

U.S. Forest Service Pacific Southwest Research Station Center For Urban Forest Research

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Indianapolis Trees Provide \$5.7 Million in Benefits

INDIANAPOLIS – U.S. Forest Service scientists with the Center for Urban Forest Research have completed a study that found planting and nurturing Indianapolis street trees brought a 500 percent return in benefits from storm water reduction, energy conservation, cleaner air and increased property values.

The researchers evaluated more than 117,000 trees the Indianapolis Parks and Recreation Forestry Section manages and found every \$1 spent brought a \$6.09 return. Their study is entitled “City of Indianapolis, Indiana, Municipal Forest Resource Analysis” and can be downloaded for free from the Center For Urban Forest Research website at:

http://www.fs.fed.us/psw/programs/cufr/products/psw_cufr738_IND_MFRA.pdf

“Indianapolis’ urban forest is uniquely diverse, with only one of over 170 species representing slightly more than 10 percent of the total tree population,” said Greg McPherson, Center for Urban Forest Research director and one of the study’s authors. “This diversity is important because it puts the forest at less risk of catastrophic losses from disease or pests.”

Scientists involved in the study found Indianapolis trees annually intercept 318.9 million gallons of rainfall, which they estimate to be worth \$1.98 million or \$17 per tree per year.

The trees also annually cut electricity use by more than 6,447 megawatt hours, worth \$432,000. They reduce natural gas use by more than 150,000 therms, bringing annual benefits worth \$165,000 or \$5 per tree.

Each tree annually removes 1.5 pounds of air pollutants, valued at \$2 per tree or \$212,000, according to the scientists. They also estimated the trees increased property values and provided less tangible benefits worth \$2.9 million or on average \$24 per tree.

The total annual benefit of Indianapolis trees vary by species and size. For example, the city’s 16,371 silver maples produce the highest level of benefit at \$60 per tree or 17 percent of the total citywide benefit. But, they are also the most expensive tree to manage because many are near the end of their productive lives and require removal or intensive care.

Scientists analyzed 2005 expenditures and found Indianapolis spends about \$940,000 in a typical year planting new trees and maintaining existing ones. The biggest single cost and more than half the annual budget was for tree removal at \$491,000, followed by pruning at \$122,000. Overall, the annual return for the planting, care and management of the 117,525 trees in the study reached nearly \$5.7 million.

“Indianapolis citizens receive substantial environmental and aesthetic benefits from these trees, but the urban forest is at a critical juncture,” McPherson said. “The city has many mature trees that need to be removed. In fact, tree mortality rates now outpace tree planting.”

McPherson said the city spends comparatively little on tree care at \$8 per tree. This is less than half the 1997 mean value of \$19 per tree reported for 256 California cities. It is also less than a quarter of the \$25 per tree average for the 19 U.S. cities McPherson and his Center for Urban Forest Research colleagues previously studied.

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