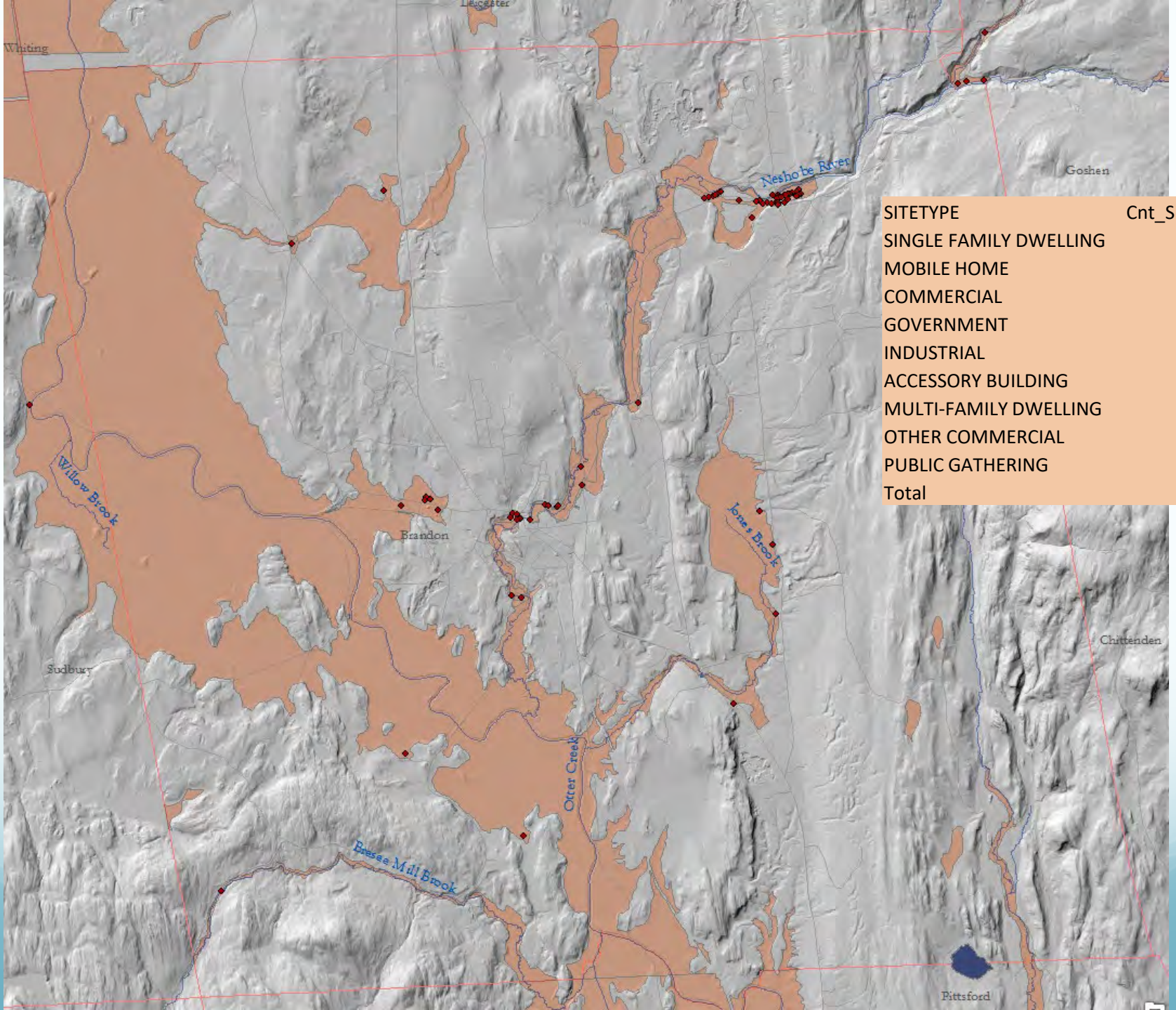




**No Adverse Impact and River Corridor Protection  
Informational Meeting**

**Brandon Planning Commission 6/3/2019**





SITETYPE	Cnt_SITETY
SINGLE FAMILY DWELLING	31
MOBILE HOME	16
COMMERCIAL	7
GOVERNMENT	4
INDUSTRIAL	4
ACCESSORY BUILDING	1
MULTI-FAMILY DWELLING	1
OTHER COMMERCIAL	1
PUBLIC GATHERING	1
Total	66



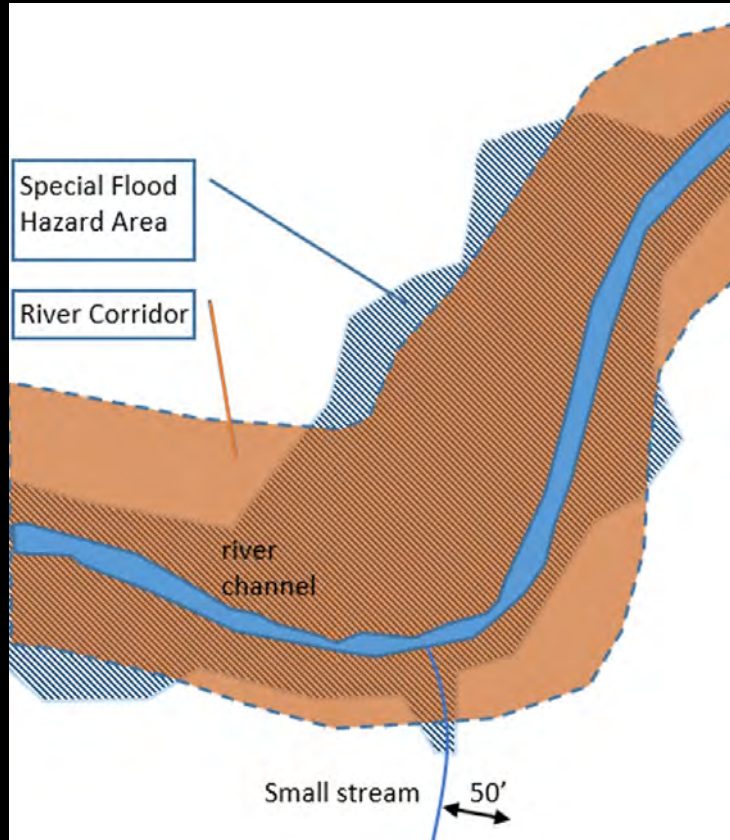
Where are your  
River Corridors and Floodplains?  
What is Already at Risk?

Protect What Works and  
Avoid Aggravating the Problem

Work Toward Reliable Roads and Reducing Risk

Prepare for Emergency

Insure Residual Risk



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

*No adverse impact*





**MAKING ROOM**

**FOR RIVERS**



[www.floodtraining.vt.gov](http://www.floodtraining.vt.gov)

# Expanded Community Report for Brandon

5/29/2019  
10:24:55 AM

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

Flood Hazard Mitigation Actions	Action Dates	Responsible	ERAF Status
1. 2013 Road and Bridge Standards	04/08/2013	Brandon	Yes
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ERAF Rate for Actions 1 - 4: 12.5%,	Actions 1 - 5: 17.5%	<b>ERAF Rate for: Brandon</b>	<b>17.5%</b>

66	Buildings in the Special Flood Hazard Area (SFHA) (estimated from e911 sites).
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18%	Percent of buildings in the SFHA with flood insurance in force.
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80%	<u>Town Highway Structures Grant Rate (State match 80% or 90%)</u>
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District 3	<u>Project Manager email for VTrans Maintenance District 3</u>

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1. Road Standards and Certificates - contact your VTrans District Project Manager: District 3
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3. For other questions please contact VT DEC Flood Ready Atlas- River Corridor and Flood Hazard Maps

## Community Overview

Community:	BRANDON, TOWN OF	State:	VERMONT
County:	RUTLAND COUNTY	CID:	500090

Program:	Regular	Emergency Entry:	07/07/1975	Regular Entry:	05/15/1978
Status:	PARTICIPATING	Status Effective:	05/15/1978		

Current Map:	08/28/2008	Study Underway:	NO	Level of Regs:	D
FIRM Status:	REVISED	Initial FIRM:	05/15/1978		
FHBM Status:	SUPERCEDED BY FIRM	Initial FHBM:	09/06/1974		

Probation Status:	
Probation Effective:	Probation Ended:
Suspension Effective:	Reinstated Effective:
Withdrawal Effective:	Reinstated Effective:

CRS Class / Discount:	Policies in Force:	20
Effective Date:	Insurance in Force:	\$3,412,800.00
CAV Date: 10/15/2003 Workshop Date: 09/24/2015	No. of Paid Losses:	13
CAC Date: 08/23/2018 GTA Date: 02/28/2019	Total Losses Paid:	\$424,299.70
<input type="checkbox"/> Tribal Community Website: <input type="checkbox"/> Upton Jones Claims <input checked="" type="checkbox"/> ICC Claims	Sub. Damage Claims Since 1978:	2
<input type="checkbox"/> HMGP Projects <input type="checkbox"/> FMA Projects		

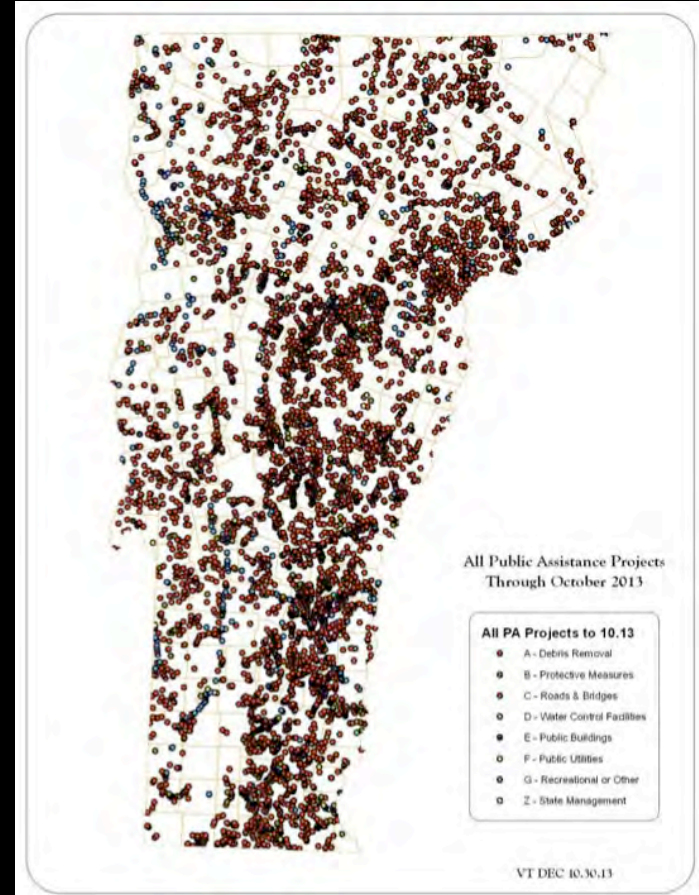
## Insurance Zone

As of 03/31/2019

Community:	BRANDON, TOWN OF	State:	VERMONT
County:	RUTLAND COUNTY	CID:	500090

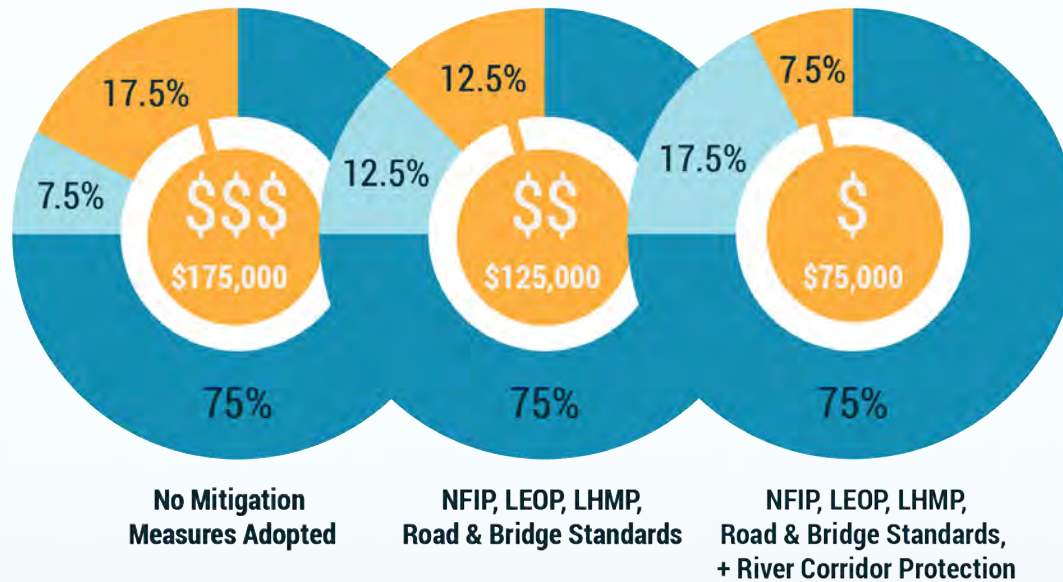
Overview	Occupancy	Zone	Pre/Post FIRM						
				Policies in Force	Premium	Insurance in Force	Number of Closed Paid Losses	\$ of Closed Paid Losses	Adjustment Expense
		A01-30 & AE Zones		11	\$17,845	\$1,786,500	6	\$50,131.91	\$4,840.00
		A Zones		0	\$0	\$0	2	\$101,866.36	\$3,704.00
		AO Zones		3	\$5,892	\$553,300	1	\$40,819.94	\$1,640.00
		AH Zones		0	\$0	\$0	0	\$0.00	\$0.00
		AR Zones		0	\$0	\$0	0	\$0.00	\$0.00
		A99 Zones		0	\$0	\$0	0	\$0.00	\$0.00
		V01-30 & VE Zones		0	\$0	\$0	0	\$0.00	\$0.00
		V Zones		0	\$0	\$0	0	\$0.00	\$0.00
		D Zones		0	\$0	\$0	0	\$0.00	\$0.00
		B, C & X Zone							
		Standard		2	\$1,212	\$205,000	4	\$231,481.49	\$7,288.71
		Preferred		4	\$1,284	\$868,000	0	\$0.00	\$0.00
		<b>Total</b>		<b>20</b>	<b>\$26,233</b>	<b>\$3,412,800</b>	<b>13</b>	<b>\$424,299.70</b>	<b>\$17,472.71</b>





## 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.



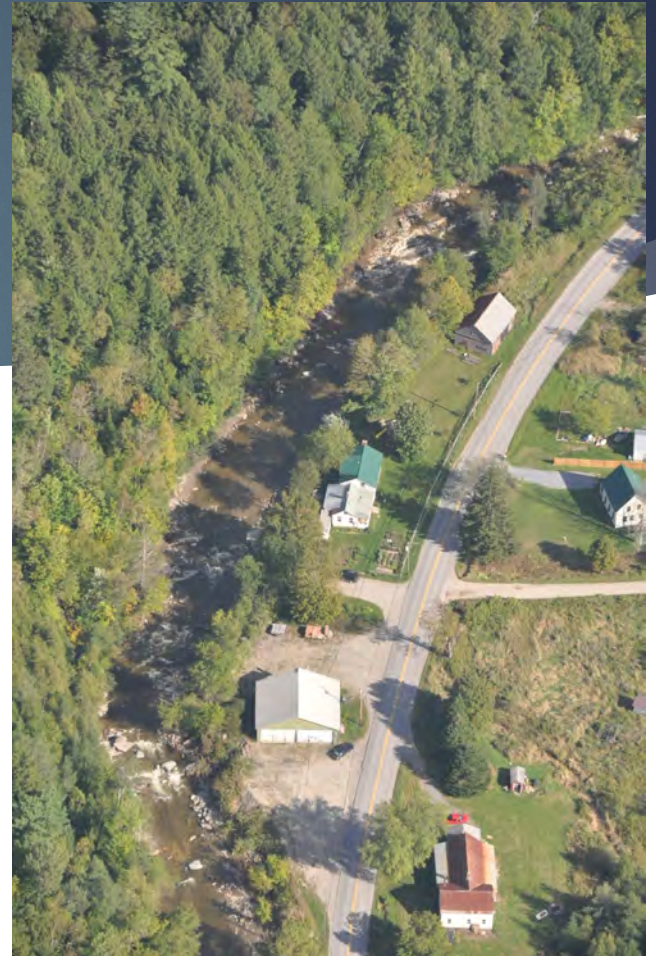
## 17.5% ERAF Qualification

### River Corridor Protection

- DEC recommended standards
- Small stream setbacks (50' minimum) for streams > 0.5 mi<sup>2</sup>

### Community Rating System (CRS)

- Including no new structures or fill in the Special Flood Hazard Area.



# Mapping the Money: FEMA

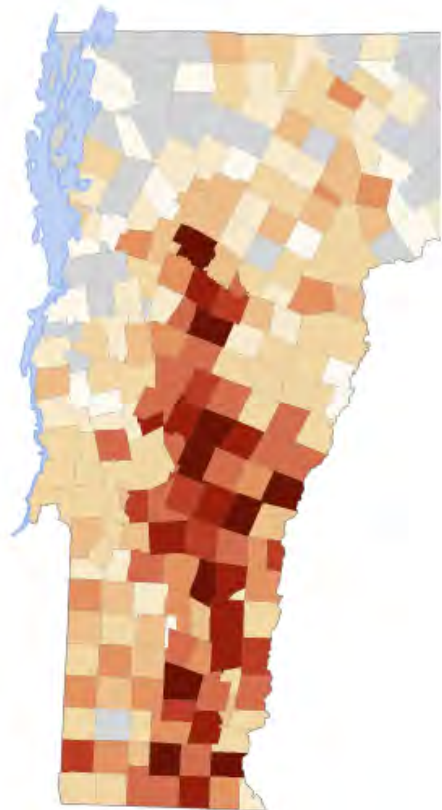
Where Irene relief funding came from and where it went

Hundreds of millions of dollars were donated and appropriated to help people, business and towns recover from Tropical Storm Irene.

In this first installment of the Mapping the Money project, we take a look at FEMA, which has spent far more on relief and recovery than any other group; **a total of more than \$260 million so far.**

Last Updated: June 13, 2013





Click on a town on the map to see the breakdown

Brandon

[click here to reset table](#)

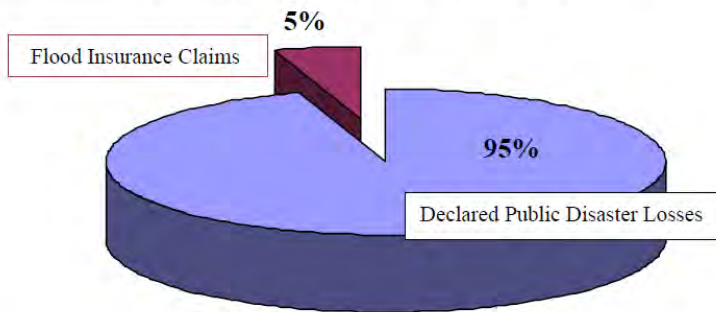
Program	Subtotal	Total
Individuals and Households Program		\$116,510
Housing Assistance	\$114,373	
Other Needs	\$2,137	
Public Assistance		\$578,049
Hazard Mitigation Grant Program		\$122,000
National Flood Insurance		\$370,179
<b>Total</b>		<b>\$1,186,738</b>

Click on a program to see a definition



Graph 1

### Disaster Damage in Vermont 2003 - 2008





## Floodplains and River Corridors

- Water quality
- Floodwater storage
- Wildlife habitat
- Beauty
- Recreation
- Community identity
- *Public safety*









Vicious cycle of escalating costs, risks, and loss of floodplain functions.

Flood resulting in  
injury and  
property damage

Lose room for the  
channel to adjust and  
lose floodplain  
functions.

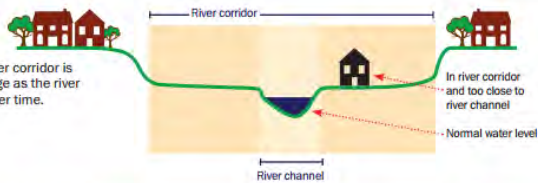
And – other  
buildings,  
investments, and  
community services  
are put  
at higher risk.



Fill, berm, dredge,  
and armor

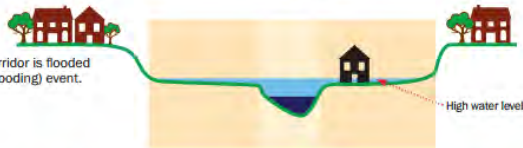
### 1. Development in River Corridor

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



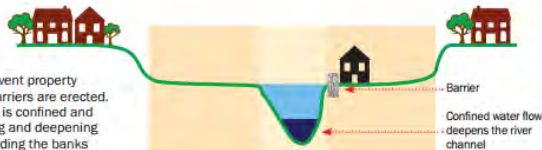
### 2. Flooding Event

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



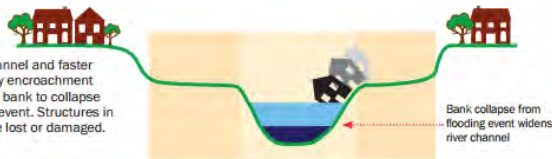
### 3. Attempt to Protect Property after Flooding

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.



### 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.



### 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.

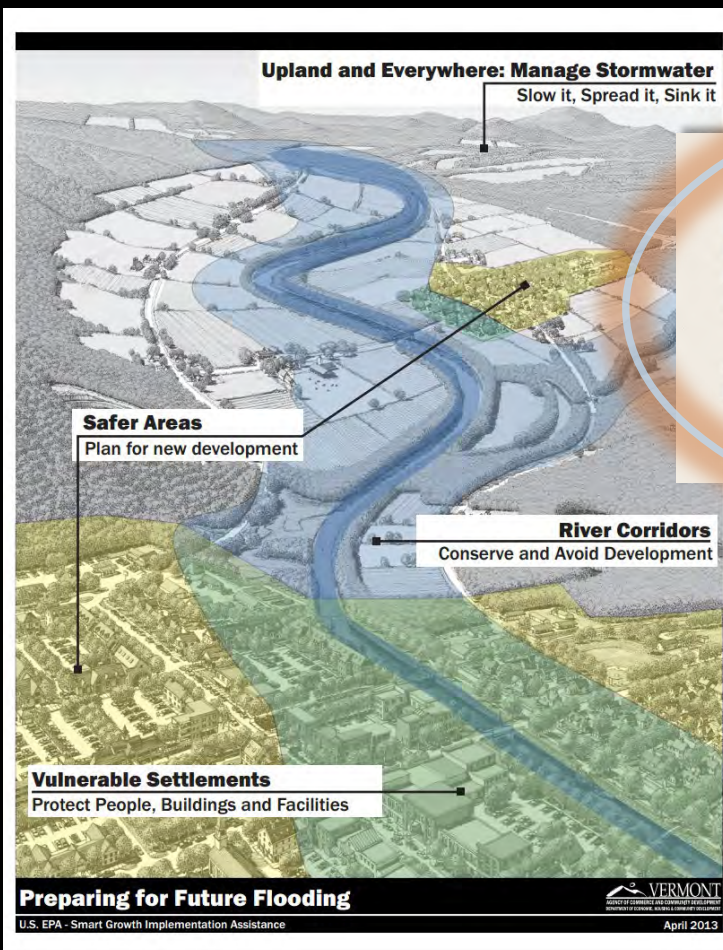


Why Protect River Corridors?



AGENCY OF COMMERCE & COMMUNITY DEVELOPMENT  
AGENCY OF NATURAL RESOURCES





(12)(A) A flood resilience plan that:

(i) identifies flood hazard and fluvial erosion hazard areas, based on river corridor maps provided by the Secretary of Natural Resources pursuant to 10 V.S.A. § 1428(a) or maps recommended by the Secretary, and designates those areas to be protected, including floodplains, river corridors, land adjacent to streams, wetlands, and upland forests, to reduce the risk of flood damage to infrastructure and improved property; and

(ii) recommends policies and strategies to protect the areas identified and designated under subdivision (12)(A)(i) of this subsection and to mitigate risks to public safety, critical infrastructure, historic structures, and municipal investments.

(B) A flood resilience plan may reference an existing local hazard mitigation plan approved under 44 C.F.R. § 201.6.



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



**Meander Belt**

- the physical space needed by the river to achieve and maintain a

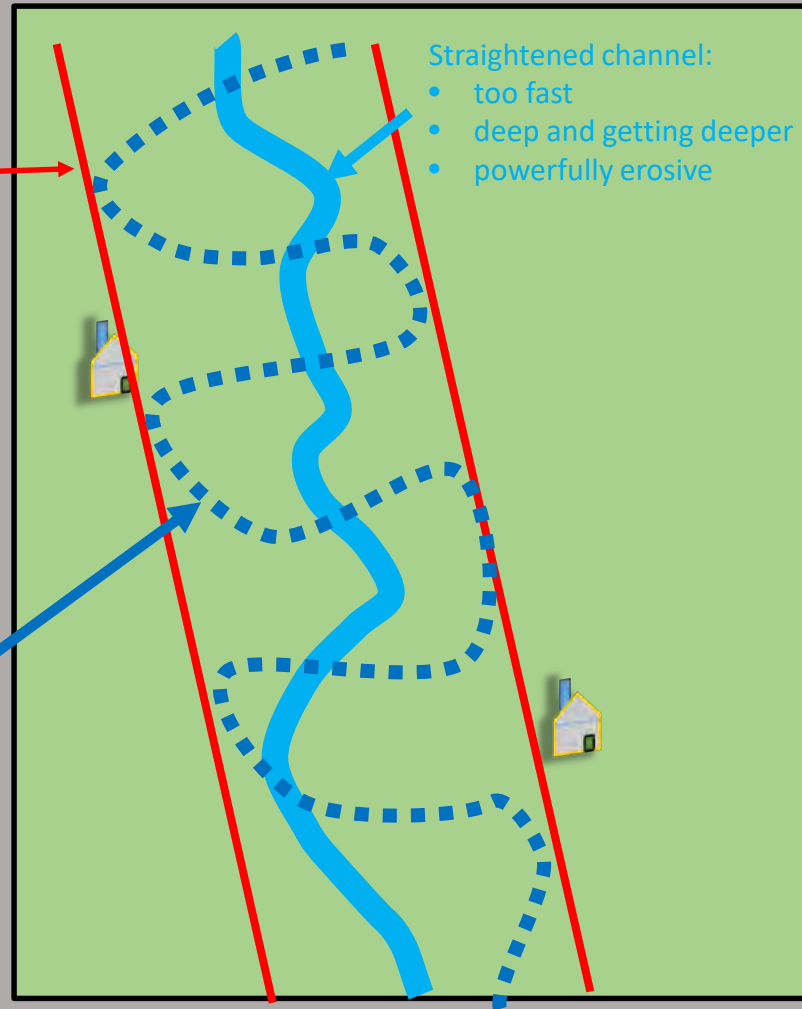
- vertically-stable
- least-erosive slope

Channel at equilibrium slope:

- slower and minimally erosive
- able to flood

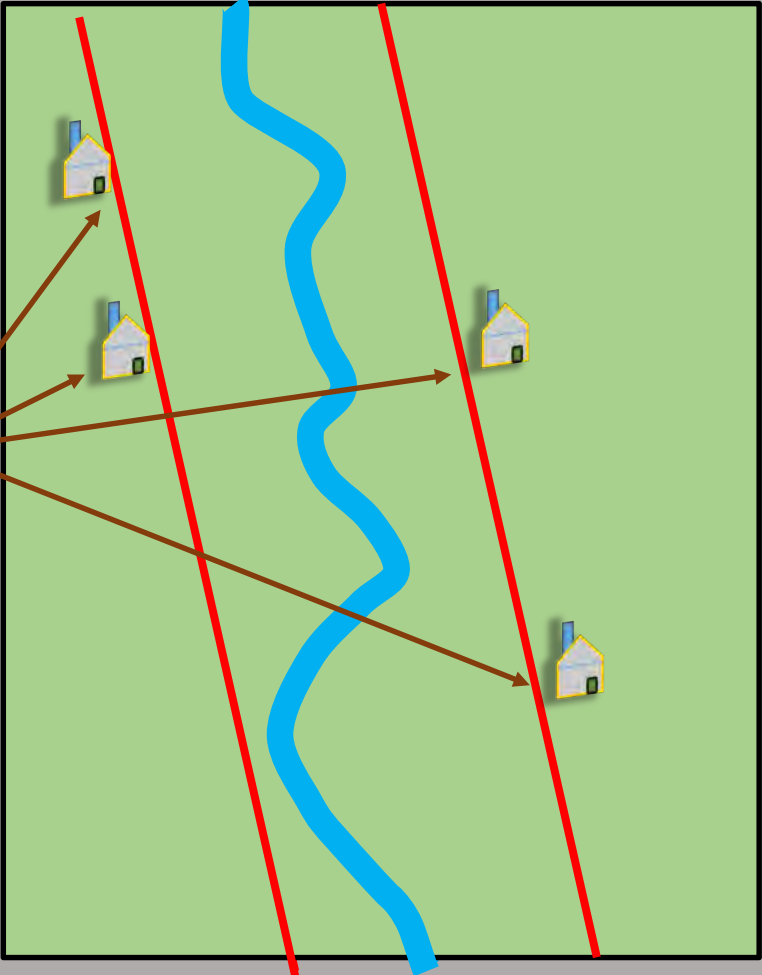
Straightened channel:

- too fast
- deep and getting deeper
- powerfully erosive



**Problem:**

Future development will encroach up to the edge of the meander belt

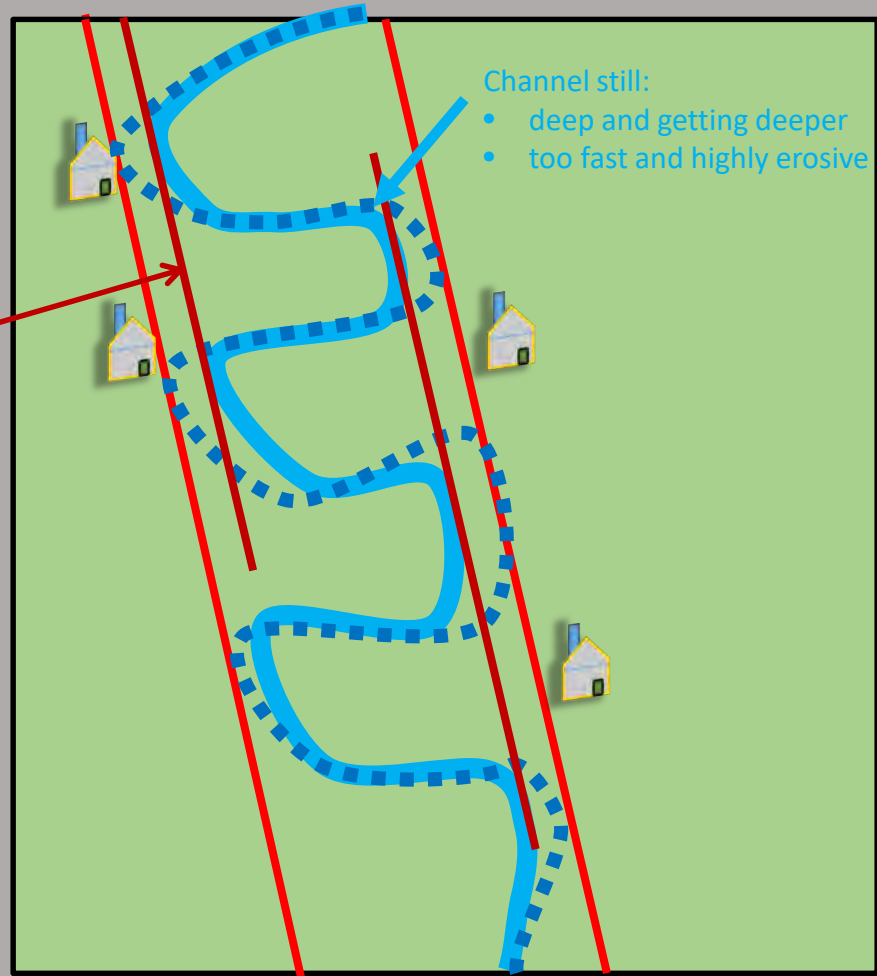




Problem: *the squeeze*

New structures will insist on protection against the river.

The bank armoring will prevent the channel from getting to an equilibrium slope



# River Corridor

River Corridor

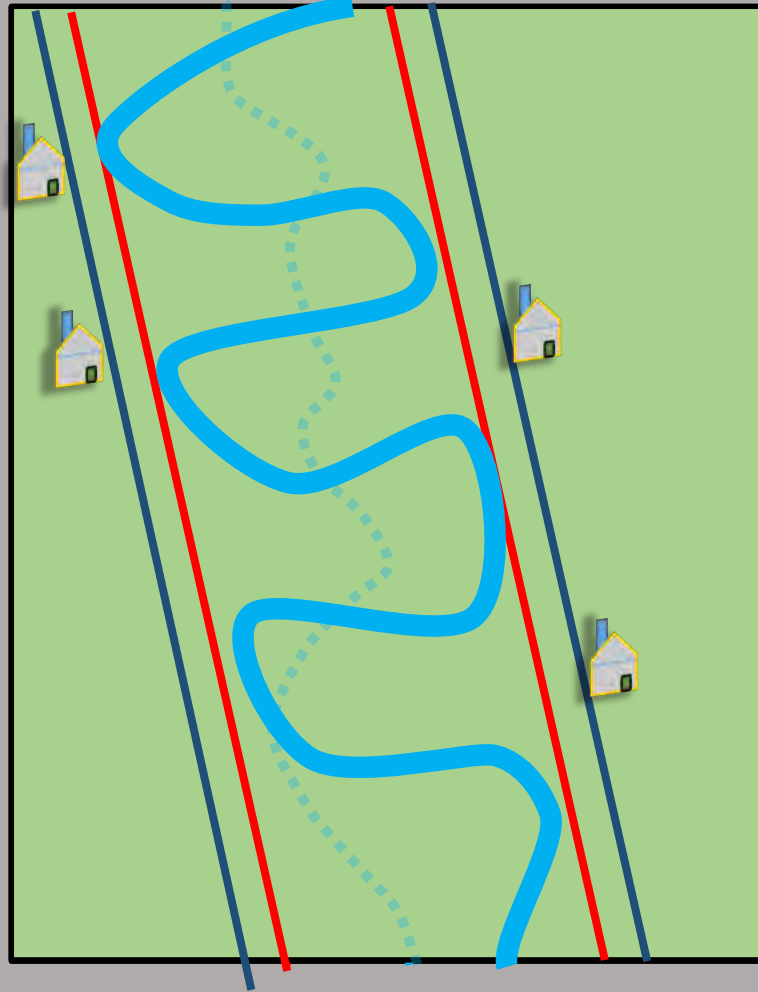
Meander belt plus 50'  
to allow for naturally-stable  
boundary conditions  
(trees, soil, rocks)



# River Corridor

## River Corridor

Additional erosion hazards  
are minimized.





## **No Adverse Impact**

*Keep what works.*

*Protect the room remaining for rivers and their floodplain functions*

- Don't cause damage to others
- Address the known hazards
- Protect people and investments already at risk
- Reduce public and private losses
- Align with state-wide flood resilience standards



## **No Adverse Impact – Special Flood Hazard Area**

*Don't diminish the ability of floodplains to function.*

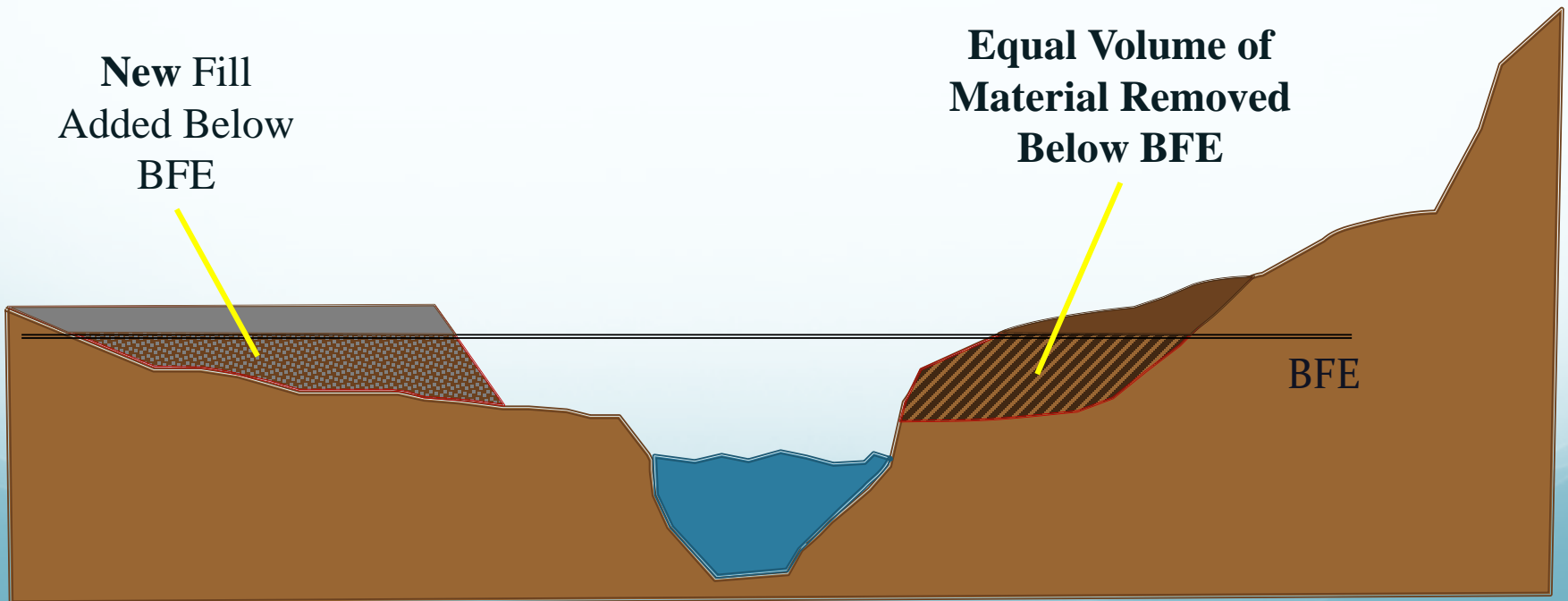
1. No net fill / provide compensatory flood storage.
2. Elevate the lowest floor at least two feet above the base flood.



# No Net Fill - Compensatory Storage

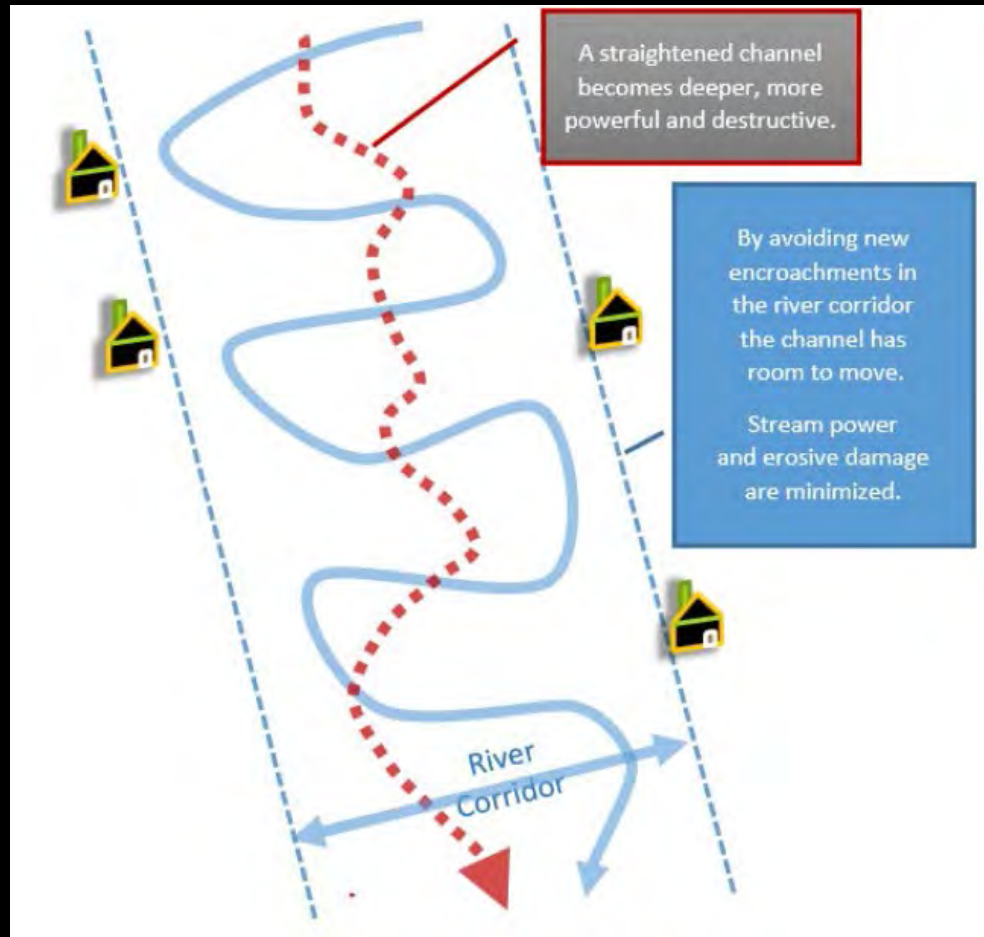
**New Fill  
Added Below  
BFE**

**Equal Volume of  
Material Removed  
Below BFE**





## Why Protect the River Corridor?



*The River Corridor protects you.*

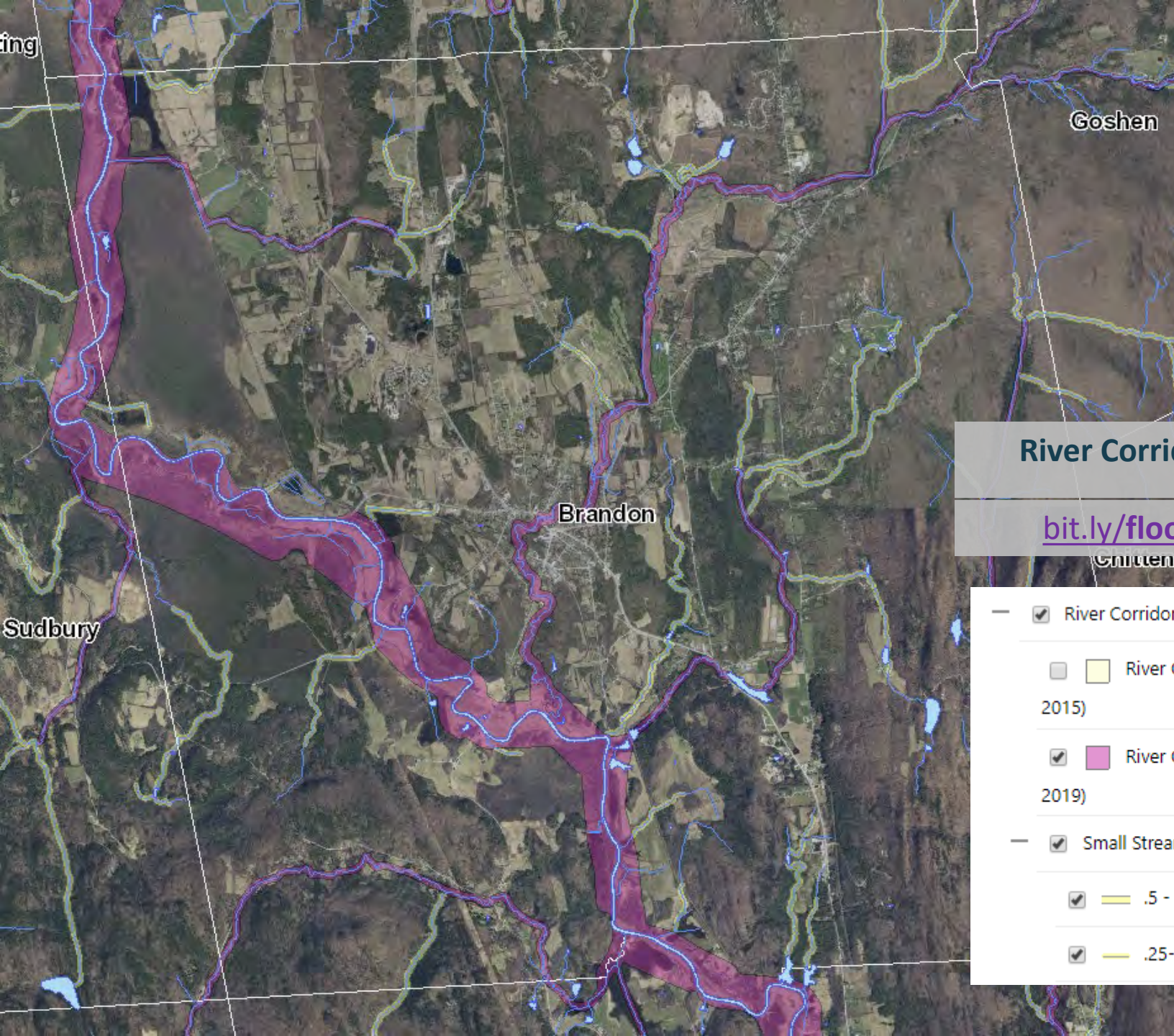
## No Adverse Impact – River Corridors

*Protect the room remaining for  
rivers and their floodplain functions*

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





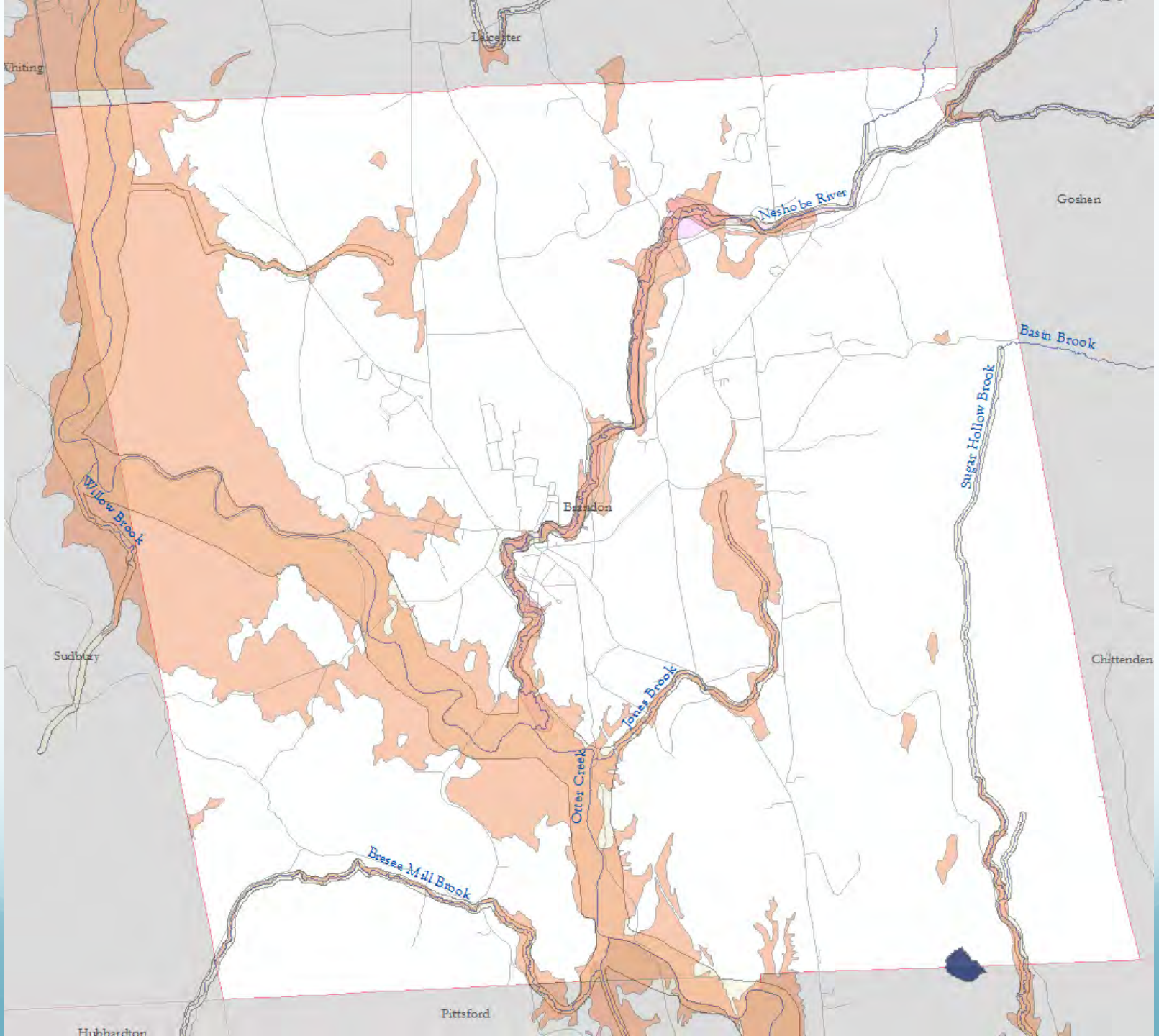


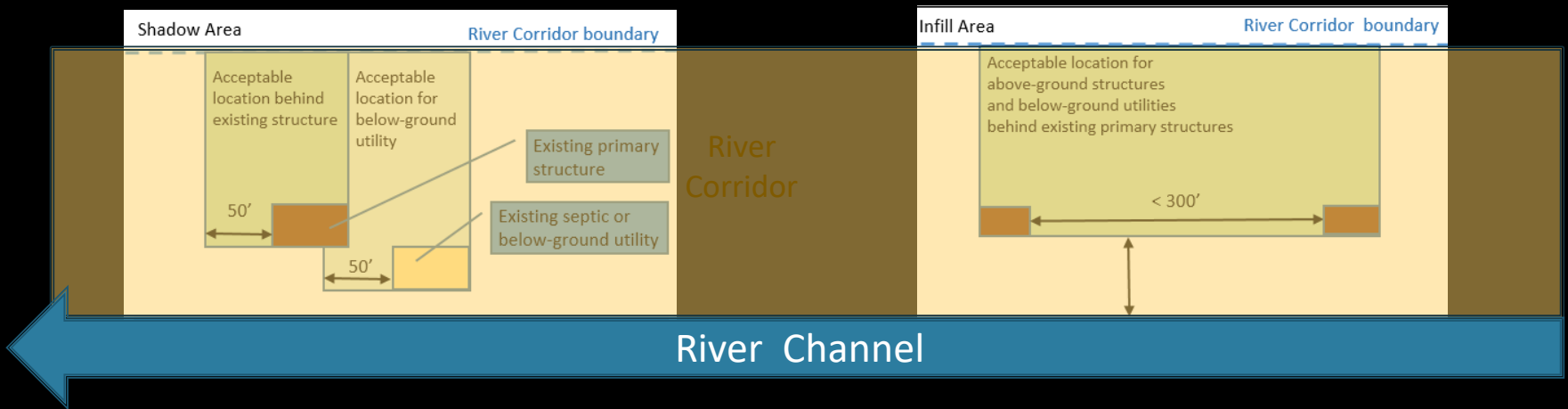
## River Corridor Map

[bit.ly/floodatlas](https://bit.ly/floodatlas)

- River Corridors
  - River Corridors (Jan 2, 2015)
  - River Corridors (DRAFT 2019)
- Small Streams (50ft. setback)
  - .5 - 2 sqmi.
  - .25-.5 sqmi.







**How can we avoid losses  
due to flooding ?**



Develop data to identify  
inundation and erosion  
hazards.

Provide model regulations

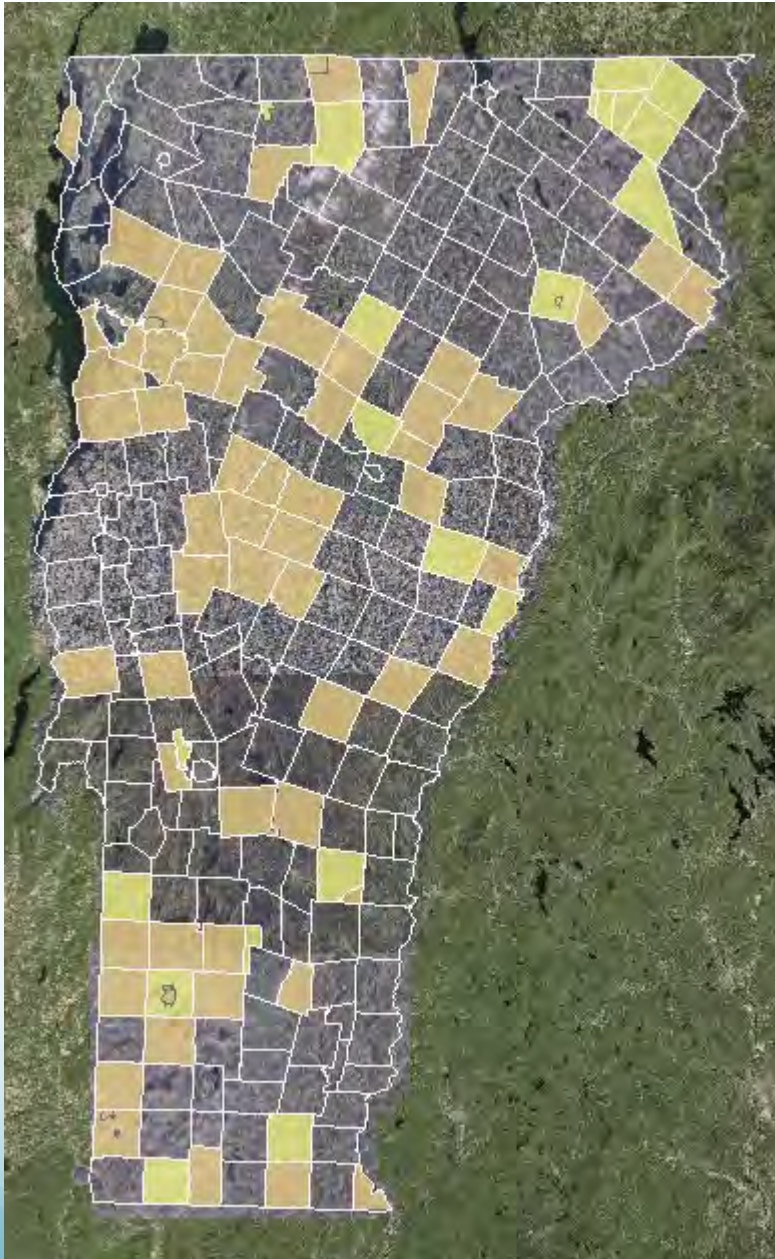
Develop incentives for  
communities.

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

Take steps to reduce existing exposure ,  
and improve emergency response  
capacity.

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





Flood Ready Atlas

[bit.ly/floodatlas](https://bit.ly/floodatlas)

89 communities have bylaws  
for no adverse impact on  
floodplain or  
river corridor functions.



# WHAT TO DO **NEXT**

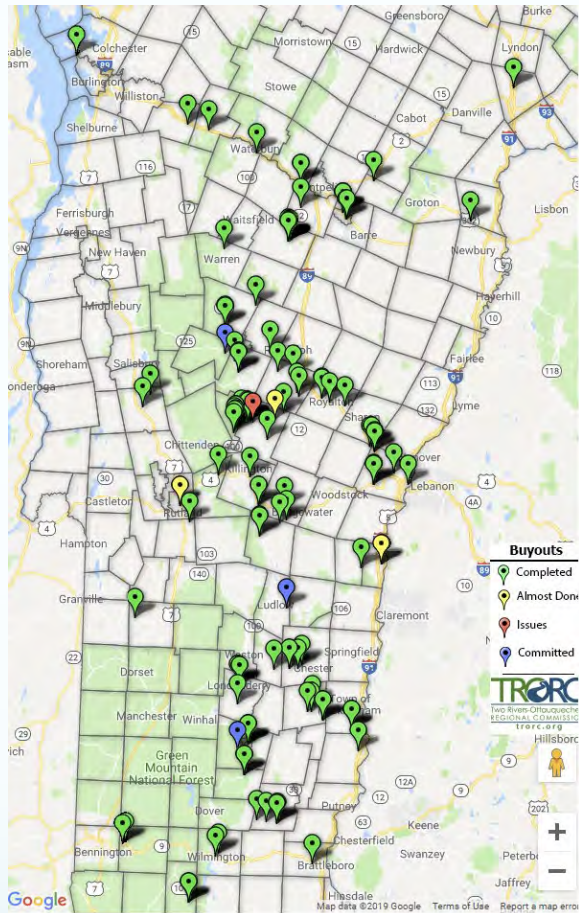
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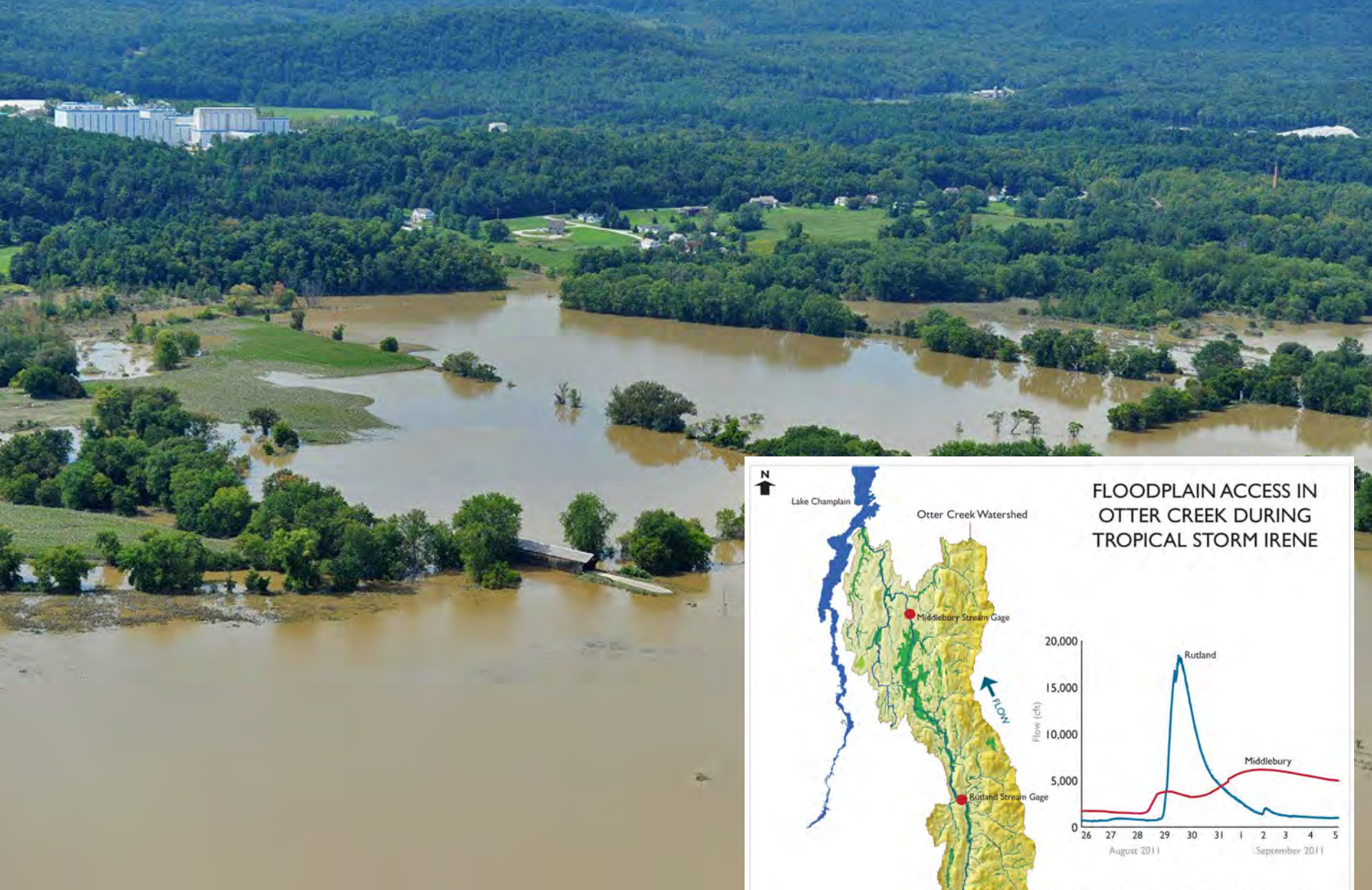




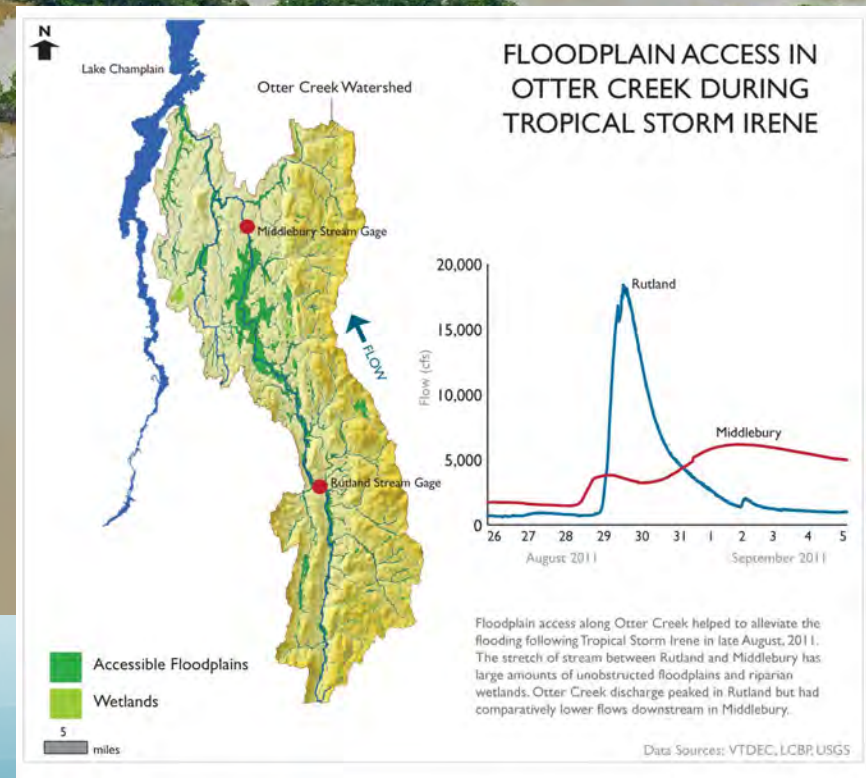




[www.trorc.org/programs/flood-recovery/femahud-buyout-coordination/](http://www.trorc.org/programs/flood-recovery/femahud-buyout-coordination/)



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





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OMB No. 1660-0022  
Expires: March 31, 2020

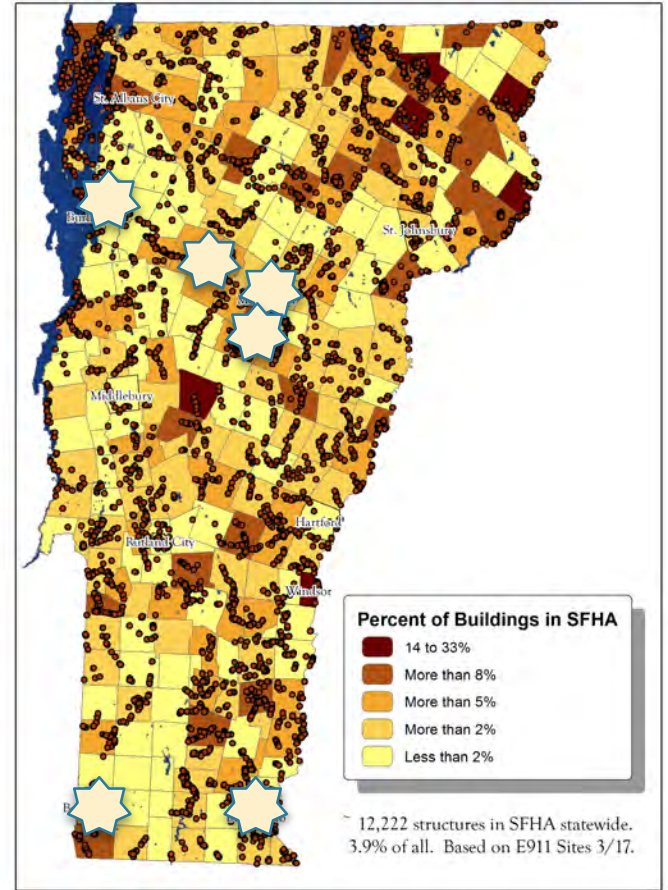
National Flood Insurance Program  
Community Rating System

# Coordinator's Manual

FIA-15/2017



FEMA



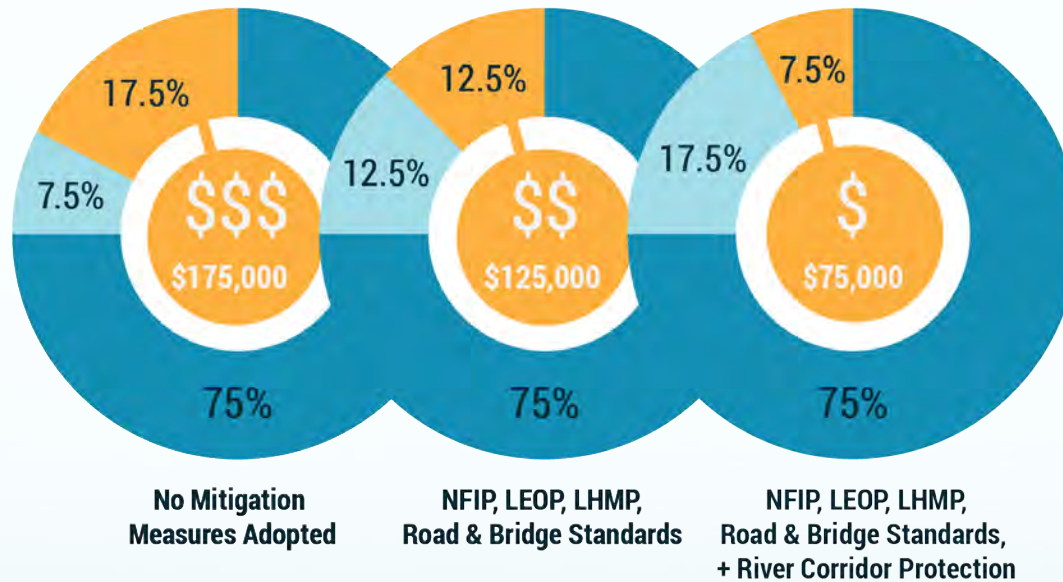
# Federal Emergency Management Agency CRS Insurance Savings Report VERMONT

CID	Community Name	County	Class Rate		TOTAL	SFHA *	XSTD/AR/A99 **
500013	BENNINGTON, TOWN OF	BENNINGTON COUNTY	9 /5%	Per Policy	\$ 53	\$ 77	\$ 36
				Per Community	\$ 8,686	\$ 7,193	\$ 1,492
500033	COLCHESTER, TOWN OF	CHITTENDEN COUNTY	8 /10%	Per Policy	\$ 33	\$ 57	\$ 89
				Per Community	\$ 1,401	\$ 1,133	\$ 267
500106	BERLIN, TOWN OF	WASHINGTON COUNTY	9 /5%	Per Policy	\$ 118	\$ 146	\$ 45
				Per Community	\$ 5,776	\$ 5,552	\$ 224
505518	MONTPELIER, CITY OF	WASHINGTON COUNTY	9 /5%	Per Policy	\$ 119	\$ 157	\$ 19
				Per Community	\$ 24,522	\$ 24,154	\$ 368
500123	WATERBURY, TOWN OF	WASHINGTON COUNTY	9 /5%	Per Policy	\$ 25	\$ 62	\$ 24
				Per Community	\$ 368	\$ 246	\$ 121
500122	WATERBURY, VILLAGE OF	WASHINGTON COUNTY	9 /5%	Per Policy	\$ 96	\$ 143	\$ 36
				Per Community	\$ 12,037	\$ 11,272	\$ 765
500126	BRATTLEBORO, TOWN OF	WINDHAM COUNTY	8 /10%	Per Policy	\$ 239	\$ 277	\$ 0
				Per Community	\$ 20,800	\$ 20,800	\$ 0
				<b>Average Savings Per Policy:</b>	<b>\$ 98</b>		
				<b>Total Community Savings:</b>	<b>\$ 73,590</b>		

CRS Report 8/2018

## Emergency Relief and Assistance Fund (ERAF) Rates

Local State Federal



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