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Regional Voices

*The Regional Voices column offers leaders from throughout the North Central Texas region an opportunity to share their views on environment and development-related topics of interest to North Texans. To be considered as a future Regional Voices author, please e-mail **InSight@nctcog.org** and use the subject line "Regional Voices".*

Why We Should Care About Trees

By Steve Houser, Dallas Urban Forest Advisory Committee Chair

Trees clean our air, water, and soil. They also add greatly to our health, sense of well being, quality of life, and our economic future in many ways. As a result, the presence of trees and healthy ecosystems provide a strong foundation for a sustainable urban infrastructure in the future. The very essence of nature provides sound guidance for reaching urban sustainability. To quote Mr. Albert Einstein "look deep into nature and you will understand everything better".

We all breathe the same air plus use the same water and soil to survive, therefore, it is important to understand the interconnectedness of all things as well as the important role that trees and healthy urban ecosystems play in planning for our future. Education is critical in stimulating the public conscience which will ultimately drive environmental causes. We must learn to think globally, plan regionally, and act locally to reach sustainability. We all benefit greatly from a shared regional vision of social, economic, and regional goals for sustainability.

We have a moral obligation to leave the world in a better condition than we found it. Tree planting and care offers an opportunity for each person or entity to mitigate (or offset) their personal environmental "footprint" due to the many benefits they offer. Some of these benefits include: improved air and water quality; reduced energy use, urban temperatures, storm water runoff, and flooding; as well as increased property values and other economic benefits.

Current computer modeling software provides sound research data that quantify urban forest structure, function, and value based on data collected in the field. The most common is the **i-Tree** program which calculates the basic value and quantifiable benefits offered by our urban forest. One of the programs within **i-Tree** was recently used in assessing the street trees in Irving (STRATUM or Street Tree Resource Analysis Tool for Urban Forest Managers) and another is currently being used in Arlington (UFORE or Urban Forest Effects Model).

Improved Air Quality

Rising levels of carbon, specifically carbon dioxide (CO2), are accelerating global warming and our urban forest offers the opportunity to mitigate the problem by sequestering (or storing) carbon as well as ozone, nitrogen oxides, and sulfuric oxides plus filtering particulate pollution. Trees are long-term carbon storehouses, or carbon "sinks", however, they also release the carbon as they die and decompose or when they are burned.

As an urban forest declines in health or significant populations are lost over time, they must constantly be replaced to increase the net carbon storage capacity. Failure to conserve trees or replant what is lost can cause an increase in the release of carbon by an urban forest. Conservation is important because larger healthy trees (over 30 inches) sequester 90 times more carbon than smaller trees (under 4 inches) and store 1,000 times more carbon. Also, poor air quality results in increased health care cost to treat the associated problems.

It is important to note that trees also emit biogenic volatile organic compounds (BVOCs), such as isoprene, benzene, and monoterpenes, which react with nitrogen oxide to form ozone. Research exists on the subject but it is based on trees in other parts of the country. As a result, further study of how local tree species affect air quality in our region is required before we plant a large number of trees that may not be ideal.

Reduced Energy Use

Planting deciduous trees on the west, south, and east exposure of homes and buildings (or strategic shading) can save up to 30 percent on our energy bills. If we can shade our air conditioners, we can save an additional 10 percent on our energy bills. By planting dense evergreen trees on the north side of a building or home to slow the cold winter winds, additional energy savings can be gained. By reducing energy use, we decrease emissions from regional power generation plants and their negative effect on our air quality.

Reduced Urban Temperatures

A 1995 geothermal study of the Dallas area by Dr. Ken Morgan with Texas Christian University, found that various areas could be 10 to 12 degrees hotter than Oak Cliff due to the extensive tree canopy cover and minimal grey infrastructure. The grey infrastructure amounts to large amounts of brick, glass, and concrete that hold heat well into the night which increases urban temperatures—called the urban heat island effect (UHI).

By strategically placing trees in UHI problem areas such as parking lots and vast expanses of grey infrastructure, we reduce urban temperatures as well as evaporative emissions from the fuel tanks and fuel systems of our vehicles. Heated fuel tanks and fuel systems release hydrocarbons and 16 percent of all hydrocarbon emissions are created by evaporative emissions. By reducing urban temperatures, air quality improves because the formation of ozone is dependent on higher temperatures.

Reduced Storm Water Runoff and Flooding

Large amounts of grey infrastructure greatly increase the amount of storm water runoff which can lead to flooding. Trees reduce storm water runoff by allowing the rain to slowly filter through the foliage which

decreases the potential for flooding. Strategic shading of grey infrastructure not only reduces flood potential and the UHI effect but it can also extend the life of asphalt by 60 percent. This offers a very large return on our investment in tree planting and care plus reduces the impact that asphalt has on the environment.

Improved Water Quality

Bioremediation or phytoremediation is the use of trees, plants, and biological agents to remove or neutralize contaminants in polluted water or soil. Leaves, twigs, and limbs that lay on the ground stimulate biological activity which also helps to remove pollution. Removing the organic layer on the top of the soil reduces its capacity to grow healthy plants and trees as well as its ability to remove various types of pollution.

Increased Economic Benefit

Trees offer many tangible economic benefits such as increased property values and a better quality of life which will attract corporations and the general public to an area. The result is an increased tax base due to the establishment of a more desirable area to live and conduct business. The more green and sustainable an area becomes in the future, the more successful it will become in economic terms.

Sprawl and "**business as usual**" will no longer be desirable because sustainable infill developments will attract the public. As far as a return on investment, for every dollar spent on tree planting and care, we receive up to five dollars in benefits according to research. Studies across the nation show that residential home prices can be up to 20 percent higher due to the presence of trees. Also, a home will sell faster with healthy trees as opposed to others with few or no trees.

Other Benefits

There are a great number of other benefits that are well researched such as the reduction in stress associated with urban living, reduced crime rates, reduced noise pollution, and increased habitat as well as food for wildlife. Other facts can be found on the following sites: **Urban Tree Cover and Air Quality Planning**, **Center for Urban Forest Research** , **TreeLink**, **Alliance for Community Trees**, **ecoSmart**, **Dallas Urban Forest Advisory Committee**.

Ask not what trees can do for you but rather…what *you* can do for trees!!!!!

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