



URBAN HEAT ISLANDS

WHAT ARE URBAN HEAT ISLANDS ?

Urban heat islands are the concentration of heat occurring in city centers. Climate change has caused an increase in severe weather, including extreme heat. Urban areas harbor high amounts of excess heat compared to nearby rural areas because they have fewer trees to provide shade and more dark surfaces and concrete to hold in the heat. Urban heat islands are likely to occur in city areas due to:

Temperatures across a city can differ by more than 10 degrees due to levels of concrete, asphalt, and trees. Areas of higher temperatures are called heat islands.

Concrete surfaces that absorb and re-emit heat back into surrounding areas

Tall buildings that keep heat from escaping

Loss of trees and natural areas to combat the heat via shade and evapotranspiration*

*the process in which trees absorb heat and CO2 to perform photosynthesis



CHECK YOUR UNDERSTANDING: WHY ARE TREES AND GREENERY IMPORTANT TO COMBAT URBAN HEAT?

- Trees perform evapotranspiration.
- Trees provide shade.
- Trees absorb greenhouse gases.



Health Effects:

Extreme heat is dangerous to human health and wellbeing, both in the short- and long-term, because it disrupts bodily functions designed to help cool us down. Urban heat islands contribute to higher temperatures and greater air pollution levels around the clock. This prolonged heat and pollution contributes to heat-related illnesses including respiratory difficulties, heat exhaustion and heat stroke, dehydration, general discomfort, and even heat-related death. Heat islands can even negatively affect mental health, as well; High temperatures can negatively impact the effectiveness of certain medications.



People Most at Risk:

Those in our community who are most affected by extreme heat and the associated health complications include the elderly, youth, people with certain health conditions, and people who are pregnant. Their bodies do not combat heat as well as a healthy able-bodied adult. Individuals with existing health conditions are even more susceptible to extreme heat, including people who have asthma, hypertension, heart-related illness, and any illness caused by an imbalance in the body. Community members who are overexposed to urban heat, such as people who experience housing insecurity, people dependent on public transportation, and people who regularly work outside are at risk due to overexposure to high temperatures.

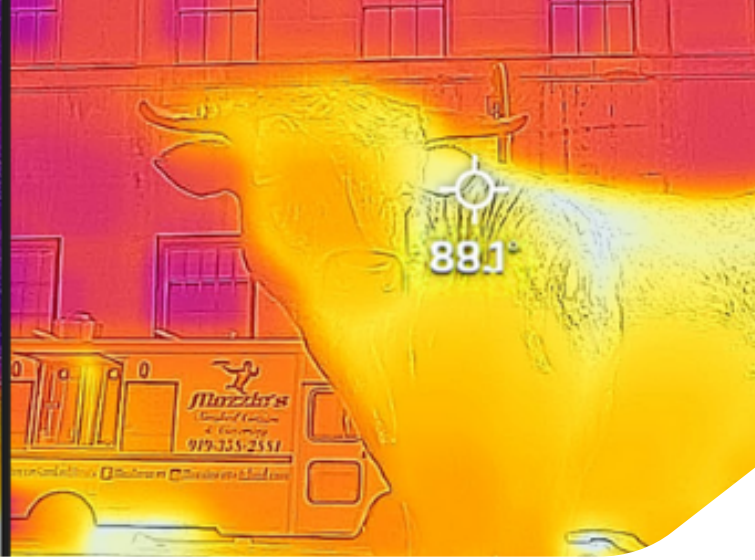
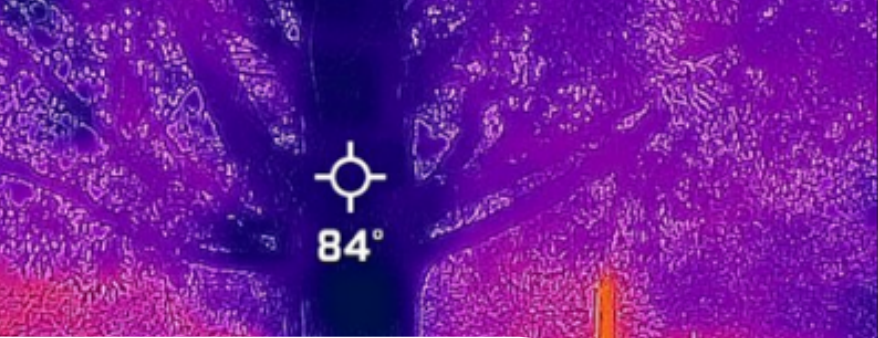


GREENERDURHAM@DCONC.GOV



GREENERDURHAM.NET





URBAN HEAT IN DURHAM

DURHAM RANKS IN THE 87TH PERCENTILE FOR CITIES WITH THE HIGHEST DEGREE OF HEAT IN THE U.S.

WHY DOES DURHAM RANK SO HIGH?

Underfunded communities resulting from **redlining** paired with Durham's **high humidity** has caused Durham to rank high in regard to heat risk. Some city centers have up to a 10-degree difference compared to their rural counterparts.

High Humidity: Durham also experiences high humidity. Sweat is the body's primary defense against high temperatures. It does this by evaporating off the skin. When it is humid, the sweat cannot evaporate and is no longer effective at cooling the body, resulting in a lower defense against urban heat.

Historical Redlining: To understand urban heat in Durham is to understand our community's history. Durham endured severe redlining policies during the 1930's, which marginalized certain neighborhoods, particularly those with a higher number of minority groups, resulting in severely underfunded neighborhoods. Many of these historically redlined communities are still experiencing a scarcity of resources to this day. A lack of trees and green spaces, access to cooler areas, air conditioning appliances, and other means of protection from extreme heat has caused increased risk for heat related complications in these areas.

There are several resources available to residents who qualify for assistance. We are interested in hearing affected communities. If you would like to share your experience with urban heat, or if there is a resource you would like to see in your community, please reach out to Durham's Sustainability Office!

 **Operation Fan Heat Relief Program**

- Durham offers free fans to residents that meet the requirements – Call (919)-688-8247.

 **Get alerts about heat advisories and cooling centers**

- Durham County Emergency Management will send alerts when they open cooling shelters and for other weather emergencies - <https://alertdurham.com/>

 **Families Moving Forward**

- Offers assistance to populations at risk- (919) 638-5878