

# Water Quality Projects Training for Plainfield Conservation Commission

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11/18/2020

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# Acknowledgements

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“This project has been funded by an agreement awarded by the Great Lakes Fishery Commission (GLFC) to NEIWPCCC in partnership with the Lake Champlain Basin Program (LCBP). The contents of this document do not necessarily reflect the views and policies of NEIWPCCC, LCBP, or GLFC, nor does NEIWPCCC, LCBP, or GLFC endorse trade names or recommend the use of commercial products mentioned in this document.”

## Other Participating Groups:

1. Association of VT Conservation Commissions
2. Bolton Conservation Commission
3. Central VT Trout Unlimited
4. Essex Conservation and Trails Committee
5. Northfield Conservation Commission
6. Williston Conservation Commission



# Celebrating 80!

*Winooski NRC D promotes the wise **use**, sustainable **development**, and **conservation** of our District's natural resources. We connect residents and communities with the necessary education and technical assistance to implement on-the-ground projects for water quality, soil health, and wildlife habit*



## Vermont Association of Conservation Districts



[vacd.org](http://vacd.org)

# Goals for Today

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1. Gain confidence identifying potential “clean water projects”.
2. Gain confidence sharing information about clean water with your neighbors.
3. Learn how to develop “clean water projects” by partnering with local groups.
4. Consider major sources of pollution in Plainfield
5. Consider solutions that may be a good fit for the community

# What's Already Happening?

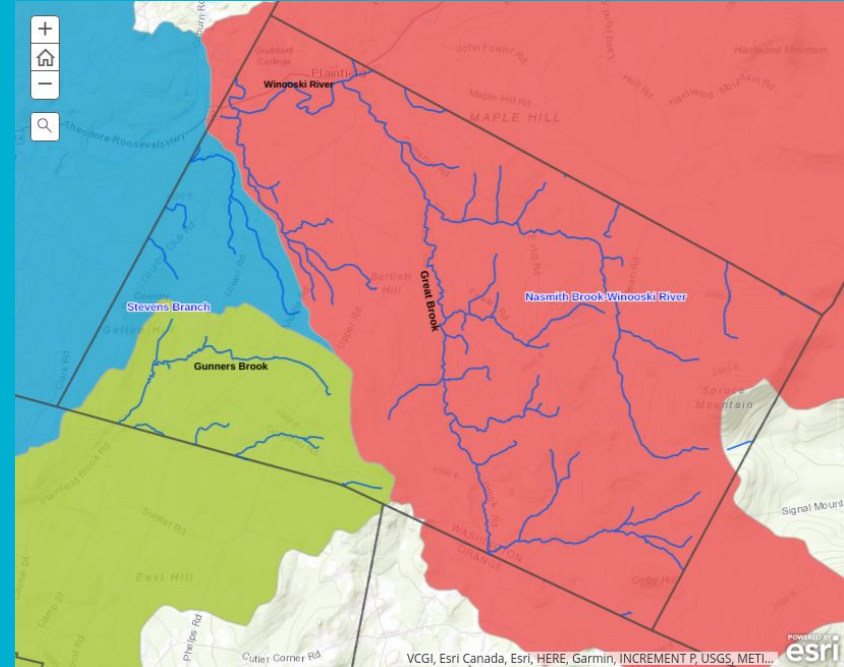
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"The major goal of our Conservation Commission is to foster **community involvement** and responsibility for our town's natural resources."

- Publications for education
- Maintaining village trees
- Oversee Conservation Fund
- Green up day
- Rain Garden Installation at Mill St. Park
- Tree & Shrub Sale

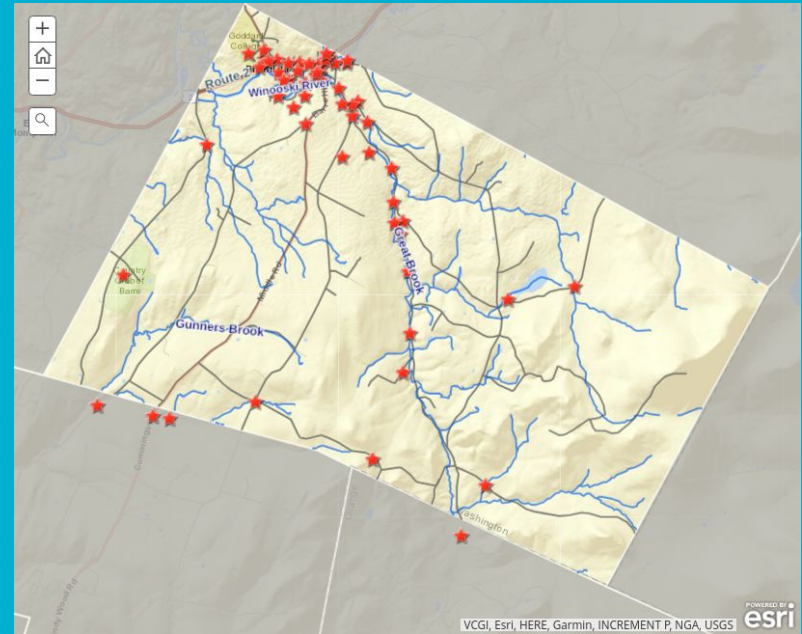
# The Waters of Plainfield

- Winooski Watershed
  - Gunners Brook
  - Great Brook
  - Stevens Branch
- "The Corridor Plan notes that the main stressors for Great Brook are channelization, bank armoring, floodplain encroachment, removal of woody riparian vegetation, and undersized stream crossings.
- Runoff from Rt. 2



[Screenshot from Plainfield Stormwater Master Plan](#)

# Waters of Plainfield Ctd.



[Screenshots from Plainfield Stormwater Master Plan](#)

# What does the term “clean water” mean?





# Pollutants of Concern

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- Soil/Sediment
- Nutrients
- Salts
- Heavy metals
- Trash
- e.coli
- Pharmaceuticals

These pollutants can negatively impact:

- Human health
- Aesthetics & economic value
- Wildlife habitat
- Recreation

# Where do pollutants come from?

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Example: Soil/sediment

## Landscape Factors

- Dirt roads get washed out
- Stream banks are loose and crumbly

## Human Habits

- Livestock with stream access
- Failing to maintain dirt driveways



# Scoping for Clean Water Projects

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- Set-up Stewardship Excursions
  - Volunteer stream walkers, paddlers, fisher people. Tell them what to look for and report back. They can take pictures or notes.
  - Do these streams have enough shade? Are you seeing a lot of trash? Are there a lot of crumbling stream banks? Is there a weird small culvert with oily stuff coming out? Are there lots of cows hanging out in the stream?
- Set-up Listening Campaigns
  - Public forums, social media, etc.
  - Ask your residents about what they are seeing or experiencing near their homes, or by their favorite swimming holes. Do they complain about ponding, flooding, erosion, driveway washouts, bad smells, poor fishing?

Local groups are the eyes and ears on the ground

# Issues and Solutions

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1. Riparian Buffers
2. Urban Runoff
3. Chloride
4. Residential Areas
5. Agriculture
6. Forested Trails

## Consider:

What pollutants of concern are present here?

What types of solutions may help decrease the pollutant loading?

How can we record data about this site that would be useful for project development?

# 1. Riparian Buffer Issues

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# Riparian Restoration in the Town Plan

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"An area in Plainfield identified as a significant need for enhanced riparian plantings is along the Great Brook. ... locations identified for riparian plantings are included in the Ecological Inventory (see Section 3.1). Retention of forests and woodlands around headwater streams can absorb stormwater and slow the velocity of floodwaters entering tributaries."

Task assigned to CC and Selectboard in the Draft Town Plan 2020

<https://www.plainfieldvt.us/uploads/8/1/0/6/81063668/2020townplandraft.pdf>

Some planting sites identified in Ecological Inventory

[http://www.plainfieldvt.us/uploads/8/1/0/6/81063668/plainfield\\_ecological\\_inventory\\_2016\\_report\\_final.pdf](http://www.plainfieldvt.us/uploads/8/1/0/6/81063668/plainfield_ecological_inventory_2016_report_final.pdf)

# How to Identify Bare Riparian Zones

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**Look for:** Stream banks with little or no trees or shrubs present

# Bare Riparian Zones

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# Bare Riparian Zones: On a Map

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# Riparian Solutions: Tree Planting

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Partners can help you find funding and select appropriate species to create a planting plan.

Take photos and GPS points at potential sites



## 2. Stormwater Volume Issues

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**Look for:** Clogged storm drains (could be trash, leaves or other debris), evidence of pollutants like oil in runoff, frequent flooding on certain streets, frequent flooding in low-spots on residential properties



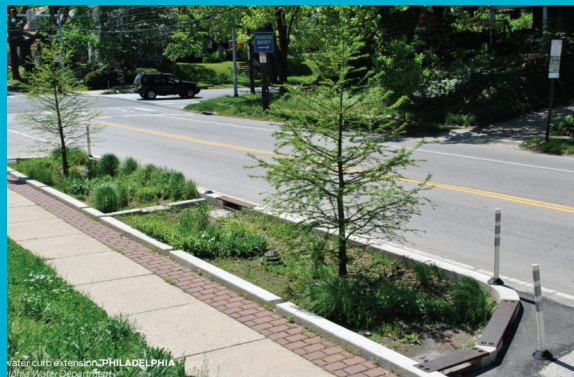
# Stormwater Volume Solutions

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- Install BMPs in public spaces
- Advocate for town policies regarding development to be looked at with a "clean water lens"



Rain Gardens



Curb "Bumpout"



Permeable pavement

# 3. Chloride (salt) Issues

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- Increasing trend in chloride from our water quality sampling data
- Aquatic organisms struggle to survive with high salinity.

**Look for:** Large snow piles near streams & over-salting on sidewalks or driveways



# Chloride Solutions

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- Encourage DPW & road crews to attend salt application trainings offered by UVM SeaGrant.
- Consider investing in better equipment like live-edge plows or brine spreaders
- Create an education campaign to inform residents or landscaping companies about the benefits of using less salt.



# Upcoming Chloride Webinars

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<https://www.uvm.edu/seagrants/programs/events/salt-earth-vermonts-hidden-pollution-problem>

## ZOOM A SCIENTIST: IMPACTS OF ROAD SALT IN THE ADIRONDACKS

Friday, December 4, 2020 - 3:30pm to 4:30pm - Online - Registration required

## RESEARCH WEBINAR SERIES: SALT OF THE EARTH: VERMONT'S HIDDEN POLLUTION PROBLEM

Wednesday, December 9, 2020 - 12:00pm to 1:00pm - Online -  
Registration required



# 4. Residential Issues

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## LAWNS



**Look for:** Over-manicured lawns - very short, just grass, stay perfectly green all year

## SEPTIC SYSTEMS



**Listen for:** Residents talking about ponding. Uncertainty about how to maintain a septic system.

## RUNOFF



**Listen for:** Complaints about flooded basements or lawns



# Residential Solutions

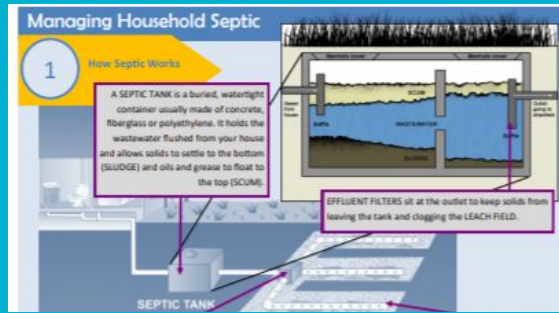
## LAWNS

Long Grass + Long Roots + Healthy Soil = Clean Water



Soil test before applying fertilizer, [raise the lawn mower blade to 3"](#) convert lawn to garden or orchard.

## SEPTIC SYSTEMS



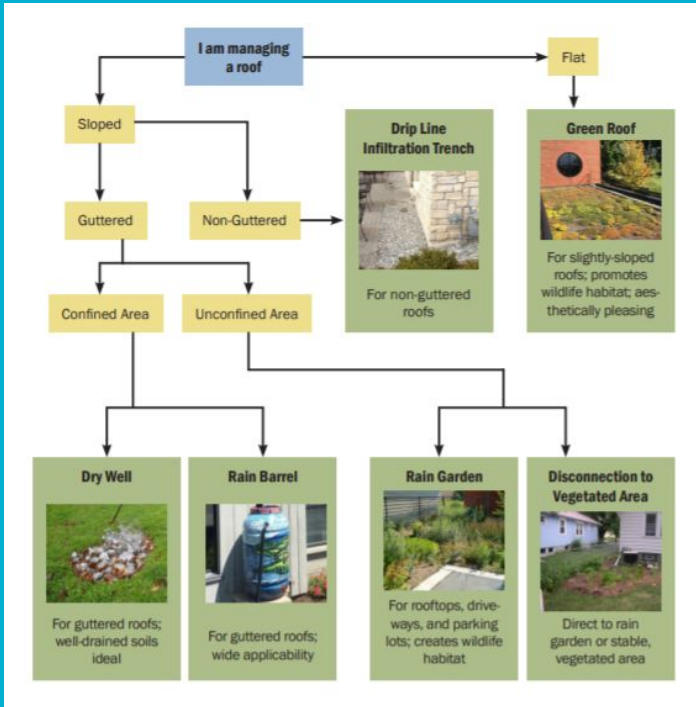
Share our Septic System Maintenance [handout](#), co-host a septic social education event with us.

## RUNOFF





Refer to the [VT Guide to Stormwater Management](#) booklet.

# Learn More



## Vermont GUIDE TO STORMWATER MANAGEMENT for Homeowners and Small Businesses

 VERMONT  
AGENCY OF NATURAL RESOURCES  
Department of Environmental Conservation

 Sea Grant  
Lake Champlain

# Storm Smart for Residential Solutions

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- Winooski NRCD, Friends of the Winooski River and Friends of the Mad River offer free "Storm Smart" consultations to residents of the **Winooski Watershed**
- We assess water quality problems and propose solutions that are specific to each property
- Sign up here:  
<http://winooskinrcd.org/stormsmart/>



# 5. Agriculture Issues

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**Look for:** Livestock in streams, pastures adjacent to streams with eroded banks and no visible fencing, fields with exposed soil



# Agriculture Solutions

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Exclusion fencing



Cover Cropping/No Till Systems

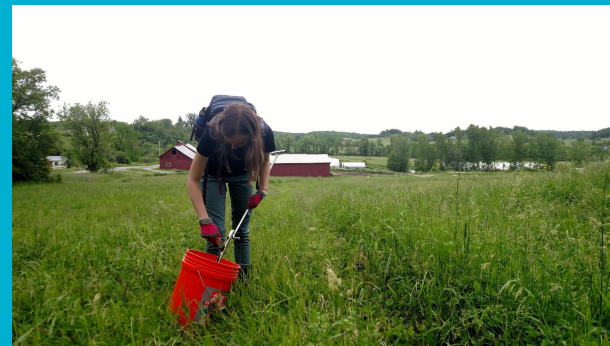
# Agriculture Solutions

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- Soil Sampling
- Nutrient Management Planning
- Free consultations offered by Winooski NRCDC (we are non-regulatory)

**Webinar Recording:**  
AVCC Summit presentation  
on Agriculture and Clean  
Water

[https://vtconservation.com/  
conservation\\_summit/](https://vtconservation.com/conservation_summit/)



# 6. Woodland Trails: Issues

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Sediment loading from  
deeply eroded trails

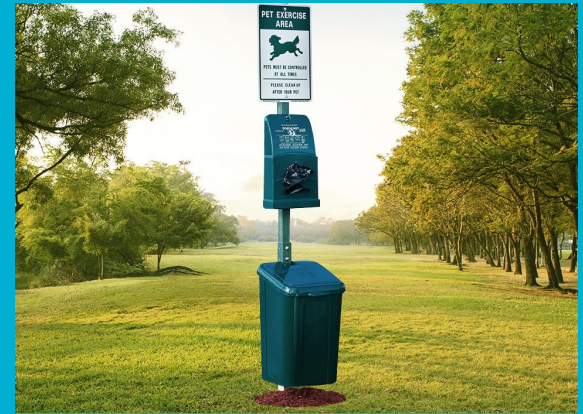


Herd path cutting around  
muddy sections of trail



Abandoned pet  
waste

# Woodland Trails: Solutions



Build boardwalks or water bars to move water away from trails.

Install pet waste pickup stations or educational signs.

Learn more about trail work in this great publication from the Student Conservation Association: [Lightly on the Land](#)



# Water Wise Woodlands

<https://winooskiriver.org/winooski-headwaters-community-partnership>

## WATER WISE WOODLANDS

Whether you have 5 or 500 acres of woodland, you can help prevent flood damage and produce one of Vermont's most important forest products—clean water! Healthy woodlands can absorb, slow down, and filter rain and storm water. Starting at the waters' source, woodland owners in the Winooski Headwaters can be good stewards of the landscape, ensuring a healthy environment.



### WHAT YOU CAN DO

Walk your woods with a forester or forest ecologist. Contact the County Forester or your local Conservation Commission, who can help you find a local expert.

Maintain a variety of tree and shrub species of various ages.

Maintain wide buffer areas of trees and shrubs along rivers, streams and around ponds and wetlands. Provide plenty of room for streams to meander through their floodplain.

Use best practices if building or improving roads and trails:

- Lay out roads and trails during wet conditions and build them in dry conditions.
- Limit roads and trails near streams, ponds, and wetlands. Avoid stream crossings, steep slopes, and wet areas.
- Angle waterbars away from streams, ponds, and wetlands.
- Site and design stream crossings with care.

Restrict vehicle access, especially when conditions are wet.

Keep your forested land forested!

### WHY

A professional forester can help you create a stewardship plan for your goals, such as wildlife habitat, recreation, firewood, timber, sugaring, and protecting streams.

Diverse woodlands provide better habitat for birds and other wildlife, plus can better withstand damage from storms, pests, and other threats.

Vegetated buffers slow down rushing floodwaters, help prevent erosion and increase bank stability. This prevents sediment and other pollutants from reaching waterways, plus keeps water temperature cool for healthy fish.

Good design and maintenance of roads, trails, and stream crossings prevents soil erosion that can pollute waterways. It also reduces road maintenance and repair costs.

- Check out the *Acceptable Management Practices (AMPs) for Maintaining Water Quality on Logging Jobs in Vermont* on the Forests, Parks, and Recreation Department web site: [fpr.vermont.gov/forest/vermonts\\_forests/amps](http://fpr.vermont.gov/forest/vermonts_forests/amps)

Heavy equipment, ATVs, and even mountain bikes can increase both soil erosion and soil compaction.

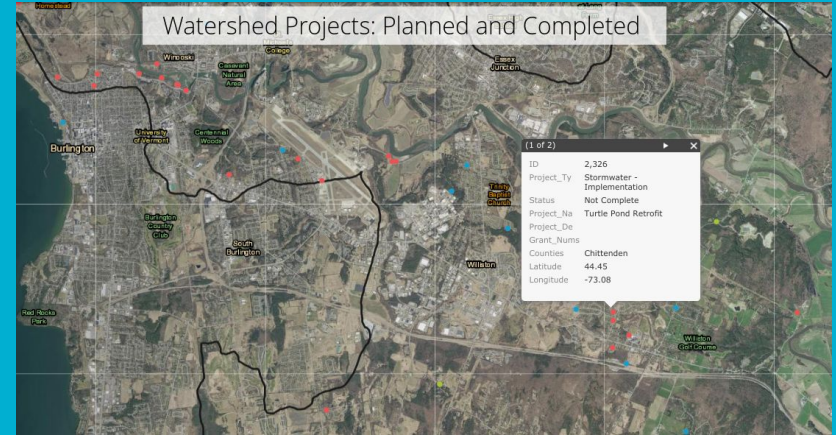
Intact blocks of forests and woodlands stabilize slopes and soils, absorb the rain to prevent flooding and erosion, provide shade to keep streams cool and help supports the forest-based economy.



WINOOSKI  
HEADWATERS  
COMMUNITY PARTNERSHIP

# Existing Plans

- Town Plans
- Stormwater Master Plans
- River Corridor Plans
- VT Clean Water Portal
- Basin Plans



VERMONT OFFICIAL STATE WEBSITE

AGENCY OF NATURAL RESOURCES

**CLEAN WATER PORTAL**

HOME PROJECT EXPLORER **WPD SEARCH** SCREENING TOOL FUNDING OPPORTUNITIES STP CALCULATOR ANR DEC FPR FWD

## Watershed Projects Database Search

Name	<input type="text"/>	Status	<input type="text" value="▼"/>	FED Step	<input type="text" value="▼"/>
Project Type	<input type="text" value="▼"/>	County	<input type="text" value="▼"/>	Grant Number	<input type="text"/>
Basin Plan	<input type="text" value="▼"/>	Town	<input type="text" value="▼"/>	Project ID	<input type="text"/>
Grade Type	<input type="text" value="▼"/>	Grade	<input type="text" value="▼"/>		

# I Found a Project ... Now What?

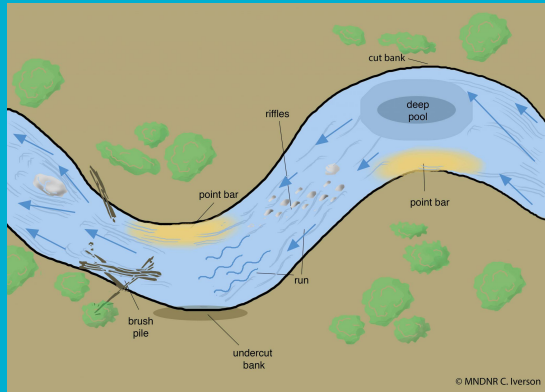
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- Winooski Natural Resources Conservation District  
<http://winooskinrcd.org/>
- Friends of the Winooski River  
<https://winooskiriver.org/>
- CVRPC  
<https://centralvtplanning.org/>



# Is “clean water” enough?

## Living in Harmony with Streams



Stream Geomorphology &  
River Corridor Easements



Habitat for fish, birds,  
turtles, amphibians



Climate-resilient  
watersheds



# Is “clean water” enough?

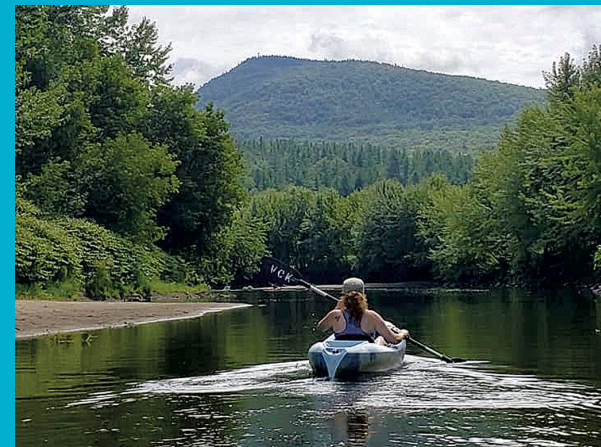
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Protecting and Restoring  
wetlands



Managing invasive species



Access for recreation

# Group Discussion

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1. What role can you see yourselves playing in addressing some of these issues?
2. Of the projects discussed on the "menu" on the next slide, what are the top one or two that you could see being a good fit for Bolton CC in the next year?



# Clean Water Project "Menu"

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1. Organize a team of volunteers to scope out sites for potential **tree planting** projects
2. Advocate for the installation of **green stormwater infrastructure** like rain gardens or bump-outs in town
3. Encourage your DWP, road crews and/or private contractors to attend existing trainings about best practices for **salt & fertilizer management**
4. Create a guidance document describing how to **review development applications with a "clean water lens"**
5. Educate local **farmers** about services from Winooski NRCDD and other organizations to help them become more "clean-water-friendly"
6. Complete **trail improvement projects** on town forests to install water bars & bridges where needed



# Questions/Thoughts/Next Steps

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