

# First Downs for Trees (2012 planting)



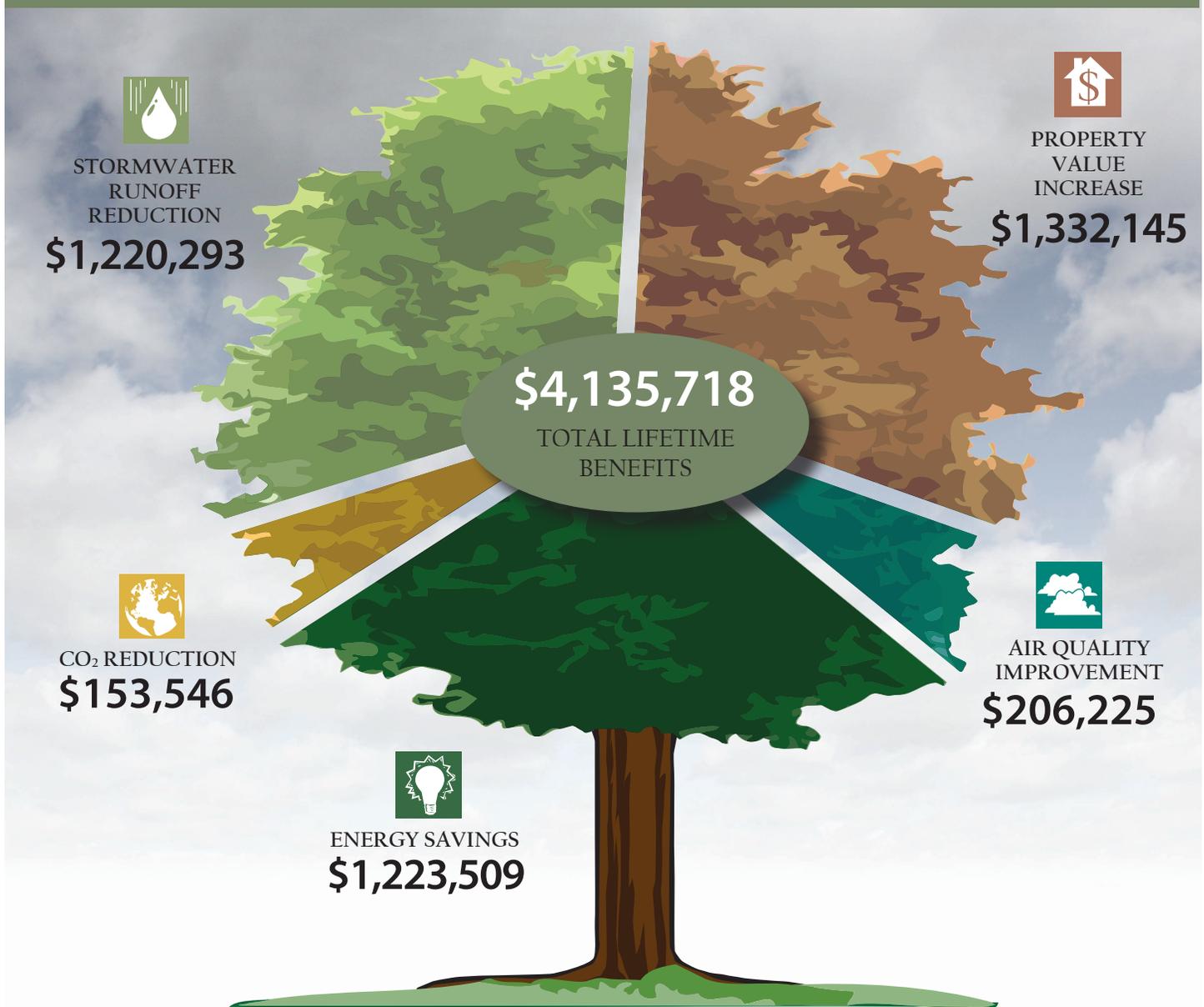
## Tree Benefits

FDFT trees provide millions of dollars of environmental, economic and aesthetic benefits to the community. Over their lifetime, the tree benefits exceed the costs of planting and care, representing a 300 percent return on investment. Tree benefits increase over time highlighting the importance of not only planting trees, but of providing ongoing maintenance and protection. These benefits are a reminder of the worthwhile investment in our community forestry program.

### Trees:

- Reduce stormwater runoff
- Lower summer air temperatures
- Reduce air pollution
- Reduce heating and cooling costs
- Reduce atmospheric carbon dioxide (CO<sub>2</sub>)
- Enhance property values
- Provide wildlife habitat
- Improve health and wellbeing
- Improve learning and concentration
- Provide aesthetic benefits

Over their lifetime FDFT 2012 trees will provide<sup>1</sup>...





## Trees Reduce Stormwater Runoff and Improve Water Quality

Trees reduce peak stormwater runoff and associated pollutants entering local water bodies. Trees reduce stormwater volumes by intercepting a portion of rainfall, which evaporates and never reaches the ground. Tree roots also increase rainfall infiltration and storage in the soil. And tree canopies reduce soil erosion by diminishing the impact of raindrops on barren surfaces.

**FDFT intercept 45,026,133 gallons of water over their lifetime for a savings of \$1,220,293.**



## Trees Reduce Atmospheric Carbon Dioxide

Trees reduce atmospheric carbon by capturing and storing CO<sub>2</sub> as they grow. By reducing demand for heating and cooling, trees indirectly reduce CO<sub>2</sub> by avoiding power plant emissions associated with energy production.

**FDFT capture 5,819 tons of atmospheric CO<sub>2</sub> per year. Lifetime savings including indirect costs are \$153,546. Street trees also store approximately 68,883 tons of atmospheric CO<sub>2</sub> for a total savings of \$1,033,241.**



## Trees Improve Air Quality

Trees improve air quality by trapping particulates, absorbing gaseous pollutants, and releasing oxygen. By cooling urban heat islands and shading parked cars, trees indirectly reduce ozone levels. The Environmental Protection Agency recognizes tree planting as an ozone reduction measure in state implementation plans.

**FDFT remove 4,063 lbs. of particulate matter, 8,239 lbs. of ozone, 368 lbs. of sulfur dioxide and 1,394 lbs. of nitrogen oxides annually. Total lifetime savings including indirect cost are \$206,225.**



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## Trees Save Energy

Trees reduce the demand for energy to heat and cool buildings by providing shade, lowering summertime temperatures, and reducing windspeeds. Secondary benefits are reduced water consumption and pollutants emissions by local power plants.

**FDFT save approximately 5,697 MWH of electricity and 807,233 Therms of natural gas over their lifetime for a savings of \$1,223,509.**



## Trees Improve Property Values and Beautify Our Communities

Trees are the single strongest positive influence on scenic quality in our community! They increase the attractiveness of retail business areas. Studies found shoppers are willing to pay up to 11% more for goods and services in a well-landscaped business district. Trees increase property values. People will pay 3-7% more for properties with many trees. Trees foster safer and more sociable neighborhoods. Views of trees ease mental fatigue and stress, help concentration, reduce sickness, and provide settings for recreation and relaxation. Trees also help reduce noise, provide a refuge for wildlife, and help connect residents with their natural environment.

**FDFT increase property values over their lifetime by \$1,332,145.**

<sup>1</sup> Analysis was conducted using iTree Streets. iTree Streets is a street tree management and analysis tool for urban forest managers that uses tree inventory data to quantify the dollar value of annual environmental and aesthetic benefits. The iTree Suite is a free state-of-the-art, peer-reviewed software suite from the USDA Forest Service. [www.itreetool.org](http://www.itreetool.org).

iTree Streets reports annual benefits. In order to project benefits over a lifetime, a theoretical database was used for analysis. Database assumed a predictable annual growth rate over 40 years for each tree species with no mortality. Analysis also assumes all trees are planted along streets.

Tree graphic concept courtesy of City of New York Department of Parks & Recreation.