



# Climate and Heat Health Task Force

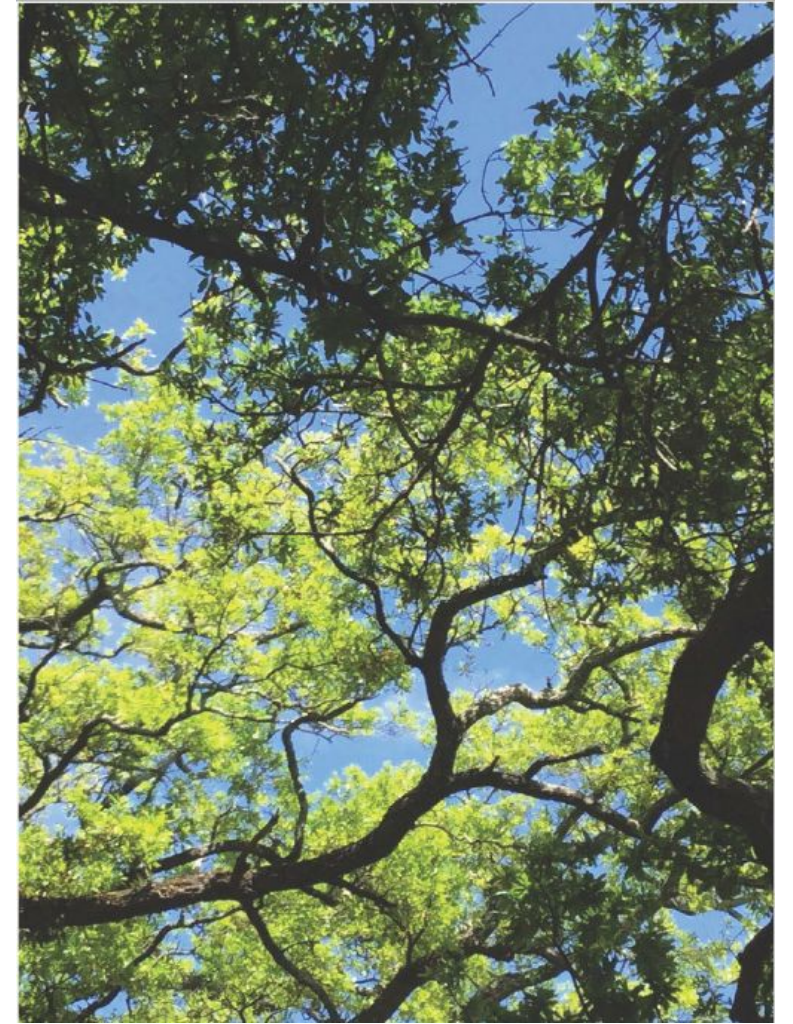
Trees and Streets  
March 29th 2022



Hosted by The Miami Foundation

# Agenda

1. Overview Presentation (10:35 - 11:00)
  - Extreme Heat - What are the risks
  - County's Policies and Framework
  - Trees: Case Study
  - Cool Pavement: Case Study
  - What the County and Partners are Doing
  - Opportunities
2. Breakout Groups (11:00 - 11:50)
3. Groups Summary to Full Group (11:50-12:00)



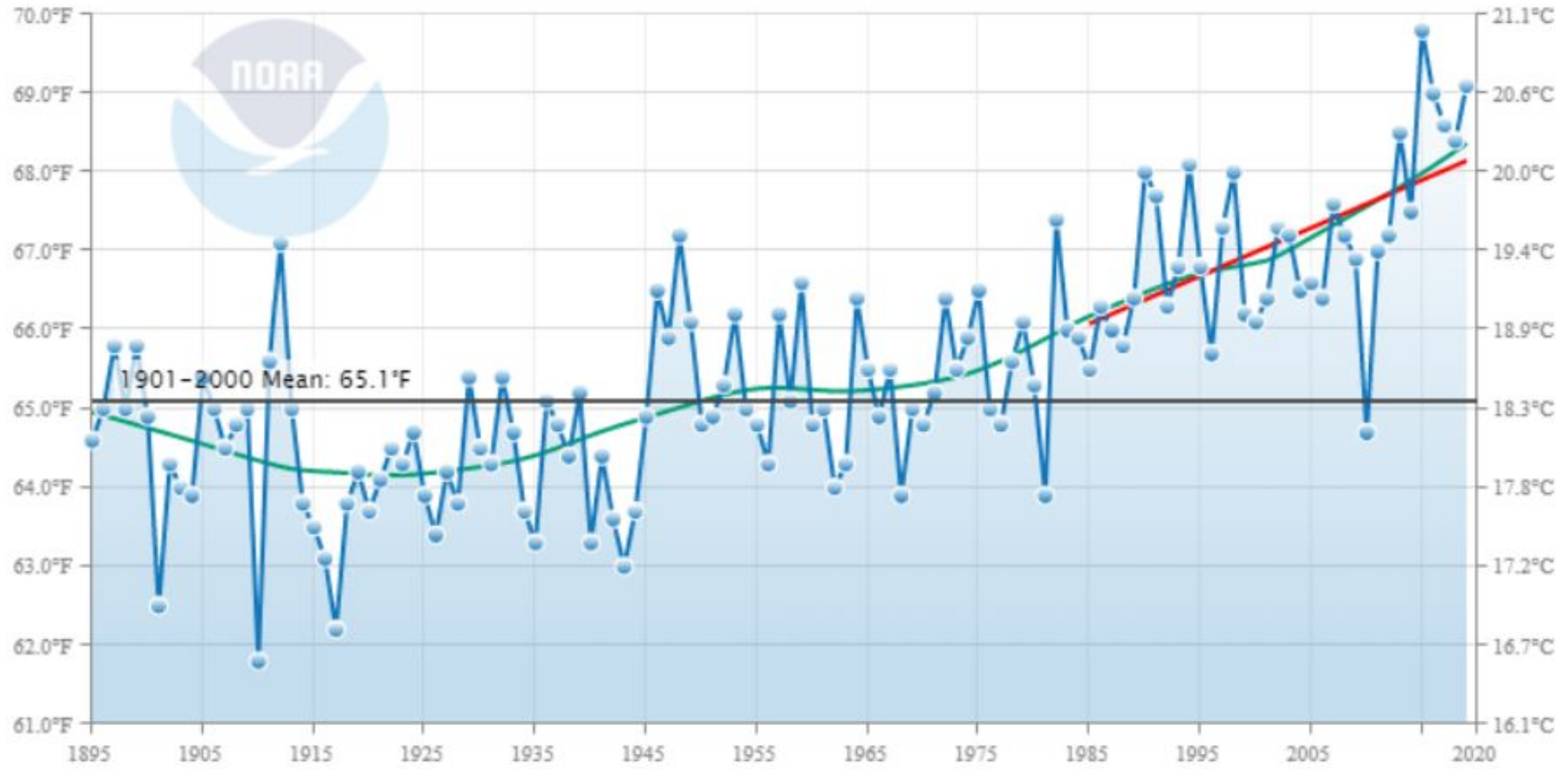
# Extreme Heat

- Heat is the leading weather-related killer in the United States
- High heat and humidity can lead to heat-related illness, including heat cramps, heat exhaustion and heat stroke
- Most HRIs and deaths are preventable
- High risk groups experience a disproportionate amount of health impacts
- Marginalized communities, the elderly, young children, pregnant women and outdoor workers are more vulnerable to heat related illnesses and deaths
- Extreme heat conditions are increasing due to climate change and urban development.



# Miami-Dade County, Florida Minimum Temperature

Smooth Trend Line  
1985-2019 Trend (+0.6°F/Decade)



## MIAMI-DADE COUNTY

Heat Index above	Historical (1971-2000)	By midcentury (2036-2065)	By late century (2070-2099)	By late century, if we limit warming to 2°C (2070-2099)
90°F -----	154 days	187 days	200 days	183 days
100°F -----	41 days	134 days	166 days	115 days
105°F -----	7 days	88 days	138 days	60 days
Off the Charts	0 days	1 days	14 days	0 days

## Heat Index Above 90°F



Outdoor workers become more susceptible to heat-related illness.

## Heat Index Above 100°F



Children, elderly adults, pregnant women, and people with underlying conditions are at heightened risk of heat-related illness.

## Heat Index Above 105°F



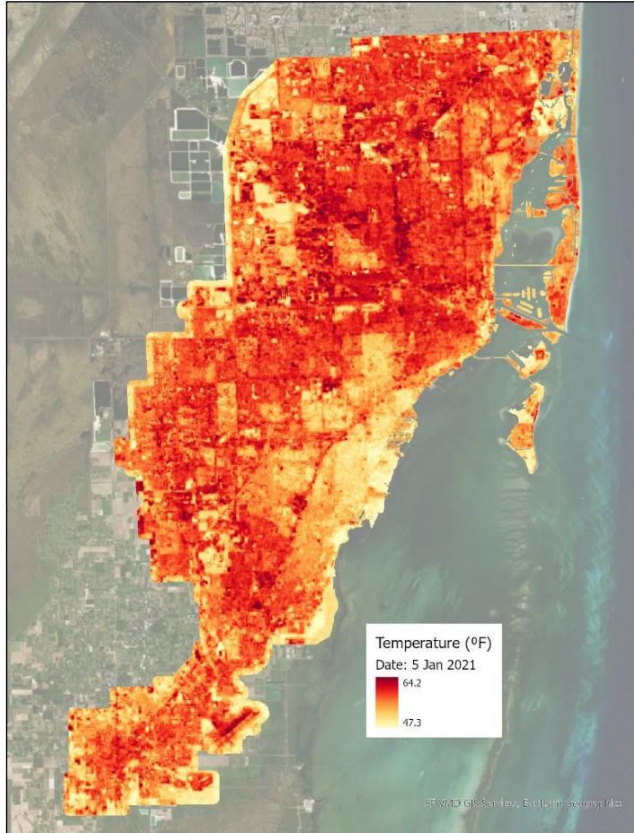
Anyone could be at risk of heat-related illness or even death as a result of prolonged exposure.

## Heat Index Off the Charts

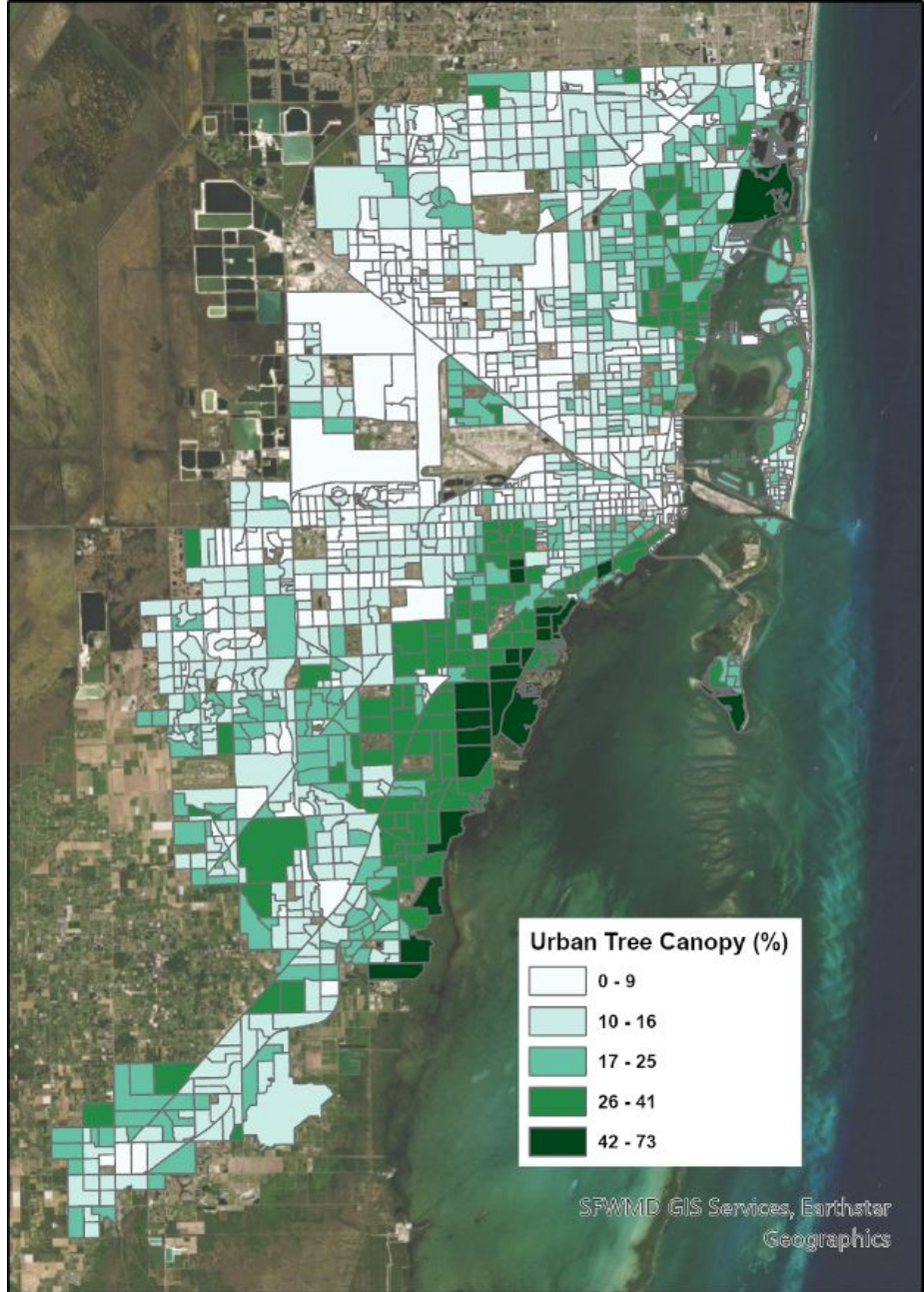
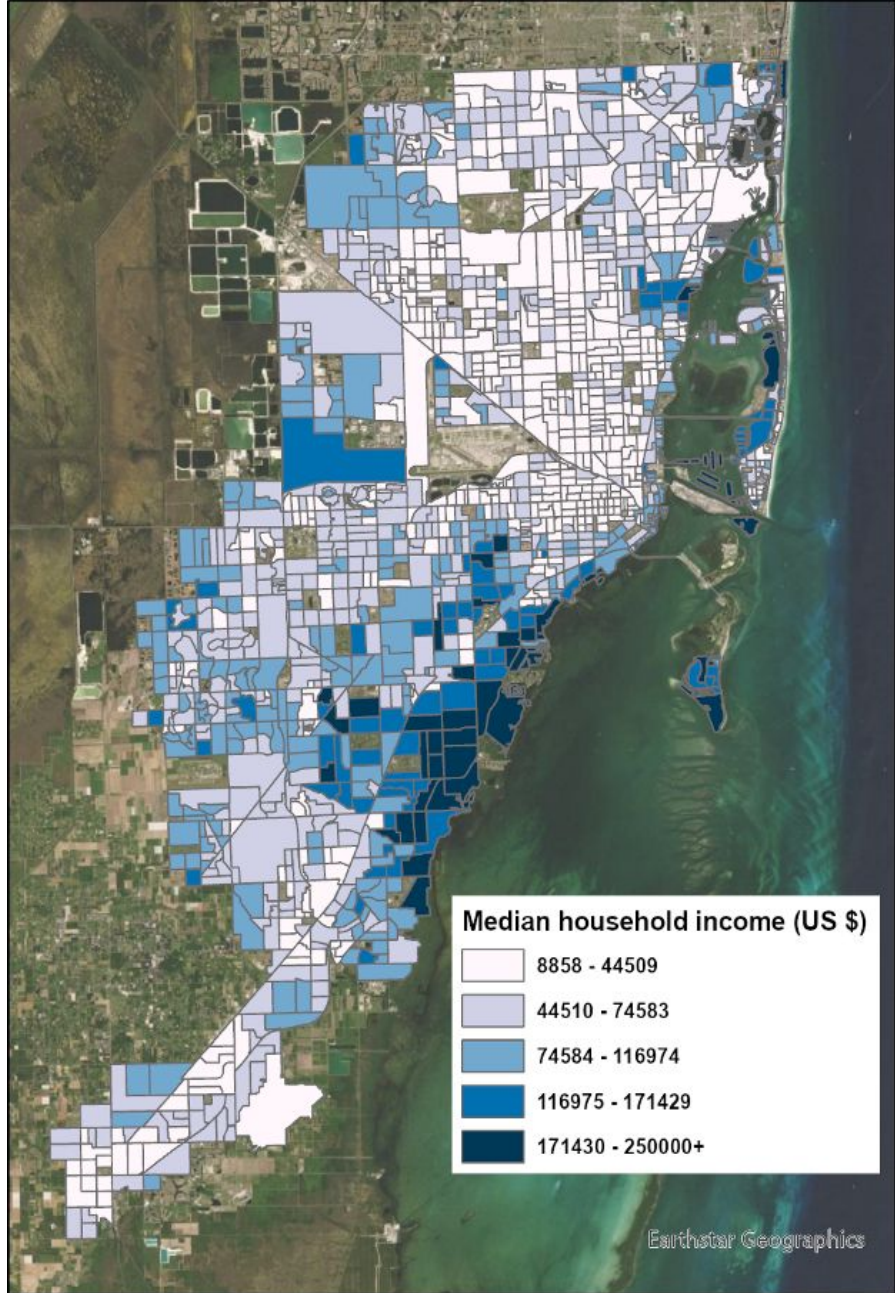


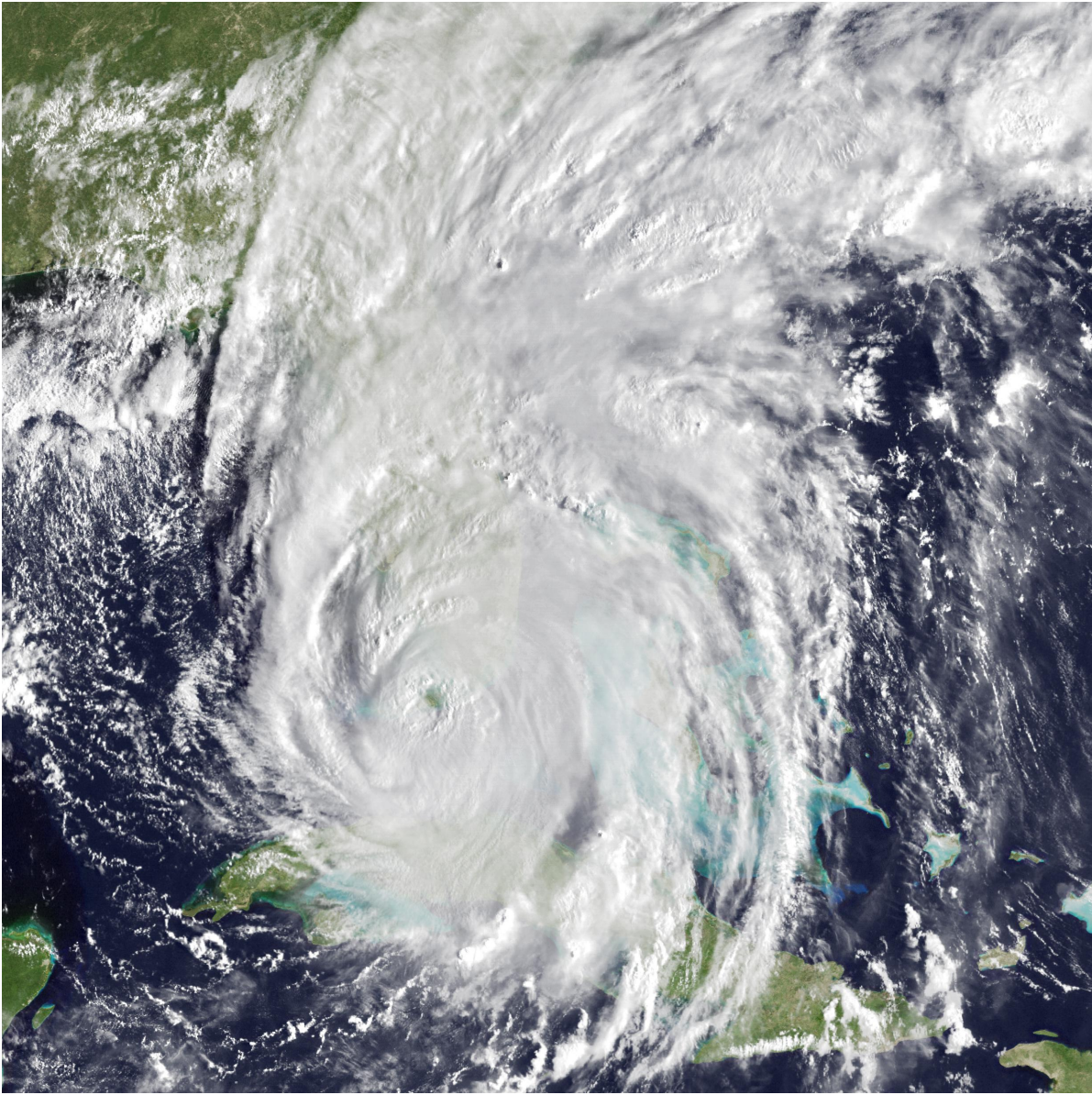
Undetermined: any level of exposure is presumed extremely dangerous for all people and likely to result in heat-related illness or even death.

# Background: Currently in Miami



Heat risks are **elevated** in urban environments







## County and State Tree Policies

- Goal of 30% Tree Canopy in [Comprehensive Development Master Plan](#), Climate Action Strategy, and Street Tree Master Plan
- In 2009, Miami-Dade County Commission amended the [Chapter 18 Landscape Code and Manual](#) to include Florida Friendly principles. Includes requirements for private land and right-of-way
  - permits for tree removal
  - minimum # of trees per lot or acre
  - restrictions on palms counting as trees (max 30%, 2 for 1)
- 2019, Florida Law on Residential Tree Removal - No tree removal permit needed with a letter from arborist stating tree presents a risk to human safety or property

# STREET TREE MASTER PLAN

Identified policies and practices that result in tree loss and then set the course to reverse the trend

## A GREENPRINT FOR OUR FUTURE:

MIAMI-DADE COUNTY  
STREET TREE MASTER PLAN



February 2007



## GOALS

- Plant **quality trees** in public rights of way
- Develop and execute a **Tree Management Plan** to craft sustainable tree structure
- Promote the **design of urban spaces** that adequately fit trees
- Encourage **local growers** to produce the quality and species for public rights-of-way
- Educate policy makers and the public on the **importance of adequate tree canopy**

# HEALTHY, SAFE AND EQUITABLE STREETS VISION

**Thrive 305:** Action 6.2 Improve Streets and Bus Stops for Bicycle and Pedestrian Safety

**Resilient305:** Action 13 Develop a Better Bus Network

## Great Streets

connecting parks and neighborhoods through tree lined boulevards, parkways, and complete streets that encourage people to walk, bicycle and live healthier lifestyles

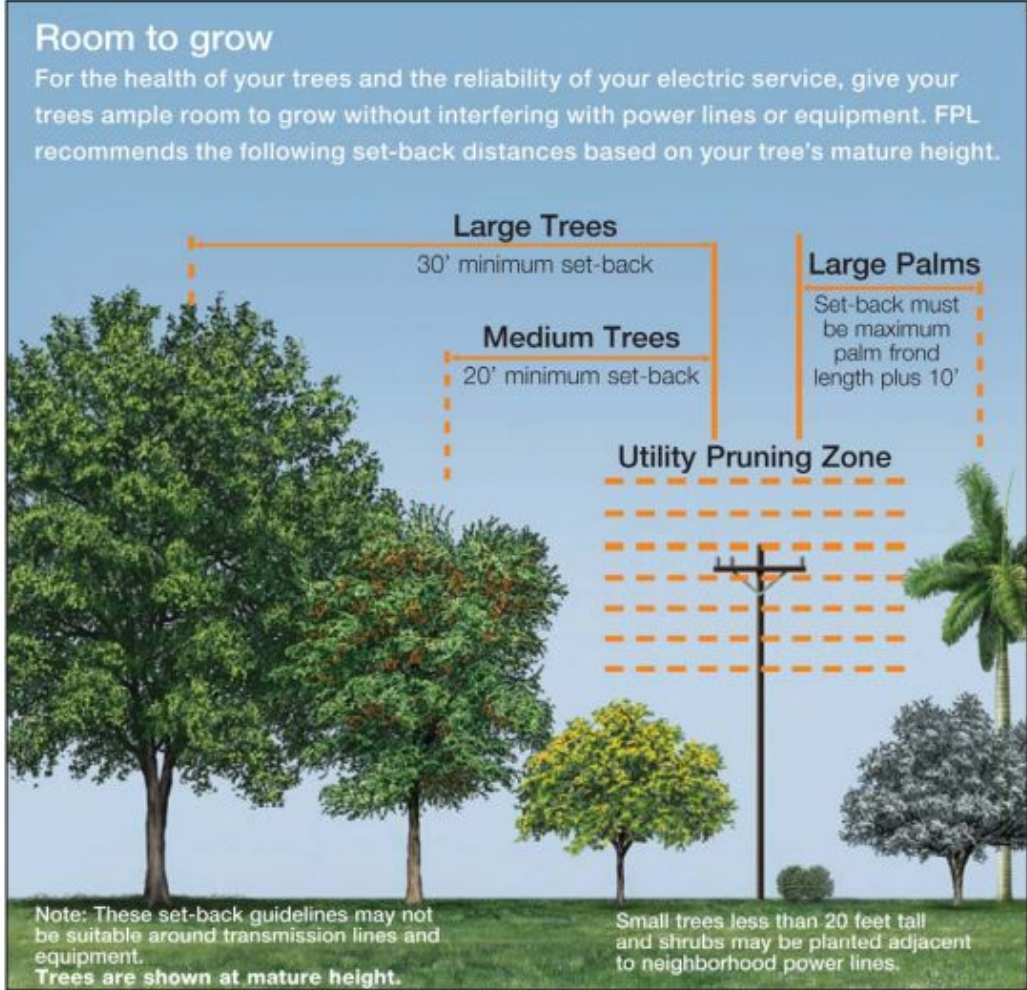


Great Streets Vision

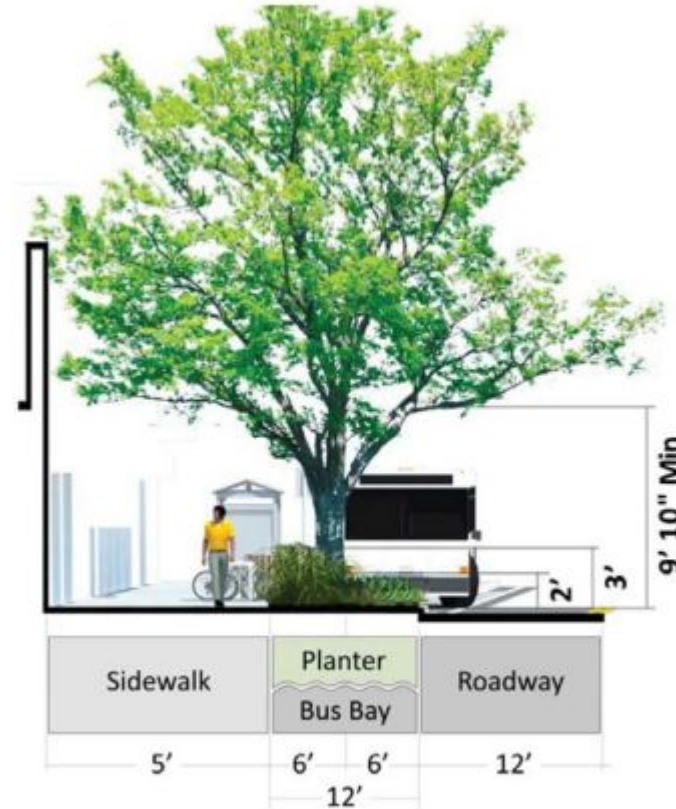


# GROWING GREEN BUS STOPS

## GUIDELINES FOR THE PLACEMENT OF TREES AT CURB SIDE BUS STOPS TIPS FOR ANALYZING EXISTING CONDITIONS



FPL



**Figure 3.6.2** | Appropriate locations and vertical dimensions for landscaping at bus stops.

FDOT Accessing Transit, 2013

# County Initiatives to Promote Trees

- [Adopt-a-Tree](#): the program provides Miami-Dade single-family and duplex homeowners with two free trees every year. More than 200,000 trees have been adopted since the program's inception in 2001. It uses GIS collector apps to screen properties which have the ability to plant trees. Upcoming events:
  - Sunday, June 12 - Miami-Dade North Campus
  - Saturday, July 16 – FIU main campus
  - Saturday, September 24 – South Dade Cultural Arts Center
- The MDC Dept of Environmental Resources Management (DERM) has also planted 7,000 trees on various public and institutional lands including 2,000 at MDCPS schools
- The Environmentally Endangered Lands program has acquired over 27,000 of natural forests and identified additional one in areas of lower tree canopy



# County Initiatives to Promote Tree

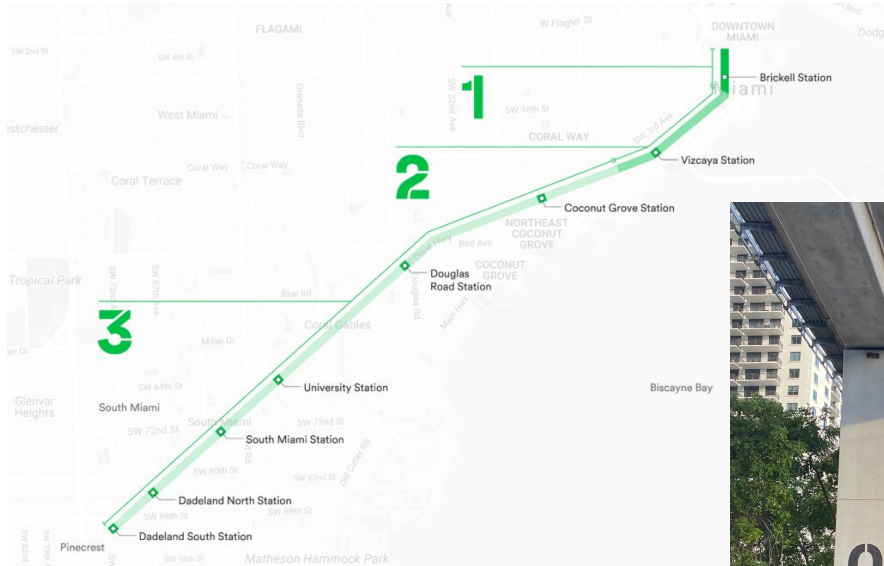
- [Million Trees Miami](#): a community-wide effort to plant 1 million trees in order to achieve a 30% tree canopy cover for Miami-Dade County. Million Trees Miami is an initiative of Neat Streets Miami, which offers different giveaway programs:
  - [Matching trees program with municipalities](#)
  - Tree giveaways
  - Garden giveaways
- Million Trees Miami (MTM) now has a dedicated source of County funding through the Tree Trust Fund.
- MTM is administered by Neat Streets Miami-Dade, a MDC Board chaired by Commissioner Eileen Higgins and housed in MDC Parks





# THE UNDERLINE

... a 120-acre, world-class linear park spanning 10-miles below the aimed at transforming regional mobility



- A partnership with Miami-Dade County, board of directors, public and private donors and hundreds of volunteers
- \$15M+ of Miami-Dade County funding toward Phase 1 and 2
- Phase 3 in Procurement
- Alignment with other MDC plans

# LUDLAM TRAIL

...6.2-mile multi-use trail through the heart of MDC within the former Florida East Coast railway right-of-way

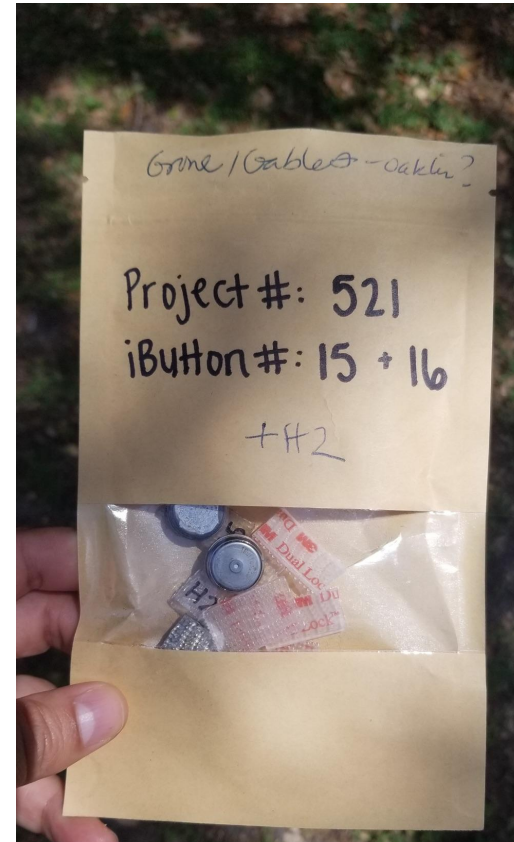


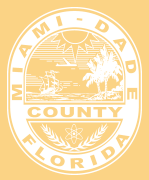
- Encourages the use of alternate modes of transportation
- Enhances overall connectivity
- Links existing systems
- Fills social and economic demand in area
- Aligned with other State and County Plans



## Collaborative Efforts between County and Partners

- Shading Dade: A citizen science initiative led by FIU for students and volunteers to assist with deploying heat-sensors around Miami-Dade County to better understand local ambient air temperatures.





# Opportunities: Trees

- Improve data and analysis of heat islands
- Count trees as our assets on the County's balance sheet
- Update and align landscape and public works manuals
- Train Fit2Lead interns to do neighborhood level outreach to promote and facilitate tree adoption
- Broward: License tree trimmers, Supported by County IFAS/Extension
- Increase landscape regulation compliance for developers. Hire an arborist to review site plans for right tree in right place





## More Opportunities: Trees

- Prioritize acquisition of Environmentally Endangered Lands (EEL) within low canopy neighborhoods
- Identify tree planting potential on all county properties within the low canopy areas.
- Bring before the Board of County Commissioners a Tree Trust Fund package that earmarks funds for planting trees on MDCPS and EEL properties so that DERM can increase and prioritize funds for the low canopy areas.



# Case Study: Miami Beach's Urban Forestry Plan

## IMPLEMENTATION- SHAPING THE VEGETATION PALETTE IN MIAMI BEACH

- **Species Diversity**
  - Palms – moving back to an accent plant
- **Tree Species Selection**
  - Re-prioritize species to those that are more resilient to sea level rise, flooding & increasing salinity, limited growing space, and increasing temperatures
- **Highlights the characteristics of various species**
  - Can also be used by homeowners to make better species selection when planting trees on their private properties.



**Chrysophyllum cainito**  
**Star Apple**  
Tropical fruit tree, slow-growing evergreen tree.  
Height Range: 25' - 80'  
Spread: N/A  
Tree Type: Fruit Tree  
Growth Rate: Moderate  
Growth Habit: Round to oval canopy  
Drought tolerance: Moderate  
Fertilization Requirements: Three times per year  
Blooming Season: Summer / Fall



**Coccoloba pubescens**  
**Grand-leaf Seagrape**  
Can be used as an ornamental tree. Excellent for seaside locations.  
Height Range: 15'  
Spread: 10' - 20'  
Tree Type: Fruit Tree  
Growth Rate: Slow  
Growth Habit: Vase-like  
Drought tolerance: High  
Fertilization Requirements: Moist, well-drained fertile soils  
Blooming Season: Spring / Summer / Fall



**Coccoloba uvifera**  
**Sea Grape**  
Salt tolerant. Good seaside plant. Broad spreading.  
Height Range: 25' - 35'  
Spread: 20' - 30'  
Tree Type: Native  
Growth Rate: Moderate  
Growth Habit: Vase-like  
Drought tolerance: High  
Fertilization Requirements: Low  
Blooming Season: Spring / Summer / Fall



**Coccarpus erectus**  
**Green Buttonwood**  
Evergreen tree that prefers full sun. Salt and wind tolerant. Good for residences, parks and common areas.  
Height Range: 35' - 45'  
Spread: 20' - 30'  
Tree Type: Native  
Growth Rate: Moderate  
Growth Habit: Vase-like, Spreading  
Drought tolerance: High  
Fertilization Requirements: Low  
Blooming Season: Spring / Fall



**Delonix regia**  
**Royal Poinciana**  
Fast growing tree. Produces showy reddish, orange flowers in summer. Long seed pods can be a nuisance. Subject to wind damage. Needs space to develop root system to reduce likelihood of toppling.  
Height Range: 35' - 45'  
Spread: 40' - 60'  
Tree Type: Flowering  
Growth Rate: Fast  
Growth Habit: Vase-like, Spreading  
Blooming Season: Summer



**Diospyros digyna**  
**Black Sapote**  
Tree with novel edible fruits.  
Height Range: 60' - 80'  
Spread: 30'  
Tree Type: Fruit Tree  
Growth Rate: Slow  
Growth Habit: Elliptic-oblong  
Drought tolerance: Moderate  
Fertilization Requirements: Low  
Blooming Season: Fall / Winter



**Diospyros virginiana**  
**Common Persimmon**  
Irregularly-shaped native tree, for possible naturalizing in yards or parks.  
Height Range: 40' - 60'  
Spread: 30' - 35'  
Tree Type: Native  
Growth Rate: Moderate  
Growth Habit: Oval, Pyramidal  
Drought tolerance: Low  
Fertilization Requirements: Low  
Blooming Season: Spring / Summer



**Elaeocarpus decipiens**  
**Japanese Blueberry**  
Evergreen tree that prefers full to partial sun.  
Height Range: 30' - 40'  
Spread: 30' - 35'  
Tree Type: Native  
Growth Rate: Slow  
Growth Habit: Pyramidal  
Drought tolerance: High  
Fertilization Requirements: Low  
Blooming Season: Spring



**Erythrina crista-galli**  
**Cockspur Coral Tree**  
Widely planted as a street or garden tree. The flowers produce a light fragrance.  
Height Range: 15' - 25'  
Spread: 15' - 25'  
Tree Type: Flowering  
Growth Rate: Fast  
Growth Habit: Umbrella-shaped  
Drought tolerance: High  
Blooming Season: Summer



**Exothea paniculata**  
**Inkwood Tree**  
Tree with dense foliage maintained close to the ground.  
Height Range: 25' - 35'  
Spread: 25'  
Tree Type: Native  
Growth Rate: Slow  
Growth Habit: Oblong to lanceolate  
Drought tolerance: Moderate  
Fertilization Requirements: 6 months  
Blooming Season: Winter / Summer / Spring



**Ficus aurea**  
**Strangler Fig**  
The native strangler fig is vine-like while young, later straggling its base with heavy roots and eventually becoming a self-supporting tree.  
Height Range: 50' - 60'  
Spread: 50' - 70'  
Tree Type: Native  
Growth Rate: Fast  
Growth Habit: Irregular  
Drought tolerance: High  
Blooming Season: Spring / Summer



**Ficus citrifolia**  
**Short-Leaf Fig**  
Naturally found in tropical hammocks throughout south Florida and requires full sun for optimal growth supporting trees.  
Height Range: 30' - 40' (70')  
Spread: 50' - 80'  
Tree Type: Native  
Growth Rate: Moderate to fast  
Growth Habit: Oval, Rounded with flowers inside  
Drought tolerance: High  
Blooming Season: Winter / Spring / Fall



**Thrinax parviflora**  
**Broom Thatch Palm**  
Surface of each leaf is covered with a waxy down, providing a silvery appearance.  
Size: 8' - 20' HT  
Spread: 10' - 12'  
Growth Rate: Slow  
Type: Evergreen  
Drought Tolerance: Moderate  
Light Requirements: Full sun to partial shade  
Maintenance Need: Low  
Fruits: Fan Leaf



**Dypsis decaryi**  
**Triangle Date Palm**  
Three-planned arrangement of leaves give great use for accent planting.  
Size: 25' - 35' HT  
Spread: 15'  
Growth Rate: Slow  
Type: Evergreen  
Drought Tolerance: Moderate  
Light Requirements: Full sun to partial shade  
Maintenance Need: Low  
Fruits: Grow in three rows forming triangle



**Phoenix canariensis**  
**Canary Island Date Palm**  
Single Trunk; spiny petiole.  
Size: 30' - 40' HT  
Spread: 20' - 25'  
Growth Rate: Slow  
Type: Specimen  
Drought Tolerance: High  
Light Requirements: Full sun to partial shade  
Maintenance Need: Moderate  
Fruits: Feather Leaf



**Phoenix dactylifera**  
**Medjool Date Palm**  
Single Trunk; spiny petiole.  
Size: 30' - 40' HT  
Spread: 20' - 25'  
Growth Rate: Slow  
Type: Specimen  
Drought Tolerance: High  
Light Requirements: Full sun to partial shade  
Maintenance Need: Moderate  
Fruits: Feather Leaf



**Phoenix sylvestris**  
**Sylvester Date Palm**  
Single Trunk; spiny petiole.  
Size: 30' - 40' HT  
Spread: 20' - 25'  
Growth Rate: Slow  
Type: Specimen  
Drought Tolerance: High  
Light Requirements: Full sun to partial shade  
Maintenance Need: Moderate  
Fruits: Feather Leaf



**Phoenix reclinata**  
**Wild Date Palm**  
Clumping multi-trunk, woody and has spiny petiole.  
Size: 25' - 50' HT  
Spread: 10' - 15'  
Growth Rate: Moderate  
Type: Specimen  
Drought Tolerance: High  
Light Requirements: High  
Maintenance Need: Moderate  
Fruits: Feather Leaf

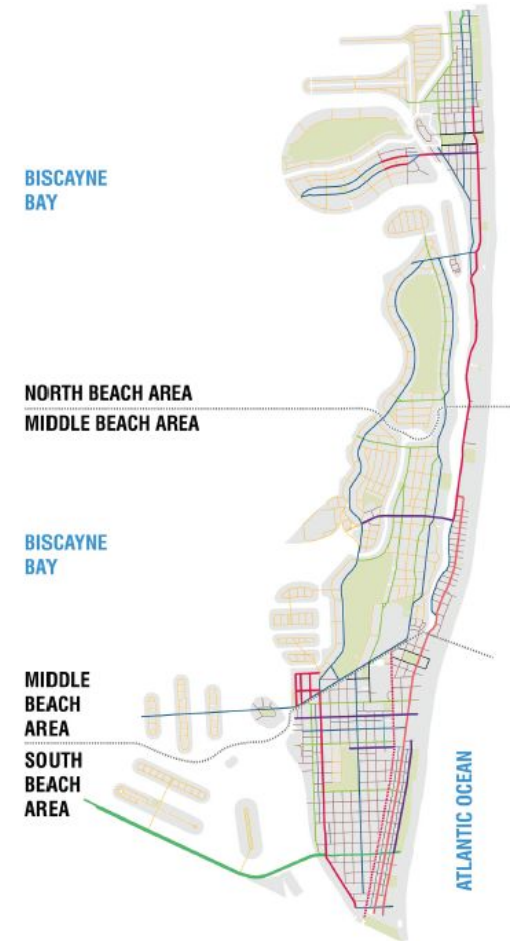
# Case Study: Miami Beach's Urban Forestry Plan (2021)

## IMPLEMENTATION: PLANNING AND PRIORITIZING STREETS BY CHARACTER & USE

- **Planning for a city-wide approach**
  - Establishing a classification strategy for all streets within the City.
- **Street-by-Character**
  - Understanding that streets are not only about traffic movement, but also about experience; working in concert with abutting land uses.
- **Street tree species prioritization plan**
  - Identifying key species for specific street-types to build uniformity and wayfinding



- LEGEND
- HIGHLY VISIBLE & HIGH-PROFILE CORRIDORS
  - COMMERCIAL CORRIDORS
  - HOSPITALITY CORRIDORS
  - GATEWAYS
  - CULTURAL CORRIDORS
  - CITY-CONNECTOR CORRIDORS
  - NEIGHBORHOOD-CONNECTOR CORRIDORS
  - URBAN RESIDENTIAL CORRIDORS
  - SUB-URBAN RESIDENTIAL CORRIDORS
  - PEDESTRIAN CONNECTOR ROUTES
  - ALLEYS
  - PARK PARCELS
  - PARCELS





## Opportunities: Cool Bus Stops and Pavements

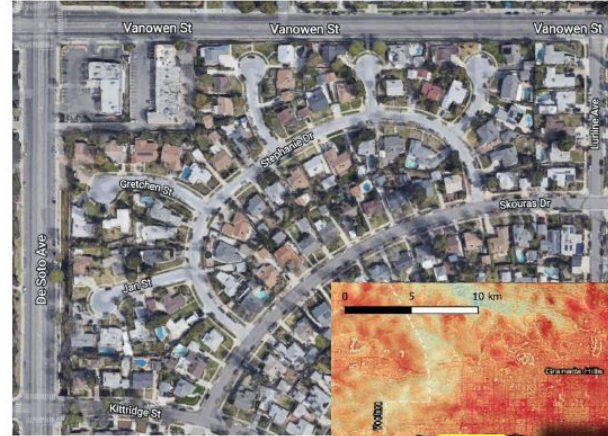
- Shaded bus stops
  - 80% of bus stops have no shade. There are plans to install 300 shaded bus stops within the next year
- Cool Roadways Partnership by Global Cool Cities Alliance :
  - [Cool Streets LA](#)



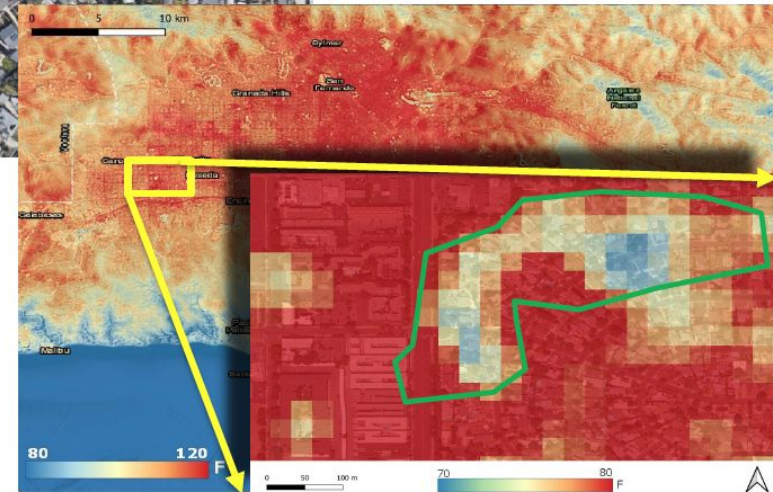


# Case Study: Cool Streets LA

- 2017: StreetsLA installed cool pavement coating on one city block in each of the 15 Council Districts
- 2019: First 3 Cool Neighborhood Projects
  - Identified neighborhoods using data including urban heat islands, social vulnerability, and active transportation priorities

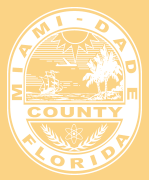


Winnetka Cool Neighborhood Project



ECOSTRESS thermal camera aboard International Space Station: Land Surface Temperature 08/14/2020, 4pm PST (Source: Glynn Hulley, JPL/NASA)

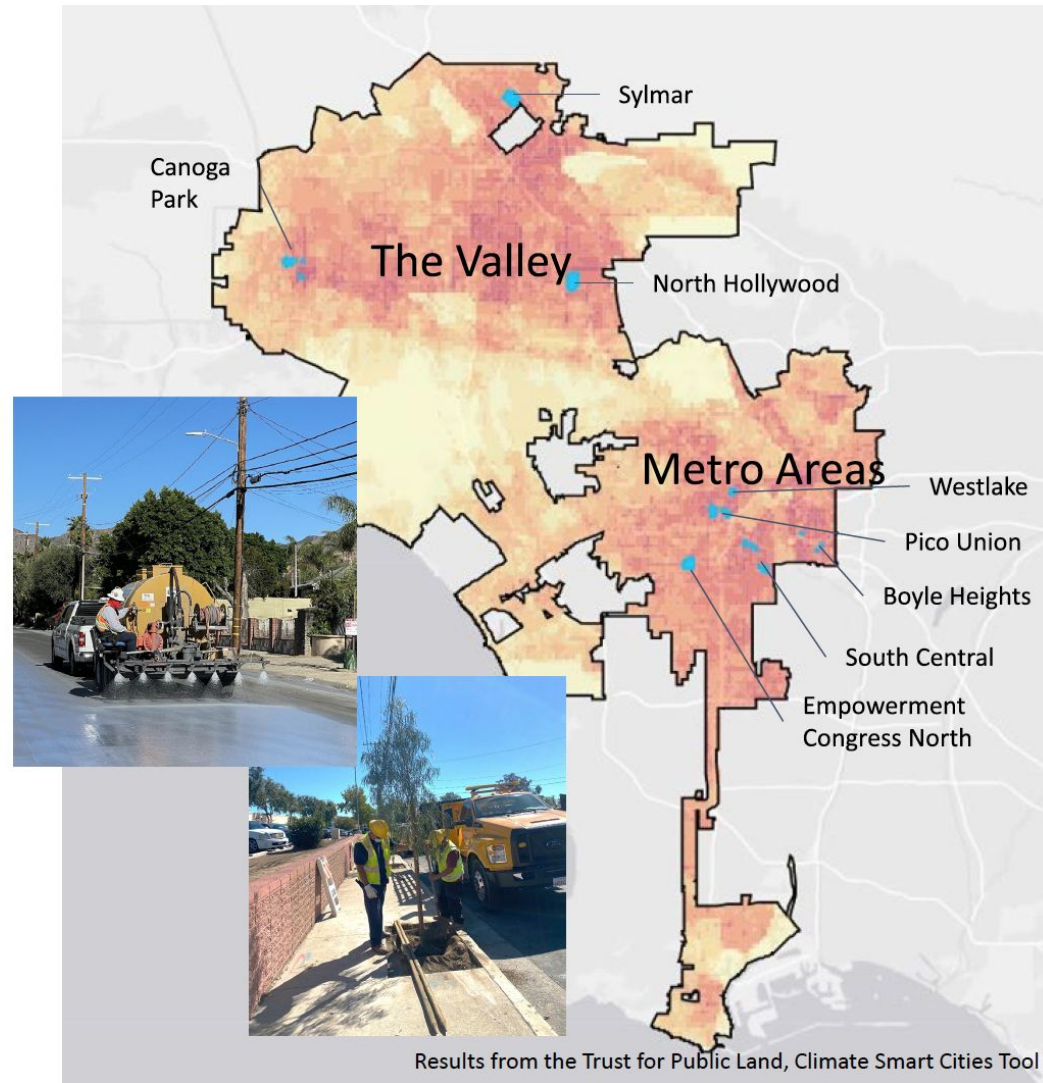


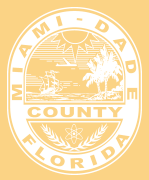


# Case Study: Cool Streets LA

## 2021 Accomplishments

- Oct 2021-Feb 2022: Completed 4 Cool Neighborhoods
  - 30 lane miles, 100 city blocks
  - Planted over 700 street trees
- March-April 2022: Complete 5 Cool Neighborhoods
  - 30 lane miles, 100 city blocks
  - Planting 1,000 street trees



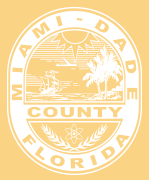


# Upcoming workshops

[National Integrated Heat Health Information System \(NIHHIS\) National Meeting](#)



- Learn about and leverage heat and health activities, opportunities, and resources
- Expand and strengthen partnerships and networks, and
- Foster a shared vision and path forward for equitable, heat resilient communities



# Breakout Questions

1. How could the County and its partners create better engagement opportunities on their efforts to cool down our most vulnerable neighborhoods?
2. What other policies or actions should the County and its partners consider to cool our streets or to enhance and maintain our tree canopy?
3. What are other municipalities and NGO partners that we haven't mentioned doing locally?
4. What other stakeholders need to be involved?