



Standing Up to Ol' Man Winter in North Dakota

Full Mitigation Best Practice Story

State-wide, North Dakota

The State of North Dakota - Residents in North Dakota expect to see snow every winter. A person cannot live in one of the coldest states and not expect to endure severe wintry conditions year after year.



What residents are wary about is snow combined with wind. That sort of combination can shorten visibility to almost nothing and clog, or even close, roads and major highways.

Residents have found a remedy, or perhaps more accurately, a natural shield for the wind and snow. It is trees ... rows and rows of trees.

These rows of trees, aptly named "living snow fences," are strategically placed and designed to slow down, catch or channel snow. While it may seem difficult to believe a row of trees and bushes can make a difference in a blowing, howling snowstorm, they have proven to be effective in improving visibility and reducing the amount of snow that would otherwise be piled onto roadways, bridges and airports.

A combination of trees and shrubs are planted in rows, typically five deep, to create varying layers in density and height. Shrubs are usually used for the two outside rows, short trees for the two interior rows and large trees for the center row. The combination creates a camel-hump, or mound shape, that provides protection from top to bottom. As snow blows across the snow fence, it acts as a filter. The fence catches and drops the majority of the snow in place before it gets to a road.

Not all snow fences are created equal. They vary in size and species, depending on what they are designed to protect. To protect transportation routes, they generally stand about 200 feet from the side of the road.

Compared to a slatted or picket fence, a snow fence can capture up to 12 times more snow and cost 90% less to install and maintain. Once they are grown, they require little care and can last for decades.

As of 2000, 222 projects were planted in 32 of the State's 53 counties at a cost of about \$936,000. Nearly \$400,000 of that amount came from the Hazard Mitigation Grant Program. About \$112,000 has come from the State Department of Transportation and U.S. Department of Agriculture grant programs.

Some benefits to the snow fences can be seen in three years, but to be effective in severe storms, the fences require 10-20 years of growth.

Activity/Project Location

Geographical Area: **State-wide**

FEMA Region: **Region VIII**

State: **North Dakota**

Key Activity/Project Information

Sector: **Public/Private Partnership**
Hazard Type: **Winter Storm**
Activity/Project Type: **Acquisition/Buyouts**
Activity/Project Start Date: **03/1997**
Activity/Project End Date: **Ongoing**
Funding Source: **Hazard Mitigation Grant Program (HMGP)**
Application/Project Number: **9999**

Activity/Project Economic Analysis

Cost: **\$936,000.00 (Estimated)**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **Yes**
Federal Disaster #: **1157 , 01/12/1997**
Federal Disaster Year: **1997**
Value Tested By Disaster? **Unknown**
Repetitive Loss Property? **Unknown**

Reference URLs

Reference URL 1: <http://www.fema.gov/government/grant/hmgp/index.shtm>
Reference URL 2: <http://www.nd.gov/>

Main Points

- Residents have found a remedy, or perhaps more accurately, a natural shield for the wind and snow. It is trees ... rows and rows of trees.
- A combination of trees and shrubs are planted in rows, typically five deep, to create varying layers in density and height.
- Compared to a slatted or picket fence, a snow fence can capture up to 12 times more snow and cost 90% less to install and maintain. Once they are grown, they require little care and can last for decades.