

WELCOME

May 23, 2024 Workshop
Tampa's Heat Resilience Playbook & Cooling Campaign
Sustainability and Natural Resources





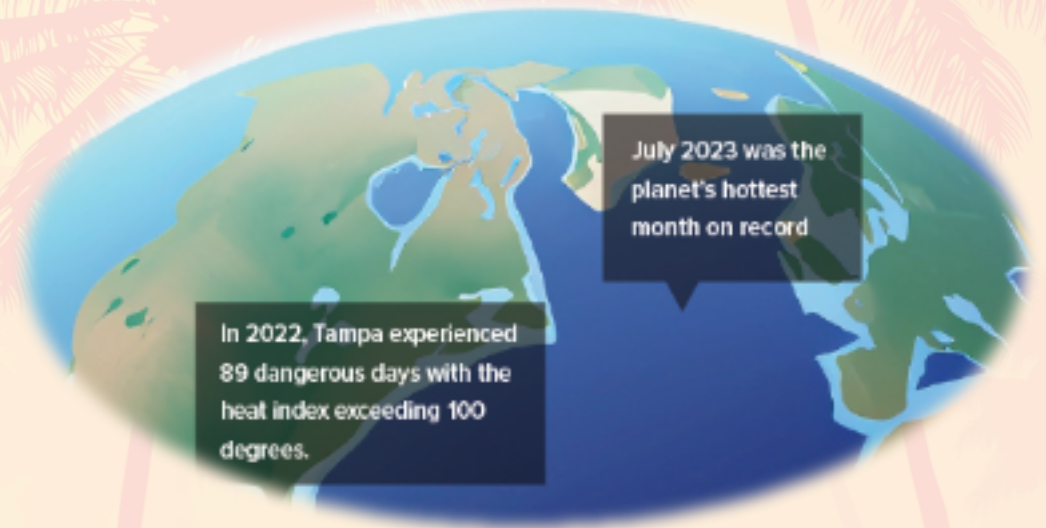
Extreme Heat in Tampa

Whit Remer

Sustainability & Resilience Officer

Heat as a Public Safety Threat

- Heat is leading cause of weather-related deaths
- Cities play an important role in reducing the impacts of heat
- City interventions may include:
 - Trees
 - Built shade
 - Hydration stations
 - Splash pads
 - Misters
 - Cooling tents/centers



TAMPA HEAT RESILIENCE PLAYBOOK

City of
Tampa
Florida

The Tampa Heat Resilience Playbook includes 18 tactical actions the City of Tampa will advance to address the impacts of extreme heat. These actions are organized under 4 key priority areas:

- 1 Reduce Heat Risk for All Tampanians**

- 2 Increase Access to Cool Spaces**

- 3 Maximize the Benefit of Our Tree Canopy**

- 4 Adapt our Built Environment to the Impacts of Extreme Heat**

The City will continue to prioritize investments and projects in higher heat vulnerable neighborhoods, while also ensuring that critical citywide policies and projects are deployed. Multiple agencies and actors contributed to these actions and will continue to collaborate on implementing the playbook.

1 Reduce Heat Risk for Tampanians



This priority area outlines actions to protect the health and safety of Tampanians in the face of increasing temperatures — especially those most vulnerable to the impacts of extreme heat.

1.1 LAUNCH A COMMUNITY PREPAREDNESS CAMPAIGN AROUND EXTREME HEAT

1.3 EXPAND ACCESS TO WEATHERIZATION AND ENERGY EFFICIENCY UPGRADES FOR HOMEOWNERS

2 Increase Access to Cool Spaces



This priority area outlines ways to improve access to shade, water, cooling centers, and cool spaces by increasing the amount of these cooling features and creating connections between these spaces.

2.1 CREATE NETWORKS OF COOLING CORRIDORS

2.2 INCREASE COOLING FEATURES IN PARKS AND STORMWATER PONDS

3 Maximize the Benefit of our Tree Canopy



This priority area outlines actions the City of Tampa will take to preserve and increase its tree canopy, a critical infrastructure system that provides multiple benefits — cooling, stormwater management, air quality improvement, and more — to all Tampanians.

3.1 EXPAND TREE PLANTING PARTNERSHIPS

4 Adapt our Built Environment to the Impacts of Extreme Heat



This priority area outlines the policies, codes, and investments needed to make our buildings, streets, and sidewalks resilient to extreme heat.

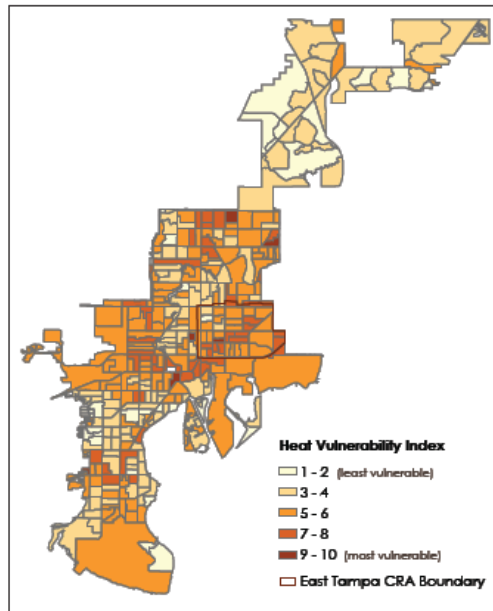
4.2 COOL STREETS AND SIDEWALKS

HEAT VULNERABILITY INDEX

Recognizing that each neighborhood has a specific set of challenges and opportunities, a Heat Vulnerability Index (HVI) provides the City with a tool for decision making to balance investments and assistance — for the highest impact in areas of high risk and to those neighbors with the greatest need.

The Heat Vulnerability Index, as an assessment tool, can respond to unique project or funding constraints. It is a snapshot of heat related challenges in specific areas and communities that, in combination with community feedback and financing opportunities, can help the city target heat mitigation activity. Strategies described in this document work to balance sociocultural needs with the physical and ecological realities of the city.

Extreme heat impacts people in different ways. While each of the following layers tells us about a different population and their capacity to cope with heat, the HVI combines known vulnerability indicators (exposure and sensitivity) with proximity and access to cooling infrastructure (adaptive capacity). The HVI is grounded in demographic data from the American Communities Survey, City of Tampa tree canopy data, land surface data, and various infrastructure data from the City of Tampa and Hillsborough County. The HVI is designed to be applicable to a wide array of public-facing city programs and planning departments, ranging from public health and social services to home weatherization assistance programs, and tree planting initiatives like Treemendous.



Criteria includes a standardized layering of exposure, sensitivity, and adaptive capacity indicators.

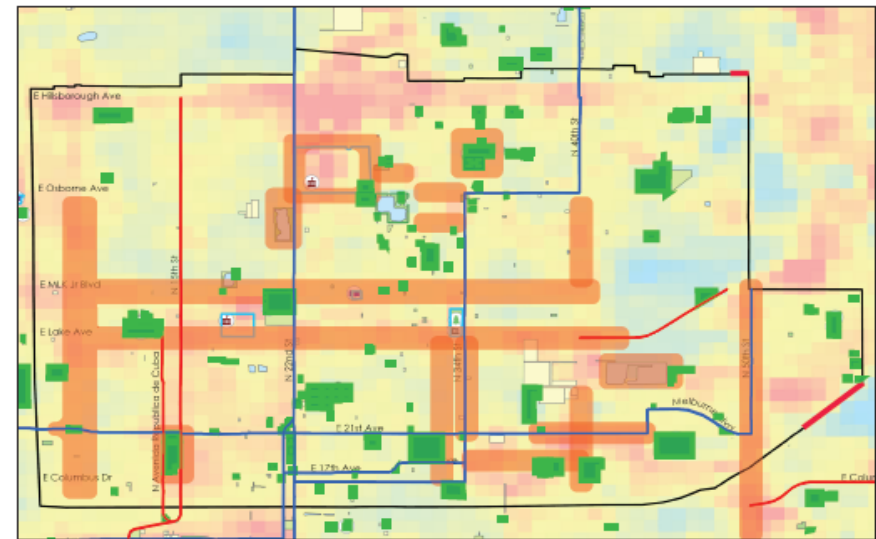
- Median Household Income (CENSUS, 2021)
- % Population 17 and under (CENSUS, 2021)
- % Population 65 and over (CENSUS, 2021)
- % Population 20 to 64 years with a disability (CENSUS, 2021)
- % of households without a vehicle (CENSUS, 2021)
- Median land surface temperature in Fahrenheit (WATER INSTITUTE, 2021)
- % Tree canopy coverage (WATER INSTITUTE, 2021)
- Distance (ft) to existing cooling centers – libraries, community centers, splash pads, public pools (CITY OF TAMPA, 2023)

Putting the HVI to Work

Due, in part, to local temperatures and the findings of the recent Tree Canopy Assessment (~3% loss city-wide since 2016), the City of Tampa announced an ambitious citywide goal to plant 30,000 trees by the year 2030.

To meet the Citywide goal and address extreme heat equitably, the City is launching a pilot tree-planting program focused on enhancing neighborhood corridors. Location selection is determined by a layering of community needs through the HVI, the potential to build upon City Capital Improvement Projects, commu-

nity input, and tree planting opportunity areas. Coordinating City departments, like Mobility, are working to align 'low-stress' corridors (safer for pedestrian and bicycle activity) with cooling measures that will connect more people to Parks and Recreation improvements and other cooling centers. By combining various inputs, City leaders can better leverage existing investments and equitably respond to community needs. The map below demonstrates a layering of various inputs and will be used in the site selection process.



- Potential Planting Sites in right of way (ROW) with high heat low canopy
- Potential Planting Sites City owned property
- Community identified hot spots
- High Injury Network
- Low Stress Network
- Land Surface Temperature (deg F)

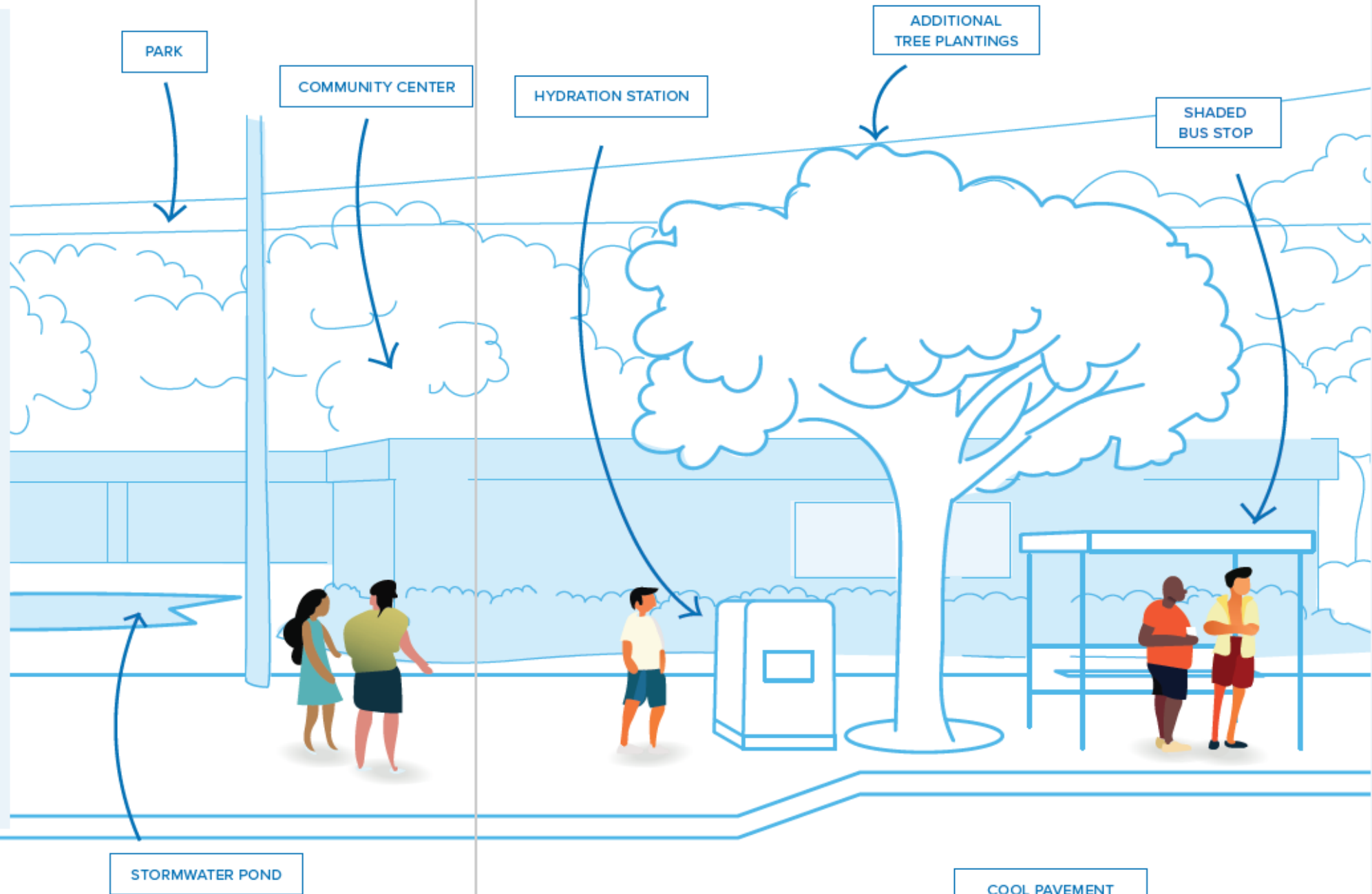
East Tampa Cool Corridor Pilot

Leveraging the Heat Vulnerability Index, input from East Tampa community members, and City inter-departmental workshops, the City of Tampa is launching a cool corridor pilot program. The pilot, centered in East Tampa, seeks to enhance existing cooling assets and neighborhood hot spots, develop safe street networks, and foster cross-sectoral coordination to maximize tree planting opportunities. Tampa is one among many cities across the Country piloting the cool corridor model to support residents in the face of extreme heat.

Planting more trees will ensure all communities can leverage the health and resilience benefits that trees offer as they mitigate against increased heat but can also offset greenhouse gas (GHG) emissions and intercept rainfall, reducing stress on stormwater systems. Beyond trees, the City will also use this pilot to explore other cooling interventions along the selected corridor. Interventions being explored include built shade structures, cool pavement, and hydration stations.

Successful interventions and learnings from the pilot will then be scaled to other neighborhoods across Tampa.

PARTNER DEPARTMENTS: PARKS AND RECREATION DEPARTMENT, URBAN FORESTRY DIVISION, OFFICE OF SUSTAINABILITY AND RESILIENCE, MOBILITY DEPARTMENT, CITY PLANNING DEPARTMENT, COMMUNITY ENGAGEMENT AND PARTNERSHIPS DEPARTMENT



WELCOME

Cooling Cities Campaign

Brian Knox

City Planning Department

**FORESTS
IN CITIES**
A NATIONAL NETWORK

City of
Tampa
Florida

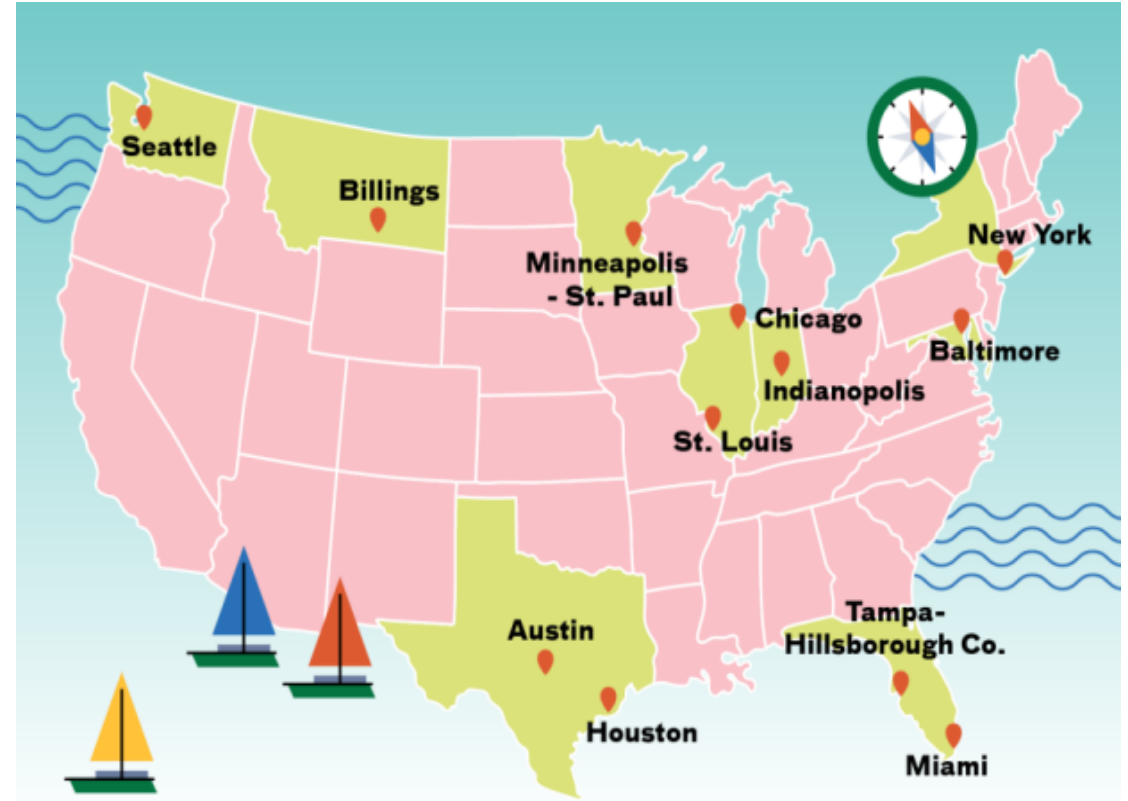
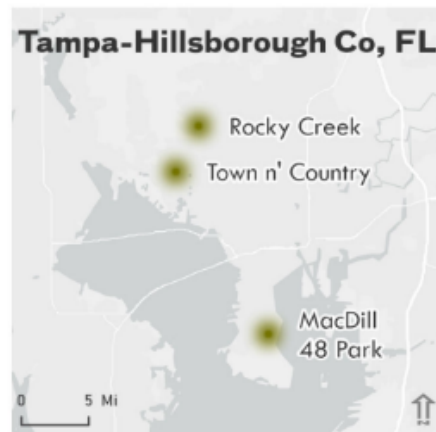
2022 cooling study – Cooling Cities Campaign

- There has been a yearly trend of record heat in the United States
- Cities are documented to be **2-10 degrees hotter** than rural areas
- Extreme heat is the leading cause of weather-related deaths in the U.S.
- Planting trees and expanding green spaces are known to combat urban heat, **but the magnitude of cooling benefits has not been quantified across different segments of the urban forest**



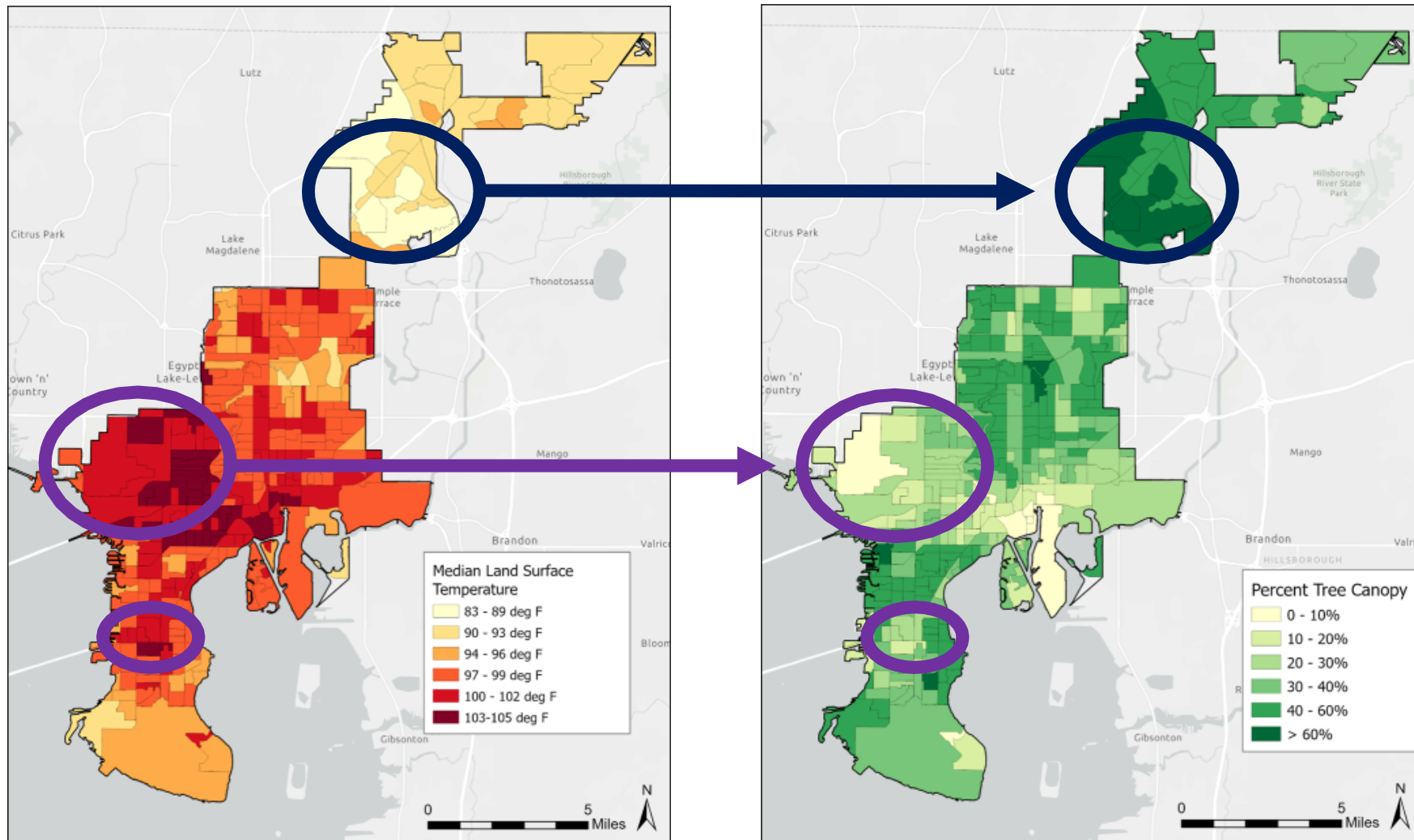
2022 cooling study – Cooling Cities Campaign

- Nationwide study led by New York City-based Natural Areas Conservancy
- 12 cities participated
- Air temperature sensors placed at 3 locations in Tampa/Hillsborough County



Urban Heat Island & Canopy Coverage

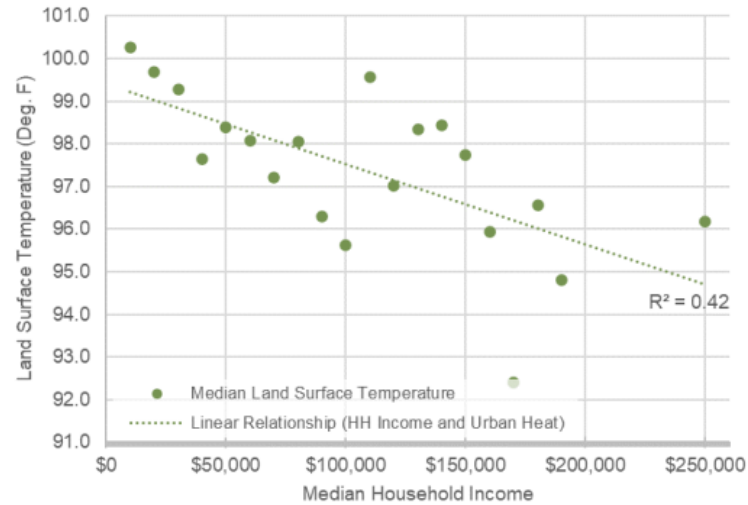
A 10% increase in canopy could reduce heat-related mortality by 3-22% compared to baseline levels in 10 US cities (USDA, USFS)



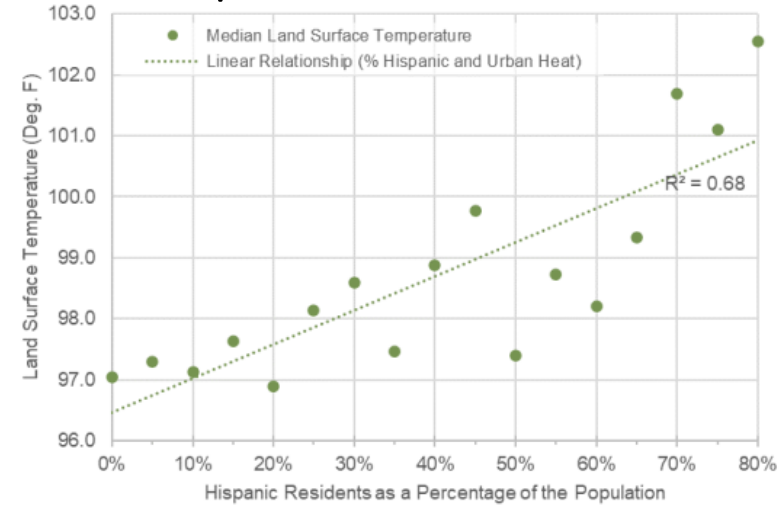
Equity Analysis

Tampa is literally hotter in low-income and hispanic neighborhoods

Incomes Decrease

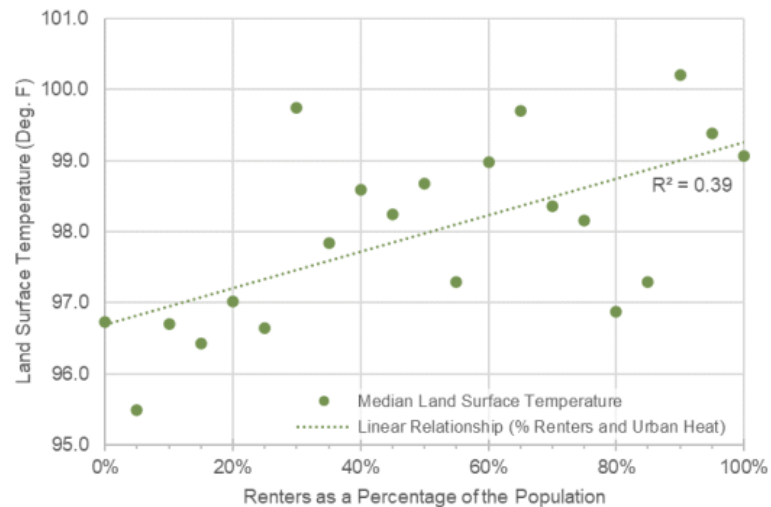


% Hispanic Increases

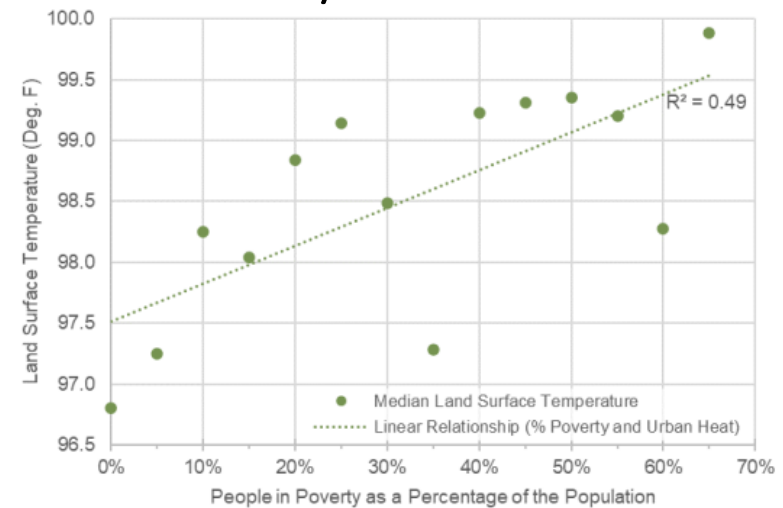


As urban heat increases

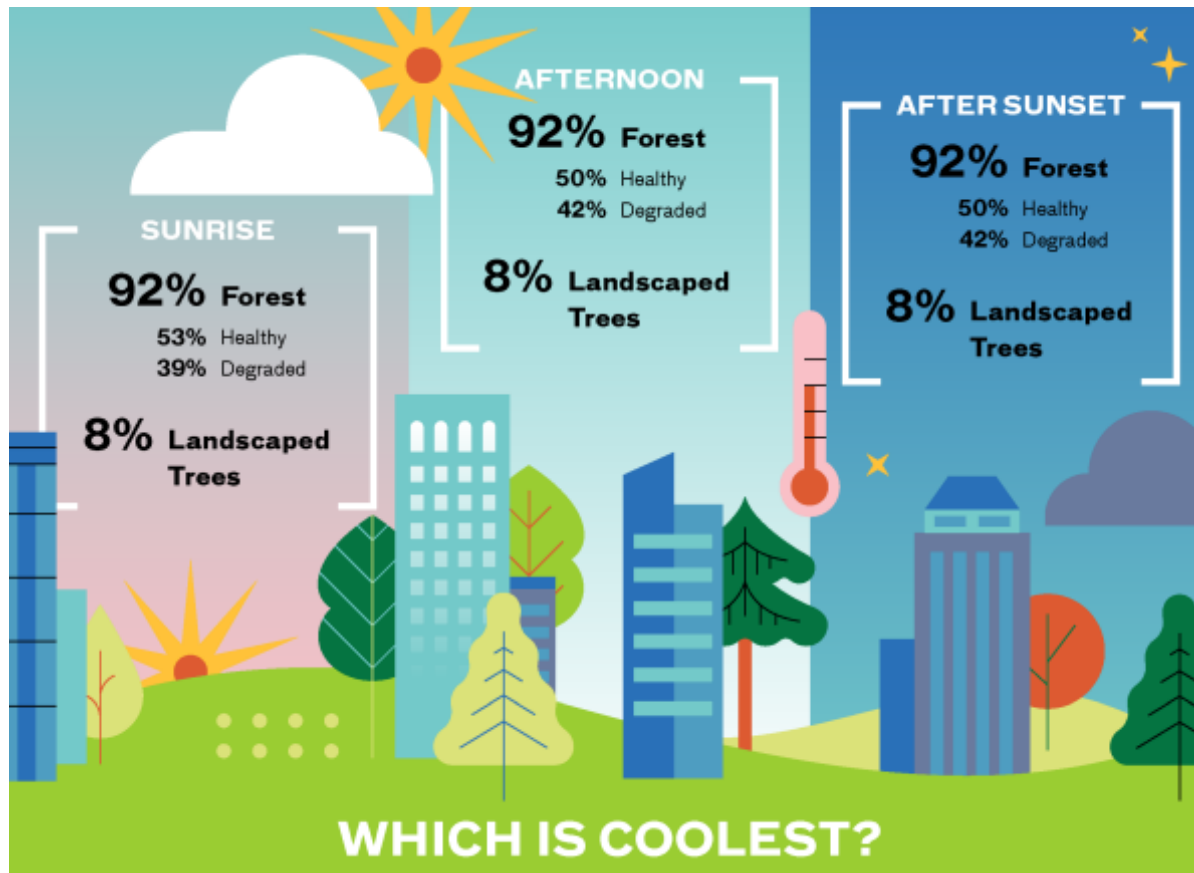
% Renters Increase



% in Poverty Increases



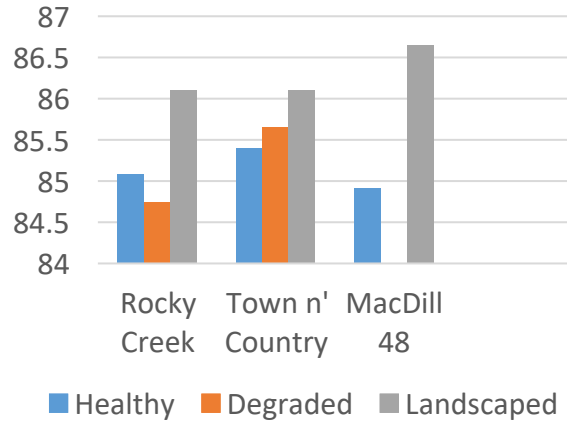
Lowest air temperature



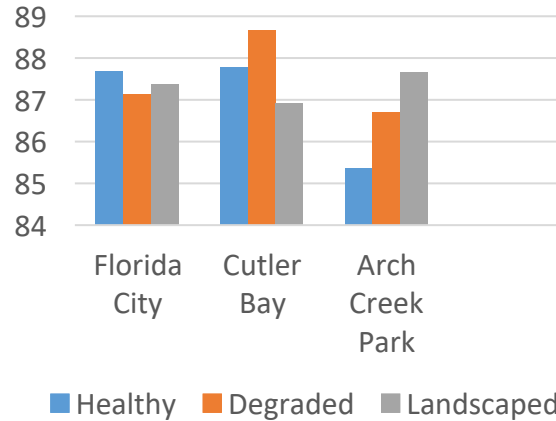
- Forested areas have the coolest temperatures throughout the day
- A well-designed landscape/streetscape can have a cooling effect in comparison to non-landscaped areas
- Natural areas recorded up to 9 degrees cooler than average citywide temperatures

Air Temperature Afternoon

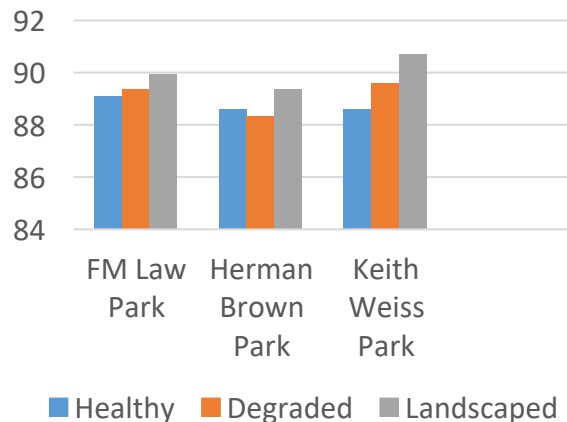
**Tampa-Hillsborough
Daily Average 90 (°F)**



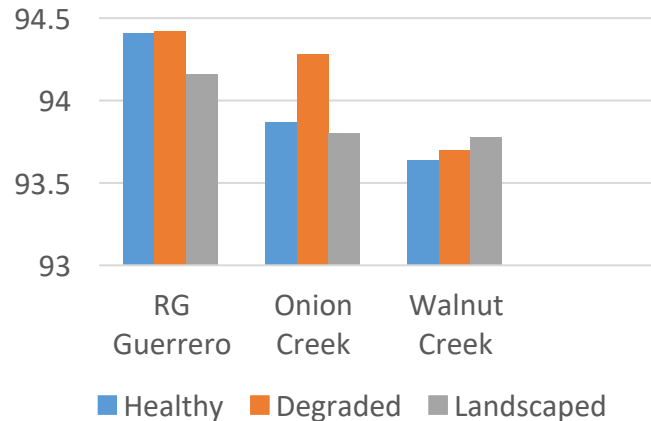
**Miami-Dade Daily
Average 89 (°F)**



**Houston Daily Average
93 (°F)**



**Austin Daily Average
94(°F)**



Takeaways for implementation

- **Natural areas are the coolest green spaces in cities**

↓ surface temp - ↓ average air temp - ↓ max air temp - ↓ temp range

- **Well designed landscape/streetscape can have a cooling effect during heat of the day**
 - **Especially in cases where landscaped areas provide transitions from one forested area to another forested area**
- **Forest condition plays a role in cooling benefit/performance**

Opportunity to prioritize natural areas protection & management within land planning

Next steps for analysis

- **Air Temperature Study**

What forest attributes contribute most to cooling?

- **Remote Sensing Study**

Relationship between surface temperature of greenspace and socioeconomic factors of nearby neighborhoods

How far do cooling benefits extend outside natural areas?

*Forests in Cities is currently conducting these studies and will provide results to Tampa-Hillsborough

THANK YOU

Mayor Jane Castor

**Transforming Tampa's
Tomorrow**     

*This presentation contributes to Mayor Jane Castor's
Transforming Tampa's Tomorrow initiative.*