



Growing Environmental Champions: Takoma Park's Trees

When it comes to tackling the negative impacts of climate change, Takoma Park's trees – especially our mature urban forest of oaks, hickories, maples, tulip poplars, pines, and other large native trees – are the unheralded champions in our midst. *Perhaps no other response to global warming offers such a wide and enduring range of benefits to our community at such a reasonable cost as does protecting and expanding our urban tree canopy.* Our urban forest also provides a host of other critical ecological and social benefits. Consider how trees contribute:

Trees Slow Climate Change by:

- Removing carbon dioxide from the air.
- Storing carbon in leaves, roots, wood, soil.
- Reducing energy use for heating & cooling by winter wind blocking and summer shade.
- Lowering greenhouse gas emissions in transportation & leisure by providing shade for walking, biking, and outdoor recreation.

Trees Protect Us from Full Impacts of Climate Change by:

- Reducing urban heat-island effect through shade and transpiring water through leaves, as heat waves intensify and proliferate.

- Relieving air pollution, as climate change exacerbates ozone and other pollutants.
- Improving stormwater management, thereby protecting clean water supplies as floods become more frequent and severe.
- Lessening soil erosion and helping soils retain water, as storms & droughts worsen.
- Protecting biodiversity by providing shelter and food for wildlife as climate change threatens many species' survival.
- Increasing local food security by producing nuts and fruits for home consumption with no carbon footprint, as more extreme weather disrupts food supplies.

Estimated Value of a Few Climate-Change Benefits From Takoma Park's Trees**		
ECOSYSTEM SERVICE	ANNUAL RATE OF BENEFIT	ANNUAL VALUE
Air Pollution Removal	28,660 pounds/year	\$350,000
Carbon Sequestration	500 tons/year	\$180,000
Carbon Storage	16,000 tons/year	\$1,400,000
Lowered Energy Consumption	800,000 kilowatt hours/year	\$640,000
ANNUAL TOTAL		\$2,570,000.

More Examples of How Trees Mitigate Climate Change Hazards – Trees:

- Are associated with improved cardiovascular health, regardless of age or wealth, promising to help counter climate change's negative impact on cardiovascular health, through poorer air quality.
- Boost psychological wellbeing and emotional resilience as increasing heat stress, weather emergencies, and climate-related social disruption will be threatening higher rates of anxiety, depression, and social conflict.
- Offer a beautiful, lasting, zero-waste option: Large trees' benefits endure for many decades and sometimes centuries. When trees do die, they are fully biodegradable. There's no hazardous waste – in fact, there's no waste at all. A variety of creatures transform it all to food, fuel, shelter, and soil.

Other Social and Environmental Benefits of Trees: All of the examples above are supported by research. Studies also indicate that trees in urban neighborhoods and/or commercial districts:

- Increase property values.
- Are generally associated with lower crime rates.
- In commercial areas, encourage longer, more frequent visits & more purchases from local shops.
- Reduce light pollution, which enables sleep, protects healthy melatonin levels, and allows open windows to replace air conditioning when nighttime temperatures are moderate.
- Reduce noise pollution, as trees buffer homes and offices from sounds of traffic, construction, etc.
- Improve soils: Allowing leaves and twigs to decompose on site or composting them for mulch makes the land more fertile and improves soil structure.
- Help connect children to nature.
- Promote the cognitive, emotional, physical, and social health of children, as well as adults' health!

Maryland is already experiencing a warming trend, according to the EPA. Our state also has the fourth longest tidal coastline of all states, so is at particular risk from rising sea levels. The Washington, DC area had the sixth most intense heat island effect among 60 of the biggest U.S. cities from 2004-2013, a Climate Central study found. These threatening trends magnify the local and regional urgency of protecting and growing trees. In Takoma Park, our extensive tree canopy and farsighted Tree Ordinance give us a strong head start. Our trees are already helping to shelter us from the negative impacts of past greenhouse emissions and helping prevent additional global warming. Let's celebrate, preserve, and expand our local Climate Action Champions – Takoma Park's trees!

** *Top chart:* Calculated by prorating figures for the District of Columbia to Takoma Park's smaller area and higher percent of tree canopy cover.

Chart on Right: White Oaks are the Maryland State Tree. In just one year, a street-side, 20-inch-diameter White Oak provides an estimated \$187 worth of value in these few categories alone: \$55.37 in Stormwater Management, \$105.21 in added Property Value, \$10.13 in Electricity savings, \$5.32 in Natural Gas savings, \$6.18 in improved Air Quality, and \$5.19 in CO2 savings. From: <http://treebenefits.com/calculator/>

