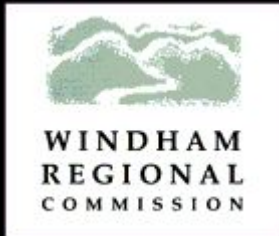


Mapping for Livability in Vermont



Leahy Institute
for Rural Partnerships



Overview

- Identifying the need for infrastructure mapping
- Mapping Vermont's Wastewater Infrastructure
 - Partnerships
 - Process
 - Outputs
- Livability map

Why does this
matter?
*And why it is
difficult...*

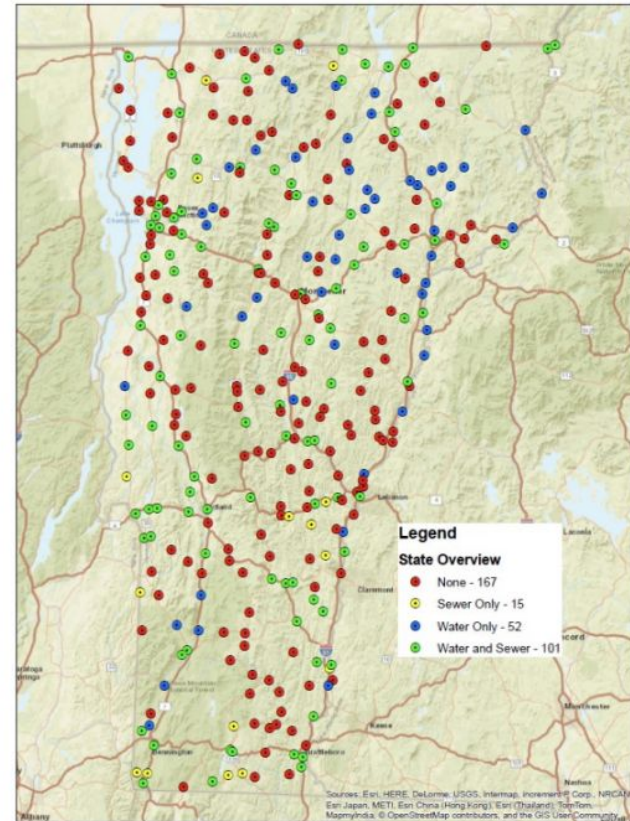


Figure 1. Compact settlement centers in Vermont, and their wastewater status (with community sewer, without community sewer, with community water, and without community water). Originated from Lynnette Claudon at the Vermont Agency of Natural Resources

Mapping Vermont's Wastewater Infrastructure

Explore



LEAHY INSTITUTE FOR RURAL PARTNERSHIPS / MAPPING VERMONT'S WASTEWATER INFRASTRUCTURE

This project provides systematic mapping of Vermont's wastewater infrastructure data; info that's foundational to increased economic activity and housing development.

UVM Partners: VERSO + ORCA

Translating academic research or
community needs into
open-source projects via
passionate teams of students



OPEN
RESearch
COMMUNITY
ACCELERATOR



ORCA's goals are to produce impactful, accessible, open source research tools and community projects by training tomorrow's workforce in marketable open source skills.

ORCA Projects

Selected Projects

- Vermont Zoning Atlas – Creating a comprehensive GIS dataset of all the zoning laws
- Interpretive Structural Modeling Application – Building an app for the ISM research methodology
- Heard and Understood CONSERT Application – Creating a research web application for the CONSERT algorithm
- Wastewater Infrastructure Mapping – Creating a GIS map of all the wastewater systems in Vermont

Process

- Student led teams of 5-7 students working as paid interns.
- Several support student roles (Business, Technical, Community) for all teams.
- Onboarding includes following NASA's Open Science, the Turing Way and others
- Professional Development sessions with the Career Center

Wastewater Infrastructure Mapping

Started May 2024

Partners and Collaborators:

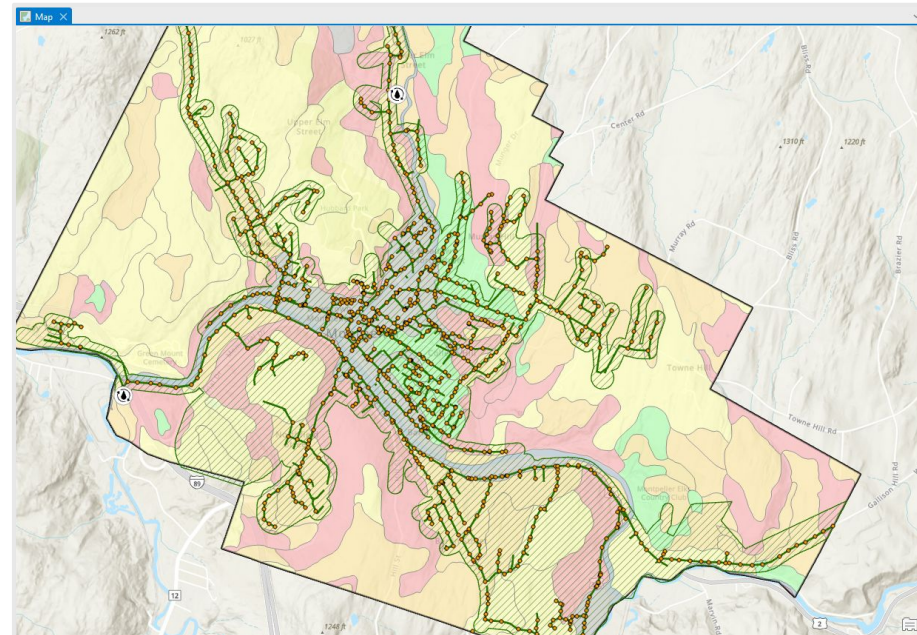
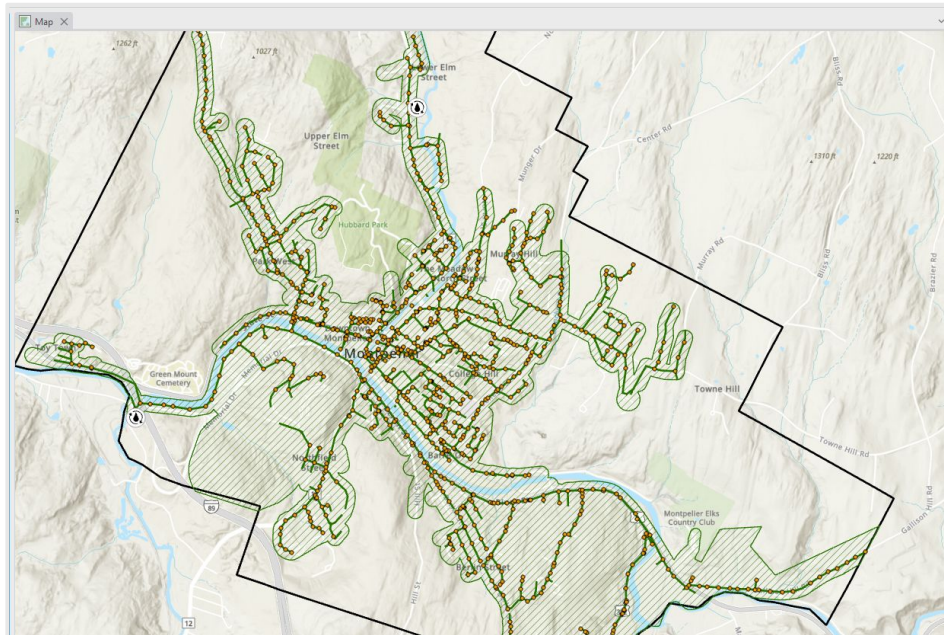
- Windham Regional Commission
- UVM College of Engineering and Mathematical Sciences (CEMS)
- Vermont Agency of Natural Resources (ANR)
- Vermont Center for Geographic Information (VCGI)
- Town of Jericho, VT
- And more!

Wastewater systems greatly impact the ability to grow housing in any region. Vermont's challenge to grow will be impacted by aging systems here, but we don't even know what wastewater systems are in place. We are building a dataset to understand this problem.

Work Process - Fall 2024 + Spring 2025

- Mapping

- Mapping existing data and digitizing new data where possible
- Focusing on creating a map that is useful to professionals but still readable for ordinary people



How will this be utilized?

24 V.S.A. § 4302 – Purpose & Goals of Municipal & Regional Planning & Development

(1) To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.

Statute goes on to say intensive residential development, economic growth, public investments (including construction of infrastructure), etc. should reinforce this pattern and in accordance with “smart growth principles.”

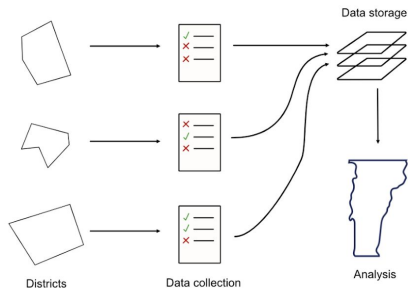
The Questions....

- What can we build, where, and how much, with the infrastructure we have? Such as tens of thousands of units of housing...
- How does this align with zoning? Capital improvement plans (if any)? Public finance strategy (if any)?
- How does this align with flood hazard and river corridor (channel migration, fluvial erosion hazard) areas?
- When it comes to climate adaptation and resilience, are we looking forwards or backwards? This chapter of the Anthropocene is just beginning...
- Governance implications

Livability Map

The Vermont Livability Map is a pilot project to create databases and web tools to help answer fundamental questions facing cities and towns in Vermont: for the land that we have, what can be built?

Housing is complex. We tried to bring it all together.



Housing is a complex problem due to a mix of economic, social, and policy factors. For example: zoning laws regulate the types of housing that can be built but whether there is a septic system, access high-speed internet, close to schools and job all impact on whether housing is actually built.

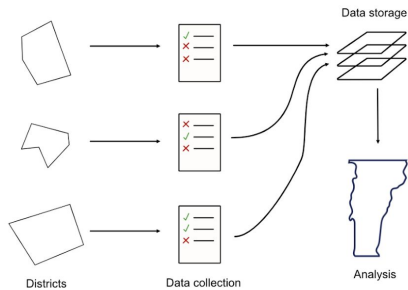
Just tackling how to understand zoning can be complex, overwhelming and hard to find. The Vermont Livability Map takes inspiration from the National Zoning Atlas project to "digitize, demystify, and democratize information" that is often hidden under many layers of hard to parse paperwork.

As a rural state, Vermont's zoning laws can be especially difficult to find and understand. Many towns use their own methods of record keeping and governance. But we believe that universal access to this information is critical for smart community growth.

Livability Map

<https://verso-uvm.github.io/Vermont-Livability-Map/>

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Learn more + follow up:

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Chris Company, Windham Regional Commission

• ccampany@windhamregional.org

Kendall Fortney, VERSO + ORCA at UVM

• Kendall.Fortney@uvm.edu

Homes for Us Jamaica, Londonderry, Weston and Winhall

- Sponsored by the Windham Regional Commission

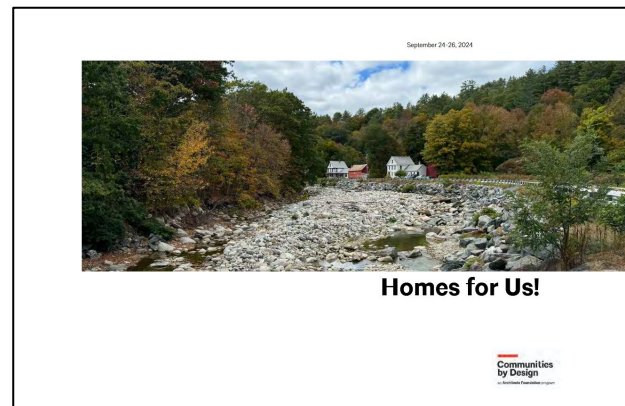
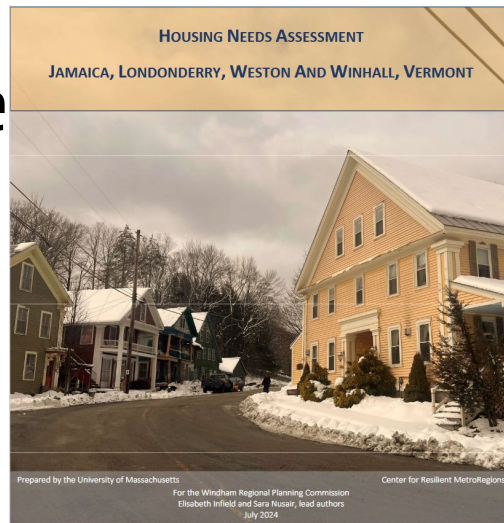


Partners

- **University of Massachusetts, Center for Resilient Metro Regions**
 - **Department of Landscape Architecture and Regional Planning**
- **American Institute of Architecture, Communities by Design**
 - **Team of Design and Planning Professionals from around New England and across the country**
- **Windham Regional Commission**

4 Town Housing Collaborative

- **Housing Needs Assessment - UMass**
 - ✓ Identified the amount and types of housing needed and potential locations for housing in each town
- **Team Embedded in Region for 3 days – AIA & UMass**
 - ✓ Hosted stakeholder and public meetings
- **Developed Final Report - AIA**
http://www.windhamregional.org/images/docs/community-dev/HomeForUs_4TownHousingStudy.pdf



4 Town Engagement

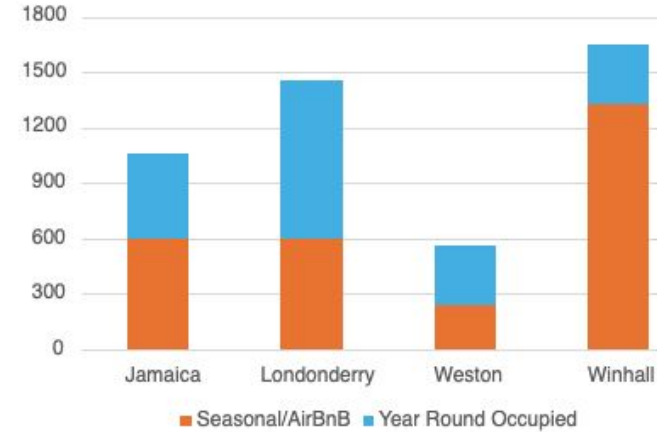
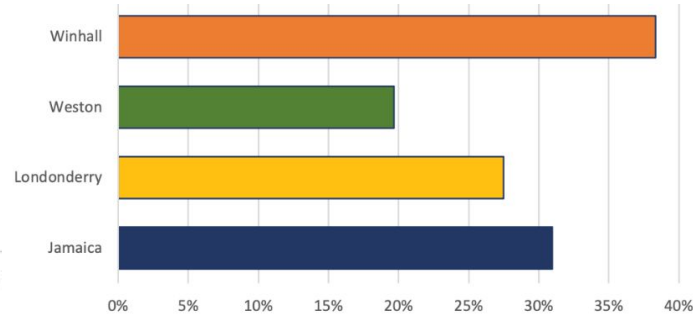
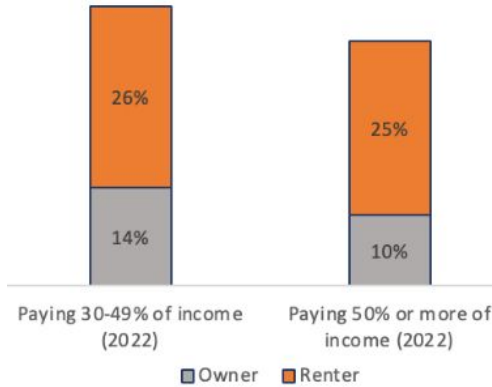
- Team met with key stakeholders in each community early on and during the 3 day visit
- Identified a contact in each town who's primary role was to spread the word
 - Newspapers, websites, email lists, town newsletters, flyers posted at key location and word of mouth
- Two in-person public meetings
 - Recordings and slides posted, follow-up news articles

What we heard...

- “There is no house we can afford... to those earning median income”
- All the costs of living (transport, food)
- Village centers and walkability
- But “affordability over walkability”
- Jobs and economic development
- “Creating community...connections”
- “Ski areas are the elephant in the room”
- Climate change and flooding



Housing can be unattainable - Prices rising fast



Windham County

Households
earning
<\$50k per year

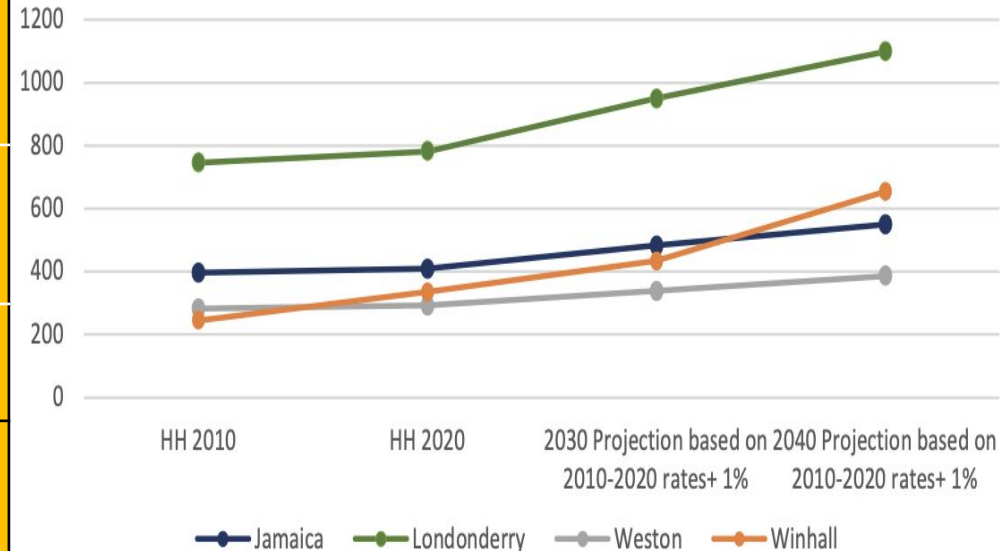
Few year-round
homes

Housing and Population Projections

1,898 current households, 2,688 Households 2040 -historic growth + 1%

GAP 852 New Units by 2040	New Units by 2040	Acres at 4 DU/acre
Jamaica	135	34
Londonderry	263	66
Weston	101	25
Winhall	353	88

Climate Migration might add more



Land suitability analyses

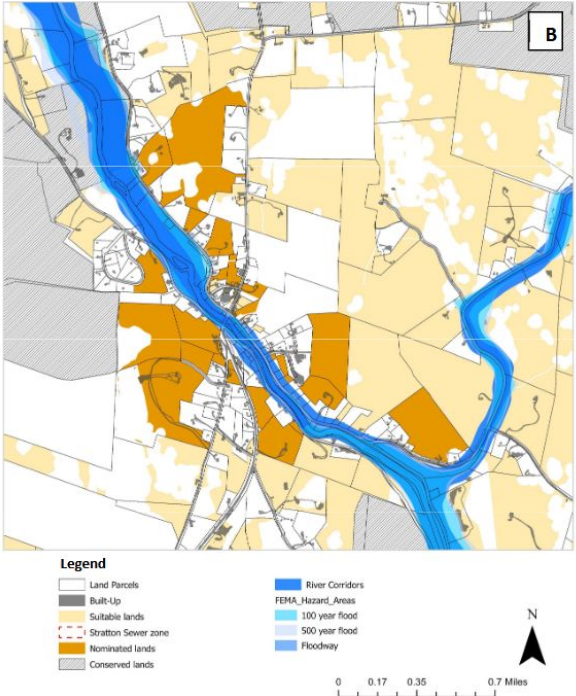


FIGURE 33: LONDONDERRY NOMINATED SUITABLE LANDS. A; THE FIRST ALTERNATIVE –AROUND NORTH VILLAGE CENTER. B; THE SECOND ALTERNATIVE –AROUND SOUTH VILLAGE CENTER

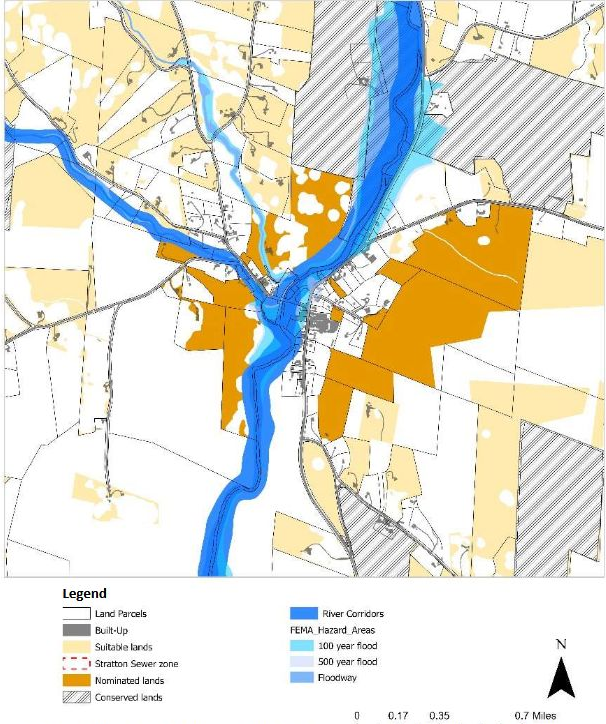
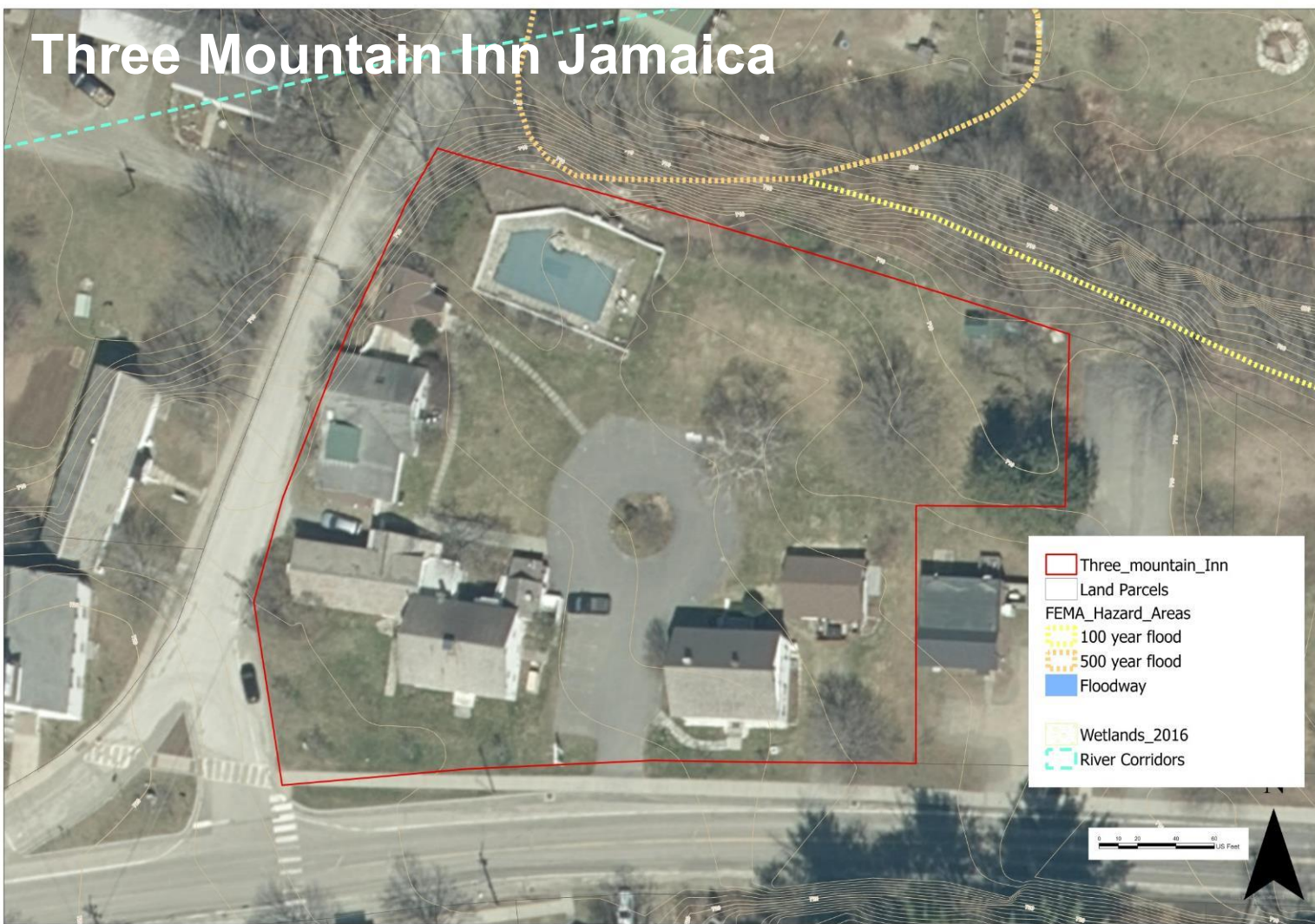
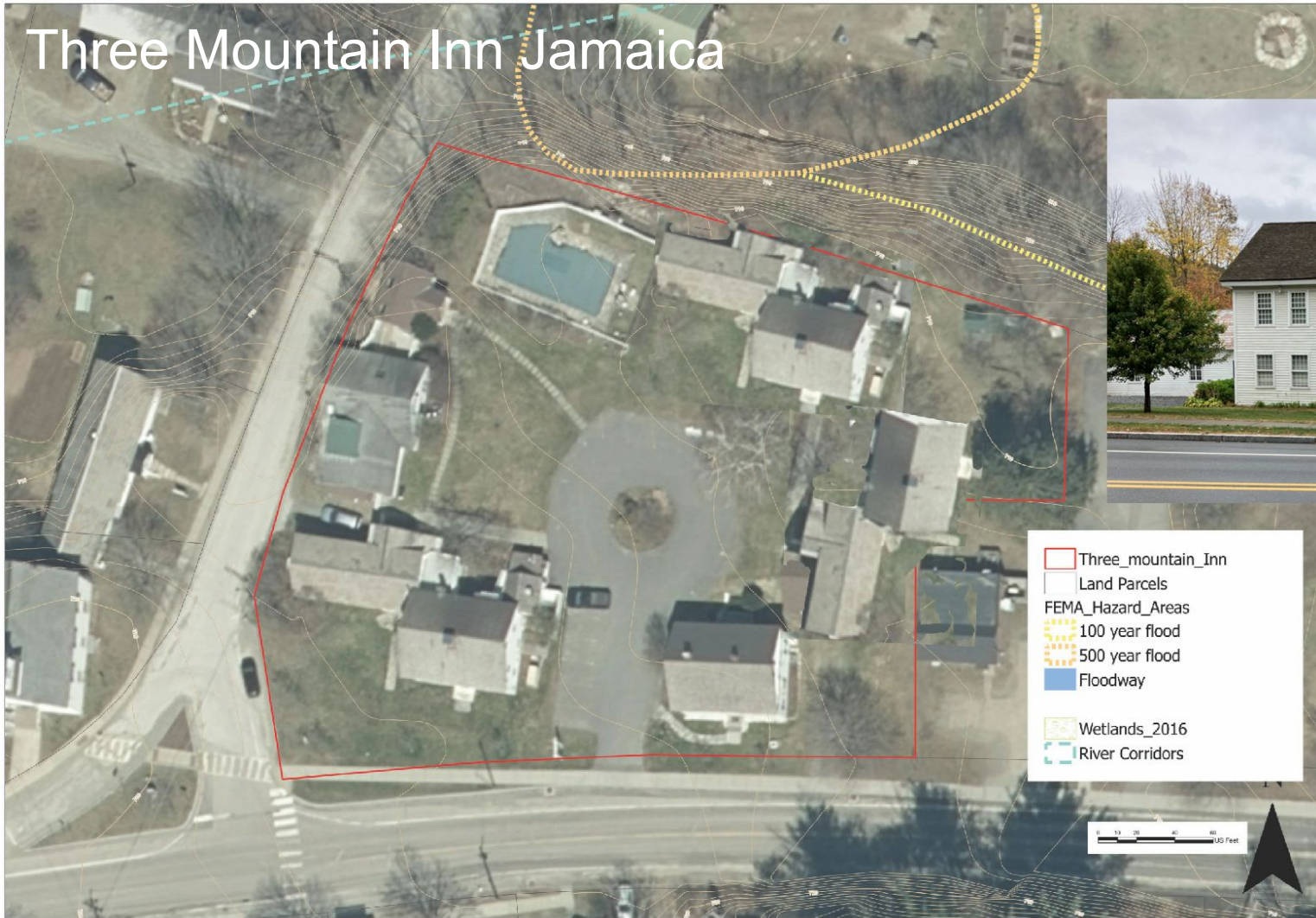


FIGURE 43: WESTON NOMINATED SUITABLE LANDS –AROUND VILLAGE CENTER.

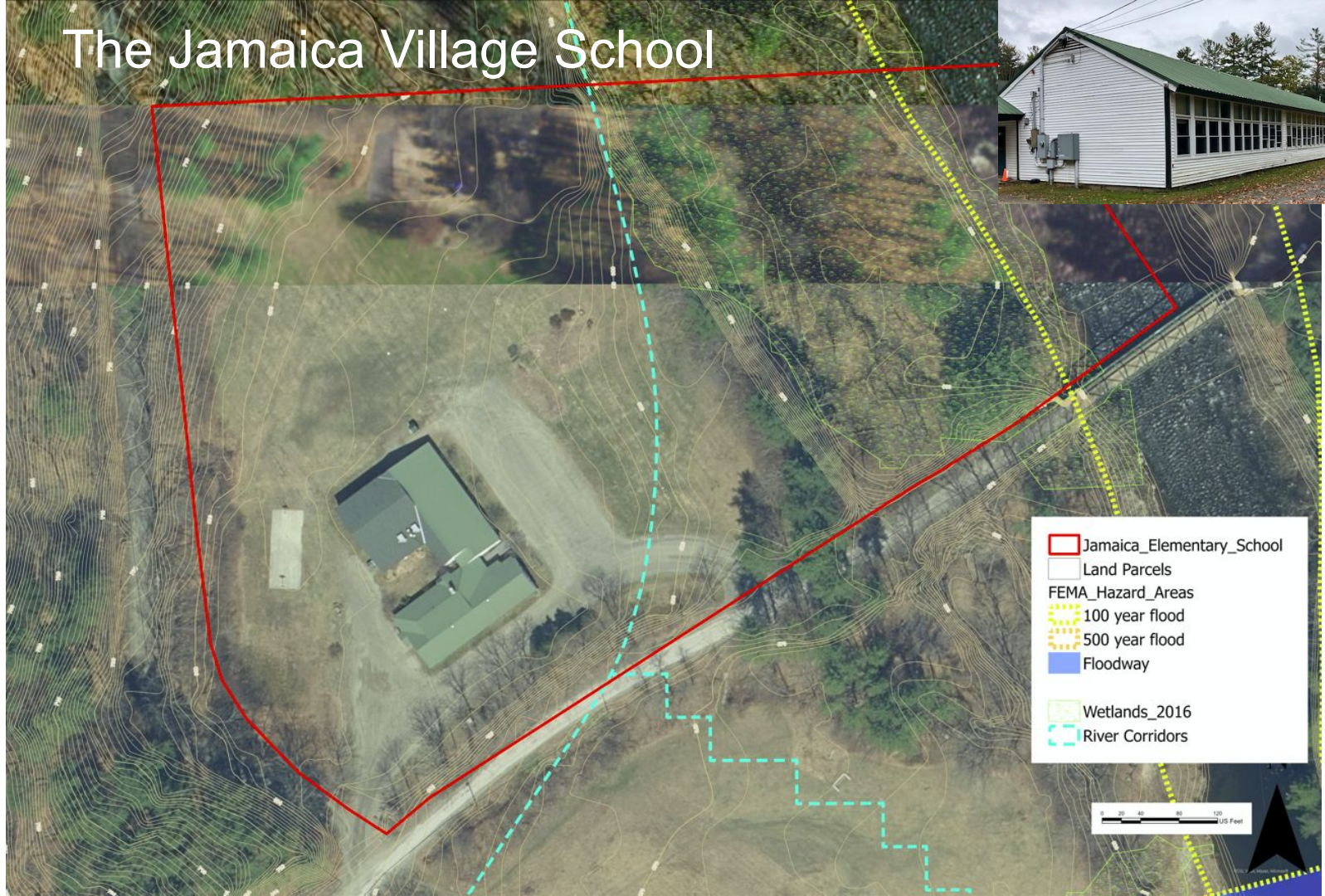
Three Mountain Inn Jamaica



Three Mountain Inn Jamaica



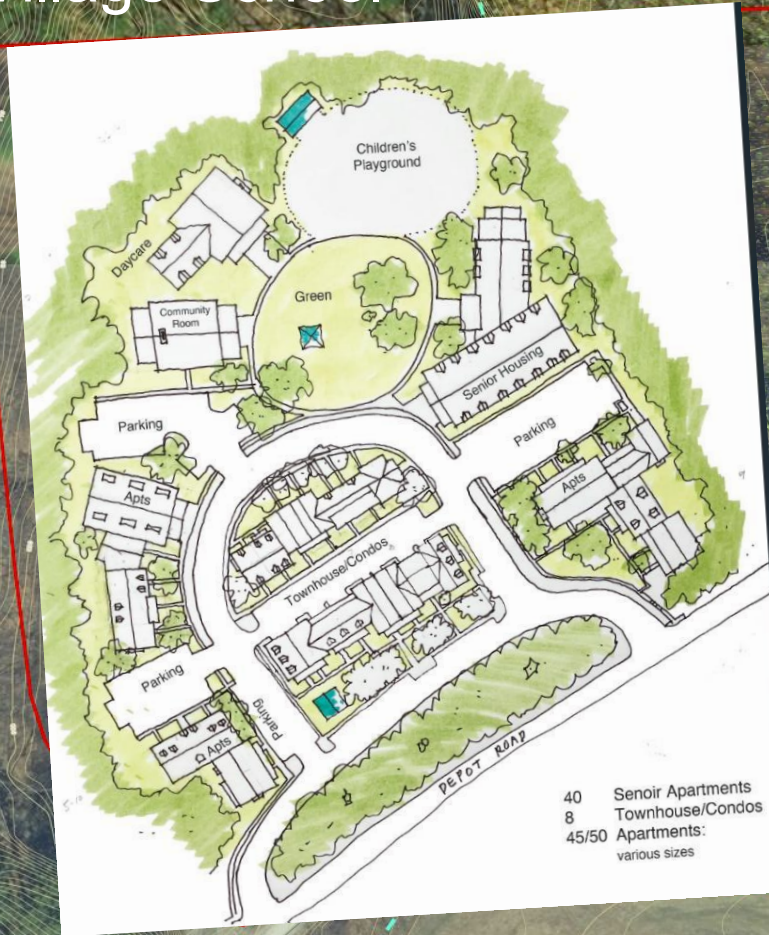
The Jamaica Village School



- Jamaica_Elementary_School
- Land Parcels
- FEMA_Hazard_Areas
 - 100 year flood
 - 500 year flood
- Floodway
- Wetlands_2016
- River Corridors



The Village School



40 Senior Apartments
8 Townhouse/Condos
45/50 Apartments:
various sizes

- Jamaica_Elementary_School
- Land Parcels
- FEMA_Hazard_Areas
 - 100 year flood
 - 500 year flood
 - Floodway
- Wetlands_2016
- River Corridors



Londonderry Municipal Offices





- 5.
- Floor.
- Wetlands_
- River Corridors
- Londonderry_Mun.

Weston

- Vermont_Country_Store_Parking
- Land Parcels
- FEMA_Hazard_Areas
 - 100 year flood
 - 500 year flood
- Floodway
- Wetlands_2016
- River Corridors

Vermont Country Store – Existing Conditions





- Vermont_Country_Store_Parking
- Land Parcels
- FEMA_Hazard_Areas
 - 100 year flood
 - 500 year flood
- Floodway
- Wetlands_2016
- River Corridors

Parking

Buses

new workforce housing



Vermont Country Store – Potential Housing



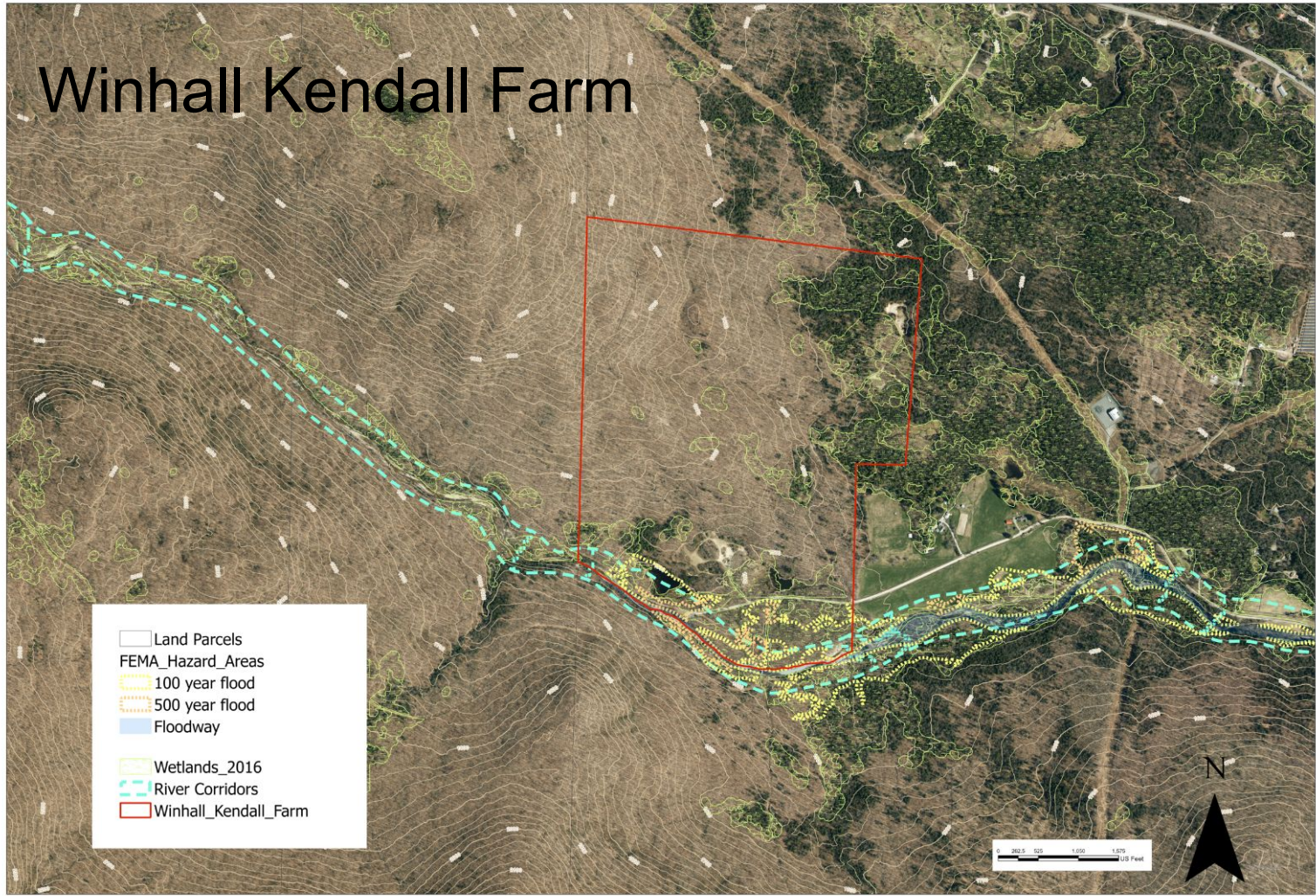
Experiment...

- Direct technical assistance provided by WRC; made it easy
- Begin with visualization; shared vision of what could be rather than assumed worst case □ utopian assumptions...
- ...then do the planning
- Low/no pressure – builds upon prior municipal efforts but no pressure to adopt what comes out of the process.
- Universities
 - Faculty knowledge & experience – cadre of students
 - Student engagement – fresh mind; fresh eyes; few assumptions
- Outside experts – informed first impressions & ability to work fast
- Intermunicipal engagement
 - discussion expanded beyond town boundaries (and entrenched positions...)
 - may result in collaboration, but...
 - real value may be exposure to peer ideas & aspirations

Winhall-Bondville



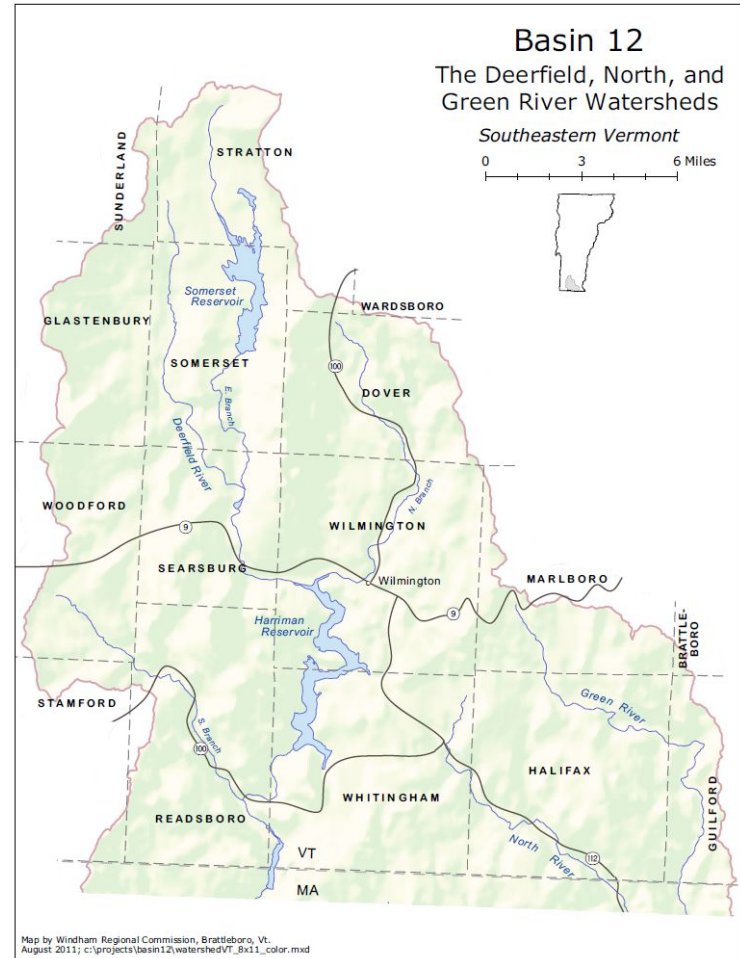
Winhall Kendall Farm



- Land Parcels
- FEMA_Hazard_Areas
 - 100 year flood
 - 500 year flood
- Floodway
- Wetlands_2016
- River Corridors
- Winhall_Kendall_Farm

4 Town Flood Adaptation Charette & Scenario Planning

- Dover, Wilmington, Readsboro, Whitingham
- Broader scope – housing & flood adaptation more broadly
- UMass-Amherst Regional Planning Graduate Scenario Planning Studio
- Begin with charette and follow with planning study.
- Charette in September; scenario plans developed over fall semester.





Thank you!
Questions?