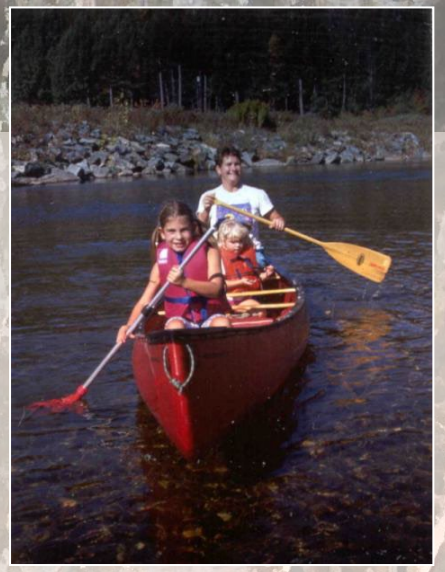
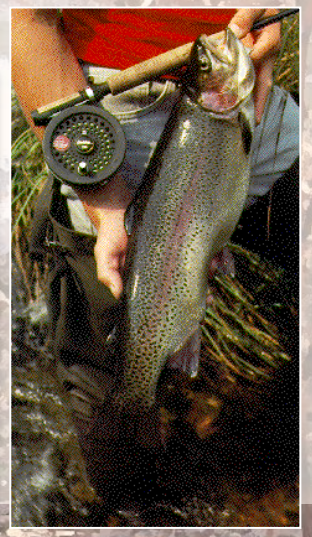
*Protect the room needed by the river*
*Protect floodplain functions*

*No adverse impact*

# Floodplain Natural and Beneficial Functions

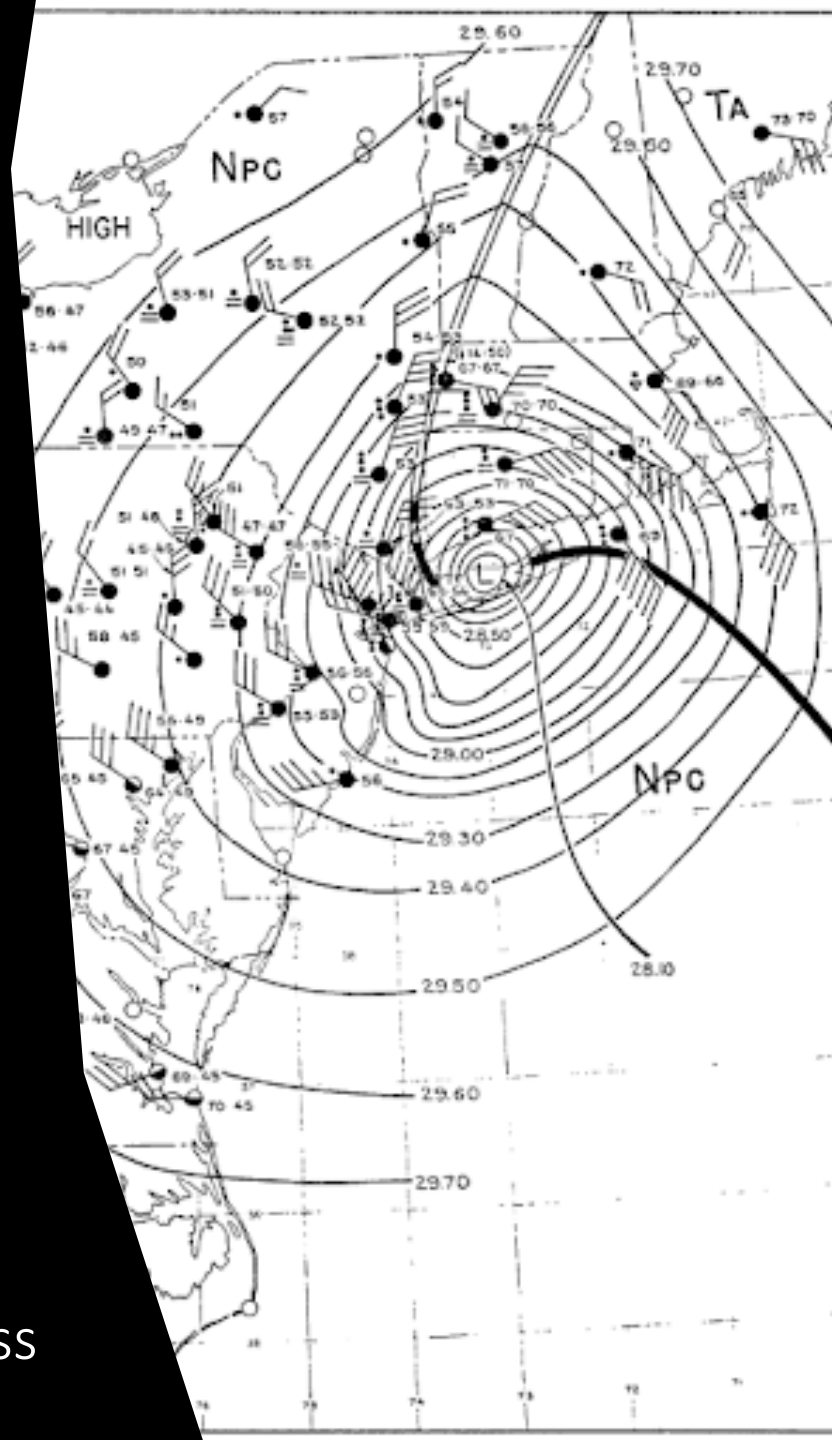
- Store and move floodwater, ice, debris
- Keep water clean (trapping sediments, nutrients)
- Enrich soil
- Recharge water supply
- Provide space for agriculture, forestry
- Wildlife and natural communities
- Recreation, beauty, inspiration
- **Reduce flood levels and flood power.**



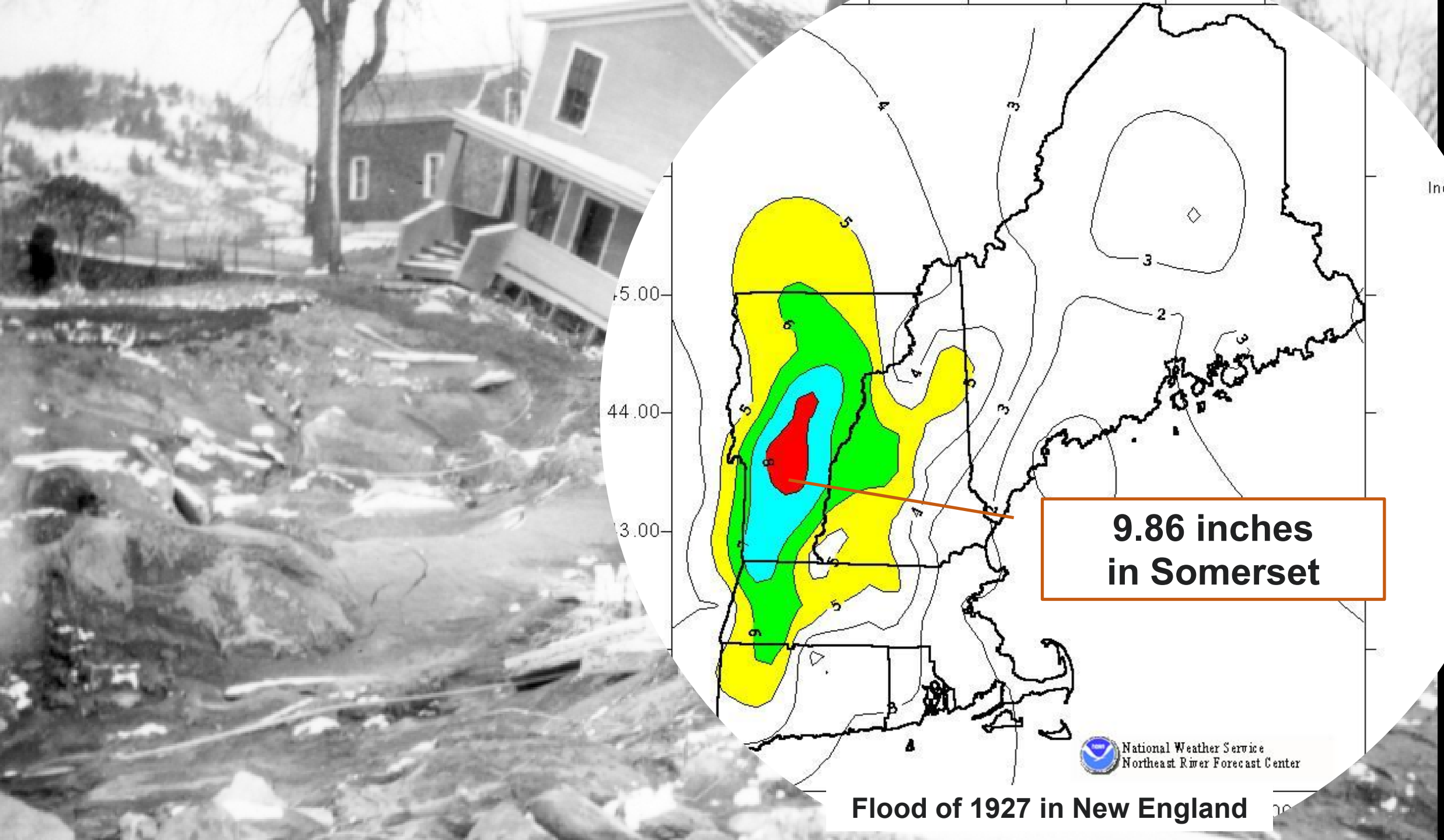


# Major floods in Vermont

1830
1869
1927
1936
1938
1971
1973
1976
2011
2023
2024



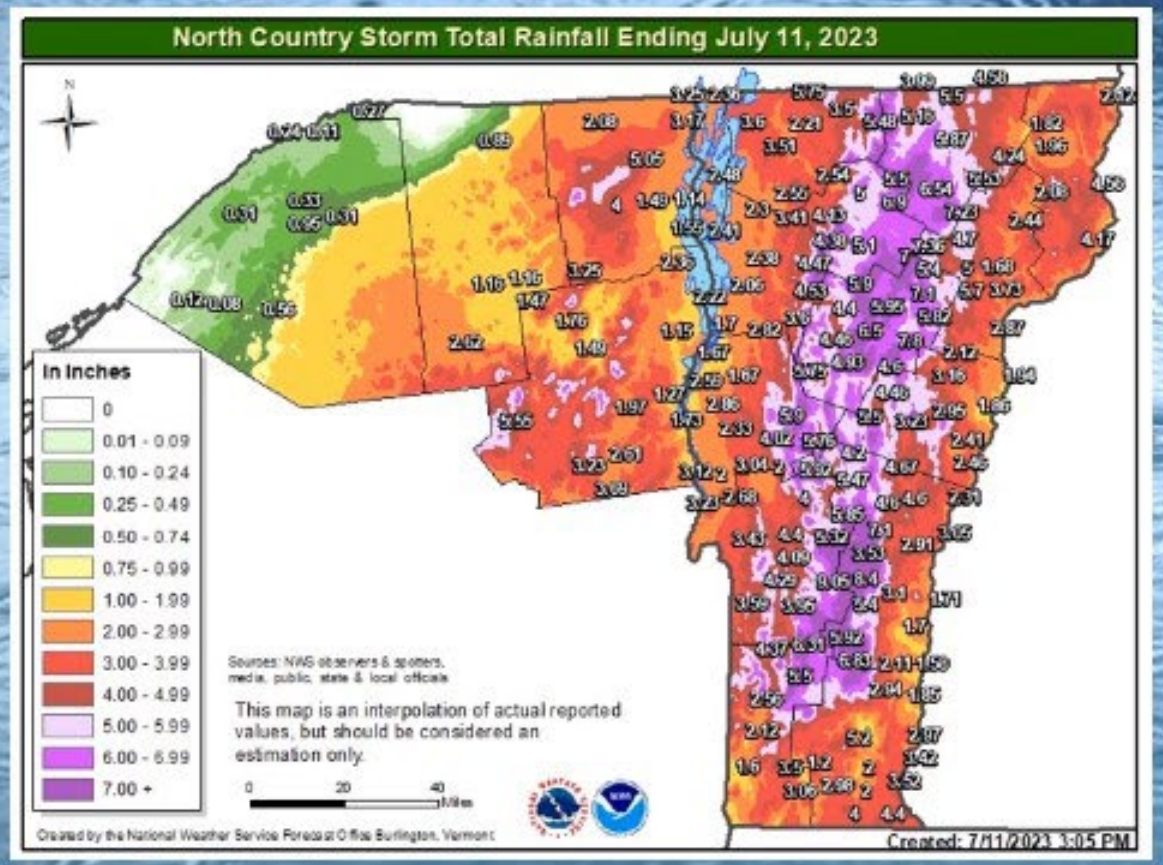

9/21/1938
The Long Island Express



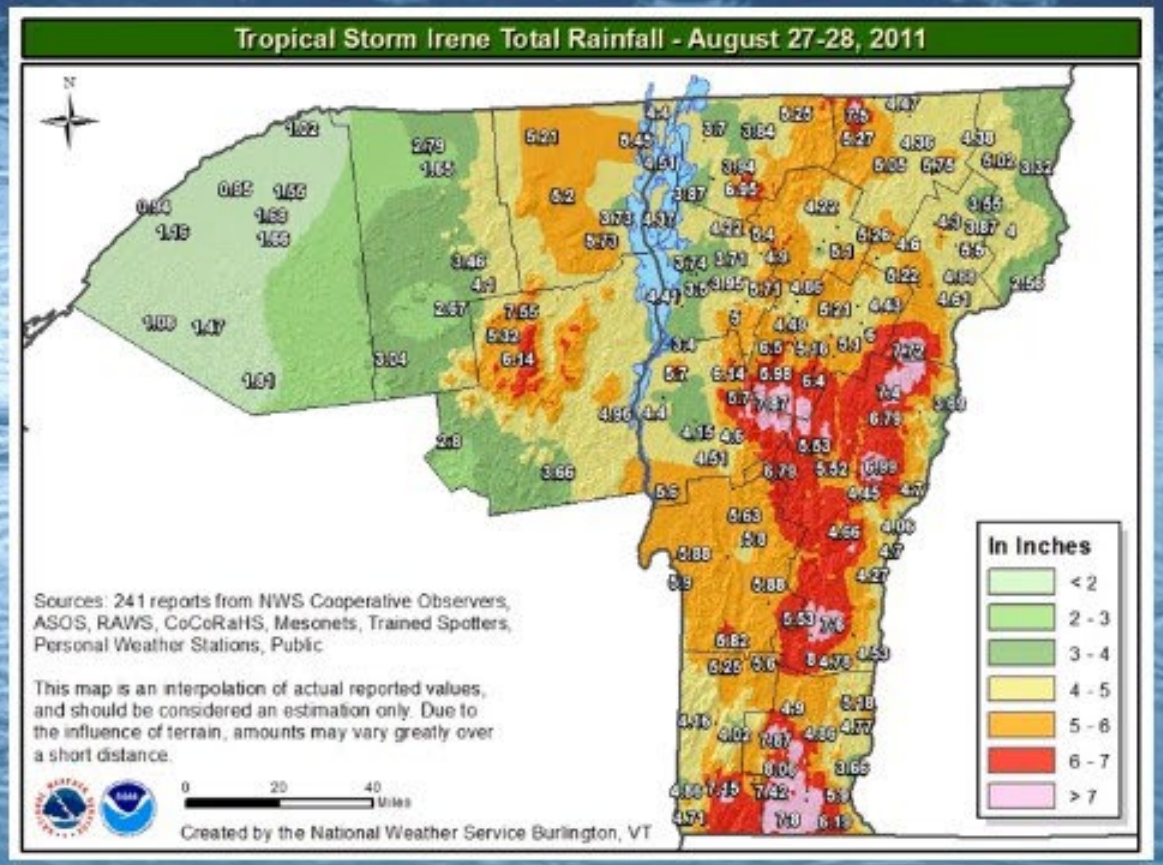

Flood of 1927 in New England

# Total Rainfall compared to TS Irene

**July 2023**

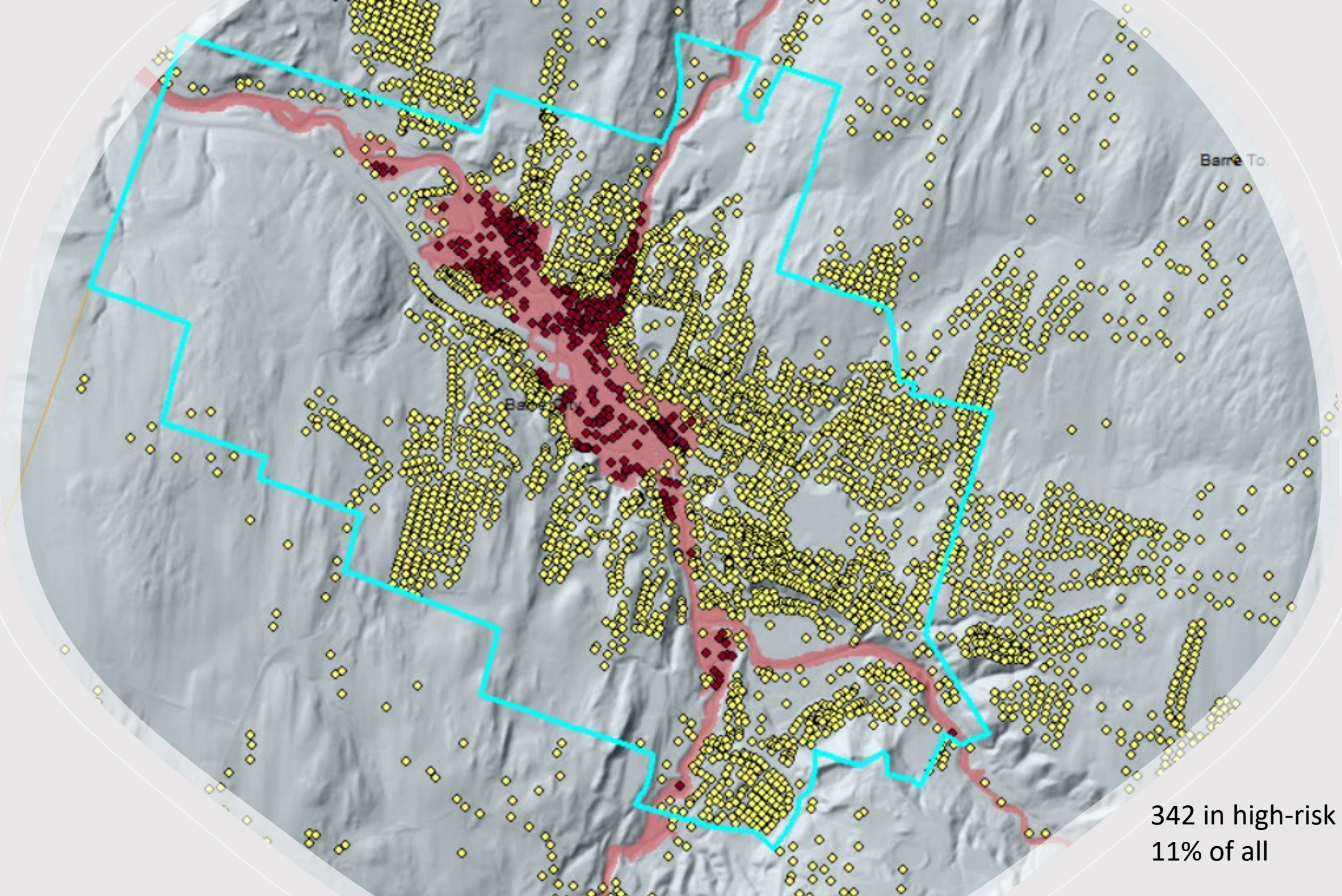



**August 2011**



www.floodready.vt.gov

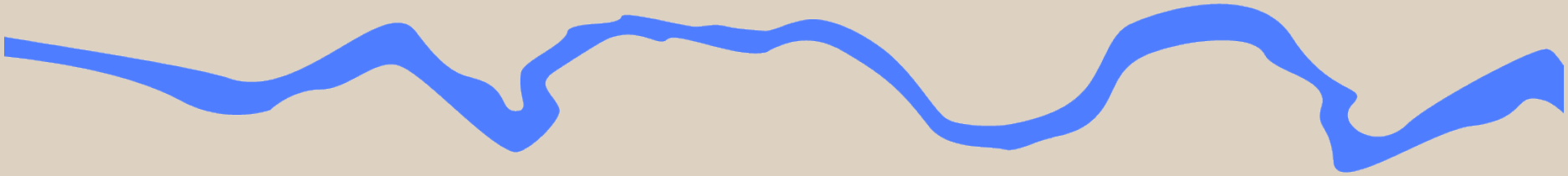
| Community | ERAF Rate | (1) NFIP | (2) Rd Stds | (3) LEMP | (4) LHMP | (5) RC | (a) # In SFHA | (b) % Insured | (c) # critical or public | (d) % of all |
|---|---|---|---|---|---|---|---|---|---|---|
| Barre City | 7.5% | Yes | No | Yes | Yes | No | 434 | 15% | 8 | 13% |
| Barre Town | 12.5% | Yes | Yes | Yes | Yes | No | 16 | 13% | 1 | 0% |
| Berlin | 17.5% | Yes | Yes | Yes | Yes | Yes | 183 | 12% | 3 | 9% |
| Cabot | 17.5% | Yes | Yes | Yes | Yes | Yes | 67 | 3% | 1 | 5% |
| Calais | 12.5% | Yes | Yes | Yes | Yes | No | 90 | 1% | 0 | 6% |
| Duxbury | 7.5% | Yes | Yes | No | Yes | No | 32 | 9% | 0 | 3% |
| East Montpelier | 17.5% | Yes | Yes | Yes | Yes | Yes | 69 | 4% | 1 | 3% |
| Fayston | 17.5% | Yes | Yes | Yes | Yes | Yes | 24 | 4% | 0 | 2% |
| Marshfield | 12.5% | Yes | Yes | Yes | Yes | No | 73 | 1% | 1 | 6% |
| Marshfield Village | 12.5% | Yes | Yes | Yes | Yes | No | 6 | 33% | 1 | 15% |
| Middlesex | 17.5% | Yes | Yes | Yes | Yes | Yes | 65 | 6% | 0 | 5% |
| Montpelier | 17.5% | Yes | Yes | Yes | Yes | Yes | 450 | 19% | 18 | 12% |
| Moretown | 12.5% | Yes | Yes | Yes | Yes | No | 105 | 10% | 2 | 8% |
| Northfield | 17.5% | Yes | Yes | Yes | Yes | Yes | 160 | 8% | 0 | 6% |
| Orange | 17.5% | Yes | Yes | Yes | Yes | Yes | 46 | 4% | 0 | 5% |
| Plainfield | 17.5% | Yes | Yes | Yes | Yes | Yes | 49 | 12% | 0 | 5% |
| Roxbury | 17.5% | Yes | Yes | Yes | Yes | Yes | 18 | ? | 1 | 2% |
| Waitsfield | 17.5% | Yes | Yes | Yes | Yes | Yes | 40 | 35% | 1 | 3% |
| Warren | 7.5% | Yes | Yes | Yes | No | Yes | 51 | 6% | 0 | 2% |
| Washington | 12.5% | Yes | Yes | Yes | Yes | No | 62 | ? | 2 | 6% |
| Waterbury | 7.5% | Yes | No | Yes | Yes | Yes | 68 | 32% | 0 | 3% |
| Waterbury Village | 12.5% | Yes | Yes | Yes | Yes | No | 184 | 15% | 11 | 25% |
| Williamstown | 12.5% | Yes | Yes | Yes | Yes | No | 143 | 2% | 1 | 6% |
| Woodbury | 12.5% | Yes | Yes | Yes | Yes | No | 26 | 4% | 0 | 2% |
| Worcester | 17.5% | Yes | Yes | Yes | Yes | Yes | 17 | ? | 0 | 2% |

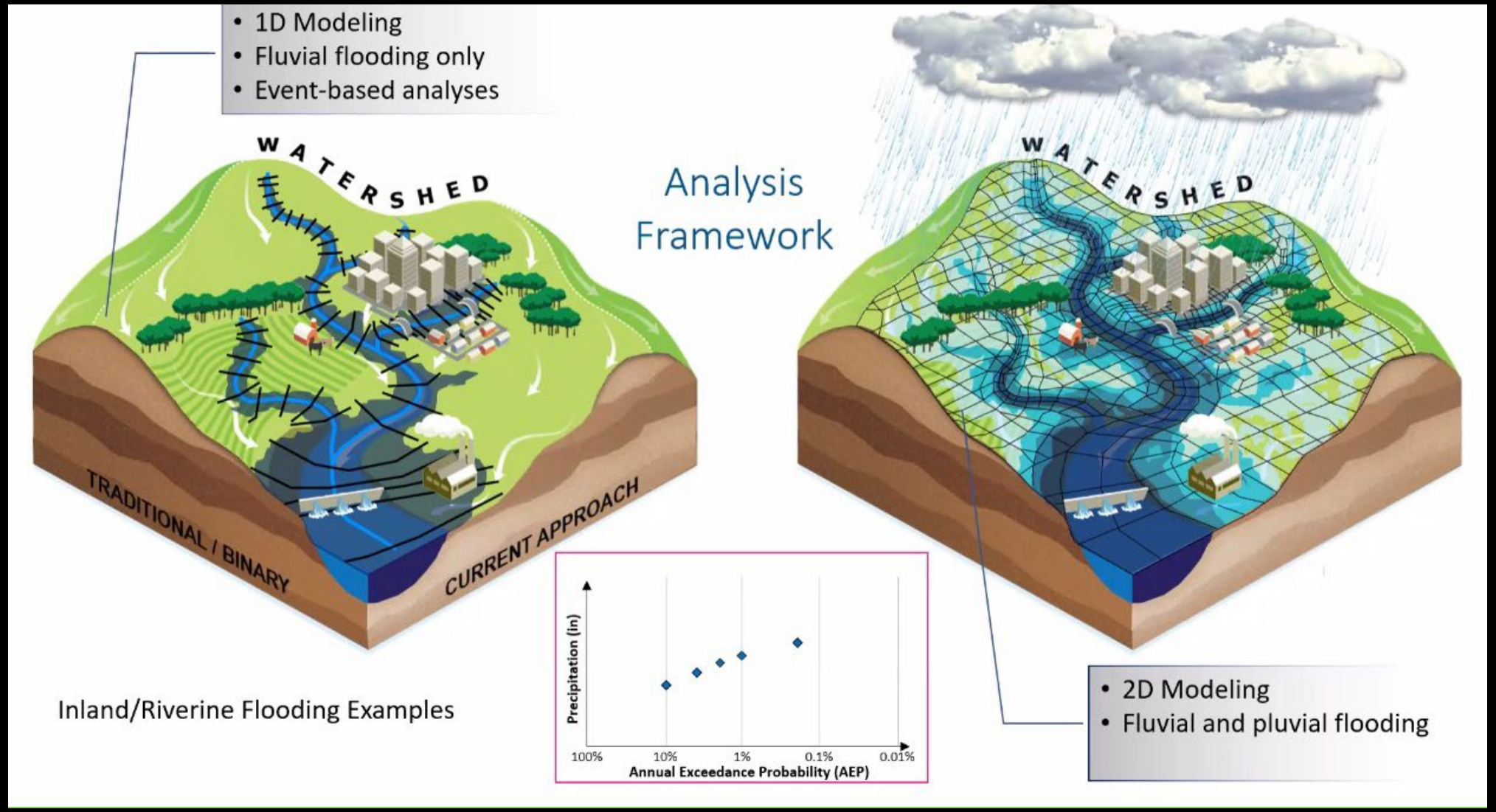



342 in high-risk zone
11% of all

## FEMA Flood Studies Underway

1. **Zone A** from 1D or 2D Base Level Engineering (BLE)
2. Redelineated **Zone AE** using the new 1’ contours
3. Selected new detailed studies with Zone AE and Floodways

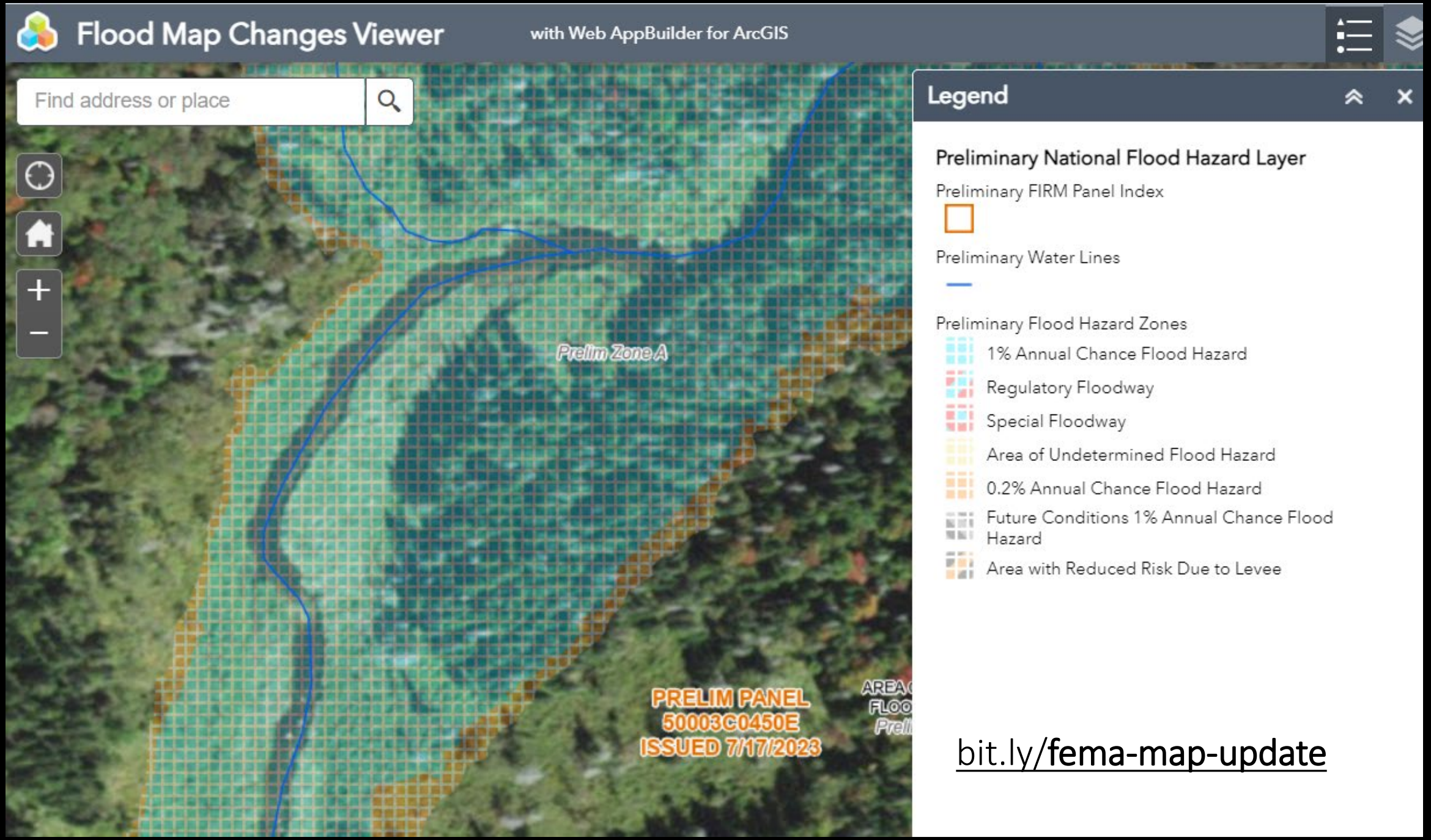





FEMA's Future of Flood Risk Data (FFRD)
From binary to probabilistic

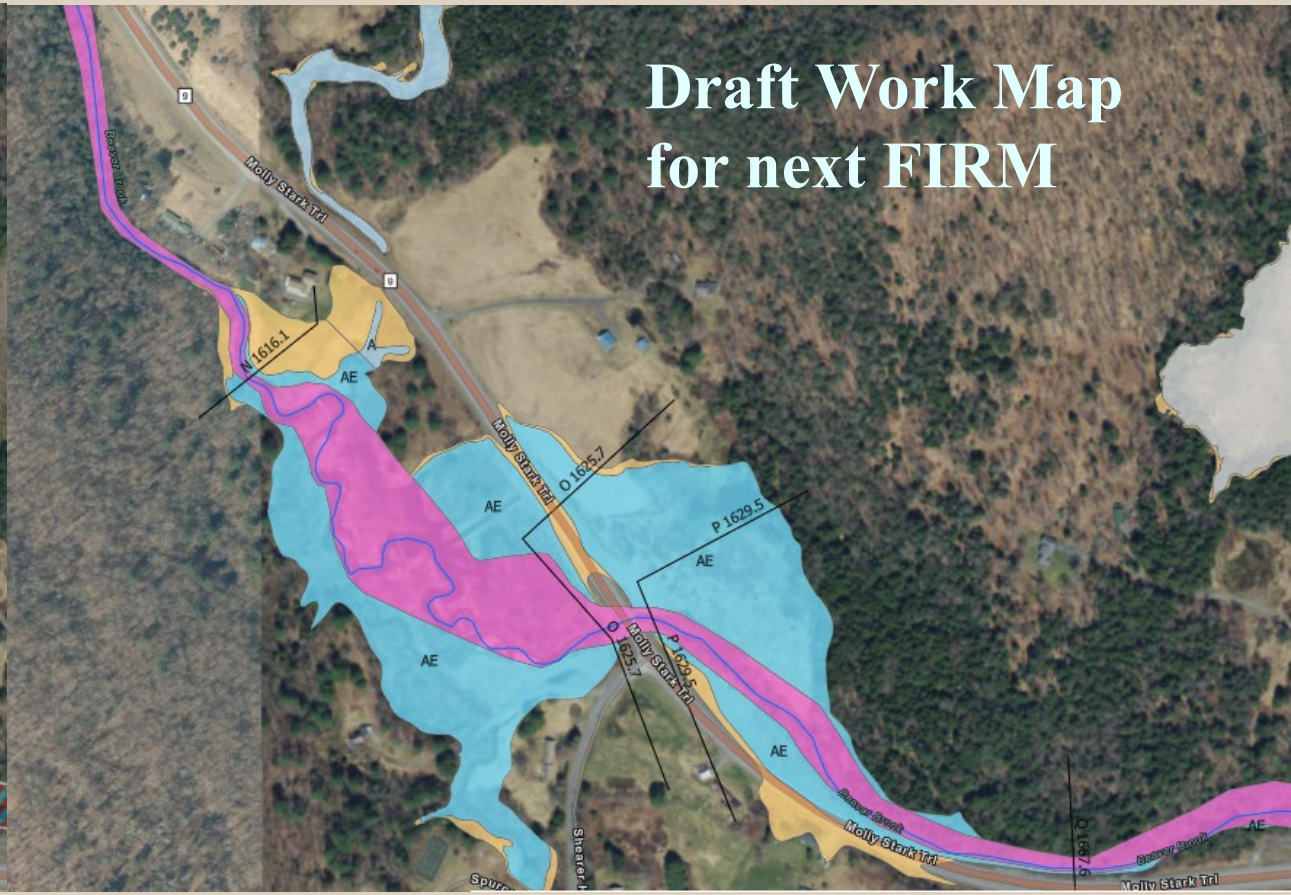

Zone A existing map


Zone A from 2D Base Level Engineering



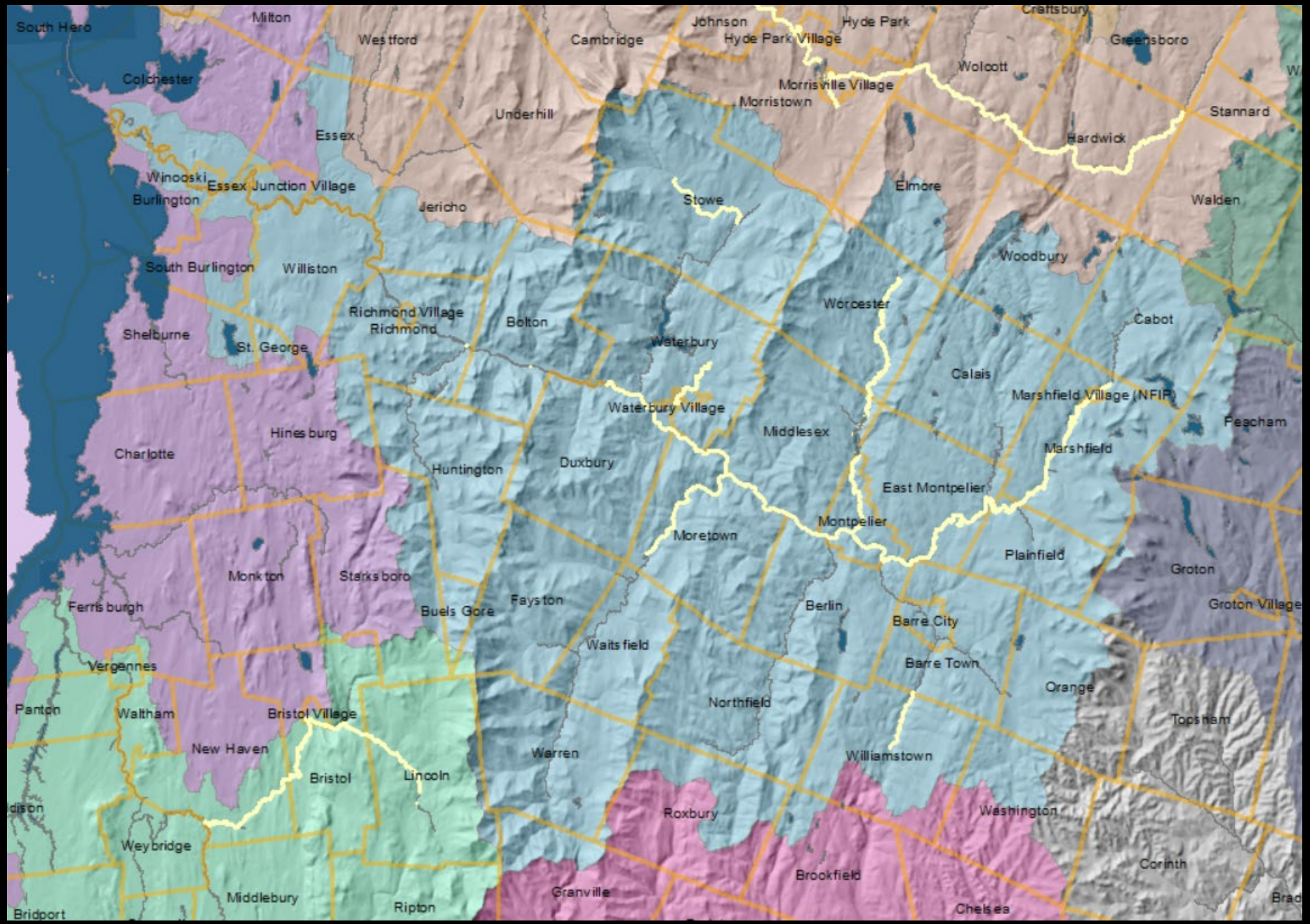

bit.ly/fema-map-update


Effective FIRM
Molly Stark Trl
Zone AE
PANEL
50025C0452E
eff. 9/28/2007
Beaver Brook

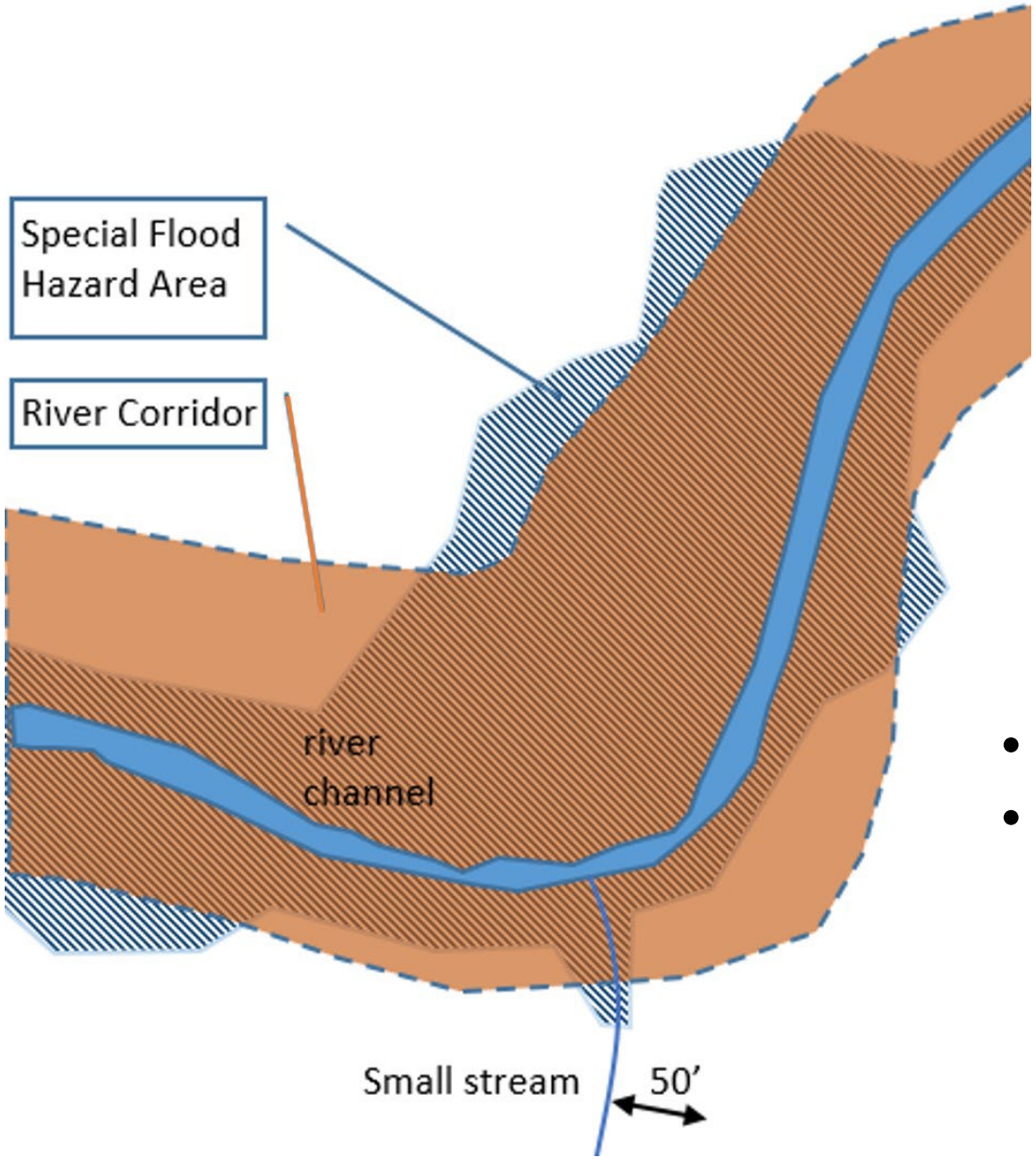

Draft Work Map
for next FIRM
Molly Stark Trl
N 1616.1
AE
O 1625.7
P 1629.5
Beaver Brook


Detailed Studies
(yellow)

FIRM Updates:
Workmaps – Summer 2025
Effective – Winter 2028




Nov 1927
Aug 2011
Q100
NOV 03,1927
AUG 28,2011
SEP 22,1938
JUN 27,1998
MAR 06,1979
1977
AUG 10,1976
APR 18,1982
MAR 31,1987
JAN 19,1996
JUN 03,1947
JUN 30,1973
1971
DEC 31,1948
OCT 24,1990
1989
1984
1972
1956
2014
1935
2002




- *Protect the room needed by the river*
- *Protect floodplain functions*

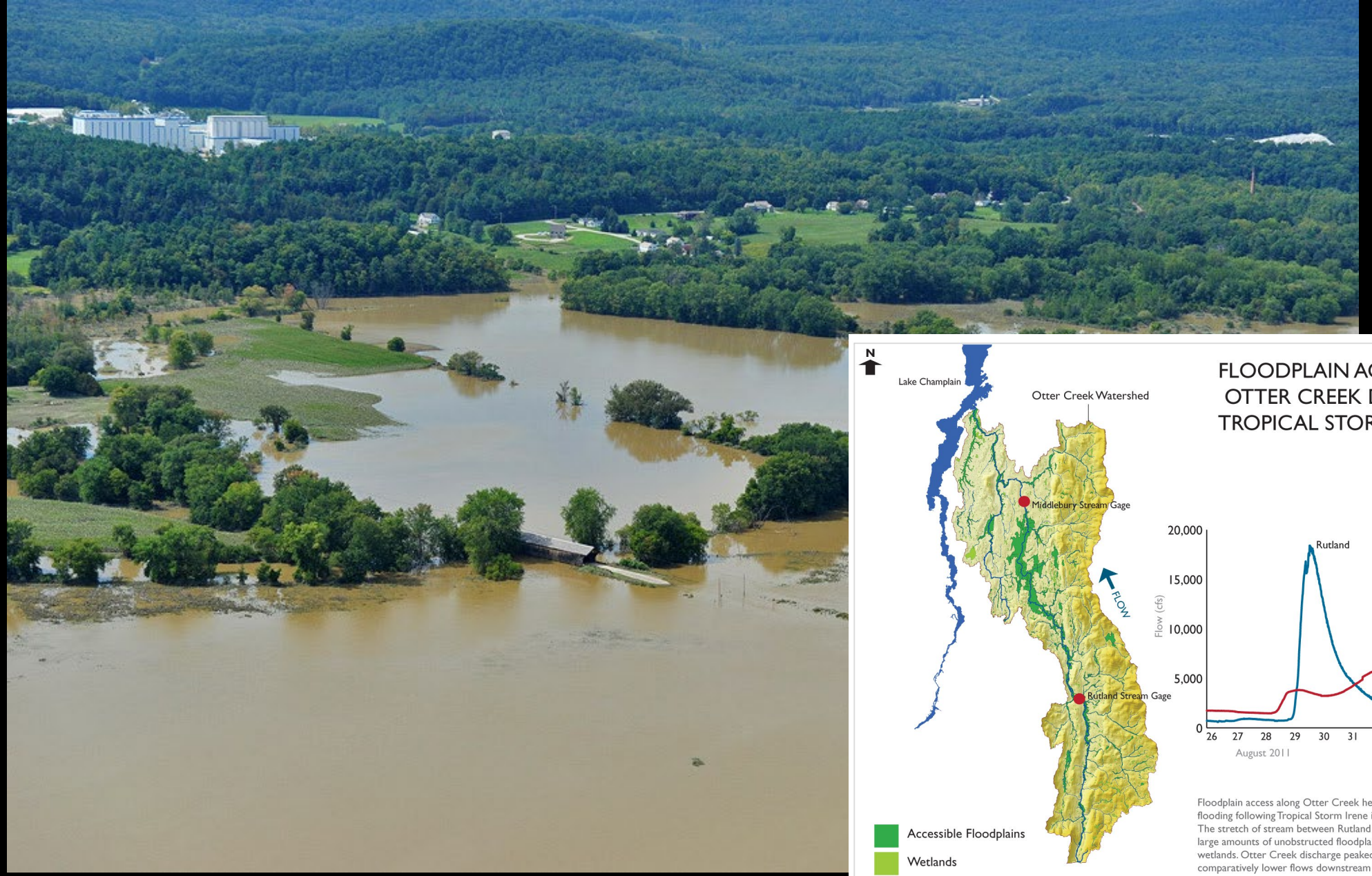
***No adverse impact***

# No Adverse Impact - Model Bylaws

1. **River Corridor Protection**
   Don't build closer than what is already there.
   ***Leave room for rivers***

2. **Special Flood Hazard Area**
   No net fill
   Lowest floor 2 feet above flood water
   ***Let floodplains work for all of us.***
   ***Don't increase the risk for those already at risk.***

bit.ly/**model-regulations**



Otter Creek, Pittsford, September 3, 2011
Photo: Lars Gange, Mansfield Heliflight

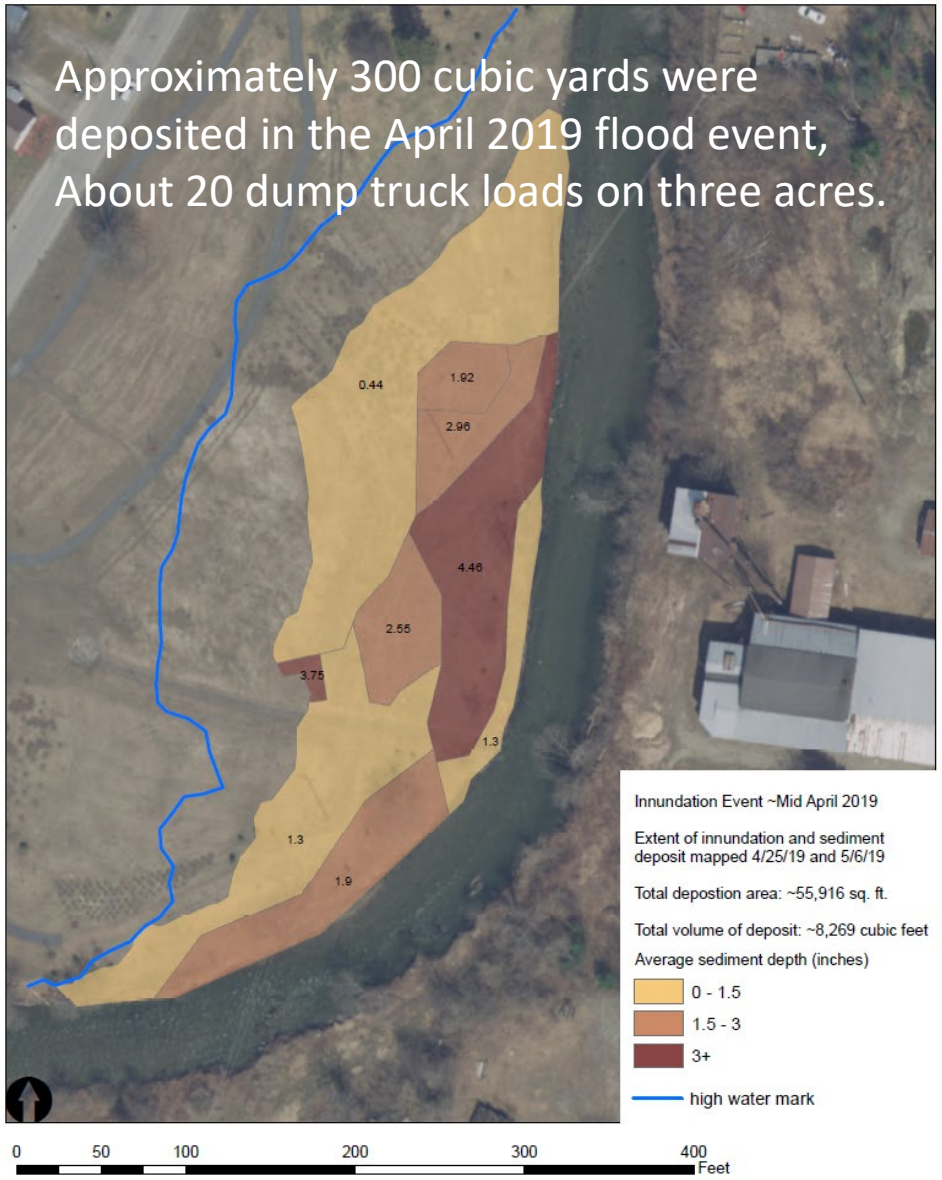
# Dog River hazard mitigation project completed

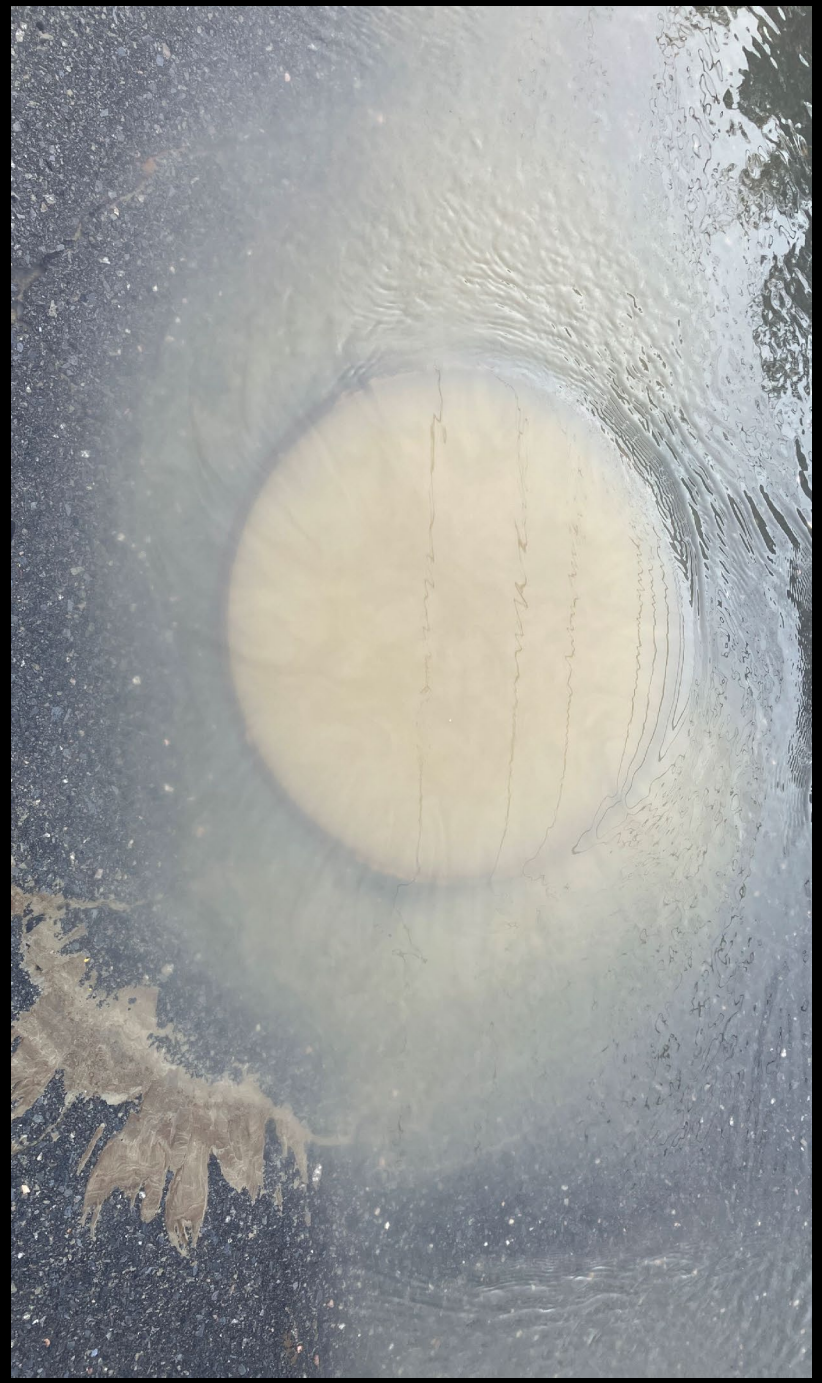
*The Times Argus | August 15, 2018*

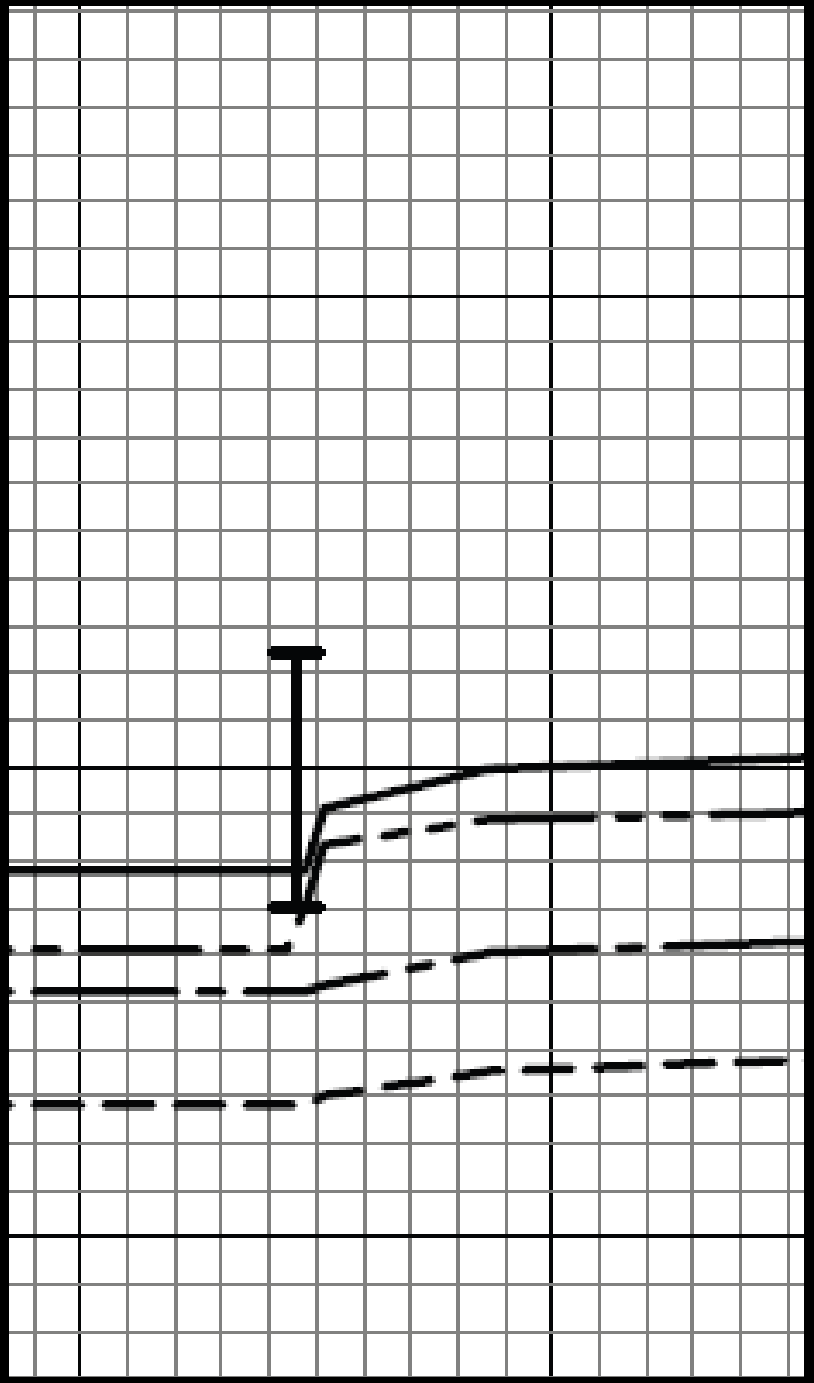
By Kathryn Threlkeld
CORRESPONDENT

*Jeb Wallace-Brodeur / Staff Photo*

Water Street Floodplain Restoration Site, Dog River, Northfield, VT

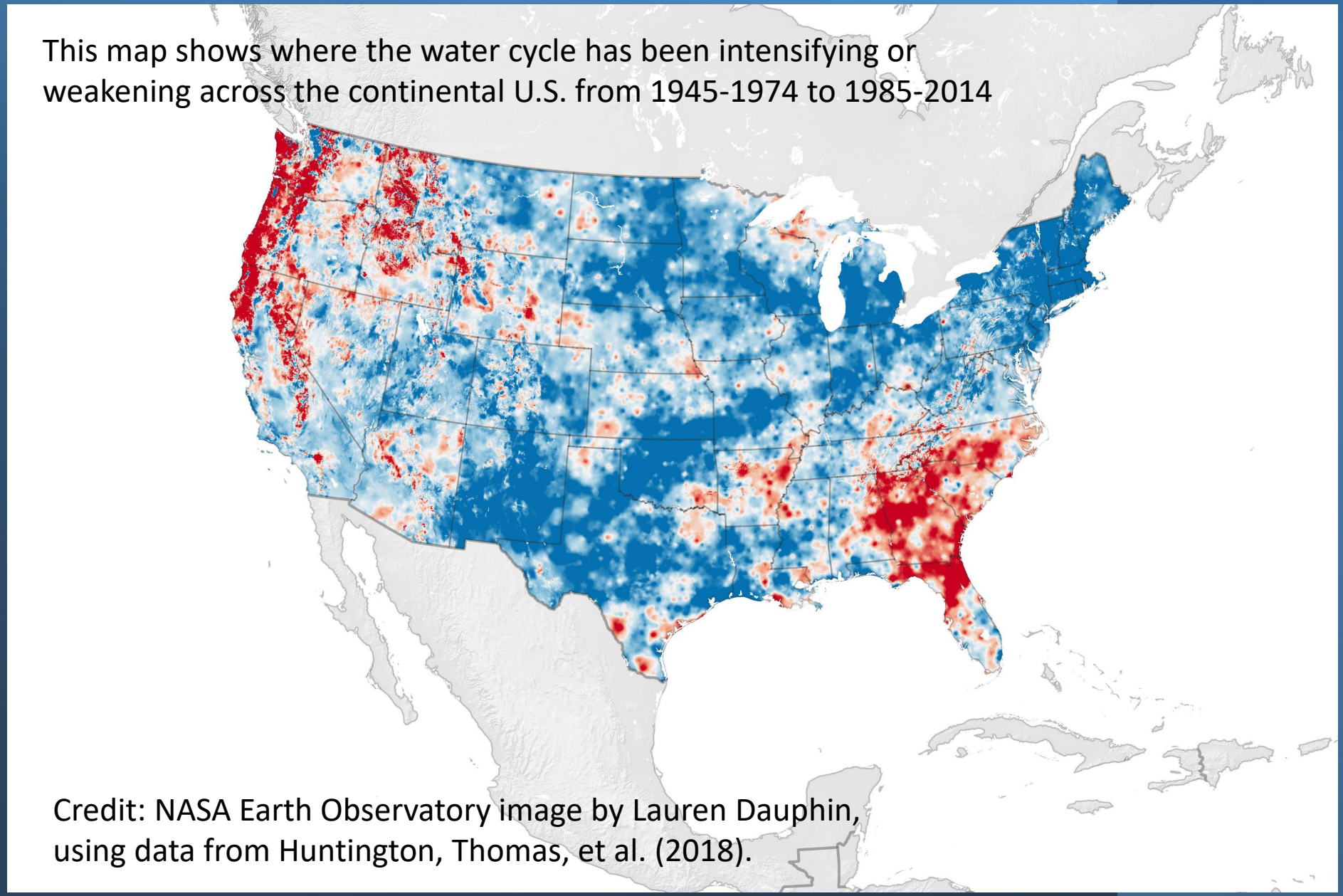


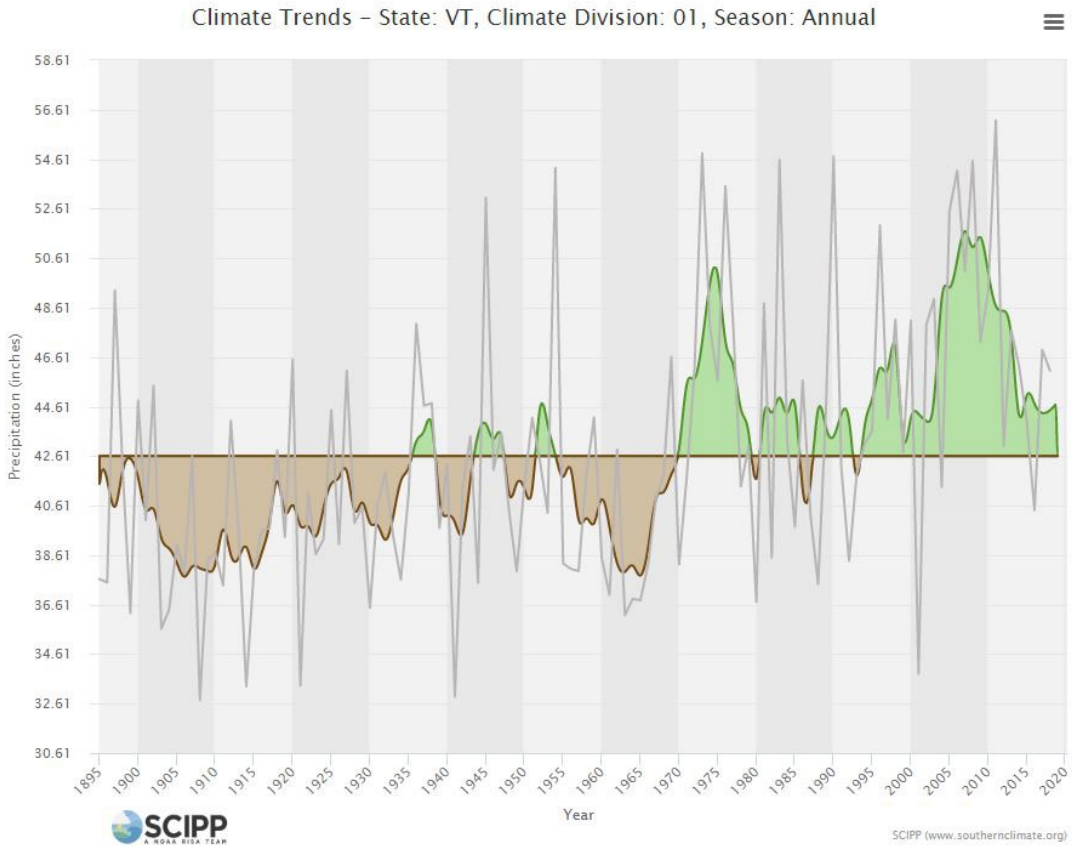



GARAGE
THE GARAGE CULTURAL CENTER
STONECLIFF

This map shows where the water cycle has been intensifying or weakening across the continental U.S. from 1945-1974 to 1985-2014

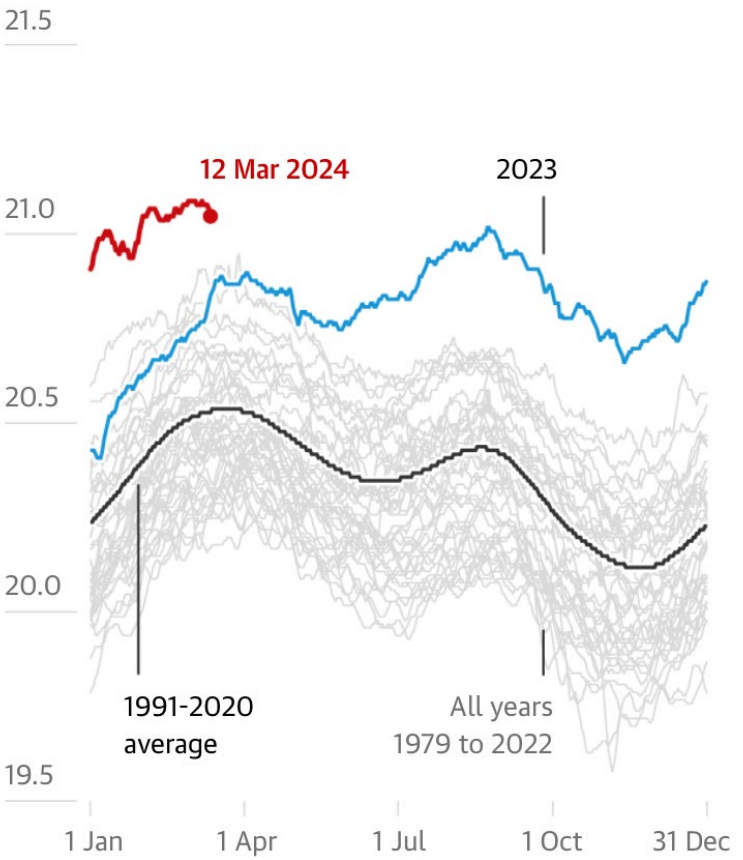


Credit: NASA Earth Observatory image by Lauren Dauphin, using data from Huntington, Thomas, et al. (2018).




## Sea surface temperatures are at record highs

Average daily sea surface temperature, 60S to 60N, C




Guardian graphic. Source: Copernicus C3S/ECMWF Era5

**Town of _____**

**Flood Hazard and River Corridor Bylaw**

**I. Statutory Authorization and Effect**

**II. Purpose**

**III. Summary Table: Development Review in Hazard Areas**

**IV. River Corridor Protection**

**V. Flood Hazard Area Protection**

**VI. Other Provisions**

**VII. Administration**

**VIII. Definitions**

No Adverse Impact
Stand Alone Model
bit.ly/model-regulations

Within the River Corridor don't build closer than what's already there.

No net fill in the Special Flood Hazard Area.

Lowest Floor Elevation at least two feet above the base flood.

Substantial Improvement – calculated over three years.

- **Protect what works** – room for rivers and floodplains
- **Improve floodplain functions** where they are already lost
- **Reduce risk** for existing families, workplaces, and critical services
- **Plan for flood response and flood resilience**
  **Bounce ahead after disaster**