



New Haven Drainage Project

Full Mitigation Best Practice Story

Addison County, Vermont



New Haven, VT - Heavy rainfall brought flooding and damage to New Haven's River Road and also washed unwanted sediments into the Lake Champlain watershed. The summer of 2006 brought six floods in a row. The town recognized the problem and searched for an affordable solution. Vermont's Better Backroads Program seemed like the perfect answer.

When the town of New Haven, VT applied for a Better Backroads Grant in the fall of 2005, New Haven Road Foreman Philip Busier viewed the area targeted for improvement as a potential time bomb. The roadside between the intersections of East Street and River Road and Sumner Road and River Road was prone to undermining and washouts with every large rainfall.

Each of the two streets connecting with River Road have an eight to ten-percent grade, and the runoff was channeled over River Road and directly into the New Haven River, which flows into Otter Creek and then into Lake Champlain.

Vermont's Better Backroads program works with towns, planning commissions, non-profits, and lake and watershed associations to correct road-related erosion problems to save towns' road maintenance money and to reduce the impact from road-related erosion has on water quality through financial and technical assistance. In his "Clean and Clear Action Plan," Vermont's Governor Douglas identified the Better Backroads program as one of the solutions to reducing phosphorus levels in Lake Champlain.

More than 80 percent of Vermont's roads are maintained by municipalities. The majority of these roads are gravel. Eroding road surfaces and ditches cost the municipalities money with each storm. Simple, cost-effective maintenance techniques can mitigate the hazards and save scarce town funds. Sediment accumulation is the greatest threat to water quality and fish habitat. Sediments carry phosphorus into surface waters, which results in algae blooms, excessive plant growth, and dissolved oxygen depletions.

With a \$4,000 grant from Better Backroads, Busier began by soliciting community support. In the planning process he marked the town right-of-ways along the streets and held a meeting with the neighbors.

During the meeting, they discussed the project and addressed concerns. The main issues causing the erosion and runoff were a lack of ditches for adequate drainage and overgrown vegetation. One of the neighbors' issues was the worry that the wild honeysuckle bushes on the roadside would be eliminated.

After the planning portion of the project, the next step taken was to provide traffic control and remove excess trees and other vegetation. Since other road workers were tied up in other projects, Busier single-handedly did the construction part of the project. He shaped the ditches to the desired profile to provide positive drainage. He also lined the ditch bottom with non-woven geo-fabric to ensure soil stabilization and covered it with six to eight inches of rip-rap.

The project was approximately 350 feet long by 40 feet at the widest point. Engineers consulted for the project deemed the culvert adequate for flow. Only a four-and-a-half foot section needed to be added to the existing culvert length.

Although the bank next to the ditch was cut back to improve line-of-site for drivers at these intersections, many wild honeysuckle bushes were left in place, at the request of the neighbors. This resulted in an improvement to the ditches while maintaining a pleasing aesthetic.

The physical part of the project took only 15 days in October 2006 with Busier as the only worker. Not having to contract out the work provided the necessary local funding match with in-kind labor and saved the town thousands of dollars. The April and July 2007 Vermont flooding events missed the project area.

The project will undoubtedly be tested before long. "Now I won't have to worry [when a big rain hits the project] because I have a dried out road base," exclaimed Busier. He'll be free to attend to other road issues in New Haven.

The New Haven Drainage Project was featured and praised in the June 2007 issue of "Vermont Local Roads News." The Vermont Local Roads program is sponsored by the Vermont Agency of Transportation and the Federal Highway Administration. They provide information, advice and referrals to the cities, towns and villages of Vermont. Busier said that the "lessons learned through Vermont Local Roads workshops helped in the completion," providing lasting mitigation.

Photos provided by "Vermont Local Roads News."

Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region I**

State: **Vermont**

County: **Addison County**

Key Activity/Project Information

Sector: **Public**

Hazard Type: **Flooding; Mudslide/Landslide**

Activity/Project Type: **Flood-proofing; Flood Control; Vegetation Management**

Activity/Project Start Date: **10/2006**

Activity/Project End Date: **10/2006**

Funding Source: **Non-profit organization (NPO)**

Funding Recipient: **Local Government**

Activity/Project Economic Analysis

Cost: **\$4,000.00 (Actual)**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **No**

Value Tested By Disaster? **No**

Repetitive Loss Property? **Yes**

Reference URLs

Reference URL 1: <http://www.anr.state.vt.us/cleanandclear/bbroads.htm>

Reference URL 2: <http://www.floodsmart.gov>

Main Points

- Heavy rainfall brought flooding and damage to New Haven's River Road and also washed unwanted sediments into the Lake Champlain watershed.
- When the town of New Haven, VT applied for a Better Backroads Grant in the fall of 2005.
- With a \$4,000 grant from Better Backroads, community support was solicited. In the planning process he marked the town right-of-ways along the streets and held a meeting with the neighbors.
- Ditches were shaped to the desired profile to provide positive drainage, lined with non-woven geo-fabric to ensure soil stabilization, and covered with six to eight inches of rip-rap.
- Although the bank next to the ditch was cut back to improve line-of-site for drivers at these intersections, many wild honeysuckle bushes were left in place, at the request of the neighbors.
- Area has not yet been tested, but predicted to be tested before long.



The drainage ditch before work was done.



The drainage ditch after work was done.