



## Electric Utility - Community Partnerships Reduce Damage From Trees

### Full Mitigation Best Practice Story

#### *State-wide, Massachusetts*

**New England Region** - Since 1990, New England has experienced more than 30 storms including one hurricane, four nor'easters, one downburst and three major winter storms. The total cost of these storms to electric utilities in the region is estimated to be more than \$100 million.



Nationwide, trees are the leading cause of electrical outages. Tree damage from storms has a devastating effect on electric utility infrastructure and is a mutual hazard to public roadways. Public safety is threatened when critical facilities, such as fire and police departments, hospitals and nursing homes, water pumping stations and sewerage treatment facilities, have extended power outages.

In 1995, thirty-two communities in Massachusetts and Rhode Island formed Tree Stewardship partnerships with Eastern Utilities to reduce tree damage from storms. A risk assessment was conducted to determine the characteristics of trees that pose an above average threat to arterial power lines and roadways. In addition, analysis was conducted to evaluate system performance of the electric utility infrastructure.

The tree population assessment revealed that less than 20 percent of trees caused more than 70 percent of damage in storms. These trees have characteristics that are indicators of structural weakness. The system performance analysis indicated that 25 percent of the electrical circuits were causing 65 percent of outages in storms.

Since the Tree Stewardship partnerships began, damage from trees to arterial power lines was reduced by 35 percent per storm. Storm costs were reduced by 30 percent per storm, and these results were achieved with no incremental increase in budgets. Over \$1 million in storm costs have been avoided.

#### Activity/Project Location

Geographical Area: **State-wide**

FEMA Region: **Region I**

State: **Massachusetts**

## Key Activity/Project Information

Sector: **Public**  
Hazard Type: **Hurricane/Tropical Storm**  
Activity/Project Type: **Land Use/Planning; Utility Protective Measures; Vegetation Management**  
Activity/Project Start Date: **01/1995**  
Activity/Project End Date: **Ongoing**  
Funding Source: **Local Sources**  
Funding Recipient: **Local Government**  
Funding Recipient Name: **Individual communities**

## Activity/Project Economic Analysis

Cost: **\$0.00 (Estimated)**

## 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: **1995**  
Repetitive Loss Property? **Unknown**

## Reference URLs

Reference URL 1: <http://www.fema.gov/hazard/thunderstorm/index.shtm>  
Reference URL 2: <http://www.mass.gov/>

## Main Points

- Tree damage from storms has a devastating effect on electric utility infrastructure and is a mutual hazard to public roadways
- A risk assessment was conducted to determine the characteristics of trees that pose an above average threat to arterial power lines and roadways.
- The tree population assessment revealed that less than 20 percent of trees caused more than 70 percent of damage in storms.