

Executive Summary

Understanding an urban forest's structure, function and value can promote management decisions that will improve human health and environmental quality. An assessment of the vegetative structure, function, and value of the Arlington urban forest was conducted during 2009 based on satellite imagery, field data, and computer modeling using i-Tree Eco, developed by the USDA Forest Service, Northern Research Station. Results from this model are used to advance the understanding of the urban forest resource, improve urban forest policies, planning and management, provide data for potential inclusion of trees within environmental regulations, and determine how trees affect the environmental quality and consequently enhance human health and the quality of life for residents of the City of Arlington.

Forest structure is the measure of tree species composition, density, health, leaf area, biomass, species diversity, and other various physical attributes of the vegetation. Arlington's urban forest is summarized in this report, providing an accurate representation of the forest resources as well as a detailed examination of where trees are located by species. Forest functions, which are determined by forest structure, include a wide range of environmental and ecosystem services such as air pollution removal and carbon storage. This study quantifies air pollution removal, carbon storage, and energy savings. Forest Values are the quantified economic values of the forest functions mentioned above – air pollution removal, carbon storage, energy savings – plus the replacement value of the forest. Other studies have measured values such as health benefits, property value increases, and floodwater retention.

Key Findings:

Number Of Trees: 2,965,000

Tree Cover: 22.4%

Most Common Species: Cedar elm, Sugarberry, Post oak

Percentage of Trees Less Than 6" diameter: 61.5%

Pollution Removal: 568 tons/year (\$2.94 million/year)

Carbon Storage: 413,000 tons (\$8.54 million)

Carbon Sequestration: 22,100 tons/year (\$457 thousand/year)

Building Energy Savins: \$2.8 million / year

Avoided Carbon Emissions: \$135 thousand / year

Structural Values: \$2.75 billion

Ton: short ton (U.S) (2,000 lbs)

Carbon storage: the amount of carbon bound up in the above-ground and below-ground parts of woody vegetation.

Carbon sequestration: the removal of carbon dioxide from the air by plants through photosynthesis

Structural Value: value based on the physical resource itself (e.g., the cost of having to replace a tree with a similar tree)