

i-Tree Canopy

www.itreetools.org/canopy



Quickly determine tree canopy and other cover types for a study area using random plot sampling!

i-Tree Canopy v6.1

Percent Cover ($\pm$ SE)

	H	T	IB	IR	IO	W	S
22.6	26.2	14.8	8.60	21.0	4.20	2.60	
± 1.87	± 1.97	± 1.59	± 1.25	± 1.82	± 0.90	± 0.71	

Id	Cover Class	Latitude	Longitude
1	Impervious Other	41.74094	-72.65320
2	Impervious Road	41.74315	-72.66277
3	Tree/Shrub	41.76941	-72.68937
4	Grass/Herbaceous	41.78738	-72.69409
5	Tree/Shrub	41.73479	-72.67216
6	Impervious Other	41.78946	-72.66989
7	Tree/Shrub	41.79791	-72.71115
8	Tree/Shrub	41.74369	-72.66156
9	Grass/Herbaceous	41.80402	-72.71483
10	Grass/Herbaceous	41.79908	-72.65136

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Save Your Data

Save Data Save Early. Save Often. Don't lose your project data!

Options

Report By: ☒ Percentage ☐ Area English

Display:

- ☒ H - Grass/Herbaceous
- ☒ T - Tree/Shrub
- ☒ IB - Impervious Buildings
- ☒ IR - Impervious Road
- ☒ IO - Impervious Other
- ☒ W - Water
- ☒ S - Soil/Bare Ground

Who is using i-Tree Canopy?

- Urban forest managers.
- Tree advocacy organizations.
- Urban Planners.
- Users of other i-Tree applications.

5 Steps:

- 1) Draw the boundary of your area of interest in Canopy or import using a GIS shapefile.
- 2) Define the cover types you are interested in estimating.
- 3) i-Tree Canopy will generate random sample points...
- 4) You decide their cover type category.
- 5) Save your project and return to add more points, view the results, or estimate changes in cover.

i-Tree Canopy

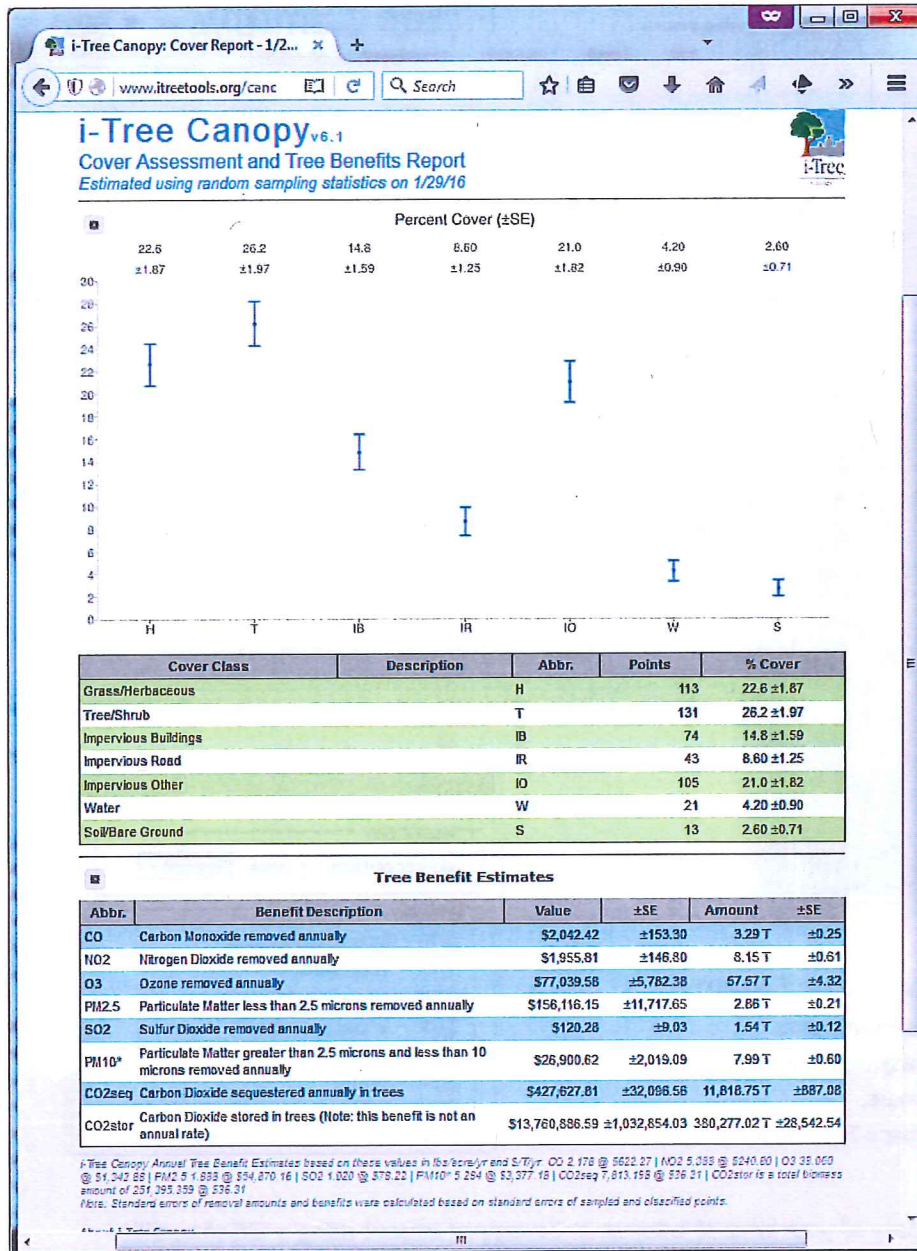
www.itreetools.org/canopy



How it works:

i-Tree Canopy is a web browser application that can be used to determine the amount of an area of interest covered by tree canopy and other user-defined surfaces.

It automatically generates random plot points within your study area boundaries. You simply visit each point and assign a land cover category to it. Land cover estimations and Tree benefit estimates are then generated statistically.



What results does i-Tree Canopy generate?

- The relative amounts of cover types you define.
- Changes in cover type over time when used with Google Earth.
- Reported estimates as acreages or percentages.
- Statistical precision of cover type estimates.

What are applications of i-Tree Canopy?

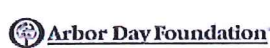
- Compare tree canopy cover in different parts of a city.
- Identify amount of space available for new tree planting.
- Estimate amount of impervious surfaces contributing to storm water run-off.
- Generate local inputs for i-Tree Hydro and i-Tree Vue.

Send us an e-mail at:
info@itreetools.org

with your own unique applications

- or -

if you have questions about i-Tree Canopy.

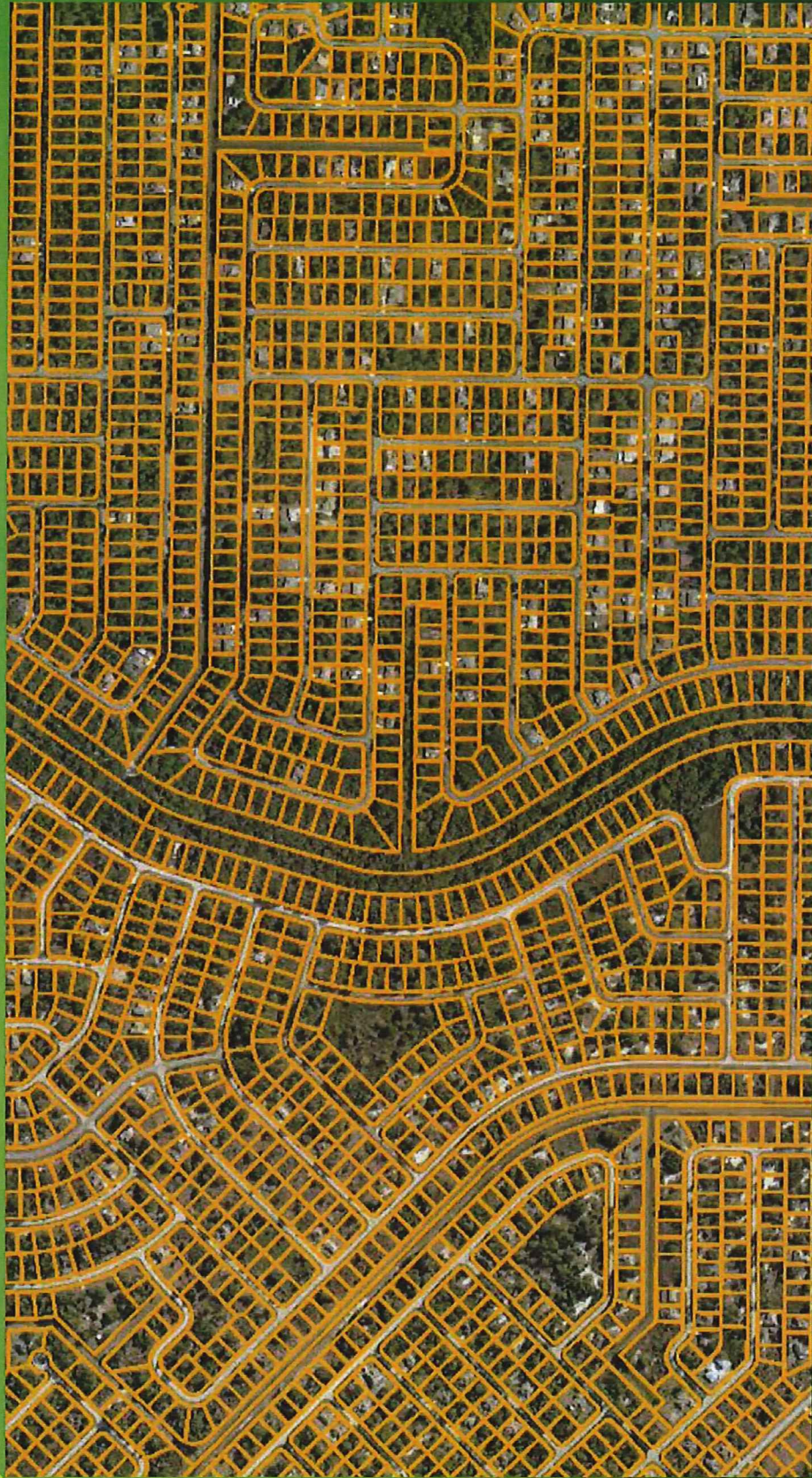


TREE PROTECTION REGULATIONS

- IMPACT OF PLATTED LOTS
- CITY'S CANOPY COVER IN 1997 (ITREE CANOPY MODEL)
- SIGNIFICANT TREE PROTECTION COMMUNITY SURVEY RESULTS
- HIGHLIGHTS OF ADDITIONAL COMMUNITY & EAB INPUT
- ENVIRONMENTAL ADVISORY BOARD RECOMMENDATIONS
- KEY TREE PROTECTION REGULATIONS IN NORTH PORT VS OTHER JURISDICTIONS
- UNIQUE COMPONENTS OF REGULATIONS IN OTHER JURISDICTIONS



79% of survey respondents are concerned about clearcutting and tree removal in North Port.



52% want to be able to cut trees down on their own property without any restrictions or review.

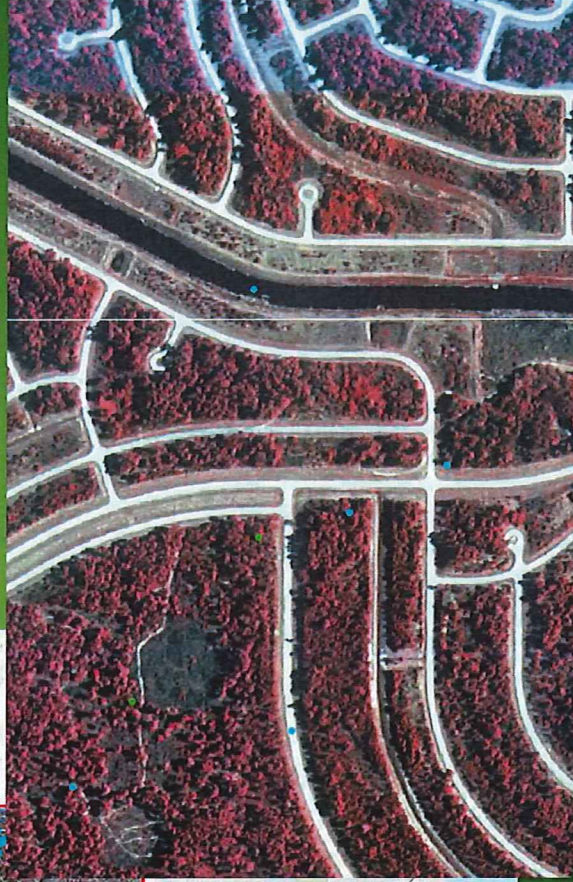
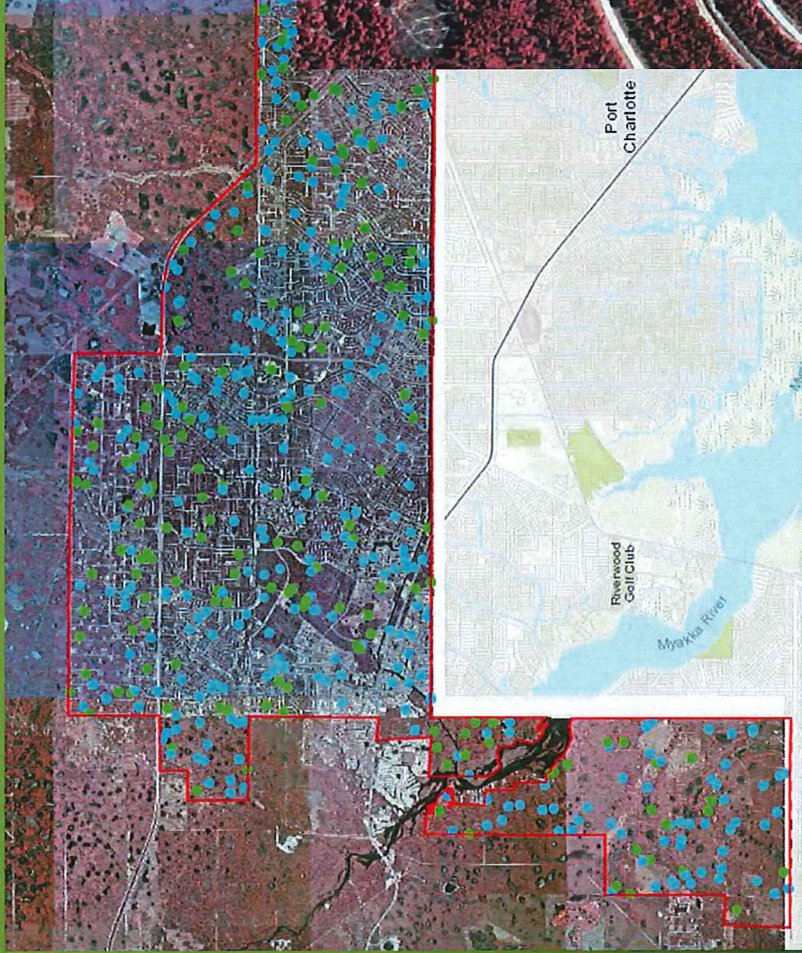
PERCENT CANOPY COVER IN 1997* CITY LIMITS VS 2019 USING iTREES

Preliminary iTree Canopy results based on the minimum recommended number of sample sites (500):

- The Canopy Coverage for 1995 (1997 city limits) was 30.3% with a 2.05% margin of error.
- The Canopy Coverage for 2019 is 25.1% with a 1.94% margin of error.
- A more accurate analysis can be done using more sample sites

NOTE: The aerial photo used in the analysis is from 1995

PERCENT CANOPY COVER IN 1995*



SIGNIFICANT TREE PROTECTION SURVEY RESULTS

- 80% value trees for their role in providing wildlife habitat
- 80% would plant more trees on their property if they were available at a minimal cost
- 79% are concerned about clearcutting and tree removal in North Port
- 79% want to be able to cut down trees on their property if there is more than 35% canopy coverage
- 77% support use of incentives to preserve trees and enhance canopy
- 77% want property developers to be required to remove and manage invasive species
- 77% value trees for the role they play in aquifer recharge
- 76% support incentives to encourage homeowners to preserve and enhance tree canopy coverage
- 75% want native trees to be given a higher priority for preservation than non-natives
- 74% want fines to be increased to discourage illegal land clearing
- 73% value trees for the role they play enhancing air and water quality
- 68% value trees for the role they play in noise mitigation
- 67% want larger/older trees to be given a higher priority than smaller/younger trees
- 67% value trees for their aesthetic and other health benefits
- 64% want large trees removed to be compensated by either replanting or payment
- 63% value trees for the role in reducing stormwater runoff
- 61% value trees for their role in enhancing property values
- 60% want the 35% canopy coverage goal to be increased

ADDITIONAL COMMUNITY & EAB INPUT

The following were additional issues raised by the Community (survey, workshops) and Environmental Review Board:

Review Other Jurisdictions (Community)	Understory (Community)
Large Trees (Community/EAB)	Sewer Service (Community)
Native Trees/Vegetation (Community/ EAB)	Education (Community/EAB)
Invasive Species (Community)	Tree Islands (EAB)
Illegal Land Clearing (Community)	Youth Involvement (EAB)
Nature Preserves (Community)	Trees in Rear Easement (EAB)
City's Maintenance Practices (Community/EAB)	Volunteer Groups (EAB)
Priority Tree List (Community)	Incentivize Homeowners (EAB)
Legacy Developments (Community)	

KEY TREE PROTECTION REGULATIONS NORTH PORT VS OTHER JURISDICTIONS

SARASOTA COUNTY
GAINESVILLE
JACKSONVILLE
TALLAHASSEE

SINGLE-FAMILY LOTS

North Port	Sarasota County	Gainesville	Jacksonville	Tallahassee
Trees can be removed after CO, without a permit, <i>EXCEPT</i> for heritage trees and trees required to achieve 35% canopy coverage per approved landscaping plan, which DO require a permit (most trees require permits); No mitigation required, even for heritage trees.	Trees can be removed after CO without a permit, <i>EXCEPT</i> for Grand Trees and trees planted pursuant to approved permit to meet landscaping requirements; Mitigation is required for trees that require a permit.	Trees less than 20 inches DBH can be removed without a permit, <i>EXCEPT</i> for trees required for subdivision or development plan approval; Mitigation is required for trees that require a permit.	Trees can be removed with a permit on lots no longer capable of being divided further; No mitigation required.	Non-patriarch trees up to 36 inches DBH can be removed during and post-development; No mitigation required.

REGULATED/PROTECTED TREES

North Port	Sarasota County	Gainesville	Jacksonville	Tallahassee
4½ inches DBH or greater with sustaining root system and crown and potential to provide shade over travel ways.	Any tree that will reach 10 feet or more in height, having a main stem or cluster of main stems, and any one stem measuring 4½ inches DBH. Also, all 2-inch DBH Buttonwoods and a list of several oak species; and all palms with more than 4½ feet of Clear Trunk	Trees 8-inches DBH or more, or any tree that was planted in compliance with an approved DO or planted for mitigation;	Any tree 6-inches DBH or more in R-O-W or within 20 feet of R-O-W; <u>or</u> 8-inches DBH or more within 10 feet of a R-O-W; <u>or</u> 1 ½-inches DBH or more located elsewhere on property	<i>Pre-Development:</i> Any tree 2-inch DBH or more <i>During or Post-Development:</i> Any tree 18-inches DBH or more, and a list of various tree species and sizes, such as any hardwood or long leaf pine 12-inches DBH or more, and trees in various locations, such as in buffers & wetlands

DESIGNATING LARGE TREES FOR SPECIAL PROTECTION

North Port	Sarasota County	Gainesville	Jacksonville	Tallahassee
<u>Heritage Tree:</u> Native tree species 30 inches DBH or more	<u>Grand Tree:</u> Healthy trees based on a point system for 12 different native tree species. Each species has a threshold number of points needed to be designated a Grand Tree. Points are given for DBH, height, and average canopy spread.	<u>Heritage Tree:</u> 20 inches DBH or more, except for 5 species that require 30 inches DBH;	<u>Exceptional Specimen Tree:</u> Hardwood of 24-inch DBH or greater <u>Protected Tree:</u> 36- inch <i>circumference</i> at BH	<u>Exceptional Specimen Tree:</u> Healthy tree with characteristics of size, species, age, form, historical significance, or other qualities that warrant special consideration as a biological and social resource to be preserved for the benefit of the general public.

MITIGATION FOR LEGAL TREE REMOVAL

North Port	Sarasota County	Gainesville	Jacksonville	Tallahassee
Applies only to Heritage Trees, except on Single-Family lots if within the footprint of a proposed house; Fee is \$100 per inch DBH. In addition, a \$100 fee for labor and handling shall be assessed per tree and the cost of replacement trees; Applicant may donate land to City in lieu of fee.	Applies to Protected Trees; Grand trees are replaced on a DBH inch by inch basis; Fee is \$200 per inch DBH for all protected trees, not just Grand Trees.	Applies to all Regulated Trees; Only high-quality heritage trees in nonresidential developments allow for a fee to be paid; All other regulated trees and residential developments require mitigation to be done by planting trees onsite.	Applies to Protected Trees, which vary by size and location relative to the R-O-W; Tree replacement onsite is the main focus; Fee can be paid if property cannot accommodate the total number of replacement trees; Off-site mitigation and conveyance of land are options under certain conditions	Applies to Protected Trees; Tree replacement onsite is the main focus; Off-site planting and fee are options under certain circumstances

INCENTIVES

North Port	Sarasota County	Gainesville	Jacksonville	Tallahassee
"The City shall utilize the incentive program for developers/ builders to provide appropriate trees to the City when a lot is cleared for development and the developer/ builder removes existing native trees. Further, the City shall be aggressive in its enforcement of violations to the tree and landscape code"; Preservation of a heritage tree will allow for double the canopy coverage shown on the Priority Tree List.	The county does not appear to have an incentive program related to tree protection.	Credit is given for preserving trees, but they don't appear to offer any additional incentives.	"Facilitate the implementation of Florida-Friendly concepts by offering flexibility and incentives in Florida-Friendly landscaping design for new single-family residential developments." No other mention of incentives in their Landscape and Tree Protection Regulations.	Combined landscaping & urban forest area can be reduced from 40% to 35% if a minimum 20-foot wide area is preserved or established along the front perimeter of site, or to 30% if the a 40-foot wide area is preserved; Green space credits and other incentives may be given for dedication of property within or abutting future transportation corridors

UNIQUE COMPONENTS OF TREE PROTECTION REGULATIONS IN OTHER JURISDICTIONS

SARASOTA COUNTY

GAINESVILLE

JACKSONVILLE

TALLAHASSEE

METHODOLOGY FOR DESIGNATING “GRAND TREES”

(SARASOTA COUNTY)

Species	Minimum Points Needed to be a “Grand Tree”
American Elm (Ulmus americana)	100
Bald Cypress (Taxodium distichum)	100
Hickory (Carya spp.)	100
Live Oak (Quercus virginiana)	100
Pine (Pinus spp.)	100
Redbay (Persea borbonia)	85
Sand Live Oak (Quercus geminata)	80
Southern Magnolia (Magnolia grandiflora)	80
Southern Red Cedar (Juniperus silicicola)	90
Sugarberry (Celtis laevigata)	95
Sweetbay (Magnolia virginiana)	90
Sweetgum (Liquidambar styraciflua)	100

Measurements	Points
Trunk diameter (DBH)	1 per inch
Height to the nearest foot	1 per foot
Average canopy spread to the nearest foot (measure the longest and shortest diameters of the limb spread or drip line and divide by 2)	1 for each 4 feet

A “Grand Tree” must be replaced onsite on a DBH inch-for-inch basis. If it is determined to be infeasible, the applicant shall pay \$200 per DBH inch to the reforestation special revenue fund.

Exemptions, including on residential lots, do NOT apply to Grand Trees.

BEST MANAGEMENT PRACTICES (BMPs)

(SARASOTA COUNTY)

Standard BMPs: Apply to all Tree Permits, as well as all activities that affect grand trees, trees in the Canopy Road Protection Zone (CRPZ), and trees in the R-O-W regardless of whether a tree permit is required.

Grand Tree BMPs: Apply just to grand trees

Canopy Road BMPs: Apply just to trees in the CRPZ

Root Zone Requirements (not called out as BMPs): Street trees and Shade trees

The BMPs include topics such as tree protection during construction, proper tree care, canopy and root pruning, utility pruning, siting of utility lines, minimum root zone volumes, so trees are preparation of planting sites, inspections

NORTH PORT uses “Right Tree, Right Place” Guidelines.

MITIGATION FOR HERITAGE/REGULATED TREES

(GAINESVILLE)

Category	Subject to Subdivision or Development Plan Approval	Single-Family Dwellings	All Other Uses
High quality heritage trees*, in fair or better condition	Payment-Based on tree appraised value, limited to 3 trees per acre. If more than 3 trees per acre, then the trees with highest value shall be used to calculate the payment. High quality heritage trees in excess of the overall average of 3 per acre shall require trees on an inch-by-inch diameter basis.	Trees-On an inch-by-inch diameter basis, with minimum of 2 high quality shade trees planted onsite per 1 tree removed.	Payment-Based on tree appraised value; and Trees-at least 2 high quality shade trees planted onsite per 1 tree removed. <i>If trees are causing structural problems to building or utilities-</i> Trees-On an inch-by-inch basis, with at least 2 high quality shade trees.
Heritage trees* of other than high quality species, in fair or better condition	Trees-On an inch-for-inch diameter basis	Trees-2 high quality shade trees planted onsite per 1 tree removed. <i>Applies to all trees in this category, wherever they are located between the property line and legal setbacks.</i>	Trees-On an inch-by-inch diameter basis, with a minimum of 2 quality shade trees planted onsite per 1 tree removed.
Any heritage tree* in less than fair condition	Trees-2 high quality shade trees planted onsite per 1 tree removed		Trees-2 high quality shade trees planted onsite per 1 tree removed.
Any other regulated tree*		NA	
* Heritage tree is >20 inches DBH (except 5 species which require 30-inches DBH); Regulated tree is ≥ 8 inches DBH			

ENFORCEMENT

(JACKSONVILLE)

- \$50,000 per acre to Trust Fund
- If done by a contractor, additional civil penalties apply - \$1,000 for 1st violation, \$2,000 for 2nd violation, \$3,000 for every subsequent violation.
- Each parcel is a separate violation
- Class D offense, if convicted

INCENTIVES

(TALLAHASSEE)

FRONT PERIMETER URBAN FOREST & LANDSCAPING INCENTIVES

An Urban Forest and Landscaping Plan: Required for all new development, except existing SF lots, PUDs, and subdivisions of 4 units per acre or less.

Requirement for Non-Vested Sites (does not apply to vested sites): 40%

Incentives:

- If a 20-foot wide area is preserved or established along the front (between the front property line and any vehicular use area), the combined landscaping and urban forest requirement shall be reduced to 35%
- If a 40-foot wide area is preserved or established, the requirement shall be reduced to 30%

MITIGATION FOR LEGAL TREE REMOVAL (UPDATED)

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