

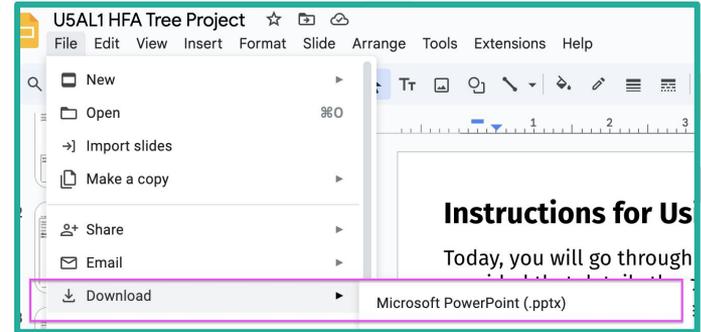
A stylized DNA double helix structure is positioned on the left side of the image. It consists of two grey ribbons representing the sugar-phosphate backbones, which are twisted around each other. Horizontal grey lines connect the two ribbons, representing the base pairs. Interspersed along these horizontal lines are several solid-colored circles in shades of pink, teal, orange, and yellow, representing the nitrogenous bases.

HFA Tree Planting Project & Root Nashville

Instructions for Using These Slides

Today, you will go through each slide and read the information provided that details the ongoing efforts being done locally to improve urban greenspaces across Davidson County.

1. DOWNLOAD AND MAKE A PERSONAL PPT COPY OF THIS SLIDESHOW. 'Enable Editing' when opened.
 - ***Not a Google copy - the link sharing settings won't always let me view the link submitted to Schoology.***
2. You will then edit each text box to add your responses to each slide's prompt after analyzing the data.
 - Be sure to answer each question in complete sentences and answer all components.



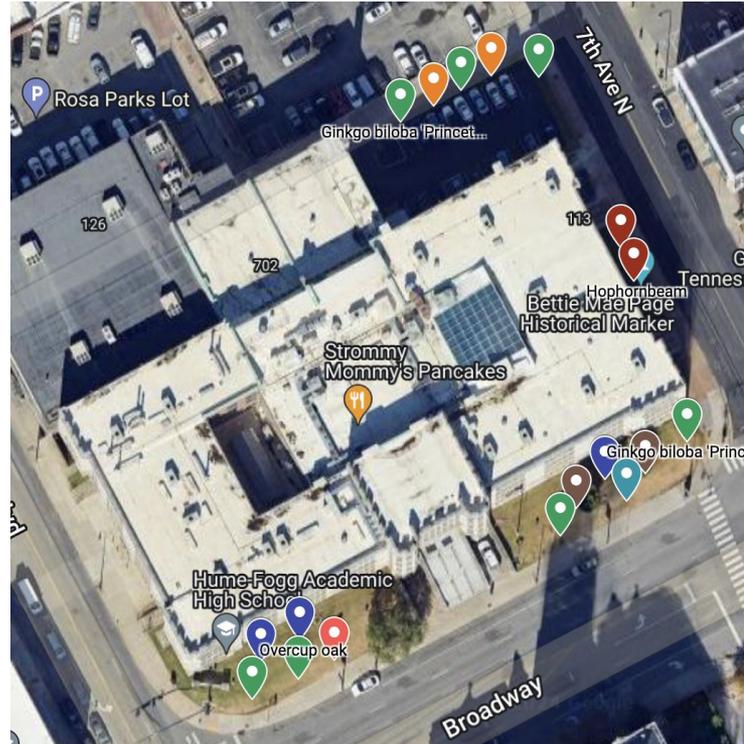
3. When finished: File- Save, then upload to Schoology.

Opener: HFA Tree Planting (January 2025)

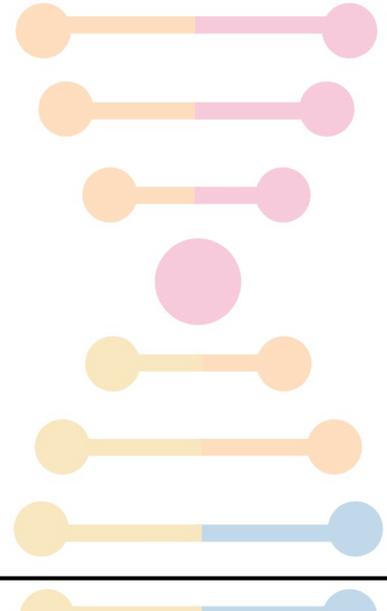
Recently, the 3 Bradford pear trees (an invasive species) on the front lawn were cut down. In January, 18 native trees will be planted on the front, side, and back lawns of Hume-Fogg.

But why is this happening? What benefits is this bringing to us, HFA, and downtown Nashville?

-  Ginkgo biloba 'Princeton Sentry'
-  Overcup oak
-  Emerald sunshine elm
-  Hophornbeam
-  Shumard oak
-  Chinese pistache
-  Disease-resistant crabapple



In this text box, given what you know, what benefits is this bringing to us, HFA, and downtown Nashville?



Root Nashville & Tree Benefits

Root Nashville is the collaboration between Metro Government and the Cumberland River Compact to plant 500,000 trees across Davidson County by 2050. **What are the benefits to trees?**



In this text box, identify 3 benefits of trees:

- 1.
- 2.
- 3.

Root Nashville & Tree Benefits

Trees support all life on Earth, taking in carbon dioxide and releasing oxygen. For Nashville, as the planet warms, trees will be increasingly critical to reduce flooding, humidity and heat. Root Nashville has identified 5 priority actions for Davidson County.

1 Equitable canopy distribution

Trees are not evenly distributed across our neighborhoods, and we aim to change that.

2 Promote public health

Trees improve respiratory health, especially for children with asthma.

3 Cool our city

Trees lower temperatures by providing shade and through the process of evapotranspiration.

4 Improve water quality

Trees reduce stormwater runoff and filter pollutants, enabling cleaner water to reach our waterways.

5 Diversify our canopy

The invasive Emerald Ash Borer (or EAB) has arrived in Nashville. The campaign is planting a diversity of species to help minimize these losses.

In this text box, identify and describe which 2 benefits or priority actions have the most meaning/importance/impact for you:

- 1.
- 2.

How Do Trees Benefit People?

Beyond adding beauty to our communities, trees provide real health and safety benefits to people living in cities and towns every day.

- Build Connection**
Trees support social connection. Studies found that residential common areas with trees and other greenery support stronger feelings of community.
- Reduce Stress**
City walks by green spaces result in a lower heart rate than walks by buildings or paved lots.
- Getting Active**
People who live in areas with high levels of greenery are much more likely to be physically active.
- Cool Spaces**
Trees offer cooling benefits to cities and towns, which are typically warmer due to hard surfaces.
- Support Long-Term Health**
People who live in areas with healthy tree canopy experience less asthma, strokes, and cardiac arrest.
- Safety Buffer**
Trees provide a natural barrier between cars and people enjoying walks in their neighborhoods, creating a safer space for everyone.
- Clean Air**
Trees directly remove particulate matter from the air, reducing overall air pollution.

Moving Towards Tree Equity

Many studies have found that trees are not equitably distributed throughout our cities and towns, with areas of majority Black, Indigenous and other frontline communities experiencing lower tree canopy than other areas. As we work to increase tree canopy to support the health of people and the environment, it is important to create accessible opportunities to collaborate with these communities to address these disparities.

The Nature Conservancy

How Much of Nashville is Forested?

Nashville's urban tree canopy covers 53-56% of its land, rivaling the most forested cities in the nation. With the exception of large cities with small populations, Nashville has the largest urban tree canopy of major cities by area. However, its tree canopy is not evenly distributed, and the city is geographically vast. Meaning that most people in town aren't living with dense canopies.

In this text box, discuss what do you notice about land use in Nashville?

Impervious surfaces are those that water cannot go through, like sidewalks and parking lots, or other hard, non-soil surfaces. In this text box, discuss what do you notice about impervious surfaces in Nashville. Compare what you see/experience around school with your neighborhood.

METRO NASHVILLE LAND COVER

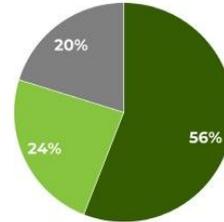


How Much of Nashville is Forested?

Nashville's urban tree canopy covers 53-56% of its land, rivaling the most forested cities in the nation. With the exception of large cities with small populations, Nashville has the largest urban tree canopy of major cities by area. However, its tree canopy is not evenly distributed, and the city is geographically vast. Meaning that most people in town aren't living with dense canopies.

Urban tree canopy potential describes areas that are currently *not* forested, but *could be* in the future. **In this text box, discuss what do you notice about urban tree potential in Nashville? What types of land composes the city?**

URBAN TREE CANOPY POTENTIAL



- Urban Tree Canopy
- Possible Planting Area
- Unsuitable Area

Figure 9. | Urban tree canopy, possible planting area, and areas unsuitable for UTC.

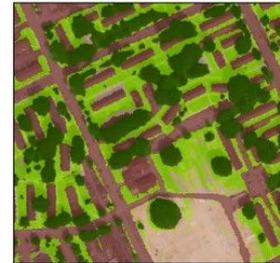
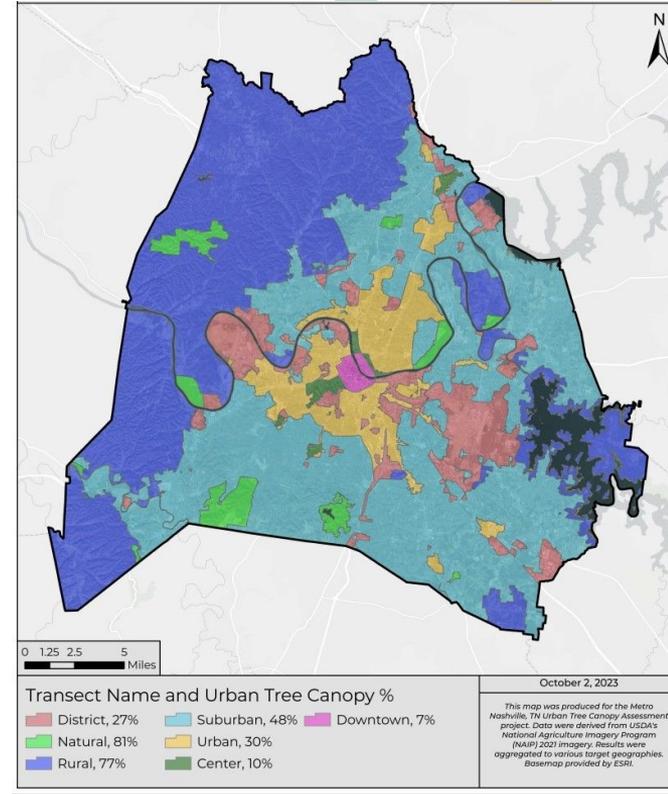


Figure 10. | Distribution of UTC, possible planting area, and areas unsuitable for UTC.

How Much of Nashville is Forested?

Nashville's urban tree canopy covers 53-56% of its land, rivaling the most forested cities in the nation. With the exception of large cities with small populations, Nashville has the largest urban tree canopy of major cities by area. However, its tree canopy is not evenly distributed, and the city is geographically vast. Meaning that most people in town aren't living with dense canopies.

Urban tree canopy percentage measures how much of the land contains trees. **In this text box, discuss are there areas of the city that seem to have more trees currently? Are there areas of the city that could benefit from more trees in the future?**

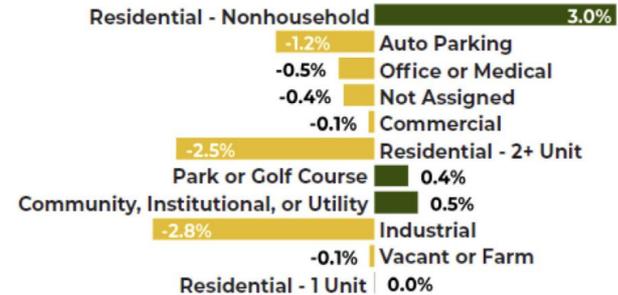


Nashville's Tree Coverage is Changing

In the 2016-2021 period, three transects lost significant tree acreage. The suburban transect lost about 1,500 acres, the urban transect lost 678 acres, and the district transect lost nearly 450 acres. The natural, center and downtown transects remained about the same, and the rural transect gained about 1,600 acres.

Urban tree canopy (UTC) measures how much of the land contains trees. **In this text box, discuss what changes do you see in Nashville? What things/places are increasing urban tree canopy? What things/places are decreasing urban tree canopy?**

UTC CHANGE % (2016-2021)



UTC CHANGE % (2010-2016)



UTC CHANGE % (2010-2021)

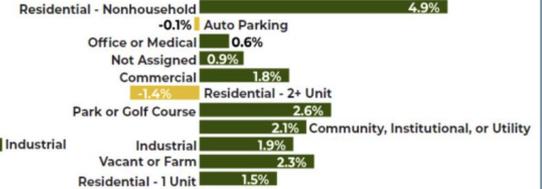


Figure 15. | Urban tree canopy change between 2010 and 2016, 2016 and 2021, and overall change between 2010 and 2021 by land use types.

Nashville's Tree Coverage is Changing

In the 2016-2021 period, three transects lost significant tree acreage. The suburban transect lost about 1,500 acres, the urban transect lost 678 acres, and the district transect lost nearly 450 acres. The natural, center and downtown transects remained about the same, and the rural transect gained about 1,600 acres.

Urban tree canopy (UTC) measures how much of the land contains trees. **In this text box, discuss what changes do you see in Nashville? What areas are increasing urban tree canopy? What areas are decreasing urban tree canopy?**

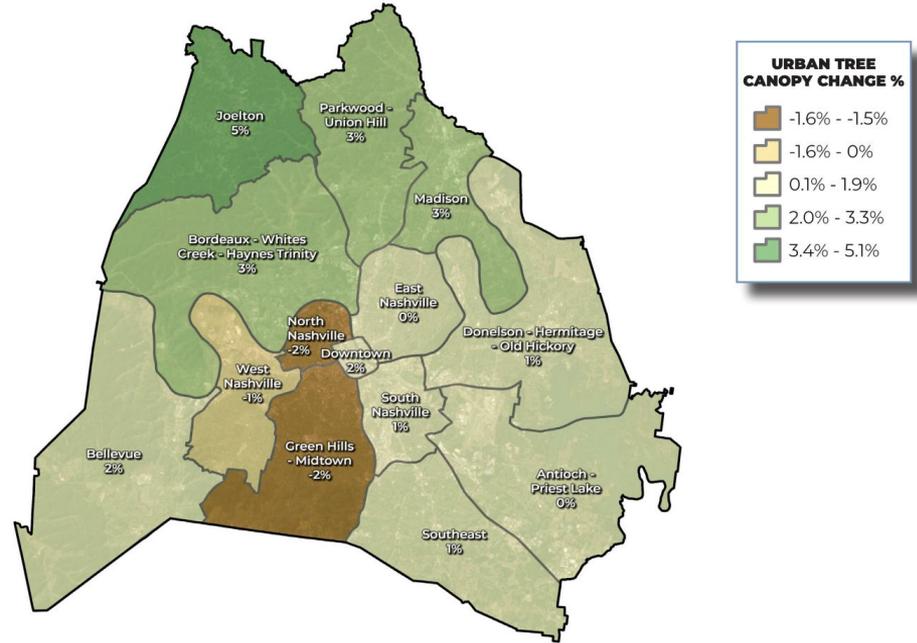


Figure 16. | Urban tree canopy change percent by community planning areas.

Nashville is Hot (And Not in a Good Way)

In Nashville, climate change is predicted to worsen extreme heat more than any other weather threat. While temperatures are expected to rise by a minimum of 1.5°C worldwide (IPCC, 2018), this represents a global average and hides the fact that extreme heat events will increase in frequency, duration, and intensity (IPCC, 2021). The effects of extreme heat include detrimental public health outcomes as well as infrastructural and economic challenges.

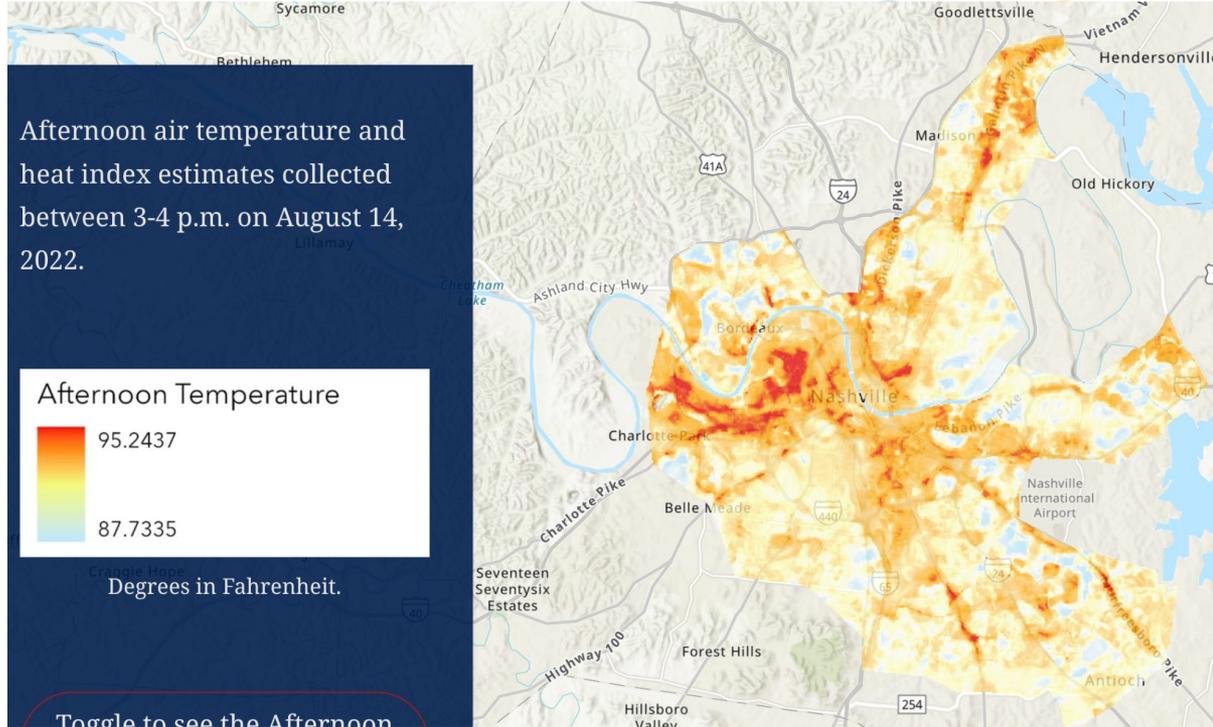


In this text box, discuss what are your experiences with heat in the city? What does it feel like at school vs. in your neighborhood?

Nashville is Hot (And Not in a Good Way)

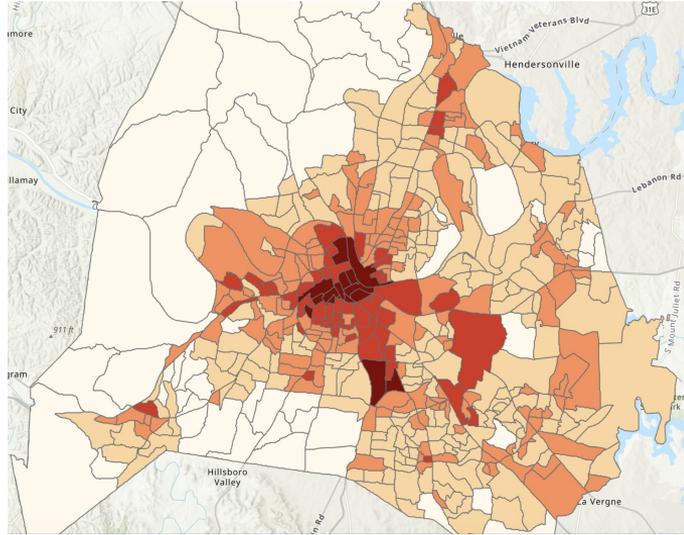
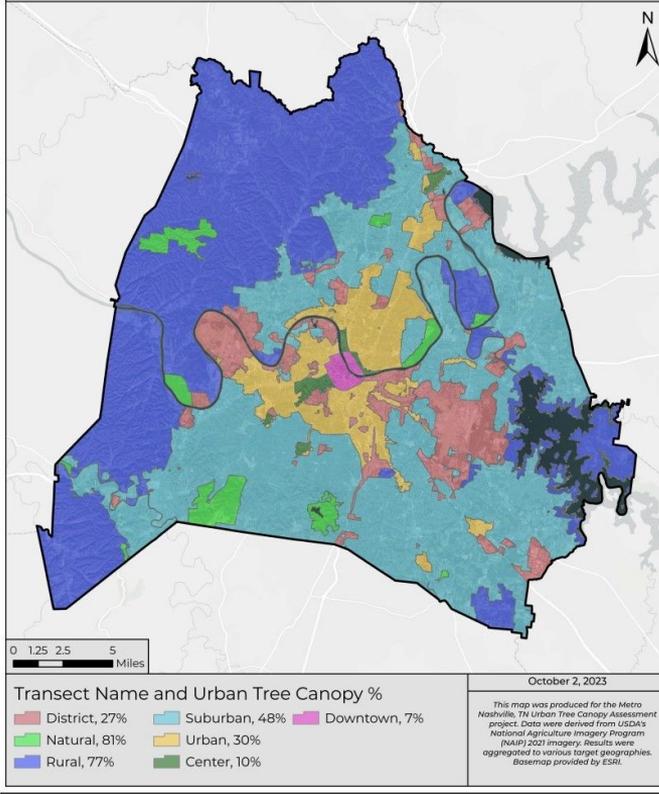
In Nashville, climate change is predicted to worsen extreme heat more than any other weather threat.

Impervious surfaces, like pavement, hold onto heat longer than soils and trees do. Trees actually capture some of that heat energy for photosynthesis. **In this text box, discuss what areas of the city are hotter in the afternoon? Which are cooler?**



Trees and Heat

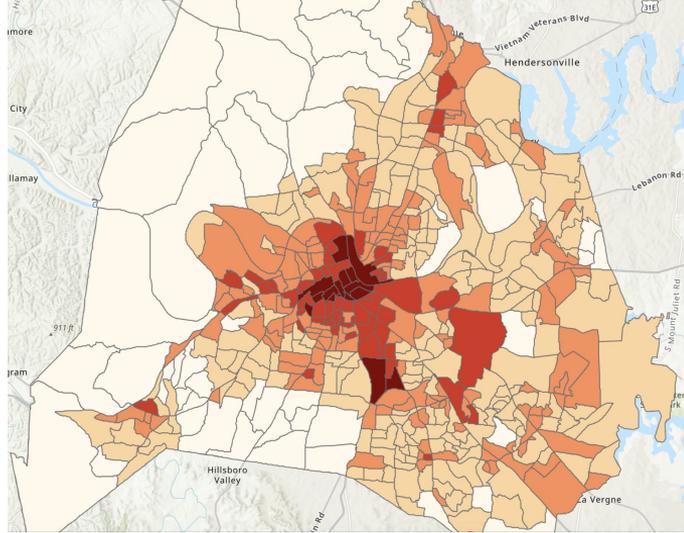
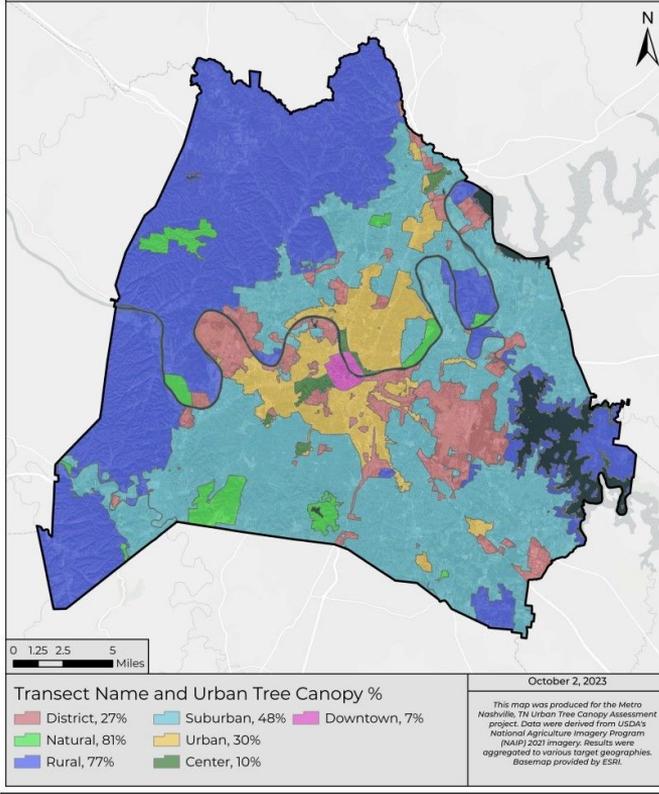
In Nashville, climate change is predicted to worsen extreme heat more than any other weather threat. Impervious surfaces, like pavement, hold onto heat longer than soils and trees do. Trees actually capture some of that heat energy for photosynthesis.



In this text box, discuss what is the connection between urban tree canopy (UTC) and the heat exposure index across the city?

Trees and Heat

In Nashville, climate change is predicted to worsen extreme heat more than any other weather threat. Impervious surfaces, like pavement, hold onto heat longer than soils and trees do. Trees actually capture some of that heat energy for photosynthesis.



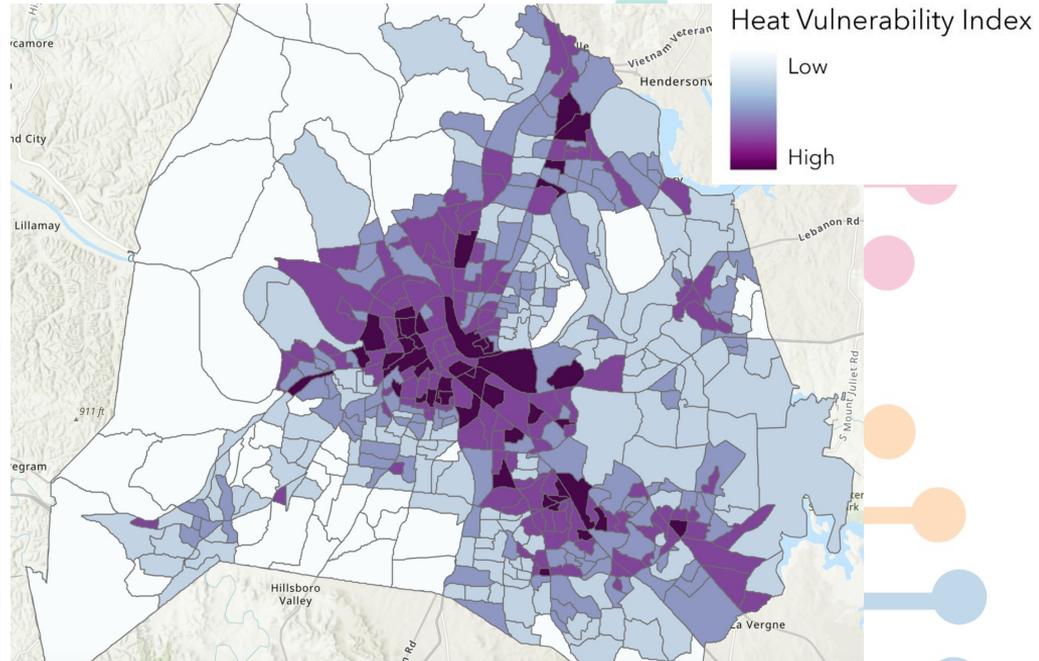
In this text box, compare and contrast the heat exposure index of downtown (HFA) vs your neighborhood.

Why Should We Care?

Heat risk is determined by many factors. Exposure to heat, or the degree to which one experiences very hot temperatures due to where they live, work, and play, is an obvious threat. Sensitivity to heat is determined by the body's ability to cool itself when exposed to high temperatures and is determined by age, overall health, and chronic conditions (such as asthma or heart disease). Finally, there are factors that may limit a resident's ability to access resources such as physical isolation (living alone, not having reliable transportation, etc...), linguistic isolation, or having a lower income. All of these factors are unevenly distributed across Nashville's neighborhoods. This Heat Vulnerability Index combines the Heat Exposure Index and Social Vulnerability index to visualize where residents are both more exposed to heat and more vulnerable relative to the general population.

In this text box, discuss what are trends you see in heat vulnerability index across the city?

In this text box, compare and contrast the heat vulnerability index for downtown (HFA) and your neighborhood.



What We Are Doing: HFA Tree Planting (January 2025)

In January, 18 native trees will be planted on the front, side, and back lawns of Hume-Fogg to help bring green spaces to Hume-Fogg and downtown Nashville. We are doing our part to combat some of negative ecological and health impacts of urban design around our school.

-  Ginkgo biloba 'Princeton Sentry'
-  Overcup oak
-  Emerald sunshine elm
-  Hophornbeam
-  Shumard oak
-  Chinese pistache
-  Disease-resistant crabapple

