

TREE CANOPY ASSESSMENT



Todd Warren,
Martin County Urban Forestry
Manager

Carly Batts,
Martin County Horticulturist

Rick Harman, PWS, CEP
Environmental Lead, Land
Development, WGI

Nicole Dougherty
Project Manager, WGI



WHY IS OUR CANOPY COVERAGE IMPORTANT

Urban Tree Canopies (UTC) ranks among one of the most important and valuable natural resource assets.

“Florida’s existing canopy provides over \$456 million annually in avoided infrastructure costs and ecosystem benefits.” *



*Florida Department of Agriculture and Consumer Services (FDACS), 2023. Urban Tree Canopy Assessment. [Statewide Community Tree Canopy Assessment \(fdacs.gov\)](https://fdacs.gov)

URBAN TREE CANOPIES BENEFITS

- Mitigates storm-water runoff



- Reduces flood risks
- Stabilizes soils
- Reduction of sedimentation in ditches, creeks, and riparian lands

- Environmental Enhancements



- Expands wildlife habitat
- Connects various habitats

- Improves Public Health

- Walkability
- Mental health
- Reduces air pollution



- Helps decrease “Heat Island Effect” resulting in lower air temperatures

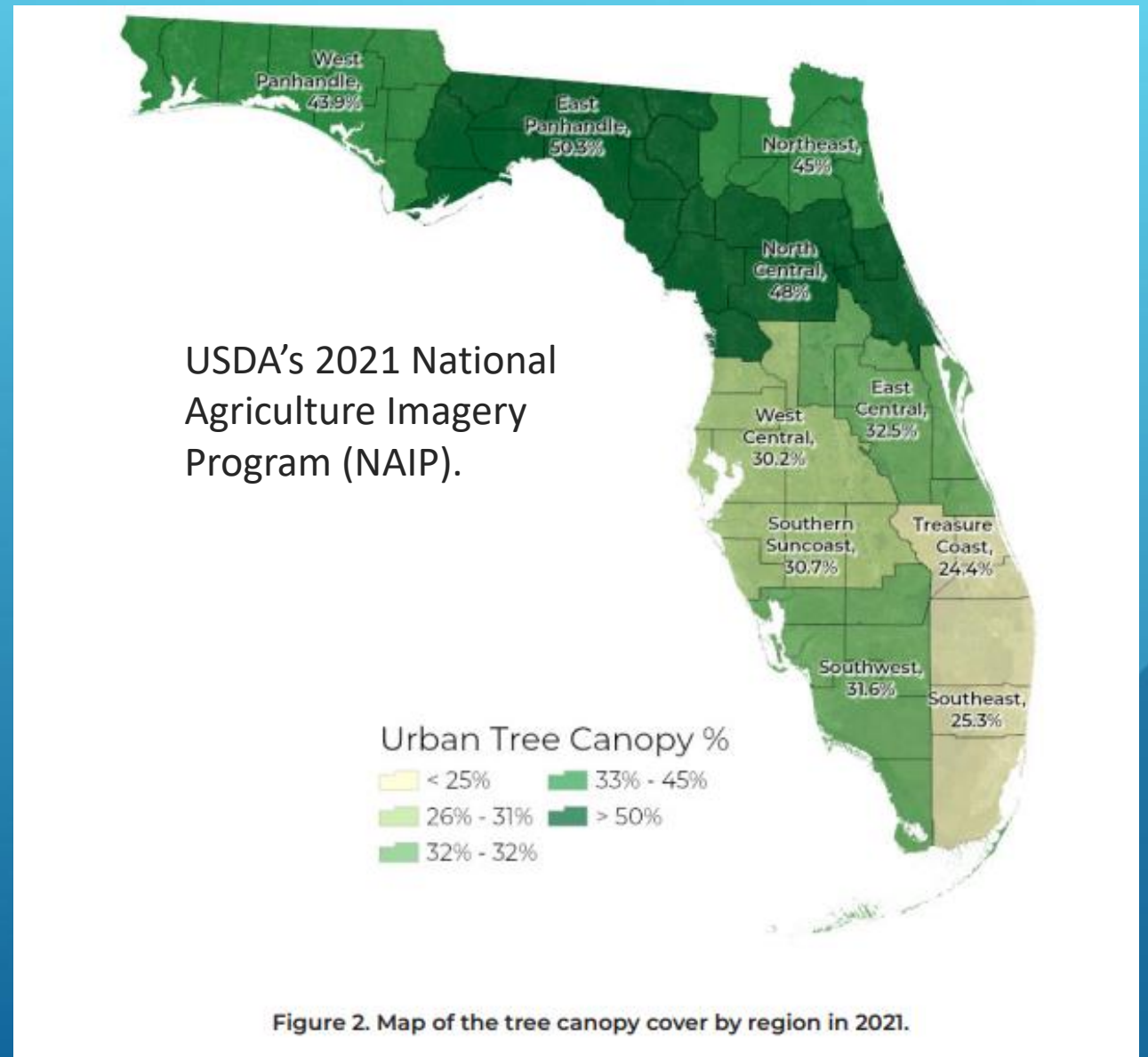


- Decreases speed on roads and can provide a barrier for pedestrians
- Provides Martin County character



TREE CANOPY COVERAGE BY REGION

Florida was broken down into 10 regions. Martin County is in the “Treasure Coast” region.



MARTIN COUNTY CANOPY COVERAGE STUDY

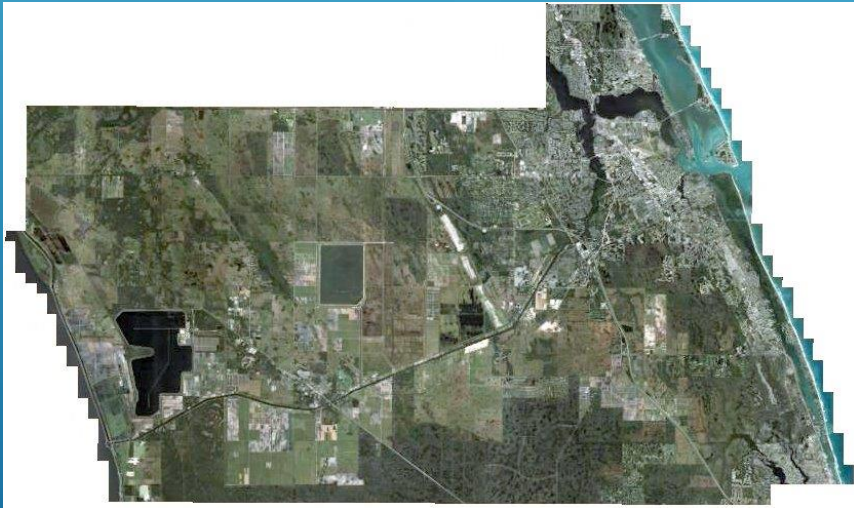
Using 2021 NAIP imagery and 2019 3DEP LiDAR from USGS, WGI, Inc., assisted Martin County in processing and reviewing canopy coverage through urban areas.

- Create a basemap using Imagery & extract LiDAR to County boundary
 - ↳ • Classify vegetation by customized heights above ground in lidar point cloud
 - ↳ • Extract a canopy layer at effective heights and vectorize for use in GIS
 - ↳ • Import County Right-of-Ways (ROWs) layer & clip to County ROWs
 - ↳ • Import County Commission Districts layer and delineate attributes by District
 - ↳ • QC results and identify areas for field verification
 - ↳ • Report canopy coverage by District

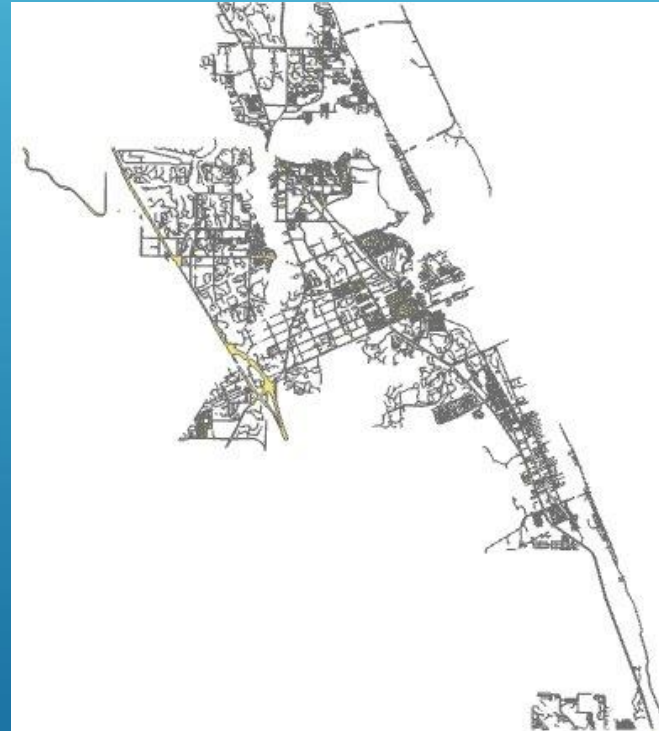


DATA SOURCES AND PARAMETERS USED

Public 2023
County- wide
Orthoimagery



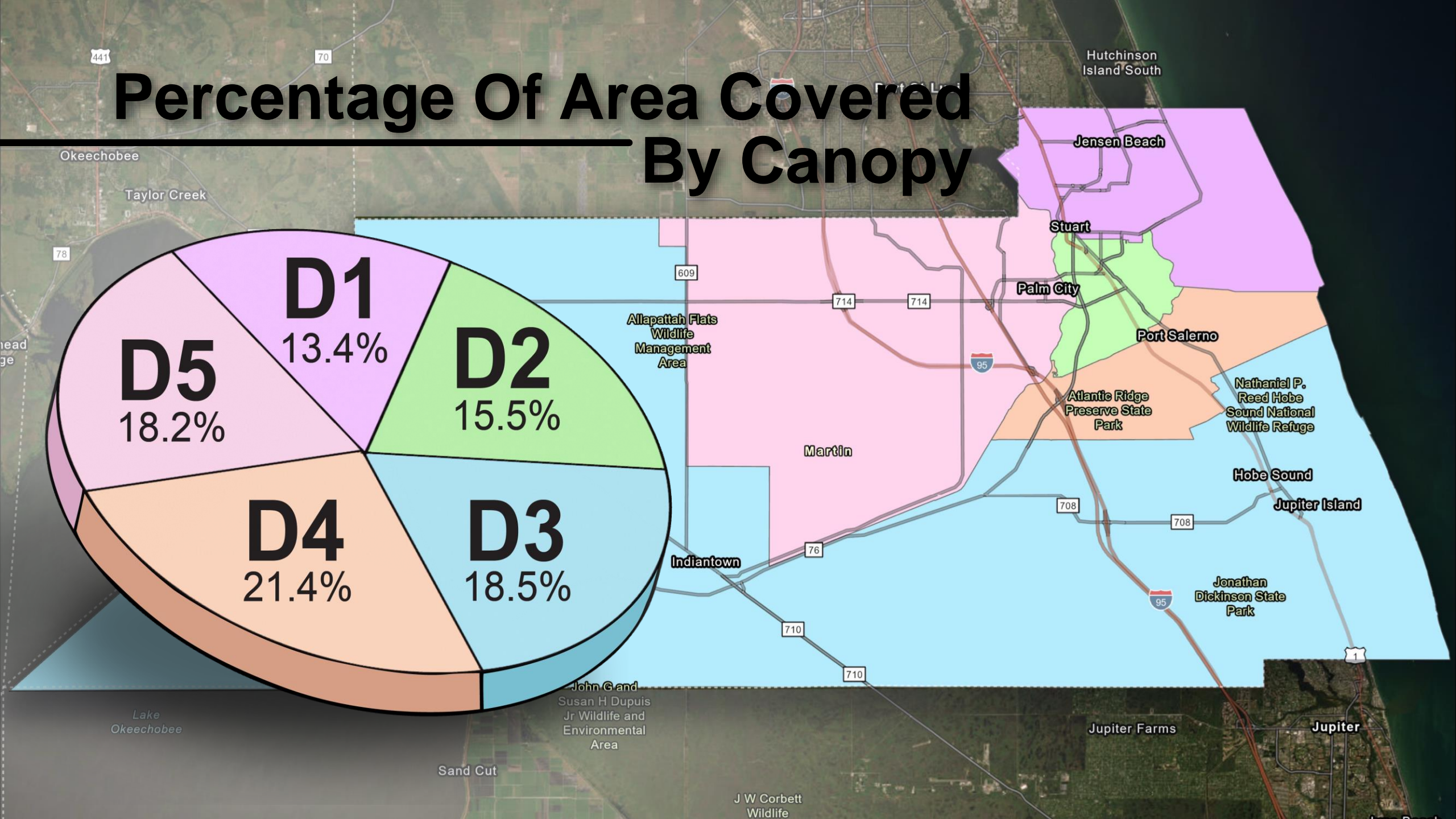
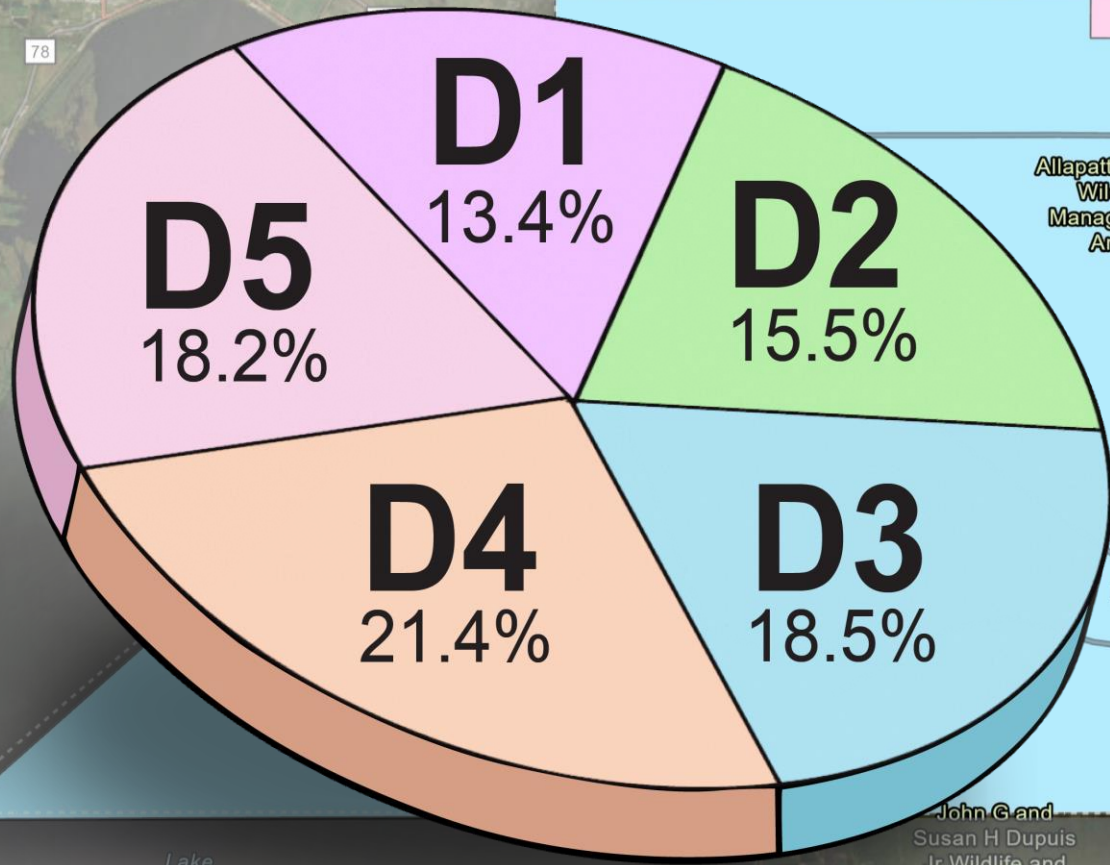
County Provided
ROW Layer



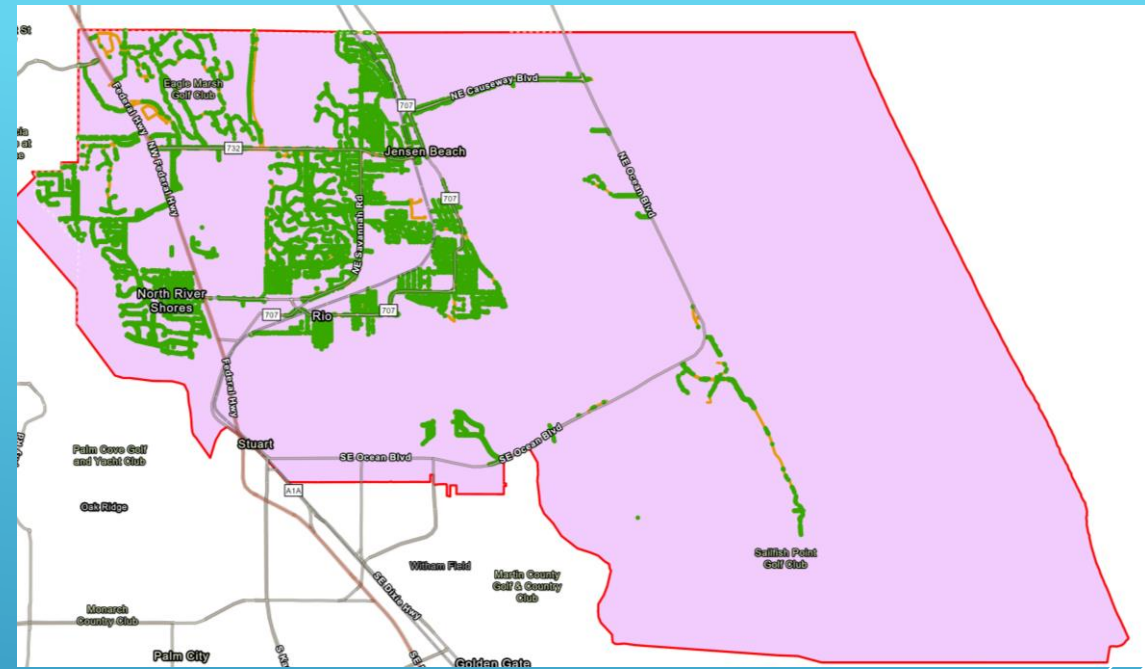
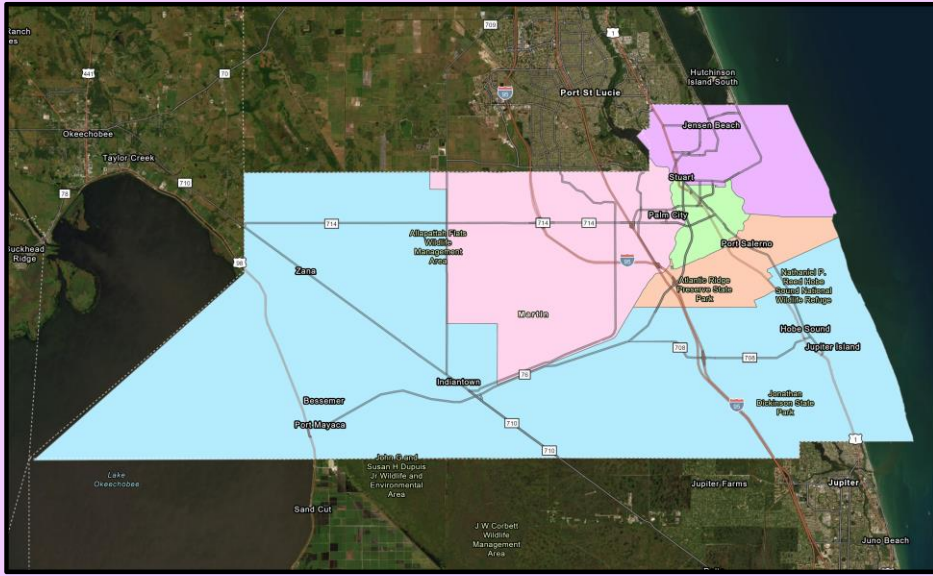
2020 USGS LiDAR
dataset



Percentage Of Area Covered By Canopy

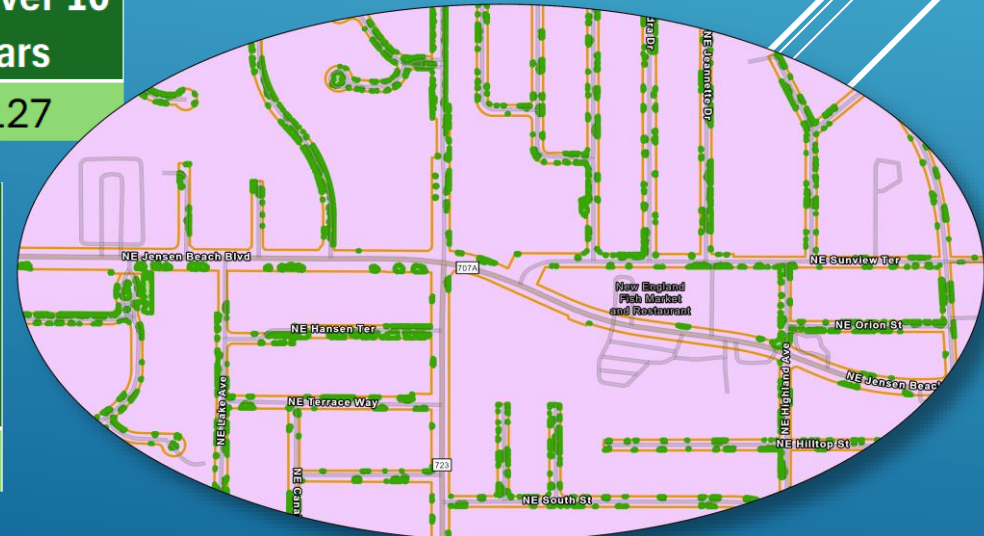


D1

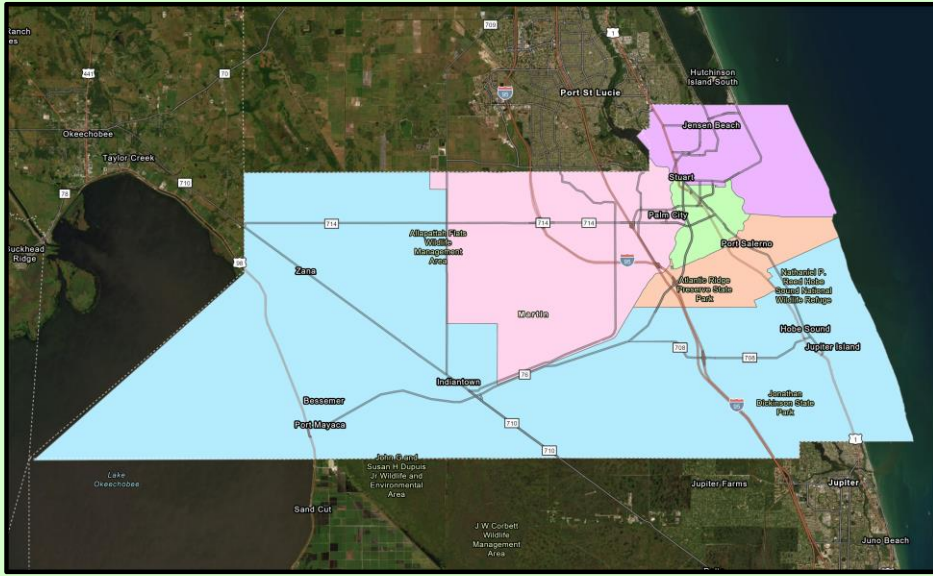


Sum of ROW (sqft)	Sum of Canopy Coverage (sqft)	Percentage of area covered by canopy	ROW Not covered by canopy (sqft)	Needed sqft to get to 30%	Amount of Trees (30%)	Trees planted per year over 10 Years
37,266,695	4,979,991	13.4	32,286,704	6,199,864	11,273	1,127

Needed sqft to get to 25%	Amount of Trees (25%)	Trees planted per year over 10 Years	Needed sqft to get to 20%	Amount of Trees (20%)	Trees planted per year over 10 Years
4,336,683	7,885	788	2,473,348	4,497	450



D2

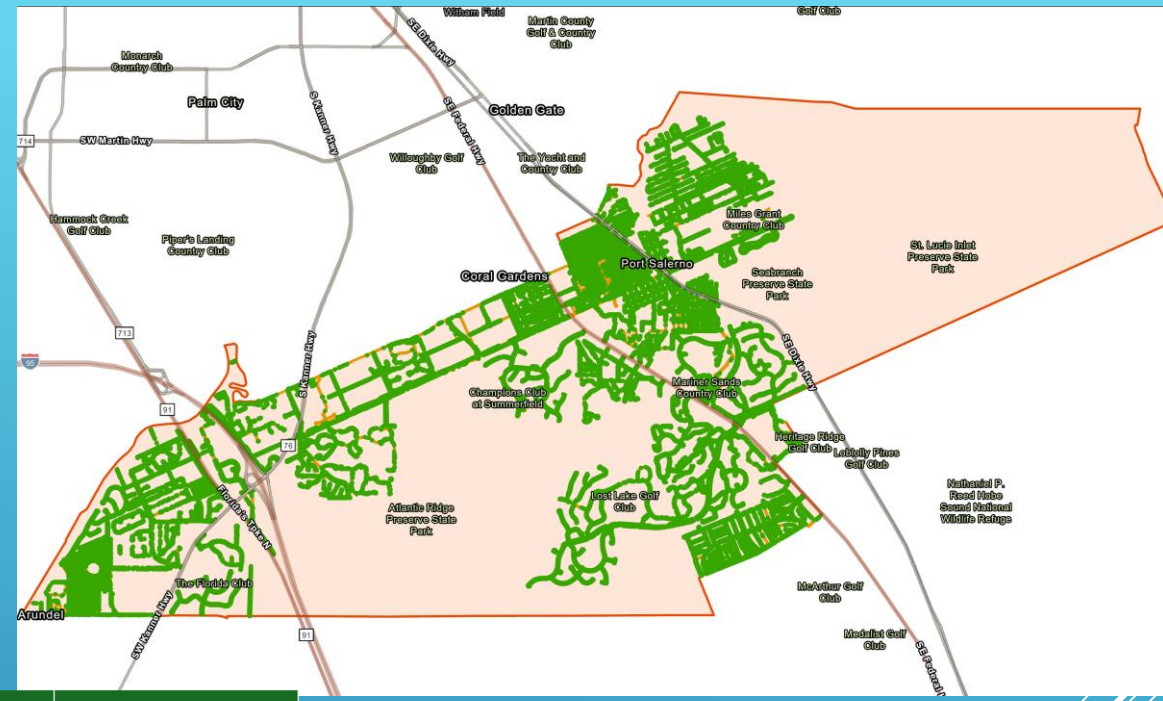
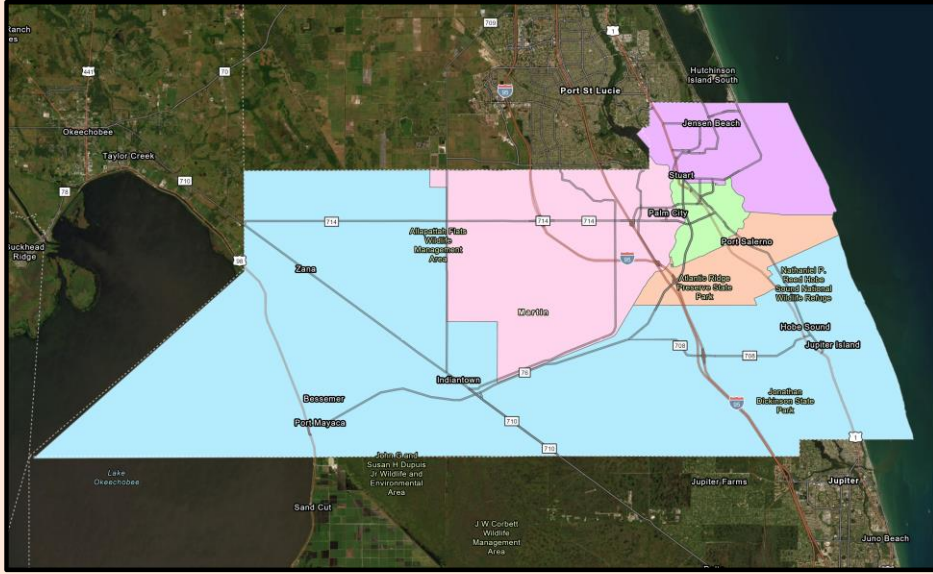


Sum of ROW (sqft)	Sum of Canopy Coverage (sqft)	Percentage of area covered by canopy	ROW Not covered by canopy (sqft)	Needed sqft to get to 30%	Amount of Trees (30%)	Trees planted per year over 10 Years
31,771,507	4,915,646	15.5	26,855,861	4,615,806	8,392	839

Needed sqft to get to 25%	Amount of Trees (25%)	Trees planted per year over 10 Years	Needed sqft to get to 20%	Amount of Trees (20%)	Trees planted per year over 10 Years
3,027,231	5,504	550	1,438,655	2,616	262



D4



Sum of ROW (sqft)	Sum of Canopy Coverage (sqft)	Percentage of area covered by canopy	ROW Not covered by canopy (sqft)	Needed sqft to get to 30%	Amount of Trees (30%)	Trees planted per year over 10 Years
57,864,979	12,363,197	21.4	45,501,782	4,996,200	9,084	908

Needed sqft to get to 25%	Amount of Trees (25%)	Trees planted per year over 10 Years	Needed sqft to get to 20%	Amount of Trees (20%)	Trees planted per year over 10 Years
2,103,048	3,824	382	N/A	N/A	N/A



URBAN TREE CANOPY

OPPORTUNITIES FOR COUNTY-OWNED PROPERTY



- Highest percentage of possible planting area in our region (43%)
- Tree Protection – county is responsibility of ROW canopies

OPPORTUNITIES FOR PRIVATELY-HELD PROPERTY



- Citizen Urban Forestry Initiative
- Partnership with private entities
- Potentially more area for planting

CHALLENGES FOR COUNTY- OWNED PROPERTY



- Road Widening
- Aging Trees
- Natural Disasters
- Regulations
- Funding
- Staffing



CHALLENGES FOR PRIVATELY-HELD PROPERTY

- Tree Protection regulations for residential properties
- Aging Trees
- Natural Disasters



URBAN CANOPY GOALS

- No net loss (accidents, natural attrition, etc.)
- Identify and prioritize areas with greatest need
- Natural Disaster Management – replanting after disasters
- Grant applications for tree planting efforts
- Citizen Science program – neighborhood-based tree inventory program for trained volunteers
- Identifying signature/grand/Martin County champion trees on county-owned property
- Placemaking with signature/grand/MC Champion trees, in coordination with EcoTourism
- Determine a canopy percentage goal (Board)
- Begin strategic tree planting
- Implement planting efforts through awarded grants
- Succession planting/ replacing trees on road canopy roads
- Recurring canopy study
- Tree Protection in ROW and county-owned properties(ordinance(s), regulation?)
- Tree Protection on private property (incentives, alternative compliance, ordinance(s), regulation(s)?)



MARTIN GRADE



MARTIN GRADE



GOMEZ TREE PLANTING

Before




After



- 120 trees planted; 8'-12' tall, 1.5"-3.5" caliper
- Slash pine, Spanish stopper, Live Oak, Satin leaf, Gumbo limbo (all native species)
- ~3miles of SE Gomez Ave
- 25-feet on center, in planting areas
- ~\$600/tree (~\$72,000 for the 3 miles of planting)



GOMEZ TREE PLANTING

 **Hobe Sound Elementary School**
3d · 🌐

Have you noticed the trees that line Gomez with a bag around the bottom? On Oct 17 the Nature Know-It-Alls met with representatives from the County Commissioners office to learn about these Native Trees. KNIA teamed up with the commissioner's office to create labels for the trees that state important facts. This was done in an effort to educate our community about these trees. In November, during your bike ride or walk see if you can locate the labels. The commissioner's office needs a couple of weeks to get all the labels attached. They also gave the NKIA a t-shirt to commemorate this collaboration.



BOARD RECOMMENDATION

The Board is asked to provide guidance regarding a target canopy coverage percentage for our right of ways within our urban services boundaries by 2035



THANK YOU



QUESTIONS?



REFERENCES

Florida Department of Agriculture and Consumer Services (FDACS), 2023. Urban Tree Canopy Assessment. [Statewide Community Tree Canopy Assessment \(fdacs.gov\)](https://fdacs.gov)

