

## **NC Community Tree Advocacy Network**

### **Urban Forest Research**

#### **DEVELOPMENT & PROPERTY VALUE: Developers, builders, property owners, municipalities and homeowners can recover extra costs by conserving and maintaining mature trees.**

- While development costs can be greater for lots where trees are conserved (5.5% in one study), builders can recover extra costs through higher sales prices and faster sales for houses on wooded lots.
- The presence of larger trees in yards and as street trees can add from 3% to 15% to home values throughout neighborhoods.
- Homes that are adjacent to naturalistic parks, open spaces, or greenways are valued at 10-30% higher than comparable properties.
- A study found 7% higher rental rates for commercial offices having high quality landscapes.
- Although the benefits of urban forestry can vary considerably by community and tree species, they are almost always higher than the costs. A five-city study found that, on a per-tree basis, the cities accrued benefits ranging from about \$1.50–\$3.00 for every dollar invested. These cities spent roughly \$15–\$65 annually per tree, with net annual benefits ranging from approximately \$30–\$90 per tree.
- Tree shade can slow deterioration of street pavement, decreasing the amount of maintenance needed.
- Properly placed trees can reduce air conditioning by 30% and heating by 20-50%, which saves an average household \$100-\$250 in energy costs annually.

#### **RETAIL ECONOMY: Trees increase local retail business, which increases the local economy.**

- Research proves shoppers will travel farther, stay longer, and spend 9-12% more in retail areas with high quality trees.

#### **STORM MITIGATION: Investing in urban trees as a stormwater retention solution benefits public health and municipal budgets.**

- Urban trees absorb and filter stormwater which allows municipal systems to better handle runoff; reducing flooding, infrastructure damage, and groundwater pollution.
- By conserving and maintaining mature urban trees, communities can invest less in expensive sewer infrastructure and have cleaner water running into the rivers and lakes that provide community drinking water.

*\*All research sources listed on page 4.*

**CRIME: Trees reduce crime, which reduces the cost and resources needed to respond to crime.**

- There is less graffiti, vandalism, and littering in outdoor spaces with natural landscapes than in comparable plant-less spaces.
- Property crimes are less frequent in residential neighborhoods when there are trees in right-of-ways and more abundant vegetation around houses.
- Public housing buildings with greater amounts of vegetation (trees, plants, and turf) had 52% fewer total crimes, 48% fewer property crimes, and 56% fewer violent crimes than buildings with low amounts of vegetation.
- In a study of community policing innovations, there was a 20% overall decrease in calls to police from the parts of town that received location-specific treatments. Cleaning up vacant lots was one of the most effective treatment strategies.

**HEALTHCARE: Trees help people save thousands of dollars in healthcare costs.**

- Ever more studies confirm the relationship between neighborhood open space and physical activity. A study calculated a \$2,200 reduction in average annual healthcare charges per adult for those who had been sedentary, but became active.
- Studies found that the creation or improvement of a park or open space was shown to lead to a 25.6% increase in nearby residents exercising three or more days a week and a 48.4% increase in frequency of physical activity. Also, park access increases aerobic capacity by 5.1%, reduces body fat, improves flexibility, and increases perceived energy.
- Aerobic exercise in a natural environment may lead to greater gains in lowering blood pressure, stress, and depression compared with exercise in non-green urban settings.
- Insurance companies are recognizing the value of connecting customers to the benefits of active lifestyles and are starting to incentivize outdoor activities.

**EDUCATION: Trees help children learn, connect, and recover.**

- Contact with nature helps children to develop cognitive, emotional, and behavioral connections to their nearby social and biophysical environments.
- Symptoms of ADD in children can be reduced through activity in green settings, thus “green time” can act as an effective supplement to traditional medicinal and behavioral treatments.
- Views from cafeteria, classroom, and dormitory windows with greater quantities of trees and shrubs were associated with more positive standardized test scores, graduation rates, percentages of students planning to attend a four-year college, and fewer occurrences of criminal behavior.

### **MENTAL HEALTH: Trees help people improve mental health.**

- Individuals place positive symbolic value on trees and natural landscapes after a catastrophe; familiar, green, restorative places can ease trauma and discomfort.
- Even short doses of outdoor exercise in natural settings are shown to improve mental health.
- Office workers with a view of trees report significantly less stress and more satisfaction.
- It is possible that impulsive crimes committed out of frustration or rage can be reduced through the beneficial effects of natural settings on mental fatigue.
- Studies have connected park use to decreased stress levels and improved moods. In one study participants showed fewer stress symptoms the longer they stayed in the park.

### **EQUITY: Expanding natural facilities to more ethnic groups, races, and socio-economic classes improves equality of access, and addresses health inequalities and segregation.**

- An analysis of 37 metropolitan areas shows that areas formerly graded D by the federal Home Owners' Loan Corporation during the 1930s, which were mostly inhabited by racial and ethnic minorities, have on average ~23% tree canopy cover today. Areas formerly graded A, characterized by U.S.-born white populations living in newer housing stock, have nearly twice as much tree canopy (~43%).
- Planting trees in redlined communities helps reverse discriminatory policies and creates fresh air, clean drinking water, and cooler neighborhoods; which in turn lowers utility costs, crime, and heat-related illnesses.

### **SOCIAL CONNECTION: The presence of trees in residential outdoor spaces helps promote ties among neighbors, and increases community interest and involvement.**

## Urban Forest Research Sources

***These are just some of the decade-spanning research reports on the benefits of the urban forest.***

### **Development & Property Value:**

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### **Education:**

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- Han, K.T. 2009. Influence of Limitedly Visible Leafy Indoor Plants on the Psychology, Behavior, and Health of Students at a Junior High School in Taiwan. *Environment and Behavior* 41, 5:658–692.
- Matsuoka, R.H. 2010. Student Performance and High School Landscapes: Examining the Links. *Landscape and Urban Planning* 97, 4:273-282.

### **Mental Health:**

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- Ottosson, J., and P. Grahn. 2008. The Role of Natural Settings in Crisis Rehabilitation: How Does the Level of Crisis Influence the Response to Experiences of Nature with Regard to Measures of Rehabilitation? *Landscape Research* 33, 1:51-70.
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