



Benefits of Urban Trees

Greenhouse Effect

Heat from the earth is trapped in the atmosphere due to high levels of carbon dioxide (CO₂) and other heat trapping gases that prohibit it from releasing into space; creating a phenomenon known as the "greenhouse effect".

Trees remove (sequester) CO₂ from the atmosphere during photosynthesis to form carbohydrates that are used in plant structure and function and return oxygen back to the atmosphere.

Approximately one half of the greenhouse effect is believed to be caused by excess CO₂. Trees act as a carbon sink by removing carbon from the atmosphere and storing it as cellulose in their trunk, branches, leaves, and roots while releasing oxygen back into the air.

Trees in urban areas also reduce the greenhouse effect by shading buildings, reducing air conditioner needs by up to 30%, reducing fossil fuels burned which is a major contributor to excess CO₂ emissions and the greenhouse effect.

This combination of CO₂ removal from the atmosphere, carbon storage, and cooling effect makes trees one of the most efficient tools in fighting the greenhouse effect.

A single mature tree can absorb carbon dioxide at a rate of 48 lbs. per year and releases enough oxygen back into the atmosphere to support two people.



Pollution elimination benefits of urban trees

Trees also remove other air pollutants by absorbing them through the stomates in the leaf surfaces.

It's estimated an urban street with street trees has a 60% reduction in street level particulates (a type of air pollution from the burning of fuel) compared to an urban street with little or no street trees.

For example, one sugar maple tree with a 12" trunk diameter along a roadway in each growing season removes estimated 60 mg cadmium, 140 mg chromium, 820 mg nickel, and 5200 mg lead from the environment.



Urban trees can extend the life of paved surfaces and can increase traffic safety

The asphalt paving on streets contains stone aggregates in an oil binder. Without shade trees; the oil heats up quicker and volatilizes; leaving the aggregate unprotected.

Vehicles then loosen the aggregate and loose aggregate contributes to grinding down the pavement.

Because the paving oil doesn't dry out as fast on streets with shade trees, the life of the street pavement is extended.

Trees also may improve traffic safety. Trees give the impression of making a street feel narrower and closely spaced trees give the impression of a faster vehicle speed; slowing traffic down.

Street trees also serve as a buffer between moving vehicles and pedestrians.



Urban trees can improve economic sustainability and can increase real estate values

The number and condition of a community's trees is usually the first impression a community projects to its visitors. A community's urban trees are an extension of the community's pride and community spirit.

Studies have shown that urban trees enhance community economic stability by attracting businesses and tourists. People linger and shop longer along tree lined streets. Apartments and offices in areas with urban trees rent more quickly and have higher occupancy rates. Businesses located in areas with urban trees find their workers may be more productive and absenteeism may be reduced.

Property values in areas with significant urban trees may be 15% higher compared to similar areas without urban trees.

A 1976 study in Manchester Connecticut found that street trees added 6% to the price of comparable homes. A more recent study in Rochester New York found that street trees added 18% to the average sales price of a residence compared to a similar residence without street trees.



Urban trees have sociological benefits

A University of Chicago study researched how residents of a Chicago housing project fared in their daily lives based on the amount of contact they had with urban trees, and made the following conclusions; urban trees have the potential to reduce social service budgets, decrease police calls for domestic violence, strengthen urban communities, and decrease the incidence of child abuse.

Residents that live near significant urban trees typically have better relations and stronger ties to their neighbors. Researchers have found fewer reports of physical violence in homes that had urban trees outside the buildings.

Studies have shown that hospital patients with a view of trees outside their windows recover faster and with fewer complications than those without such views.

A Texas A&M study indicated that urban trees help people relax and improves a sense of well being.

A U.S. Department of Energy study reported that urban trees block noise pollution by acting as a buffer and absorb up to 50% of urban noise.



References

- Dr. Kim D. Coder, "Identified Benefits of Community Trees and Forests", University of Georgia, October, 1996
- International Society of Arboriculture Tree Care Bulletin; Benefits of Trees
- David J. Nowak, "Urban Trees and Air Quality", November, 1995
- David J. Nowak, "Benefits of Community Trees", Brooklyn Trees, USDA Forest Service General Technical Report
- Michigan State University Extension, Urban Forestry, "Benefits of Urban Trees"
- American Forests, "The Case for Greener Cities", Autumn, 1999
- Tina prow, "The Power of Trees", Human environmental Research Laboratory at the University of Illinois
- National Arbor Day Foundation pamphlet #90980005
- American Forestry Association Tree Facts: Growing Greener Cities, 1992
- Colorado Trees; Benefits of Trees in Urban Areas
- American Forests, "How Trees Fight Climate Change", 1999