



BEAT THE HEAT

MIAMI BEACH, FLORIDA

Green Cities = Cool Cities



Demographics

Top Five Racial and Ethnic Groups*

65.0%	White (Hispanic)
13.0%	Black (Non-Hispanic)
11.0%	White (Non-Hispanic)
5.46%	Other (Hispanic)
2.29%	Black (Hispanic)
\$41,818	Median Household Income



*Source: 2018 Data USA, at: <https://datausa.io/profile/geo/miami-fl>

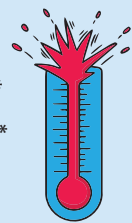
Urban Forest

16.8%	Current tree canopy
26.1%	Potential tree canopy
9.3%	Potential canopy increase
62.6%	Impervious surfaces
239	Acres of Potential Planting Area (PPA)



Urban Heat

106°F	Average surface temperature*
Projected future days above 100°F**	
16 days	Historically (1971 – 2000)
114 days	Mid-century (2036 – 2065)
153 days	Late century (2070 – 2099)



*across study area on September 15, 2014
** Data source: Union of Concerned Scientists, Killer Heat in the United States, at: <https://www.ucsusa.org/resources/killer-heat-united-states-0>

Overview

Mitigating urban heat in densely built urban environments can be a significant challenge. One possible strategy for cities such as Miami Beach is to add more trees to parks. Parks are often designed and built with significant lawn space to create a pastoral aesthetic historically popular across America. However, climate change, along with evolving attitudes and increased awareness that heat is causing significant health and environmental impacts are changing some opinions about the importance of tree cover.



In some highly built-up cities, public greenspaces are some of the easiest and most accessible places to plant more trees, in order to achieve greater tree equity.



Miami Beach still has room to add more trees in its parks to increase shade. The city is now planting 1,300 more shade trees every year to fight impacts of climate change.

Finding low-cost solutions and sites for adequate tree growth are key in densely urban neighborhoods. As such, new parks can be considered, to improve recreational opportunities, as well as to mitigate heat and clean the air within urban landscapes or absorb excess stormwater runoff. This strategic approach can also be used with equity in mind. Combining tree canopy and land cover data with census data can identify the best and most equitable opportunities to mitigate heat by planting trees.

Despite being located adjacent to the Atlantic Ocean, the Miami Beach neighborhoods of North Beach average surface temperatures between 107-112°F. These neighborhoods are composed of 32-36% minority populations and 14-28% of residents are 65+ years old. These residents' median income, which ranges from \$31,750-\$33,664, is also well below the city's median household income (\$41,818), making North Beach a relatively low-income area.

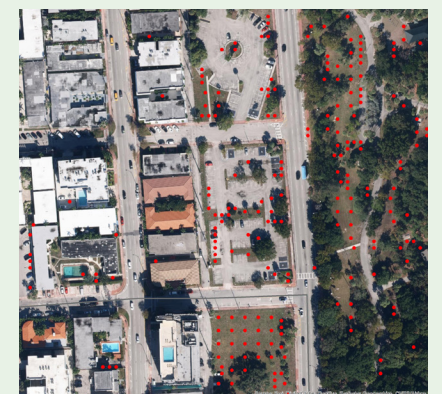
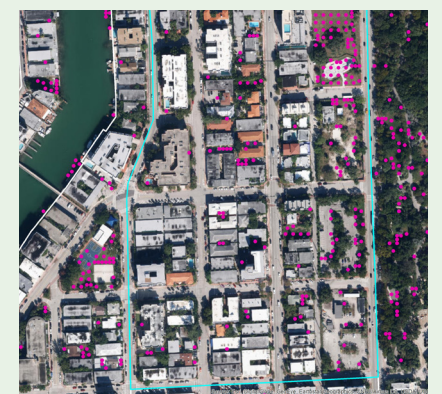
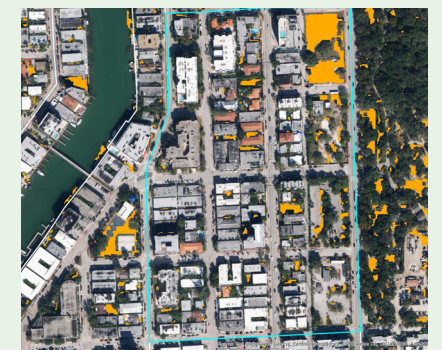
Several parks, both new and old, have space for additional tree plantings. Besides public greenspaces, several large vacant lots are located in this section of the city. While it is unlikely these spaces will become fully tree covered, due to high real estate values, the City now requires that replacement trees are shade trees, rather than palms.

Furthermore, in recognition of the need to reduce urban heating, the City of Miami Beach has launched a program to replace palm trees with canopy trees, when palms are being removed for redevelopment. With their narrower canopy, palm trees do not offer the same shade and cost more to maintain than shade trees.

To achieve these goals, the city will increase canopy coverage in the city from 17 percent of total land area to 22 percent over the next 20 years. The city also will implement a bond (approved by 70 percent of Miami Beach voters in 2018) to spend \$5 million planting more than 5,000 trees in the next five years. The plan notes that, "Palms, while an iconic part of Miami Beach's landscape, have moved from being an accent plant to a major component of the city's urban forest," It adds that, "A general guideline for species diversity states that no family should make up more than 30% of a city's tree population. Arecaceae, the family of landscape palms, makes up over 55% of the public tree population."

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 hottest planting areas within the multi-family complex.
6. Identify all planting spots.
7. Strategically identify with local stakeholders the best spots to increase shade in public greenspaces.



GIC has developed a tool to show the most advantageous places to plant trees to cool buildings. Contact GIC at www.gicinc.org to learn more.