

River Corridor Protections

Reducing Our Exposure to Flood Hazards



Shayne Jaquith: The Nature Conservancy

Alison Spasyk: Lake Champlain Sea Grant



Outline

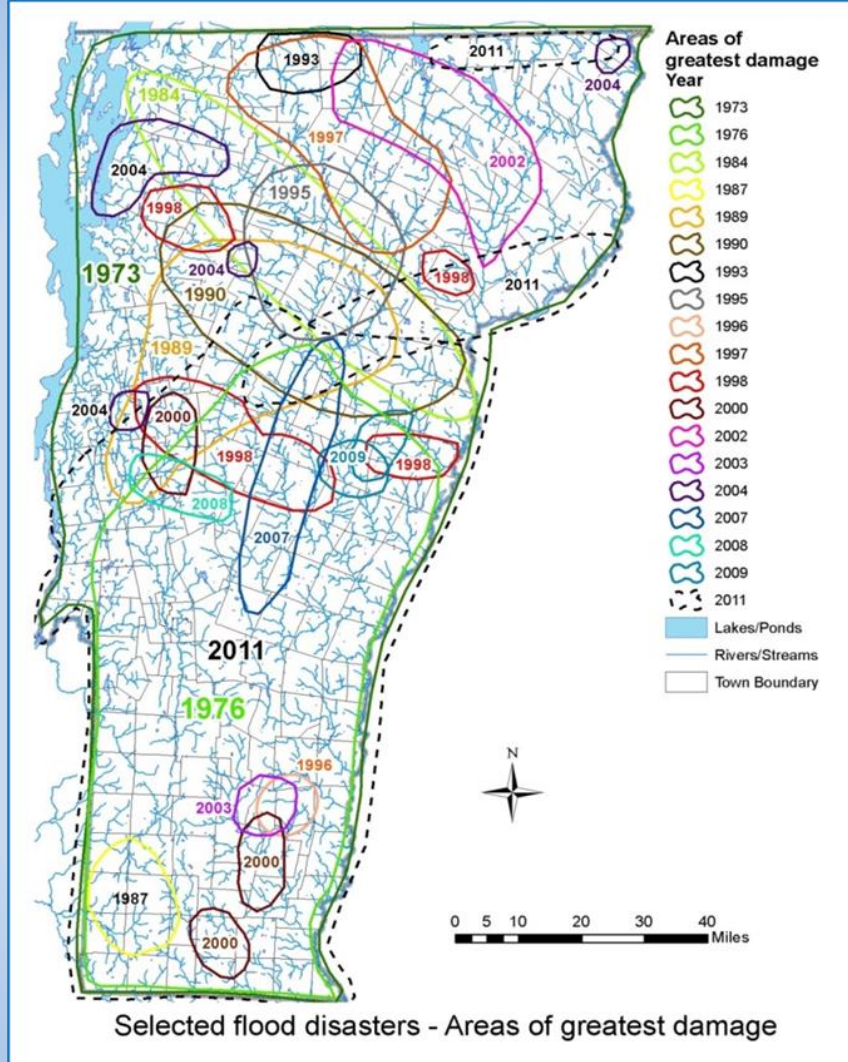
- Overview of VT flood history
- Factors that make VT floods so damaging
- Reducing exposure to flood hazards through river corridor protections
- Questions

A History of Vermont's Largest Floods

All New England Flood:	1869	Unknown
The Great Vermont Flood:	1927	\$450M
The Great New England Hurricane:	1938	\$482M
Floods of 1973:	1973	\$326M
Tropical Storm Irene:	2011	\$750M

Source: National Weather Service
Cost figures adjusted for 2012 dollars

More Frequent Floods



Frequent Flood Disasters

- 1927 – 2011: **3** large-scale disastrous floods (1 every 14 years)
- 1973 – 2011: **19** disastrous floods of regional-scale (1 every 2 years)

Flooding is the most common and costly recurring hazard in Vermont

Flooding Damage:



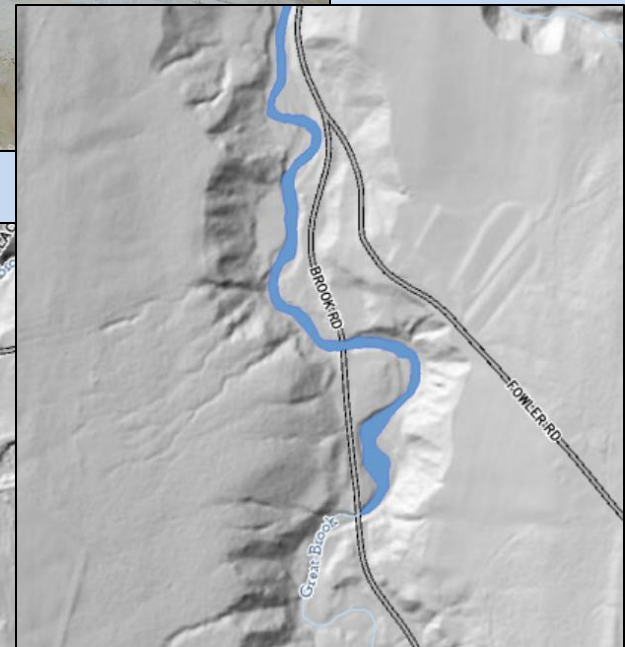
Inundation vs. Erosion

Over 75% of monetary flooding damages are due to fluvial erosion in Vermont
State Hazard Mitigation Plan

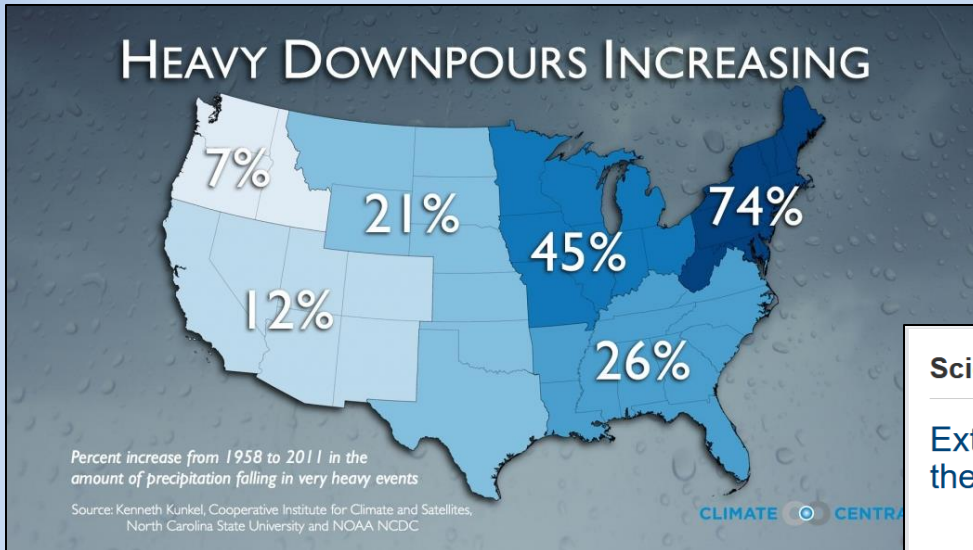
What makes our floods so damaging?

- Topography
- Precipitation
- Risky Development

Topography



Precipitation Trends



Science News

from research organizations

Extreme precipitation in Northeast US to increase 52% by the end of the century

Date: May 30, 2023

Source: Dartmouth College

Summary: With a warmer climate creating more humid conditions in the Northeast, extreme precipitation events -- defined as about 1.5 or more inches of heavy rainfall or melted snowfall in a day -- are projected to increase in the Northeast by 52% by the end of the century, according to a new study.

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Property damages from flooding in Vermont are calculated to exceed \$5.2 billion over the next 100 years.

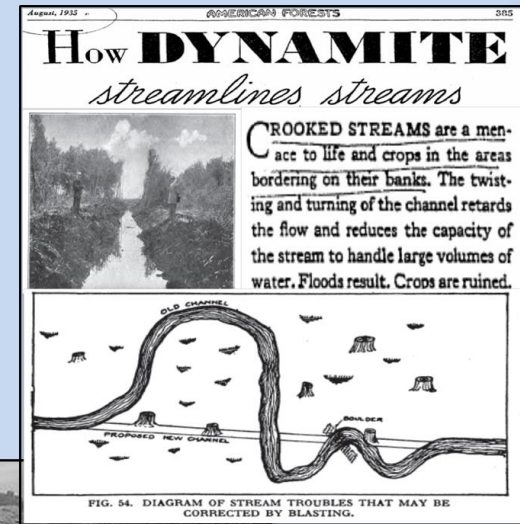
-UVM Gund Institute

Risky Developments

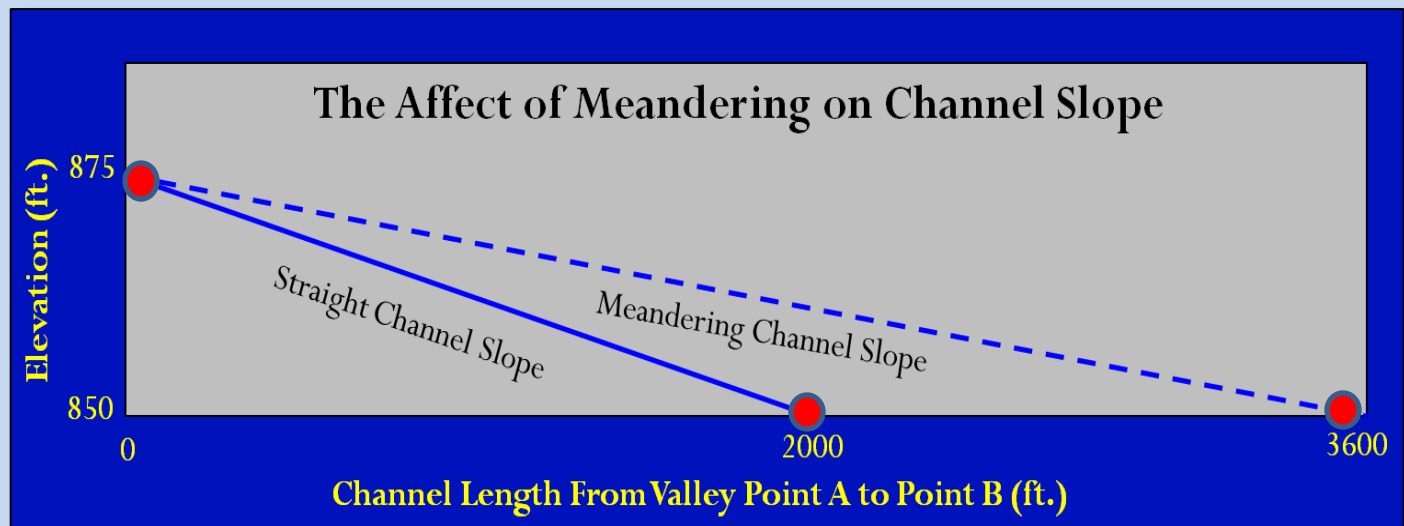
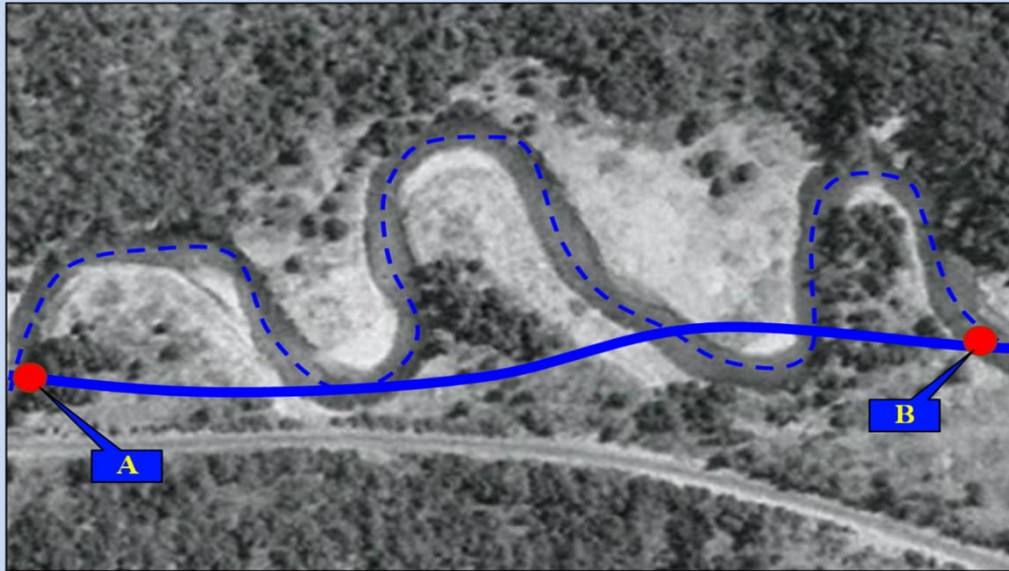


Photo: Mansfield Heli-flight 2011

Protecting Development by Controlling the River



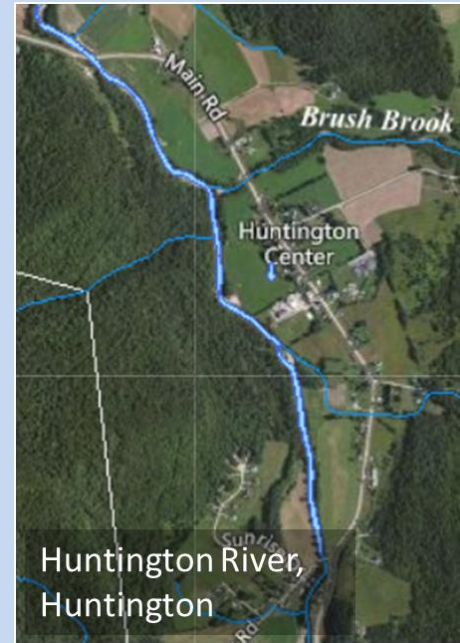
Channel Straightening and Slope



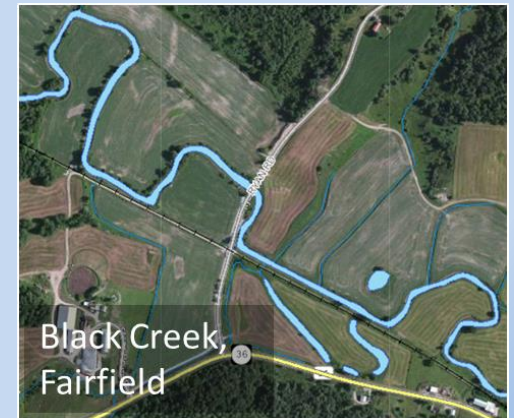
Protecting Development by Controlling the River



White River,
Granville

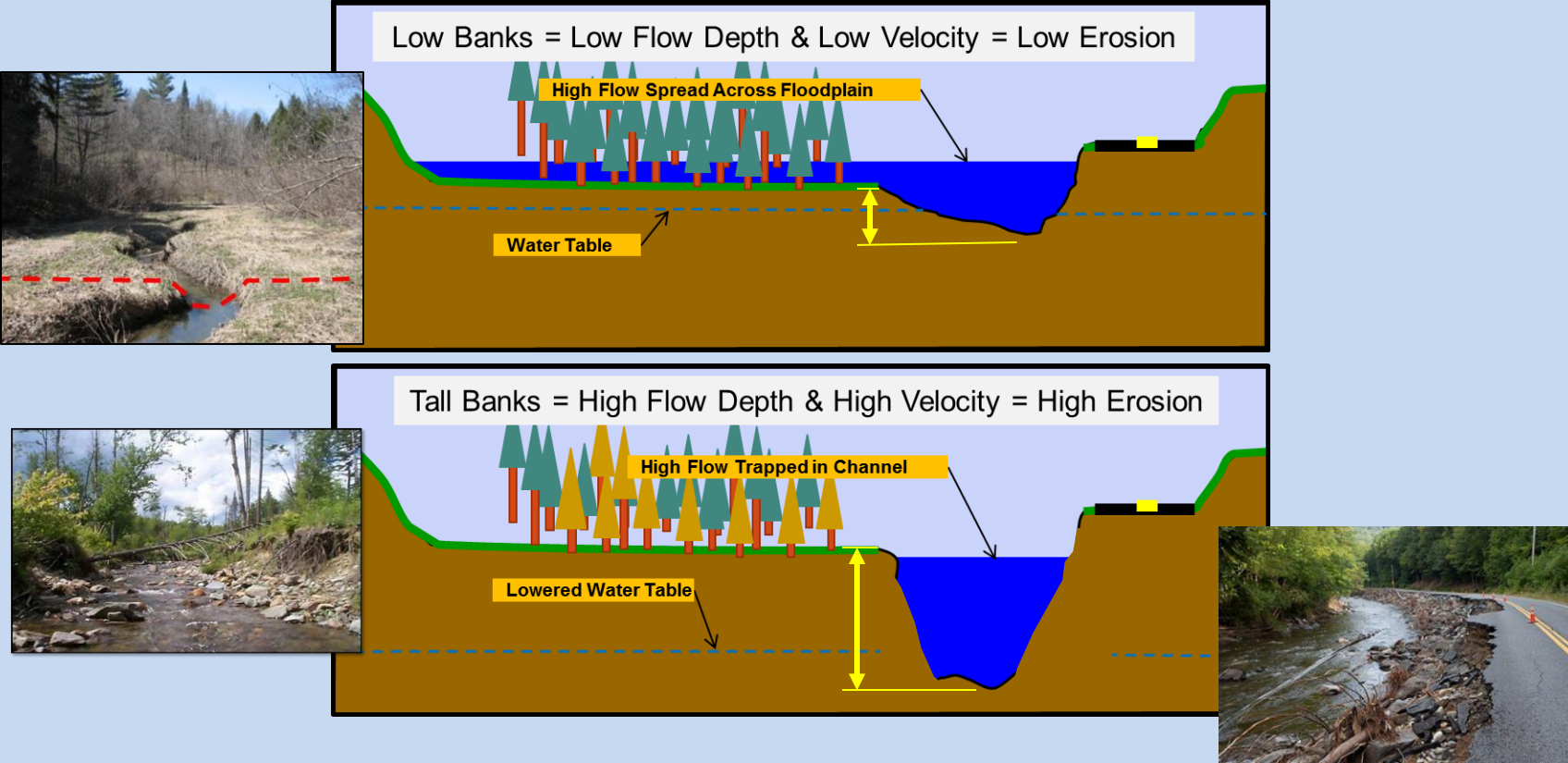


Huntington River,
Huntington



Black Creek,
Fairfield

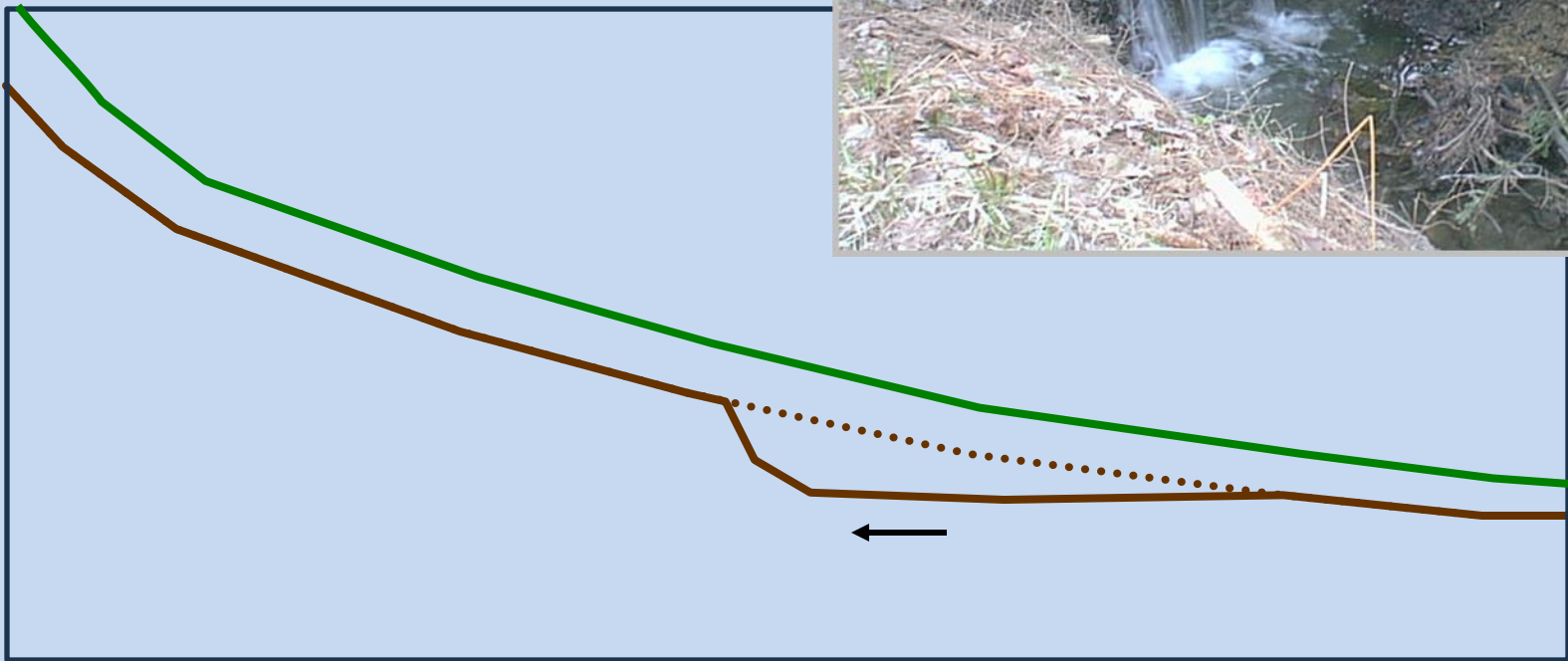
Channel Dredging and Erosion



Headcutting



Headcutting

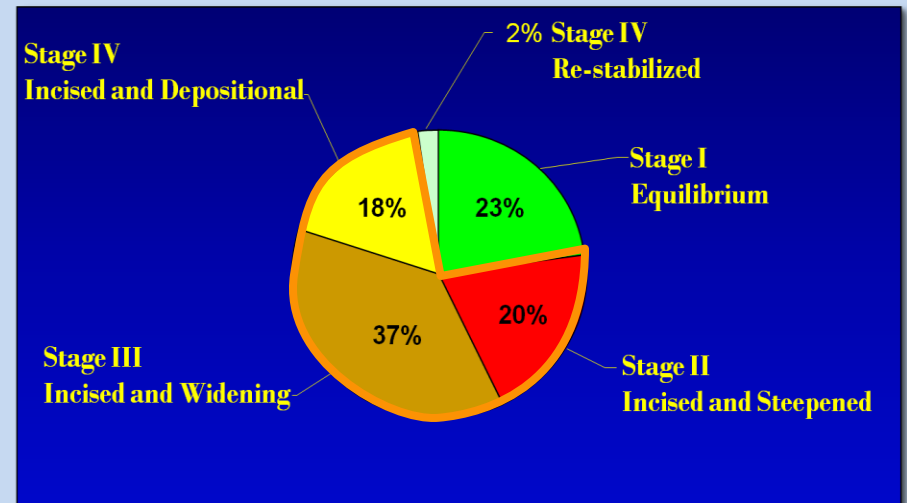
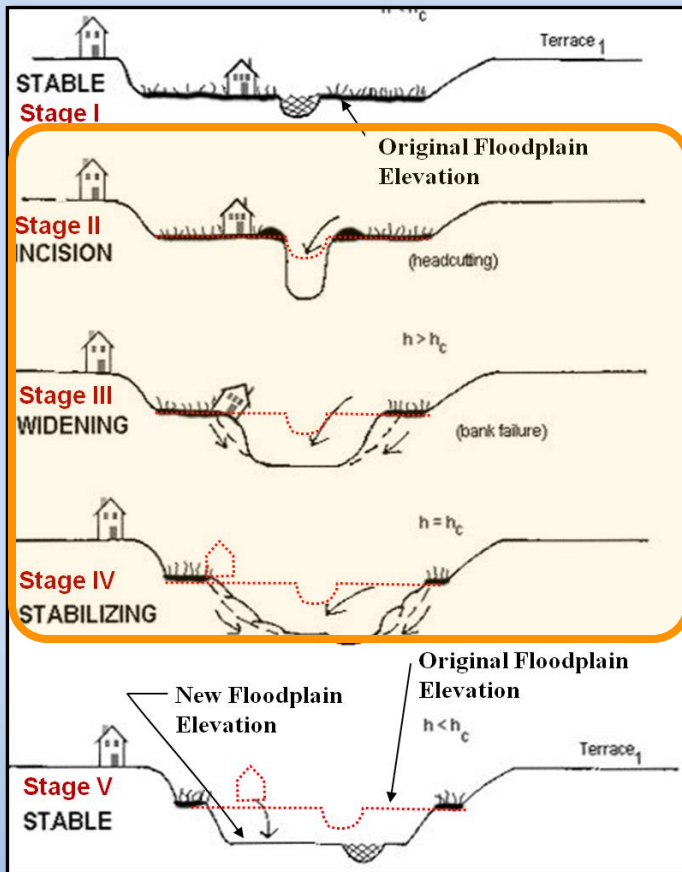


Headcutting



Protecting Development by Controlling the River

Historic land use and channel management activities have resulted in extensive channel instability.



- 5,000 river miles assessed.
- 75% undergoing channel evolution.



FEMA



**NATIONAL FLOOD
INSURANCE PROGRAM®**

National Flood Insurance Program (NFIP)

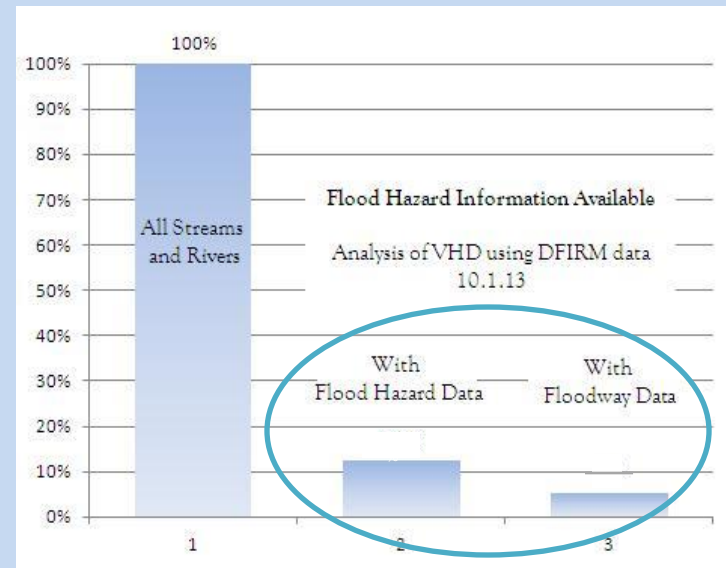
**Floodplain
Regulations**
Adopted and
enforced by towns

Flood Maps
Show areas that will
flood in a 1% change
flood

Flood Insurance
Backed by feds made
available to citizens
in those towns

Many Vermont flood risks are not identified by the NFIP floodplains

- Many streams have no FEMA-mapped floodplain
- Flash flooding and moving streams are not mapped

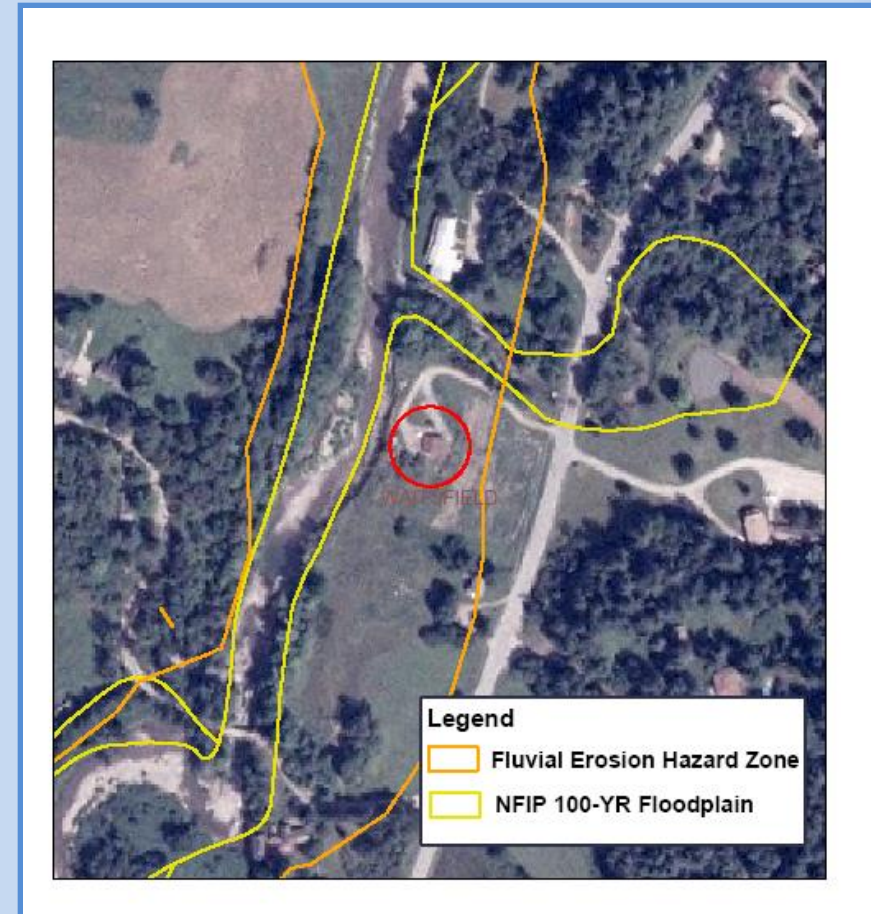


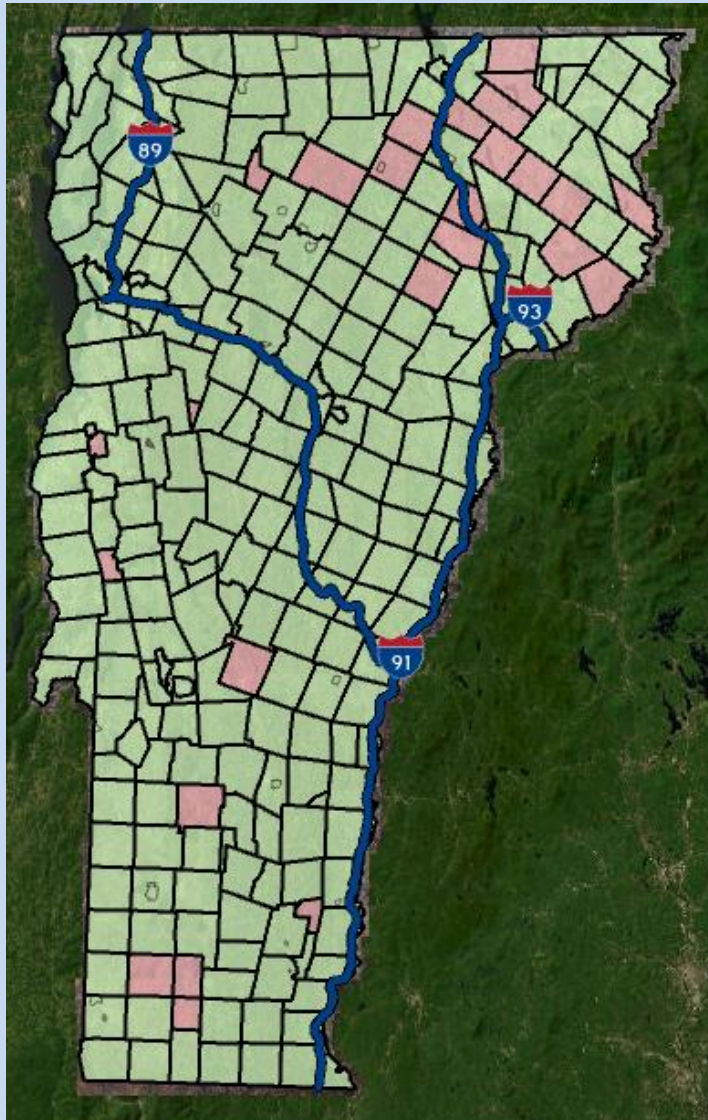
National Flood Insurance Program Does Not Address Fluvial Erosion Hazards

Not in the NFIP Floodplain



100 feet from NFIP Floodway and 8 feet above the 100yr. flood elevation.





Vermont NFIP Participation

1/2025

Legend



National Flood Insurance

Program

274
Communities



Participating Community

20
Communities



Not Participating

List of NFIP Participating communities
available at:

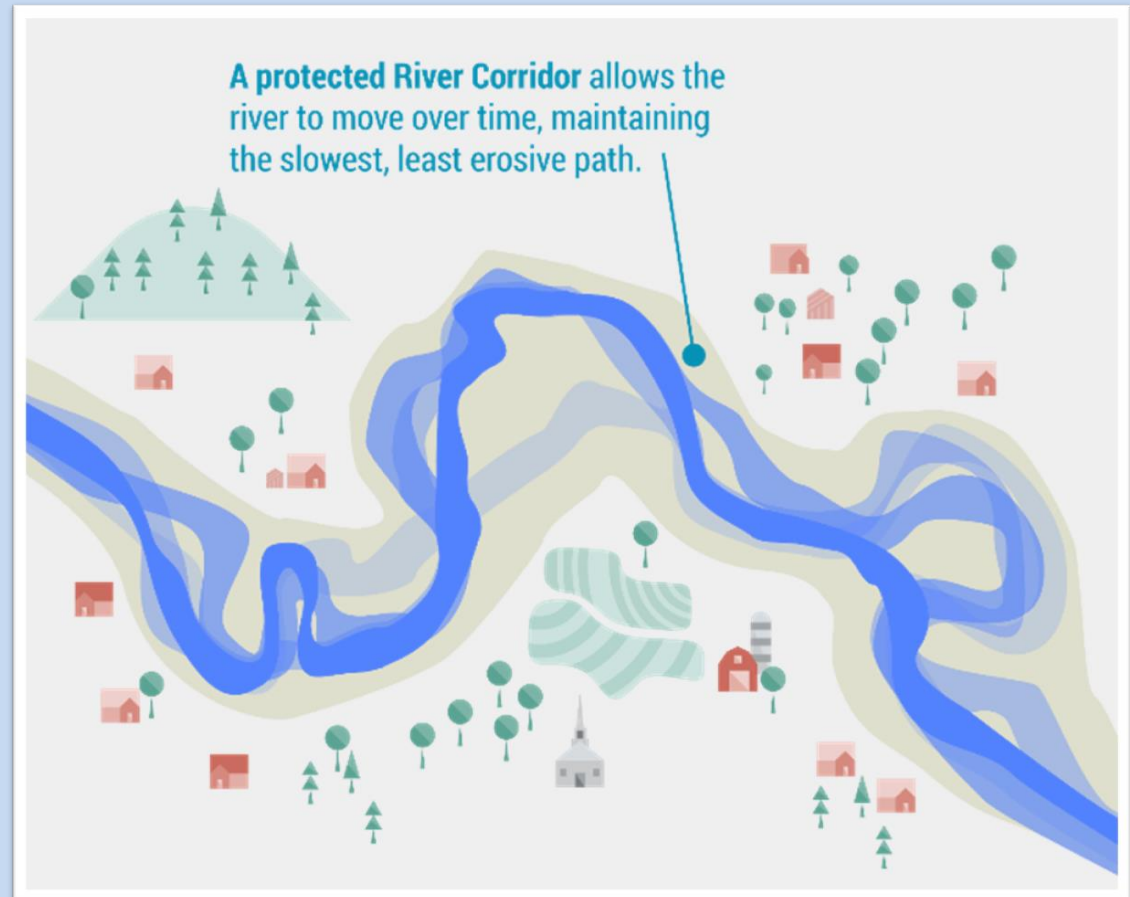
<https://www.fema.gov/cis/VT.html>

Map available from:
[Flood Ready Vermont Atlas](#)

Moving Beyond the NFIP

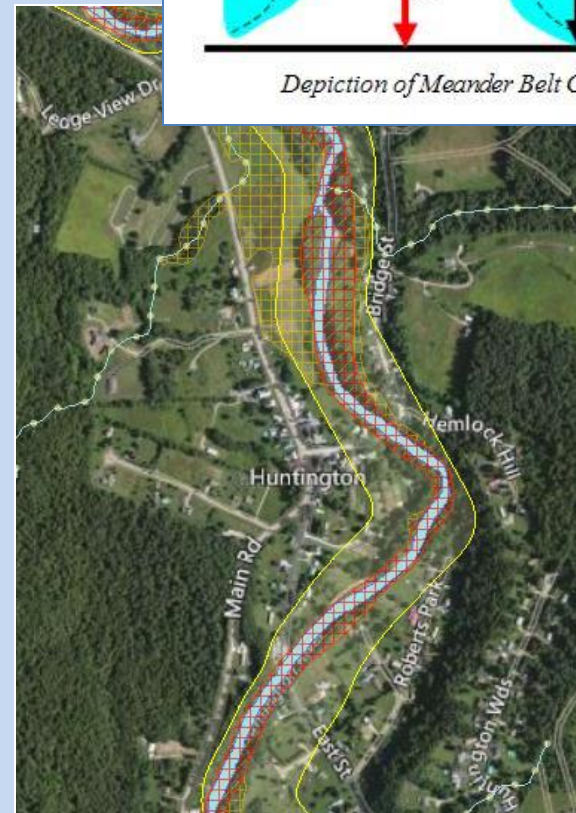
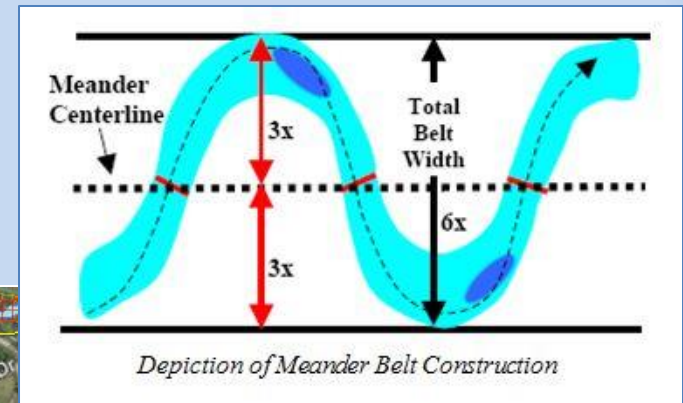
Integrating River Corridor Protections

River Corridors:
the area on either
side of the river
where we expect
the channel to
adjust over time



Incorporating River Corridors Into municipal Zoning

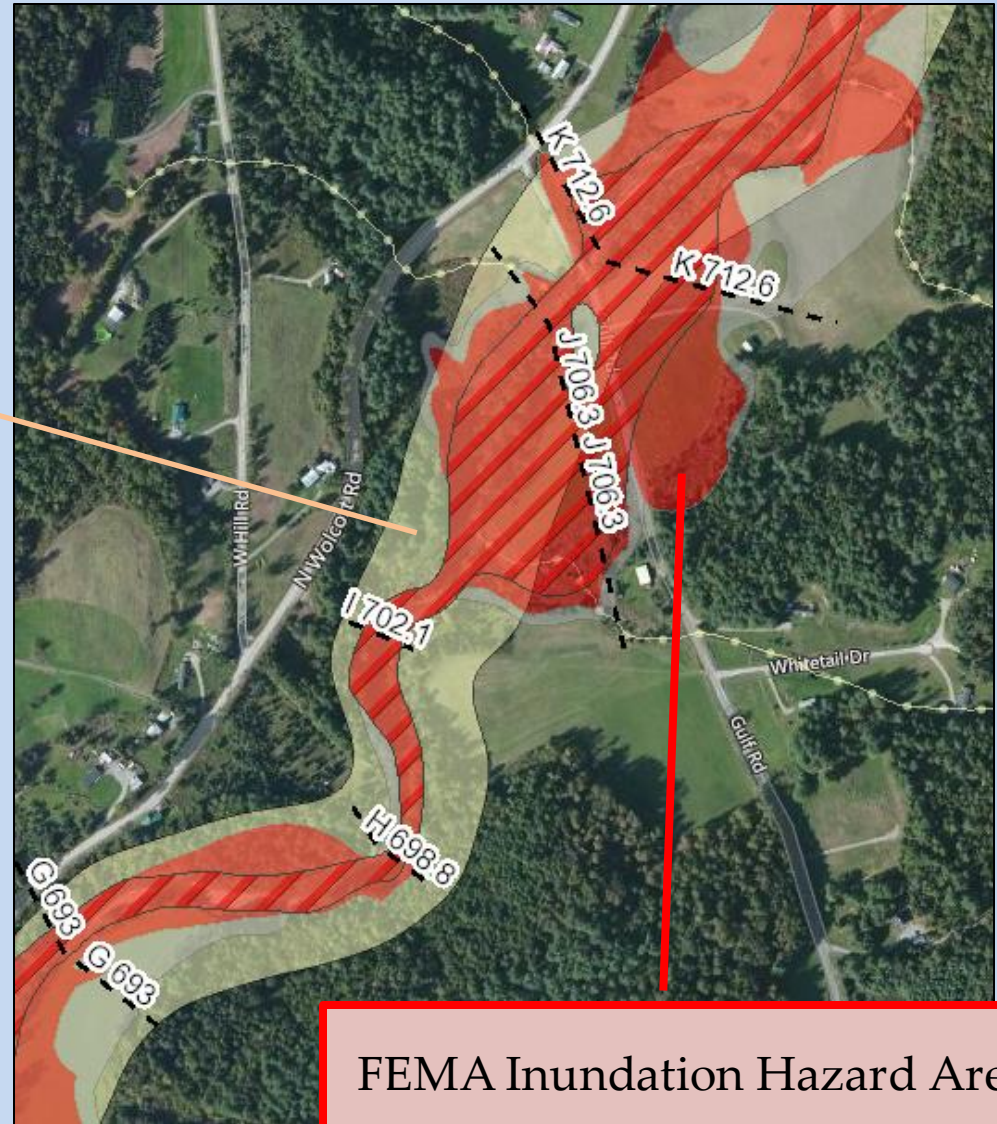
- River corridors are mapped by the state with input from the towns.
- Towns that adopted zoning that prohibits new development in river corridors received financial incentives for participating



Protection Of Floodplains & River Corridors

ANR River Corridor

- The river corridor and NFIP inundation hazard area work together to provide comprehensive protection
- In some areas they overlap, in others they do not



FEMA Inundation Hazard Area

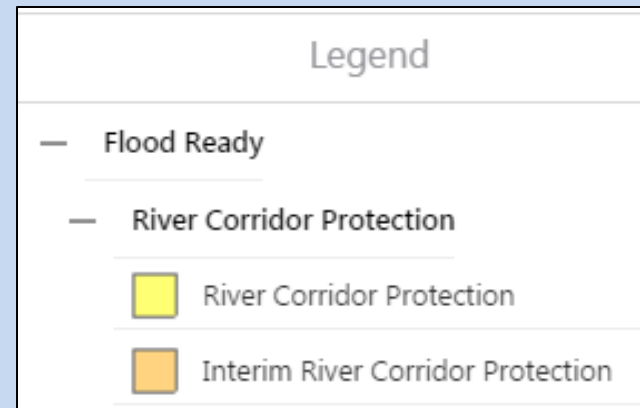
A River Corridor is different than a Buffer

- Minimum space needed to maintain the natural, least-erosive slope of the channel.
- Avoid new encroachments to minimize future river conflicts

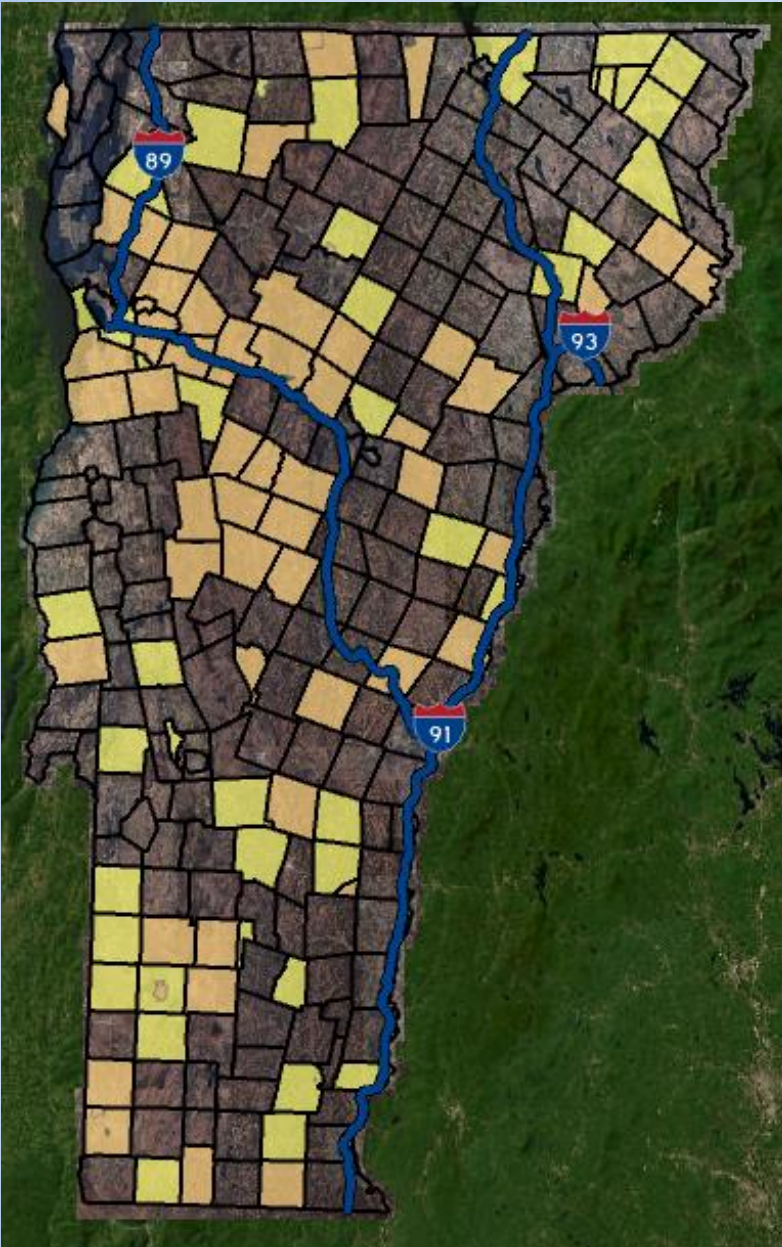


Many towns have already adopted river corridor bylaws

1/2025



Map available from:
[Flood Ready Vermont Atlas](#)



Flood Safety Act (Act 121)

- Passed in 2024
- Creates statewide jurisdiction and permitting authority for new development taking place in mapped river corridors
- Watershed-wide approach makes sure all towns upstream or downstream have the same protections, making all communities safer



Flood Safety Act (Act 121)

The act does the following:

- Updates the state river corridor map to identify areas suitable for development in existing settlements.
- Two-year education and outreach effort, and a two-year rule-making period.
- Limits development in the mapped river corridor without a permit.



We want your feedback

- Do you have more questions about river corridors or the new statewide protections passed under Act 121?
- What information would be helpful for your community?
- Feel free to provide feedback in this short survey:
<https://forms.office.com/r/LqMeRwy9BE>

River Corridor Presentation
Feedback Form



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