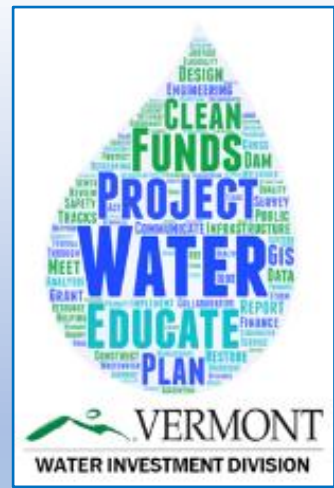


CONNECTICUT  
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C O M M I S S I O N S  
I N C



# Making Room: Why Balance Housing and Conservation?

Marie Levesque Caduto  
Watershed Planner



# Climate Resiliency

- The ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate.
- The ability to prepare for, recover from, and adapt to these impacts
  - [Center for Climate and Energy Solutions](#)
- The capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption.
  - [US Climate Resilience Toolkit](#)
- The ability to prepare for, withstand, and recover from the challenges presented by climate change.
  - [Concern Worldwide](#)

# Landscape Adaptation for Watershed Resiliency

- Access floodplains to improve water quality & provide water storage and reduce downstream flooding
- Remove barriers and constrictions to water flow that cause back-ups and flooding
- Create more natural river systems that slow flows and retain sediment
- Prevent future impacts that worsen these issues
- Keep people out of harms way



Christine Hazzard, Executive Director - Brattleboro Housing Partnerships

“When we talk with housers about the Melrose Terrace project, we talk about it because our mission is to help people to remain housed who could potentially lose their housing for a variety of reasons. I don’t want it to get missed that flooding is a really key area that housers need to think about.

Whenever anybody loses their housing, it creates more of a burden on the number of people that we really need to serve. When that is already such a dire situation - that any housing loss is too much - it is an important message for us to keep saying.

Often our groups don’t intermingle, but when we talk about these things we need to talk about the importance of not only thinking about flooding for our own housing, but also the housing in our community.”

# Land Use Planning for Flood Resilience



- Forward-looking, landscape approach to resiliency
- What we can do on the landscape today that will mitigate damage in the future
- Long-term effort

# Why a Landscape-level Approach?



FEMA's National Flood Insurance Program deals with **Inundation** flooding



In this valley most flood damages are caused by **Fluvial Erosion**

# Not in the Floodplain



According to FEMA maps, this house is NOT in a hazardous area.



These were in the floodplain.

It is not just the housing that is impacted, but also the infrastructure to access housing and businesses.



These were in the floodplain.



These were in the floodplain.



These were in the floodplain.



# What We Do Matters



We have been  
manipulating our  
rivers for centuries

# What We Do Matters

The following pictures illustrate how we manipulate rivers and the impact this has.

- Think of meanders bends like hiking trail switchbacks – the trail is longer and has less slope. Longer rivers store more water and less slope means less velocity & power.

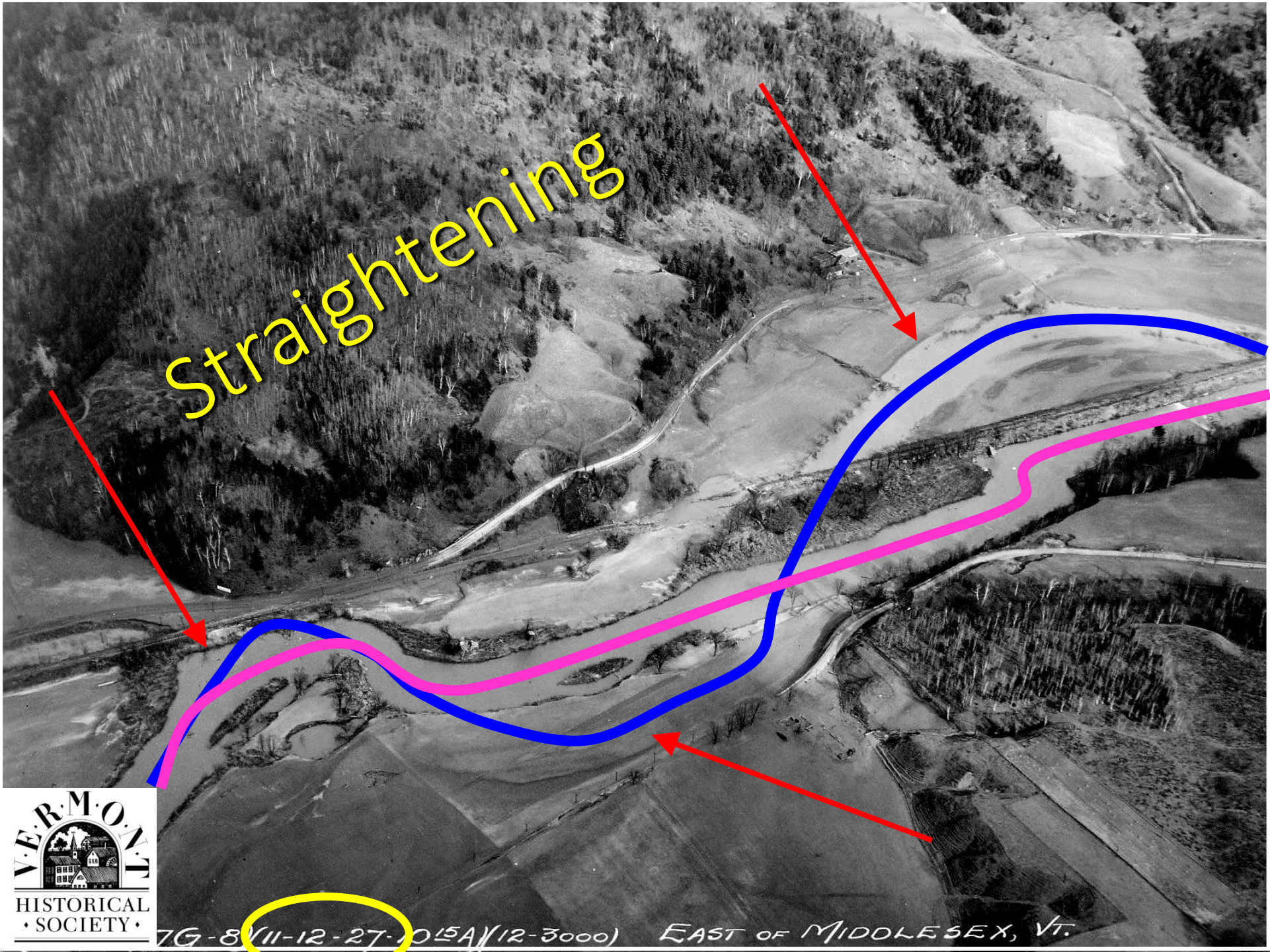
Even before the Flood of 1927 we straightened rivers.

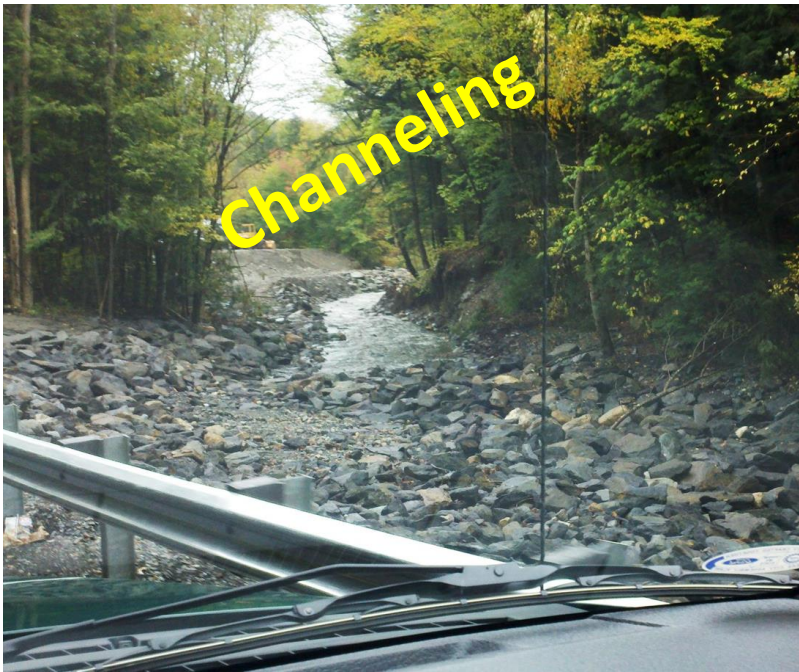
- Red arrows = cut off meander bends or filled in the channel
- Blue path = original channel length
- Pink = shortened channel length due to straightening

Straightening



7G-8 (11-12-27-1015A) (12-3000) EAST OF MIDDLESEX, VT.





Channeling



Berミング



Gravelling



Undersizing



Encroaching



Armoring

# The Nexus – Housing & Conservation

- Affordable housing at all levels
- Stability for families
- Safety from hazards and threats
- Economic stability for communities
- Economic growth opportunities
- Protect water quality
- Protect wildlife habitat
- Protect floodplains that enhance resiliency
- Provide public access
- Create jobs
- Bring in visitors

**Strategies that address conservation also address housing**



# Why a Landscape-level Approach?

- Climate changes are impacting our natural resources and housing NOW
- Long-term changes take time
- Building resiliency crosses sectors of land use, housing, environment, planning, food security, ...
- Building support, decision-making, planning take time
- Strategies and solutions will be different for rural and urban landscapes
- People are here, more are coming

# Why a Landscape-level Approach?

We **CAN** make things Better

Things We Got Right

# Melrose Terrace Buy-out & Floodplain Restoration



**2011**

Flooded out housing was removed, and floodplain restored to allow high waters to slow down and be stored upstream until waters levels go down.

**2023**



# West Windsor Harrington Dam

Remains of a breached dam blocked flows which backed up and destroyed a barn and 200' of road.



2011



2023

# West Windsor Harrington Dam

Removing the constriction allows water to use the full channel width reducing destructive flows.



# Birge Street Floodplain Restoration



12.5 acres upstream of Brattleboro center

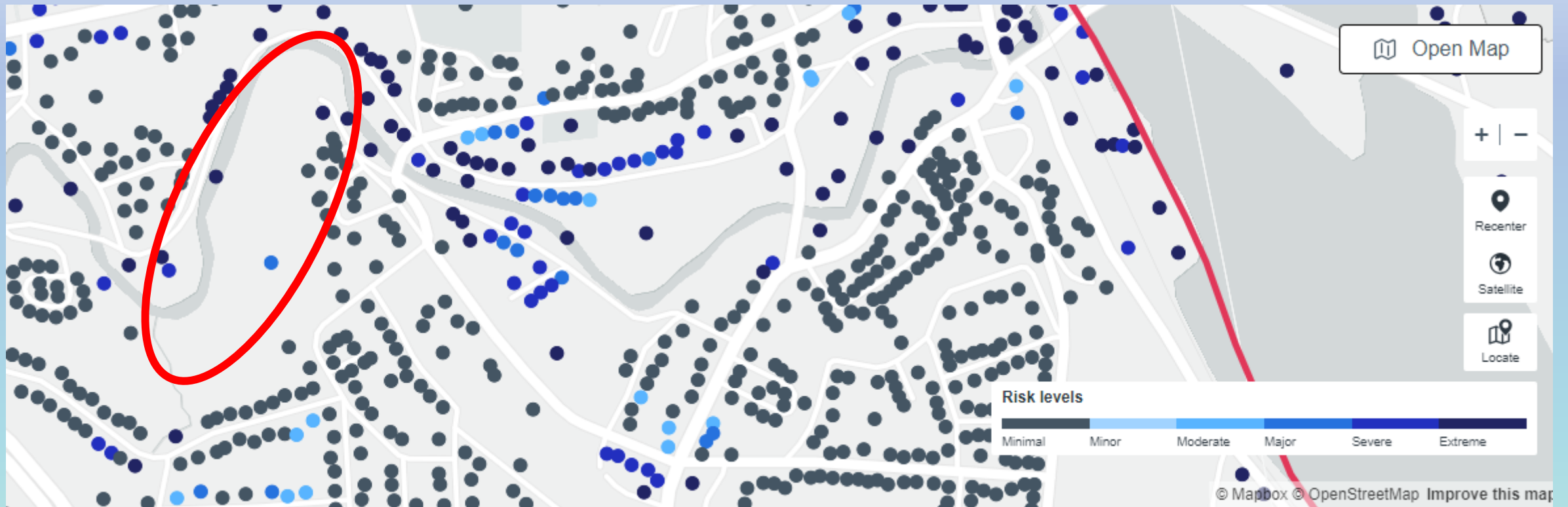
# Birge Street Floodplain Restoration

12 acre unused industrial site in the floodplain.



# Birge Street Floodplain Restoration

Many structures in the flood zone downstream.



[https://riskfactor.com/city/brattleboro-vt/5007975\\_fsid/flood](https://riskfactor.com/city/brattleboro-vt/5007975_fsid/flood)

There are **442 properties** in **Brattleboro** at risk of flooding over the next 30 years. This represents **19.2%** of all **properties** in **Brattleboro**

**Brattleboro** has **Severe** risk of flooding over the next 30 years.

Residential risk: **Major**  
Commercial risk: **Extreme**  
Infrastructure risk: **Severe**  
Social risk: **Extreme**

[First Street Flood Model](#)



Soils contaminated with toxic industrial chemicals were removed, archeological resources were protected, berms along the brook were removed and the land elevation was lowered to enable it to take on and store MORE floodwaters.



**2015**



**2023**

# Birge Street Floodplain Restoration



Restoration plantings were put in for soil stability, habitat and recreation. Future flood waters will be able to spread out over 12 acres, drop sediment, lose velocity and be less destructive downstream in the town center.

Each of these project involves hard discussions and decision-making, many different partners and funding sources. These involve not just the housing & the environmental organizations but the community as well. Each project impacts the whole community – where people live, where they will shop, how they will travel, what the neighborhood will be like before, during and after the work is done.

Everyone needs to be at the table for us to get it right.

**Still Work To Do**

# Rebuilding in the Flood Zone

We continue to rebuild in locations where we know from past floods they will be damaged again.



2011



2023

We have a long way to go toward adapting our infrastructure to the size our new climate requires. This bridge caused massive damage to the road, white house and the property off to the right in TS Irene. It has yet to be up-sized.



2023

# Neglecting Infrastructure

One less house = one less family in the community = one less child in the school.  
All the housing matters.



**2011**

**2023**

This is not just an individual or town issue.  
We need to do better and act in the interest of  
the greater community.  
We need to work at the landscape scale.

We need to plan for and develop strategies  
now so we can implement them over the next  
decades because that is how long it will take.



*The best time to plant a tree  
is 20 years ago.*

*The next best time is now.*

Chinese Proverb

# Connection Before Content

**What would it look like in your community to have sustainable, resilient affordable housing AND land conservation?**

**TRUPLES Please!**

**Groups of 3 or 4**

**5-7 mins**





