ATLANTA'S CLIMATE VULNERABILITIES

Extreme Heat

Atlanta's Climate Vulnerabilities were identified based on Shared Socioeconomic Pathways (SSPs). The SSPs are scenarios of projected socioeconomic global changes up to 2100. They are used to derive greenhouse gas emissions scenarios with different climate policies.

Heat severity will increase considerably by 2100 – impact felt across the City of Atlanta

Between 1999 and 2020, the Centers for Disease Control calculates approximately 213 heat related deaths per 100K residents in Atlanta area counties. They note that disproportionately affected populations include older adults (65+), those classified as low-income, and children*.

*Source: https://wonder.cdc.gov/


AJC News

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METRO ATLANTA

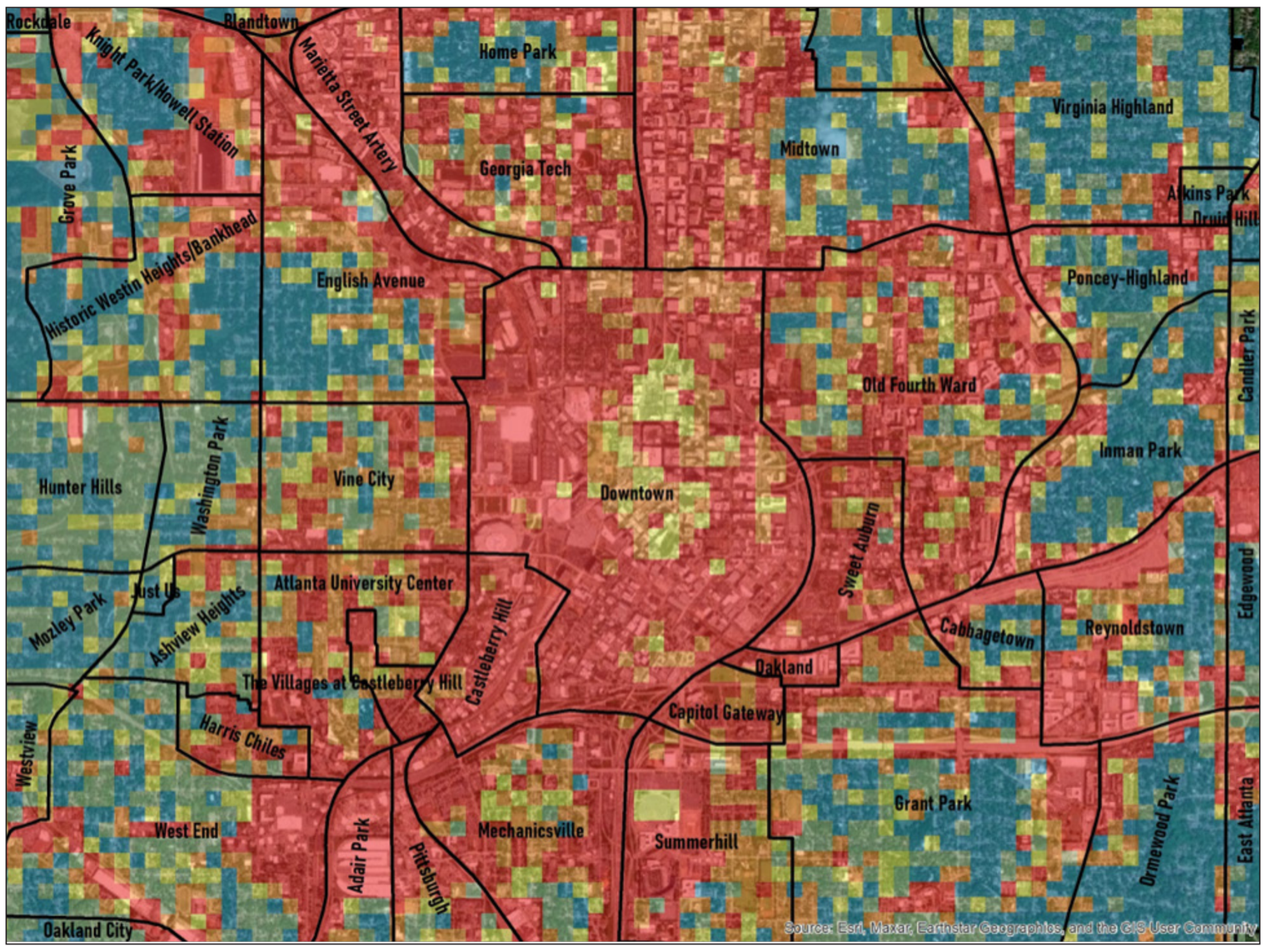
Relief from Atlanta's heat not likely anytime soon, NOAA predicts

Above normal temperatures are expected through September, as unprecedented streak of extreme heat continues across the globe.

Credit: TNS

Extreme Heat Mapping at the Neighborhood Level of Summer Average Air Temperature Data.

Source: "Atlanta Heat and Food Risk Assessment", Urban Adapt, June 2023



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ATLANTA'S CLIMATE VULNERABILITIES

Drought

Atlanta's Climate Vulnerabilities were identified based on Shared Socioeconomic Pathways (SSPs). The SSPs are scenarios of projected socioeconomic global changes up to 2100. They are used to derive greenhouse gas emissions scenarios with different climate policies.

Climate

Natural disaster declared in Georgia after exceptional drought

Crippling droughts have gripped the Peach State in recent weeks, during the growing season

Mike Bedigan • Monday 01 April 2024 14:38 BST • Comments

By July 2024, 96% of Georgia was in some form of drought.

Droughts in Georgia are not uncommon, and Georgia and surrounding states are the most likely areas in the eastern U.S. to experience severe and persistent droughts. This includes the record-breaking droughts of 2006–2008 and 2010–2012, as well as shorter droughts in 2016–2017 and 2019. These droughts had far-reaching impacts on agriculture, water availability for municipalities and industry, and wildfires.

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ATLANTA'S CLIMATE VULNERABILITIES

Flooding

Atlanta's Climate Vulnerabilities were identified based on Shared Socioeconomic Pathways (SSPs). The SSPs are scenarios of projected socioeconomic global changes up to 2100. They are used to derive greenhouse gas emissions scenarios with different climate policies.

Flooding is the most common and costly natural disaster in the United States. The risk of flooding is constantly increasing due to climate change. In future decades, the probability of and frequency of severe flood events will increase stress on our city's infrastructure.

The Atlanta Journal-Constitution

News

NEWS

Downtown Atlanta cleans up after surprise flash flooding

Powerful storm soaked streets, stranded drivers, forced students from dorms

September 15, 2023

Some of the worst flooding occurred downtown and south and west of Atlanta's urban core. Those areas are packed with more concrete, buildings and other impervious surfaces than the rest of the city and have fewer trees and greenspaces that can help absorb runoff.

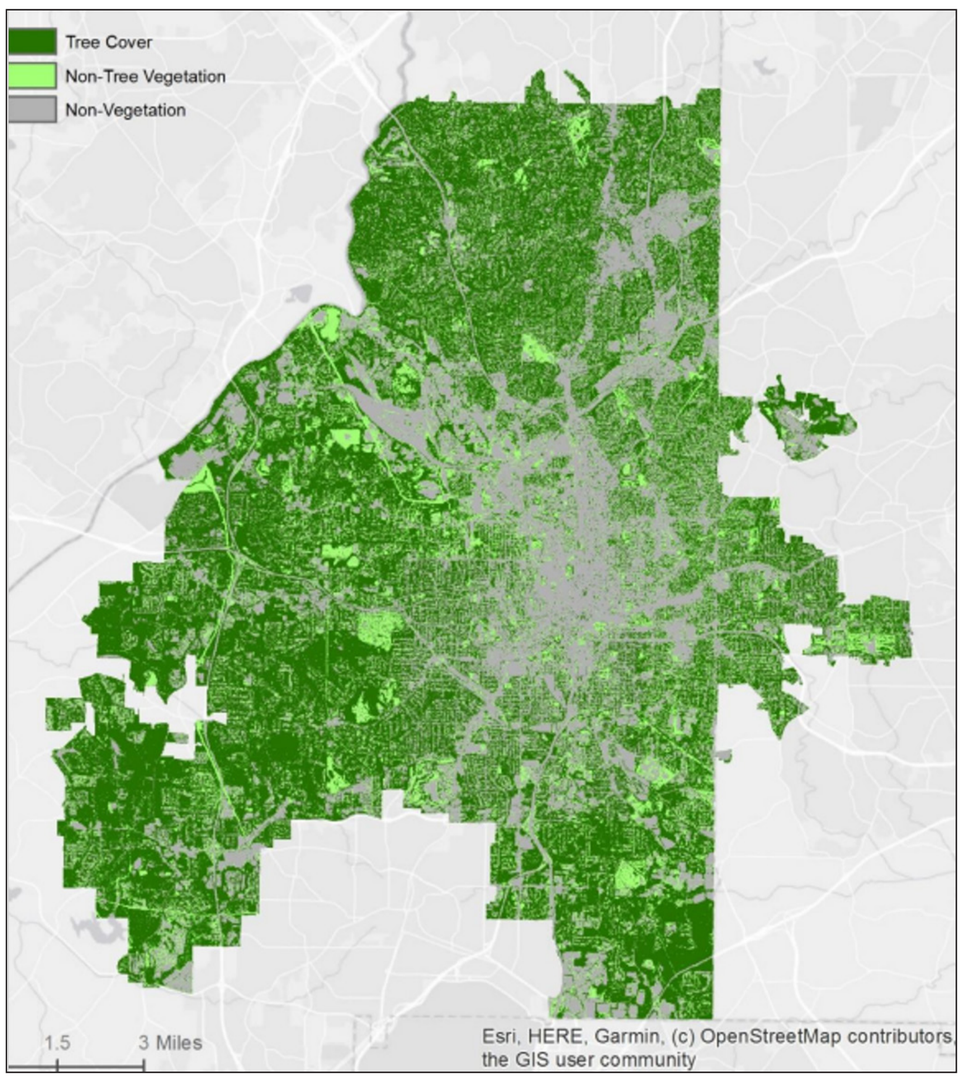
"When heavy rain falls on pavement, it can quickly overwhelm stormwater drainage systems, turning roads and creeks into rivers," said Marshall Shepherd, director of the University of Georgia's Atmospheric Sciences Program. "The storm and others like it show that cities need to prepare for more intense deluges," Shepherd said.

Department of
CITY PLANNING

Tree Protection Ordinance

"CITY IN THE FOREST"

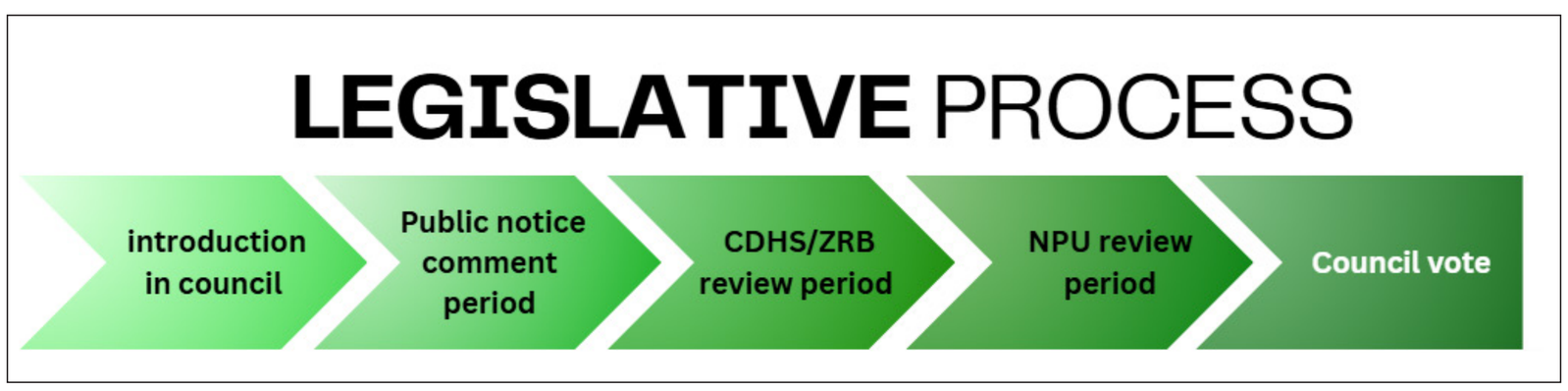
- In 2023, the City Council passed a goal to reach and maintain a canopy cover of **50%**, but the goal falls short at 47.1% coverage.
- Canopy assessments by Georgia Tech show a **1.8% decline** in tree canopy coverage since 2008.
- The 2024 TPO rewrite is focused on **preserving the long-term health of the City's tree canopy while supporting future growth**.



Changes in the TPO

- New preservation standards for Single Family (SF) housing will protect the 76% of the tree canopy that grows on SF lots.
- Commercial, industrial, multi-family, and mixed-use properties will have stronger planting requirements but no required tree preservation, allowing flexibility for future growth.
- Recompense raised to the market rate will support tree-planting programs and public forest acquisition.

Involvement in the Public Process



Department of
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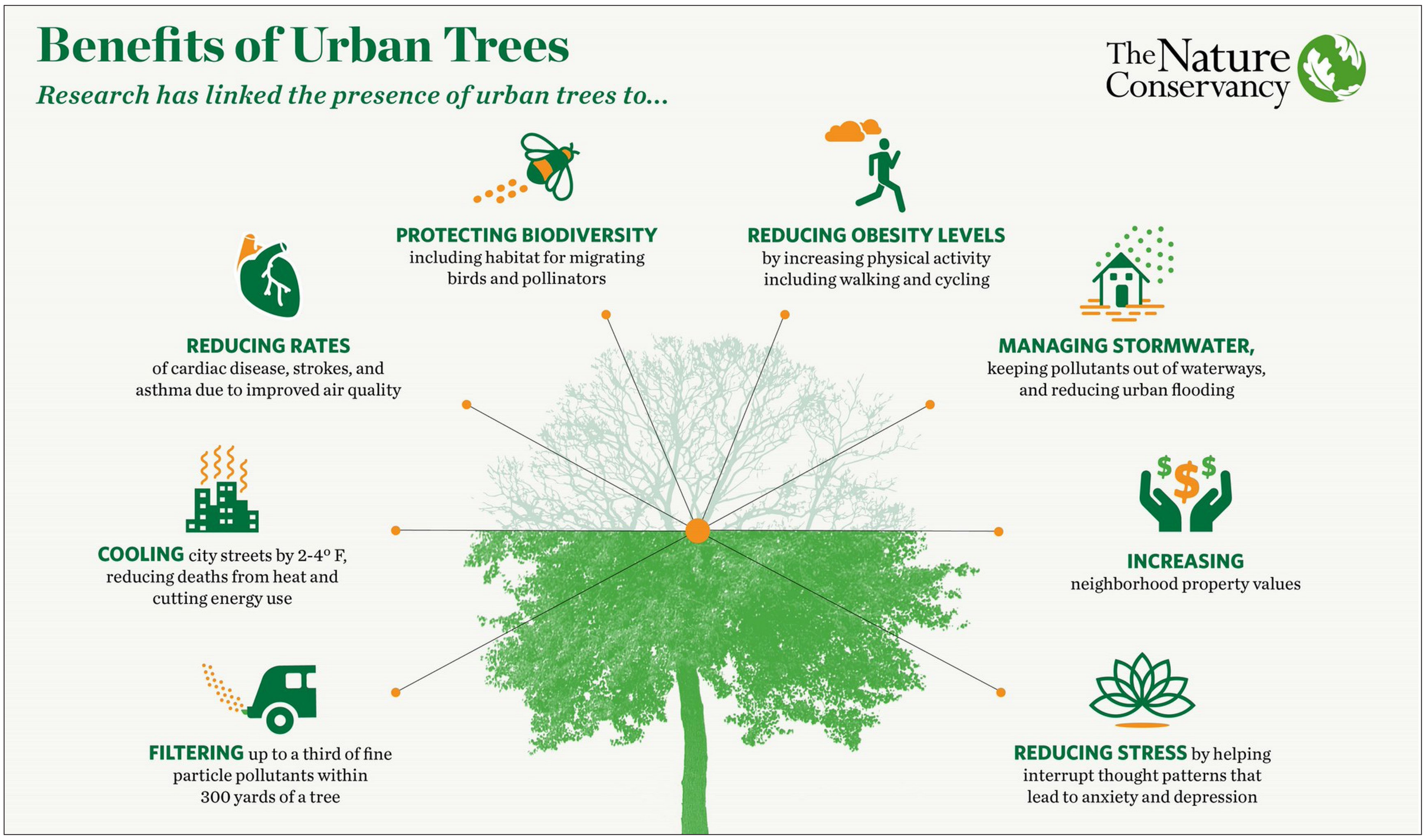
Tree Protection Ordinance

"CITY IN THE FOREST"

How do trees benefit your neighborhood?



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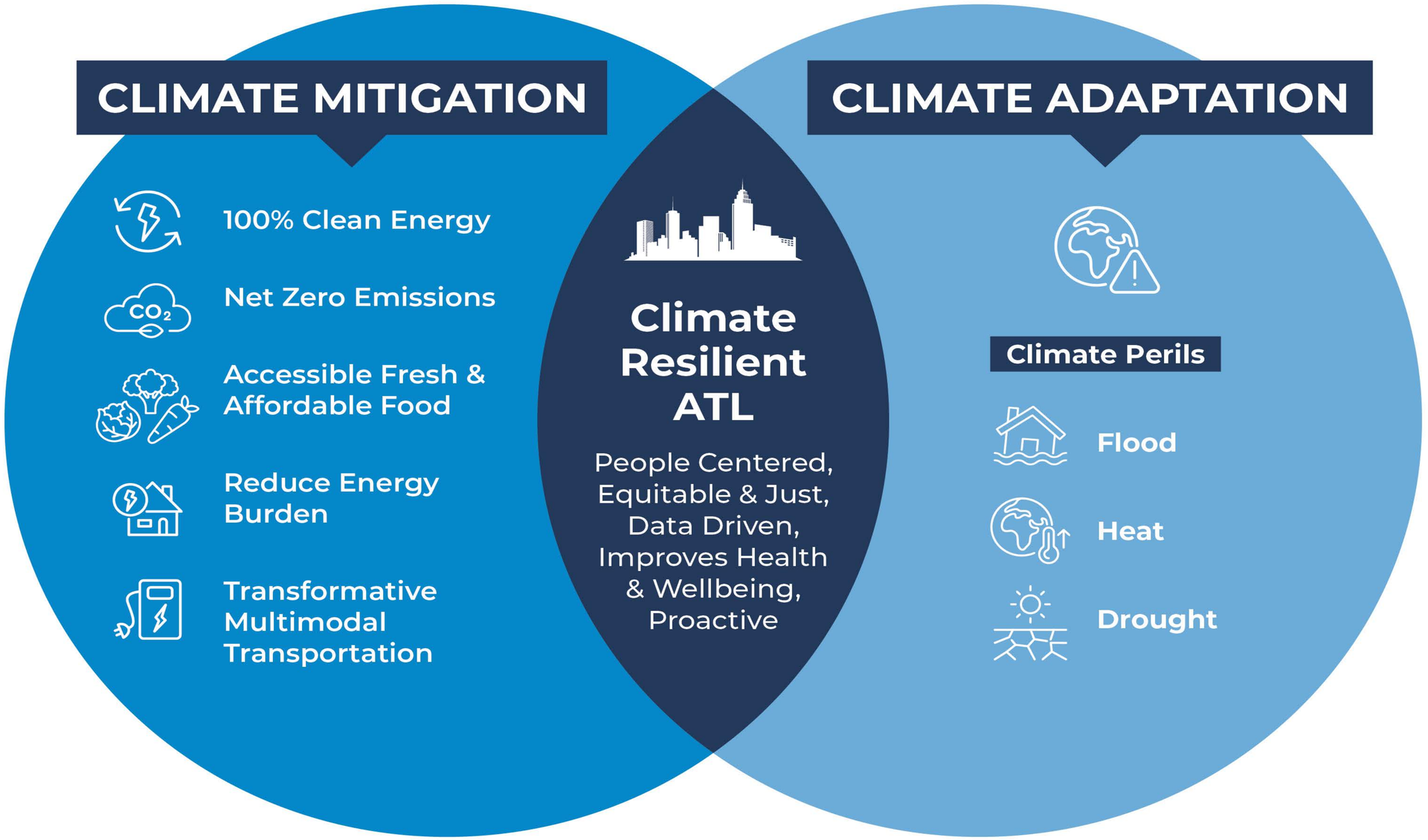
CLIMATE RESILIENCE ACTION PLAN FRAMEWORK

ATL Moving Atlanta Forward | MAYOR'S OFFICE OF Sustainability and Resilience



Department of CITY PLANNING

ATL Moving Atlanta Forward | MAYOR'S OFFICE OF Sustainability and Resilience

Inform Atlanta's First Climate Resilience Action Plan

Atlanta's first Climate Resilience Action Plan will identify a range of ambitious goals in alignment with the "National Climate Resilience Framework". Our plan is meant to position Atlanta for managing the increasing effects of climate change, preventing those impacts from affecting some neighborhoods more than others and uplifting climate action as path to more sustainable, healthy and equitable communities.

The City of Atlanta Mayor's Office of Sustainability and Resilience will lead development of our city's first Climate Resilience Action Plan with a focus on science-based analysis informed by the community.

The mission of the the Mayor's Office of Sustainability and Resilience is to promote policies, programs, and initiatives to advance sustainability, climate resilience, a circular economy and local food systems rooted in environmental justice. Collectively, these actions build our capacity to prepare, adapt, and respond to climate change.

Guiding Principles

People-Centered, Equitable and Just, Data-Driven, Improves Health and Wellbeing, Proactive

Framework for the Plan

Community and Partner Engagement

Prioritizes the voices of the community to co-design data driven climate solutions that accelerate equitable implementation of climate resilience policies, programs and initiatives. Connects communities to the education, tools, and resources available through local and national programs and initiatives. Proactively engaging youth in climate action solutions.

Decarbonize Atlanta Buildings

Developing opportunities to reduce greenhouse gas emissions by strategizing for adoption of consensus-based building and energy codes and high performance, healthy building standards through an equity lens. Build a blueprint to achieve Zero Emissions Buildings —a building that is highly energy efficient, does not emit greenhouse gases directly from energy use, and is powered solely by clean energy.

Renewable Energy

Promote climate resilient energy solutions to achieve 100% Clean Energy for all Atlantans by 2035. Partner with public, private, and nonprofit sector leaders to seek demonstration project opportunities to accelerate renewable energy solutions.

Transformative Multimodal Transportation

As the second largest source of Greenhouse Gas (GHG) emissions, the City of Atlanta aims to advance policies and initiatives for multimodal innovation and sustainable mobility solutions tailored to the unique needs of Atlanta communities. Providing a range of transportation choices and the walkable neighborhoods that support them to improve air quality and reduce greenhouse gas emissions.

Urban Agriculture and Food Systems

Increase Access to Fresh and Affordable Food within 0.5-Mile and accessible for 100% Atlantans by 2030. Advancing health equity, and economic empowerment in underserved communities in the city. Foster biodiversity and reduce food waste.

Rooted in Equity and Environmental Justice

Promotes the fair treatment and meaningful engagement of all Atlantans in decision-making that affects their community so that adverse hazards, including those related to climate change, and the legacy of racism or other systemic barriers, do not block their access to a healthy, sustainable, and resilient city.

GET INVOLVED!

Stay connected as we kick off engagement to inform Atlanta's first community-led, data driven Climate Resilience Action Plan.

Tell us what a climate-resilient Atlanta, anchored in equity and justice, looks like to you and your community.

CLIMATE & RESILIENCE

Atlanta Heat Risk Assessment

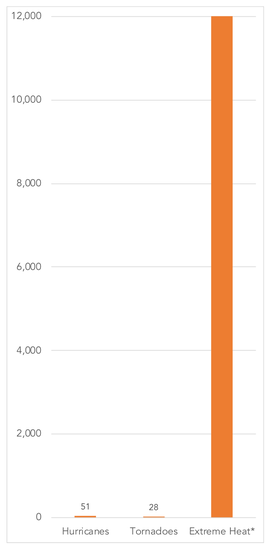
This study was carried out by Urban Adapt LLC, a consulting practice based in Atlanta and focused on on urban scale climate change risk assessment and adaptation. This study was commissioned by Atlanta City Council Members: Liliana Bakhtiari and Matt Westmoreland.
Questions on the study approach may be directed to: **inquiries@urbanadapt.us.**
More information on Urban Adapt can be found at: **www.urbanadapt.us**

WHY is this important?

Deaths caused by heat are extremely undercounted and represent one of the biggest risks to residents who are often older and do not have reliable access to air conditioning.

In Atlanta, this is considered an Environmental Justice Issue as our elderly Black residents are more likely to be impacted by extreme HEAT.

Average Annual US Weather-Related Fatalities: 2015-19



COMPLICATED BY: Increase in BLACKOUTS

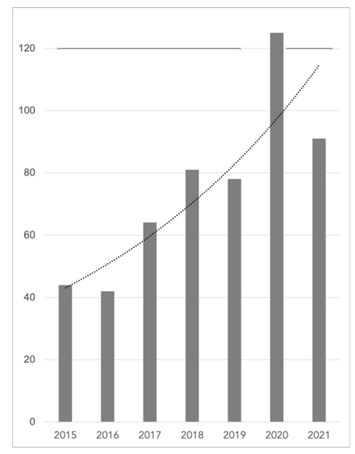
As a city and as a country we are using more and more electricity - especially during summer months. This is causing more and more power Blackouts which in turn causes people to lose their air conditioning and can overwhelm our hospital systems.


The New York Times

Heat Wave and Blackout Would Send Half of Phoenix to E.R., Study Says

New research warns that nearly 800,000 residents would need emergency medical care for heat stroke and other illnesses in an extended power failure. Other cities are also at risk.

Blackout events in the US by year



Cities are getting hotter and staying hotter for longer

You can notice the Urban Heat Island Effect the strongest in the evening. The asphalt and concrete in streets, buildings, and parking lots absorb heat and then they retain that heat longer into the evening.

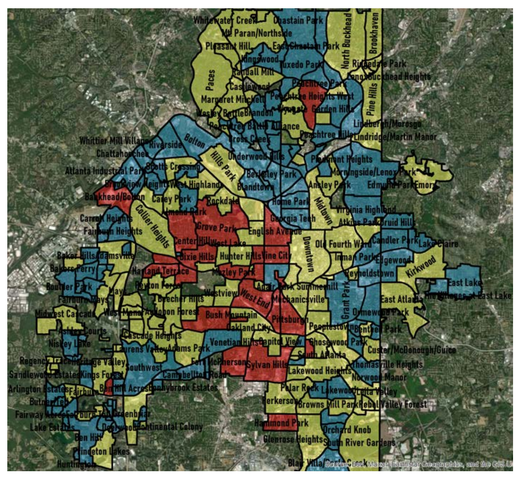
KEY TERMS:

URBAN HEAT ISLAND EFFECT cities are usually much warmer than the surrounding countryside because the buildings, roads, and sidewalks (made of concrete and asphalt) absorb a lot of heat from the sun, making the city feel like a "heat island" compared to greener areas with trees (their shade) a grass, which can cool things down.

IMPERVIOUS SURFACE a surface where rainwater can not go through it. Thus the water will go somewhere else - usually low-lying areas or will form pools of water that leads to flooding.

RESILIENCE being able to cope and adapt to difficult life/weather events and the abilityto bounce back afterwards.

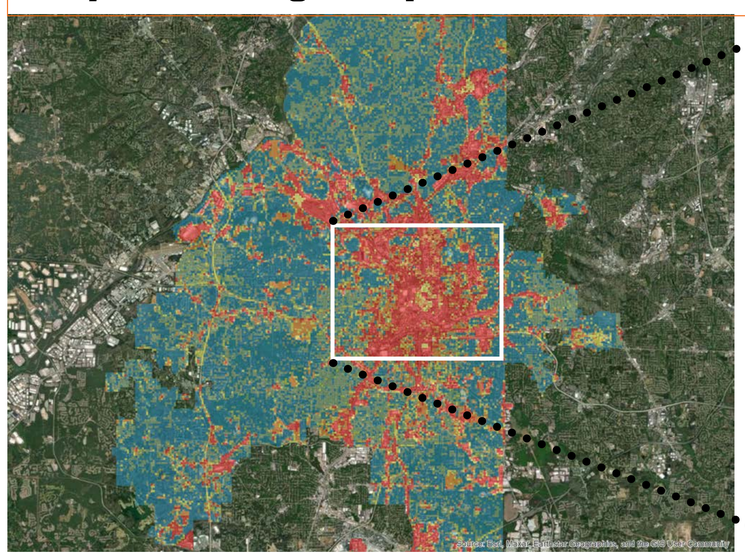
The consultant team created a "Total Vulnerability Score" by combining each neighborhood's mortality rate (older residents = higher rate) with that neighborhood's access to air conditioning.



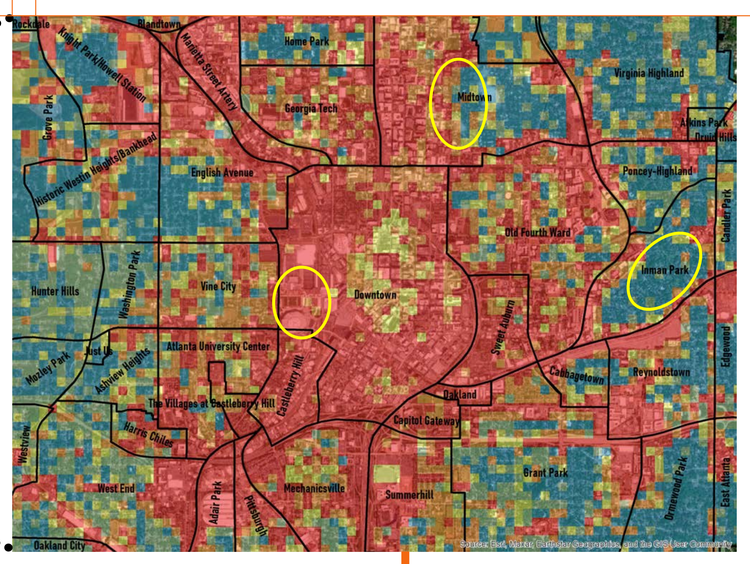
A visible line of High Vulnerability is seen on the south and west portion of the City of Atlanta.

In some neighborhoods, **less than 80% of residents** have access to A/C compared to 96% citywide.

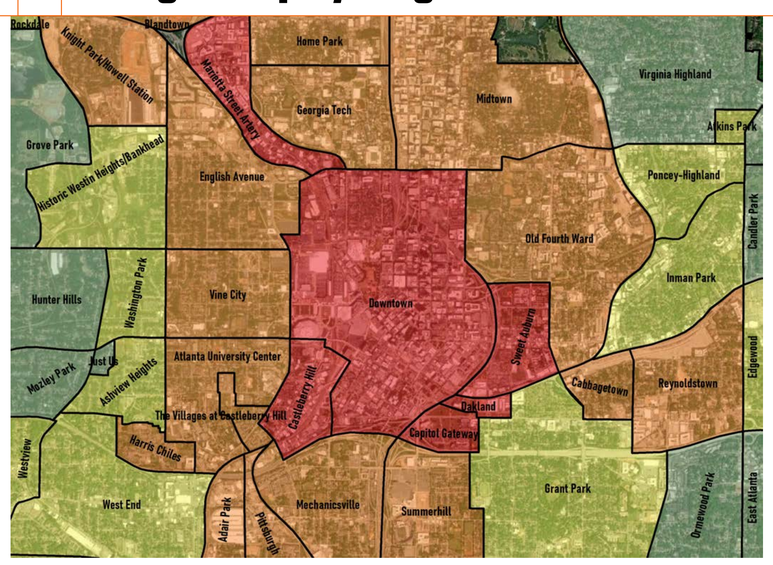
1. Citywide Average Temperature in Summer



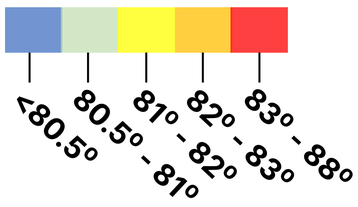
2. Zoomed In to Downtown Core



3. Average Temp by Neighborhood



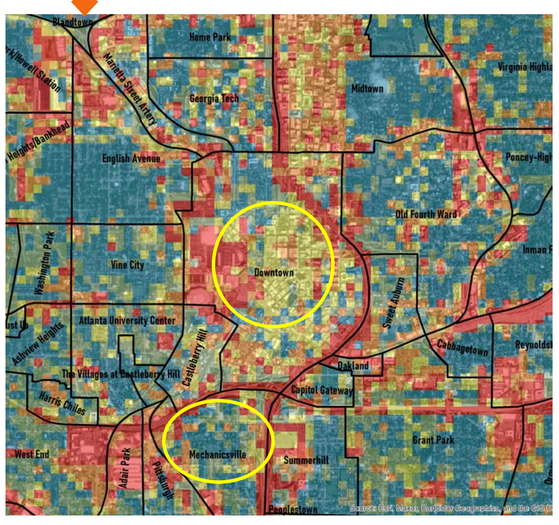
KEY : Average Temperature in ºF



The temperature data generated for this study estimates air temperature for each hour of the summer at a spatial scale of 100 meters – roughly the size of a downtown city block. The modelled average temperature for June, July, August of 2016 (one of the hottest summers of the last 10 years) across the city was 81.21º F

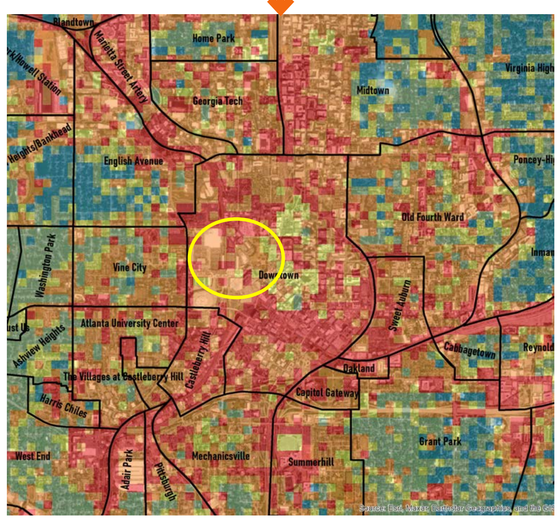
Average tree canopy coverage in the City of Atlanta is 47.9% but some areas are less than 5% (near the World Congress Center and Mercedes Benz Stadium). You can see that pattern well in these maps.

Possible Solutions



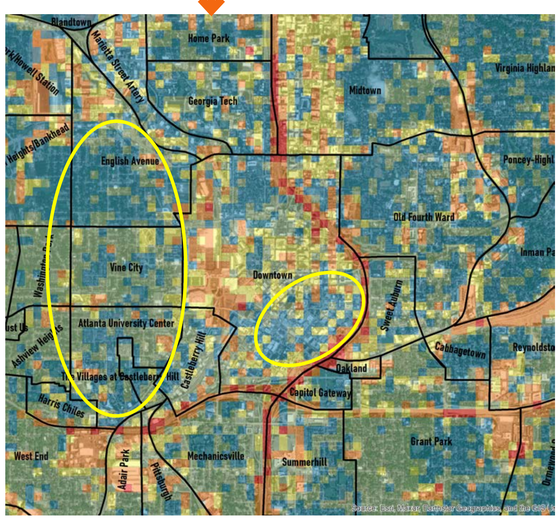
At least 50% canopy cover across all neighborhoods yields a strong cooling effect. **Average maximum temperatures fall by 4ºF** in some neighborhoods.

+



The **conversion of roofing to cool materials** (often white/reflective or green) for all low-rise buildings (4 stories or less) results in a cooling effect in the most densely developed zones. **Average max temps fall by more than 2.6ºF** in some areas.

=



The **combination of the GREENING @ 60% and COOL ROOF scenarios** yields the most pronounced cooling effect of all scenarios. **Average maximum temperatures fall by 5.5ºF** in some neighborhoods.

Department of **CITY PLANNING**

urban adapt

Food Systems

What is in a food system?

Food systems include biodiverse options for food production, operations, processing, retail/market, distribution, education, and waste management that can respond to ecological, social, and environmental needs and also offer access to all.

During the summer of 2024, the City of Atlanta's Food Systems team in partnership with the Mayor's Office of Sustainability and Resilience sought out to learn more about the current state of Atlanta's food system by visiting over 300 grocery stores, neighbhorhood markets, community gardens, farmers markets, and related fresh food access points across the City. The policy actions below intend to help address the City of Atlanta's areas of opportunity for a more connected and climate responsive food system.

Policies & Actions

CR 15 **Reduce food insecurity across the city by offering 100 percent of Atlantans access to fresh, affordable, and culturally preferred food within a half-mile of their home.**

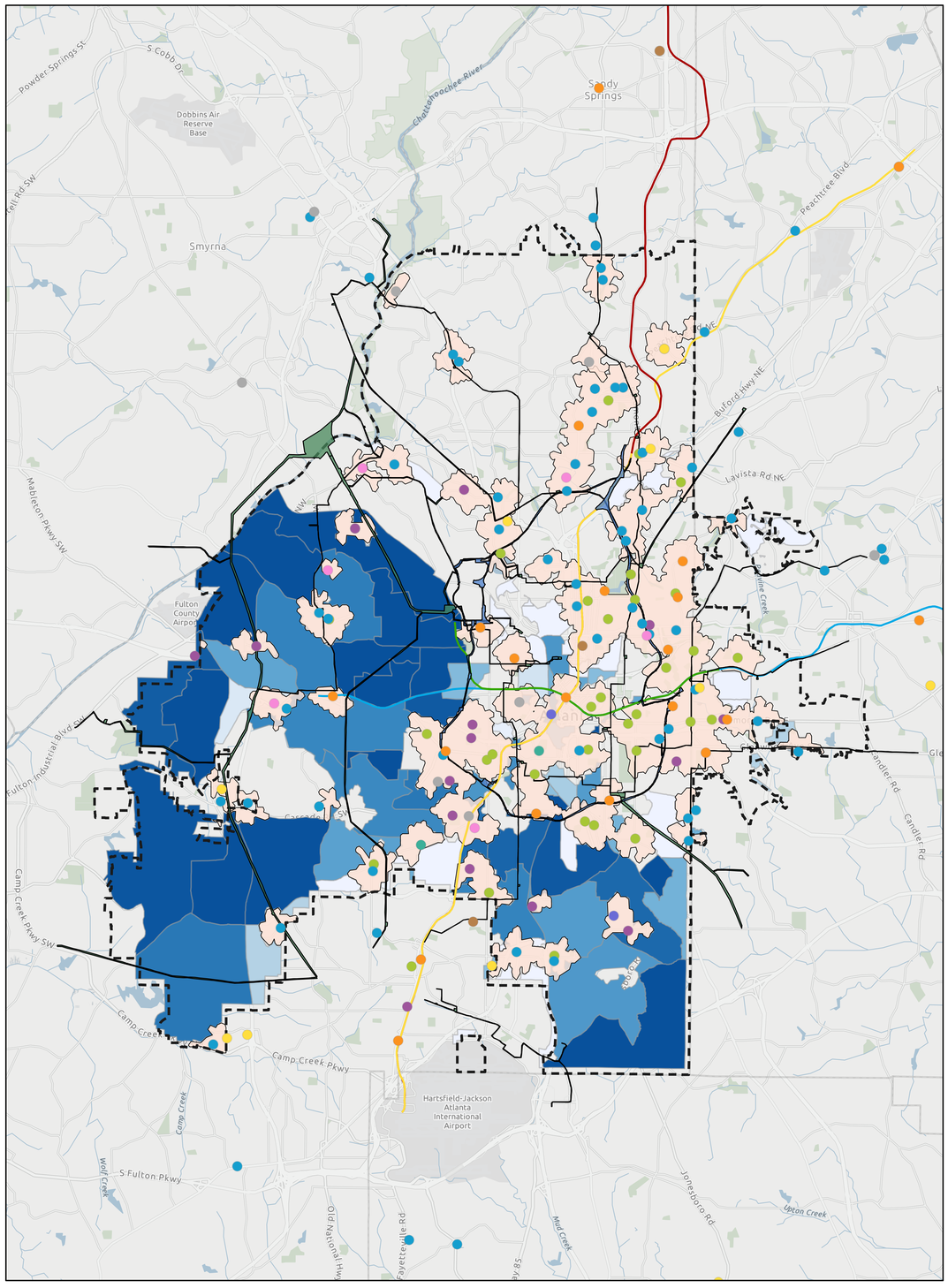
CR 15.1 Invest **$20 million** of public, private, and philanthropic capital into a Resilient Food Fund. Funds will be used to address the City's goal of ensuring 100 percent of residents live within a half-mile of fresh food.

CR 15.2 Use the **Urban Enterprise Zone program** to incentivize planting edible landscapes and related food systems activities such as, but not limited to: regenerative agriculture, fresh food distribution, composting, food retail, farmstands, shared kitchens, food hubs, and plant-forward processing and restaurant development.

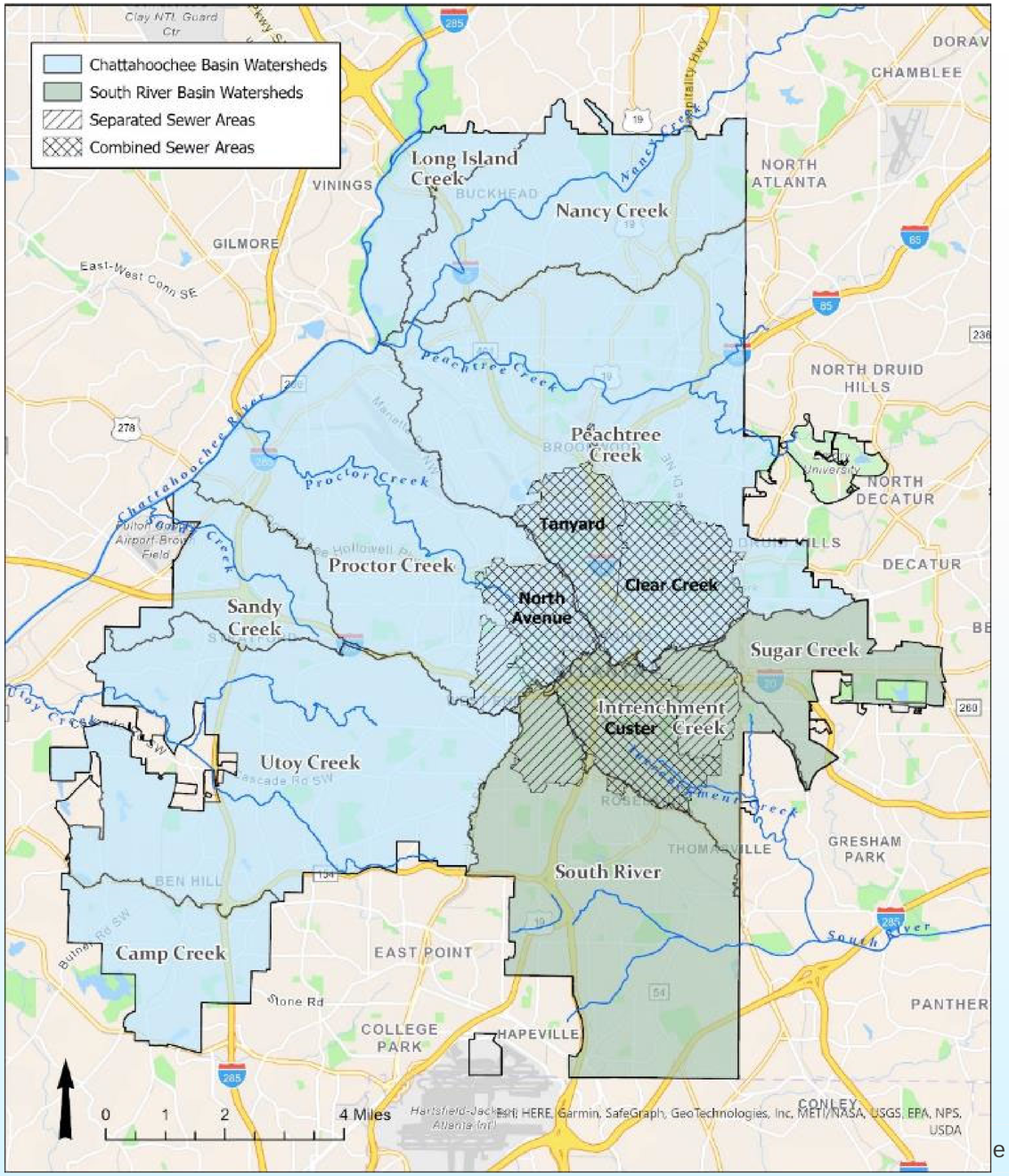
CR 15.3 Conduct an **internal survey across City agencies t**o assess projects and funds spent to address food security.

CR 15.4 **Integrate edible green infrastructure (GI)** in the form of, but not limited to: regenerative gardens, edible trees and shrubs, rooftop gardens, vertical/hydroponic/aeroponic farms, and pollinator corridors into all future developments within United States Department of Agriculture (USDA)-identified food desert areas.

Fresh Food Access Map for Climate Resilience Meeting



City of Atlanta Watersheds

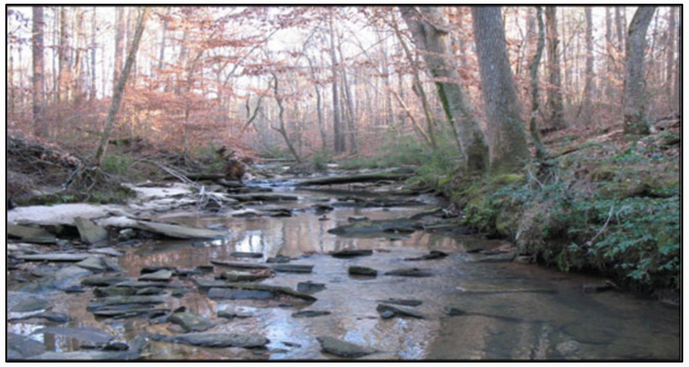


[Where does my water end up?]

CITY OF ATLANTA DEPARTMENT OF watershed management

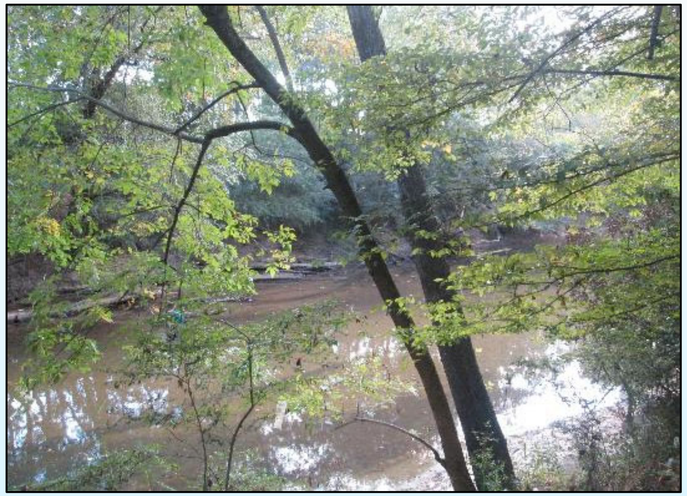
DWM Greenway & Greenspace Program

DWM manages nearly 2,000 acres of natural areas in 12 watersheds around the City and metro area.

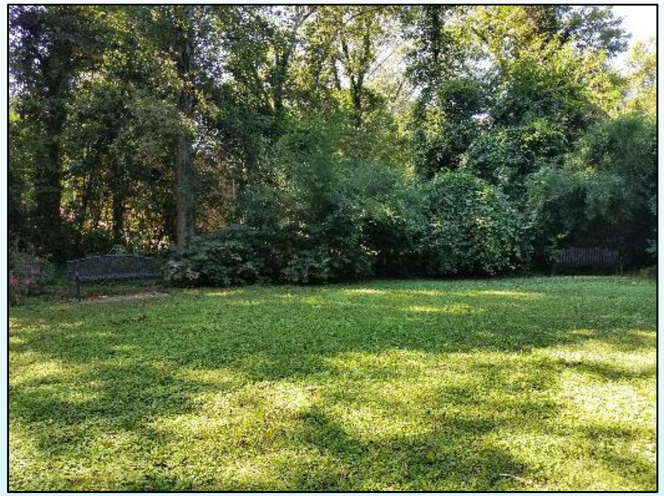


Herbert Greene Preserve
Utoy Creek

McDaniel Branch, South River



Standing Peachtree



Armand Rd. Greenspace
Peachtree Creek

Property Category	Number of properties	Acres
Greenway-Consent Decree-Fee Simple	99	767.43
Greenway-Consent Decree-Conservation Easement	55	1,152.85
Greenway-non-Consent Decree-Fee Simple	2	6.40
Greenway-non-Consent Decree-Conservation Easement	2	23.56
Greenspace-FEMA	10	4.20
Greenspace-Other	5	13.80
TOTAL	173	1,968.23

CITY OF ATLANTA DEPARTMENT OF watershed management

Stormwater Management Benefits of City-owned Forestland

Calculated Avoided Runoff*:

<u>Greenways (1,920 acres)</u>

Annual rainfall interception =151 million gallons/year

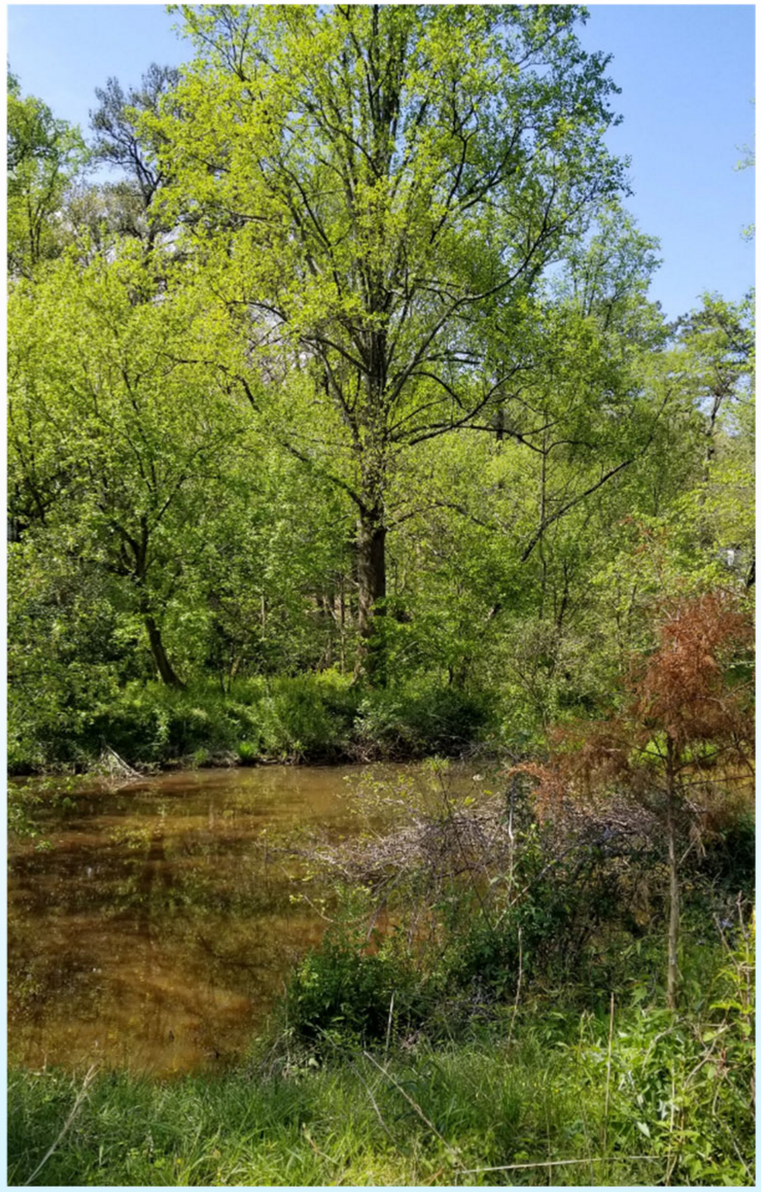
Annual transpiration = 304 million gallons/year

<u>Parks (1,315 acres naturally forested areas)</u>

Annual rainfall interception =104 million gallons/year

Annual transpiration = 208 million gallons/year

Based on per acre value calculated in i-Tree Eco for preserved, undeveloped forest



CITY OF ATLANTA DEPARTMENT OF watershed management

Historic Fourth Ward Park Pond

- 2-acre pond in 17-acre park setting
- Drains 350-acre watershed
- GI solution saved $15M over the gray infrastructure solution (tunnel and underground storage)
- Brownfield clean-up
- $500M+ in economic investment followed
- Daylights a section of Clear Creek

[City of Atlanta Green Infrastructure Story Map]

[Story Map Video Tutorial]

CITY OF ATLANTA DEPARTMENT OF watershed management

Rodney Cook, Sr. Park in Historic Vine City

- 9+ million gallons of capacity relief, prevents localized flooding throughout the community
- Innovative stormwater management practices redirect surface runoff away from the combined sewer system
  - Soil restoration
  - Littoral shelf
  - Created wetlands
  - Bioretention
  - Stormwater planters
  - Rainwater harvesting cisterns
  - Aerating water feature
  - Engineered Soils
- Multiple partnerships: Trust for Public Land, National Monuments Foundation, Department of Parks and Recreation

[City of Atlanta Green Infrastructure Story Map]

[Story Map Video Tutorial]

CITY OF ATLANTA DEPARTMENT OF watershed management

[City of Atlanta Green Infrastructure Story Map]

[Story Map Video Tutorial]

CITY OF ATLANTA DEPARTMENT OF watershed management

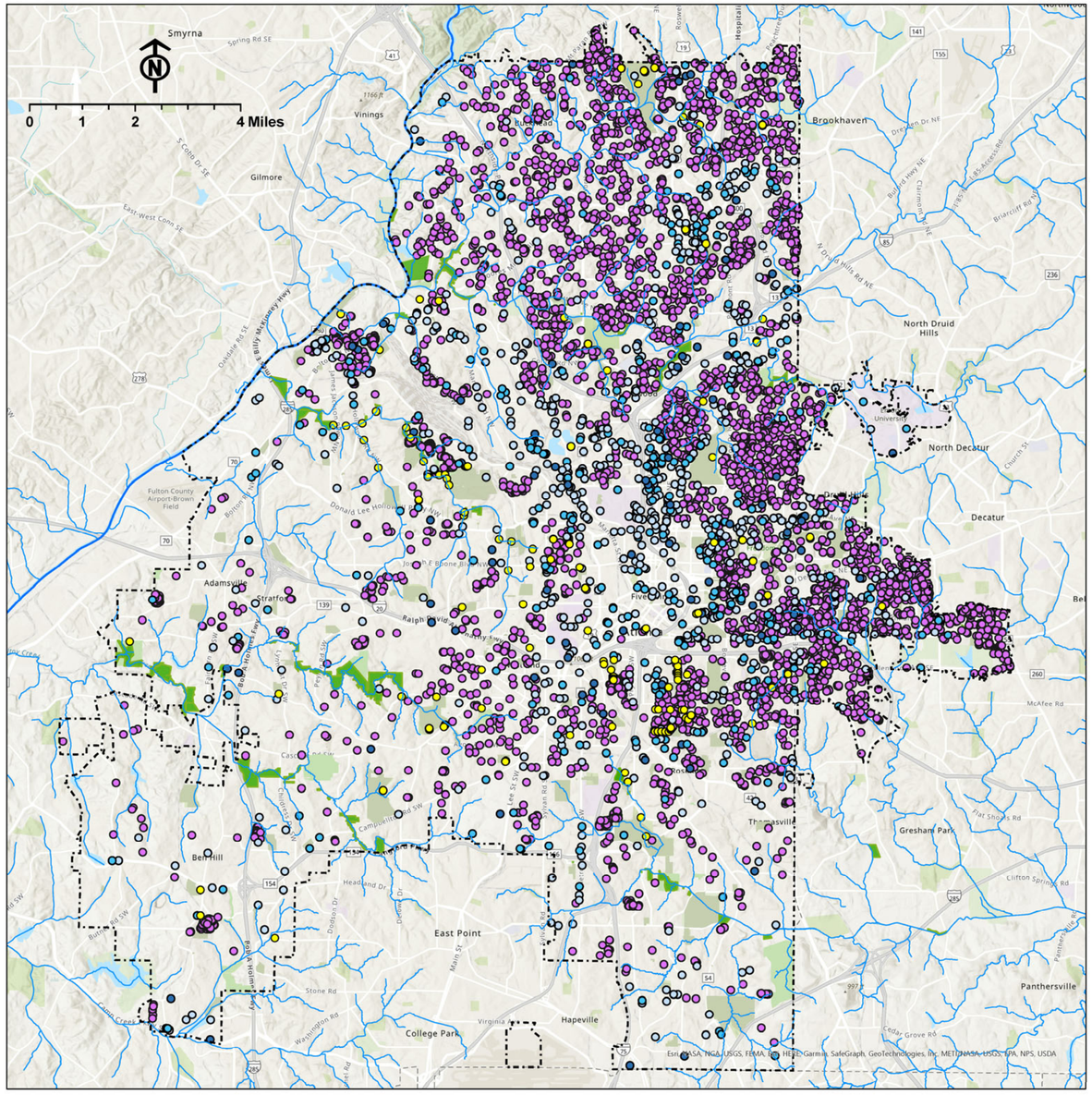
Citywide Green Infrastructure Inventory

Engineered GI

- 7,775 permitted commercial and residential projects => removal of 1.6+ billion gallons of runoff (through April 2022)
- Over 80 completed public GI assets

Natural GI

- 4,215 acres of parks, 760 acres of which are designated nature preserves
- 2,000+ acres of DWM protected greenspace, 820 acres within City boundaries



City of Atlanta Green Infrastructure Map

LEGEND

- Atlanta City Limits

Hydrology

- Chattahoochee River
- Streams
- City of Atlanta Owned Green Infrastructure Sites

GI on Private Property (Permitted Under Post-Development Stormwater Ordinance)

- Residential GI Sites (Permitted)

Commercial GI Sites (through April 2022)

- Completed
- Under Construction
- Permitted
- COA DWM Protected Greenspaces
- COA DPR Preserves
- COA Parks

[City of Atlanta Green Infrastructure Story Map]

[Story Map Video Tutorial]

CITY OF ATLANTA DEPARTMENT OF watershed management