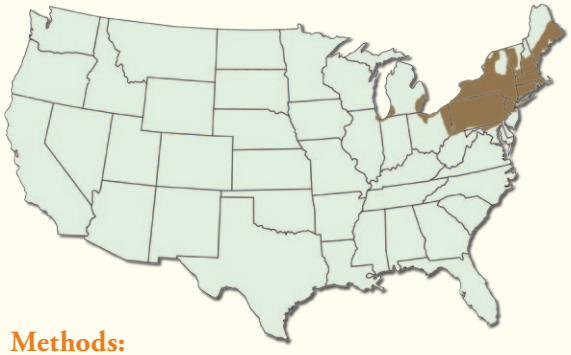
Pacific Southwest Research Station scientists show that…

It pays to care for trees

The borough of Queens, New York, is the reference city for the i-Tree Streets program's Northeast climate region. Base data were collected there during the summer of 2005. To learn how to use this information to calculate costs and benefits for any community in the Northeast (shown in brown on the map), refer to the Northeast Community Tree Guide at http://www.fs.fed.us/psw/programs/uesd/uep/tree_guides.php. To learn more about i-Tree Streets, visit http://www.itreetools.org.



Methods:

- Benefits and costs were quantified for typical large, medium, and small deciduous trees and a conifer
- The analysis assumed that trees were planted in a residential yard, public park, or street side with a 66-percent survival rate over 40 years
- Tree care costs were based on results from a survey of municipal and commercial arborists
- Benefits were calculated by using tree growth curves and numerical models that consider regional climate, building characteristics, air-pollutant concentrations, and prices

Benefits analyzed:

- Energy savings (electricity and natural gas)
- Air pollution reduction (carbon dioxide, nitrogen dioxide, sulfur dioxide, ozone, airborne particles, and volatile organic compounds)
- Runoff reduction (rainfall interception)
- Property values

Costs analyzed:

- Tree purchase and planting
- Pruning
- Irrigation
- Pest and disease prevention and control
- Removal and disposal
- Sidewalk repair
- Leaf litter cleanup
- Liability, legal aspects, and administration

Project partners included the New York City Department of Parks and Recreation; Lamont-Doherty Earth Observatory Tree Ring Laboratory; New York State Department of Environmental Conservation; USDA Forest Service State and Private Forestry, Urban and Community Forestry.

Resources:

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Neely, D., ed. 1998. Valuation of landscape trees, shrubs, and other plants. 7th ed. Urbana, IL: International Society of Arboriculture. 50 p.

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Wolf, K.L. 1999. Nature and commerce: human ecology in business districts. In: Kollin, C., ed. Building cities of green: proceedings of the 1999 national urban forest conference. Washington, DC: American Forests: 56–59.

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TREES *Pay Us Back*

In the Northeast Region

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$5,870 The Value of a Tree in the Northeast

A large tree in the Northeast will provide $5,870 in environmental and other benefits over its lifetime. That's nearly a 440-percent return on investment!

Properly cared for, trees are valuable and growing assets worth nearly four and a half times the investment.

Trees produce benefits for us when we plant and nurture them in our urban environments. The Urban Ecosystems and Social Dynamics Program at the USDA Forest Service Pacific Southwest Research Station is assessing the ways that trees pay us back and their value to us.

Healthy trees mean:

Healthy people

Each year, 100 large, mature street trees

- Remove 24 tons of carbon dioxide (CO_2)
- Remove 261 pounds of other air pollutants
- Catch about 190,900 gallons of rainwater

Healthy communities

Tree-filled neighborhoods

- Report lower levels of domestic violence
- Are safer and more sociable
- Reduce stress of body and mind
- Decrease need for medication, and speed recovery times

Homeowner savings

One well-placed large tree

- Provides average savings of $39 in home heating costs each year

Better business

In tree-lined commercial districts, shoppers report

- More frequent shopping
- Longer shopping trips
- Willingness to pay more for parking
- Willingness to spend 12 percent more for goods

NYC Dept. of Parks and Recreation

Higher property values

Trees increase the resale value of houses

- Each large front yard tree adds 1 percent to the sales price of a house
- Large specimen trees can add 10 percent to property value

It pays to care for trees

Landscape trees provide benefits that far exceed the costs of planting and care over their lifetime.

Environmental and aesthetic benefits, such as energy savings, stormwater runoff reduction, cleaner air, and higher property values, are consistently many times greater than tree care costs.

The greatest benefits are higher property values and energy savings from heating and cooling.

One large public tree, 40 years after planting, averaged:

Annual benefits	$147
Annual costs	$34
Annual net benefit	$113

Over 40 years, 100 large public trees total:

Benefits	$587,360
Costs	$134,280
40-year net benefit	$453,080