

Is Your Town Ready for FEMA's Release of New Flood Maps?



Agenda

- **Introduction** - Beth Torpey NVDA; Water Quality Planner
- **Overview of FEMA map roll-out process and timeline** - Ned Swanberg VTDEC; Flood Hazard Mapping Coordinator - Regional Floodplain Manager
- **Demonstration** of what the new maps might look like - Sacha Pealer VTDEC; Northeastern River Scientist & Floodplain Manager
- **What's next?** Alison Low NVDA; Planner AICP CFM



June 2023 Update

**FEMA Flood Maps
and Bylaws for
the Northeastern
Vermont Region**

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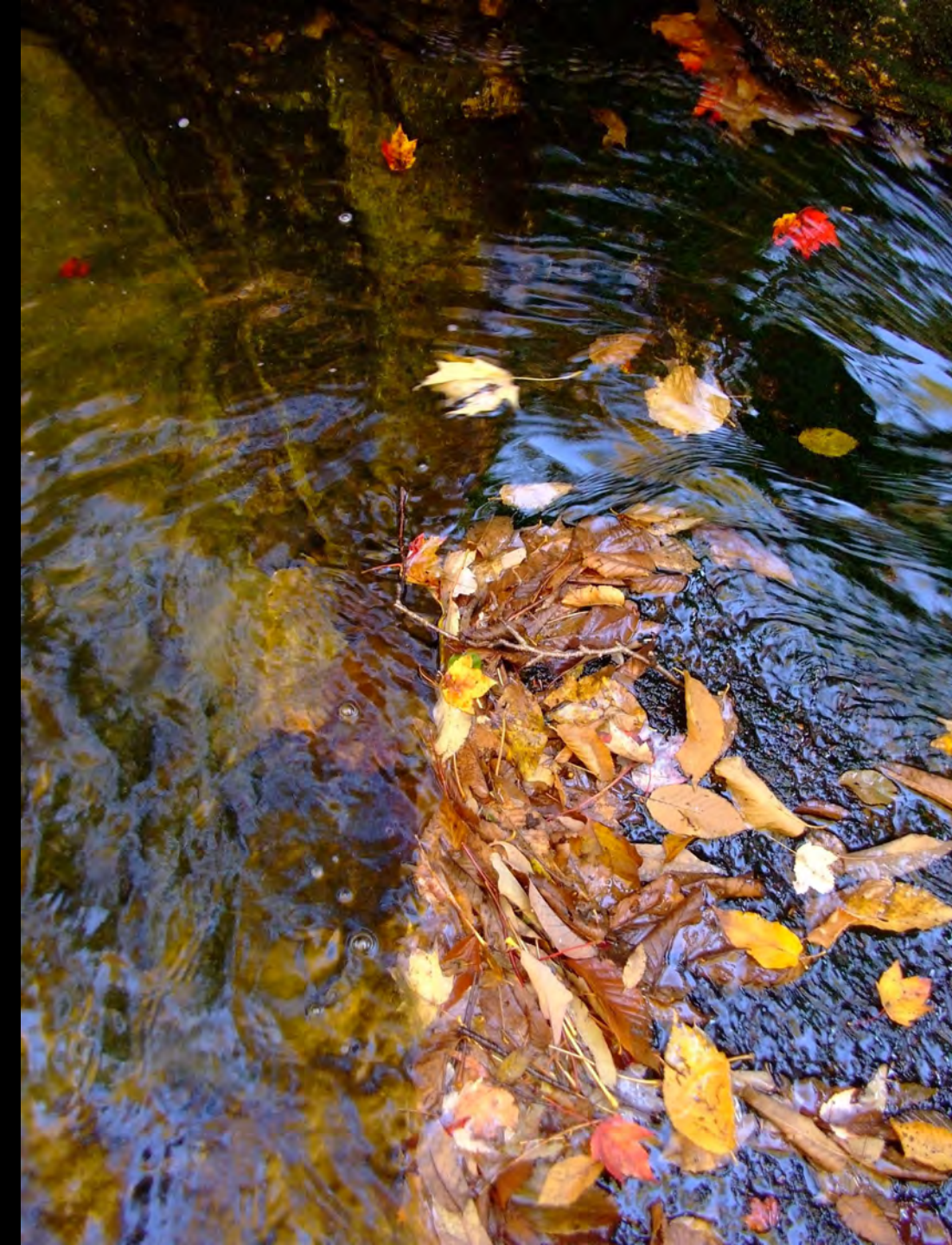
VTDEC Flood Hazard Mapping Coordinator



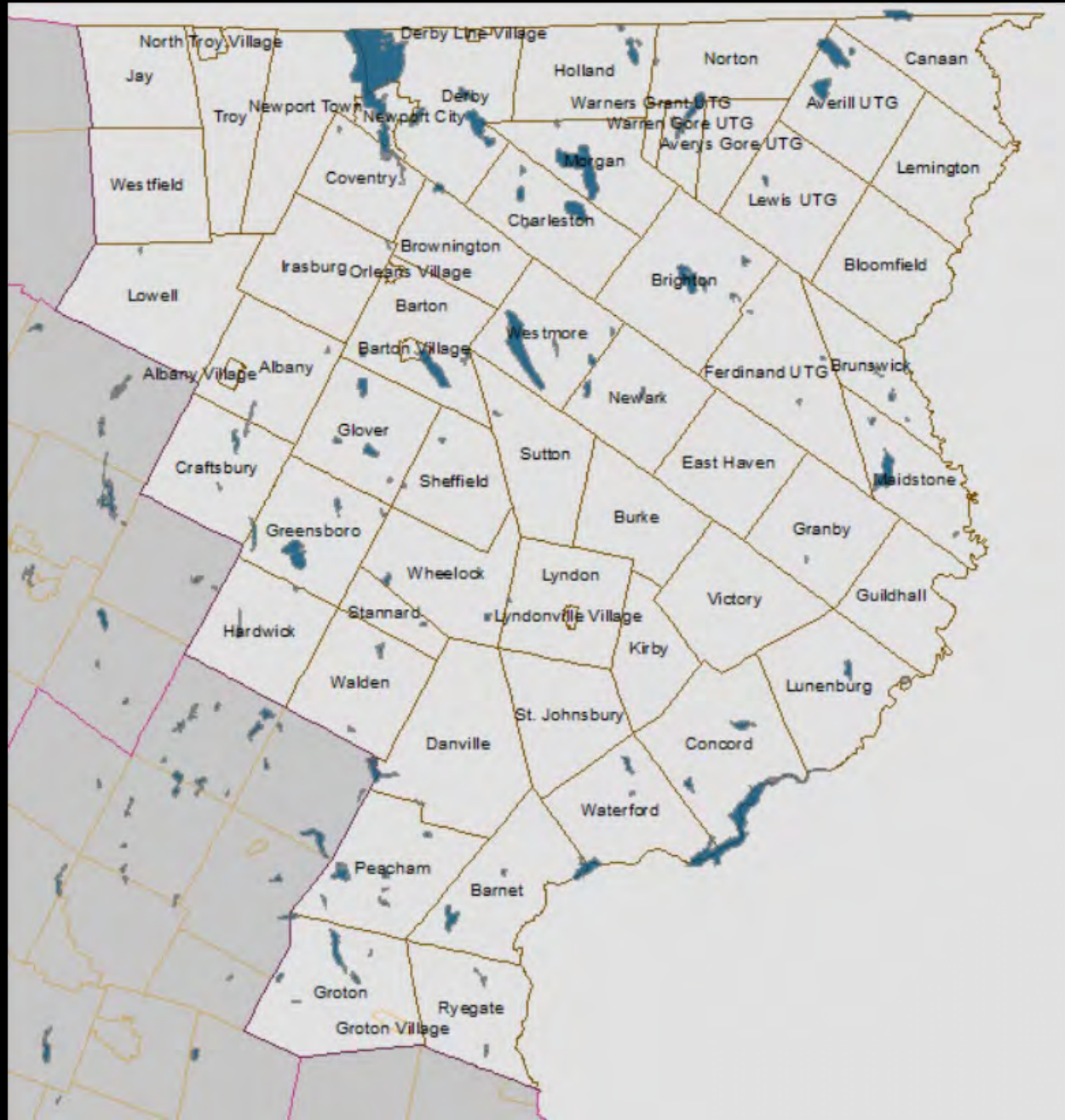
- Municipal Officials and Communities
- Northeastern Vermont Development Association (NVDA)
Alison Low AICP CFM alow@nvda.net
Beth Torpey btorpey@nvda.net
Jesse Noone jnoone@nvda.net
- VT DEC River Corridor and Floodplain Protection Program
www.FloodReady.vt.gov , www.FloodTraining.vt.gov and VTDEC bit.ly/flood-manager

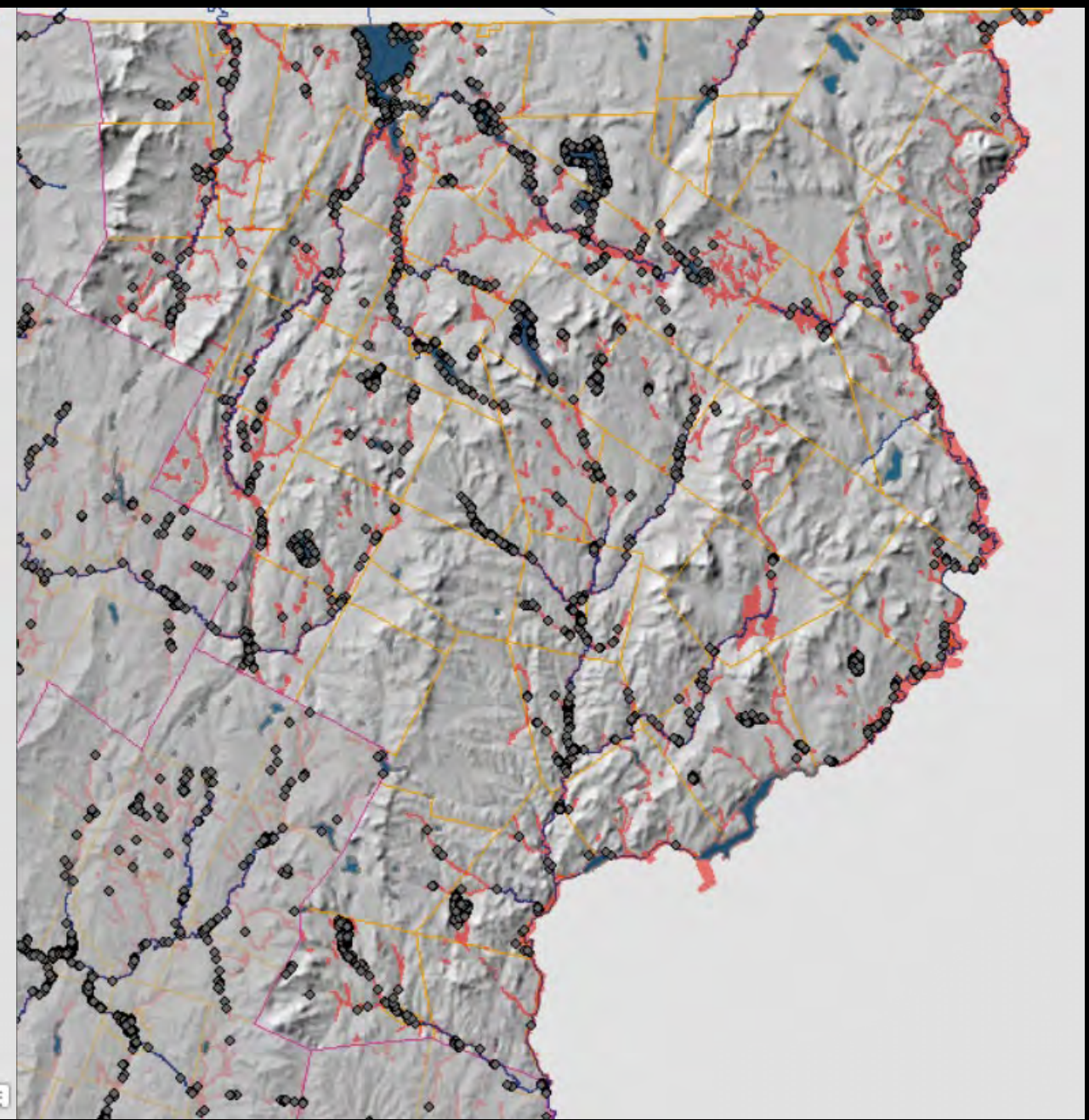
Sacha Pealer, CFM Sacha.Pealer@vermont.gov
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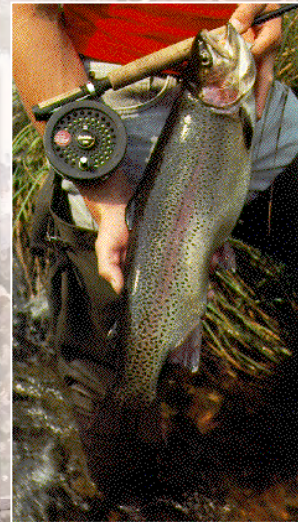
1. Map Update Process
2. Bylaw Update Process
3. Model Bylaws for *No Adverse Impact*



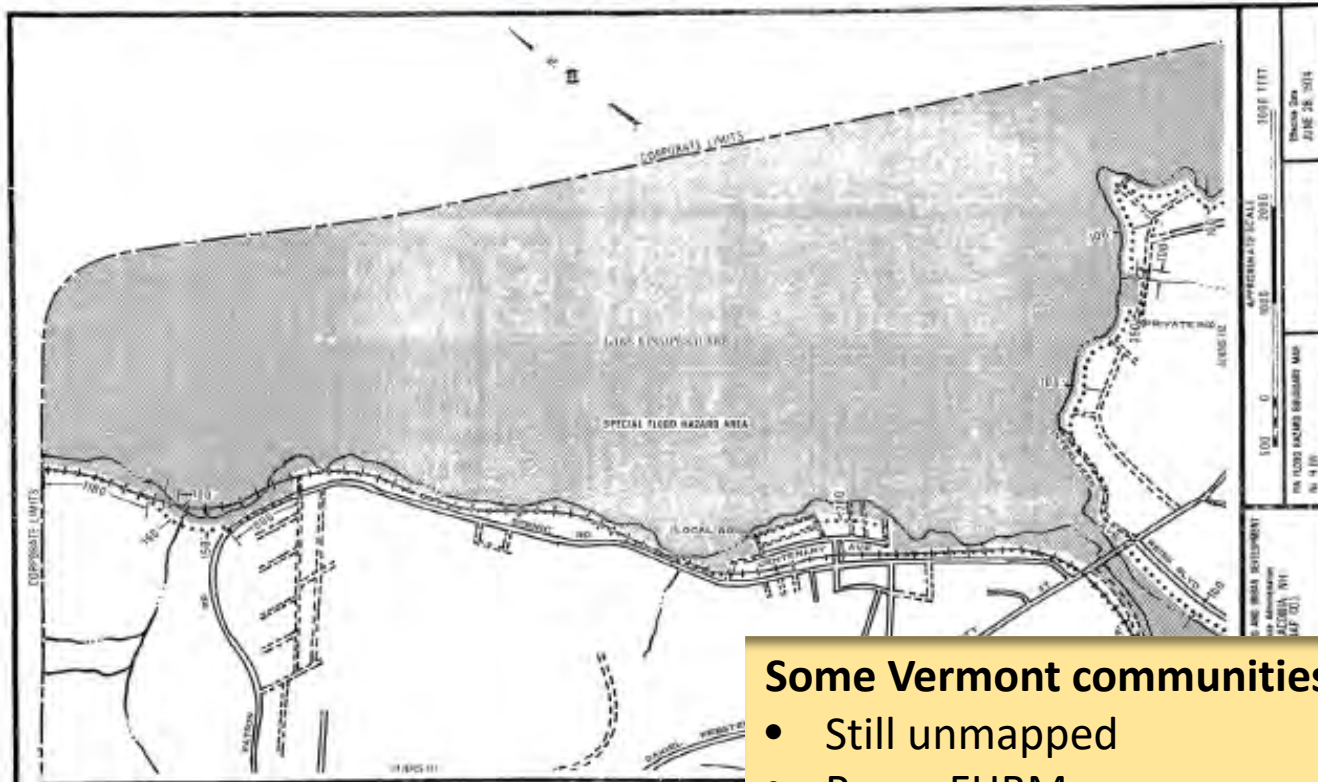


Floodplain Natural and Beneficial Functions

- 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.



History of the Mapping Program



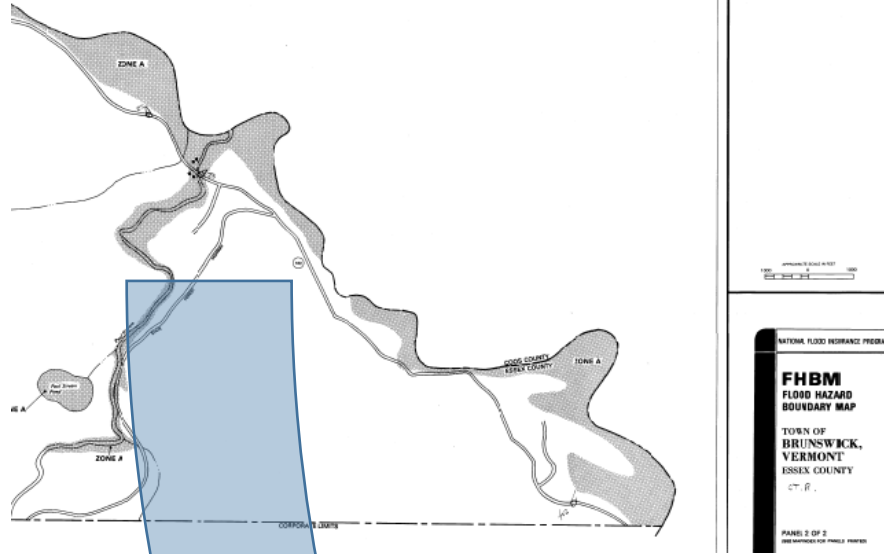
- NFIP established in 1968
- Mandatory purchase of flood insurance (Flood Insurance Protection Act of 1973)
- Many communities joined quickly
- HUD/Federal Insurance Administration rushed to put out maps
 - Flood Hazard Boundary Maps (or FHBMs)
- SFHA “blobs” – all Zone A
- Old topographic maps

Some Vermont communities:

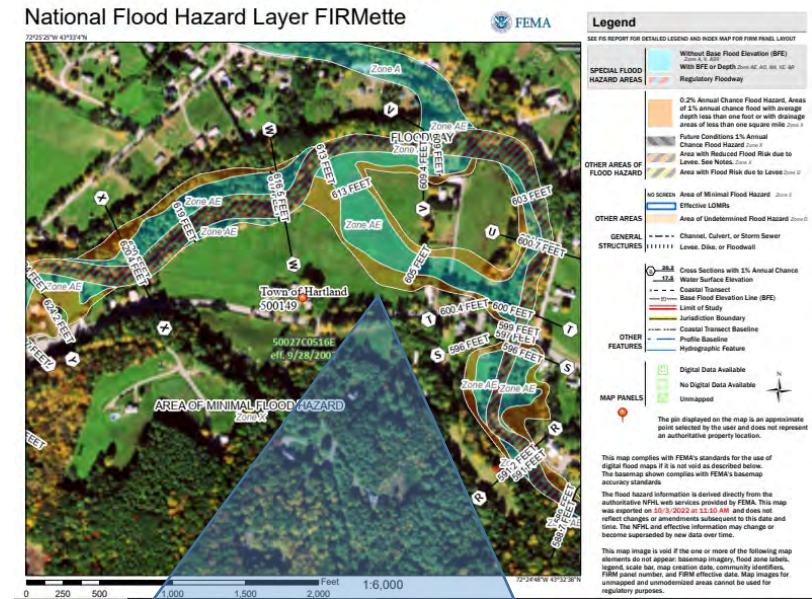
- Still unmapped
- Paper FHBM
- Paper FIRM
- Paper FIRM + Floodway maps
- Paper FIRM with Floodways



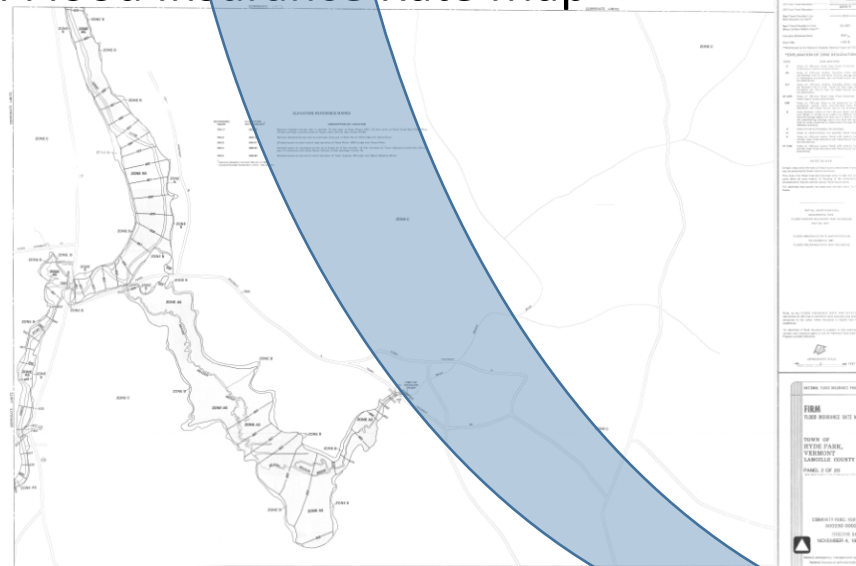
1. Flood Hazard Boundary Map



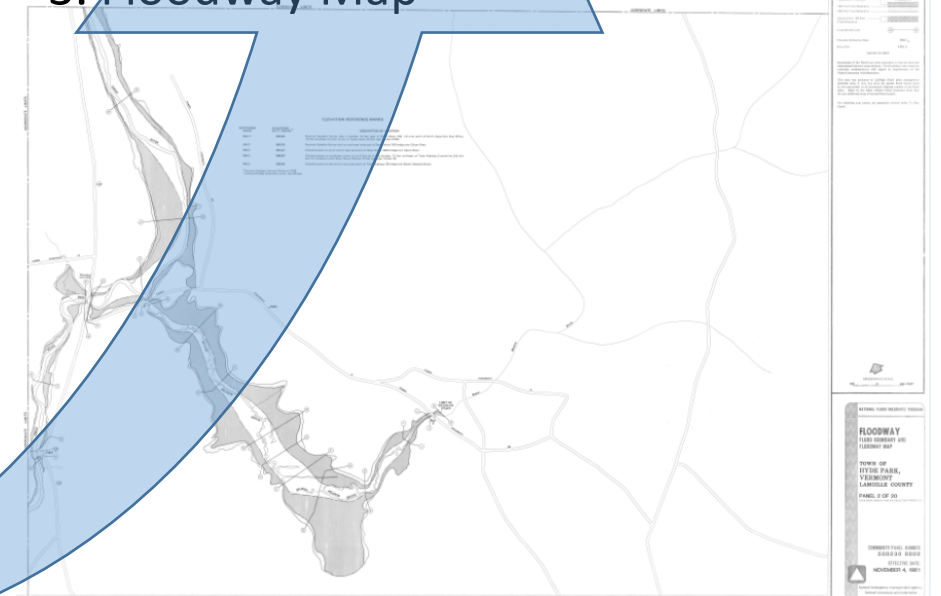
4. Digital Flood Insurance Rate Map



2. Flood Insurance Rate Map



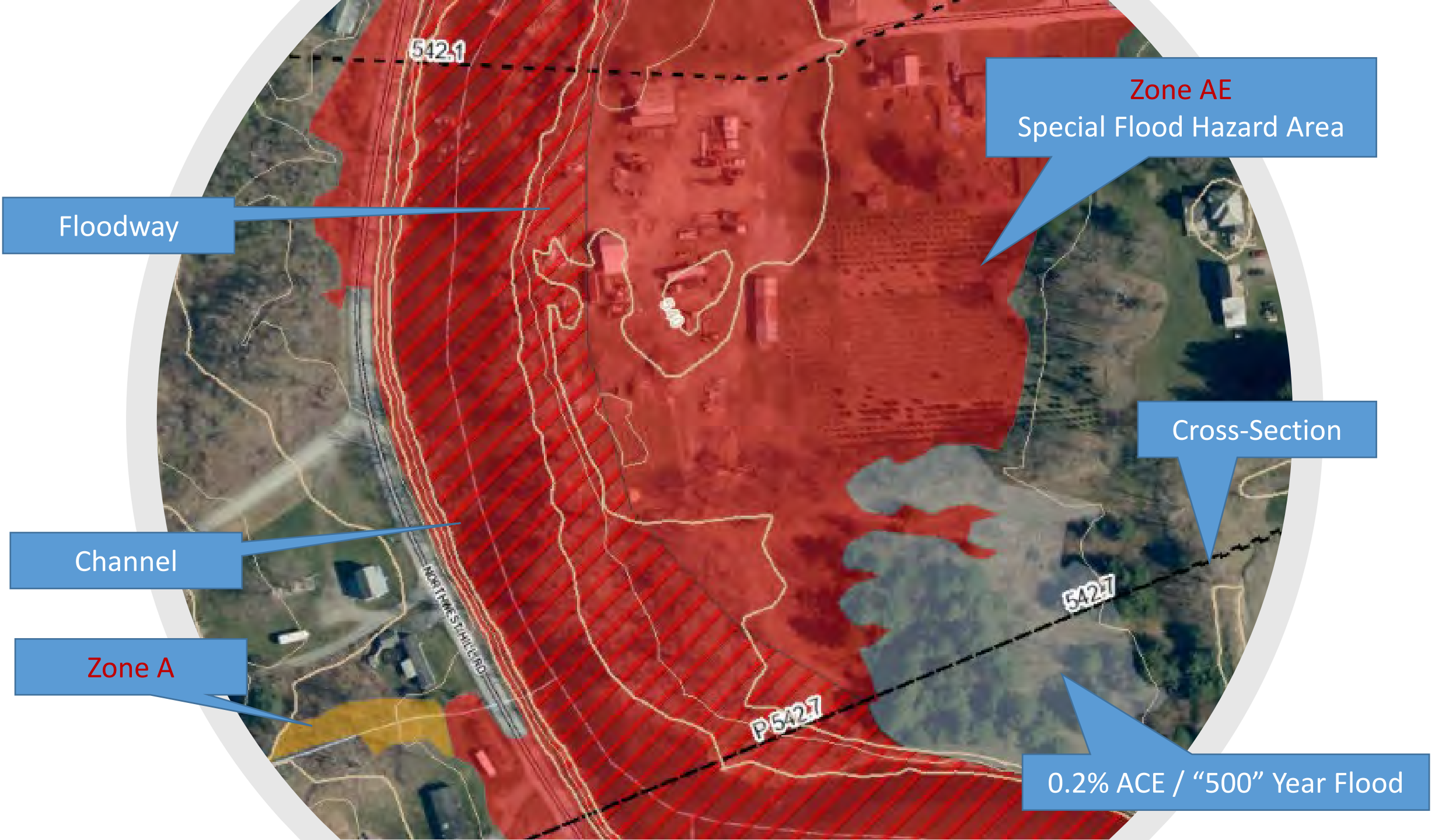
3. Floodway Map





A few Municipal DFIRMs before 2007:
Bradford, Hardwick, Jay, Montgomery, Newbury, Stowe, Wolcott

- County-wide DFIRMs –
FEMA Map Modernization Program**
- 09/28/2007 Windsor
 - 09/28/2007 Windham
 - 08/28/2008 Rutland
 - 07/18/2011 Chittenden
 - 03/19/2013 Washington
 - 12/02/2015 Bennington



Floodway

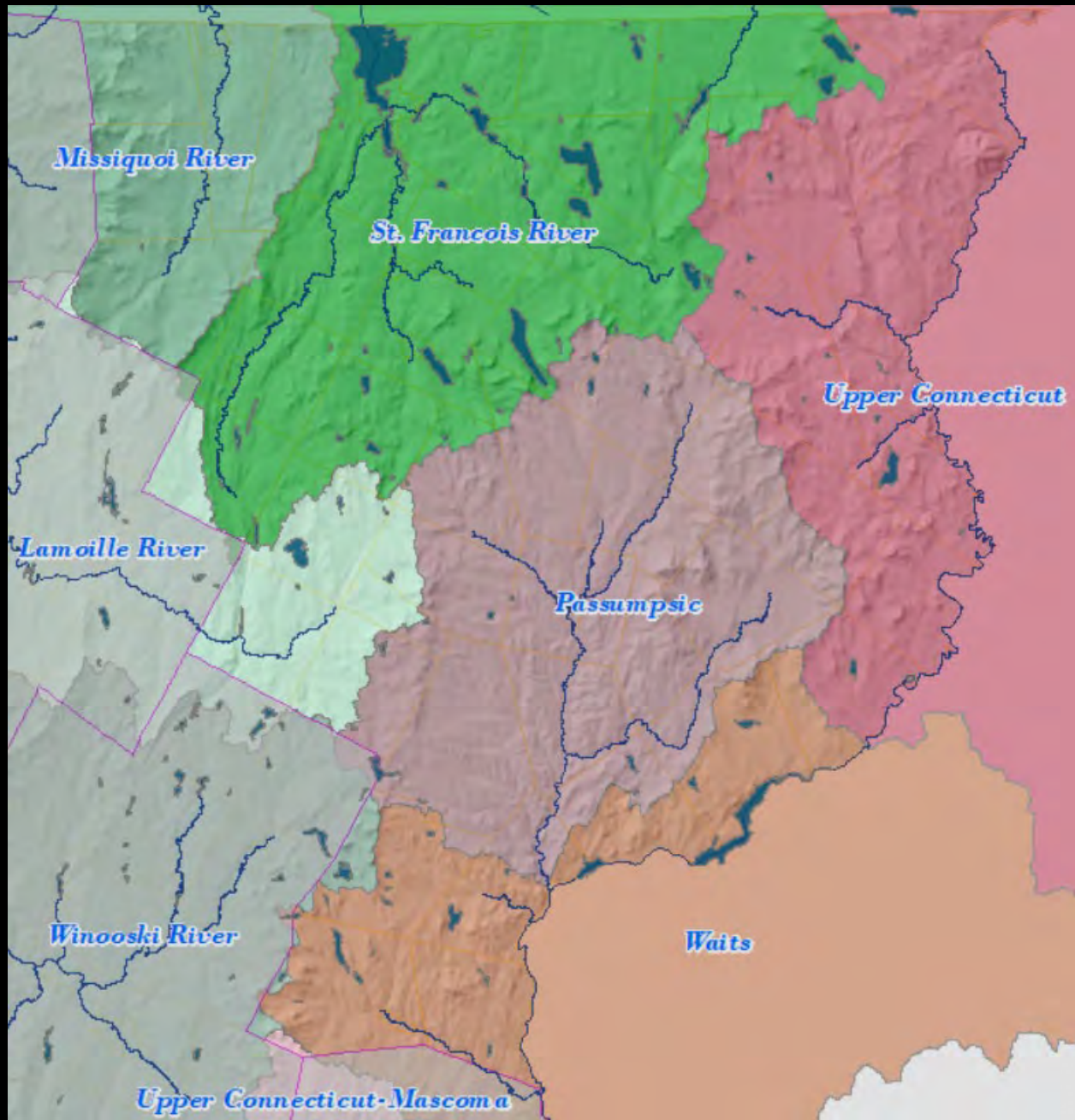
Zone AE
Special Flood Hazard Area

Channel

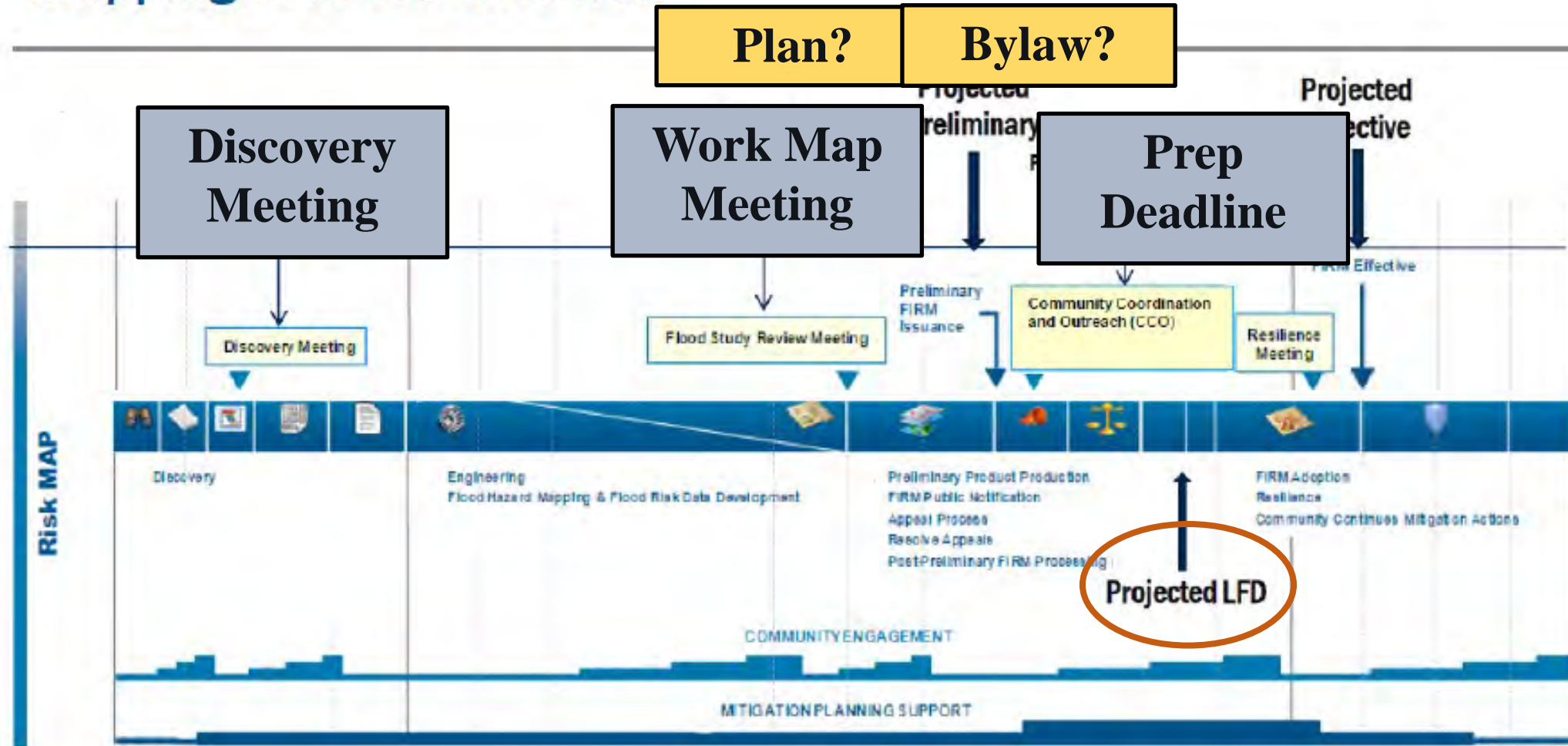
Cross-Section

Zone A

0.2% ACE / "500" Year Flood



Mapping Process Overview



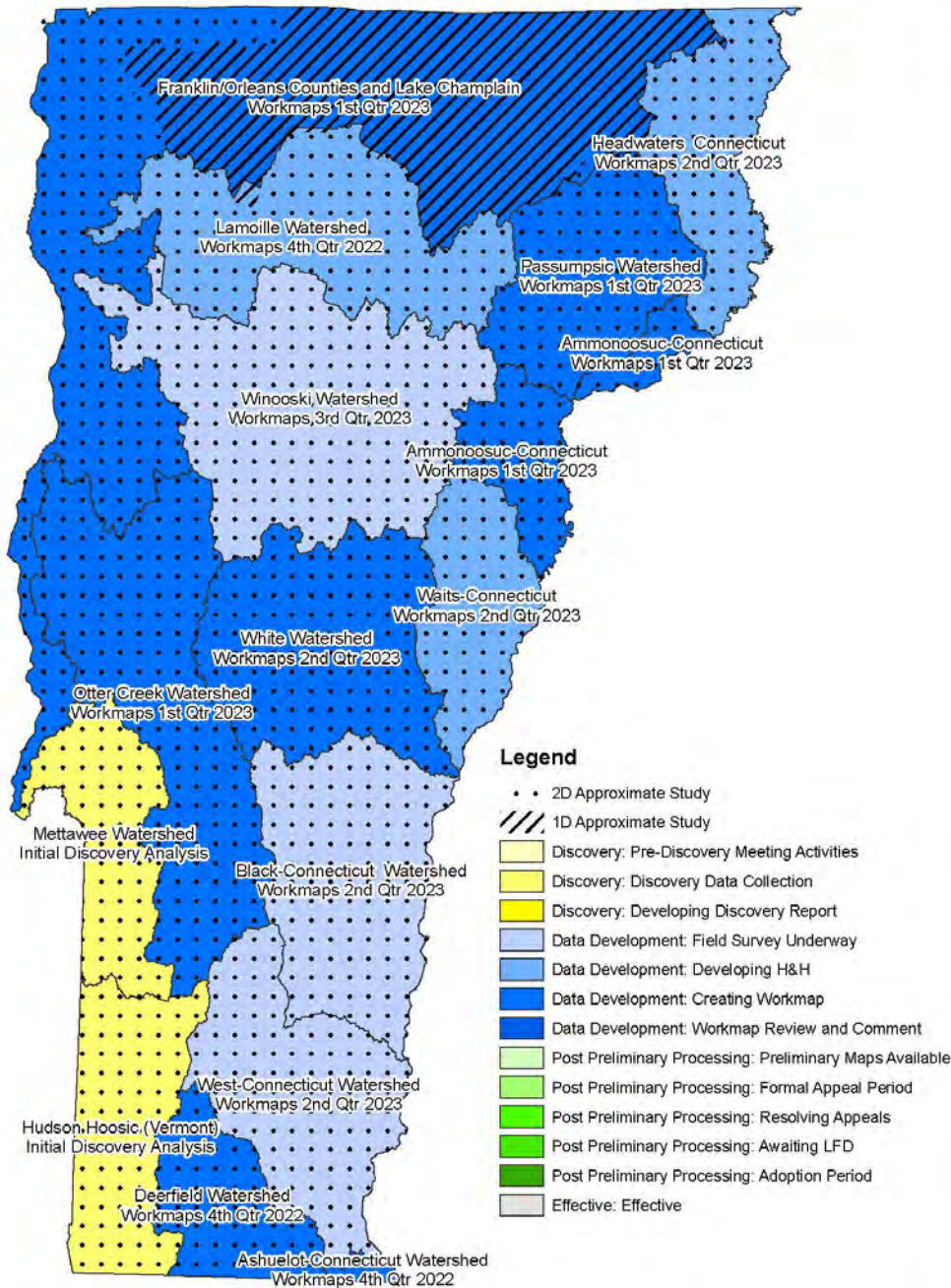
FEMA

Projected Last Work Map Meetings

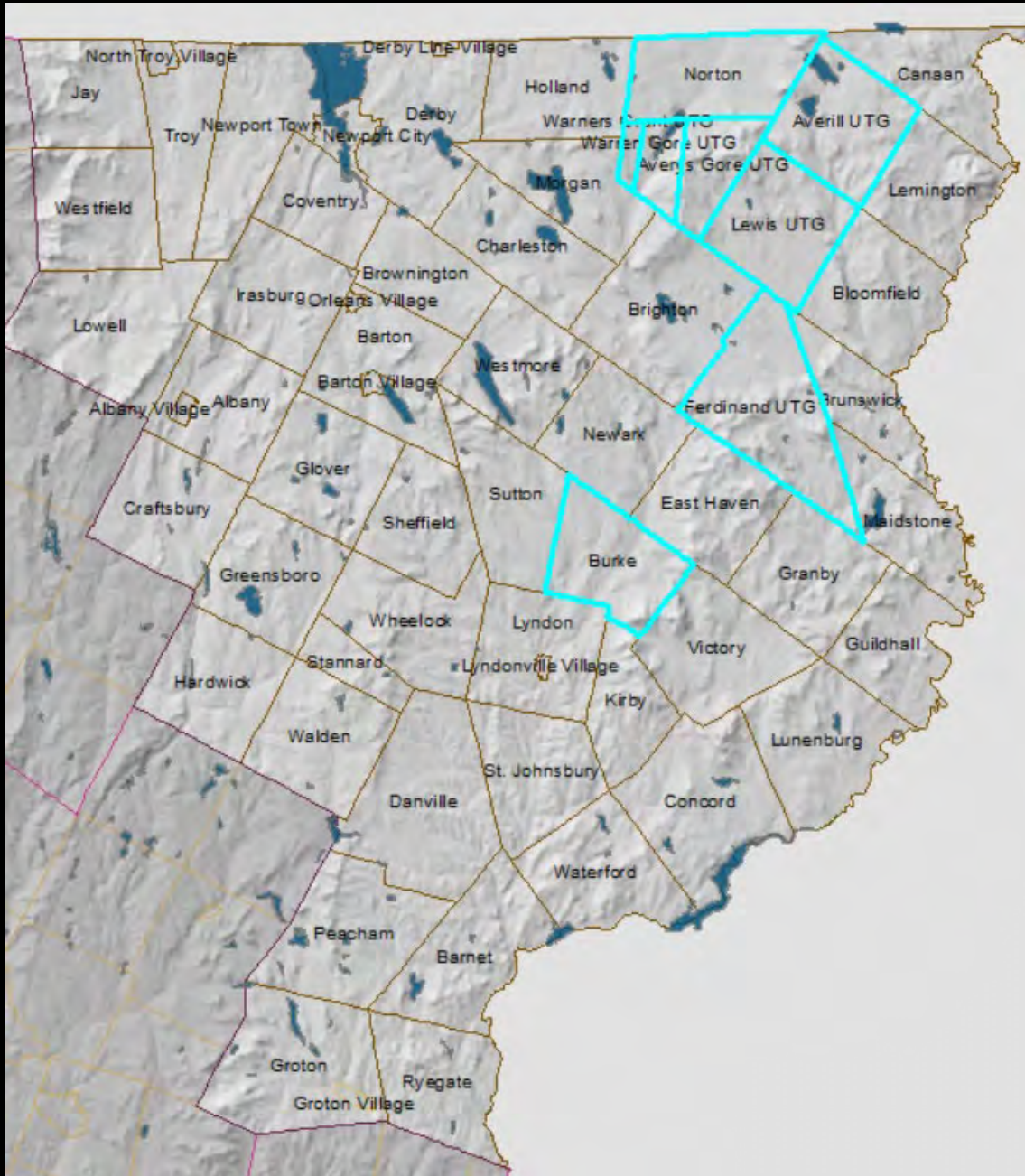
After the last Work Map Meeting we have ~ 2 years to get ready.

County	Last WMM	Prep Deadline
Franklin	Summer 2023	Fall 2025
Grand Isle	Summer 2023	Fall 2025
Orleans	Summer 2023	Fall 2025
Chittenden	Winter 2024	Spring 2026
Lamoille	Winter 2024	Spring 2026
Caledonia	Winter 2024	Summer 2026
Essex	Winter 2024	Summer 2026
Orange	Winter 2024	Summer 2026
Washington	Winter 2024	Summer 2026
Windsor	Winter 2024	Summer 2026
Addison	Fall 2024	Winter 2027
Bennington	Fall 2024	Winter 2027
Rutland	Fall 2024	Winter 2027
Windham	Fall 2024	Winter 2027

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	NFIP Communities	Non-Participating Communities	May need a Plan Update	Adopt by Ballot?	Last Work Map Meeting in the County	Likely Prep Deadline
NVDA Region	46	16	2	12?	Orleans - Summer 2023 Caledonia - Winter 2024 Essex - Winter 2024	Fall 2025 Summer 2026 Summer 2026

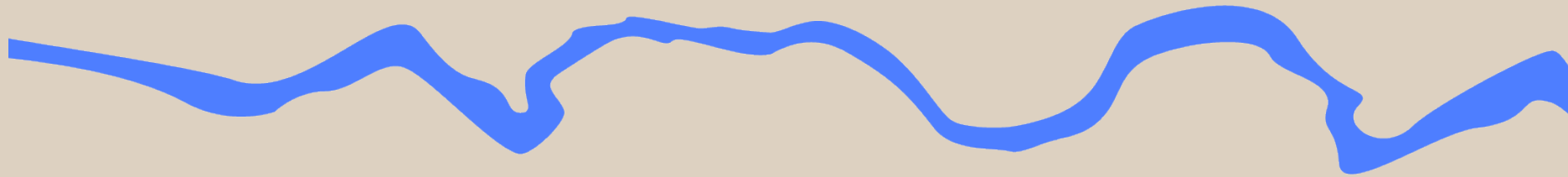


- St. George
- Shrewsbury
- Brandon
- Elmore
- Huntington
- Hyde Park
- Norton
- Averill UTG
- Averys Gore UTG
- Ferdinand UTG
- Lewis UTG
- UTG
- Warners Grant UTG
- Warren Gore UTG
- Burke
- Enosburg Falls Village
- Georgia
- Mount Holly
- Reading

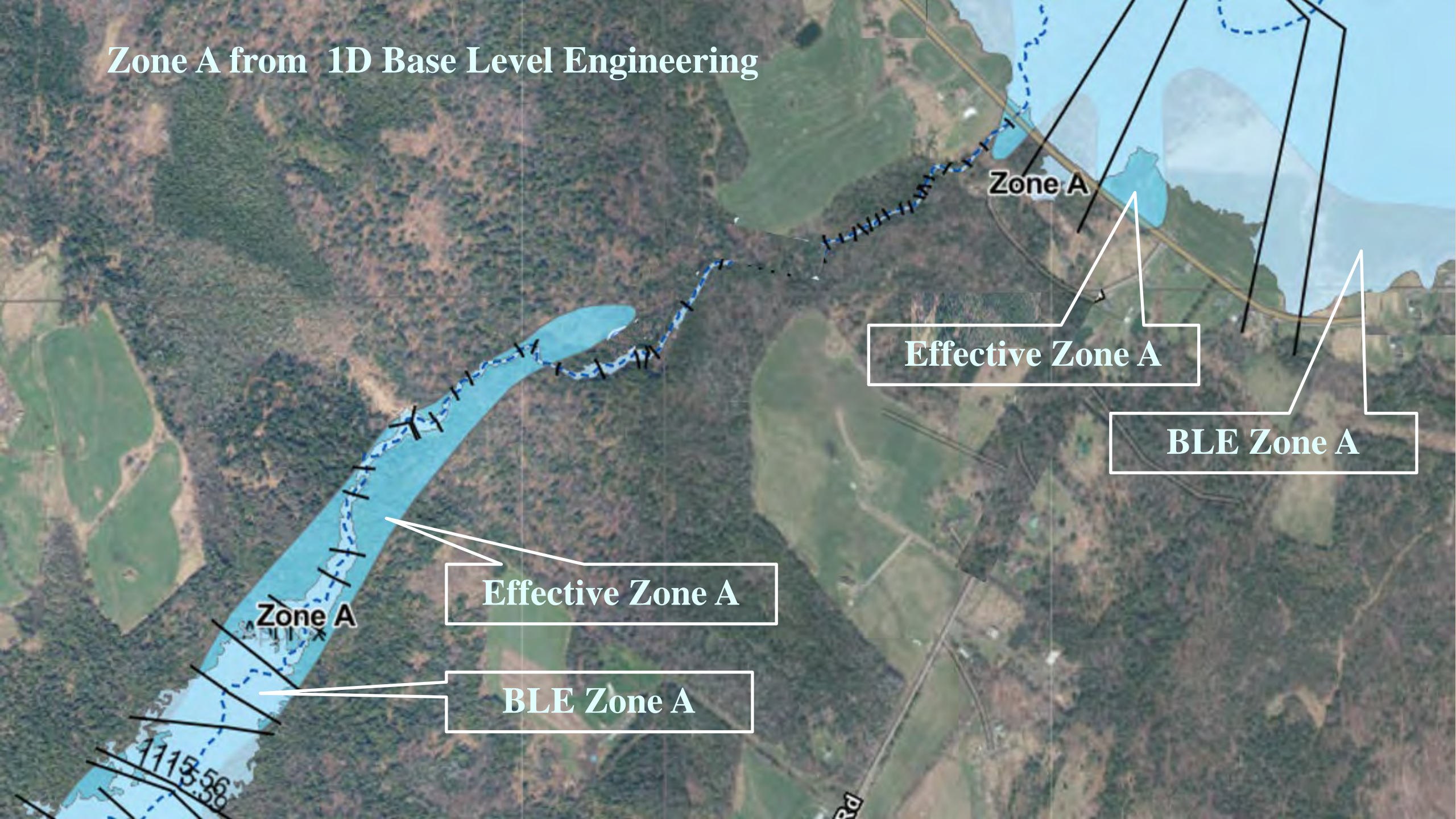
Community bylaws that have been recently reviewed and verbally “okayed” by FEMA Region 1.

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. **Detailed studies** on portions of the :
Connecticut, Lamoille, Missisquoi, Passumpsic, and Sleepers Rivers



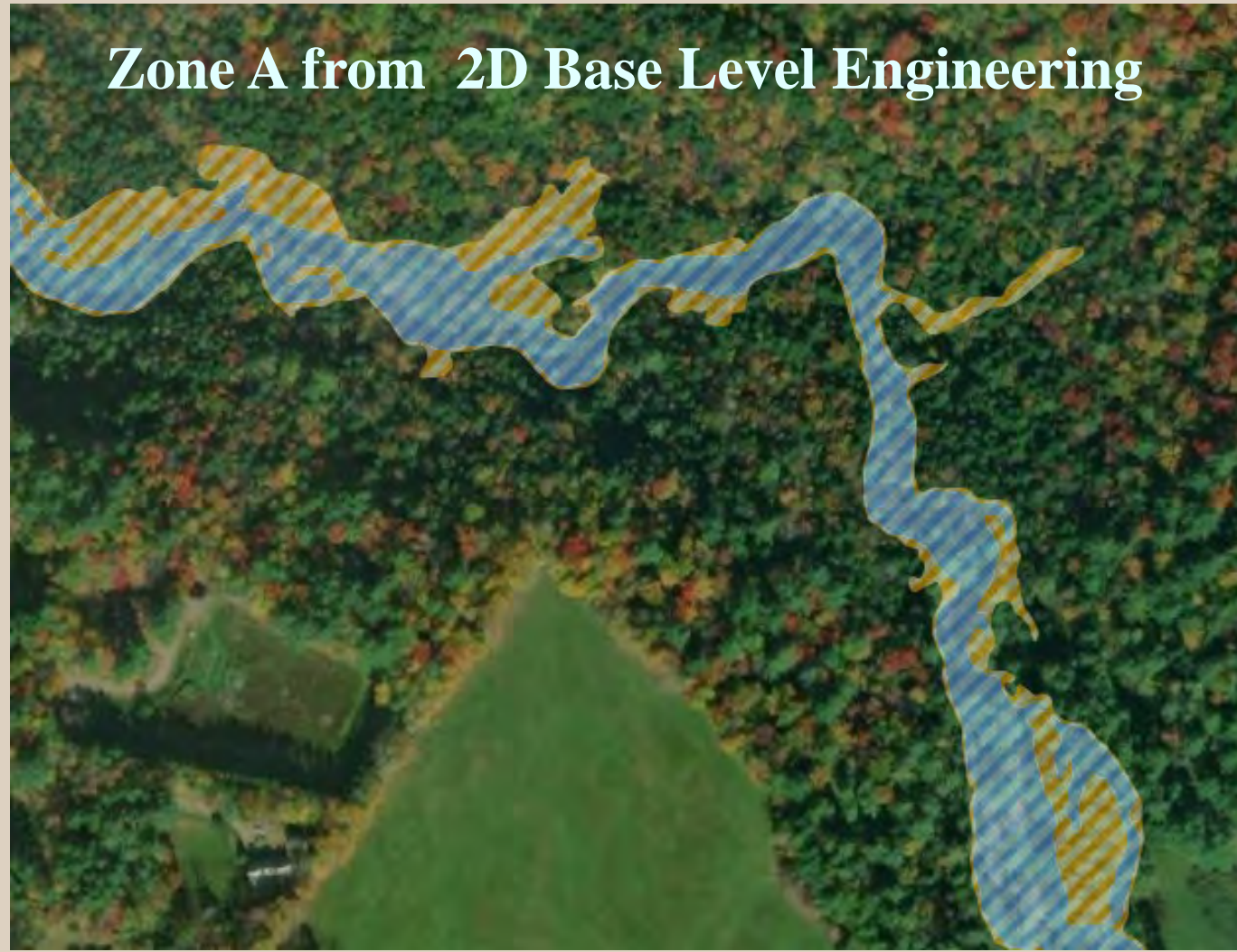
Zone A from 1D Base Level Engineering



Zone A existing map



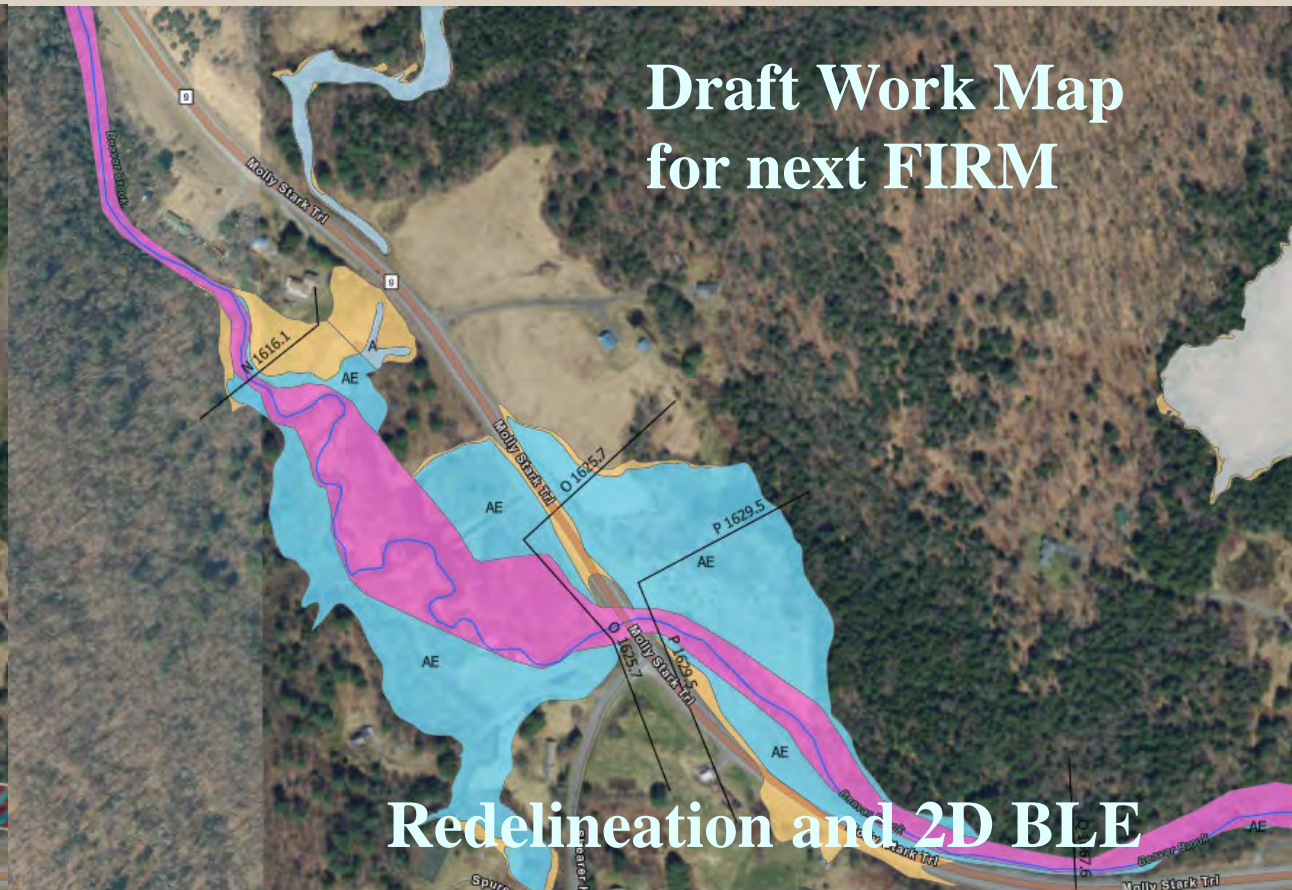
Zone A from 2D Base Level Engineering

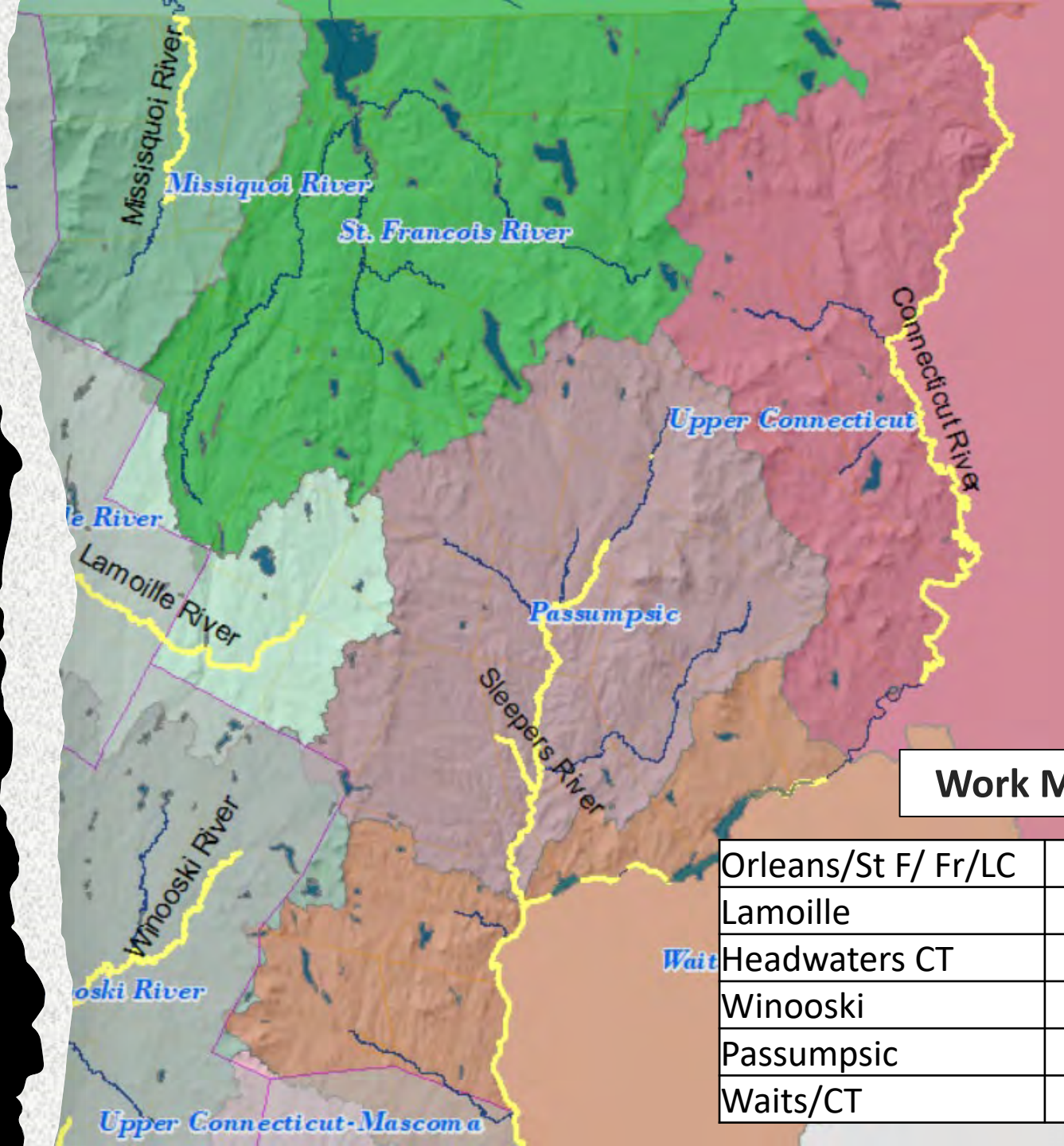


Effective FIRM



Draft Work Map for next FIRM





Work Map Meetings

Orleans/St F/ Fr/LC	Summer 2023
Lamoille	Summer 2023
Headwaters CT	Fall 2023
Winooski	Winter 2024
Passumpscic	Winter 2024
Waits/CT	Winter 2024

No Adverse Impact - Model Bylaws

1. River Corridor Protection

Don't build closer than what is already there.

Leave room for rivers

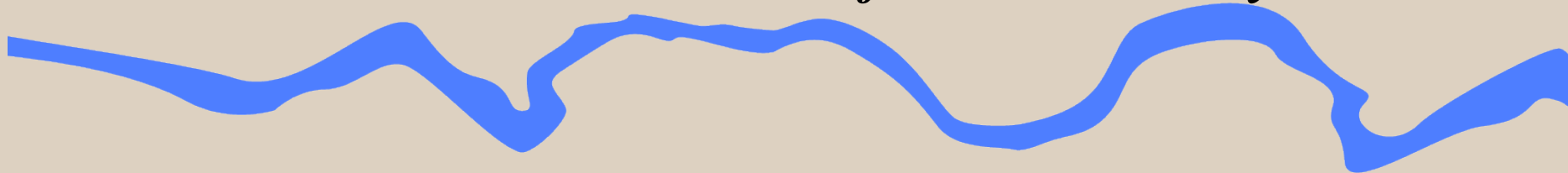
2. Special Flood Hazard Area

No net fill

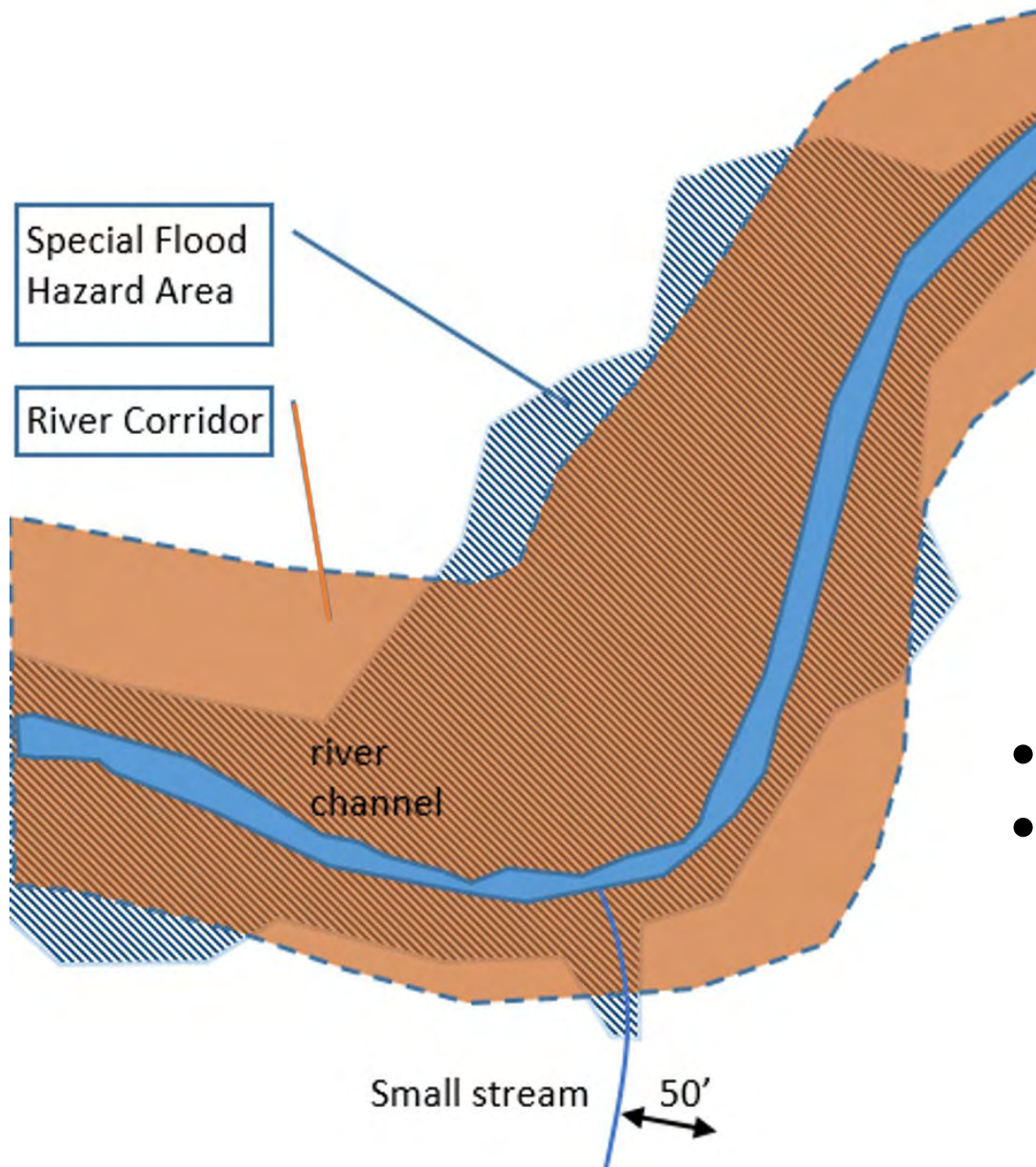
Lowest floor 2 feet above flood water

Let floodplains work for all of us.

Don't increase the risk for those already at risk.



bit.ly/model-regulations



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

No adverse impact

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

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.

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

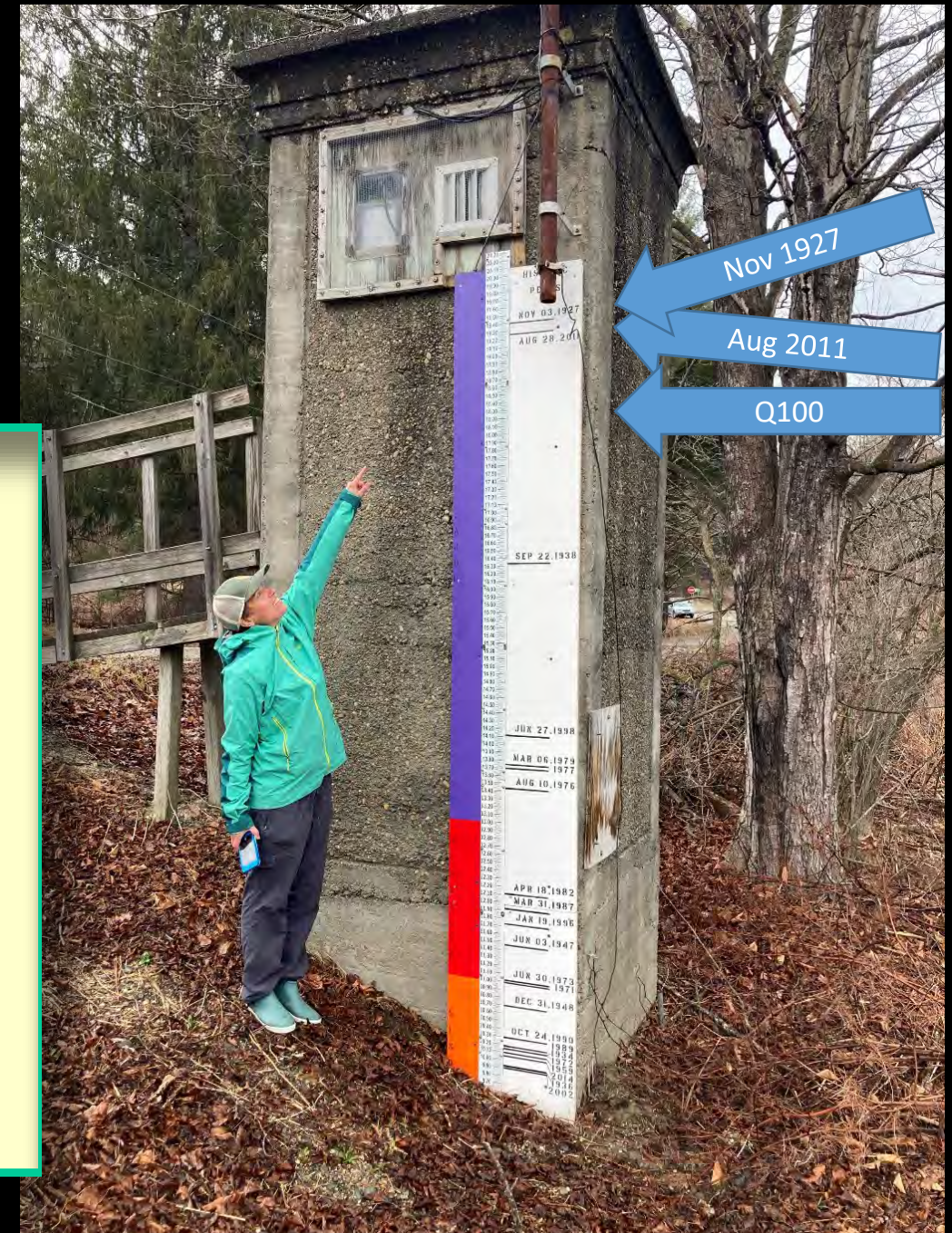
Why not
add fill
in a floodplain?



- Fill deflects flood waters toward and onto other land
- Increases flood water heights, power, and erosive damage.

Why Two Feet Above the Floodwater ?

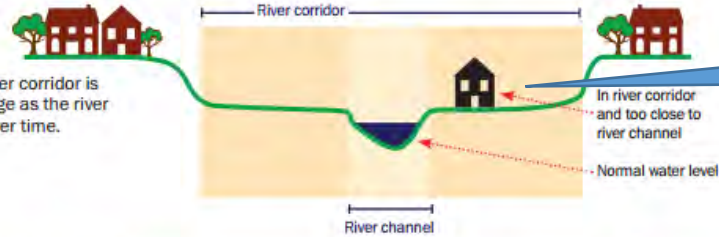
- Floods come in **many** sizes. Many small. Some larger.
- At the edge of the SFHA there is **more than a 1: 4 chance** of experiencing a flood during a 30-year mortgage.
- The mapped Base Flood is determined by the **past** record.
- Redelineated reaches will reflect old hydrology from **before Tropical Storm Irene**.
- **Precipitation has been increasing** since the 1970s.
- We **don't know** what's coming to our communities.
- The higher the Lowest Floor the safer from damage.
- The higher the Lowest Floor the less costly to insure.
- It is **easier to avoid disaster**.



Why protect River Corridors?

1. Development in River Corridor

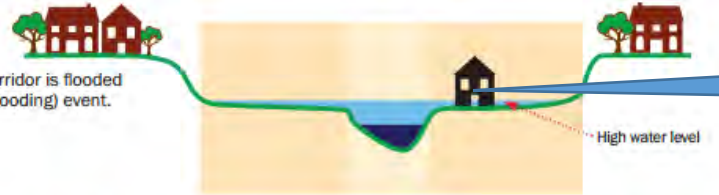
Structure built in river corridor is vulnerable to damage as the river channel changes over time.



House placed too close to stream!

2. Flooding Event

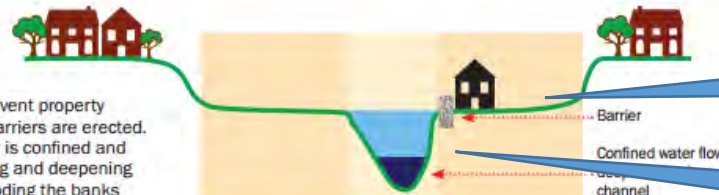
Structure in river corridor is flooded during high water (flooding) event.



House damaged by water and erosion

3. Attempt to Protect Property after Flooding

In an attempt to prevent property damage, physical barriers are erected. As a result, the river is confined and flows faster, scouring and deepening the channel and eroding the banks downstream.



Bank armoring to protect house.

Stream energy digs channel deeper.

4. Unintended Damage

The deeper river channel and faster water flow caused by encroachment eventually leads the bank to collapse during a high water event. Structures in the river corridor are lost or damaged.

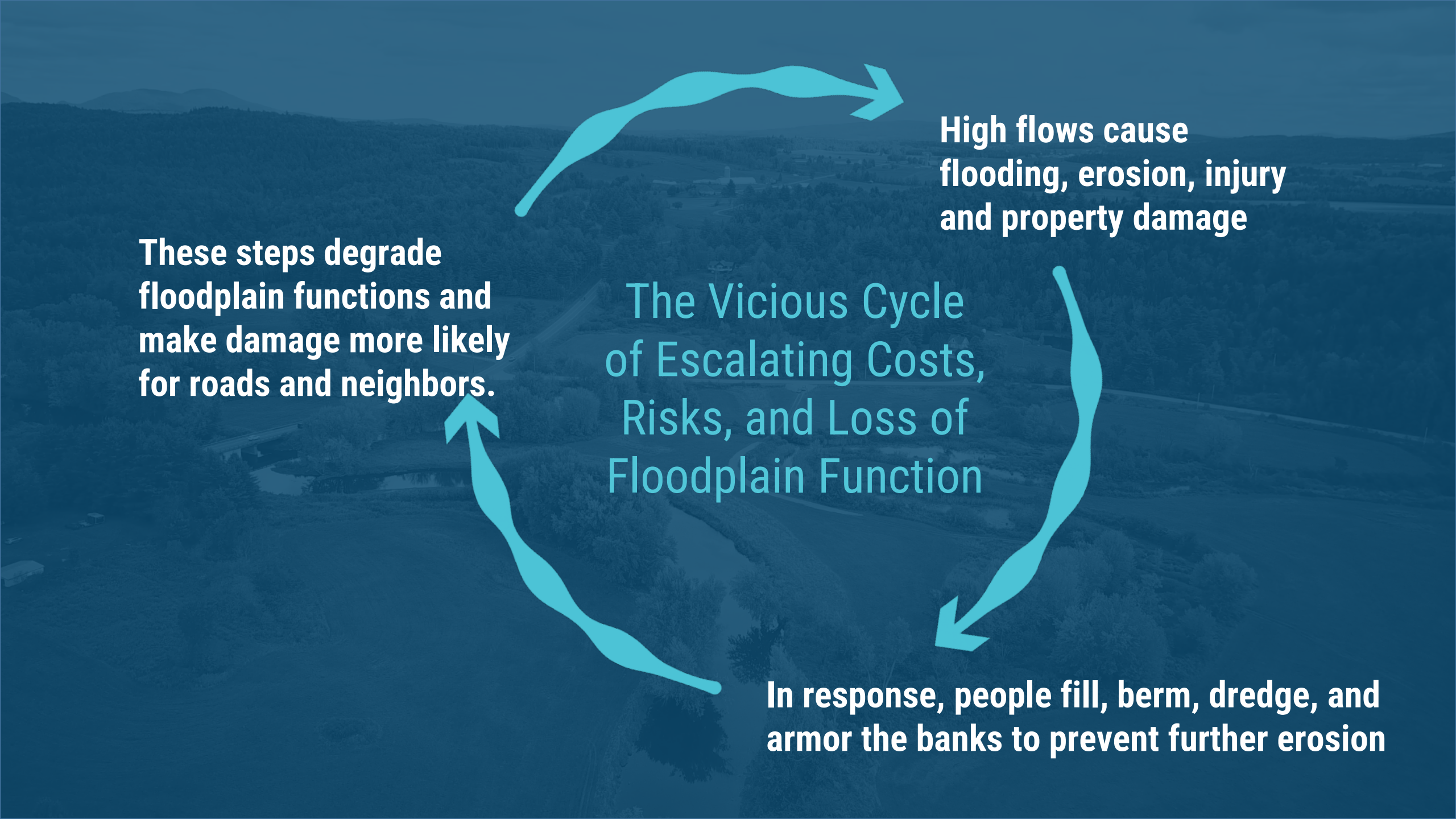


Stream bank fails.

5. Reduced Flood Risk

The energy from scouring water redistributes sediments and establishes a new floodplain. With room in the river corridor for the river to move and to flood, property damage is reduced.





These steps degrade floodplain functions and make damage more likely for roads and neighbors.

High flows cause flooding, erosion, injury and property damage

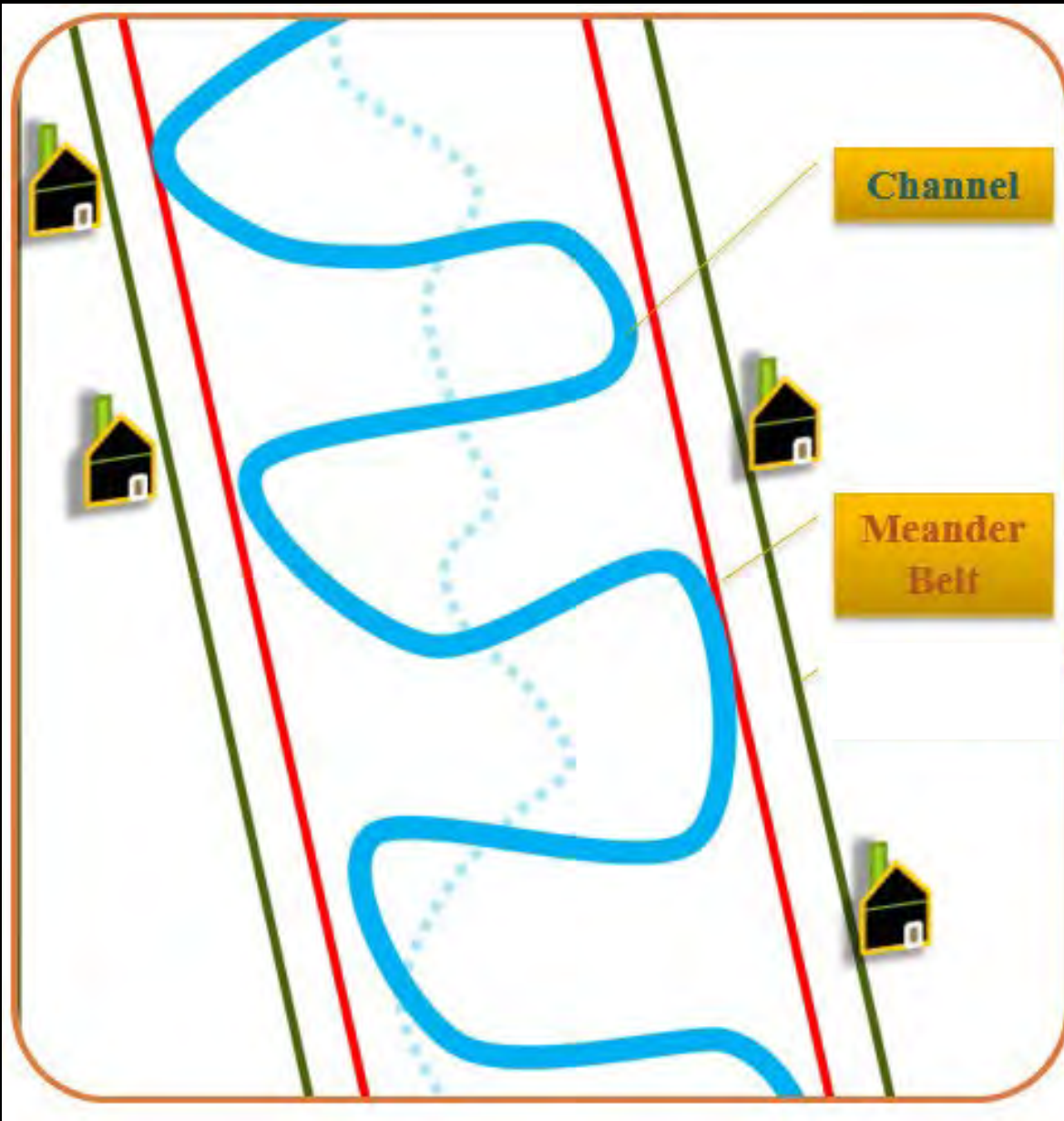
The Vicious Cycle of Escalating Costs, Risks, and Loss of Floodplain Function

In response, people fill, berm, dredge, and armor the banks to prevent further erosion

A protected River Corridor allows the river to move over time, maintaining the slowest, least erosive path.

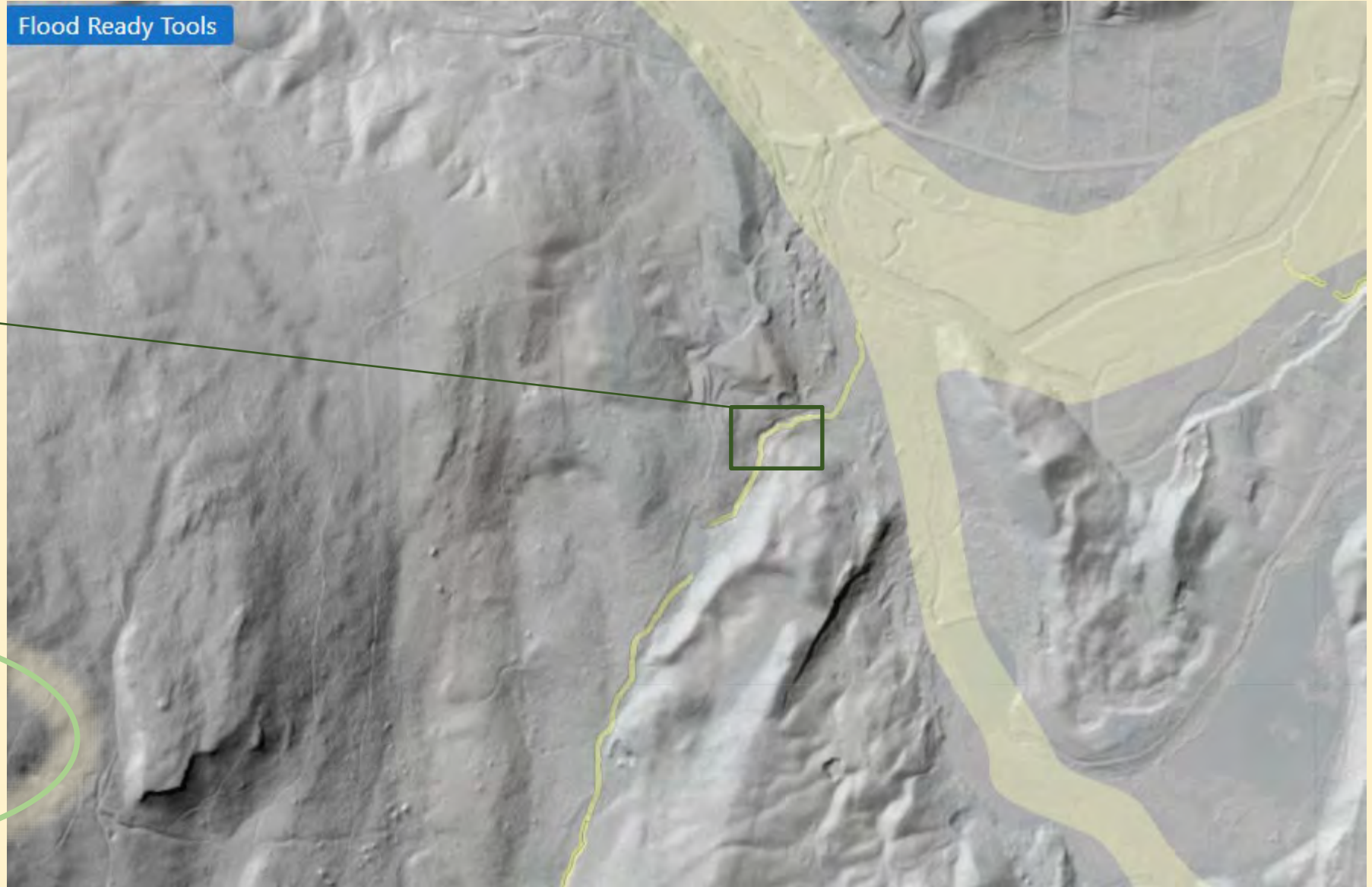


River Corridors protect us.



The River Corridor includes the **meander belt** and an area for a **stable bank**.

The River Corridor includes a 50' setback from small streams with at least a one half square mile watershed.



Flood Ready Atlas
bit.ly/floodatlas

Room for Rivers

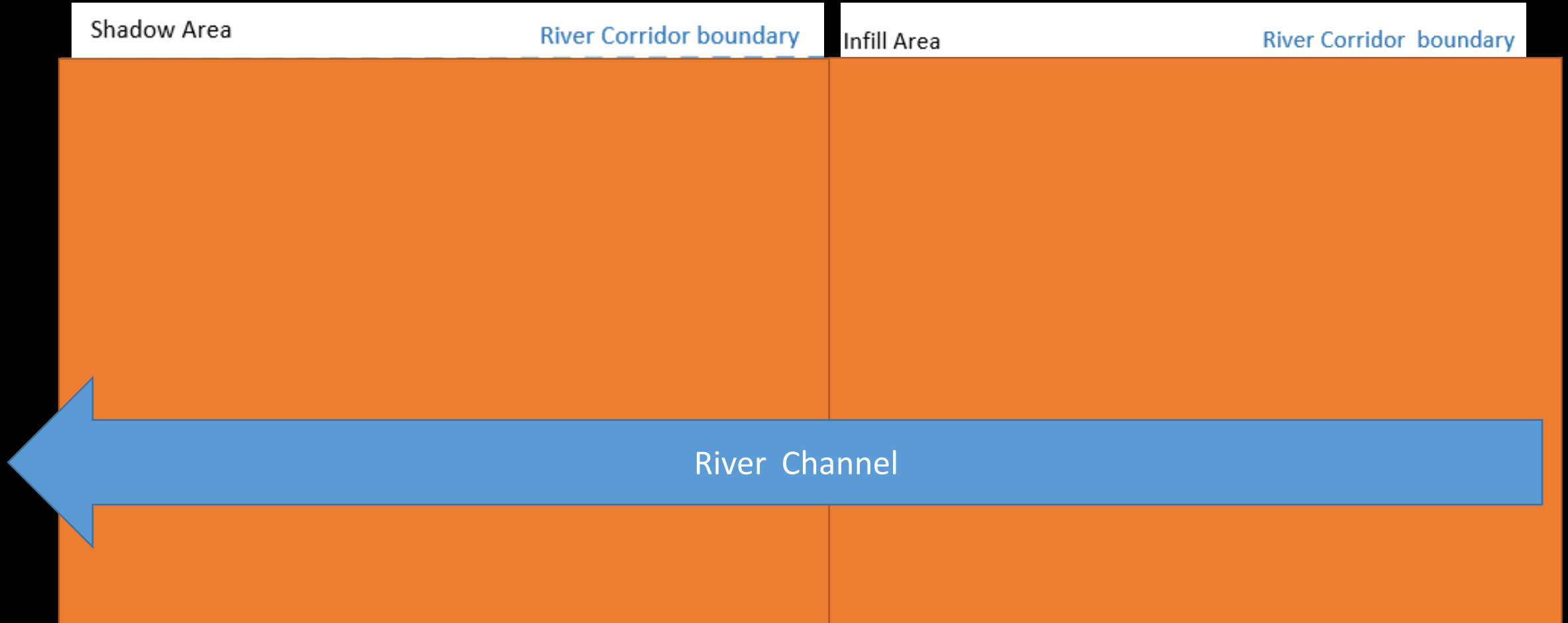


Don't build closer to the river than what is already there.



No Adverse Impact on the Room Needed by the River

...and still functioning!



How can we avoid losses
due to flooding?



Develop data to identify
inundation and erosion
hazards.

Provide model regulations

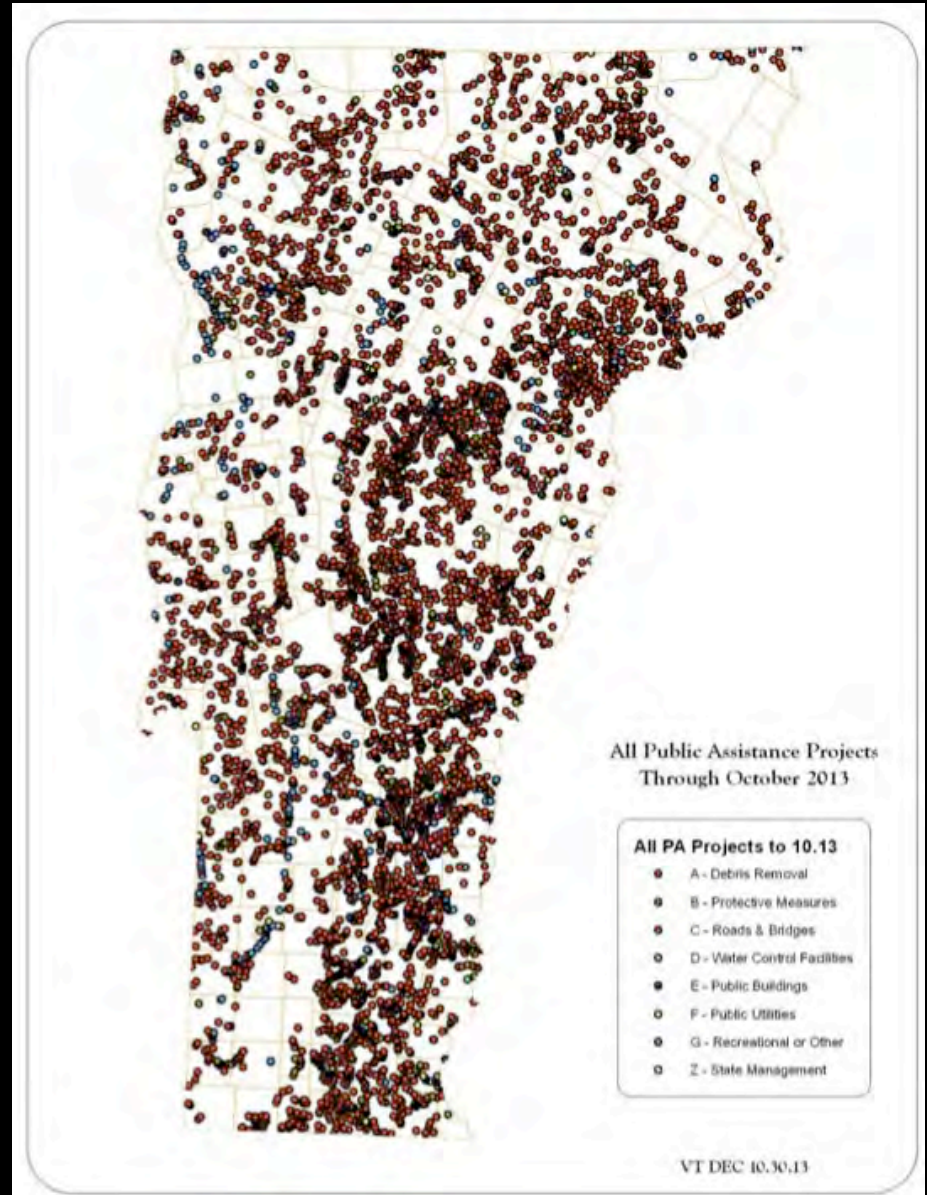
Develop incentives for
communities.

Regulations to avoid known
hazards, and to not aggravate the
risk to structures, families, and
assets already in the hazard zone.

Take steps to reduce existing
exposure, and

Improve emergency response.

Make a family plan.
Prepare an emergency kit.
Practice the plan.
Get insurance.
Get finances in order.
Elevate structure.
Relocate structure.



Home

Rising Danger - Flood Costs

Community Risk Assessment

Update Your Plans

Use Natural Flood Protection

Improve Infrastructure

Find Funding

National Flood Insurance Program

Emergency Relief Assistance Fund

Hazard Mitigation Assistance

Post-Disaster Funds

Making It Happen

Get Help

Map Your Community



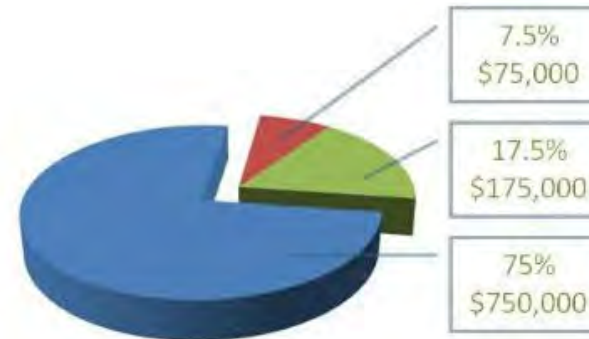
Emergency Relief Assistance Fund

Emergency Relief Assistance Fund

The Emergency Relief and Assistance Fund (ERAF) provides State funding to match [Federal Public Assistance](#) after [federally-declared disasters](#). Eligible public costs are reimbursed by federal taxpayers at 75%. For disasters after October 23, 2014, the State of Vermont will contribute an additional 7.5% toward the costs. For communities that take specific steps to reduce flood damage the State will contribute 12.5% or 17.5% of the total cost.

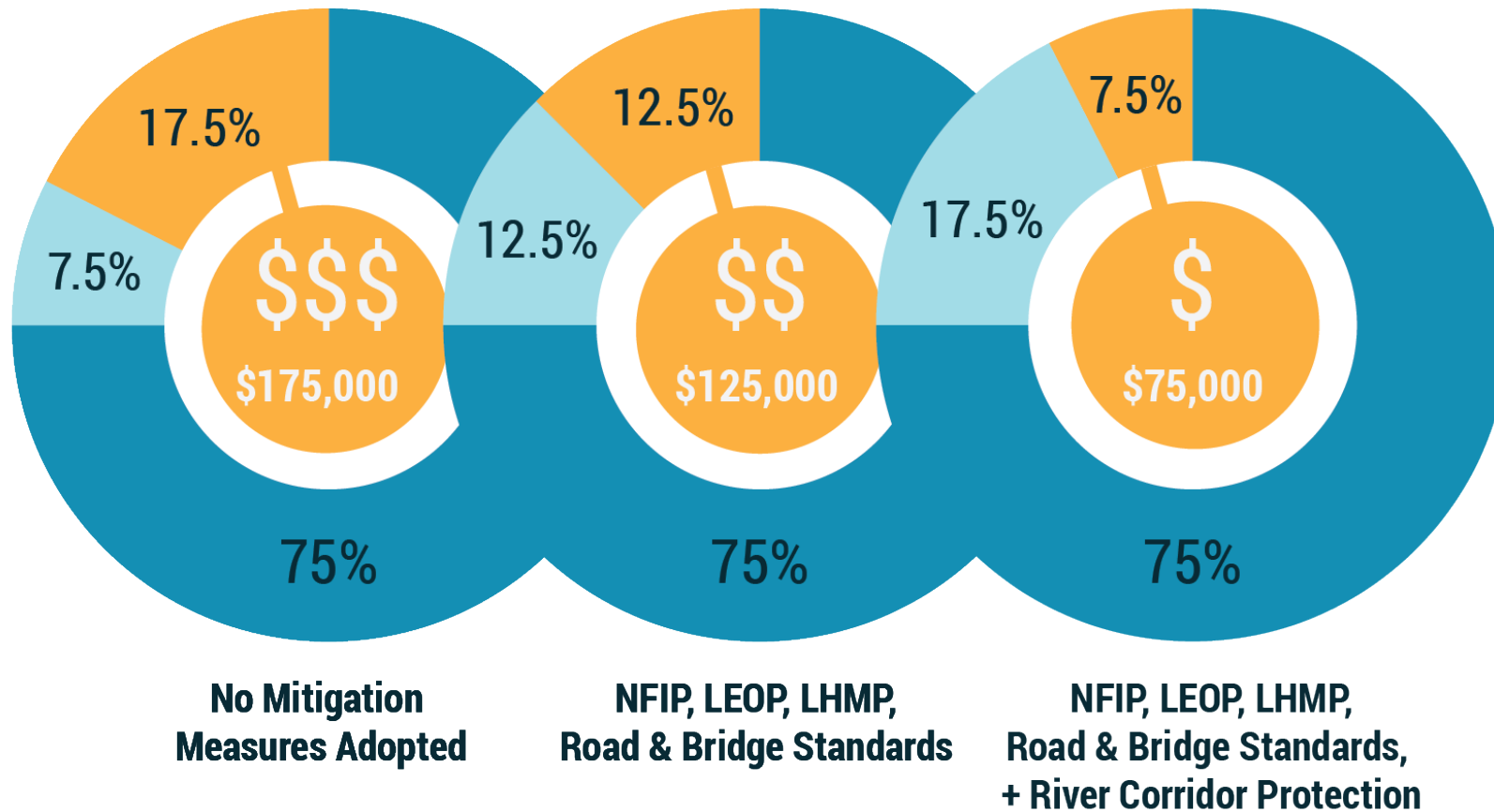
Links to sections below:

- [Letter to Vermont Select Boards](#)
- [What specific steps can we take?](#)
- [What has my community done?](#)
- [How can we become more flood resilient?](#)
- [Who administers ERAF?](#)
- [More Resources](#)

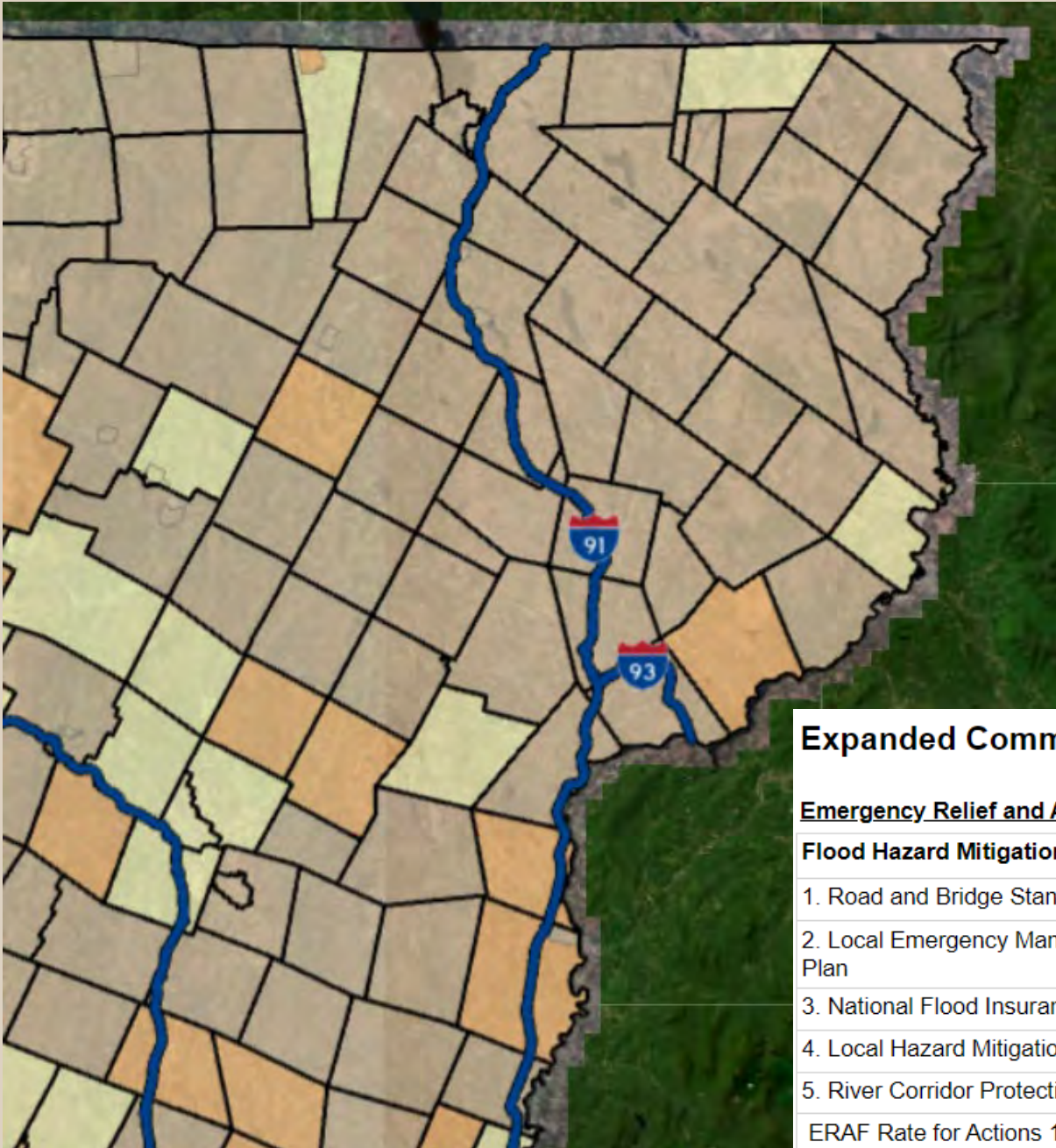


Emergency Relief and Assistance Fund (ERAF) Rates

Local State Federal



In the event of a \$1,000,000 recovery project, the dollar value shown would be the town's responsibility.



bit.ly/flood-risk-report

Expanded Community Report for Norton

6/5/2023
2:10:07 PM

Emergency Relief and Assistance Fund (ERAF) - State Post-Disaster Funding

Flood Hazard Mitigation Actions	Action Dates		Responsible	ERAF Status
1. Road and Bridge Standards	07/08/2019		Norton	Yes
2. Local Emergency Management Plan	04/11/2023		Norton	Yes
3. National Flood Insurance Program	04/13/2015		Norton	Yes
4. Local Hazard Mitigation Plan	03/13/2023		Norton	Yes
5. River Corridor Protection	07/01/2014			Yes
ERAF Rate for Actions 1 - 4:12.5%,	Actions 1 - 5: 17.5%	ERAF Rate for:	Norton	17.5%

Equity-Centered Process for Environmental Justice

Who is most at risk?

Who is not at the table?

Meaningful engagement

Moving at the speed of trust

What can be prioritized to reduce harm?

Are we transparent and accountable?



No Adverse Impact - Model Bylaws

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Leave room for rivers

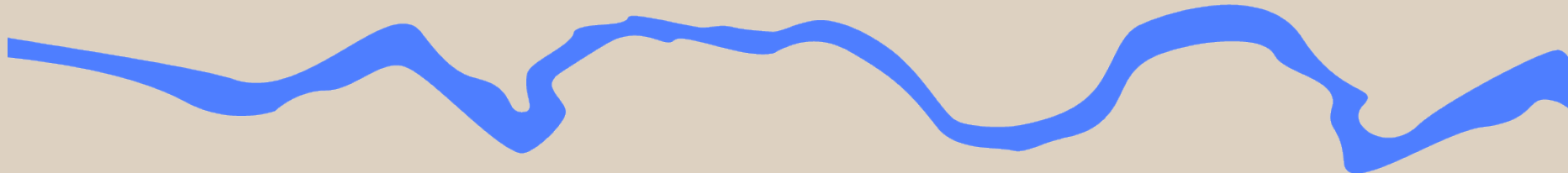
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No net fill

Lowest floor 2 feet above flood water

Let floodplains work for all of us.

Don't increase the risk for those already at risk.



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- Update **Municipal Plan** or Local Hazard Mitigation Plan ?
- Coordinate timeline - Selectboard and Planning Commission
- **Inclusive meaningful public engagement** on plans and bylaw

- Send DRAFT bylaw to VT DEC for an NFIP Checklist
- Send the ADOPTED bylaw to VT DEC for FEMA approval well before the Prep Deadline!

bit.ly/fema-map-update



Is your
community
ready?

FLOOD READY VERMONT

Learn what you can do to prepare for the next flood.

floodready.vt.gov

COMMUNITY DATA • ERAF STATUS • HAZARD MAPS • ASSISTANCE IN UPDATING PLANS

www.floodready.vt.gov (community reports)

www.floodtraining.vt.gov (map update info)

bit.ly/floodatlas (river corridor and flood maps)

bit.ly/model-regulations (model bylaws)

floodready.vermont.gov/info (handouts)

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ot necessary

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Sarah Noyes (Flood Resilience Educator Lake Champlain) - spnoyes@uvm.edu

Keep what works

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

No adverse impact