



## Roadway Drainage Modifications

### Full Mitigation Best Practice Story

#### *Belknap County, New Hampshire*

**Alton, NH** - The floods of 1990, January 1996 and October 1996 have repeatedly eroded the road and ditches in the southern section of the Town of Alton in Belknap County.

The Mitigation Project replaced six undersized culverts and installed riprap along the ditch line. Increased culvert sizes improved the discharge rate, preventing washouts.

The Town of Alton considers this project a success. June 1998 rains flooded and eroded many other roads in Alton. However, the June rains did not impact the project area, minimizing traffic disruption and municipal costs.

At least \$15,000 in damages were avoided in June 1998. Some lessons learned include the need to use pre-cast concrete headers instead of masonry headers. Pre-cast concrete better survives the frost heaves. Also, larger rocks and gravel in ditches are better left exposed. The loam sometimes picks up and clogs the drains and culverts.



#### Activity/Project Location

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

FEMA Region: **Region I**

State: **New Hampshire**

County: **Belknap County**

City/Community: **Alton**

#### Key Activity/Project Information

Sector: **Public**

Hazard Type: **Severe Storm; Flooding**

Activity/Project Type: **Flood Control; Land Use/Planning**

Activity/Project Start Date: **04/1995**

Activity/Project End Date: **05/1995**

Funding Source: **Local Sources**

Funding Recipient: **Local Government**

Funding Recipient Name: **Town of Alton**

### Activity/Project Economic Analysis

Cost: **\$48,060.00 (Actual)**

### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **Unknown**

Value Tested By Disaster? **Yes**

Tested By Federal Disaster #: **No Federal Disaster specified**

Year First Tested: **1998**

Repetitive Loss Property? **Unknown**

### Reference URLs

Reference URL 1: <http://www.floodsmart.gov/>

Reference URL 2: <http://www.nhoem.state.nh.us/>

### Main Points

- Replaced six undersized culverts and installed riprap along the ditch line.
- Increased culvert sizes improved the discharge rate, preventing washouts.
- Also, larger rocks and gravel in ditches are better left exposed. The loam sometimes picks up and clogs the drains and culverts.