

NEBRASKA FOREST SERVICE

UNIVERSITY OF
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Alma & Orleans After the Storm: A Tale of Two Towns

By Chip Murrow, Nebraska Forest Service community forester assistant

Historically, Nebraska's climate is tough on trees. From high winds and tornados to fires, drought, snow and ice, Nebraska's trees take a beating. In some cases, such as with tornados, there is little that can prepare trees. However, there is a belief that proper tree care and maintenance will improve the chances of trees weathering snow and ice storms.

In December 2006 and January 2007, nature delivered two ice storms to central Nebraska, just 12 days apart. The tremendous ice buildup left by these powerful storms caused major damage to utility lines and trees across 57 of Nebraska's 93 counties. Combined, these storms left more than 30,000 customers without power, downed 2,900 miles of power line and destroyed 8,300 poles and other structures. Total damages to utility infrastructure alone exceeded \$200 million.

A comparison of the towns

The second storm caused extensive damage in the communities of Alma and Orleans, both located in Harlan County in south central Nebraska. The National Weather Service recorded 2-2 1/2 inches of ice accumulation from this storm. As a result, both Alma and Orleans experienced tree damage, but the extent of damage in each community was different. This difference can be contributed to the care and maintenance of the trees prior to this storm.

Alma has a population of 1,215 people, roughly three times the population of Orleans (425). The cost to clean up the



Photo: Tony Anderson, UNL Extension.

community of Alma was \$65,000, while the cost to clean up the community of Orleans \$19,800—roughly one-third of Alma's clean-up costs.

The towns of Alma and Orleans cover 560 and 408 acres respectively. In Alma there are 14.76 street miles, while there are 11.82 street miles in Orleans. Alma's city park takes up 3 1/2 city blocks, contains 20 different tree species and has a total of 167 trees; Orleans' city park is 2 city blocks,

contains 13 different tree species and has a total of 119 trees.

Because Alma is roughly three times larger than Orleans, this difference seems to make sense. However, when you take a closer look, the difference becomes all the more striking.

What was the damage?

The Nebraska Emergency Management Agency (NEMA) worked with both communities to assess damage and determine the amount of disaster aid each community could receive. NEMA recorded the number of trees on public property (streets and parks) with hazard limbs and the amount of wood debris (in cubic yards) in each community.

NEMA declared that Alma had 113 public trees with hazardous limbs and 5,304 cubic yards of wood debris. The debris from

ALMA & ORLEANS BY THE NUMBERS

	ALMA	ORLEANS
STREET MILES	14.76	11.82
CITY PARK BLOCKS	3.5	2
# SPECIES IN PARKS	20	13
# TREES IN PARKS	167	119
CLEAN-UP COST/STREET MILE	\$4,403	\$1,675
# PUBLIC TREES WITH HAZARDS	113	74
CUBIC YARDS OF WOOD DEBRIS	5,304	2,489

Ice, in some places up to 2 1/2 inches thick, left a trail of destruction across 57 of Nebraska's 93 counties (above). In some communities, such as Alma, damage to tree resources was severe. In Alma's city park (right) damage ranged from broken limbs to total tree failure. Photo: Nebraska Forest Service.



Photo: Nebraska Forest Service.

The majority of damage to trees in the Orleans city park was to smaller branches and tree crowns.

the city park alone was enough to fill 23 dump-truck loads.

In Orleans, NEMA declared there were 74 public trees with hazardous limbs and 2,489 cubic yards of wood debris—30 percent fewer hazardous limbs and less than half the cubic wood debris of Alma. It only took four pickup truck loads to clear debris from Orleans' city park.

Not only was there less damage in Orleans than in Alma, but the damage in Orleans was also less severe. The damage in Orleans' city park was mostly to smaller branches, tree crowns and some lower branches that could not hold the ice load.

Why the difference?

One of the most noticeable differences between Alma and Orleans is the care and maintenance of public trees. An assessment of each community's park by Rachel Allison, Nebraska Forest Service southwest district forester, and Chip Murrow, Nebraska Forest Service community forester assistant a week after the storm, brought some problems to light.

Much of the damage to trees in Alma's city park was caused by areas of included bark where branches and co-dominant leaders were weakly attached to the trees. This problem could have been reduced if trees had been properly cared for and maintained.

When trees are young, co-dominant leaders and branches with tight angles—both of

which will produce areas of included bark—should be removed. Orleans' city budget includes funds for pruning trees in public areas. This was evident in the minimal damage caused by limbs or co-dominant leaders ripping from the trees in the city park.

Another difference was the planting efforts of each community. Younger trees tend to withstand heavy snow and ice loads better than mature trees. Because Orleans' city budget also includes money for tree planting, its city park contains 25 to 30 trees that have been planted in the last 5 years.

Alternatively, the park in Alma contains mostly older trees, with only one or two that have been planted in the last five years. By alternating between trimming and planting every other year, Orleans has produced a healthy, viable community tree resource.

What can a community do?

The living example provided by these two communities is not unique. In fact, communities across the state face the same management situation as both Alma and Orleans. Most communities plant and remove trees. However, tight budgets often mean care and maintenance are considered only when a tree or trees are creating a problem or after a major storm.

Not only do proper care and maintenance of your community's trees provide many benefits (reduced storm water runoff, increased property value, longer lasting pavement and sidewalk), but they also increase the longevity of trees. Unlike with removing or planting trees, the benefits of pruning are less likely to be noticed. However, pruning is just as important to the health of a community's tree resources and should be planned for in every community's budget.

The establishment of a proactive structural pruning program, in combination with tree planting, comes with an initial cost. This cost should be viewed as an investment in the overall long-term health and sustainability of a community's tree resource. Tree



Photo: Nebraska Forest Service.



Photo: Nebraska Forest Service.

While little evidence remains in the Orleans city park from 2007's severe ice storm (top), some trees in the Alma city park still bear scars (above).

boards must create a plan for their community's tree resources that includes planting, maintaining and removing trees.

By creating a plan for managing and maintaining its tree resources, a community can promote a healthy community forest that is diverse in both species composition and age. A plan should contain a long-term goal for the community resources along with multiple short-term goals. This will help keep the tree board on task and provide the community with visible results and tangible benefits.

Realize, however, that sudden weather events can disrupt your plan, so be flexible enough to change your course. Remember the Nebraska Forest Service can provide assistance with developing plans, giving pruning talks and demonstrations and securing grant money. Together, we can help our tree resources weather the storms.

For more information about proper tree care, visit www.nfs.unl.edu.