Study Finds Transportation Policy Regarding Trees Outdated

Do policies about trees in urban streetscapes reflect the best available science? According to Urban Trees and Traffic Safety: Considering US Roadside Policy and Crash Data, a new study from scientists at the University of Washington’s College of Forest Resources, the answer appears to be “no.”

“In my opinion, the transportation policy in regard to trees is based on outdated information,” said Kathleen Wolf, a social sciences researcher at the University of Washington’s College of Forest Resources and lead author of the study. “Studies [regarding the safety concerns of roadside trees] were conducted some decades ago in rural settings. But, according to the last census, nearly 80 percent of the US population now lives in urbanized areas.”

To remedy this situation, Wolf and study coauthor Nicholas Bratton have, in Wolf’s words, “taken the first steps” toward reforming those policies by looking at the statistics regarding the presence of trees and crash rates in urban areas and comparing them to those from rural areas. As their findings suggest, however, when it comes to roadside crashes involving trees, there seem to be significant differences between urban and rural areas.

“Few studies have distinguished urban from rural conditions when assessing tree crash rates and outcomes,” the researchers write. “Patterns of statistical association in this study lead to these general conclusions: (1) Roadside crashes are more frequent in rural areas than in urban areas, (2) collisions with fixed objects are more frequent in rural areas, and (3) crashes occurring in rural areas are generally more harmful than those in urban areas.”

To conduct their study, the researchers accessed a National Highway Traffic Safety Administration database, which contains information from a sample of all the traffic accidents that occur in the United States on an annual basis, and extracted the variables that were related to safety and roadside vegetation for the year 2002.

Then, after making sure that 2002 was a typical year in regard to crash statistics, Wolf and Bratton performed descriptive and comparative analyses of the data to determine the patterns of association concerning trees and roadside crashes and whether these patterns differed between urban and rural areas. In addition, the researchers conducted a predictive analysis to determine which factors had a significant influence on the injury outcome of traffic accidents involving trees and by how much.

When their analyses were complete, the researchers found that, although trees are certainly involved in fatal and serious car accidents, the number of those accidents is rather small, less than 1% of all US auto accidents.

“We don’t deny that trees are a factor. Trees, like utility poles and guardrails, are fixed objects, and in situations where drivers leave the road they can run into them,” said Wolf. “But of the approximately 233 billion vehicle trips taken in the United States in 2002, trees are involved in 1.9 percent of all crashes. That’s a very small percentage of vehicle accidents involving trees—I think it’s important to keep that in perspective.”

Moreover, Wolf noted that most of the crashes involving trees occur in rural areas.

“Most of the tree crashes are occurring in rural areas and at high speeds,” she said. “The average crash speed involving trees is 52 miles per hour (mph), whereas the average speed in all crashes is 34 mph.”

This is especially significant, Wolf added, in that most of the miles traveled in the United States are in urban areas.

“Each year, about 62 percent of the miles traveled are in urban areas, but most of the crashes with trees (61 percent) are occurring in rural areas,” she said. “These results suggest that fewer people are hitting trees in cities.”

Given these findings, Wolf said that existing transportation policies should be revised to incorporate new data regarding both traffic safety and roadside vegetation management.
“One recommendation we have is that it’s important to consider driver behavior in the equation—let’s not just talk about trees and cars,” she said. “In terms of policy, let’s look at how we can make safer roadsides—how can we continue to plant trees along roadsides and continue to reap all the benefits that trees provide—rather than continue with the current policy in many communities that calls for their removal or prevents trees from being planted along roadsides.”

Foresters can aid this process by getting involved in the transportation policymaking process.

“When foresters are given statistics or statements about why trees don’t belong on roadsides, they should call for data that more accurately reflect driving conditions and crash risk in urban areas,” she said. “We currently don’t have that.”

In addition to better data, Wolf said that greater collaboration is needed, as well.

“There also needs to be better collaboration between urban foresters and the transportation industry to find better solutions for tree planting along our streets,” she said. “I don’t think the transportation industry is aware of the advances in roadside vegetation management, and they haven’t yet acknowledged that there are professional and scientific groups that have a lot to contribute to these discussions.”

Support for this study was provided by the national Urban and Community Forestry Advisory Council and the USDA Forest Service.

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