Atlanta: City in the Forest
How to Sustain Our Unique Urban Forest as We Grow

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Atlanta is not normal.

Our area was settled and built out after 1821 – much later than other U.S. and world cities.

Atlanta’s growth boom came in the 1960’s after air-conditioning.
Pittsburgh:
Approx. 75% of the tree canopy is non-native

Philadelphia:
30% of the canopy is non-native *Ailanthus*

Atlanta:
Retains pockets of original, native forest – found in public greenspaces and backyards. *We are living in the remnants of an old growth forest.*
Quick comparison: Most major US cities were settled early as port cities and were built out densely.
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Because of our unusual history, old growth trees and remnants of the original forest can be found in Atlanta.
Atlanta: more recent, less dense

• Early residential neighborhoods in metro Atlanta were protected from the extensive timbering that took place in the Southeast from 1870-1920

• Most of our area remained rural farm land until the 1960s building boom

• Before air-conditioning, homeowners kept overstory trees for shade

For these reasons, ironically, old growth trees and remnants of the native forest can be found in our City.
Where can we find remnants of Atlanta’s original forest?

• **Steep slopes** - the single best indicator of older forest areas, steep slopes were not farmed and weren’t considered buildable until now

• **Stream corridors** - especially with narrow floodplains

• **Rocky places**

• **Historic properties** and memorial sites

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Urban Forest Case Study: East Lake

This 30” dbh Post oak tree was located in a side yard along a fence line. In 2018, City of Atlanta plan reviewers allowed it to be cut down despite being in a setback where it should be protected. It was approximately 280 years old.

Hiding in plain sight:
Old growth trees can still be found in older neighborhoods where lots were not graded.

- 1738: Post oak is a seedling in Creek territory
- 1750: Slavery becomes legal in the Georgia Colony
- 1776: Declaration of Independence
- 1821: Atlanta area becomes part of the U.S.
- 1847: City of Atlanta founded
- 2018: 280 year old Post oak is cut
Urban forests provide:

- Highest ecological value
- Highest green infrastructure value

Unlike built infrastructure, green infrastructure appreciates in value over time.

Trees play an environmental, cultural, and historical role in our communities.

Bruce Morton and family,
Lionel Hampton Beecher Hills Nature Preserve

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Our urban forests are some of the strongest defenses we have against many psychological, sociological, economic and climatic issues we face today.
Low value landscape is considered “canopy”
High value canopy provides exponentially more ecological and green infrastructure services.
Trees Provide a Wide Range of Benefits Improving:

**ECONOMIC DEV. & SAVINGS | CITY PLANNING | SOCIAL EQUITY**

**PUBLIC HEALTH & SAFETY | WATER & AIR QUALITY | & MUCH MORE**

1 sq. kilometer of canopy saves cities nearly $1 million in green infrastructure services like health care costs, carbon sequestration, stormwater costs, and energy savings.\(^1\)

100 healthy yard trees provide $364,000 in benefits over 40 yrs. Trees can decrease utility bills by more than 50%.\(^2\)

Mature trees can boost property value by 20%, benefiting homeowners and increasing property tax revenue for cities.\(^3\)

Urban canopy can consume up to 80% of annual rainfall, alleviating potential flooding and property damage, and decreasing polluted runoff to waterways.\(^4\)

Areas with more trees are safer and more sociable with lower levels of domestic violence. A public housing development in Chicago had 48% fewer property crimes and 56% fewer violent crimes in buildings in or around more greenspace.\(^5\)

Research found lower incidences of 15 diseases (inc. depression, anxiety, heart disease, diabetes, asthma, & migraines) in people who lived within ~1/2 mile of greenspace.\(^6\) Residents living on blocks with more trees showed a boost in heart & metabolic health. Residents of lowest income seemed to gain the most: In the city, being close to nature is a social leveler.\(^7\)

Scientists say protecting and restoring forests is ‘just as urgent’ as reducing emissions.\(^8\) 100 trees remove 53 tons of carbon dioxide and 430 pounds of air pollutants per year.\(^9\)
Cutting trees is not the worst thing for a forest...

Destroying the soil is.

Soil is a non-renewable resource.

Graded clay soils contain high levels of aluminum which is toxic to trees and plants.
In the past, soil was not graded for residential builds. Therefore, older neighborhoods are rich with ancient soil.

Soil sample from the root zone of a 170-200 year old white oak.

East Lake
Development Trends:

- Tear downs
- Grading lot line to lot line
- Clear-cutting backyards and side yards
Development Trends:

“False Density” - Larger footprints for the same number or fewer residents
Tree loss = Impervious surface = Stormwater damage

- Stormwater runoff from impervious surface creates infrastructure costs to cities & taxpayers.

- In a Houston study,* impervious surface increased by 25% in a 15 year period.

- Estimates show 1 sq. meter of impervious surface = $4,000.00 stormwater damage.

- A single deciduous tree can intercept 500–760 gallons per yr., a mature evergreen can intercept more than 4,000 gallons per yr., and a single mature oak can consume over 40,000 gallons of water per yr.¹

- Grass lawns with fewer trees create approx. 70-80% stormwater runoff.

* Houston study conducted BEFORE hurricane Harvey
1 www.extension.psu.edu/the-role-of-trees-and-forests-in-healthy-watersheds.com

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Urban streams must carry far more water due to tree loss and impervious surfaces.

Flooding in Dearborn Park
95% of Atlanta’s trees and forest is on private property.

Nearly 80% is located in single-family-residential zoning.
What are our options?

Replanting Trees

REPLANTING DOES NOT REPLACE.

(additionally, graded soil & street plantings have a high mortality rate)

Purchasing Greenspace

TOO EXPENSIVE.

Cities cannot afford to buy enough land at fair market to replace what is being lost.
4-Step Plan to Sustain Atlanta’s Urban Forest
1. Plan for trees at the *beginning* of the permitting process

- Pre-construction conference (*DeKalb County sketch plat*)
- Appeals process happens at the earliest stage of permitting

*This is the only realistic way to save trees/greenspace on development sites.*
2. Tree Value Matrix: Preserve our best trees

• Prioritizes values for tree size, health, species and location
• Prioritizes large healthy native trees and urban forest
• Unifies values for Arborists (public and private)
• Easy to add matrix values to existing surveys
3. **Maximum Sustainable Footprint**

- Reduces graded land disturbance *relative to lot size*
- Reduces impervious surface
- Reduces tree loss
- Reduces impact of “gentrification”
- Reduces False Density
- Adjusted per zoning category
4. Enforcement that Works

Even current laws are not being enforced.
Minimum greenspace requirements in all zoning districts

Moratorium on rezonings and rezonings for every use change

Cluster design + supportive green zoning/rezoning processes. By eliminating standard setback and frontage requirements, cluster design enables the built environment of a property to be 20-30%, with 60-70% remaining ungraded greenspace

Conservation easements, transfer of development rights, donation of parks and greenspace

Tax relief to homeowners who retain trees, pervious landscape and mini conservation easements
IF SUCCESSFUL, ATLANTA CAN CREATE A GLOBAL MODEL FOR SUSTAINABLE URBAN FORESTS.
We can’t preserve all of our trees, but with better planning, state-of-the-art arboricultural practices, and consistent, effective enforcement

WE CAN SUSTAIN OUR URBAN FOREST AS PART OF THE DEVELOPMENT PROCESS.

EcoAddendum.org
Naturalist Walks
EcoRestoration Consulting
Stewardship Training
Tree Protection, metro Atlanta

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Sources:

1.) https://www.greenbiz.com/article/we-calculated-how-much-money-planting-trees-can-save-your-city
2.) https://www.dec.ny.gov/lands/40243.html
3.) The U.S. Forest Service
4.) https://www.vibrantcitieslab.com/research/stormwater-mitigation/
7.)http://www.nationalgeographic.com/magazine/2016/01/call-to-wild/
8.)https://www.theguardian.com/environment/2018/oct/04/climate-change-deforestation-global-warming-report?fbclid=IwAR1deuaE5Fg79a_nym1uUR8d5kyl-GnVF_kUZr6jRtZYvoT8J-6PwXJ-34
9.) https://www.fs.fed.us/learn/trees