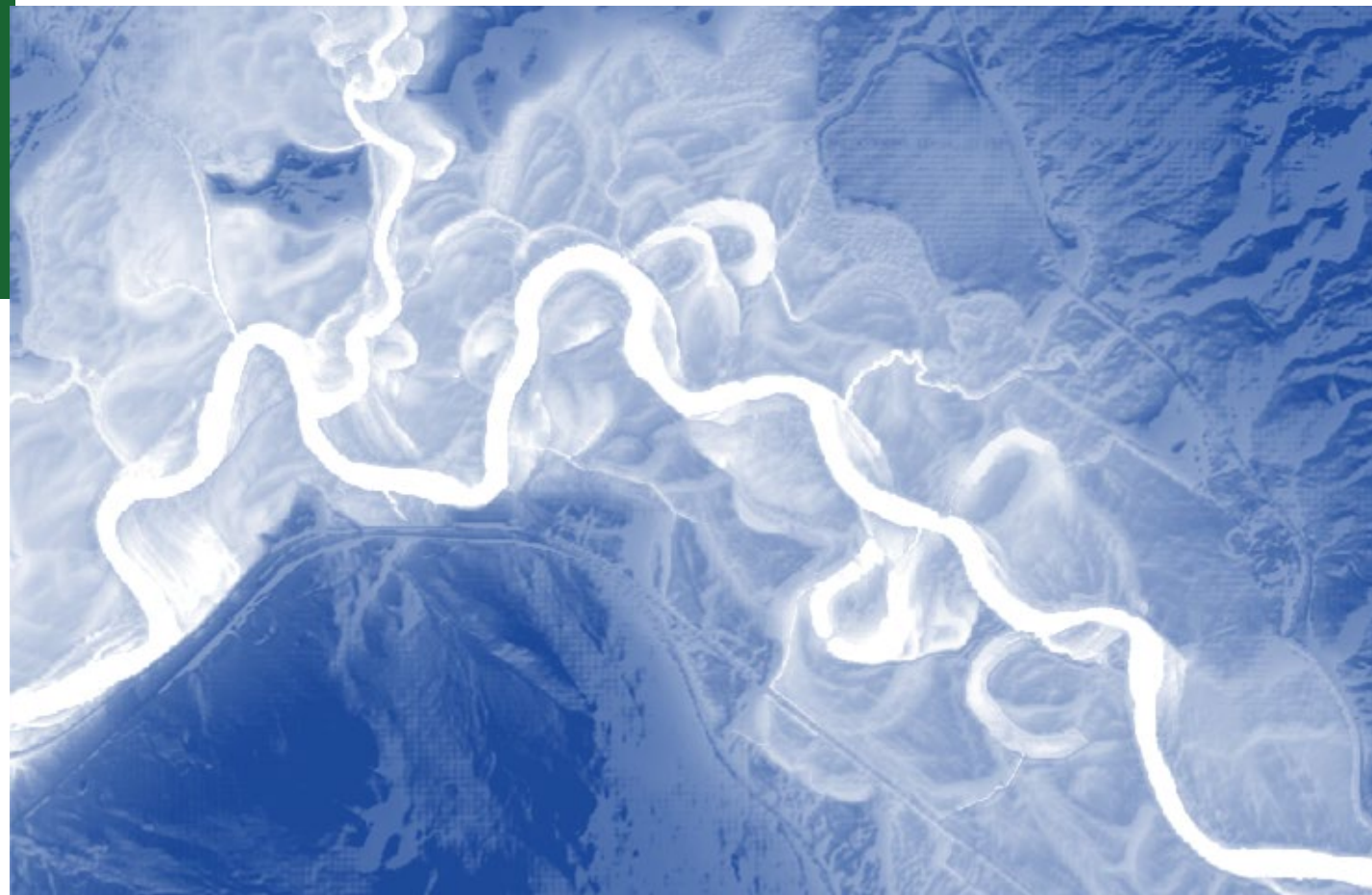


# Flood Hazard Areas & River Corridors S.213

Rob Evans  
Rivers Program Manager  
Agency of Natural Resources  
Department of Environmental Conservation





1. Mapping – Areas Regulated
  - Flood Hazard Areas
  - River Corridors
2. Jurisdiction walk-through
3. How River Corridor regulation works
4. Resource needs to implement expanded river corridor work

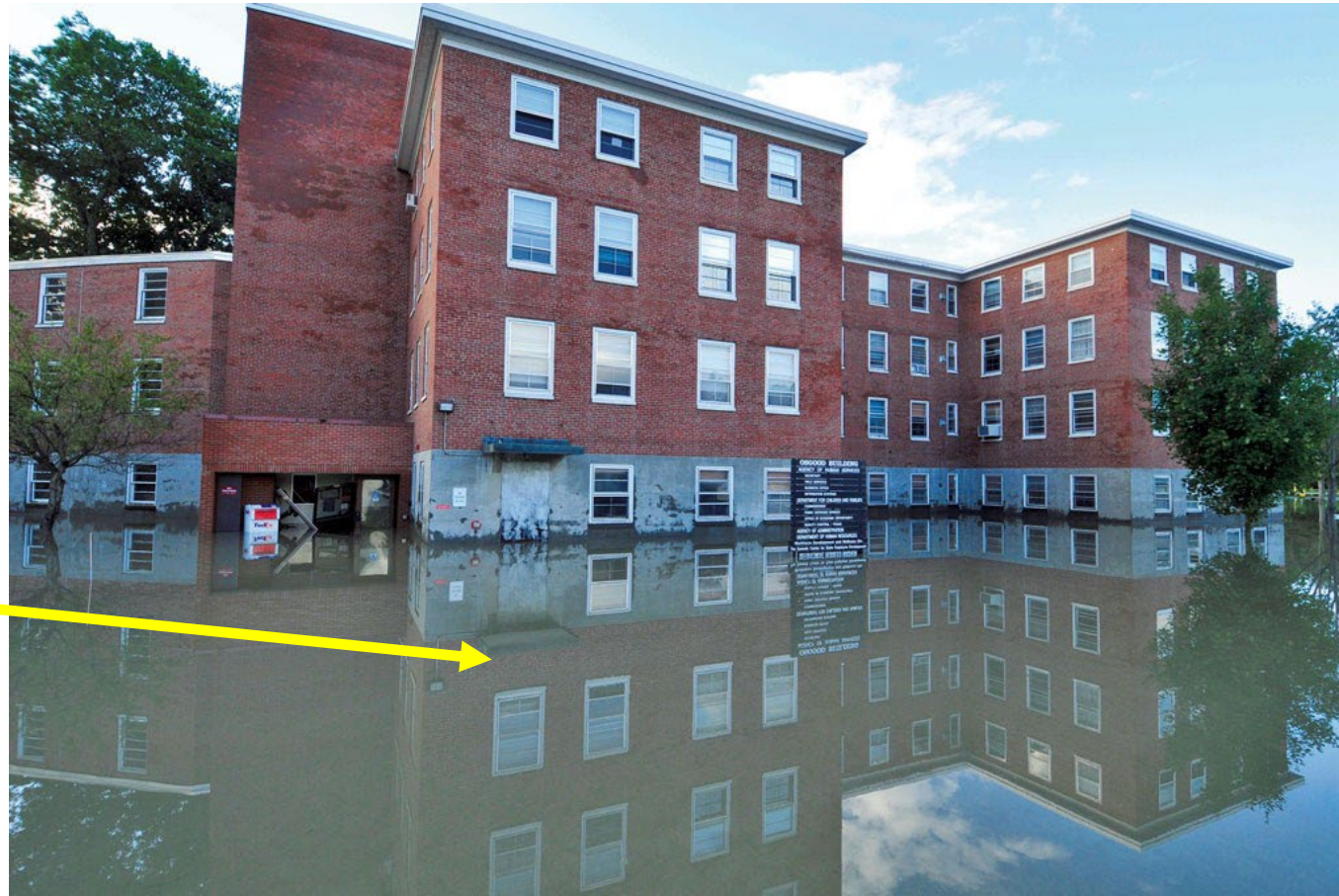
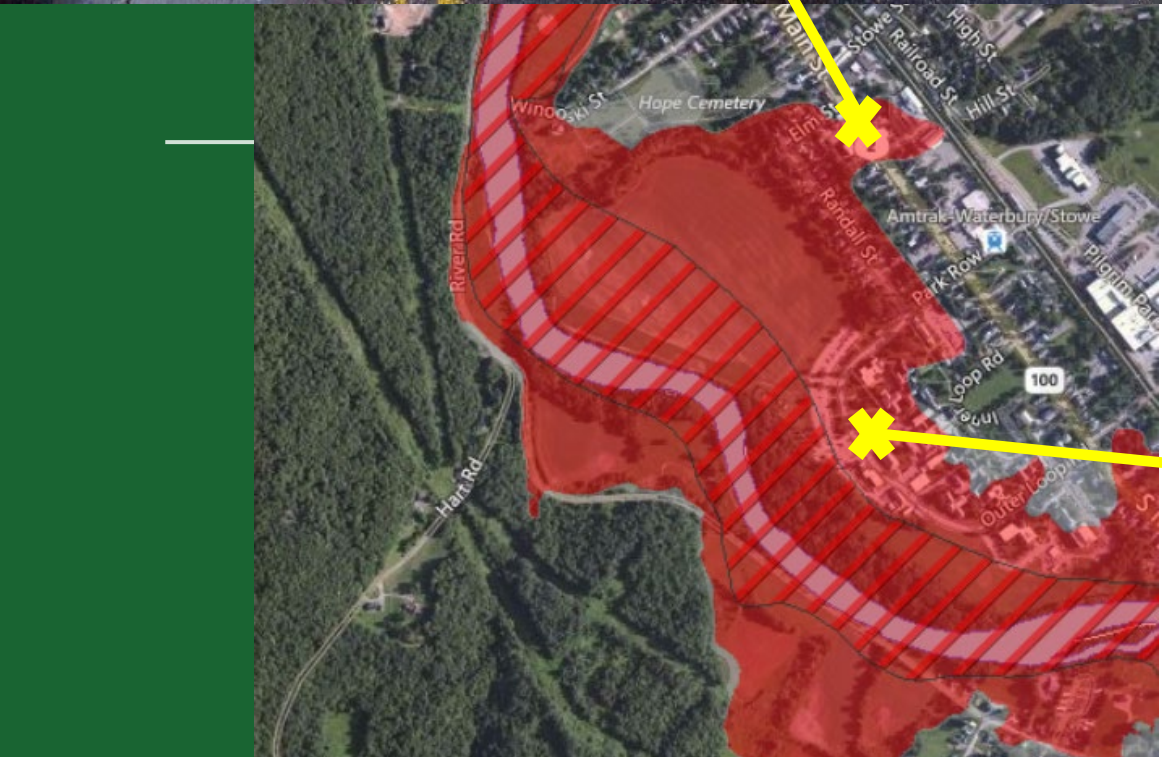




Waterbury, 2011

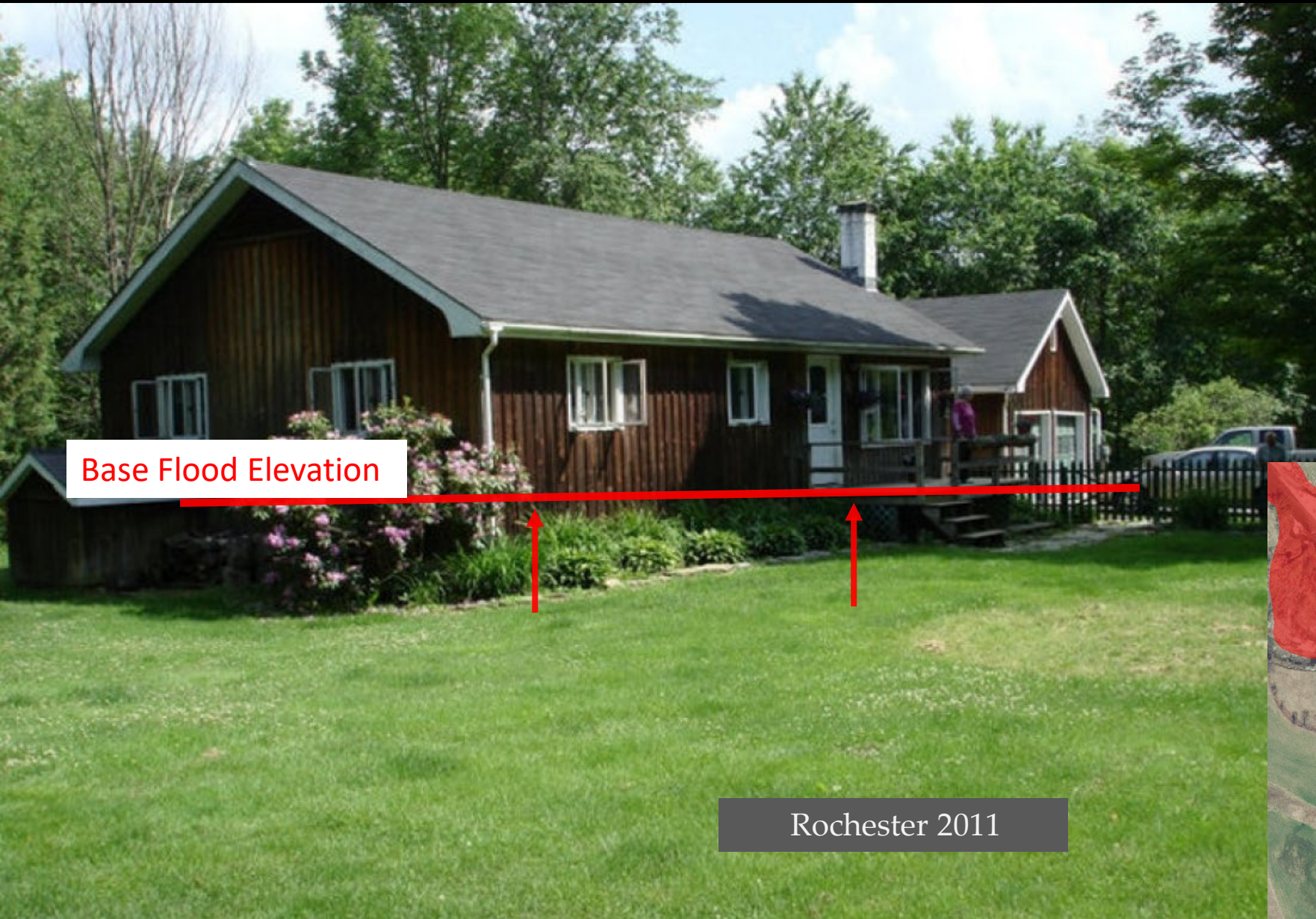
AP

# Flood Hazard Areas: Inundation





# Flood Hazard Areas: Elevate Low Floors



Rochester 2011





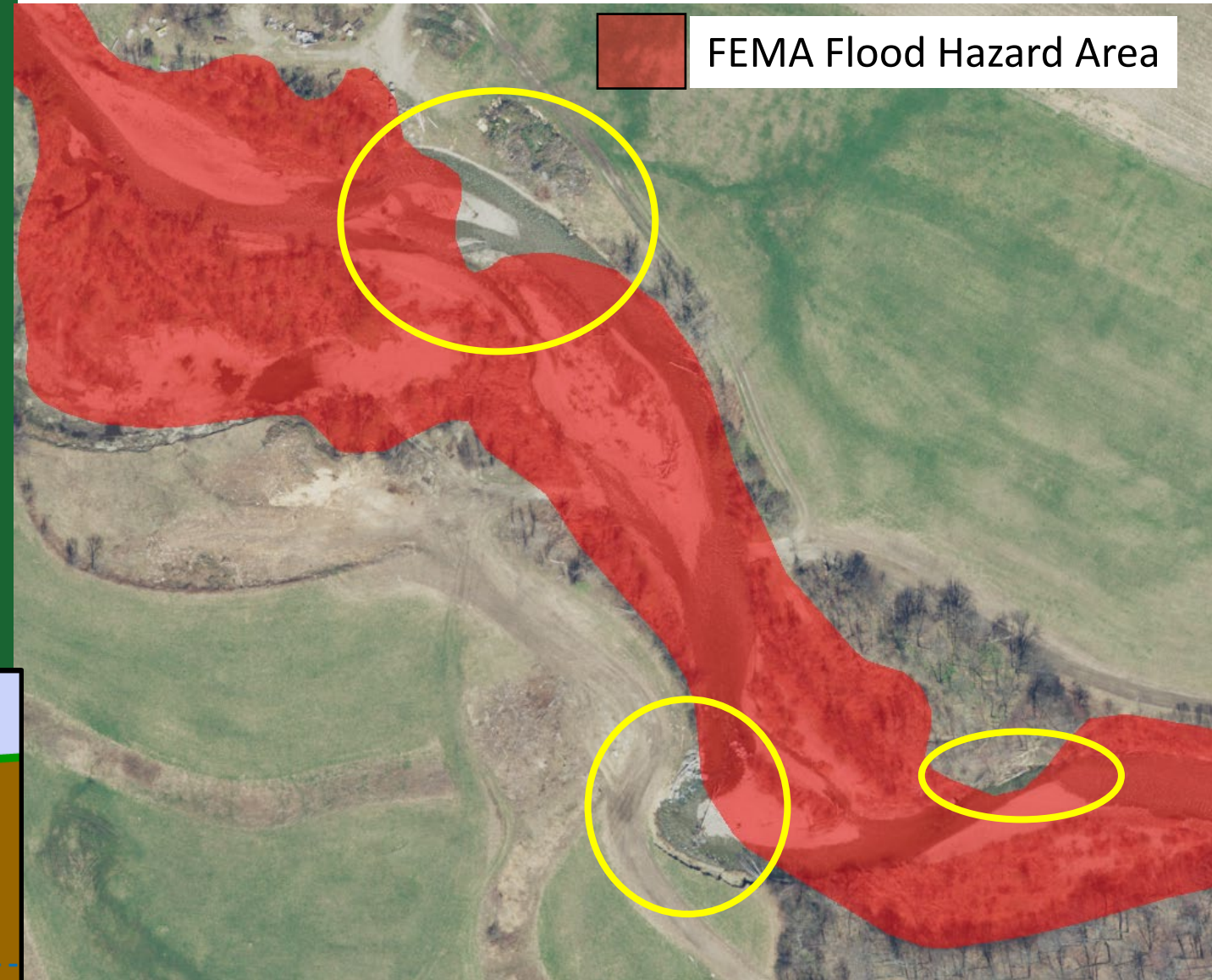
Inundation maps and standards alone do no suffice..





# Inundation Flood Hazard Maps Under- represent flood risk

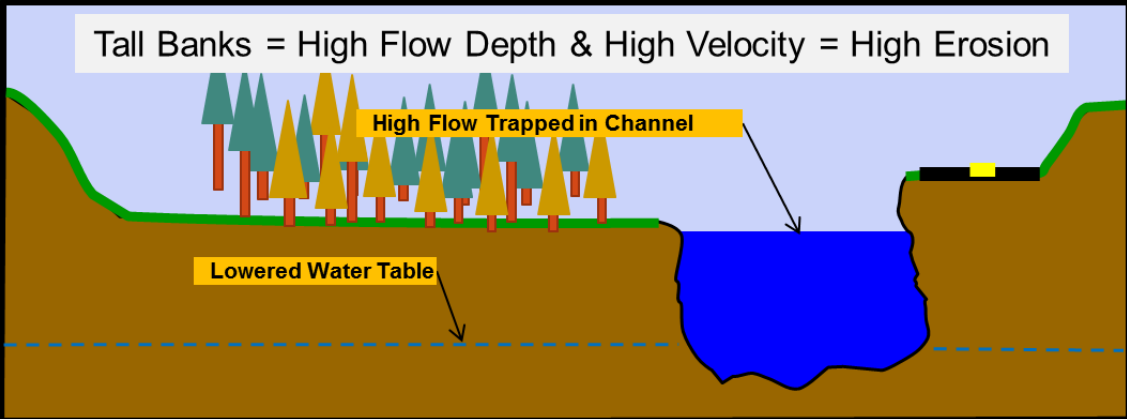
Browns River, Underhill VT



Tall Banks = High Flow Depth & High Velocity = High Erosion

High Flow Trapped in Channel

Lowered Water Table







1984

2012

Google





Layers ☰ × <  🔍

Atlas Layers ▾

Filter Layers... × Filter

EPMs

- DFIRM X-Sections >
- DFIRM - Letter of Map >

Revision (LOMR)

- DFIRM Panels >
- DFIRM Floodways >
- Flood Hazard Areas (Only FEMA-digitized data) >

**River Corridors**

- River Corridors (Aug 27, 2019) >
- Small Streams (50ft. setback)**

  - .5 - 2 sqmi. >
  - .25-.5 sqmi. >

River Corridor Easement >

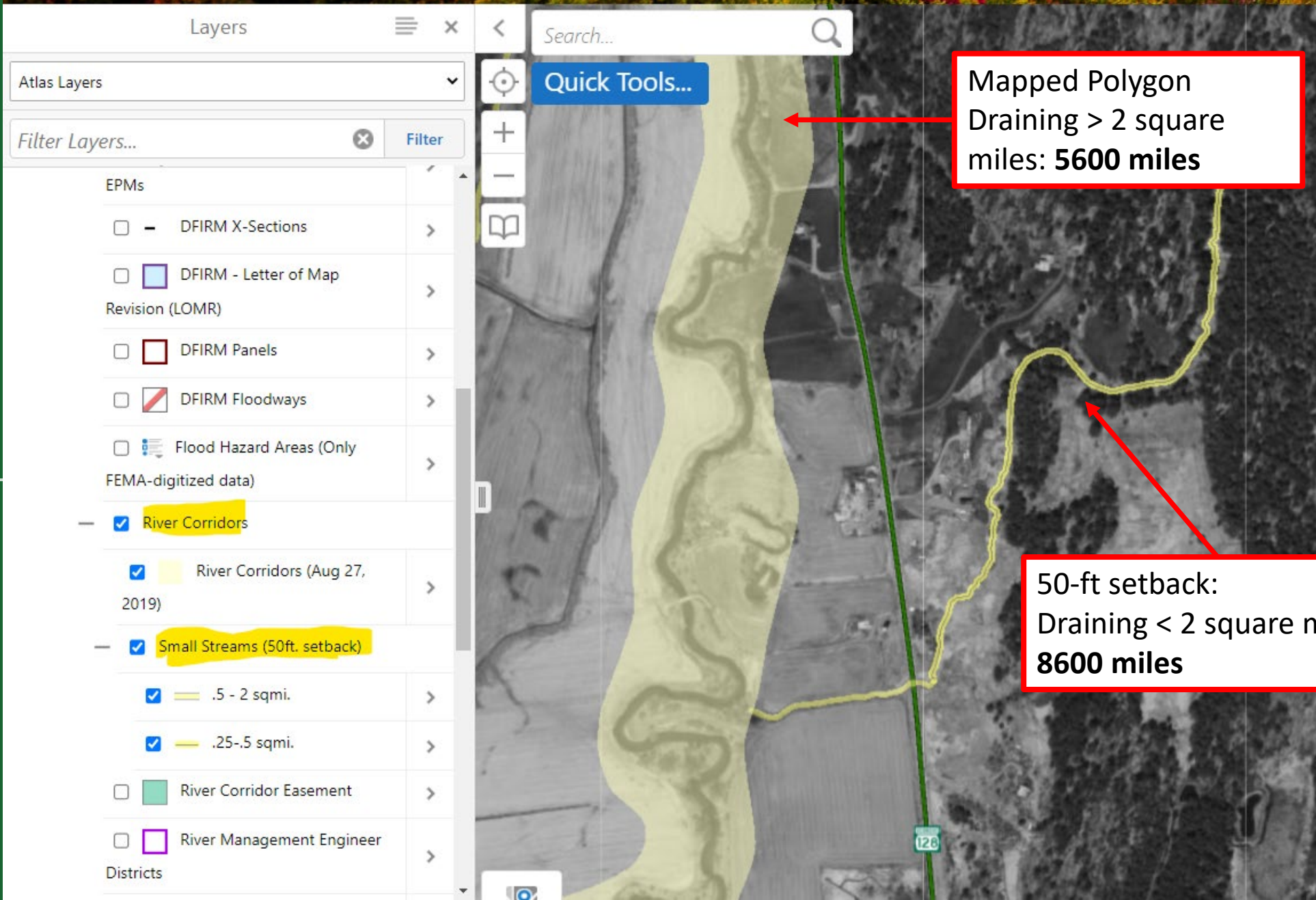
River Management Engineer >

Districts

**Quick Tools...**

**Mapped Polygon Draining > 2 square miles: 5600 miles**

**50-ft setback: Draining < 2 square miles: 8600 miles**







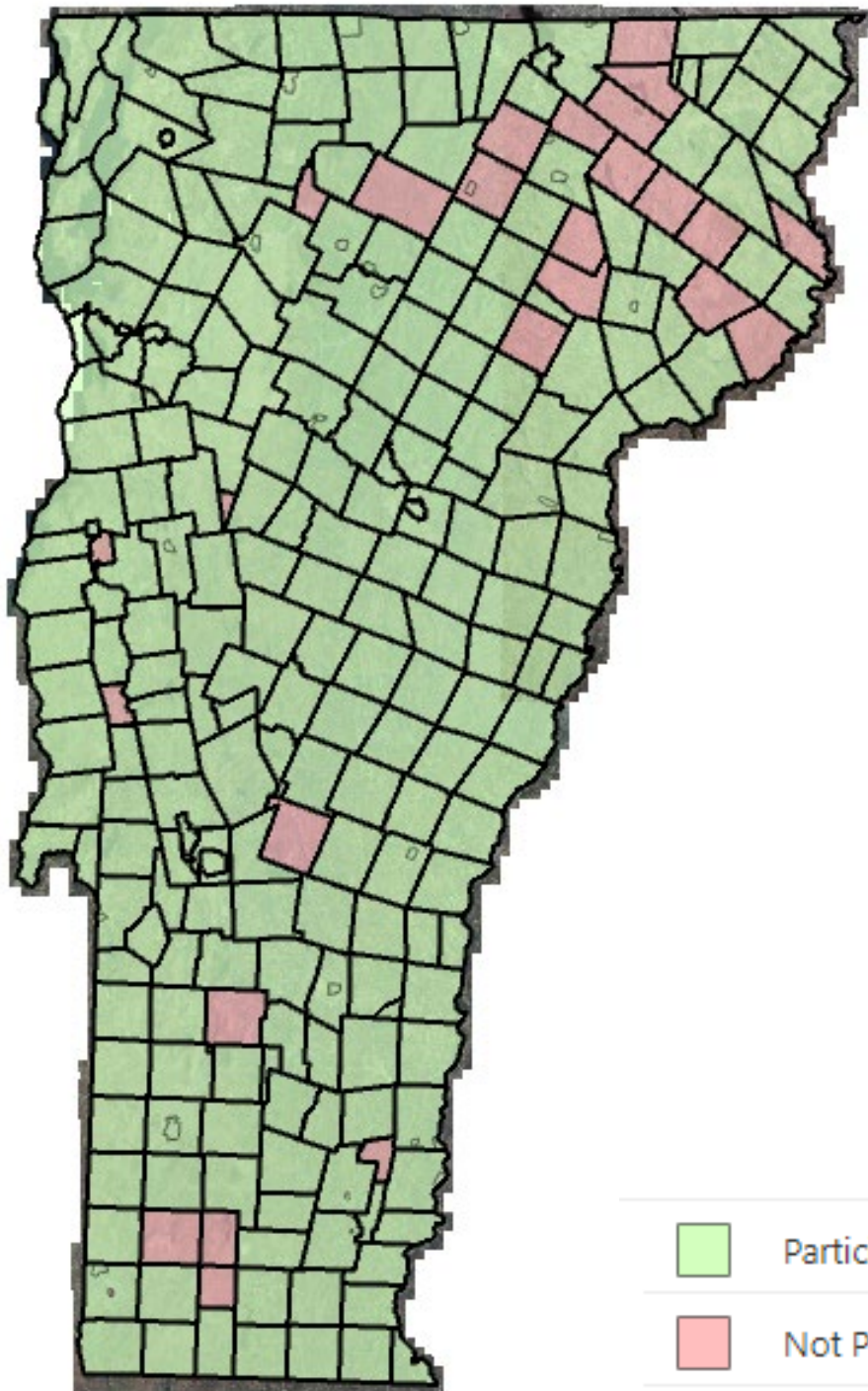
# Hazard Area Jurisdictions

1. Municipal Regulation  
(National Flood Insurance Program)
2. Act 250; Criterion 1D (Flood Hazard  
Areas & River Corridors)
3. Flood Hazard Area & River Corridor  
Rule (2015)



# Municipal Regulation (National Flood Insurance Program)

- 90% of communities participating
- 97 communities have adopted higher standards
- 29 Communities have adopted town-wide river corridor regulations



Participating Community

Not Participating

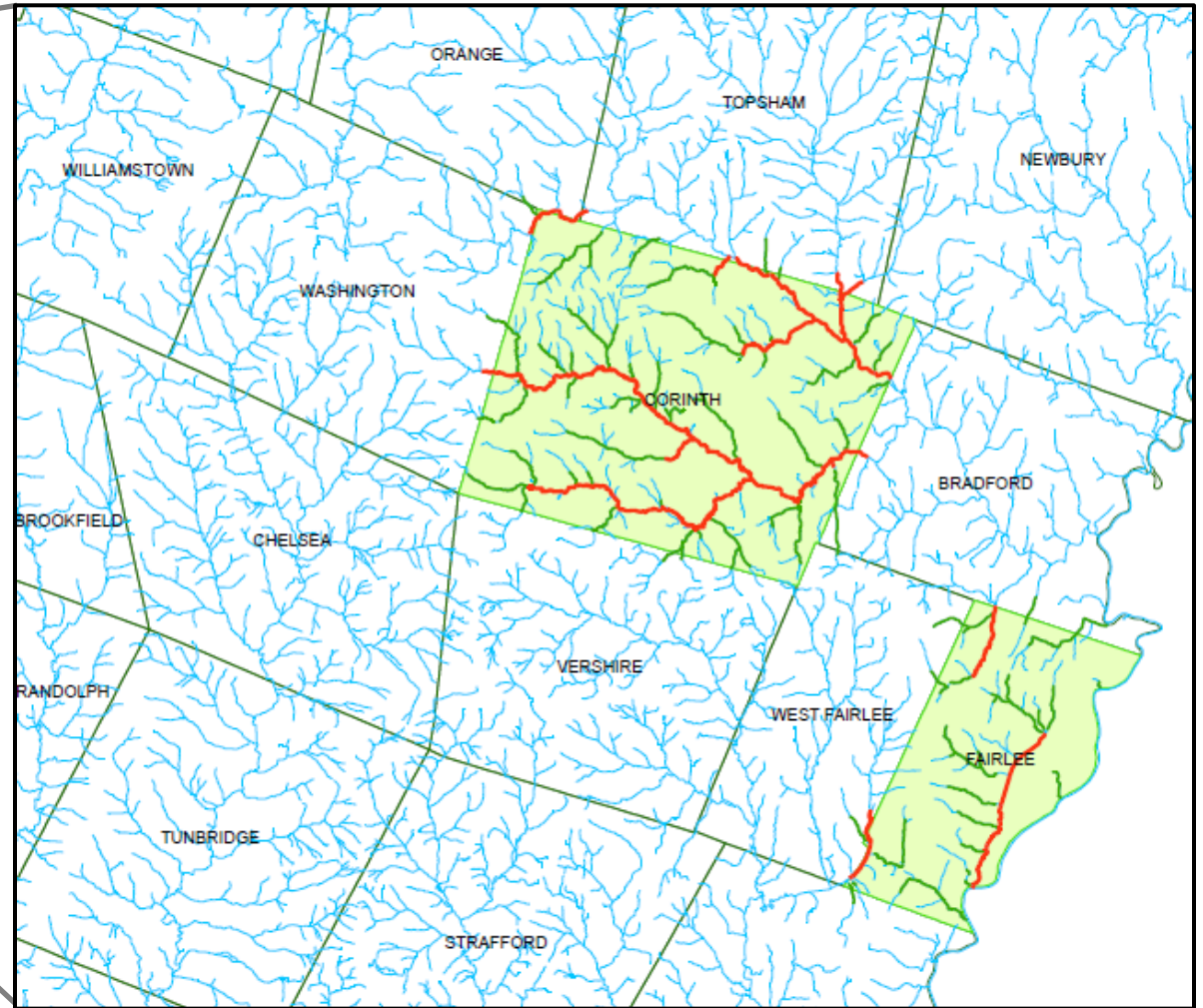






# Towns with adopted River Corridor bylaws

- 29 Towns (town-wide regulation)
- 9 % of perennial stream miles

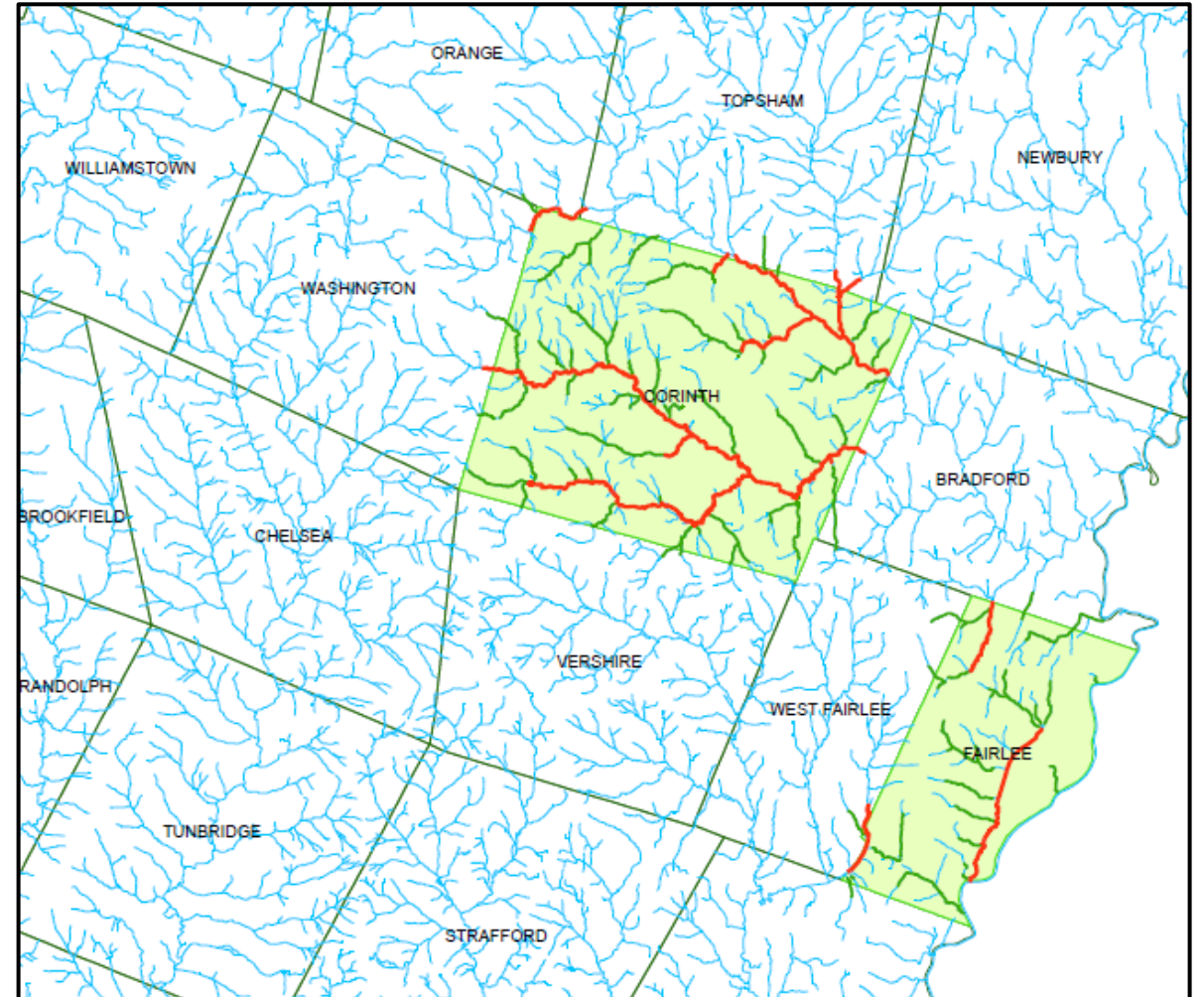






## Towns with adopted River Corridor bylaws

- 29 Towns (town-wide regulation)
- 9 % of perennial stream miles







DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**FLOOD HAZARD AREA AND RIVER CORRIDOR  
PROTECTION PROCEDURE**

SEPTEMBER 7, 2017

# Act 250 Criterion 1D

## Flood Hazard Areas & River Corridors

- Provide regulatory recommendations to District Commissions
- No Adverse Impact Standards established in Procedure





# Flood Hazard Area & River Corridor Rule (2015)

- Required by Act 138 (2012)
- Regulates Activities exempt from municipal regulation
  - State owned buildings and facilities
  - Required Agricultural and Silvicultural Practices
  - Section 248 – Public Utility Commission projects
- **S.213 makes this a statewide program for all development = 5600 miles of river corridor)**







# How River Corridors are Regulated

New development is prohibited along undeveloped reaches

Map challenges by developers and landowners will increase with expanded river corridor regulation

Project proponents need to be afforded due process





# There are exceptions that allows development to take place w/n River Corridors

Infill in densely developed areas

Significant investment and public infrastructure

Public interest in managing the river to protect investments

- Water/wastewater
- Transportation infrastructure.



There are exceptions that allow development to take place w/n River Corridors

### Shadowing existing development

- An addition to existing structure does not increase the need for new channel management





# S.213 - River Corridor Infill Polygons...



Green infill area memorializes our river corridor exceptions on the map

- River is already heavily channelized and will continue to be heavily managed to protect existing investments
- Additional development does not increase the need for new channel management





# Definition of development...

National Flood Insurance Program (NFIP) definition of development triggers permit jurisdiction

NFIP inundation standards DO NOT APPLY to development proposals solely within the ANR-mapped River Corridor.





# Flood Hazard Area & River Corridor General Permit

Includes numerous provisions for low risk development in both reporting and non-reporting categories

- Farming activities
- Repair/replacement of existing infrastructure
- Restoration work

[https://dec.vermont.gov/sites/dec/files/wsm/rivers/docs/06-2021\\_FHARC%20GP.pdf](https://dec.vermont.gov/sites/dec/files/wsm/rivers/docs/06-2021_FHARC%20GP.pdf)

In addition to our the Rule, S.213 will require updates to the General Permit





**ROB EVANS**  
PROGRAM MANAGER

**TODD MENEES, P.E.**  
River Engineer



**River Corridor and Floodplain Protection**

**REBECCA PFEIFFER**  
State Floodplain Manager & NFIP Coord.

**River Management**  
**JARON BORG**  
Supervising Engineer

**River Science**  
**JEFF CROCKER**  
Supervising Ecologist

**VACANT**  
Floodplain Manager

**Ben Matthews**  
River Engineer

**Physical Science, Restoration, Mapping**

**STACI POMEROY**  
Lead Scientist

**Biomonitoring & Aquatic Studies**  
**MICHELLE GRAZIOSI**  
Lead Scientist

**Streamflow Protection**  
**ERIC DAVIS**  
River Ecologist

**KYLE MEDASH**  
Floodplain Manager

**CHRIS BRUNELLE**  
River Engineer

**SHANNON PYTLIK**  
River Scientist

**JIM DESCHLER**  
Aquatic Biologist

**BETSY SIMARD**  
River Ecologist

**SACHA PEALER**  
Floodplain Manager

**JOSH CARVAJAL, P.E.**  
River Engineer

**VACANT**  
Env Scientist V

**MEAGHAN HICKEY**  
Environmental Scientist

**BLAINE HASTINGS**  
Division Hydrologist

**NED SWANBERG**  
Floodplain Manager

**SCOTT JENSEN P.E.**  
River Engineer

**VACANT**  
ENV Tech III

**ASA Brayton EA III**  
Floodplain Manager





**ROB EVANS**  
PROGRAM MANAGER

**TODD MENEES, P.E.**  
River Engineer

**River Corridor and  
Floodplain Protection**

**REBECCA PFEIFFER**  
State Floodplain Manager &  
NFIP Coord.

**River Management**

**JARON BORG**  
Supervising Engineer

**River Science**

**JEFF CROCKER**  
Supervising Ecologist

**VACANT**  
Floodplain Manager

**Ben Matthews**  
River Engineer

**Physical Science,  
Restoration, Mapping**

**STACI POMEROY**  
Lead Scientist

**Biomonitoring &  
Aquatic Studies**

**MICHELLE GRAZIOSI**  
Lead Scientist

**Streamflow  
Protection**

**ERIC DAVIS**  
River Ecologist

**KYLE MEDASH**  
Floodplain Manager

**CHRIS BRUNELLE**  
River Engineer

**SHANNON PYTLIK**  
River Scientist

**JIM DESCHLER**  
Aquatic Biologist

**BETSY SIMARD**  
River Ecologist

**SACHA PEALER**  
Floodplain Manager

**JOSH CARVAJAL,  
P.E.**  
River Engineer

**VACANT**  
Env Scientist V

**MEAGHAN HICKEY**  
Environmental Scientist

**BLAINE HASTINGS**  
Division Hydrologist

**NED SWANBERG**  
Floodplain Manager

**SCOTT JENSEN P.E.**  
River Engineer

**HEATHER KENNEDY**  
GIS Specialist

**VACANT**  
ENV Tech III

**ASA Brayton EA III**  
Floodplain Manager



# Timeline: Expanded Rivers Corridor Regulation (Phasing)

## 2024 - 2026 – Mapping:

- Develop a process and map River Corridor infill areas for densely developed areas
- Develop a more robust river corridor map amendment/revision process

## 2026 - 2028 – Education/Outreach:

Conduct extensive statewide education/outreach to river corridor landowners to understand implications of river corridor regulation on their land.

## 2028 - 2029 - Rulemaking:

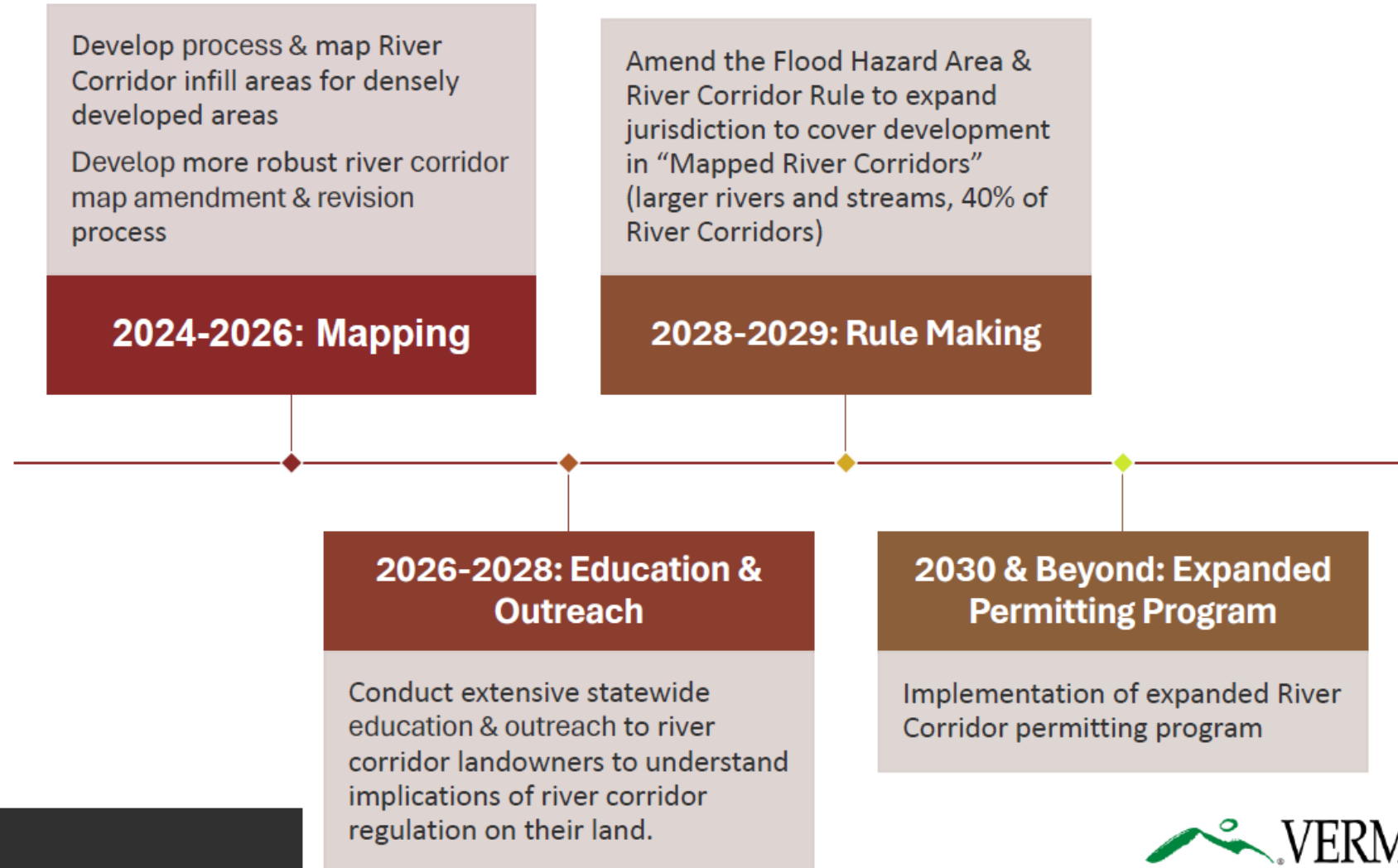
Amend the Flood Hazard Area & River Corridor Rule to expand jurisdiction to cover development in “Mapped River Corridors” (larger rivers and streams, 40% of River Corridors)

## 2030 – expanded permitting program:

Implementation of expanded River Corridor permitting program



# Timeline: Expanded River Corridor Expansion (Phasing)



# S.213 time and resource needs (with a 6-year timeline)

**Flood Hazard Area minimum standards:**

**2 FTEs**

**River Corridor infill mapping/ed-outreach/rule development**


**2 FTEs**

**Positions to support expanded River Corridor permitting and map challenges/revisions**

**3-4 FTEs**





S.213		Flood Safety Act (as passed by Senate) VERY ROUGH OUTLINE			Development		Partner assist		Implementation				
Bill Section				July 24 - Dec 24	Jan 25 - June 25	July 25 - Dec 25	Jan 26 - June 26	July 26 - Dec 26	Jan 27 - June 27	July 27 - Dec 27	Jan 28 - June 28	July 28 - Dec 28	Jan 29 - June 29
N/A	1	Hiring and training new staff			<b>18 month hiring/training lag</b>								
N/A	2	Hiring Consultants											
Sect. 6	3	State minimum FHA standards rulemaking (including public noticing/comment/response summary)											
Sect. 6 implied	4	<b>State minimum FHA standards integrated into FEMA map update process with towns and RPCs and ongoing education/assistance</b>											
Sec. 10	5	FHA/NFIP Study Committee and report											
Sec. 28	6	Floodplain UVA Study Committee and report											
Sec. 3	7	RC infill mapping (including public noticing/comment/response summary)											
Sec. 3	8	RC Education/Outreach											
Sec. 3 and 5	9	FHARC mapping procedure/amendment update (including public noticing/comment/response summary)											
Sec. 3 (implied)	10	FHARC mapping/procedure amendment process and technical requirements education outreach to consultants			<b>Slippage in Timeline</b> 								
Sec. 3	11	RC Ed/outreach legislative Report											
Sec. 11	12	FHARC pre-rulemaking (consult with ACCD, AAFM, AOT, DFR, NGOs and myriad stakeholders....)											
Sec. 5	13	FHARC Rulemaking (amendment) (including public noticing/comment/response summary)											
Sec. 5	14	FHARC General Permit update, including public noticing/comment/response summary											
Sec. 5 implied	15	FHARC permit application update											
Sect 5 implied	16	FHARC permit database update											
Sec. 5	17	<b>Expanded RC permitting under FHARC</b>											
Sec. 5 implied	18	Updated permit and map amendment fees structure (statutory change required)											