



Ahead of the Storm

Silver Street Rain Garden

Corner of Silver Street and Route 116, Hinesburg

Introduction

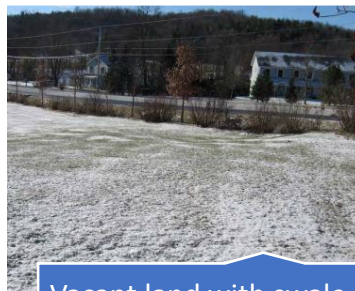
Ahead of the Storm (AOTS) grew out of a group of citizens from Charlotte, Hinesburg, and Shelburne who were concerned about the serious decline of Lake Champlain's health and water quality. Stormwater runoff from driveways, fields, parking areas, and lawns is a major factor in the deterioration of our 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?

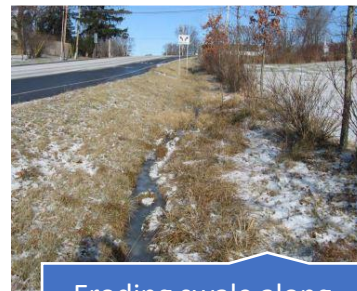
This site was identified as a potential stormwater treatment site as a result of an initial Town-wide hydrology study completed in 2011 and 2012. The site was considered a top priority for stormwater treatment because runoff from large amounts of impervious surface in the village center was discharging from three separate drainage systems to an eroding swale directly connected to the LaPlatte River. The entire project site was located on Town-owned land or the Town's right-of-way for Silver Street. This site is highly visible from the road and is directly adjacent to the Hinesburg Community School, making it an ideal location for education.



Storm drainage outfall looking east



Vacant land with swale along Silver Street



Eroding swale along Silver Street



Design: how can we filter the water?

To mitigate stormwater runoff entering the LaPlatte River, engineers designed two treatments. The first is a two-celled bio-retention area, or rain garden, to slow and store water, promote infiltration, and filter sediment and nutrients. The second is swale improvements including reshaping and installation of stone check dams to mitigate active erosion. The bio-retention system was designed to treat stormwater runoff from a 6.7-acre urbanized watershed containing about 2.6 acres of impervious surface equal to 39% of the contributing area. The bio-retention system provides approximately 13,000 cubic feet (0.3 acre-feet) of runoff storage in a two-tiered configuration and is primarily designed to treat 1 inch of rainfall from the contributing drainage area and safely convey larger events.

Implementation

Construction of the bio-retention system took place over four weeks in September and October 2014. The Town of Hinesburg Public Works Department provided in-kind services to rough-grade the treatment cells and reshape the existing roadside drainage swale. Distinctive Landscaping of Charlotte, Vermont were contracted to install the various outlets and erosion control measures, finish grade the project site, place and amend topsoil as needed, install the herbaceous plants and shrubs, recover the site, and provide year 1 maintenance.



Completed swale and lower treatment looking north



Completed upper bio-retention cell looking east



Completed lower bio-retention cell looking west

How much did it cost?

Funding for this project occurred in phases:

Concept Design \$3,000

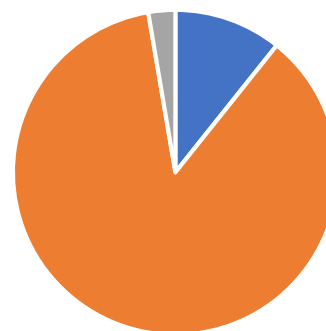
Final design and survey \$9,600

Implementation \$60,000

Total \$72,600



Funding Sources



■ Town In-Kind ■ Grants ■ Lewis Creek Association