

The background image is a photograph of a road blocked by a large rock slide. A large, dark rock has fallen across the road, creating a significant barrier. In the foreground, on the right side, there is a red diamond-shaped sign with the text 'ROAD CLOSED' and 'TO THRU TRAFFIC' (partially visible). The surrounding area is lush with green vegetation and trees.

# **Local Flood Hazards in East Montpelier, Vermont**

**September 18, 2014**

**Public Forum**

**East Montpelier Planning Commission  
& Central Vermont Regional Planning Commission**





Local Flood Hazards in

# East Montpelier, Vermont

Flood Hazards in East Montpelier

Planning for Flood Resilience

----- ***Pause for Questions***

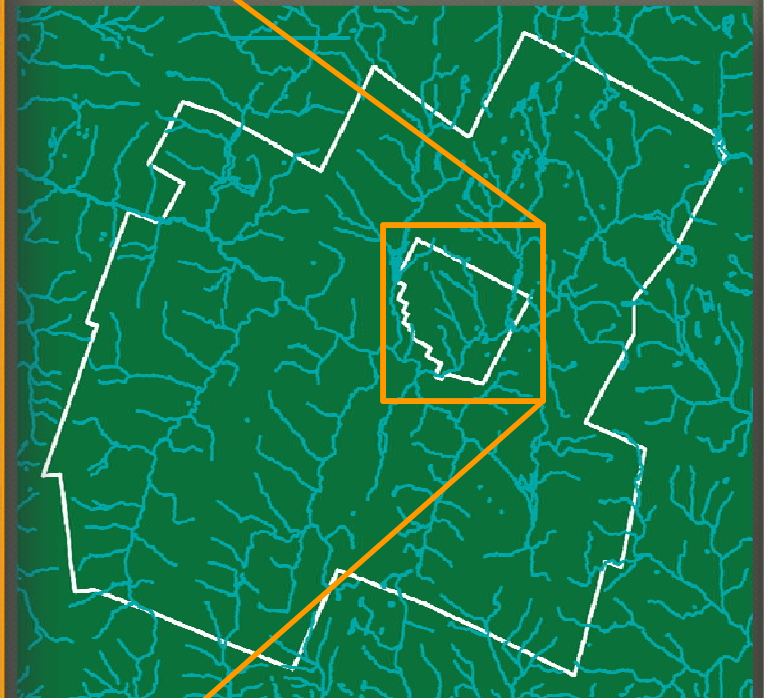
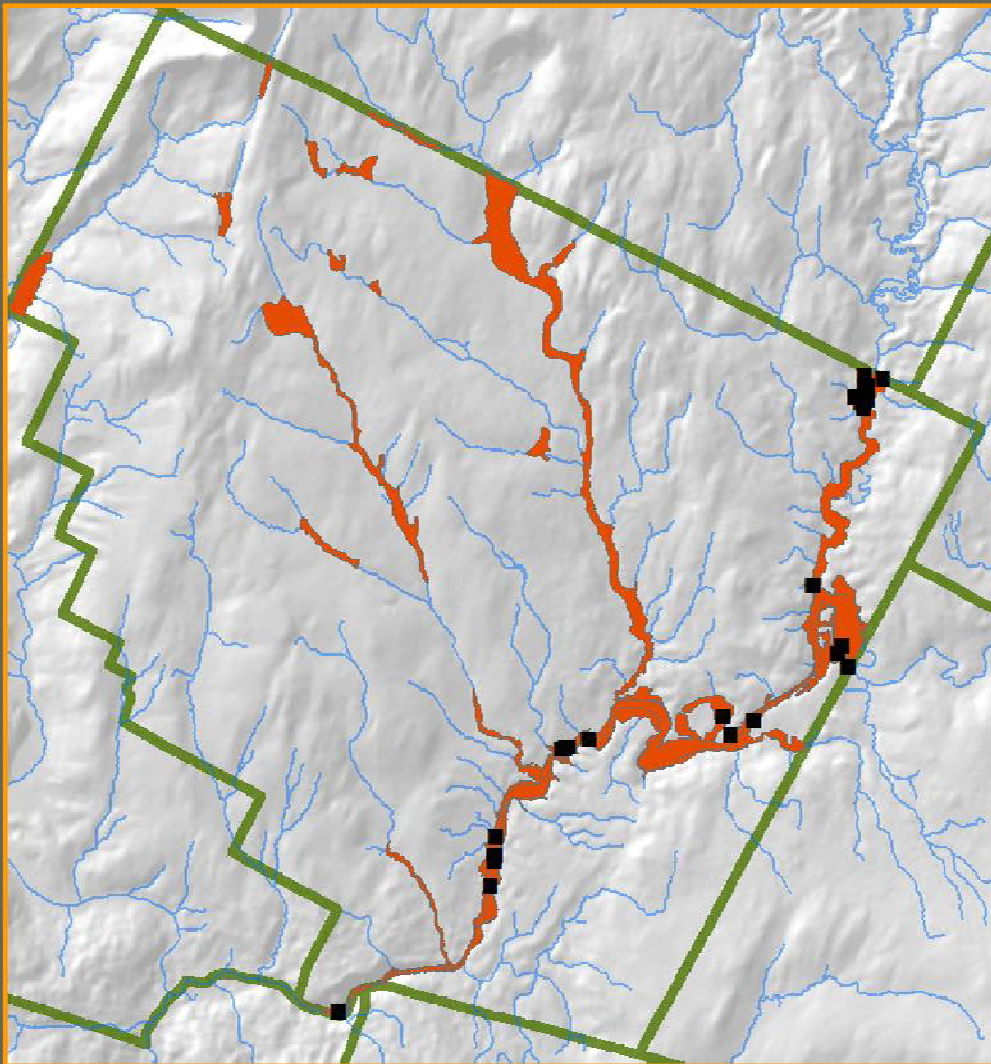
Actions Proposed by the Planning Commission

Discussion/Q & A

Next Steps



# Flood Hazards in East Montpelier





## Recent Past Flooding

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- **July 2007**: Significant damage to four roads from flash floods.

**\$14,000**

from FEMA

- **July/Aug. 2008**: Lost power.  
Significant damage to seven roads.

**\$27,000**

from FEMA

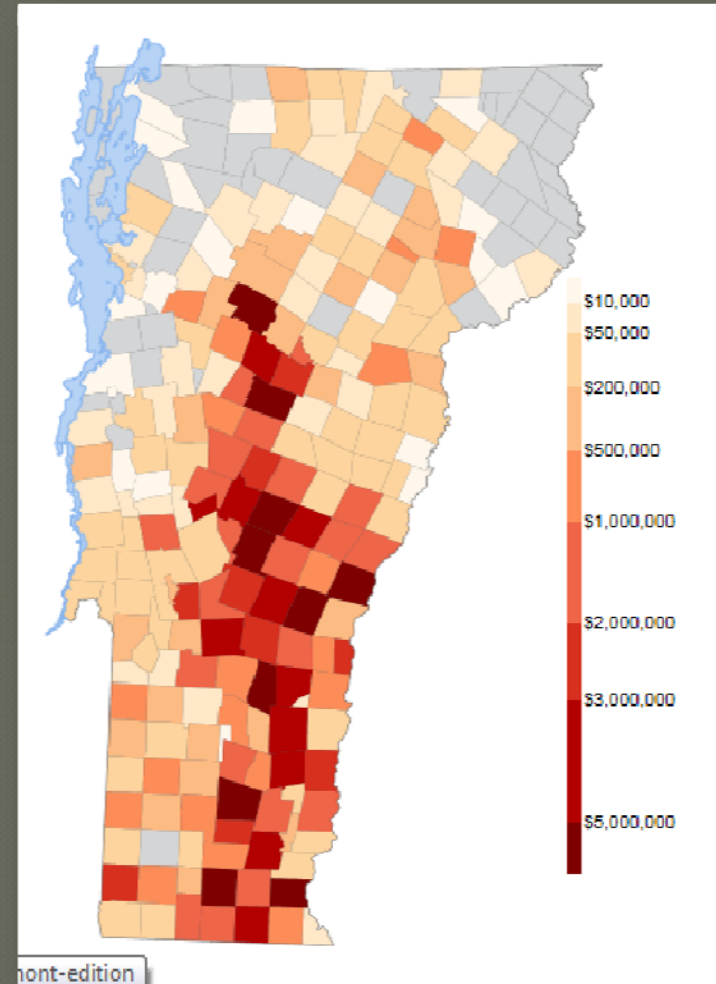
- **May 2011**: 23 roads damaged.

**\$275,000**



# Tropical Storm Irene (August 2011)

- Significant damages to five roads in Town.
- East Montpelier federal recovery funding:
  - **\$41,386** Individuals and Households Program
  - **\$32,613** Public Assistance



Source: VPR, Mapping the Money







# Rte 2 in May 2011

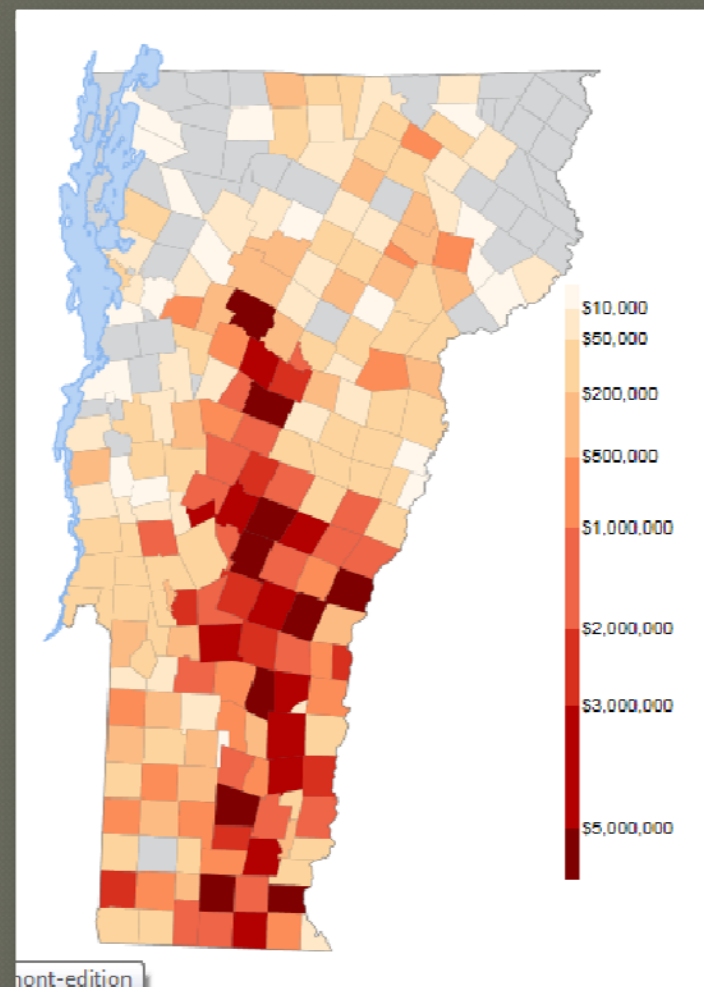
(AP/T. Talbot, 2011)





# Tropical Storm Irene in Central VT

- Middlesex: **\$387,333**
- Marshfield: **\$115,515**
- Berlin: **\$2,090,110**
- Montpelier: **\$1,621,722**



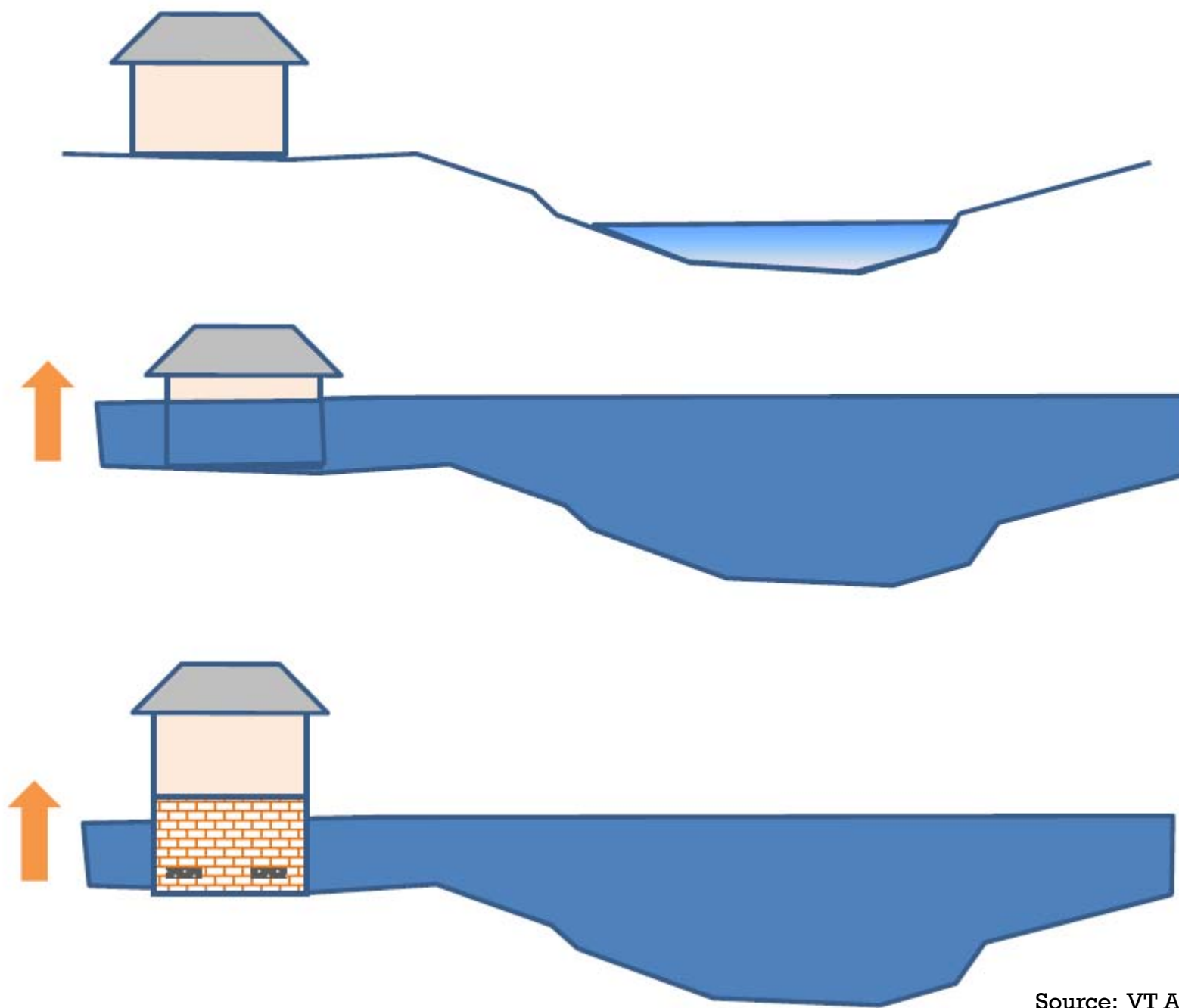
Source: VPR, Mapping the Money



# Types of Flooding: **Inundation**







Source: VT ANR Rivers Program





National Flood Insurance maps focus on  
Inundation risks.





MAP SCALE 1" = 500'

# FEMA Flood Insurance Rate Maps

Sodom Pond Brook

Crystal Pool

SIBLEY RD

SODOM POND RD

ZONE A

Sodom Pond Brook

FOSTER RD

Special  
Flood  
Hazard  
Area

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0286E

**FIRM**

**FLOOD INSURANCE RATE MAP**

**WASHINGTON COUNTY,  
VERMONT  
(ALL JURISDICTIONS)**

**PANEL 286 OF 580**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EAST MONTPELIER, TOWN OF	500111	0286	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



**MAP NUMBER  
50023C0286E**

**EFFECTIVE DATE  
MARCH 19, 2013**

Federal Emergency Management Agency



An aerial photograph showing a wide, rocky river with turbulent, greyish water. On the right bank, a white house with a dark roof is partially visible, with some debris and a blue tarp in front of it. The surrounding area is green and grassy.

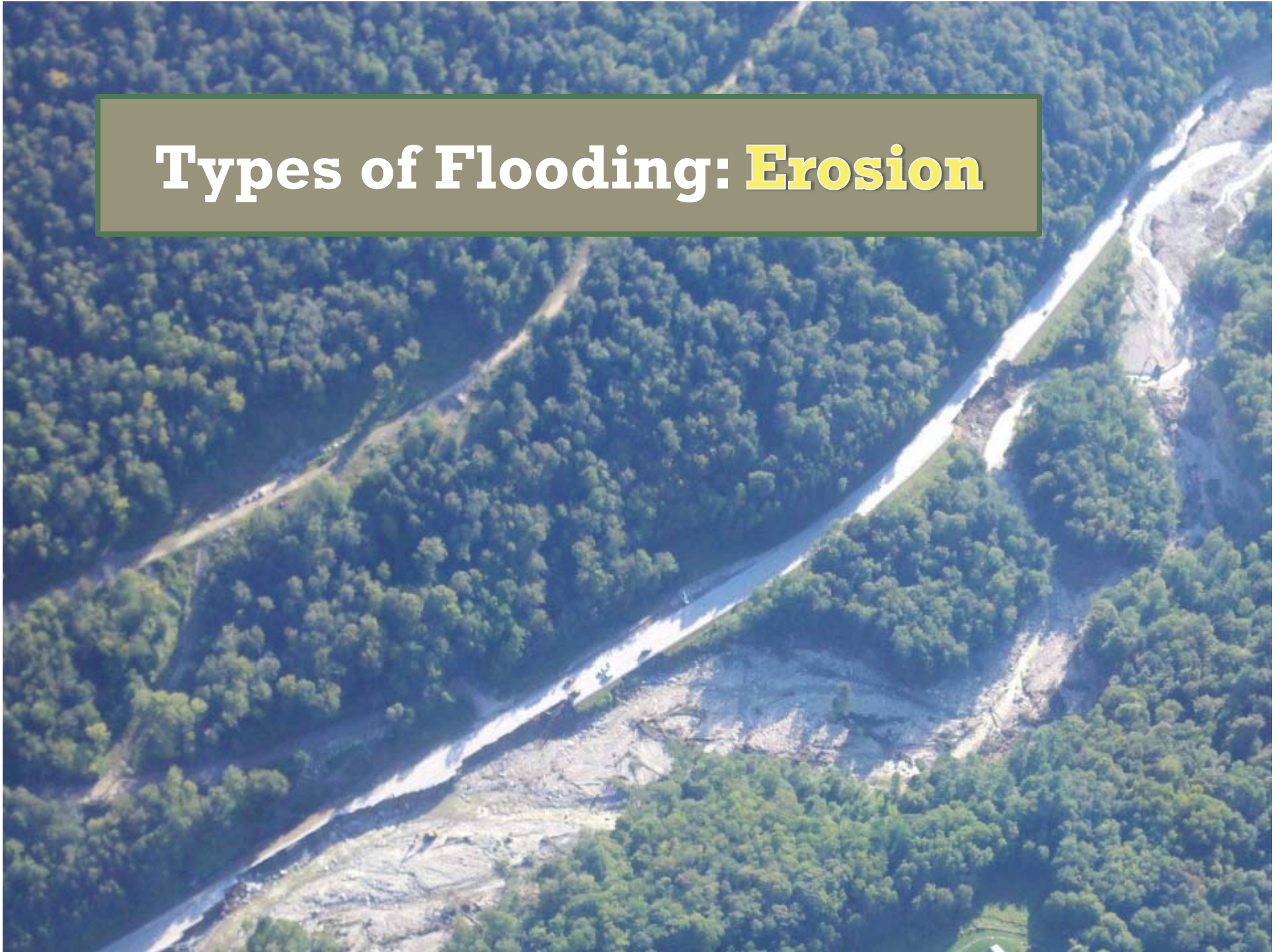
Minimum NFIP standards does **not** mean an end to flood risk.

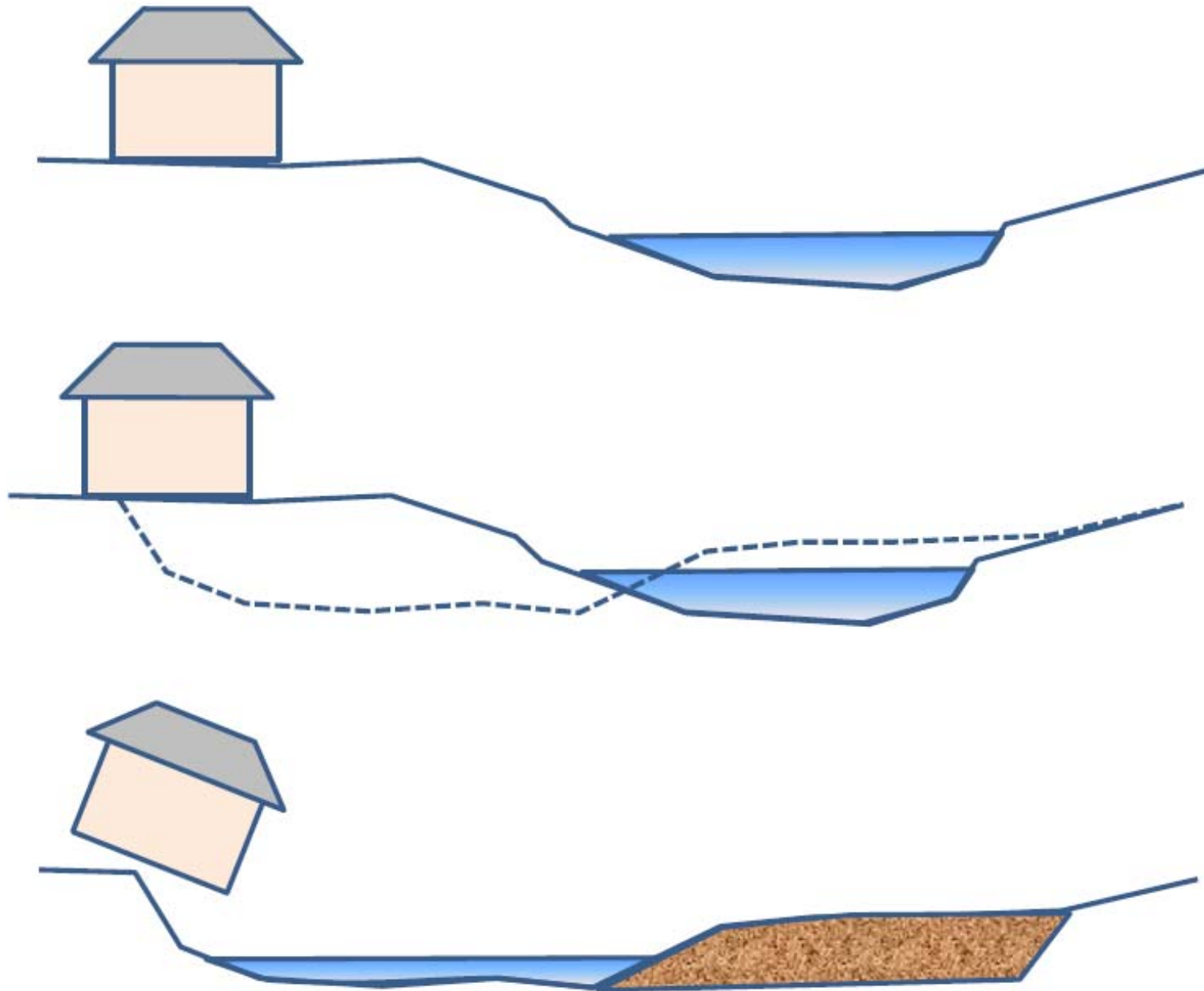
In Vermont an estimated **2/3** of flood damages occur **outside of FEMA-mapped flood zones.**

Chester, VT. Source: Mansfield Heliflight, 2011



# Types of Flooding: **Erosion**



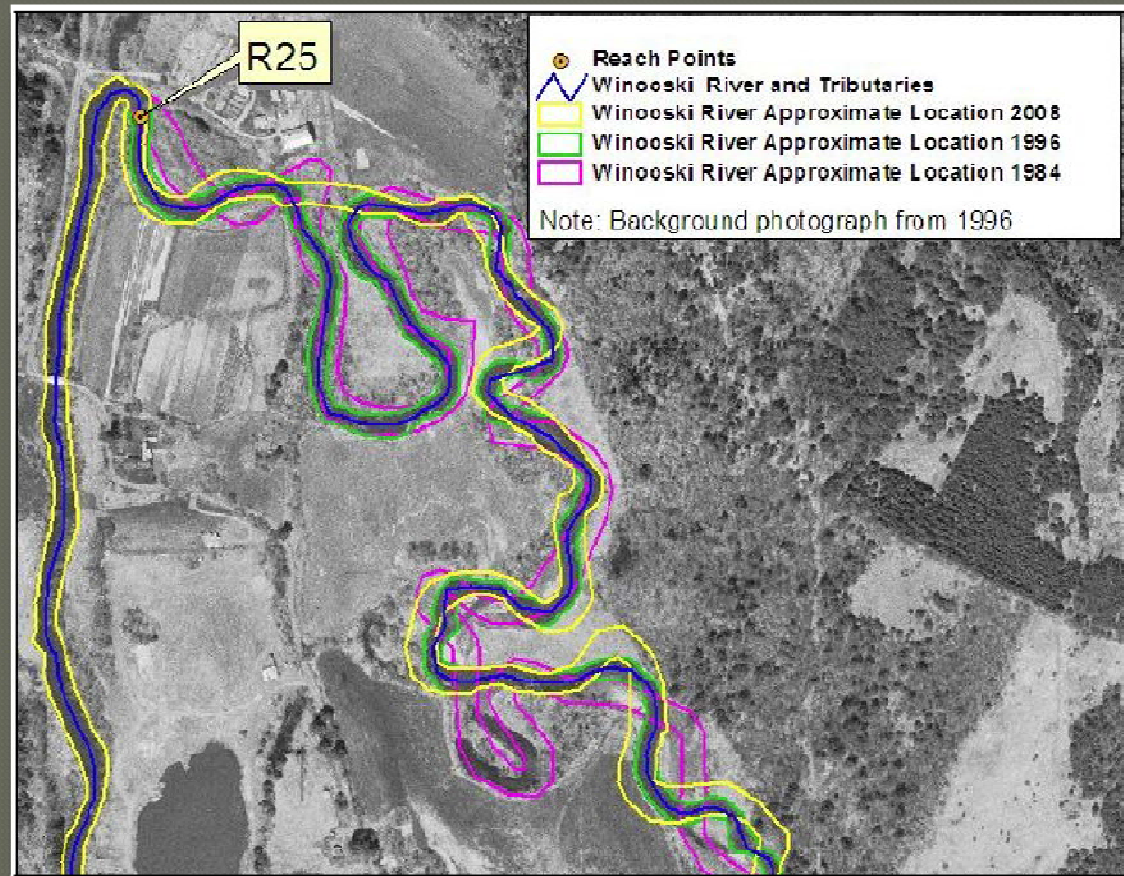


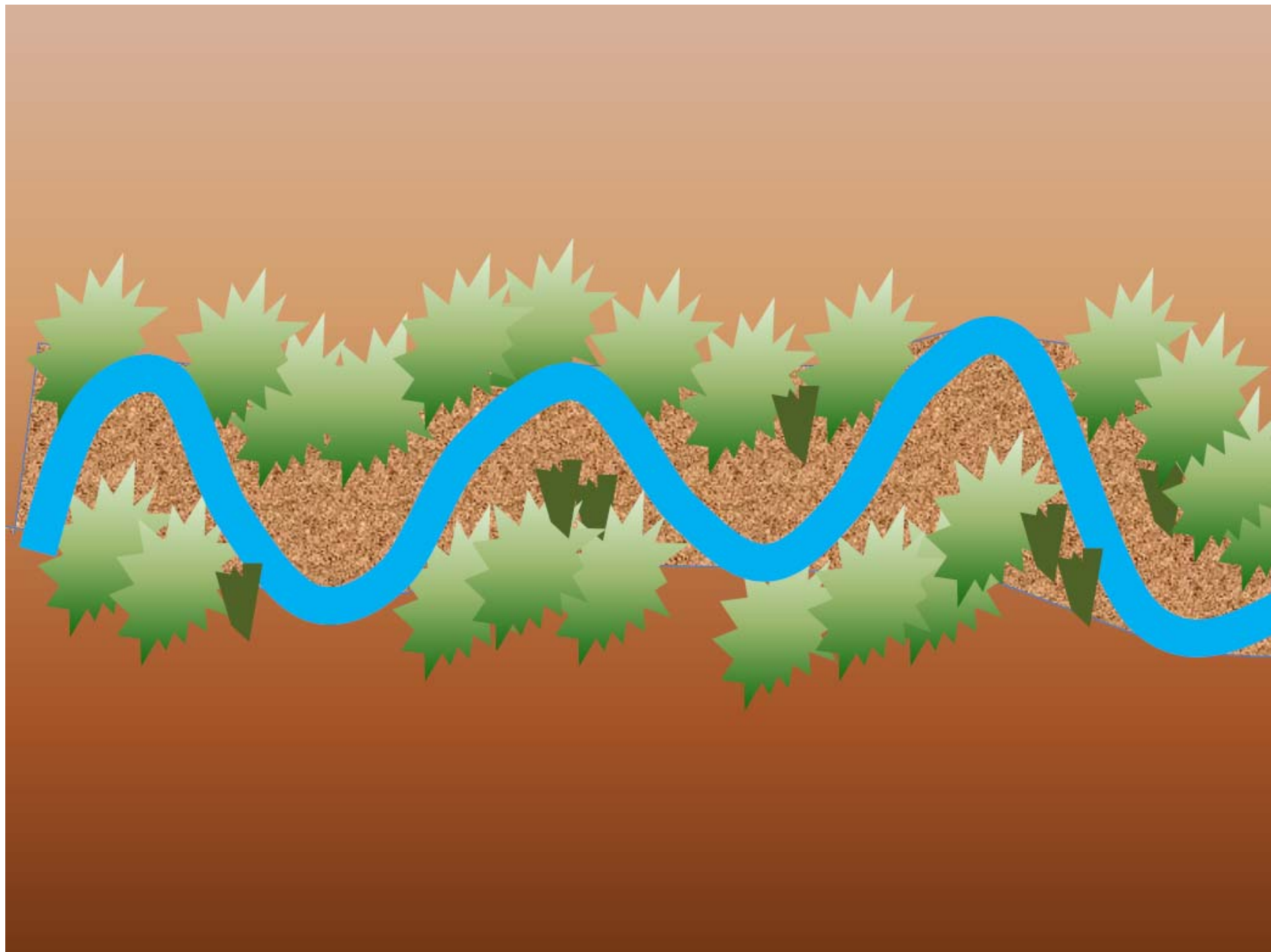
Source: VT ANR Rivers Program



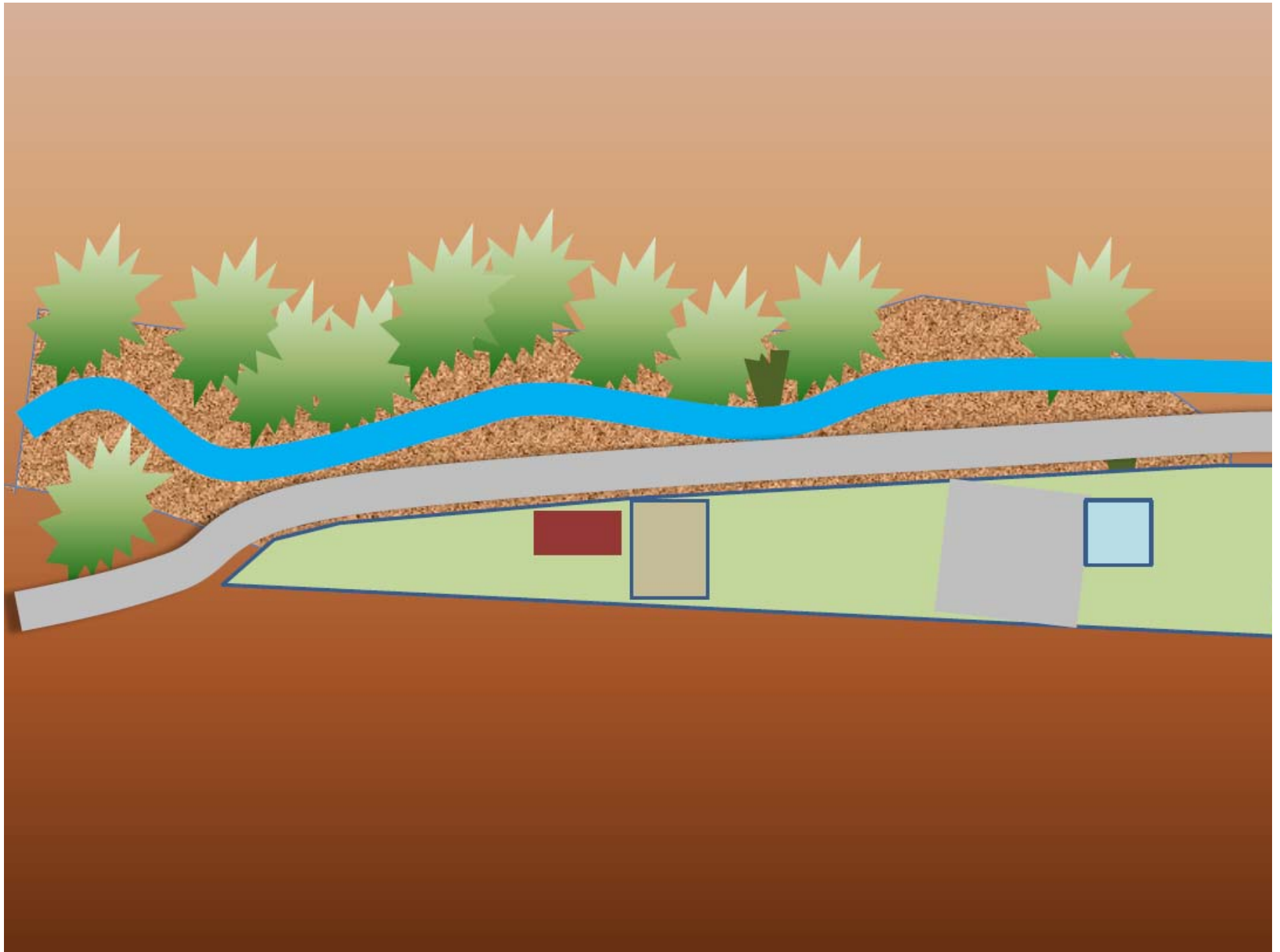
# Rivers Need Room to Adjust

- Erosion can occur slowly over time or quickly during a flood event
- It can be a natural process as well as accelerated by land use and channel mgmt









**Result:** High flows mean erosive power kept within riverbanks, instead of allowing the water to flow onto floodplain.



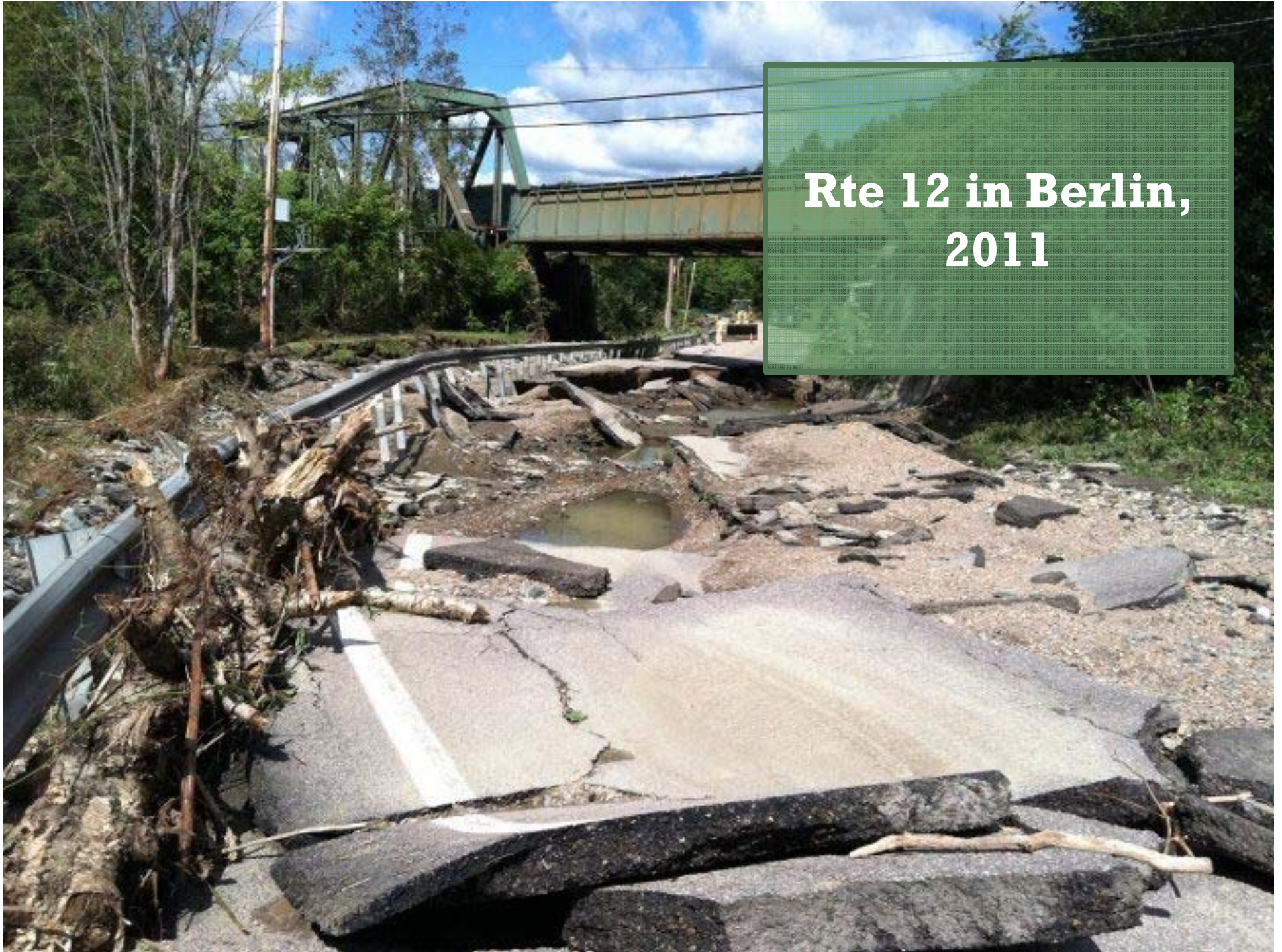


An aerial photograph showing a river with a car stuck in a large pile of debris, including fallen trees and branches. The car is white and appears to be a small SUV or truck. The river is surrounded by green trees and a rocky shoreline. In the upper left, there is a large building with a corrugated metal roof and a wooden deck. The water is murky and turbulent around the car.

# Mad River in Waitsfield

(Mansfield Heliflight, 2011)





**Rte 12 in Berlin,  
2011**



A photograph showing a light blue house with a red roof that has been severely tilted and damaged by a flood. The house is partially submerged in a fast-moving, muddy river. Debris, including logs and branches, is visible in the water and on the bank. A green semi-transparent text box is overlaid on the right side of the image.

# Rochester, 2011

(J. Wallace- Brodeur)



# Planning for Flood Resilience

## Upper Winooski River: Plainfield to Montpelier

### River Corridor Management Plan

Washington County, Vermont



FINAL REPORT

MARCH 31, 2010

Prepared by:



Round River Design  
Michael Blazewicz  
Watershed Scientist  
[www.RoundRiverDesign.com](http://www.RoundRiverDesign.com)

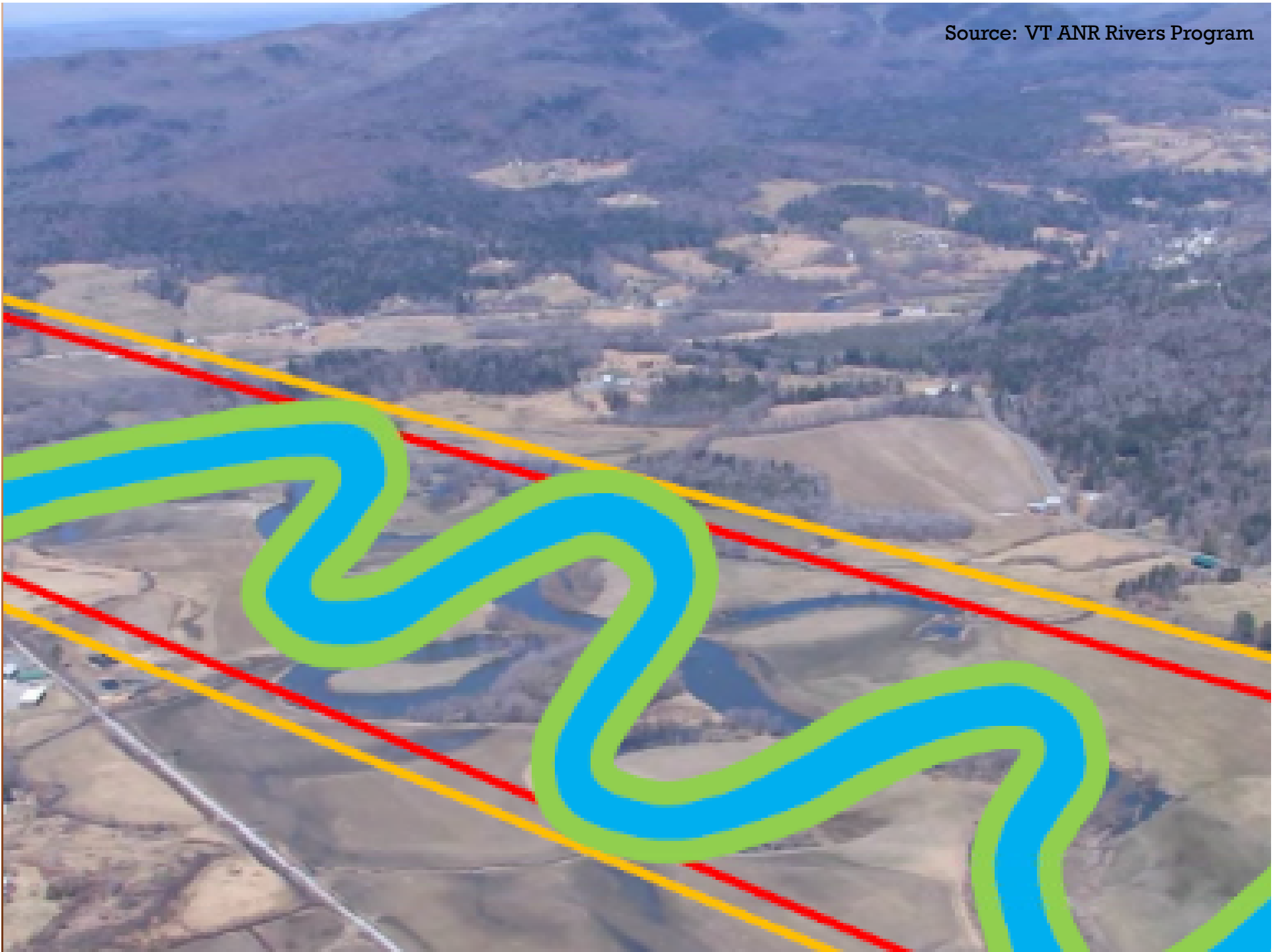
Prepared for:

Friends of the Winooski River  
Central VT Regional Planning Commission  
Winooski Natural Resources Conservation District

- Upper Winooski River Corridor Management Plan
- Statewide River Corridor mapping in 2014



Source: VT ANR Rivers Program



# Planning for Flood Resilience

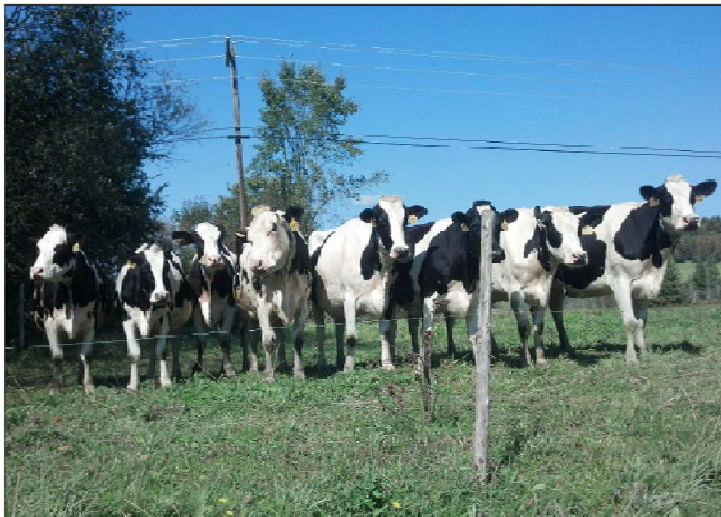
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# Planning for Flood Resilience

## East Montpelier Town Plan



Adopted June 3, 2013

In March 2012, the town completed its Hazard Mitigation Plan and Emergency Management Plan, which are appearing below, taken together, they provide a comprehensive view of what are considered to be the most significant hazards facing the town. These are the most likely events to occur and the town's vulnerability to the hazards. The town's Hazard Mitigation Plan is available at:

- Winter Storm/Ice Storm/Extreme Cold with Power Failure

Due to the frequent and severe nature of flooding events, the Town of East Montpelier believes flooding is the worst natural hazard within the town and will focus on mitigation efforts to reduce the impacts from flooding events.

Climate change will require that Vermont as a state, and East Montpelier as a town, pay more attention to its rivers and streams and to reconsider development in flood-prone areas.

Not only is the purchase of important public access to wetlands and waterways.

- In light of recent floods and anticipated effects from climate change, the Planning Commission should explore the capability and opportunities arising from Fluvial Erosion Hazard (FEH) mapping or creating a FEH zoning bylaw provision. Adoption of a FEH bylaw will allow the town to receive higher cost share from the State when repairing damages from future flood events.

- When repairing and installing culverts, the East Montpelier Road Crew should look for opportunities to create more plunge-pool type cooling-off spots, such as the one on Dodge Road. Any such