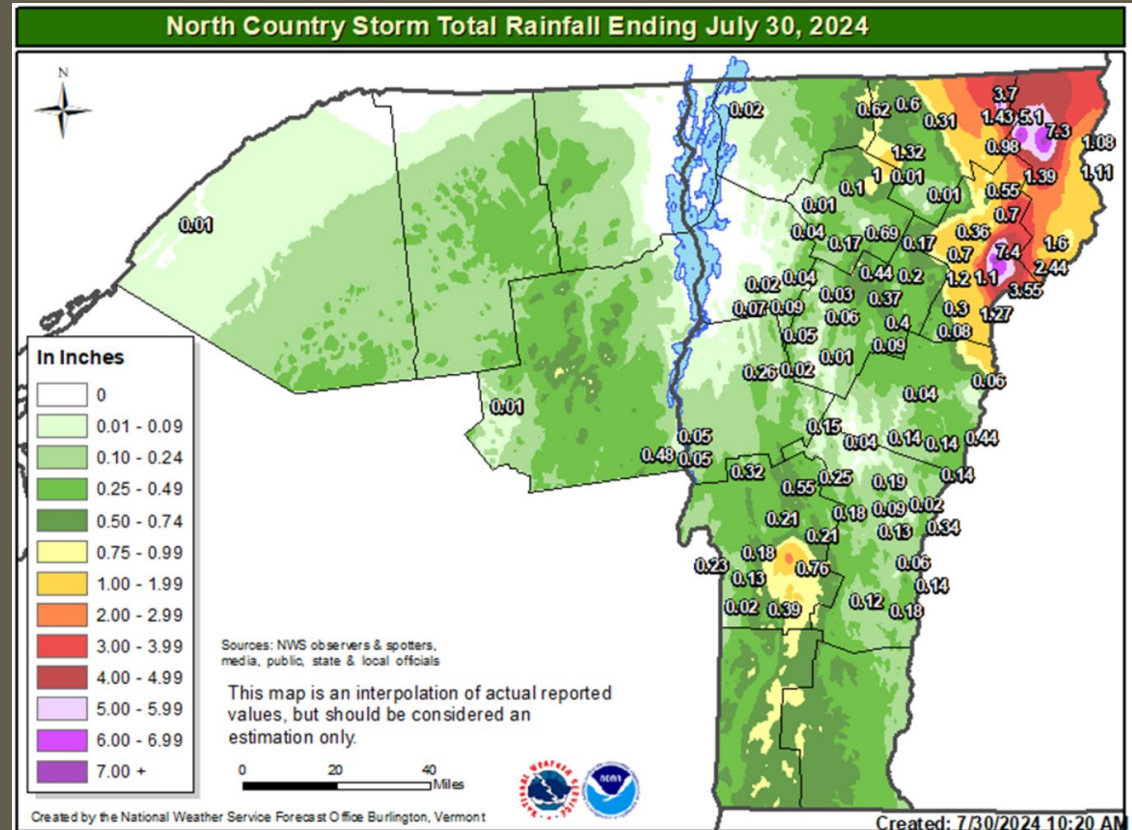
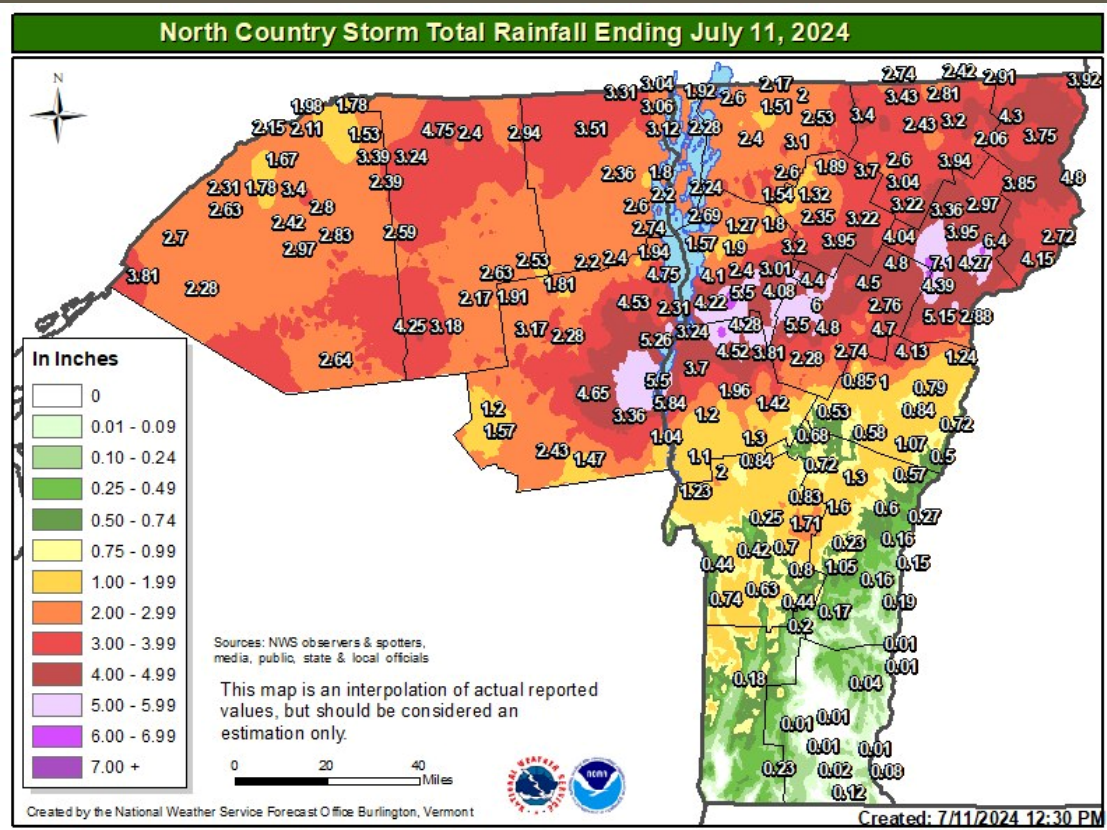


Source: NOAA

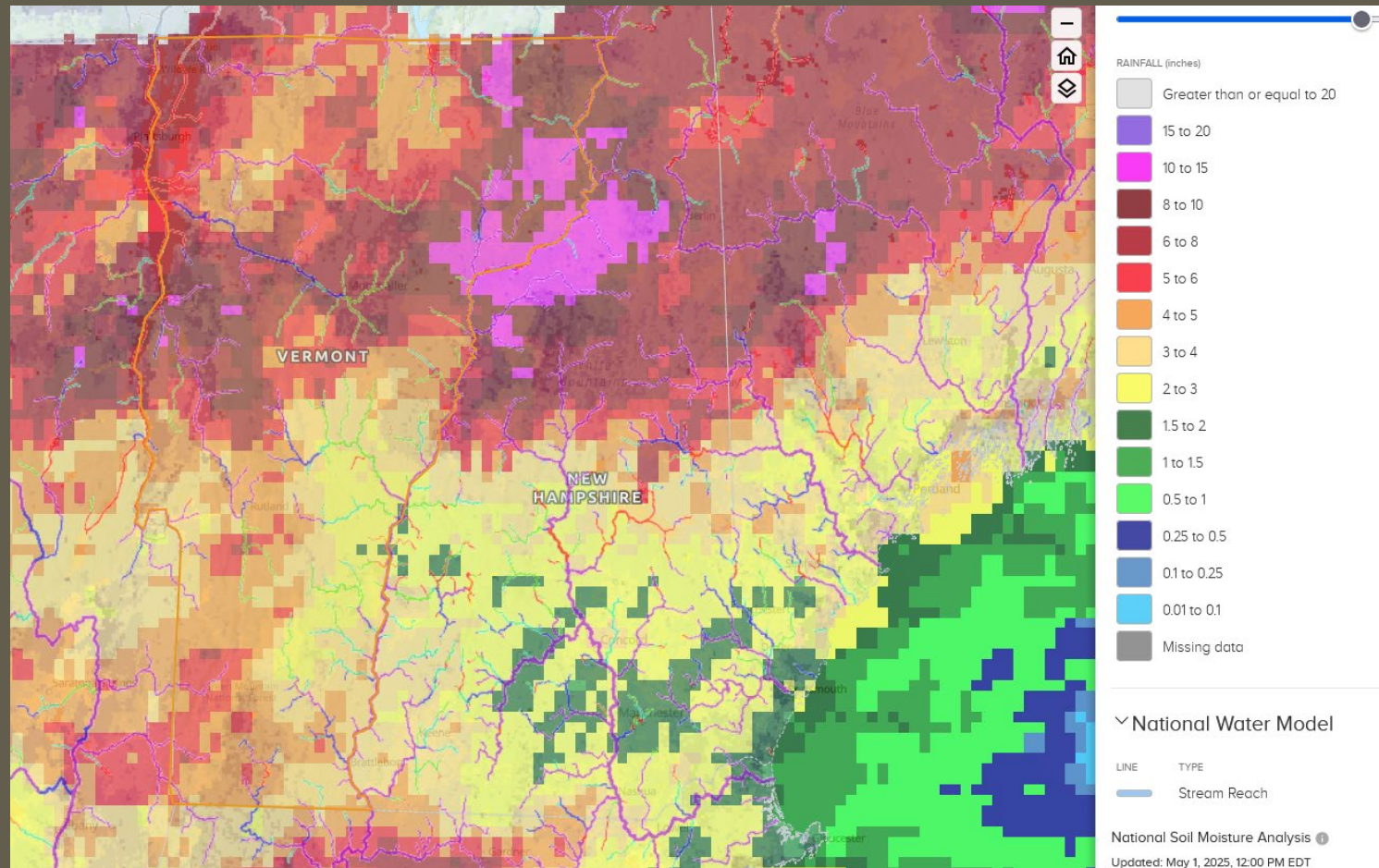
2011 TROPICAL STORM IRENE – JULY 2023 FLOODING COMPARISON



JULY 2024 FLOOD EVENTS

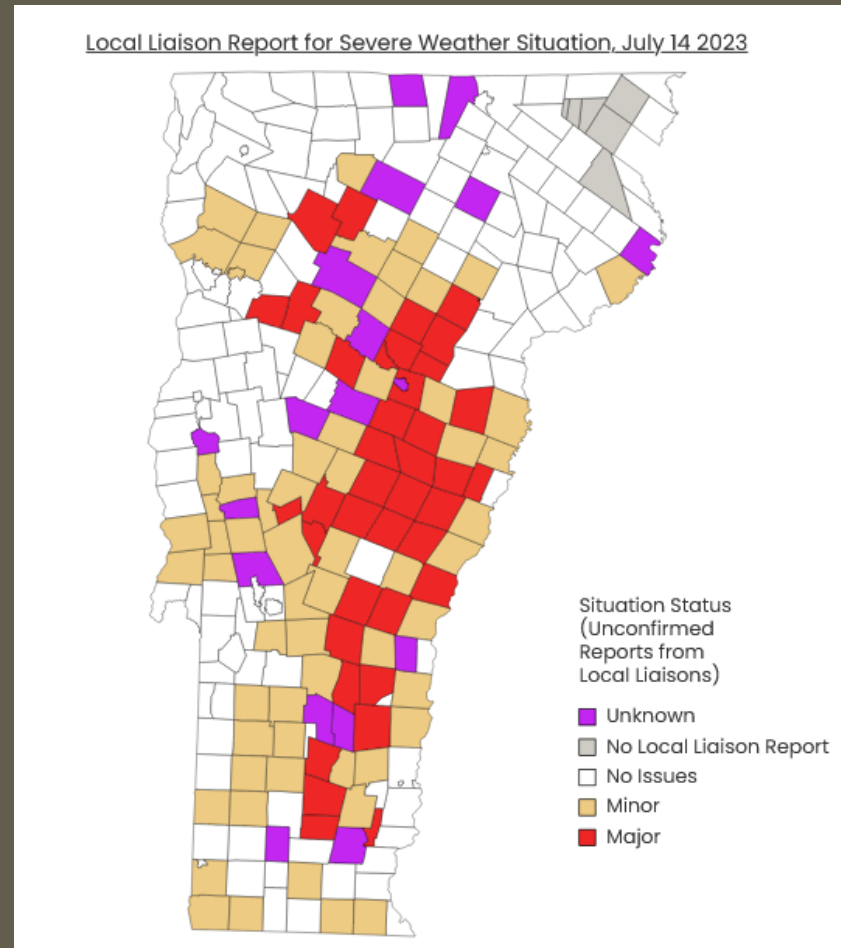


NATIONAL WATER MODEL JULY 2024



IMPACTS ON HOUSEHOLDS 2023 FLOOD

- \$26.3 million was provided to 3,614 households.
- Of this amount, \$24.5 million in housing assistance was paid to 3,172 households
- There were 16 single family households and 2 multi family households listed as “destroyed”
- 83 households received the maximum FEMA award
- Displacement support was not provided to families impacted by the 2023 flood. This type of FEMA award was new following the July 2023 flood.



IMPACTS ON HOUSEHOLDS 2024 FLOOD

\$10.5 million was provided to people impacted by the early July 2024 flood, and \$1.5 million was provided to people impacted by the late July flood.

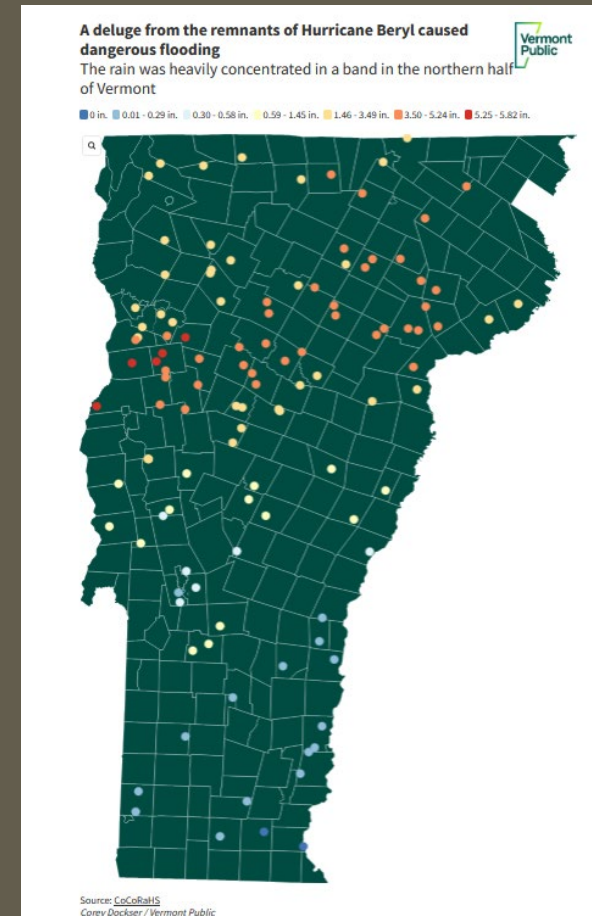
\$7 Million was provided to support Housing assistance in the early July flood, while \$1 million was provided to support housing assistance in the late July flooding

The \$7 million was provided to 1,398 households, and the \$1 million was provided to 279 households.

14 households received the maximum FEMA award about of \$42,500 from the early July flooding, while 2 households received the maximum amount from the late July flooding.

3 single family residences and 10 multi family residences from the early July flooding are categorized as destroyed. It is unknown how many were destroyed from the late July flooding.

1,372 households received displacement support from FEMA from the early July flooding totaling \$2 million. It is unknown how many households received displacement support from FEMA from the late July flooding, but that total is \$296k



ENVIRONMENT

How Vermont's physical and human geography help explain recent flooding

Vermont's physical features affect its weather, its rivers and how humans have come to inhabit it.

By Ethan Weinstein
July 31, 2023, 5:29 pm

<https://vtdigger.org/2023/07/31/how-vermonts-physical-and-human-geography-help-explain-recent-flooding/#:~:text=Vermonters%20settled%20along%20rivers%20for%20a%20number,at%20a%20greater%20risk%20of%20flood%20damage.>

“Flash flooding is the nature of our risk,” said Rob Evans, river programs manager for the Vermont Department of Environmental Conservation. Whereas in places such as the Midwest, rivers enter and exit flood stage gradually, in Vermont that process happens rapidly, in large part due to the mountainous topography.

According to Evans, Vermont's mountains don't just increase flood risk by making streams susceptible to flash flooding. The state's steep land has also caused people to settle in more flood-prone areas, what he called “our historic settlement patterns in floodplains and along rivers.”

Vermonters settled along rivers for a number of reasons, including mill power, transportation and waste disposal, Evans said. Village centers, which tend to be located in river valleys, have also come to house many of Vermont's lower-income residents, placing them at a greater risk of flood damage.

HOUSING & BUYOUTS

ECONOMY

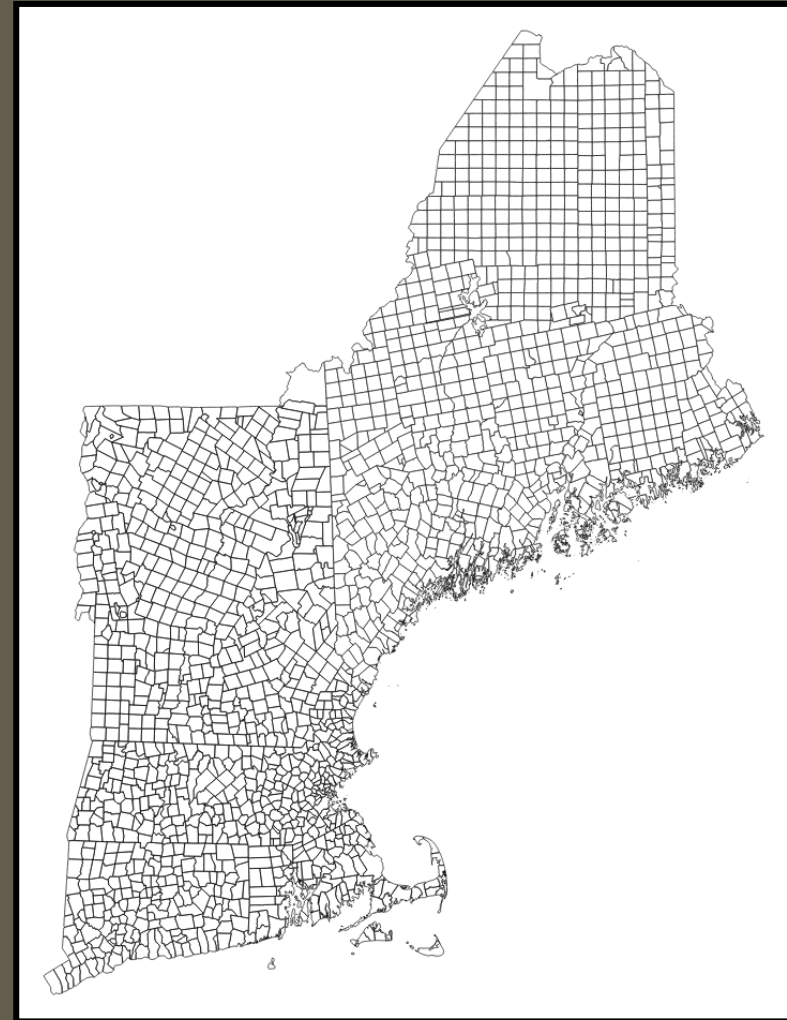
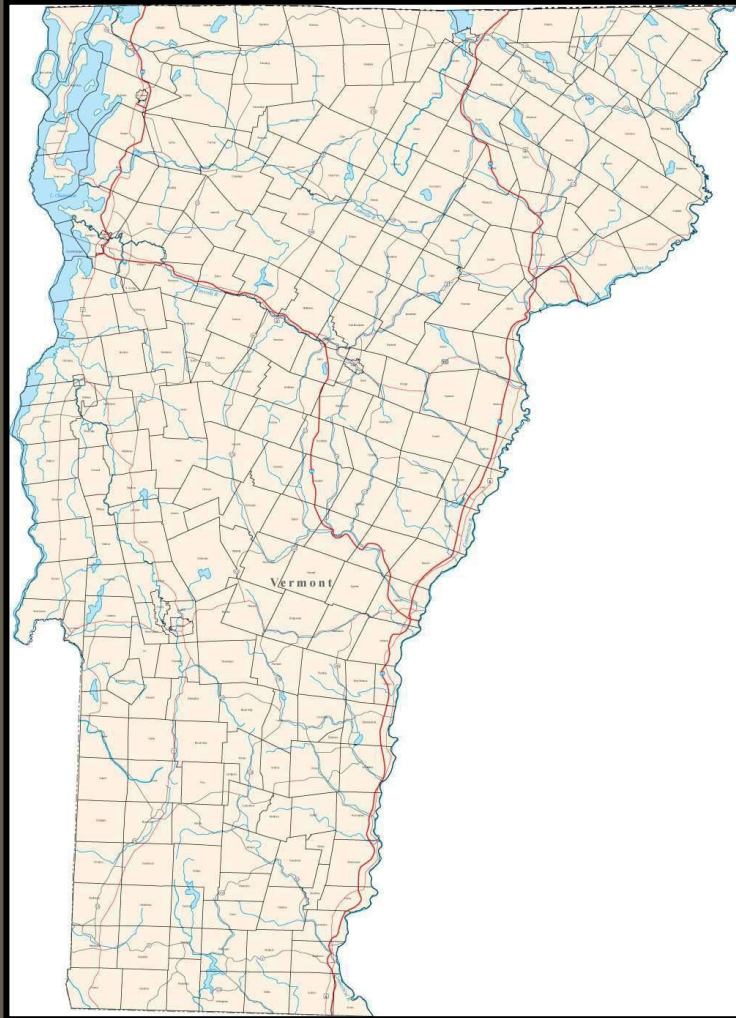
The floodwaters disproportionately hit Vermont's affordable housing stock — at the worst time

“Just the lack of available affordable housing in high, dry places, is a major factor in all of this,” said state Sen. Kesha Ram Hinsdale.

By Lola Duffort
July 31, 2023, 6:19 am

- Currently have approximately 240 buyouts that have been submitted to FEMA for funding under Hazard Mitigation Grant Program and Swift Current
- Another 50 or so that have expressed interest and are in the application development process.
- Another 31 properties awarded under state Flood Resilient Community Fund (ARPA) — properties that wouldn't qualify for federal funding, most often because they're in fluvial erosion hazard areas (river corridors/channel migration areas) and not in FEMA-mapped floodplains.

A VERMONT & NEW ENGLAND CHALLENGE



HYPERLOCAL PREPAREDNESS, RESPONSE, RECOVERY

- No county government in Vermont. No or limited county government elsewhere in New England and generally not engaged in land use, hazard mitigation, or disaster response and recovery.
- Responsibility lies with each municipality (more than 250 in Vermont)



Hard to plan for future resilience and adaptation when you're in response mode, especially when your government is primarily volunteer-run.



Charlotte, VT Selectboard

HEAVY RELIANCE ON FEDERAL AID

- Preparedness (Emergency Management Planning Grant)
- Local Hazard Mitigation Plans (Hazard Mitigation Grant Program (HMGP); Building Resilient Infrastructure & Communities (BRIC))
- Response Reimbursement (Federal Disaster Declaration)
- Public Infrastructure Recovery (Public Assistance Federal Disaster Declaration)
- Individual/Household Recovery (Individual Assistance Federal Disaster Declaration)

Vermont towns will lose millions in disaster preparedness funding in federal FEMA cuts

Vermont Public | By Peter Hirschfeld

Published April 9, 2025 at 1:39 PM EDT



Charles Krupa / Associated Press

Jody Tanner, of the Vermont Agency of Transportation, talks with coworkers at a high water point of the Lamoille River in Cambridge on July 11, 2024.

Communities across Vermont that are trying to prepare for future floods have lost a key source of federal funding.

The Trump administration announced last week that it's canceling a disaster preparedness program administered by the Federal Emergency Management Agency.

Stephanie Smith, the state Hazard Mitigation Officer, said Vermont will lose out on the \$2 million it received annually from the Building Resilient Infrastructure and Communities fund. She said the cancellation will also affect \$2.7 million in funding that FEMA had awarded to about 40 projects in past years but had not yet been paid out.

“It’s definitely disappointing,” Smith said.

<https://www.vermontpublic.org/local-news/2025-04-09/vermont-lose-millions-disaster-preparedness-flood-recovery-funding-federal-fema-cuts-bric>

Trump officials discuss making it much harder to qualify for federal disaster assistance, starting this hurricane season

By Gabe Cohen and Ella Nilsen, CNN
7 minute read · Published 5:00 AM EDT, Fri April 25, 2025



Members of the FEMA Urban Search and Rescue Task Force search a flood damaged area with a search canine in the aftermath of Hurricane Helene along the Swannanoa River on October 4, 2024 in Asheville, North Carolina. Mario Tama/Getty Images/File

A memo from acting FEMA administrator Cameron Hamilton, a Trump appointee, obtained by CNN, outlines a long list of recommendations for Trump to follow that could drastically reduce the number of emergency declarations the president approves and the amount of federal assistance doled out to cities and states hit by natural disasters. Such a change ahead of what are typically the worst months for natural disasters across the US could pose significant problems for states that are unprepared to foot the bill and for the millions of Americans impacted by disasters every year. Most notably, the memo, sent to an official with the White House Office of Management and Budget, proposes dramatically raising the threshold for states to qualify for public assistance, effectively quadrupling the amount of damage a community must suffer in order to receive federal aid. The proposal also recommends reducing the share of recovery costs the federal government will pay, limiting the types of facilities eligible for assistance and denying all major disaster declarations for snowstorms. “The primary purpose of this memorandum is to identify short-term actions to rebalance FEMA’s role in disasters before the start of the 2025 hurricane season,” Hamilton writes in the memo, which is part of the administration’s ongoing effort to dramatically shrink the disaster relief agency’s footprint and cut federal costs for disasters. At this point, there’s no clear indication that FEMA or the White House are following the recommendations outlined in Hamilton’s proposal.

<https://www.cnn.com/2025/04/25/politics/fema-aid-disaster-assistance-memo>

LONG-TERM RECOVERY VOLUNTEER & PHILANTHROPY DEPENDENT

- Long-term recovery for individuals and households largely dependent upon volunteer organizations and philanthropy.
- FEMA Individual Assistance threshold is high and may be less available.
- Flood insurance increasingly unaffordable and some policy discussion about ending federal program.
- Home insurance increasingly unaffordable and rates of insured dropping.
- Business recovery framework similarly informal, and for small business owners could have damage to both home and business, doubling financial risk exposure.

