

# Park Tree Inventory

## Lafayette, Indiana

The City of Lafayette's park tree inventory was completed in April 2015. All trees and stumps were inventoried in 19 of the city's parks: Arlington Park, Armstrong Park, Centennial Park, Columbian Park, CAT Park, Darby Park, Hanna Park, Hedgewood Park, Highland Triangle, Kennedy Park, Linnwood Park, Lyboubt Sports Park, McAllister Recreation Center, McCaw Park, Munger Park, Murdock Park, North 9<sup>th</sup> Street Trailhead Park, Shamrock Dog Park, and SIA South Tip Park.

### Lafayette Inventory Analysis

Davey Resource Group, a division of The Davey Tree Expert Company, completed a geographic information systems-based inventory. The following statistical summary reflects the key findings of the tree population in terms of genus and species composition, general condition, maintenance recommendations, and risk ratings:

- The total approximate landscape value of Lafayette's inventoried park tree population is \$2.5 million.
- 2,968 trees and 32 stumps were inventoried.
- The inventory found 101 species representing 53 genera.
- The genus *Quercus* (oak) comprised 18% of the tree population, followed by *Acer* (maple), 14%; *Fraxinus* (ash), 9%; *Picea* (spruce), 9%; *Amelanchier* (serviceberry), 6%; and *Malus* (crabapple), 6%.
- There were 2 trees assessed to be in Very Good condition (less than 1%), 1,065 in Good condition (36%), 1,753 in Fair condition (59%), 135 in Poor condition (5%), and 1 in Critical condition (less than 1%). There were 12 Dead trees (less than 1%).
- The number and type of maintenance tasks recommended are 2,525 routine Tree Cleans (84%), 358 Young Tree Training prunes (12%), 85 Removals (3%), and 32 Stump Removals (1%). Of the routine Tree Cleans, 739 need to be pruned for clearance reasons, mostly for mowers (29%).
- There were 1,290 Low Risk trees (44%), 1,578 Moderate Risk trees (53%), and 100 High Risk trees (3%).
- Emerald ash borer (*Agilus planipennis*) was confirmed to be present in 7 of the 19 parks. 20% of ashes were found to be infested.



The tree inventory is an important planning tool that will help the Parks Department establish a systematic program for tree care and determine budget, staff, and equipment needs. The outcomes of the inventory are important. Implementation of the maintenance recommendations will enhance public safety and increase the benefits trees provide to the community.

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### **Lafayette's Tree Benefit Analysis**

Some of the environmental benefits trees provide include: shading and acting as windbreaks, which decreases residential energy consumption; slowing and reducing the amount of stormwater that reaches storm drains, rivers, and lakes; reducing noise levels; cleansing atmospheric pollutants; producing oxygen and absorbing carbon dioxide; stabilizing the soil by controlling wind and water erosion; and providing a habitat for wildlife. Additionally, the aesthetic benefits of properly managed and well-placed trees are numerous. Attractive areas increase real estate values and appeal to commercial businesses. The shade and beauty trees provide enhances quality of life in Lafayette.

Trees also provide abundant economic benefits. In order to identify the dollar value provided and returned to the community, the city's park tree inventory information was formatted for use in the i-Tree Streets (Version 5.1.5) benefit assessment tool. Developed by the U.S. Forest Service, i-Tree Streets is a free software application used to analyze an inventoried tree population's structure and environmental and economic functional benefits and values. Quantified benefits include energy conservation, air quality improvement, stormwater interception, carbon dioxide removal, and property value increases.

Lafayette's park tree population (2,968 trees) provides annual benefits to the community in the following areas:

- Interception of 2.8 million gallons of stormwater is valued at \$74,532 per year, for an average benefit of \$25.11 per tree.
- Reduction of energy and natural gas use from shading and climate effects equals 312 megawatt-hours and 43,754 therms, respectively, and is valued at \$40,404 per year, for an average of \$13.61 per tree.
- Increased property value and aesthetics is valued at \$35,269 per year, for an average of \$11.88 per tree.
- Net air quality improvement from the removal and avoidance of 3,619 pounds of air pollutants is valued at \$9,917 per year, for an average of \$3.34 per tree.
- Reduction of atmospheric carbon dioxide by a net of 1 million pounds per year is valued at \$7,606, for an average of \$2.56 per tree.
- The total annual benefit received from the city's inventoried park trees is \$167,728, for an average of \$56.51 per tree.
- The net annual benefit returned from the city's inventoried park trees is \$97,534, for an average of \$32.86 per tree. Net benefit is total benefit minus costs for management of park trees.
- For every \$1 the city spends on managing park trees, the return benefit is \$2.39.

When properly maintained, public trees return economic, environmental, and social benefits to the community far in excess of the time and money invested for planting, pruning, protection, and removal. The shade and beauty trees provide enhances quality of life in Lafayette.