



Ahead of the Storm

Hinesburg Garage Floodplain Restoration

Beecher Hill Road, Hinesburg

Introduction

Ahead of the Storm (AOTS) grew out of a group of citizens from Charlotte, Hinesburg, and Shelburne who were concerned about the serious decline of Lake Champlain's health and water quality. Stormwater runoff from driveways, fields, parking areas, and lawns is a major factor in the deterioration of our water quality. Most impervious surfaces were created before regulations requiring water quality treatments were in place or fall below regulatory thresholds. Therefore, runoff is not managed to remove pollutants or slow flows and soils and phosphorus are mobilized and end up in Lake Champlain. AOTS helps communities change the way stormwater is managed on properties to reduce water pollution and be more prepared for extreme weather events and impacts of climate change. Fifteen municipal, educational, and private properties have been selected to become demonstration sites to showcase more optimal conservation practices in a variety of landscape settings. Monitoring and stewardship over time is crucial to successfully addressing water quality issues.

Why here?

The Hinesburg Town Garage recently completed the site redevelopment to upgrade facilities for both the Town Garage and Chittenden Solid Waste District (CSWD) Drop-Off Center. The property is adjacent to Beecher Hill Brook, which is in poor geomorphic condition. The stream has incised and disconnected from its historic floodplain due to channel straightening and subsequent down-cutting. The disconnected stream has high velocities trapped in the channel banks, causing erosion and transporting sediment downstream. Since the Town Garage operations were moved out of the river corridor, this is a great opportunity to reconnect the brook with the historic floodplain so it can naturally meander, drop sediment and nutrients, and provide increased aquatic organism habitat.



A CSWD drop off facility is on site



Active excavation in the gravel pit area



Adjacent Beecher Hill Brook



Take a tour of the AOTS locations at lewisecreek.org!

Design: how can we filter the water?

In order for the stream to function properly, a healthy and accessible floodplain is necessary to reduce flood risk, reduce erosion risk, and improve water quality. To do this, engineers at Milone & MacBroom designed a plan to slightly raise the stream bed by adding boulders and logs that will capture sediment and naturally raise the stream, providing it access to the right floodplain. The right floodplain will also have fill and berms removed to make it more accessible, and will be planted with native riparian trees. A berm on the left floodplain will be removed, so in extreme weather events the stream can access the left bank, reducing risk of flooding and allowing water to spread out and drop sediment. This project will restore 1.4 acres of functioning riparian floodplain area adjacent to Beecher Hill Brook.

Implementation

Implementation occurred in 2019 and 2020, thanks to a Clean Water project grant from VT DEC and the Town of Hinesburg for tree and live stake plantings. The garage and CSWD buildings and operations have been moved by the Town to make space for this project. A Town bond vote provided funding for removing the infrastructure from the river corridor, native plantings, and stormwater improvements (see AOTS sheet Hinesburg Garage Stormwater Retention).



Stones added to raise the level of the river.



Fill and berms were removed to make space for the brook to spread out onto its restored and planted floodplain.



Log weir in place to trap sediment and raise stream bed.

How much did it cost?

Funding for this project occurred in phases:

Concept Design \$4,200

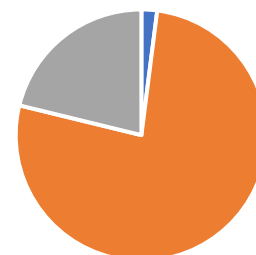
Survey, Model, Design, & Permitting \$58,400

Implementation \$425,000

Total \$487,600



Funding Sources



■ Lewis Creek Association ■ Grants
■ Town of Hinesburg