

CITY OF BIRMINGHAM

A Canopy of Protection: Initiative Plants Trees to Shield Urban Heat Islands

Je'Don Holloway-Talley, December 31, 2024

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Erin Hackenmueller, Adrian Smith and Grace Dugger plant a tree during a Cool Green Trees volunteer tree-planting event on Dec. 7, in which the group planted 30 trees along the corner of 16th Avenue West and

Center Street North in the East Thomas neighborhood. (Photo by Solomon Crenshaw Jr.)

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In the face of rising temperatures and enduring environmental inequities, [Cool Green Trees](#) is reshaping Birmingham's urban landscape one tree at a time.

The initiative brings together experts and volunteers to strategically plant trees as a means to combat heat islands, improve air quality, mitigate flooding from stormwater runoff and uplift underserved communities.

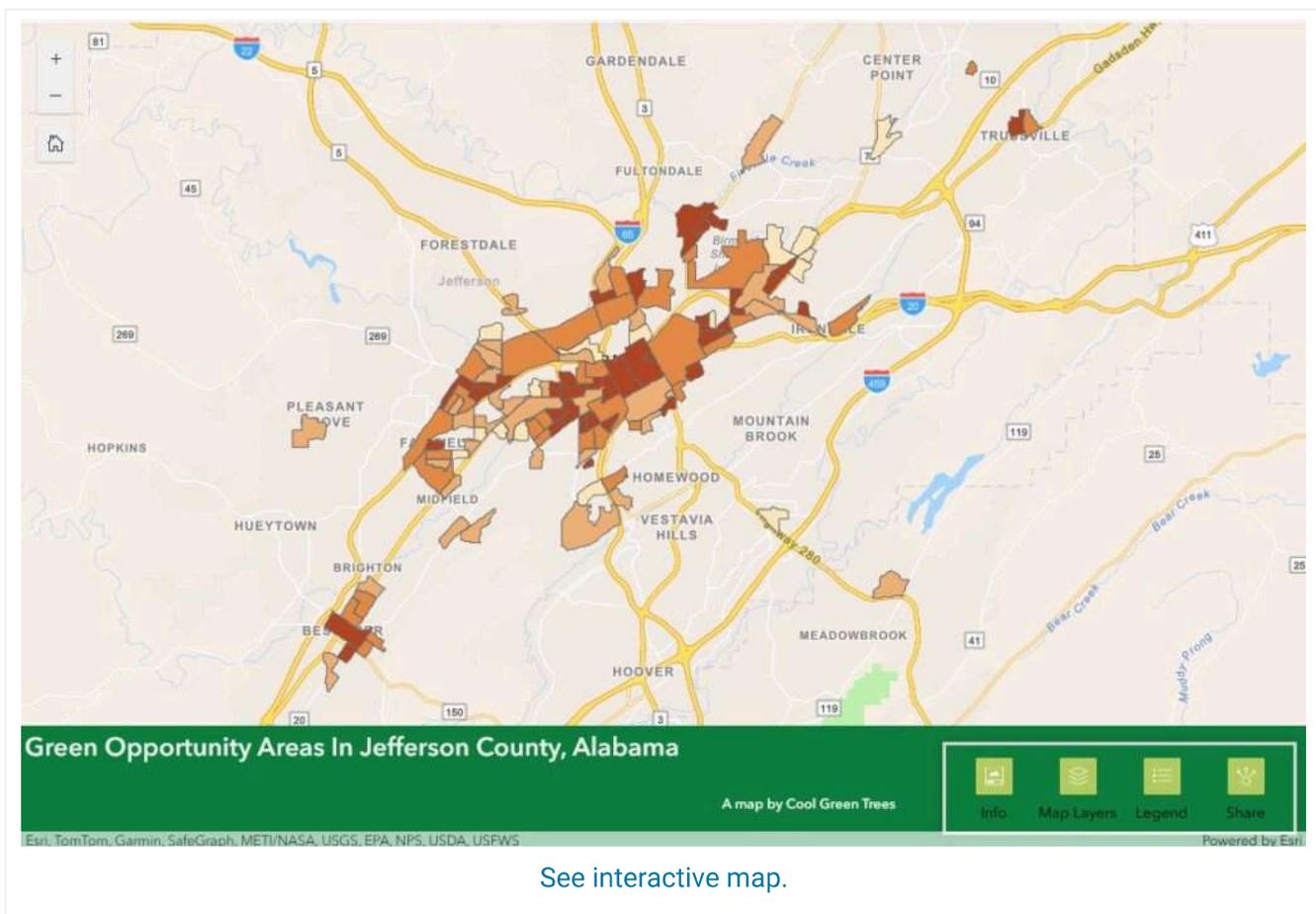
Francesca Gross, a biologist and environmental scientist, founded Cool Green Trees in September 2022 to address some of the most pressing environmental challenges facing Jefferson County. The initiative partners Cawaco RC&D, the University of Alabama at Birmingham, the city of Birmingham, the Birmingham Department of Transportation and the Jefferson County Health Department.

Cool Green Trees is designed to address environmental inequities and combat climate change in underserved communities.

“As our climate changes, the people who will be most seriously affected are those without resources,” said Gross. “For example, in the summertime, if it gets really hot and you're in the city, it stays hot at night. That's especially dangerous for the elderly, babies or anyone who is vulnerable. Then you have people looking at their air conditioner and thinking, ‘If I turn that on, I can't buy food.’ Those kinds of choices hit hardest for folks who don't have a lot of resources, and that's where I wanted to focus, safeguarding against the future effects of climate change.”

The initial planning and mapping phase of the project revealed connections between current environmental challenges and historical injustices in urban areas.

The Green Opportunities Map was developed through a collaboration between Cool Green Trees, UAB and the Lister Hill Public Health Policy Center using environmental data from the EPA's EnviroAtlas. Gross worked closely with UAB GIS specialist Ariann Nassel to create a tool that layered data on air pollution, flooding and lack of tree canopy to identify “green opportunity areas” in Jefferson County.



Findings from the map aligned with insights from Lister Hill reveal a significant overlap with historical redlining maps dating back to the 1940s post World War II, exposing systemic disinvestment and housing discrimination that forced marginalized communities into undesirable locations, such as flood zones and industrial areas, perpetuating poor living conditions and creating lasting environmental and socioeconomic divides. This put a spotlight on areas critically in need of intervention.

When creating the maps, Gross said, “We purposely did not add socioeconomic data to our study because I knew that that would reveal itself.”

“I worked with this wonderful group at UAB who helped get my brain into a map. And it ended up being three layers: air pollution, flooding, and (lack of) tree canopy, and all three layers hit areas that we called ‘green opportunity areas’ in Jefferson County.”

Priority cities and neighborhoods include Bessemer, Fairfield, East Lake, Collegeville and East Thomas, with expansion planned for Norwood and Central City.

“We are mostly focused on North Birmingham and Fairfield. We’re trying to get into Norwood, and that was at the direction of the health department. They pushed that we go to Collegeville first because it’s been such a disregarded area in terms of

environmental health with all the pollution that’s happened there. The health department felt that that was the best place for us to start,” said Allie Smith, volunteer coordinator for Cool Green Trees.

[The Cawaco Resource, Conservation and Development Council](#) — a nonprofit committed to conserving, developing and sustaining natural and community resources across Blount, Chilton, Jefferson, Shelby and Walker counties — played a pivotal role alongside the Jefferson County Department of Health in launching the Cool Green Trees Initiative.



Volunteers plant trees during a Cool Green Trees volunteer tree-planting event on Dec. 7, in which the group planted 30 trees along the corner of 16th Avenue West and Center Street North in the East Thomas neighborhood. (Photo by Solomon Crenshaw Jr.)

Gross, who also serves as an environmental specialist with the council, wanted Cawaco to be involved because of its efficiency and the synchronicity of its values with those of the initiative. Cawaco handles operations, human resources and payroll for Cool Green Trees and provides other support. “Because of them, we were able to get to work on projects right away,” Gross said.

Former Jefferson County Health Officer Dr. Mark Wilson, who retired from the county Department of Health in October 2023, played a vital role in the launch of Cool Green

Trees. Inspired by his love for trees and similar work his college-aged daughter was doing at the time, Wilson began talking to people about working to increase the tree canopy in Birmingham. “I talked to the Nature Conservancy, the Birmingham Botanical Gardens, Freshwater Land Trust and finally I came across Francesca Gross, whom I already knew, and she said this is something she’d been wanting to do for over 10 years.”

Wilson asked Gross to propose a plan and a budget and, with the backing of the Community Foundation of Greater Birmingham, Cool Green Trees was able to secure operational funding for basic staffing and tree purchases.

“I, as health officer, felt pretty strongly that we needed to do more to address environmental issues and in particular the threats of climate change and the health threats of climate change. I got the Board of Health to do a board resolution, which basically officially states from the Jefferson County Health Department’s perspective that climate change did pose a public health threat Having that board support sort of helped legitimize (the effort).”

Wilson said the findings from Lister Hill’s study supported concerns about poverty, flooding and air pollution.

“Those were issues that the health department had been struggling with through its other various programs because we do stormwater management, air pollution regulation and enforcement, and certainly have tried to make areas where there is poverty a priority for various programs we do to help promote health equity. So it (Cool Green Trees) fit, it checked all those boxes and did some things that the health department couldn’t do through its usual regulatory work,” Wilson said.

Dr. David Hicks, the current county health officer, views the department’s role in the Cool Green Trees initiative as vital and is committed to continuing the work.

“By integrating public health perspectives into environmental projects, we can ensure that the benefits of such initiatives are maximized for community well-being. This collaboration highlights the importance of addressing environmental factors that directly impact health,” Hicks said.

Heat Islands Pose Hazards

Hicks stressed the importance of addressing urban heat islands. The concrete and asphalt and brick that cover much of developed land absorb heat during the day and

then radiate it into the evening, keeping the area much hotter than natural areas would be.

“Trees can serve as natural air conditioners to counter these increased temperatures and improve air quality by filtering pollutants,” he said.

“Higher temperatures put people at risk of dehydration and heat-related illness. Additionally, some studies have suggested worsening respiratory and cardiovascular conditions as temperatures rise,” he continued. “I hope that, over time, people continue to embrace this initiative as one of many efforts to become a healthier community.”

Gross said that, in addition to helping to cool the



Arborist Patrick McMahon instructs volunteers on tree planting during Cool Green Trees event in East Thomas. (Photo by Solomon Crenshaw Jr.)

neighborhood, areas planted in vegetation also act as natural sponges to absorb excess rainfall. That helps reduce runoff that floods streets during rains.

The city of Birmingham has also been a key partner in the initiative, allowing Cool Green Trees to plant on city right of way as well as maintaining the green infrastructure across Birmingham. Smith said the initiative also has begun working with the city’s horticulture team, which has let them store trees on their property.

James Fowler, director of transportation for Birmingham, said the Cool Green Trees’ goals align with the city’s work to make city streets safer and more walkable.

“Trees are related to transportation in several different and equally important ways. For starters, our summers in Alabama are hot, and trees provide shade, which is important for walking. Additionally, street trees can create a protective buffer between pedestrians and cars. A tree canopy over the roadway can also have a traffic calming effect for cars by creating a sense of enclosure,” said Fowler. “And lastly, trees make for an attractive and interesting environment, which is also important for walkability.

Fowler said BDOT and Cool Green Trees are still early in their work together, “but so far Cool Green Trees has helped to plant trees along trails and streets, such as the Village Creek Greenway in East Lake Park. Additionally, Cool Green Trees is about to start planting trees in some of the empty tree wells around our downtown. There are a lot of spaces remaining that need shade, so we expect to do a lot more work together in the future,” he said.

Growth Tracks Upward

The impact of Cool Green Trees is measurable and growing. In 2023, the group planted 612 trees; it planted 660 in 2024 and has a goal to plant an additional 600 trees in 2025. It surpassed the requirements of its federal grant, which was to plant 400 trees a year.



Cool Green Trees volunteers break the ground to plant river birch, cypress and a variety of oaks during a volunteer event in East Thomas. (Photo by Solomon Crenshaw Jr.)

“It’s really great, and I think about half of those are smaller ones and half are bigger contracted trees,” Smith said. “We do contract out work to get large trees planted that just can’t be done by volunteers. And the purpose of that is kind of to make more of a statement and a bigger impact.”

The program also focuses on

maintenance to ensure the trees thrive. “It will take a while for these trees to kind of get settled in and be to the point where they’re just beautiful all the time. So a really

important part of our mission is that we come back and do maintenance. We don't just leave it there to kind of fend for itself," Smith said.

Cool Green Trees has been funded with a \$3.6 million grant from the U.S. Forest Service's Inflation Reduction Act and additional grants from organizations such as the Arbor Day Foundation.

Hicks said that, as health officer, it's been gratifying to support Cool Green Trees.

"It's incredibly fulfilling to be part of an initiative tackling environmental inequity while combating climate change. It's a unique opportunity to make a tangible difference in historically underserved communities and contribute to a healthier, more sustainable future," he said. "We have seen people engaged and mobilized to create change on a local level. This initiative helps address a core mission to promote a healthy lifestyle and a healthy environment."

The Cool Green Trees initiative periodically has volunteer tree-planting events. The next is set for Jan. 25 at 9 a.m. in Wahouma Park on 71st Street North. Those interested may [register here](#).