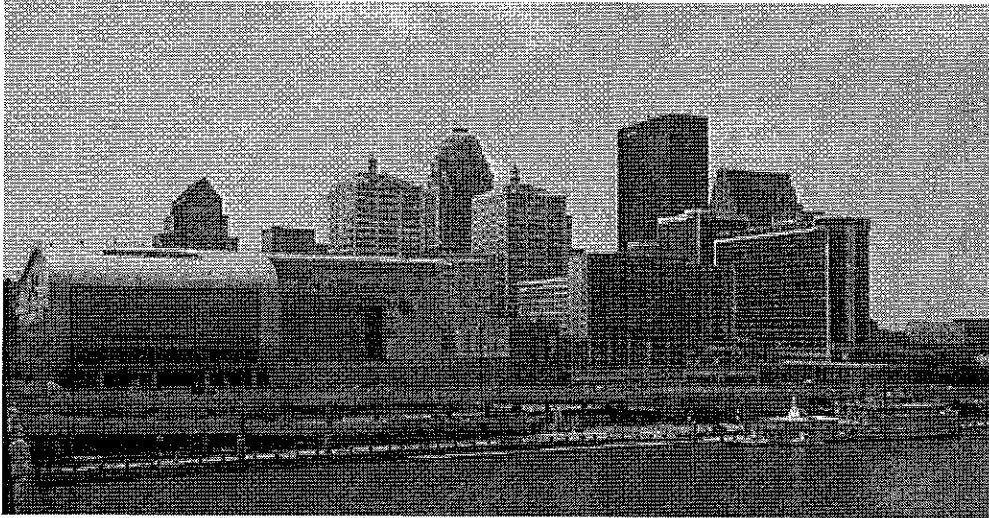# SUSTAINABILITY

Contact

Sustainability
(502) 574-6285

527 W. Jefferson Street
Louisville, KY 40202
8:30am - 5:00pm Monday - Friday

Urban Heat Island Project

Urban Heat Management in Louisville

Why is urban heat such a big deal in Louisville?

An urban heat island is a city or metropolitan area that's significantly warmer than its surr
due to human activities. It's common in cities across the nation — but it's advancing in Lo
fastest rates in the country.

In the parts of Louisville that feel urban heat the most, the temperature may be 10 degree
parts of the city.

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Urban heat in Louisville was the subject of a comprehensive study, the first of its kind, led by Dr. Brian Stone of the Urban Climate Lab at Georgia Institute of Technology. Dr. Stone outlined the dangers facing Louisville because of the urban heat. He also detailed recommended actions that the city and its residents can take — in businesses, homes, and throughout the community — to reduce urban heat.

Louisvillians from across the city will have to play a part. Fortunately, Dr. Stone's study included strategies for doing just that.

The Louisville Urban Heat Management Study, (web version (/file/louisvilleheatmgtreportfinalwebpdf)) (print version - 11mb (/file/louisvilleheatmgtreportfinalpdf)) was commissioned through the Office of Sustainability with generous support from the Owsley Brown Foundation and the Augusta Brown Holland Foundation. It was made possible through the Funders' Network for Smart Growth and Livable Communities and its partner, the Urban Sustainability Directors Network.

How does it hurt Louisville residents?

The additional heat in the urban core leads to costlier utility bills but also serious health issues — it's a real danger to vulnerable Louisville residents. The hotter air exacerbates the effect of air pollution; Louisvillians with asthma or other respiratory problems in UHI-affected areas are put at risk.
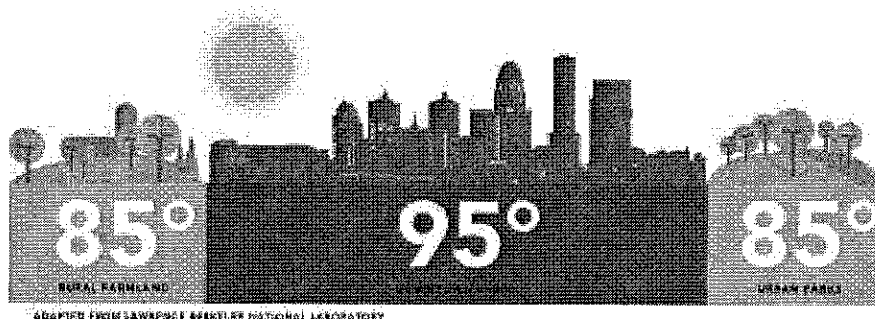
The urban heat island effect is caused by many factors, including an abundance of dark-colored asphalt and other surfaces. Downtown Louisville and urban residential neighborhoods — especially those along the Ohio River — are experiencing the urban heat island effect the most.

"We know that too often the ZIP code where you are born can correlate with negative health outcomes. That's unacceptable," said Mayor Greg Fischer. "In addition, the added heat causes citizens and businesses to run their air-conditioning longer and higher, which drives up energy costs for citizens and businesses. It also increases pollution, leading to more global warming. It's a vicious cycle."

Heat waves often lead to increases in emergency room visits and hospital admissions.

Each year, heat-related ailments contribute to the deaths of 86 Louisville residents, according to Dr. Stone's study.


What the Urban Heat Island Effect means for Louisville

85° RURAL FARMLAND   95°   85° URBAN FARMS

ADAPTED FROM LAWRENCE BERKELEY NATIONAL LABORATORY

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What can we do to help?

A lot — and we have a good deal of information that can help guide our efforts. One way to turnaround the urban heat island effect is reduce the amount of surfaces that absorb the heat from the sun.

The study breaks down steps to reduce the urban heat island effect in Louisville by neighborhood. **Here, you can search what's recommended in your part of Louisville.**
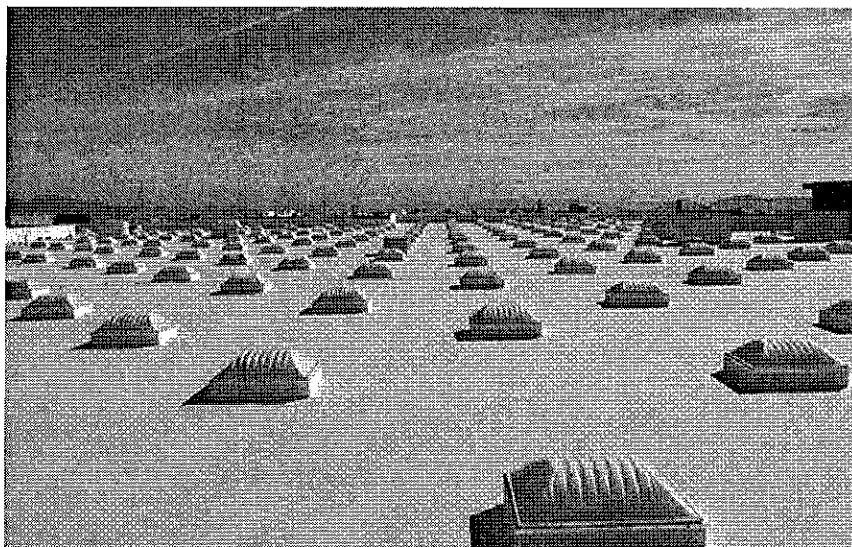
(https://data.louisvilleky.gov/dataset/urban-heat-island-effect-actions-neighborhood-data) (Some elements are measured in hectares; each hectare equals about 2.5 acres.)

We're calling this effort *Cool502*. The recommendations are:

Property owners can install **cool roofs** that reflect heat. Commercial and industrial buildings typically have black or dark roofs. But businesses can instead have white or light roofs, which reflect heat, installed the next time their structure needs a new roof. Meanwhile, Louisville homeowners can help by using shingles of lighter colors the next time roofing is needed.

Green roofs, which include plants and grasses, can also help reduce the urban heat island effect. Green roofs have the added benefit of improving air quality, soaking up rainwater and keeping water out of the sewer system.

Trees go a long way, too. The city has a goal to have its tree canopy at about 45 percent — but we're currently at 37 percent. Even before the urban heat island report, the city was endeavoring to plant more trees. The efforts included the hiring of the city's first urban forester, Erin Thompson, and helping to establish Trees Louisville, a non-profit working to plant and care for the city's trees.
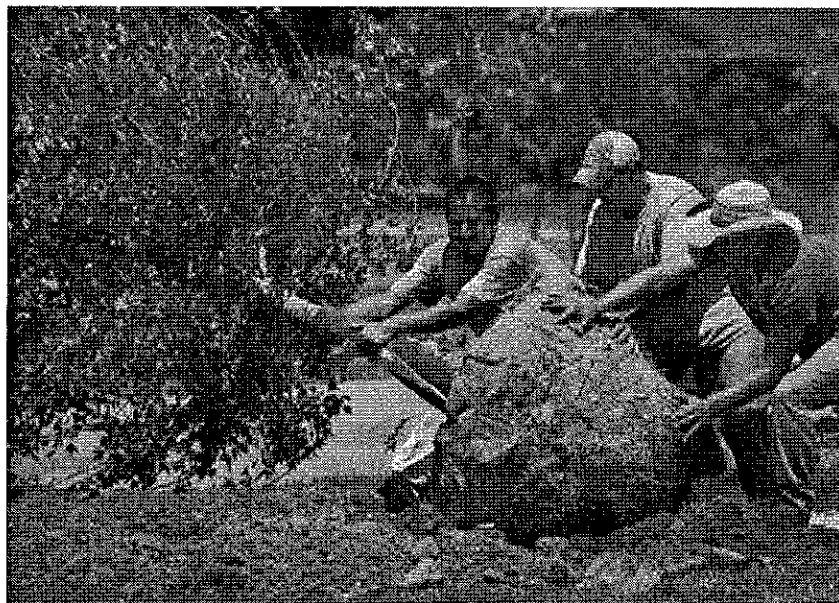
Louisville residents can help by **planting trees** on their own property, too.

Residents can also help by **planting grass** on barren lands that have no vegetation or are on

Another factor in the urban heat island effect are paved surfaces. The city currently uses hea but a lighter-colored topping could help make streets more reflective of heat. The city will be **paving products** and conducting tests in the coming months.

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When you undertake one (or more) of these strategies, let us know on Twitter by posting pictures and descriptions using the hashtag #cool502.

Neighborhood Based Heat Management Strategies

View the data. Download Microsoft Excel worksheet (https://data.louisvilleky.gov/node/6141/download).

Download this excel spreadsheet to use as a tool for neighborhood level intervention. The worksheet contains the cool roofing, cool paving, tree planting, barren land-to-grass conversions and green roofing targets suggested by the Urban Heat Management Study for each neighborhood in the urban core zone, as well as for the remainder of Louisville Metro falling outside of established neighborhood boundaries. The Urban Heat Management Study found that if all strategies were adopted in combination, temperature reductions could exceed 5°F in certain areas on hot afternoons.

What's next?

The Office of Sustainability conducted a 60-day public comment period where individuals could comment on the results contained within the Urban Heat Management Study.

Following the public comment period, the city and community partners are expected to announce policy changes to begin the long-term process of reducing the city's heat island.

Those changes will join efforts already underway to make Louisville more sustainable. Those include:

- Move Louisville, the 20-year transportation plan for the city;
- The Compact of Mayors, with the city and businesses pledging to reduce greenhouse emissions;
- TreesLouisville;
- A new policy calling for the city to no longer mow vacant lots, parks and right of ways on Air Quality Alert Days.

Cool502 — addressing the urban heat island effect — will be a gradual process and a citywide effort. This effort will help Louisvillians live longer, happier lives, and help our city become an even better and healthier place to live and work.

The Urban Heat Island in Louisville: How it's harmful

Urban Heat Island in Louisville: How you can help