

Trees Really Are the Answer! Collaboration is Key to Climate Adaptation and Resilience Strategies

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“Trees Are The Answer.” It’s true! Awareness of the role of trees, plants, and plant communities (and their soils!) to mitigate the effects of everything from floods to drought to high heat has grown.

This discussion is intended to foster collaboration among conservation and forestry, hazard mitigation, and municipal planning stakeholders to achieve more resilient communities.



A whole community approach.



“Community, then, is an indispensable term in any discussion of the connection between people and land. A healthy community is a form that includes all the local things that are connected by the larger, ultimately mysterious form of the Creation. In speaking of community, then, we are speaking of a complex connection not only among human beings or between humans and their homeland but also between human economy and nature, between forest or prairie and field or orchard, and between troublesome creatures and pleasant ones. All neighbors are included.” – Wendell Berry, *Sex, Economy, Freedom & Community: Eight Essays*



“A community is the mental and spiritual condition of knowing that the place is shared, and that the people who share the place define and limit the possibilities of each other's lives. It is the knowledge that people have of each other, their concern for each other, their trust in each other, the freedom with which they come and go among themselves.” – Wendell Berry, *The Long-Legged House*

“Such pondering on the facts of gravity and the fluidity of water shows us that the golden rule speaks to a condition of absolute interdependency and obligation. People who live on rivers – or, in fact, anywhere in a watershed – might rephrase the rule in this way:

Do unto those downstream as you’d have those upstream do unto you.”

- Wendell Berry from “Watershed and Commonwealth” in *The Citizenship Papers*.



Vermont has a highly distributed and diffuse planning context. Towns have the ability to manage development, conservation, and natural hazard resilience, but it is a choice.

In Vermont, municipalities are given the power to choose their own fates. It is their *CHOICE* to:

- ▶ Create & adopt a town plan, local hazard mitigation plan, conservation plan, tree management plan, flood hazard bylaws, etc.
- ▶ Implement the plans they have.
- ▶ Tax themselves and/or pursue grants to support plan implementation.
- ▶ Adopt local land use regulations including zoning and flood hazard bylaws.
- ▶ Effectively administer their regulations.
- ▶ Participate in state land use and energy project review proceedings (Act 250 and Section 248)

Opportunities for collaboration.

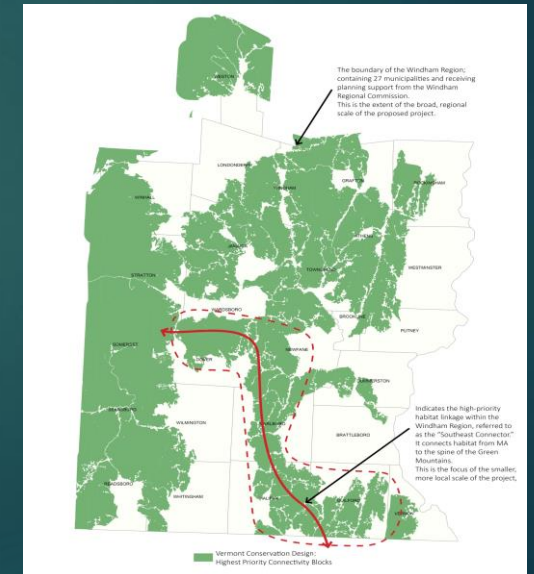
- ▶ Land Use Planning
- ▶ Local Hazard Mitigation Planning
- ▶ Conservation/Forest Planning

Why these three?

- ▶ **Land Use Planning (& Regulation):** Reduces consumption of land, forest blocks, and habitat, and achieves a community form that enables mobility options that are not reliant upon cars, and that can achieve economies of scale related to housing development and energy use (district heating and cooling; microgrids). It's the alternative to rural sprawl, and it is a statewide policy imperative.
- ▶ **Hazard Mitigation & Adaptation:** Local hazard mitigation plans identify risks to and within the community, and can provide foundational information as to what lives, property, and infrastructure are at risk, where development is safe, and how risks might be mitigated – including the importance of “green infrastructure.”
- ▶ **Conservation:** Not only an approach to conserving critical landscapes and habitat, it should be coupled with land use and hazard mitigation planning to mitigate flooding and heat, keep aquifers charged and protected, create opportunities for public access to conserved lands so the public feels connected to the land and vested in its future.

Systems approach.

- ▶ Settlement Patterns (land use/cover)
- ▶ Watersheds
- ▶ Forest Blocks
- ▶ Forest Composition
- ▶ Habitats & Habitat Connectors
- ▶ Soils
- ▶ Geology
- ▶ Aquifers
- ▶ Floodplains & Floodwater Access
- ▶ River Corridors



Too often this work in towns is stovepiped.

- ▶ Planning Commissions, Conservation Commissions, Emergency Management Directors should work together across planning tasks and take into account how the natural systems interact with human settlements – present & future.
- ▶ Also involves tree wardens, road foremen, and any other staff or committees working on related items.
- ▶ Critically **the selectboard MUST be engaged** as their action will be essential to implementation.

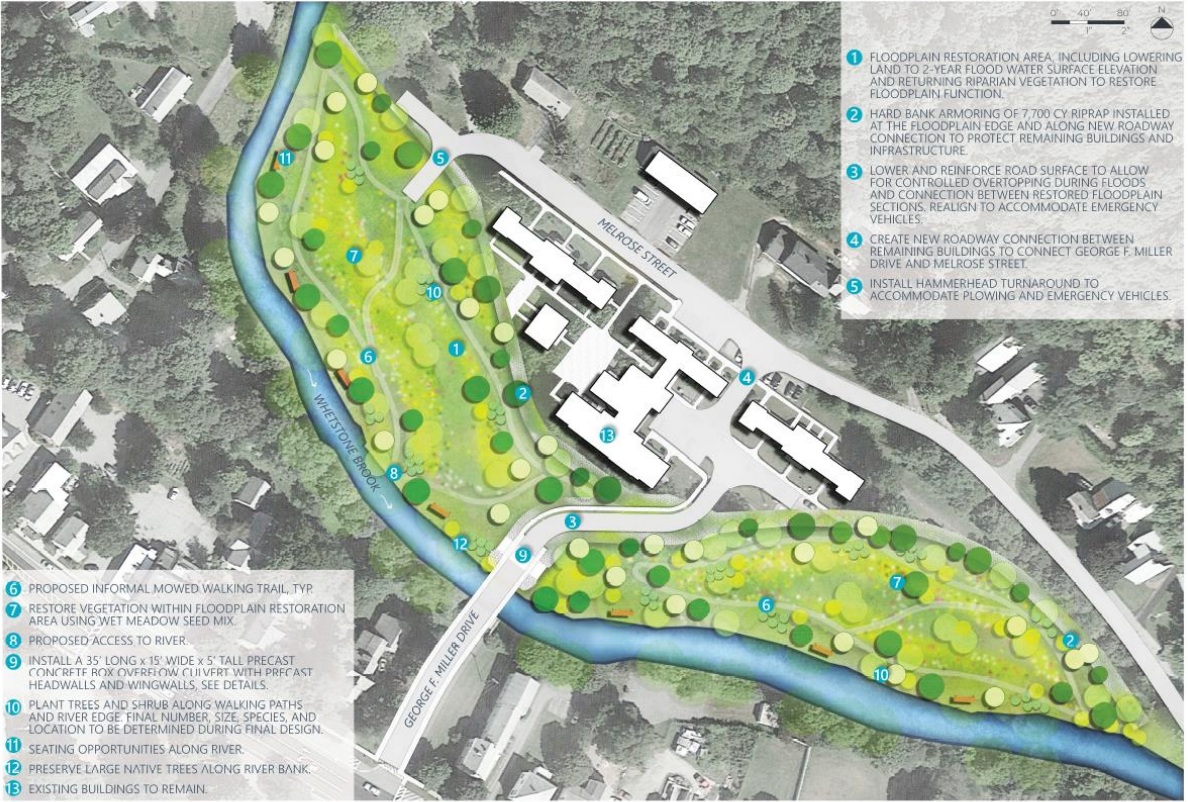


Projects in Brattleboro – Sawdust Alley



WHETSTONE BROOK - FLOODPLAIN RESTORATION SITE PLAN, BRATTLEBORO, VT

Melrose Terrace Floodplain Restoration & Housing Relocation



- 1 FLOODPLAIN RESTORATION AREA, INCLUDING LOWERING LAND TO 2-YEAR FLOOD WATER SURFACE ELEVATION AND RETURNING RIPARIAN VEGETATION TO RESTORE FLOODPLAIN FUNCTION.
- 2 HARD BANK ARMORING OF 7,700 CY RIPRAP INSTALLED AT THE FLOODPLAIN EDGE AND ALONG NEW ROADWAY CONNECTION TO PROTECT REMAINING BUILDINGS AND INFRASTRUCTURE.
- 3 LOWER AND REINFORCE ROAD SURFACE TO ALLOW FOR CONTROLLED OVERTOPPING DURING FLOODS AND CONNECTION BETWEEN RESTORED FLOODPLAIN SECTIONS, REALIGN TO ACCOMMODATE EMERGENCY VEHICLES.
- 4 CREATE NEW ROADWAY CONNECTION BETWEEN REMAINING BUILDINGS TO CONNECT GEORGE F. MILLER DRIVE AND MELROSE STREET.
- 5 INSTALL HAMMERHEAD TURNAROUND TO ACCOMMODATE PLOWING AND EMERGENCY VEHICLES.

- 6 PROPOSED INFORMAL MOWED WALKING TRAIL, TYP.
- 7 RESTORE VEGETATION WITHIN FLOODPLAIN RESTORATION AREA USING WET MEADOW SEED MIX.
- 8 PROPOSED ACCESS TO RIVER.
- 9 INSTALL A 35' LONG x 15' WIDE x 5' TALL PRECAST CONCRETE BOX OVERFLOW CULVERT WITH PRECAST HEADWALLS AND WINGWALLS, SEE DETAILS.
- 10 PLANT TREES AND SHRUB ALONG WALKING PATHS AND RIVER EDGE. FINAL NUMBER, SIZE, SPECIES, AND LOCATION TO BE DETERMINED DURING FINAL DESIGN.
- 11 SEATING OPPORTUNITIES ALONG RIVER.
- 12 PRESERVE LARGE NATIVE TREES ALONG RIVER BANK.
- 13 EXISTING BUILDINGS TO REMAIN.

MELROSE TERRACE FLOODPLAIN RESTORATION PROJECT SITE PLAN

MILONE & MACBROOM

