



## Green Cities = Cool Cities

### Demographics

#### Top Five Racial and Ethnic Groups\*

71.7%	White (Non-Hispanic)
18.1%	Black (Non-Hispanic)
4.67%	White (Hispanic)
2.02%	Two+ Races (Non-Hispanic)
1.41%	Asian (Non-Hispanic)
\$45,450	Median Household Income

\*Source: 2018 Data USA, at: <https://datausa.io/profile/geo/wilmington-nc>



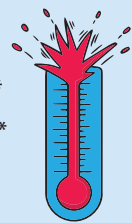
### Urban Forest

48.2%	Current tree canopy
61.9%	Potential tree canopy
13.7%	Potential canopy increase
29.3%	Impervious surfaces
4,212	Acres of Potential Planting Area (PPA)



### Urban Heat

98°F	Average surface temperature*
Projected future days above 107°F**	
8 days	Historically (1971 – 2000)
59 days	Mid-century (2036 – 2065)
91 days	Late century (2070 – 2099)



\*across study area on July 5, 2017  
 \*\* Data source: Union of Concerned Scientists, Killer Heat in the United States, at: <https://www.ucsusa.org/resources/killer-heat-united-states-0>

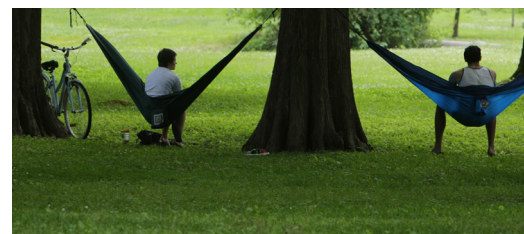
### Overview

The hottest Census Block Group (CBG) in Wilmington registered a whopping 119°F. It is also the CBG where residents have the lowest income in the city, with a median household income of \$11,566 – just one quarter the citywide median of \$45,450. People of Color (POC) comprise 93% of the population in this CBG. The majority of housing is composed of multi-family, with an affordable housing community called Hillcrest Residence Services that is run by the Wilmington Regional Housing Authority, and that accounts for a large portion of housing in the area. If all available open spaces were planted with trees, the canopy could increase from 27% to 41%. However, it is usually impractical to plant more than 50% of available areas in communities. This is because people have other



Example playground with no tree shade in Greenville, SC.

Trees are often excluded from playgrounds for fear of injury, but the risk of injury from falling out of a tree or a tree falling over is very low. Trees can enhance a playground by providing shade to prevent overheating while playing. The greener a school's surroundings, the better its standardized test performance – even after accounting for poverty and other factors (Sivarajah et al., 2018)



Most of Wilmington's parks have nice shade trees for residents to take a break from the sun.

uses for open space, such as vegetable gardens, flowerbeds, lawns or spaces to play games. However, leaving half of the open space unshaded would still afford a 7% increase in tree canopy.

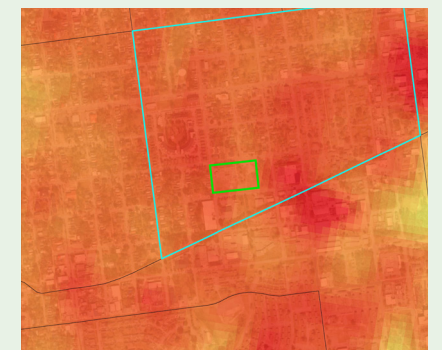
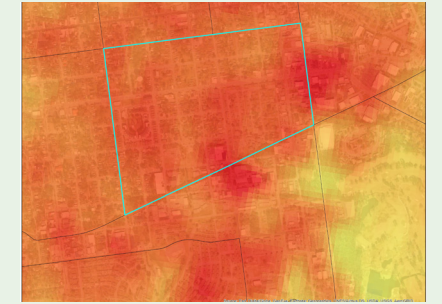
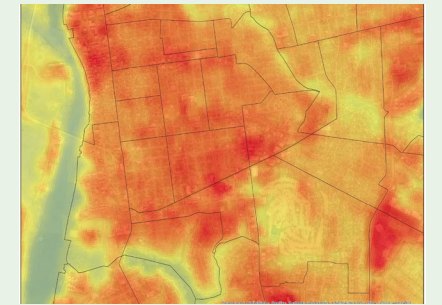
A partnership with the regional housing authority and the residents who live there could be undertaken. This type of strategy could be used to engage other multi-family housing in adjacent hot and low-income neighborhoods.

As noted, in the introduction to this section, urban heating has a disproportionate impact on younger children. According to the Environmental Protection Agency (EPA), children are more vulnerable to extreme heat exposure than adults because of a combination of factors, such as a greater skin surface area relative to body mass, which can result in dehydration; greater physical exertion than adults; and lack of awareness when it comes to rehydration and limiting exertion in heat (EPA 2020). The Mary W. Howe Pre-K Center is also located in this incredibly hot neighborhood and 13% of the population of the community are children under the age of 5 years. As shown in the graphic, this Pre-K Center's playground is very exposed to the sun. Through a partnership with the center, some well-placed trees on the playground could provide more shade for children, while trees planted near the fence line could offer shade to people walking on sidewalks or families walking to school. When modeling tree locations, a key caveat is that the data doesn't replace the need for onsite visits and assessing constraints for tree plantings, such as buried utilities or recent changes to the landscape that might have occurred since the images were taken, such as new play equipment in what had been an open space or a new kindergarten flower garden.

Another factor to consider when working with schools to plant trees for shade is communicating that the end result will take several years, so children currently using the space won't enjoy the shade any time soon. Therefore, it is important to frame strategies in terms of the future and consider sun shades or other plans while the trees grow. An additional concern may be safety, since the community may be worried that having trees too close to playground equipment may encourage illicit activity or create hazards from children climbing the trees. Hiring an arborist to remove lower limbs, erecting a temporary fence or choosing species that have limbs higher up will prevent this from becoming an issue and ensure clear sight lines for parents to see their children.

## Step-Wise Strategy to Identify Communities and Mitigation Opportunities

1. Use maps to identify hot spot(s) in the city with low canopy.
2. Identify vulnerable or underserved populations of interest.
3. Prioritize areas that meet the first two criteria.
4. Outreach and engage with the community.
5. Identify plantable hotspots within schools or playgrounds.



6. Identify planting spots.



7. Strategically plant trees onsite.



GIC has developed a tool to show the most advantageous places to plant trees to cool buildings. Contact GIC at [www.gicinc.org](http://www.gicinc.org) to learn more.