

Street Tree Planting Plan

City of Doral, Florida

August 2020

E Sciences Project Number 7-0457-002



ENGINEERING ENVIRONMENTAL ECOLOGICAL

Prepared for:

City of Doral Public Works Department 8401 NW 53rd Terrace Doral, Florida 33166



224 SE 9th Street • Fort Lauderdale, FL 33316 • Tel 954-484-8500 • Fax 954-484-5146 • www.esciencesinc.com



August 3, 2020

Dulce Pantaleon General Services Director Public Works Department City of Doral 8401 NW 53rd Terrace Doral, FL 33166

Subject: City of Doral Street Tree Planting Plan Summary Report

Doral, Miami-Dade County, Florida E Sciences Project Number 7-0457-002

Dear Ms. Panteleon:

E Sciences, Incorporated (E Sciences) is pleased to submit this report summarizing our Street Tree Planting Plan for the City of Doral. This report was prepared in accordance with E Sciences' proposal number 7-0457-002 dated May 13, 2020.

We appreciate the opportunity to provide you with this street tree planting spaces analysis. If you have any questions concerning this report, please contact us at (954) 484-8500.

Sincerely,

E SCIENCES, INCORPORATED

Brian Voelker

Senior Scientist, ISA Certified Arborist

Justin Freedman

Project Manager, ISA Certified Arborist

TABLE OF CONTENTS

1.0	PLANTING SPACE LOCATION MAP DEVELOPMENT	1
2.0	PROPOSED TREE PLANTINGS (QUANTITIES, SPECIES SELECTION)	. 1
3.0	PRIORITIZATION OF REPLACEMENT PLANTINGS	3
4.0	PLANTING PLAN BUDGET	3
5.0	PLANTING SPECIFICATIONS	. 4
	CONCLUSIONS AND RECOMMENDATIONS	

APPENDICES

- A: Tree Planting Spaces Location Maps
- B: Planting Space Tables with Proposed Replacement Trees (Tables 1 and 2)
- C: Tree Installation Species Options (Table 3)
- D: Planting Spaces Tree Installation Costs Summary
- E: Planting Specifications

1.0 PLANTING SPACE LOCATION MAP DEVELOPMENT

The City of Doral (City) requested that E Sciences, Incorporated (E Sciences) prepare a Planting Space Location Map to identify opportunities to increase the City's tree canopy coverage by planting suitable trees as appropriate within its right of way along its roadways.

To identify potential planting areas, E Sciences conducted a desktop analysis of aerial photography and the citywide GIS tree data set previously collected for the City by E Sciences in March 2018 through May 2018 (Phase 1) and April 2020 through May 2020 (Phase 2) Potential planting areas identified through the desktop GIS analysis were then inspected in the field to verify the status of each proposed planting area. This field verification included an evaluation of several "viability" factors, including the following: (1) above ground infrastructure conflicts; (2) adjacent canopy conflicts; (3) relation to other existing plantings.

The resulting planting areas are depicted in the attached Planting Space Location Maps (**Appendix A**). The maps display numbered planting areas as GIS polygons and include points within the polygons depicting individual tree planting locations within those areas. Data for the proposed planting locations are provided in electronic format (GIS shape files and KMZ files) under separate cover. The planting space data set is also summarized in Table 1 in **Appendix B**.

In addition to vacant planting locations, E Sciences reviewed the existing GIS tree inventory data for the presence of dead or critical-condition trees. These trees were then reviewed in the field to verify their status. In many cases, dead or critical trees have been replaced since they were inventoried in March through May 2018 and April through May 2020. Remaining dead or critical trees were included in the Planting Space Location Maps with labels depicting tree numbers from the original GPS inventory. GIS data for these critical and dead trees, including proposed replacement tree recommendations, will be provided under separate cover along with the planting spaces GIS file.

The data set for recommended replacements for critical/dead trees is also summarized in Table 2 in **Appendix B.**

2.0 PROPOSED TREE PLANTINGS (QUANTITIES, SPECIES SELECTION)

Based on the aforementioned GIS analysis, a total of 3,129 locations for individual tree plantings were identified between the open planting spaces and the dead or critical trees to be replaced (see **Appendix A**). The presence of conflicting utilities or other infrastructure were considered when determining locations for tree plantings within each of the mapped planting spaces. Quantities

for the replacement of dead or critical trees were based on a 1:1 ratio; i.e. installation of one new tree for each dead or critical tree removed (see Table 2 in **Appendix B**).

For each planting space, E Sciences proposed the installation of a tree or palm species based on several factors, including the following:

- Continuity of species within the area (i.e. the planting space consisted of a "gap" in a row of one species)
- For open areas with no trees, recommendations favor native, wind resistant, and drought tolerant species
- Species were recommended based on their maximum sizes (canopy size, trunk size) relative to on-site restrictions (e.g. width of planting space, overhead utility lines, adjacent tree canopy, etc.)

For each of the recommended replacement trees listed in **Appendix B**, alternative species may be installed within similar size classes. A complete list of proposed species for each planting space, as well are recommended alternatives per size class, is included in Table 3 in **Appendix C**.

Alternative options for each recommended species are based upon similar size at maturity and similar characteristics (i.e. native status, drought tolerance, wind resistance). Native trees species were generally recommended over non-native species based upon several factors, including the following:

- Native trees area better adapted to local soils, temperatures, and rainfall patterns
- Native trees generally require less fertilization and irrigation than exotic species
- Native plants are generally more resistant to native pests and diseases in Florida because they have evolved under constant exposure to these organisms
- The use of native trees in landscapes preserves the state's natural resources and provides an example of favorable tree selection to private property owners

Recommendations provided from City staff were incorporated into this list. However, several recommended species were excluded from the list that display low wind resistance and are prone to breakage, including glaucous cassia (*Cassia surratensis*) and yellow tabebuia (*Tabebuia cairiba*).

Please note that in many instances where planting areas did not consist of gaps within rows of existing trees, the proposed tree species was selected arbitrarily from the list of preferred species of the appropriate size class. For example, wild tamarind (*Lysiloma latisiliquum*), a desirable, native, large canopy species, is recommended in many cases where open strips are available for new trees. This species is interchangeable with any recommended (green highlighted) large or medium canopy trees from Table 3 in **Appendix C**.

3.0 PRIORITIZATION OF REPLACEMENT PLANTINGS

The Planting Space Tables (**Appendix B**) include a "prioritization" value indicating the recommended relative timing for tree installation. The prioritization hierarchy was based on the following factors:

• High Priority

- High profile commercial areas (e.g. with greater anticipated vehicular or pedestrian traffic)
- o Higher traffic portions of residential areas (e.g. main roads, entrance roads with greater visibility than other residential areas)

• Moderate Priority

- o Commercial areas with slightly lower visibility than high priority areas
- o Lower visibility portions of residential areas

Low Priority

- o Commercial areas with low visibility
- o Industrial areas

Although they were not assigned an installation priority value on the maps or data tables, replacing dead or critical trees is a high priority. Since these trees pose an elevated risk of failure, it is recommended that they be replaced as soon as possible to alleviate this risk. Where trees previously identified as dead or critical have been removed not replaced, these tree planting locations are identified as "replacements" on the Tree Planting Spaces Location Maps (**Appendix A**) and Planting Space Tables (**Appendix B**). The installation of trees at these locations is generally considered a low priority.

Where limitations for planting (e.g. soil compaction) were identified within a proposed planting space, the prioritization for planting was lowered by one category as additional remediation efforts may be necessary to install trees in those areas.

4.0 PLANTING PLAN BUDGET

E Sciences generated cost estimates for the installation of new trees within the aforementioned identified planting spaces. The planting costs were broken into several categories:

- Replacement of Dead or Critical Trees Highest Priority
- High Priority Plantings
- Moderate Priority Plantings
- Low Priority Plantings
- All Proposed Plantings (3,129 planting locations)

This cost estimate is based upon average raw market values (obtained from www.plantfinder.com) for typical sizes of landscape material for each species (e.g. 45 to 65 gallon containers for trees, 15 to 25 feet overall height for palms). Installed costs were based on the raw cost multiplied by a factor of 2.7. Each of the cost estimates listed above is included in **Appendix D**. The table below provides a summary of the proposed quantity of replacement trees and costs for each prioritization category.

Planting Spaces Tree Installation Costs Summary (1)			
Planting Space Prioritization Category	Proposed Number of Trees	Tree Installation Costs	
Dead/Critical Tree Replacements (Highest Priority)	259	\$220,519	
High	1,547	\$1,069,510	
Moderate	599	\$419,477	
Low	452	330,276	
Totals	2,857	\$2,039,782	

Notes:

- 1. See cost breakdown sheet (**Appendix D**) for numbers of trees per species and raw and installed costs per species
- 2. Proposed replacements for open spaces generated from the removal of dead or critical trees
- 3. Note that these costs do not include the costs associated with the removal of dead or critical trees

5.0 PLANTING SPECIFICATIONS

Tree installation specifications have been prepared based on the compilation of latest industry standard guidance from a variety of sources, including the following:

- ANSI-A300 Part 6: *Tree, Shrub and Other Woody Plant Maintenance Standards Practices. Planting and Transplanting*
- International Society of Arboriculture's (ISA) companion publication: *Best Management Practices. Tree Planting*
- Florida Grades and Standards for Nursery Plants (2015 Edition)
- Plant installation guidelines from the University of Florida Institute of Food and Agricultural Services (UF-IFAS)

Complete planting specifications for both palms and trees are included in **Appendix E**.

6.0 CONCLUSIONS AND RECOMMENDATIONS

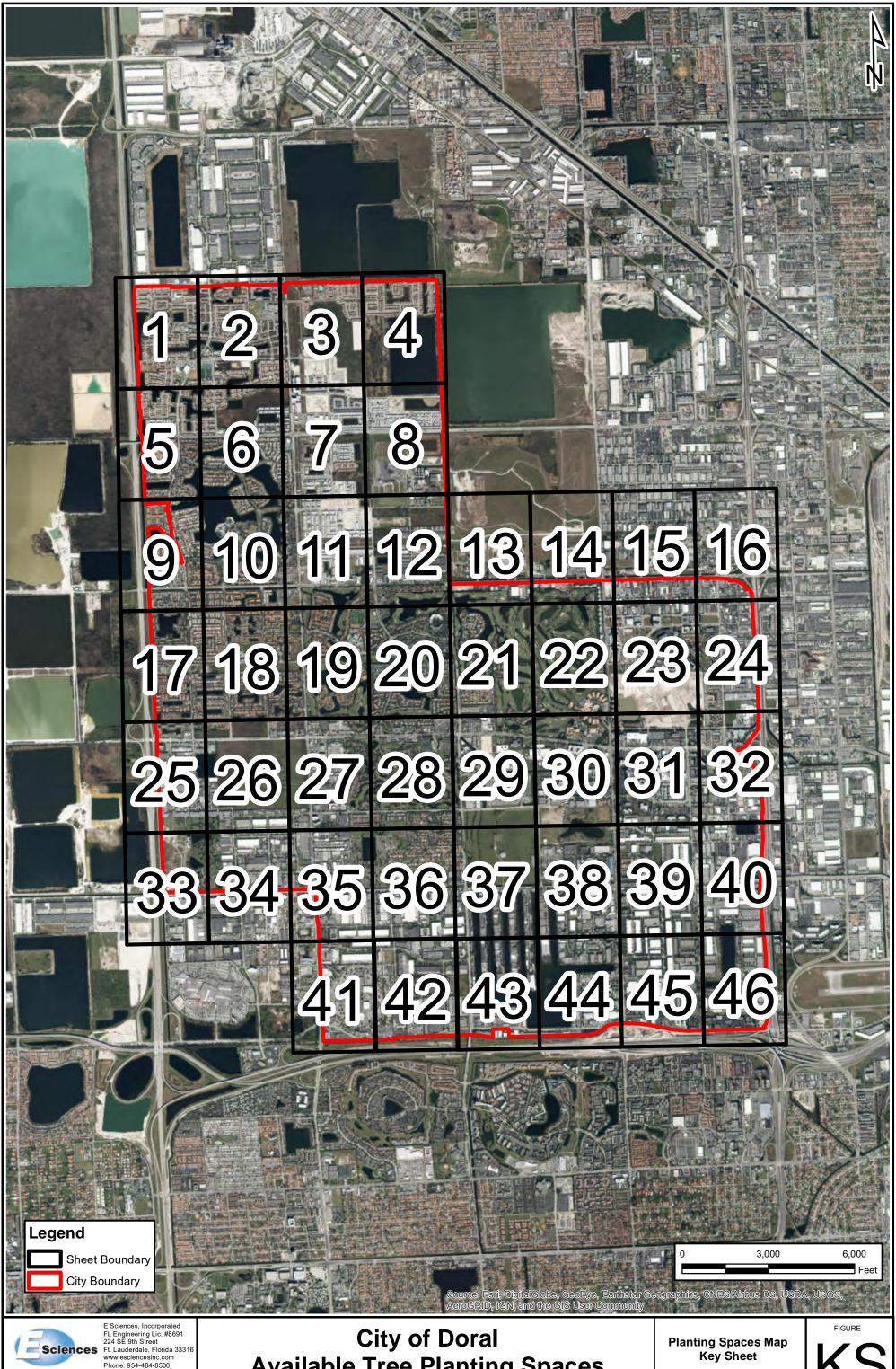
Based on E Sciences' desktop analysis and field reviews, potential planting spaces have been identified that may accommodate up to 2,857 new or replacement trees. It is recommended that the City should focus on the removal and replacement of the 259 dead or critical condition trees first, as these trees incur an elevated risk of failure (and liability associated with that failure) relative to other trees.

The 1,547 "high" priority tree installations should be considered pending completion of the replacement of dead or critical trees. As previously noted, these planting spaces were located on higher traffic, higher visibility roads in residential or commercial areas. If budget constraints do not allow for the installation of trees within all high priority areas, then the City may choose to focus on a few particular, higher-profile areas within this category, including the following:

- NW 52nd Street between NW 107th Avenue and NW 97th Avenue and NW 102 Avenue immediately north and south of NW 52nd Street (see **Sheets 19 and 20 in Appendix A**).
- NW 33rd Street between NW 107th Avenue and NW 97th Avenue (see **Sheets 27 to 29 in Appendix A**)
- Commercial area (multiple streets) north of NW 12th Street between NW 107th Avenue and NW 97th Avenue (see **Sheet 42 in Appendix A**)

The installation of trees in "Moderate" and "Low" is recommended after the completion of tree installations in the High priority areas.

APPENDIX ATree Planting Spaces Location Maps



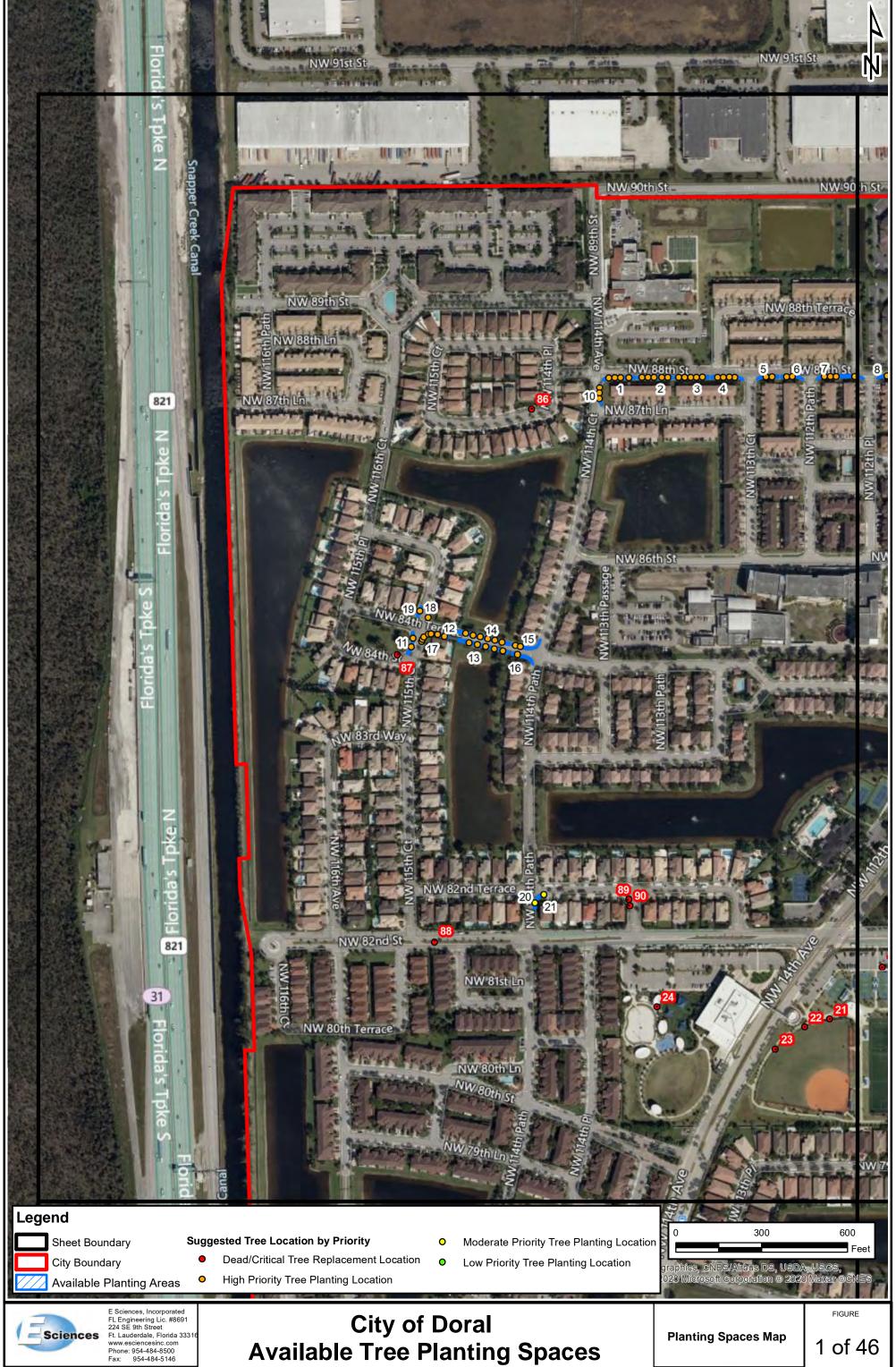
www.esciencesinc.con Phone: 954-484-8500 954-484-5146

Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

SCALE

DATE: 7/27/2020



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

1 of 46

SCALE:

DATE: 7/27/2020



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

2 of 46



Sciences

E Sciences, Incorporated FL Engineering Lic. #8691 224 SE 9th Street Ft. Lauderdale, Florida 33316 www.esciencesinc.com Phone: 954-484-8500 Fax: 954-484-5146

Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

Planting Spaces Map

3 of 46



Available Tree Planting Spaces

4 of 46

DATE: 7/27/2020

SCALE:

Doral, Miami-Dade County, Florida



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

5 of 46

SCALE:

DATE: 7/27/2020



E Sciences, Incorporated FL Engineering Lic. #8691 224 SE 9th Street Ft. Lauderdale, Florida 33316 www.esciencesinc.com Phone: 954-484-8500 Fax: 954-484-5146

Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

6 of 46



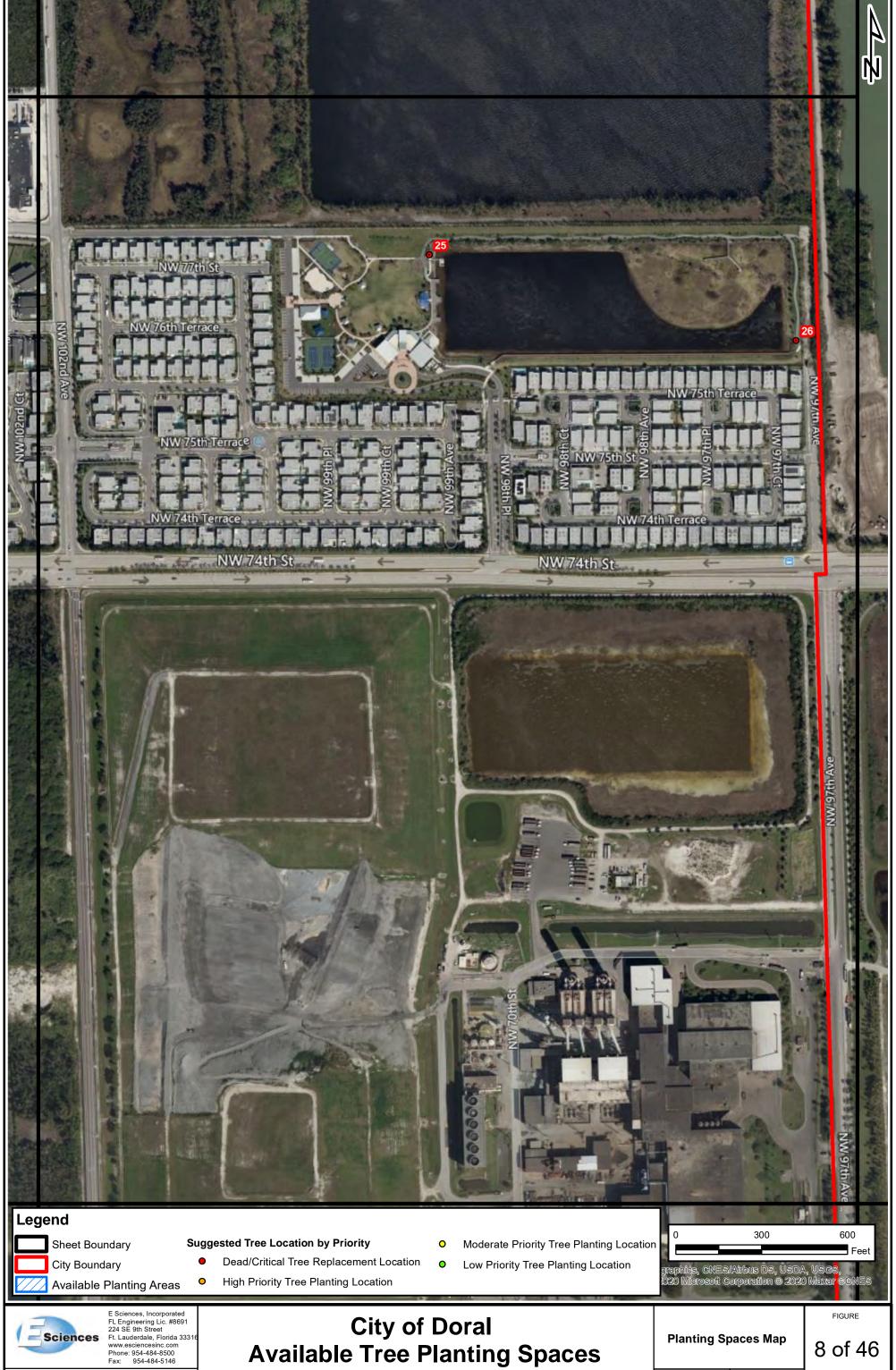
Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

7 of 46

SCALE:

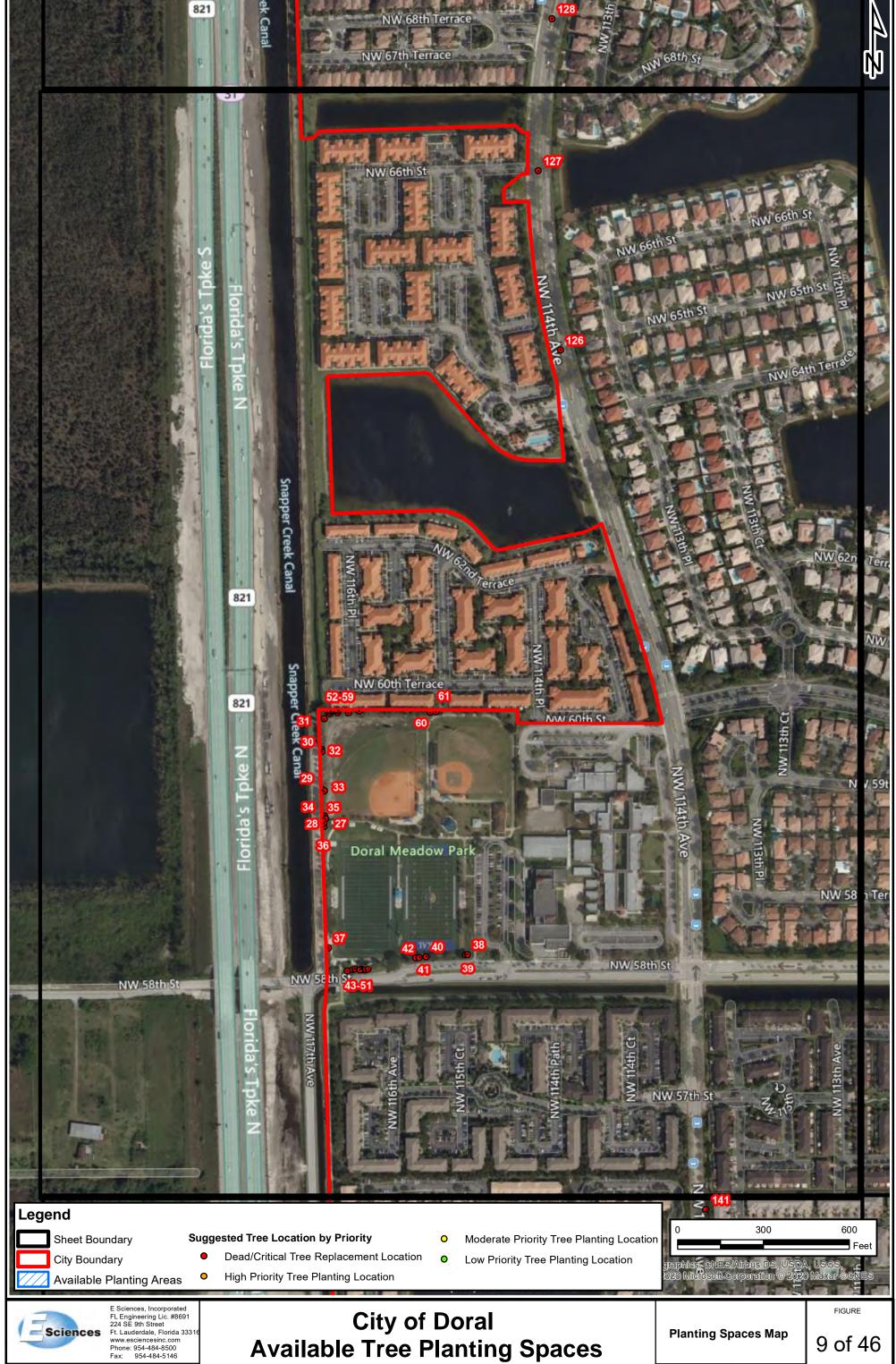
DATE: 7/27/2020



Available Tree Planting Spaces

8 of 46

Doral, Miami-Dade County, Florida



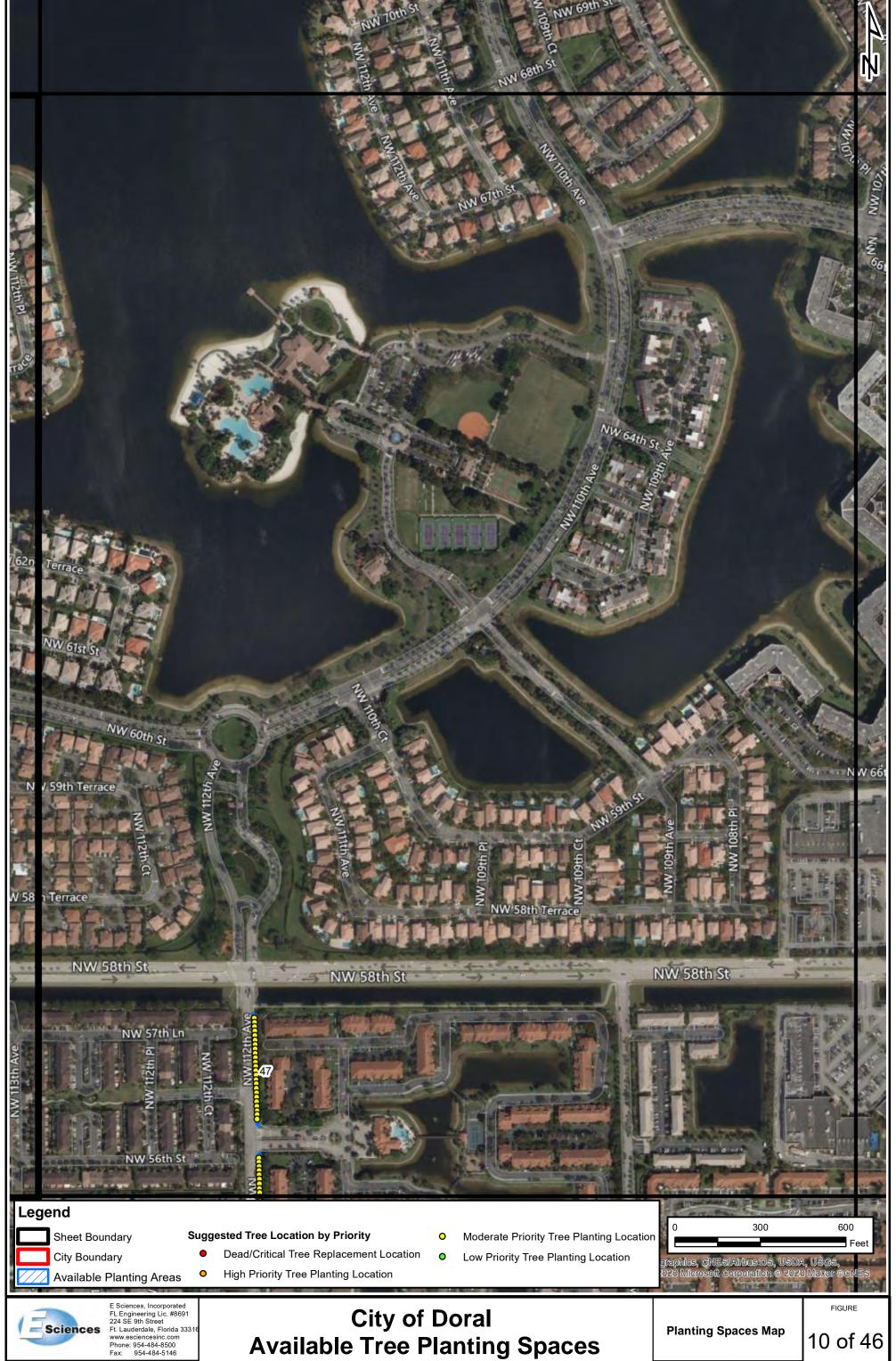
Available Tree Planting Spaces

SCALE:

DATE: 7/27/2020

9 of 46

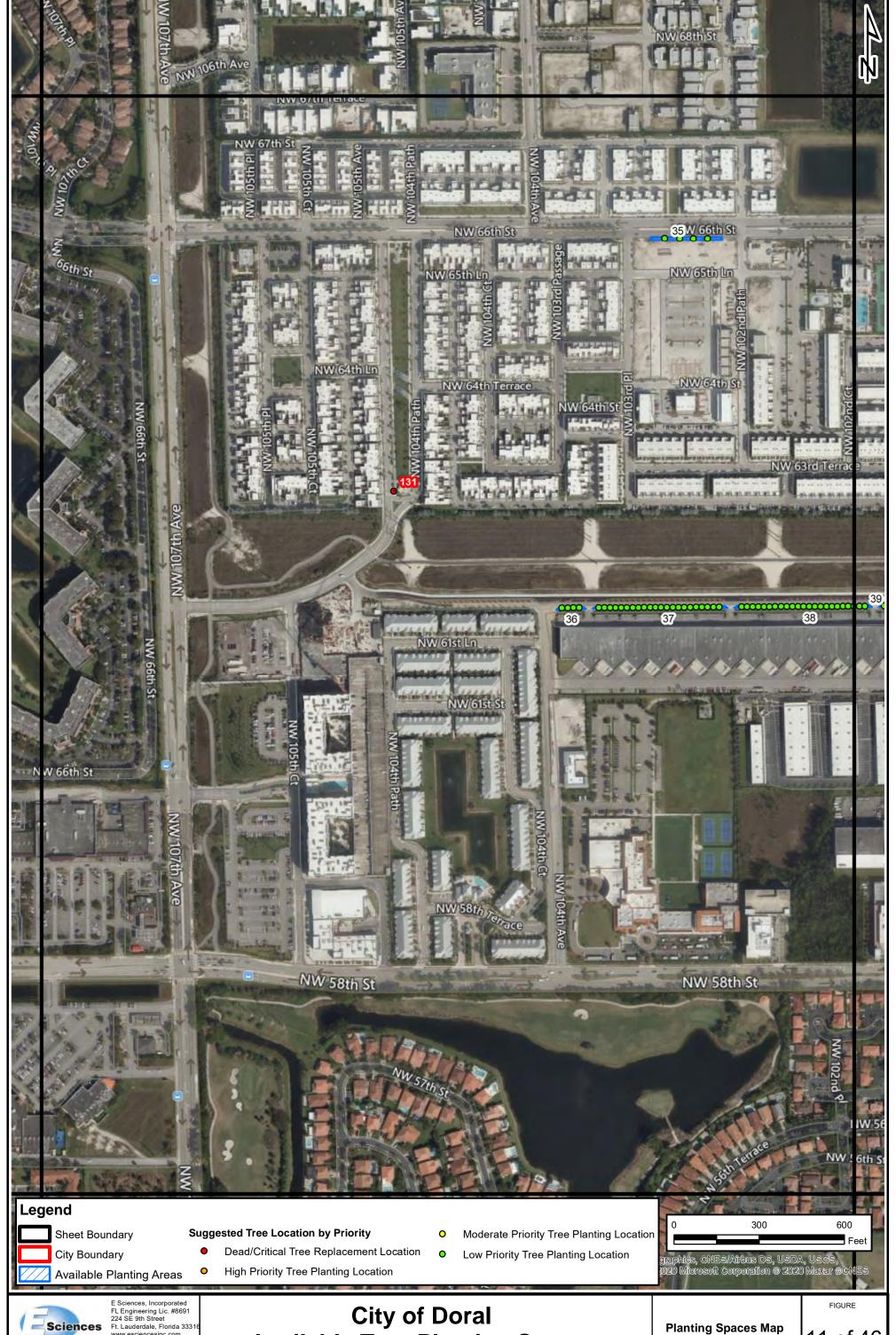
Doral, Miami-Dade County, Florida



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

10 of 46



E Sciences, Incorporated FL Engineering Lic. #8691 224 SE 9th Street Ft. Laudedralle, Florida 3331 www.esciencesinc.com Phone: 954-484-8500 Fax: 954-484-5146

Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

11 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

12 of 46

SCALE:

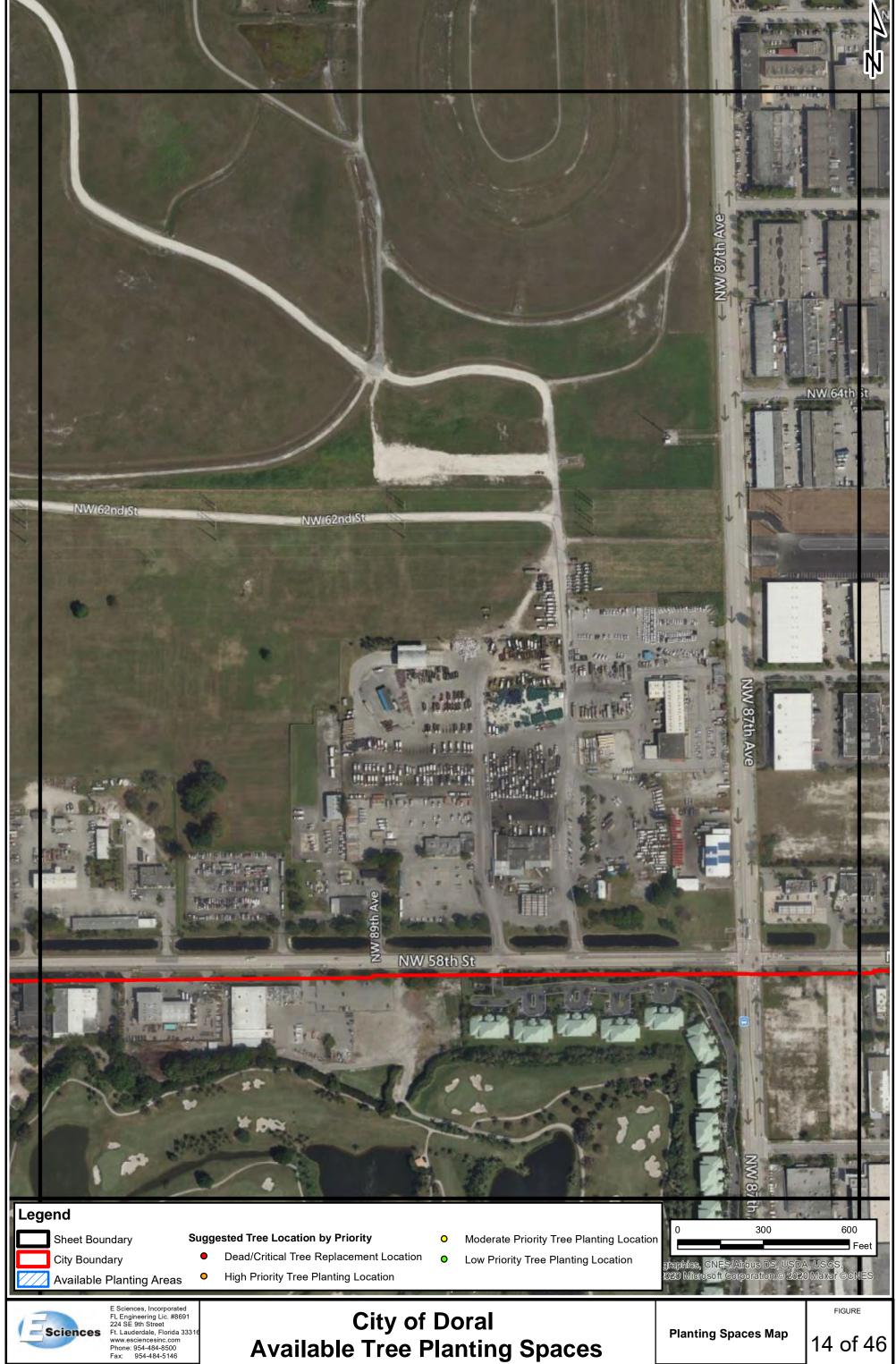
DATE: 7/27/2020



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

13 of 46



Available Tree Planting Spaces Doral, Miami-Dade County, Florida

14 of 46

DATE: 7/27/2020

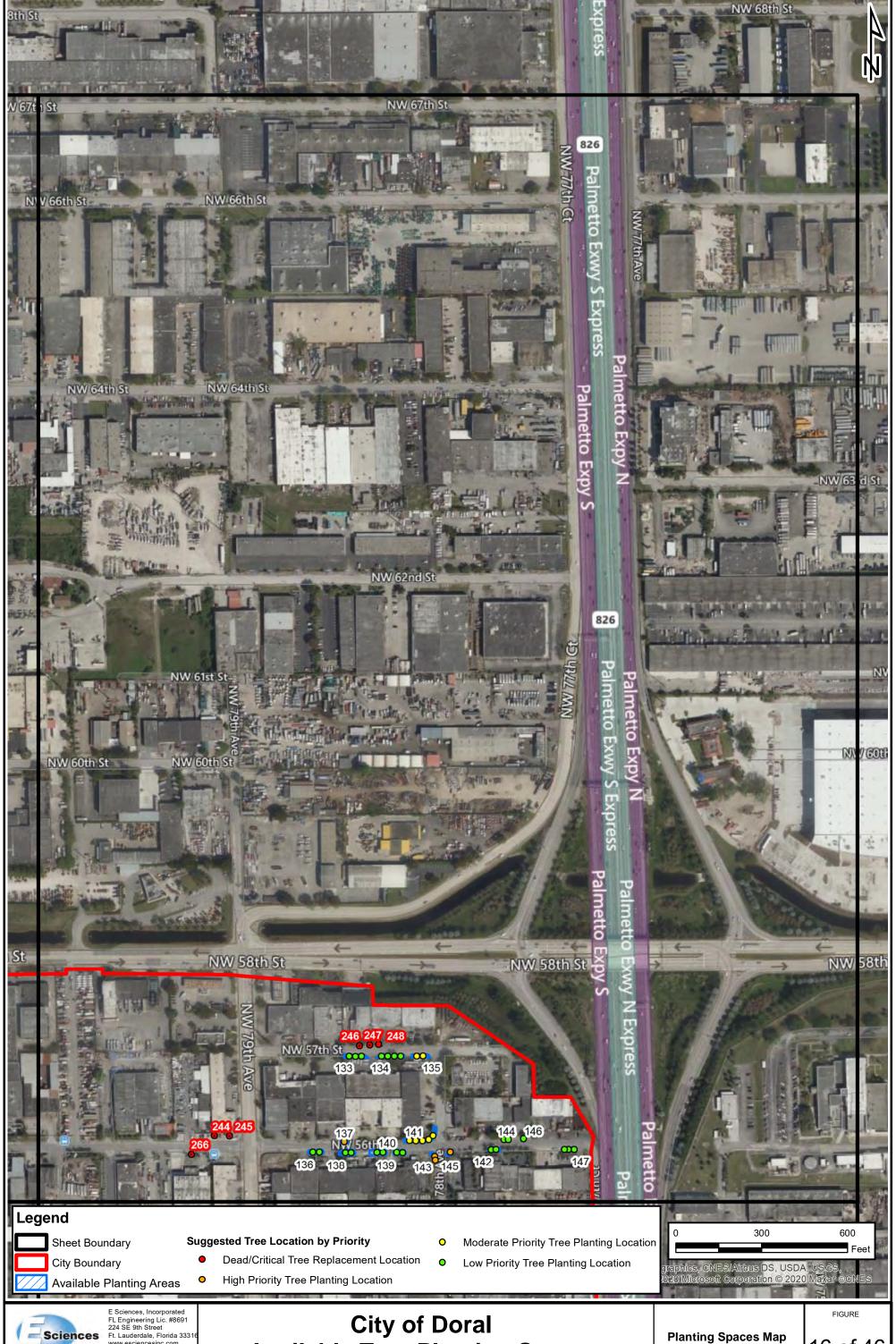
SCALE:



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

15 of 46

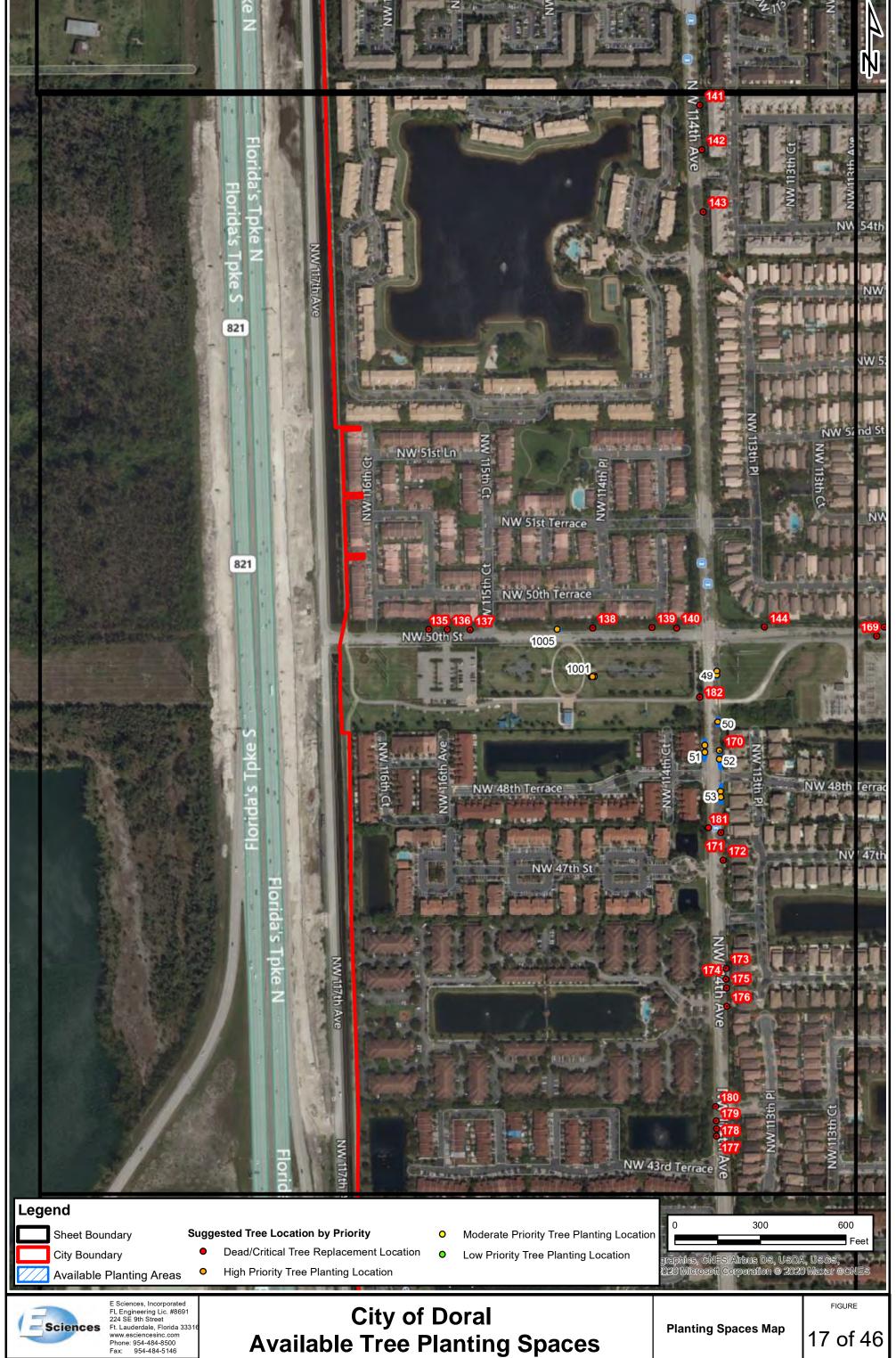


E Sciences, Incorporated FL Engineering Lic. #8691 224 SE 9th Street Ft. Laudedralle, Florida 3331 www.esciencesinc.com Phone: 954-484-8500 Fax: 954-484-5146

Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

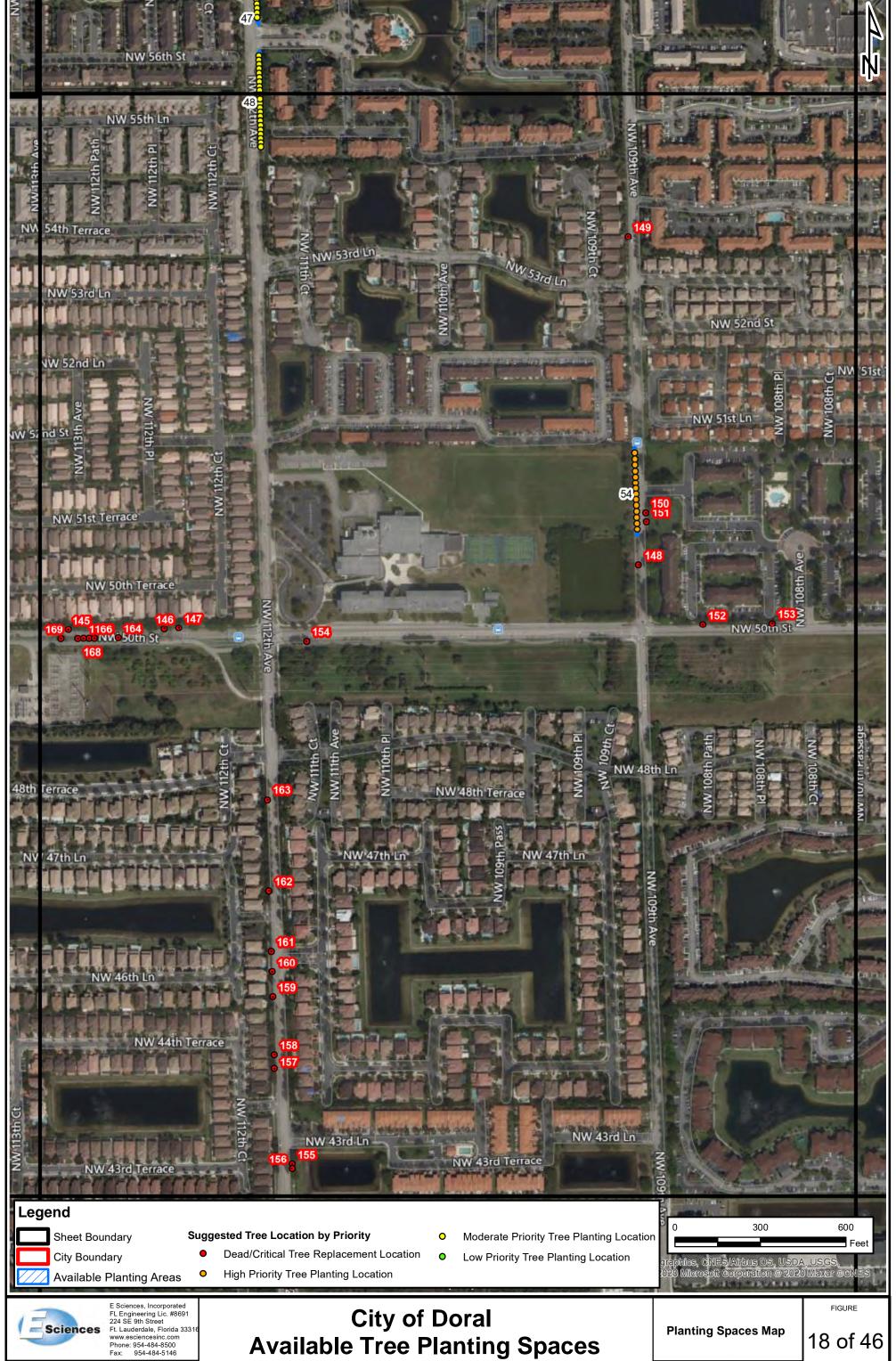
16 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

17 of 46



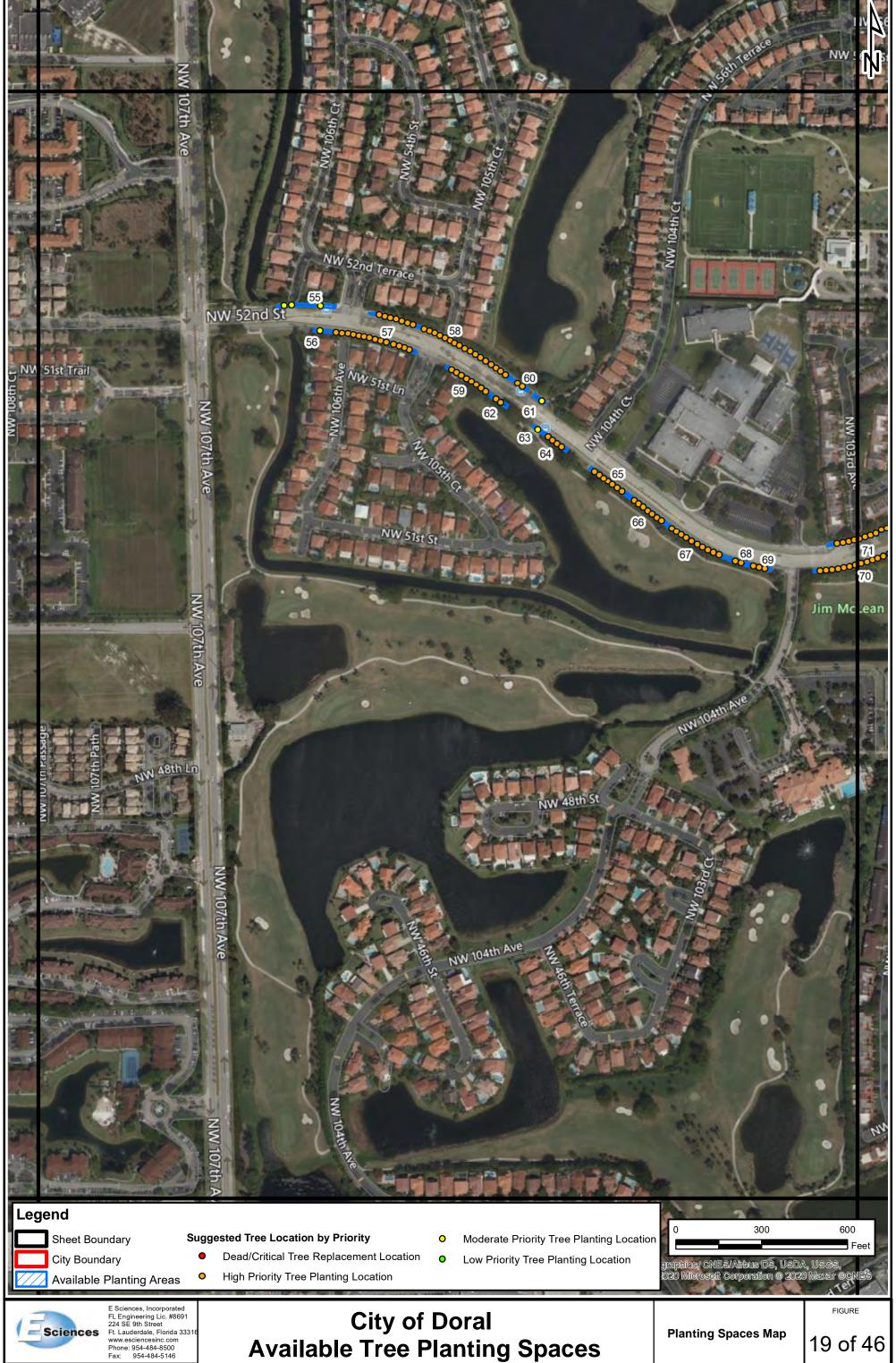
Available Tree Planting Spaces

SCALE:

DATE: 7/27/2020

18 of 46

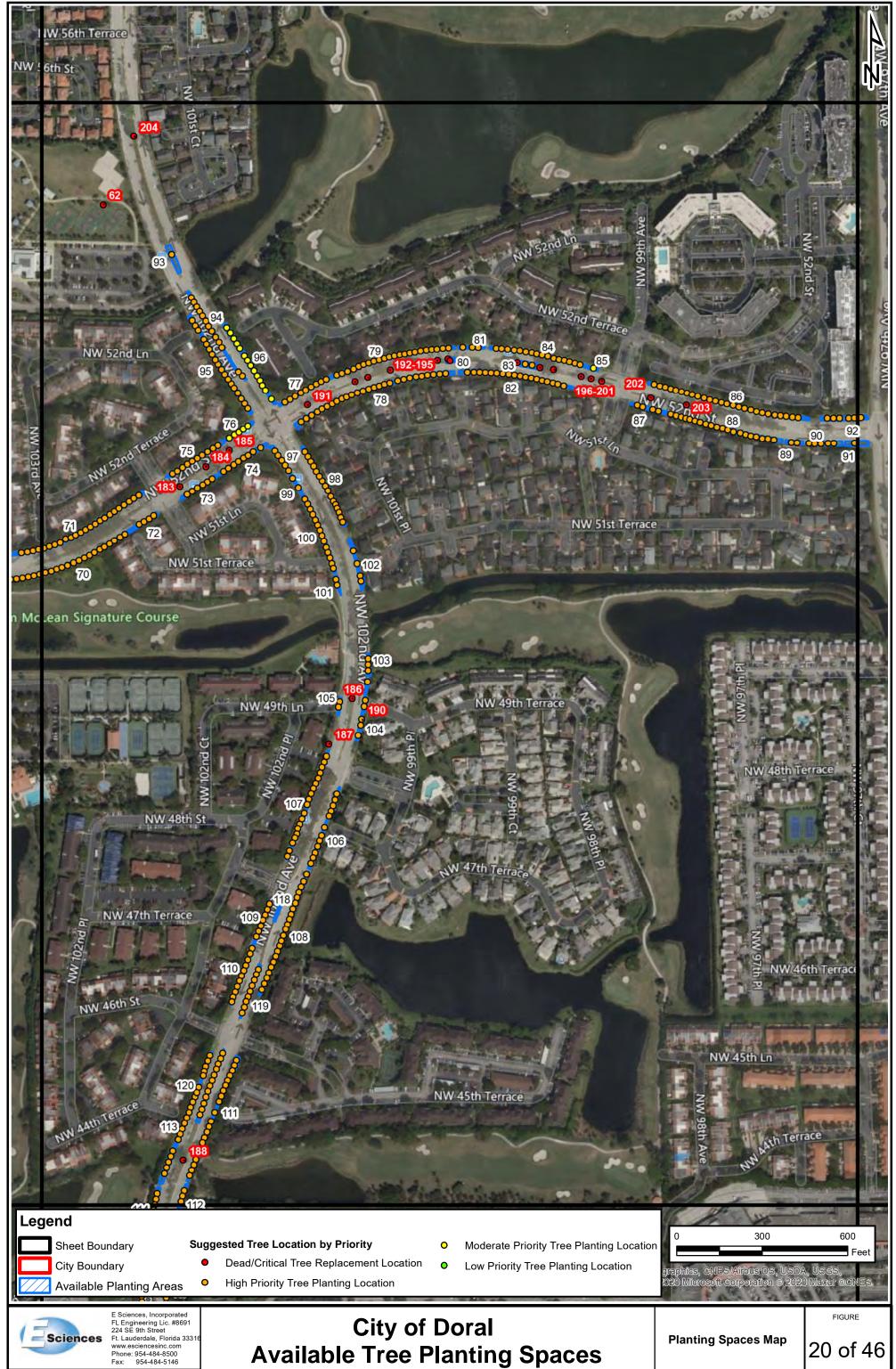
Doral, Miami-Dade County, Florida



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

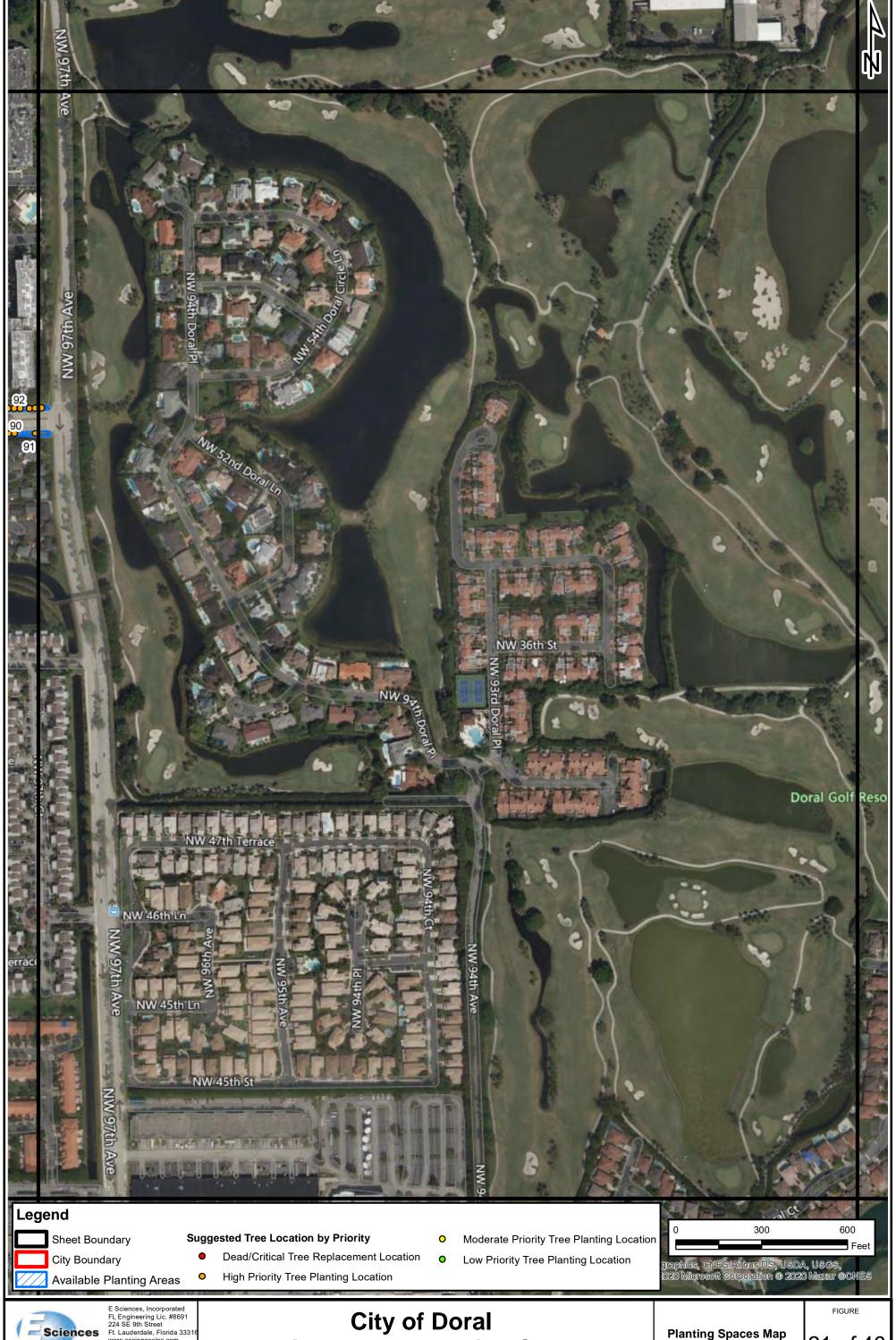
19 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

20 of 46

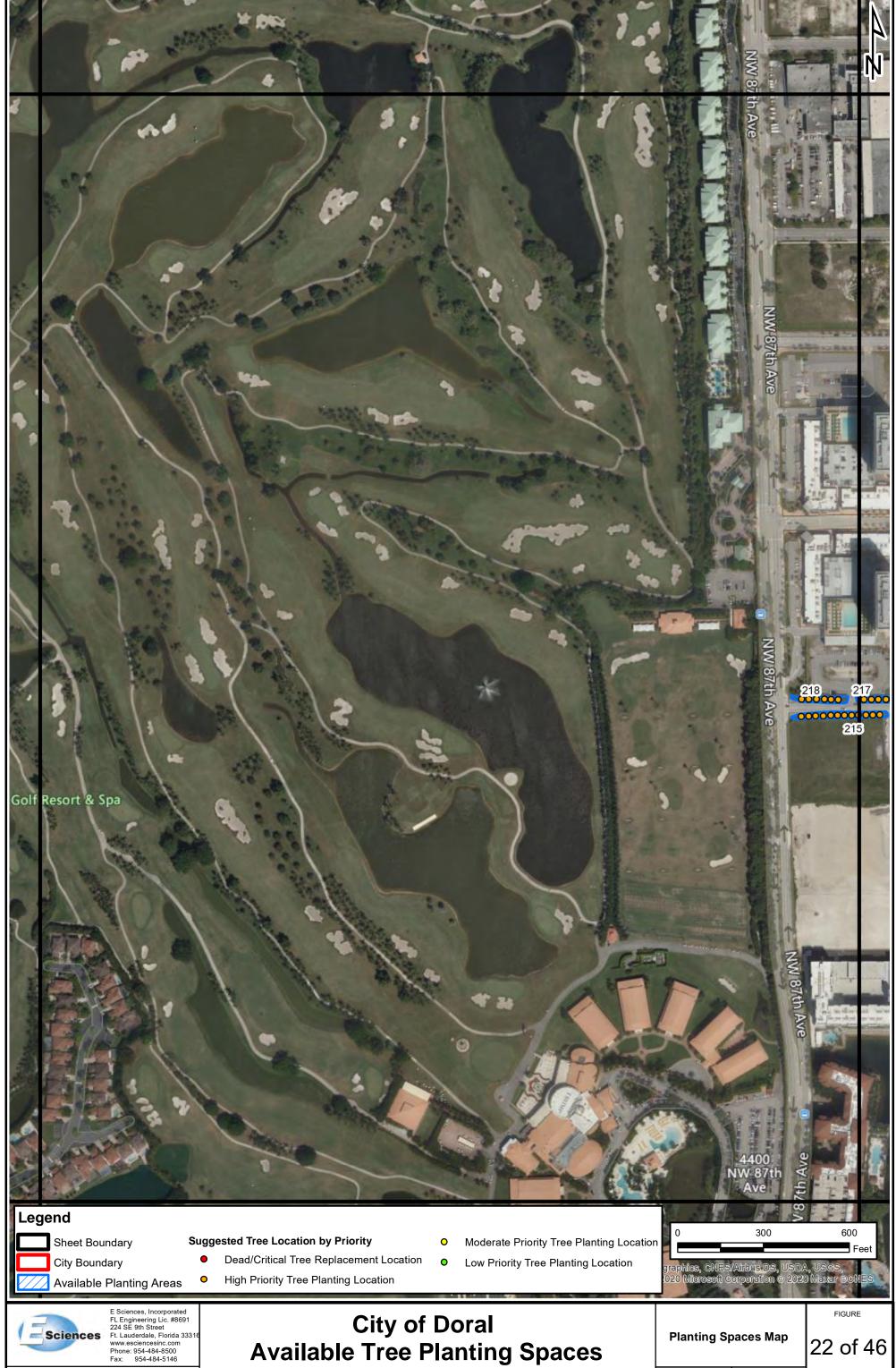


E Sciences, Incorporated FL Engineering Lic. #8691 224 SE 9th Street Ft. Lauderdale, Florida 33316 www.esciencesinc.com Phone: 954-484-8500 Fax: 954-484-5146

Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

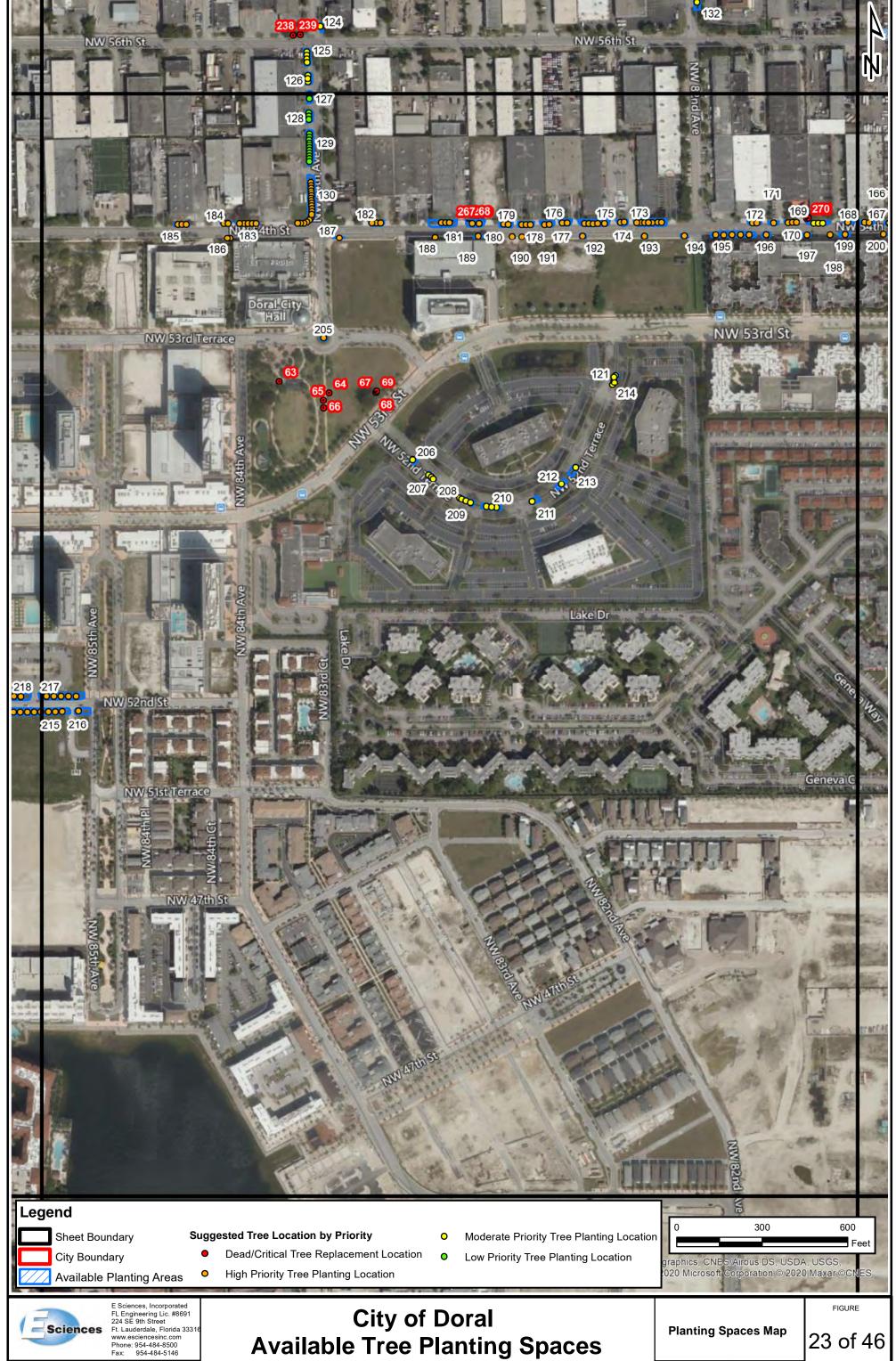
21 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

22 of 46



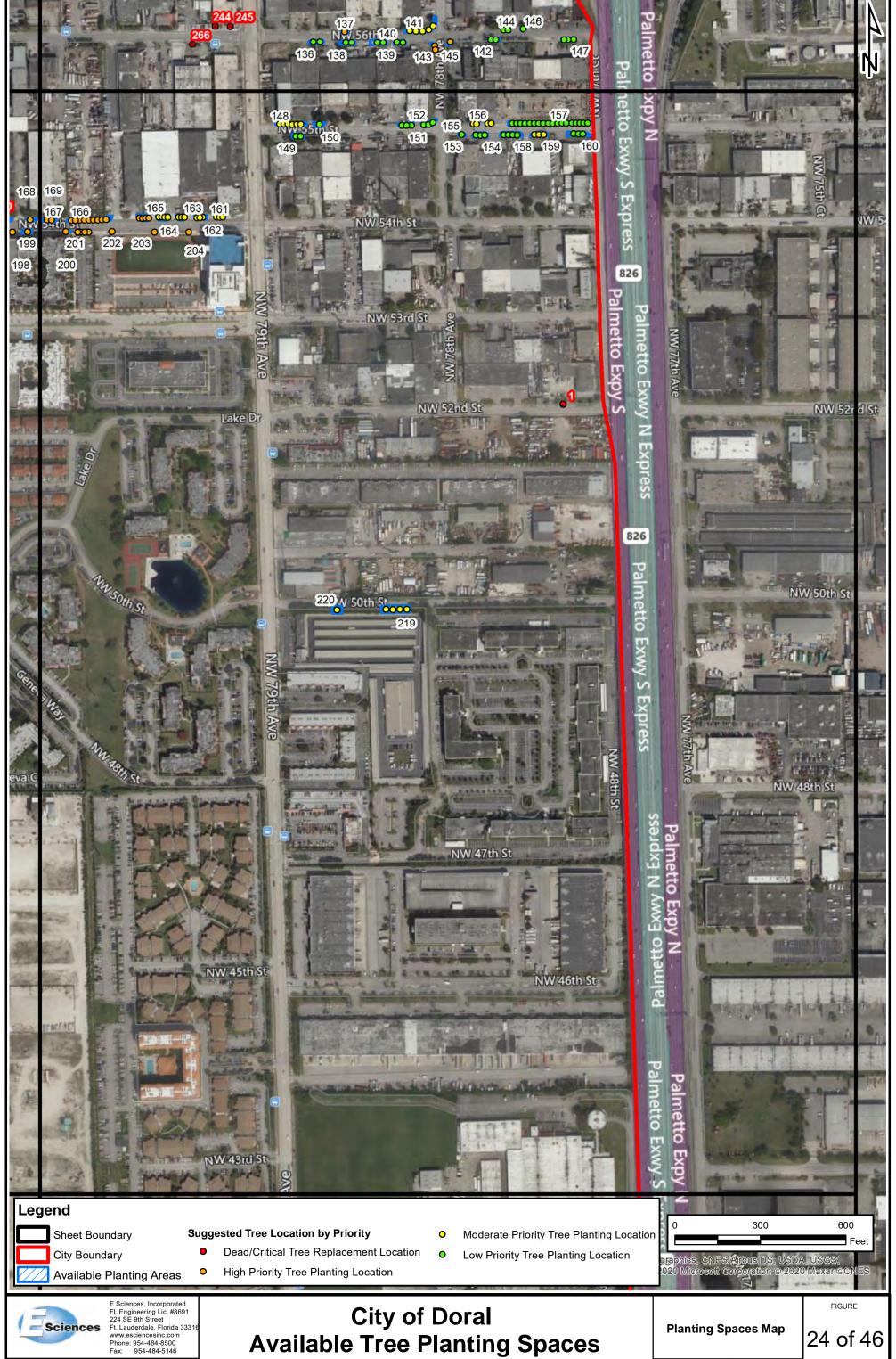
Available Tree Planting Spaces

23 of 46

DATE: 7/27/2020

SCALE:

Doral, Miami-Dade County, Florida

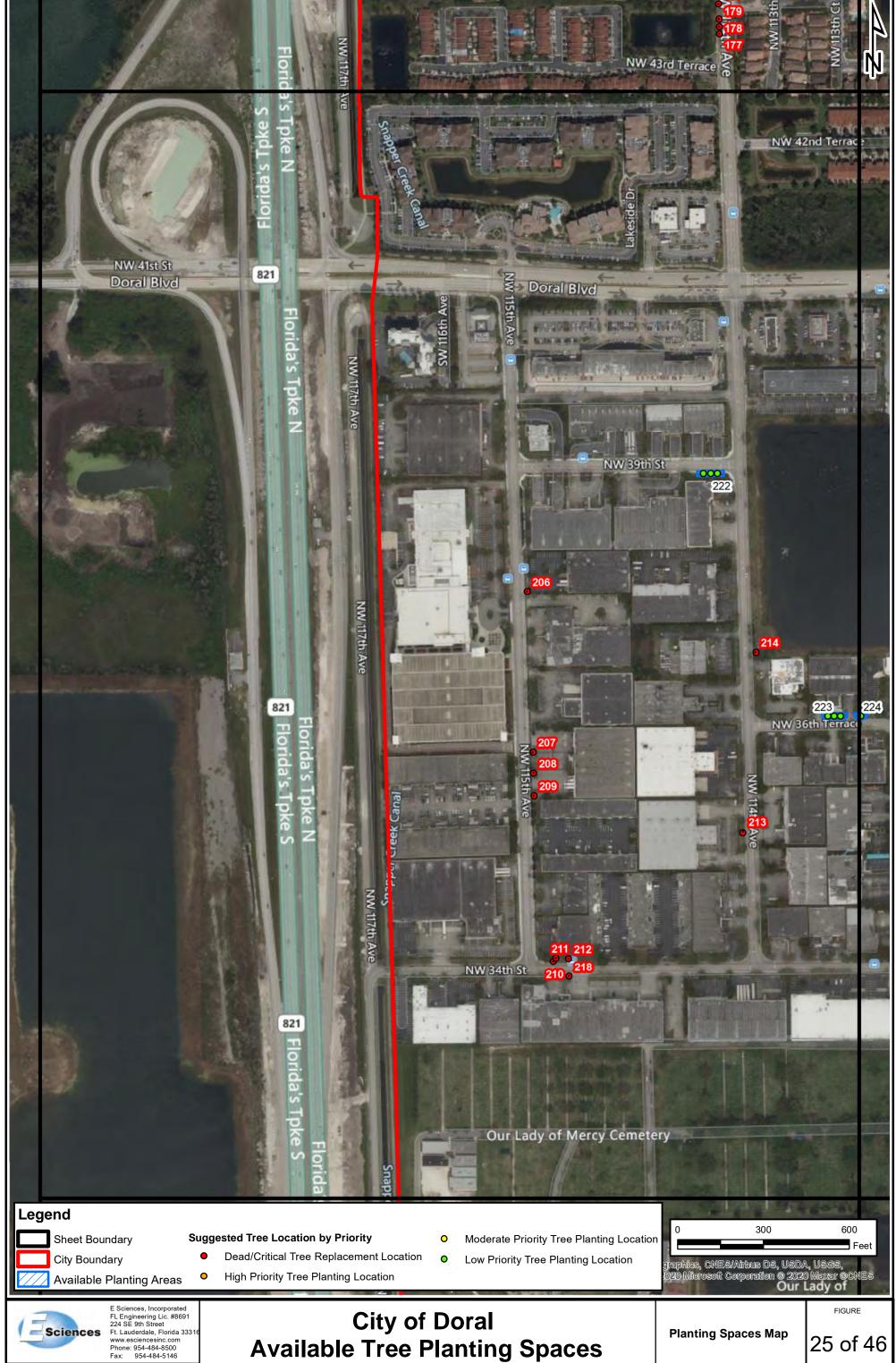


Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

DATE: 7/27/2020 SCALE:

24 of 46



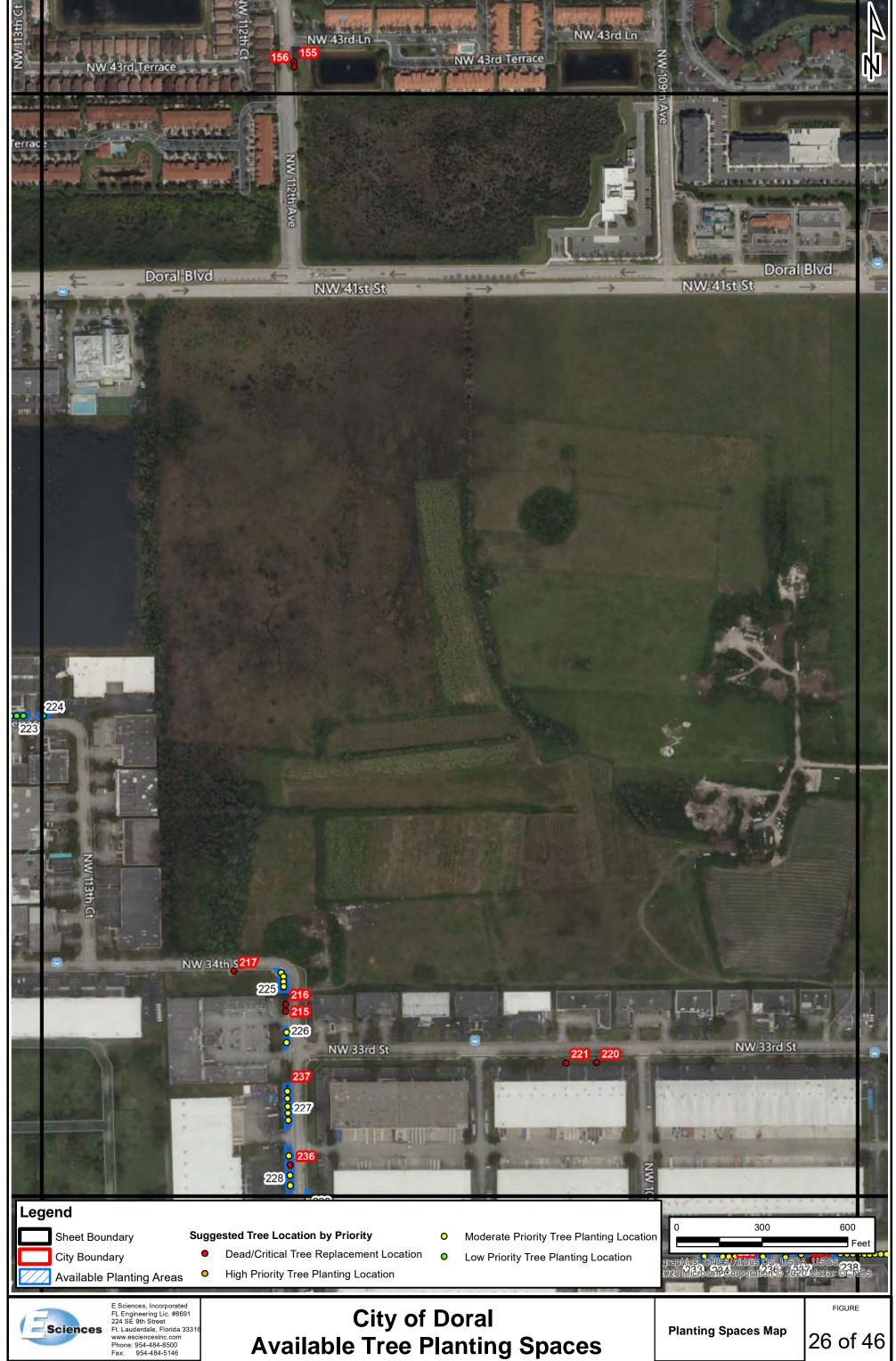
Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

25 of 46

SCALE:

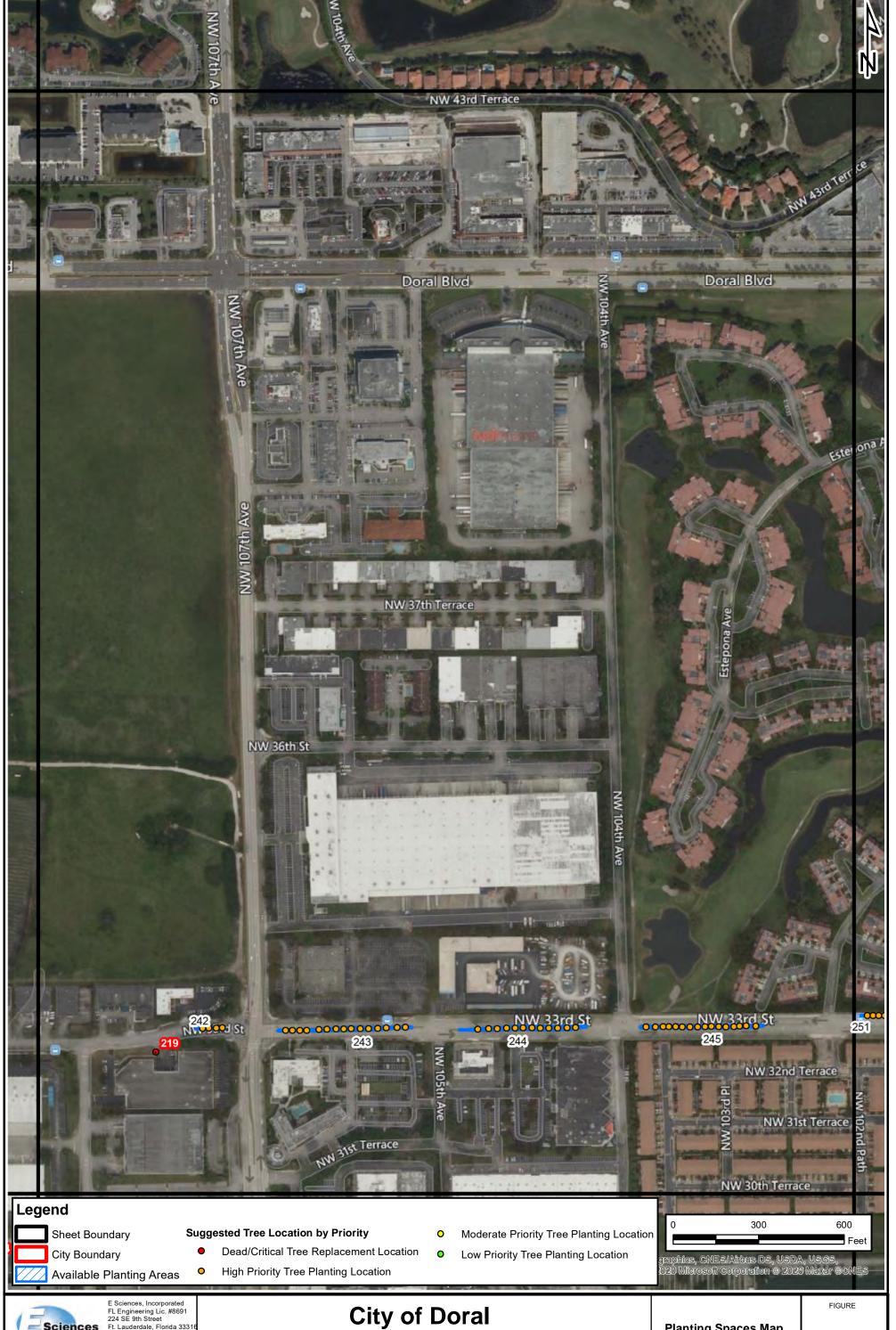
DATE: 7/27/2020



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

26 of 46



Sciences

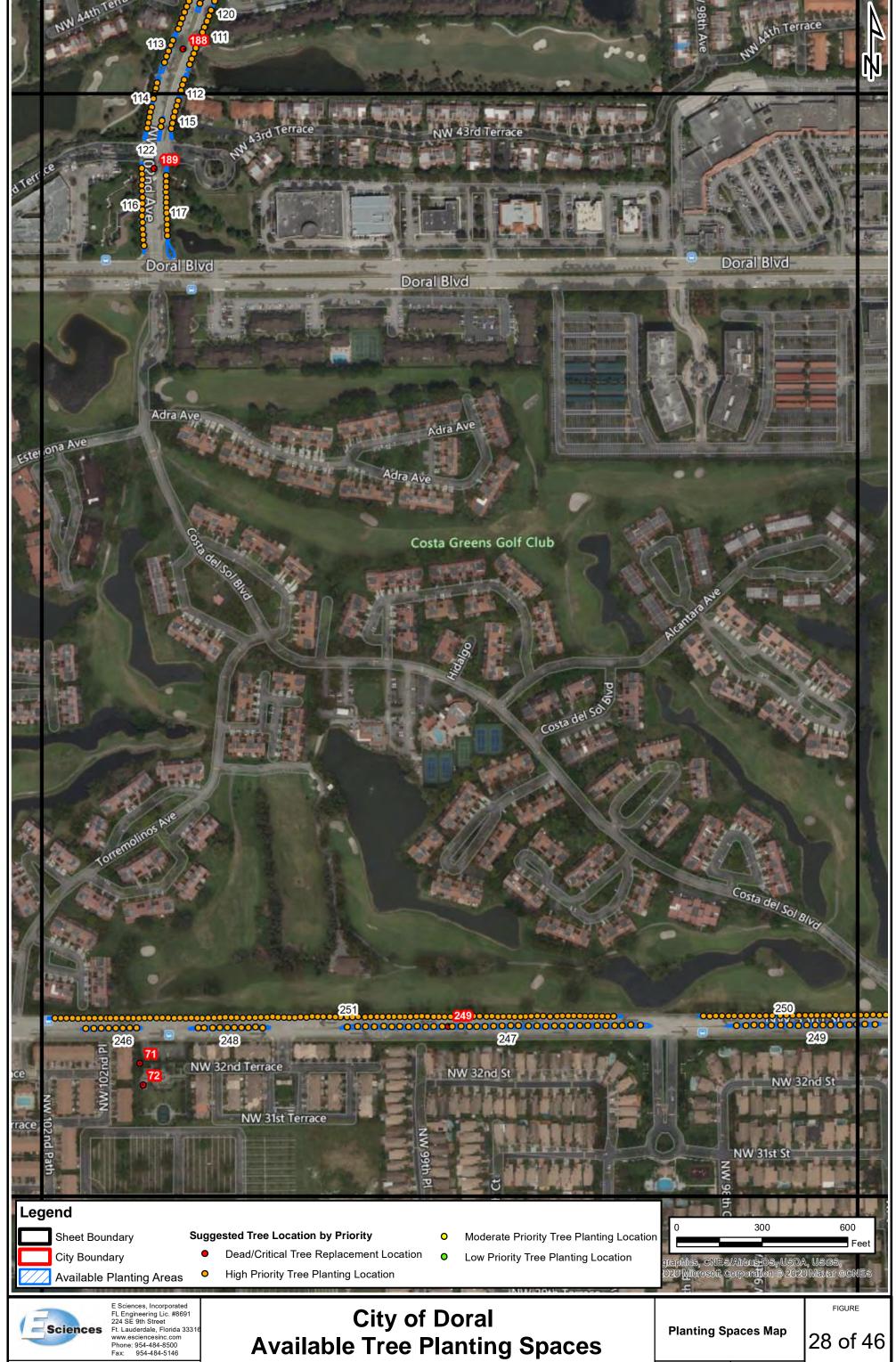
E Sciences, Incorporated FL Engineering Lic. #8691 224 SE 9th Street Ft. Lauderdale, Florida 33316 www.esciencesinc.com Phone: 954-484-8500 Fax: 954-484-5146

Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

Planting Spaces Map

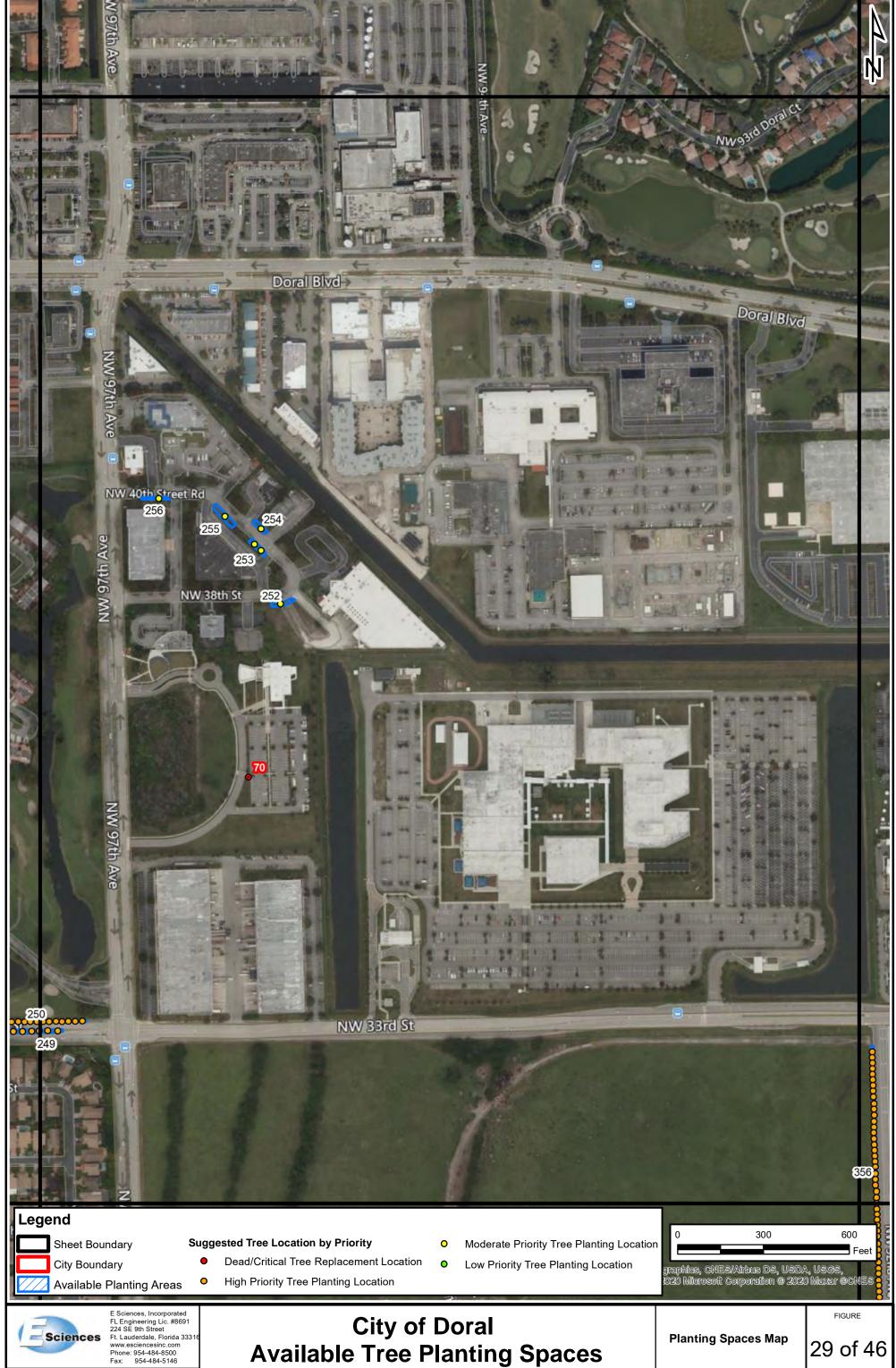
27 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

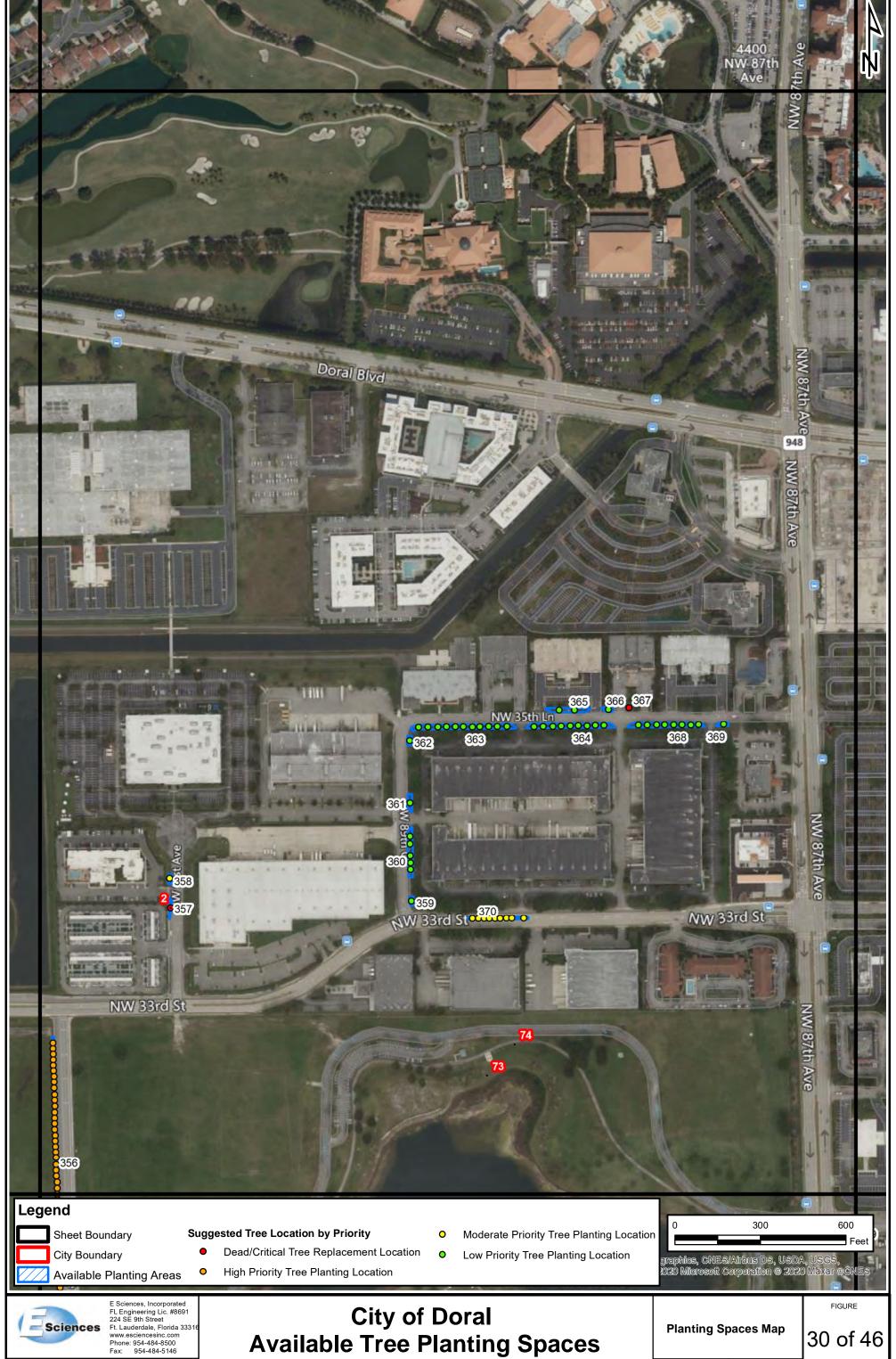
28 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

29 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

30 of 46

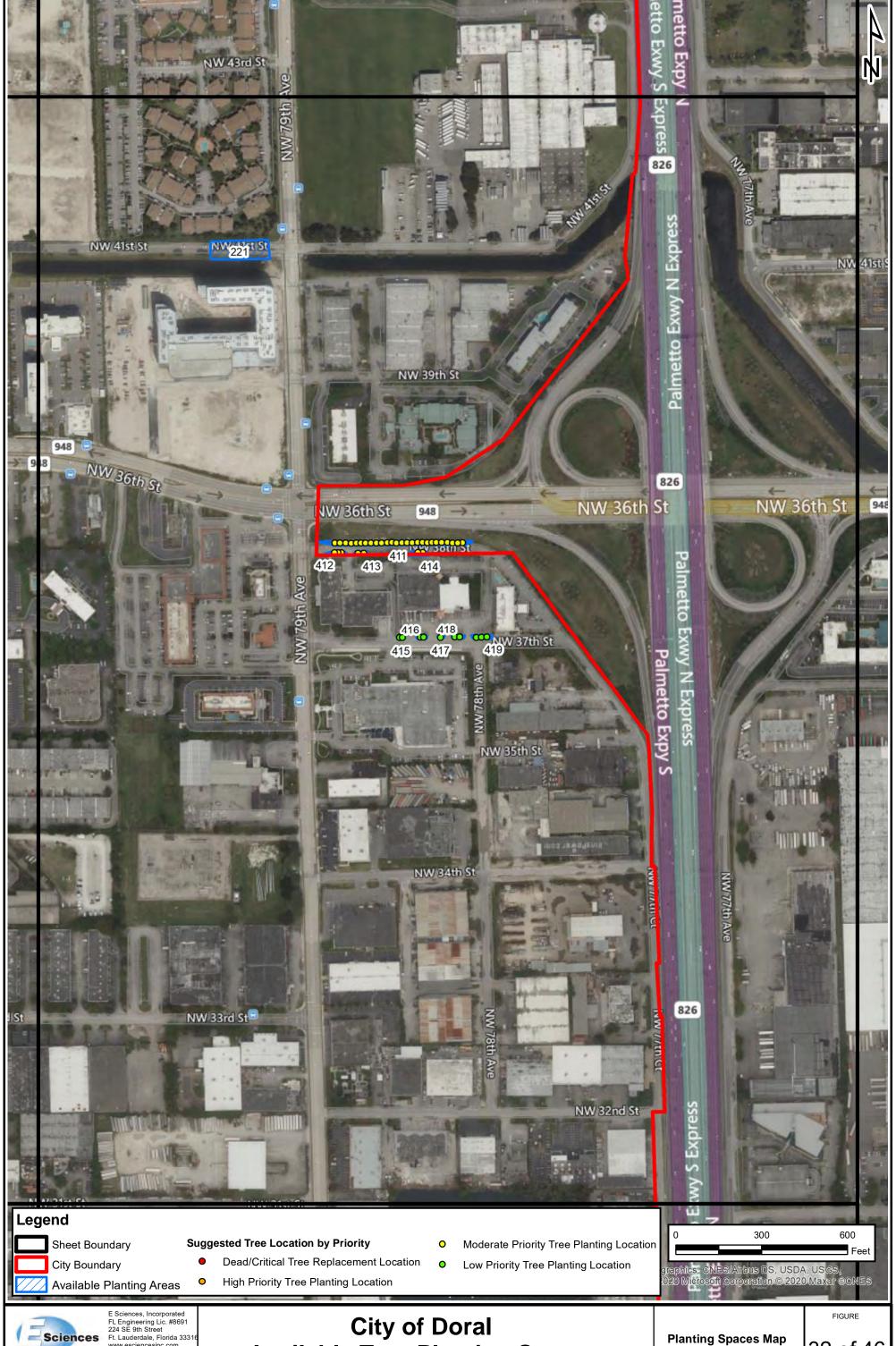
DATE: 7/27/2020



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

31 of 46



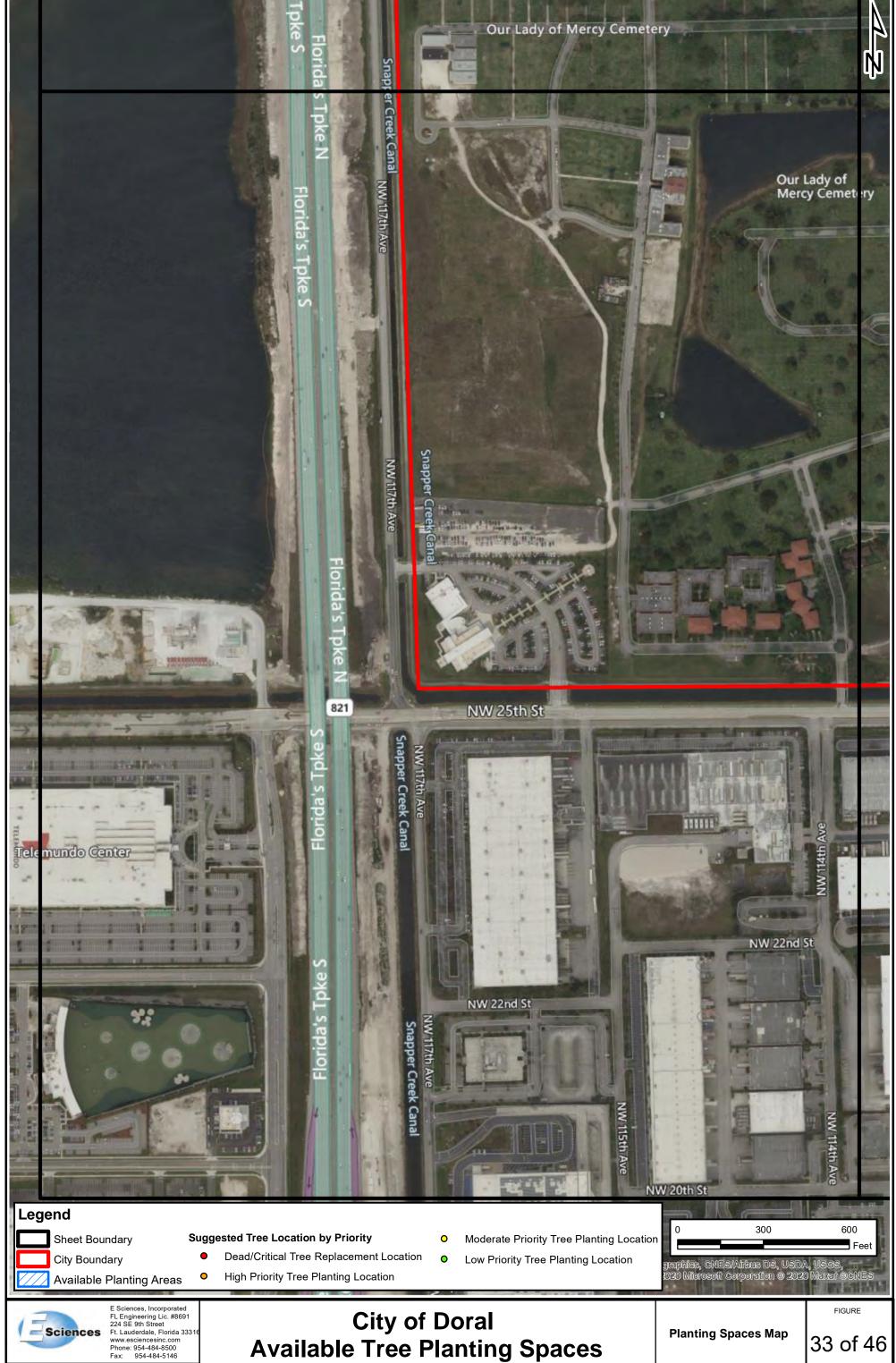
Sciences

E Sciences, Incorporated FL Engineering Lic. #8691 224 SE 9th Street Ft. Lauderdale, Florida 33316 www.esciencesinc.com Phone: 954-484-8500 Fax: 954-484-5146

Available Tree Planting Spaces

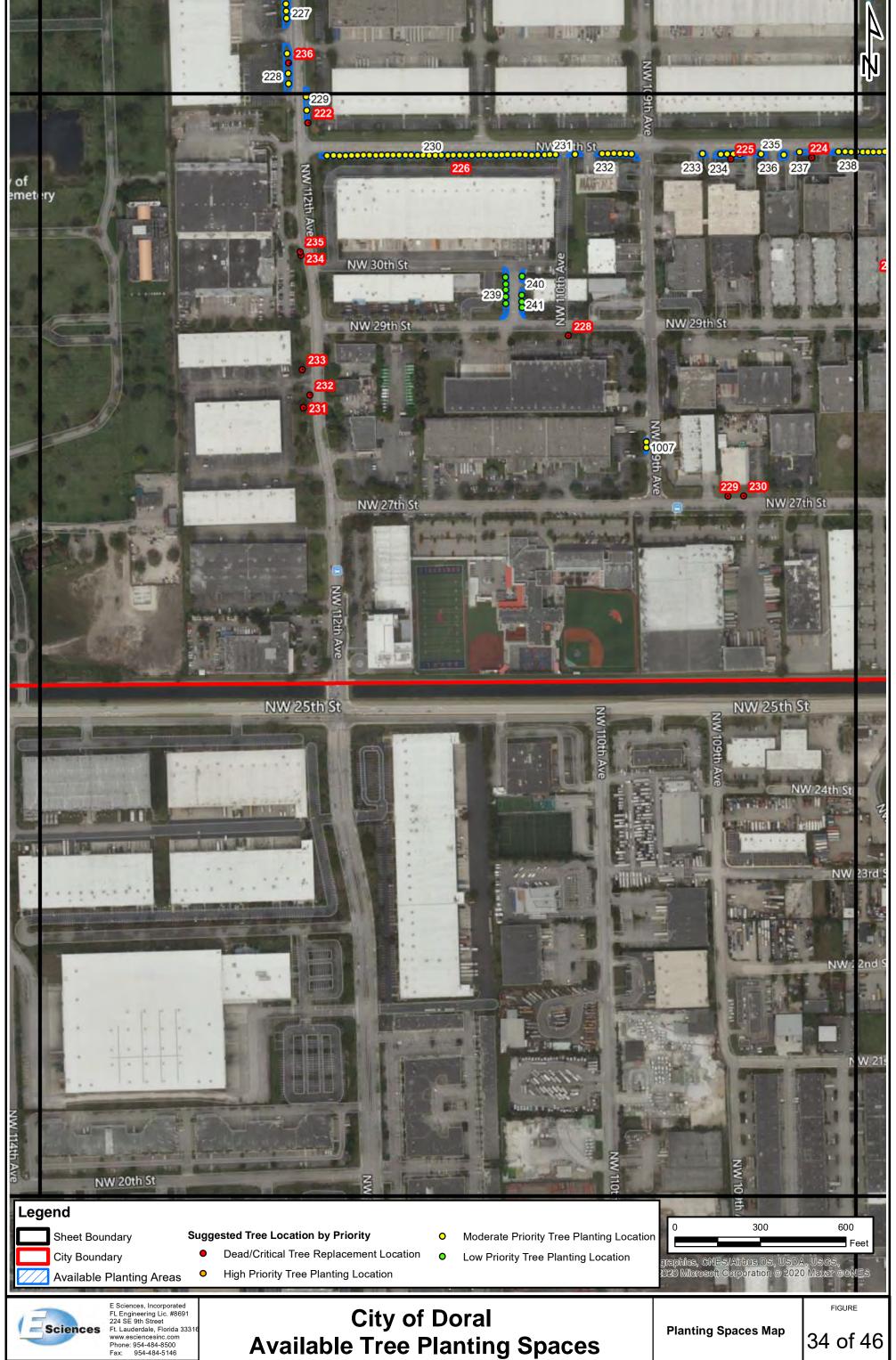
Doral, Miami-Dade County, Florida

32 of 46



Available Tree Planting Spaces Doral, Miami-Dade County, Florida

33 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

34 of 46



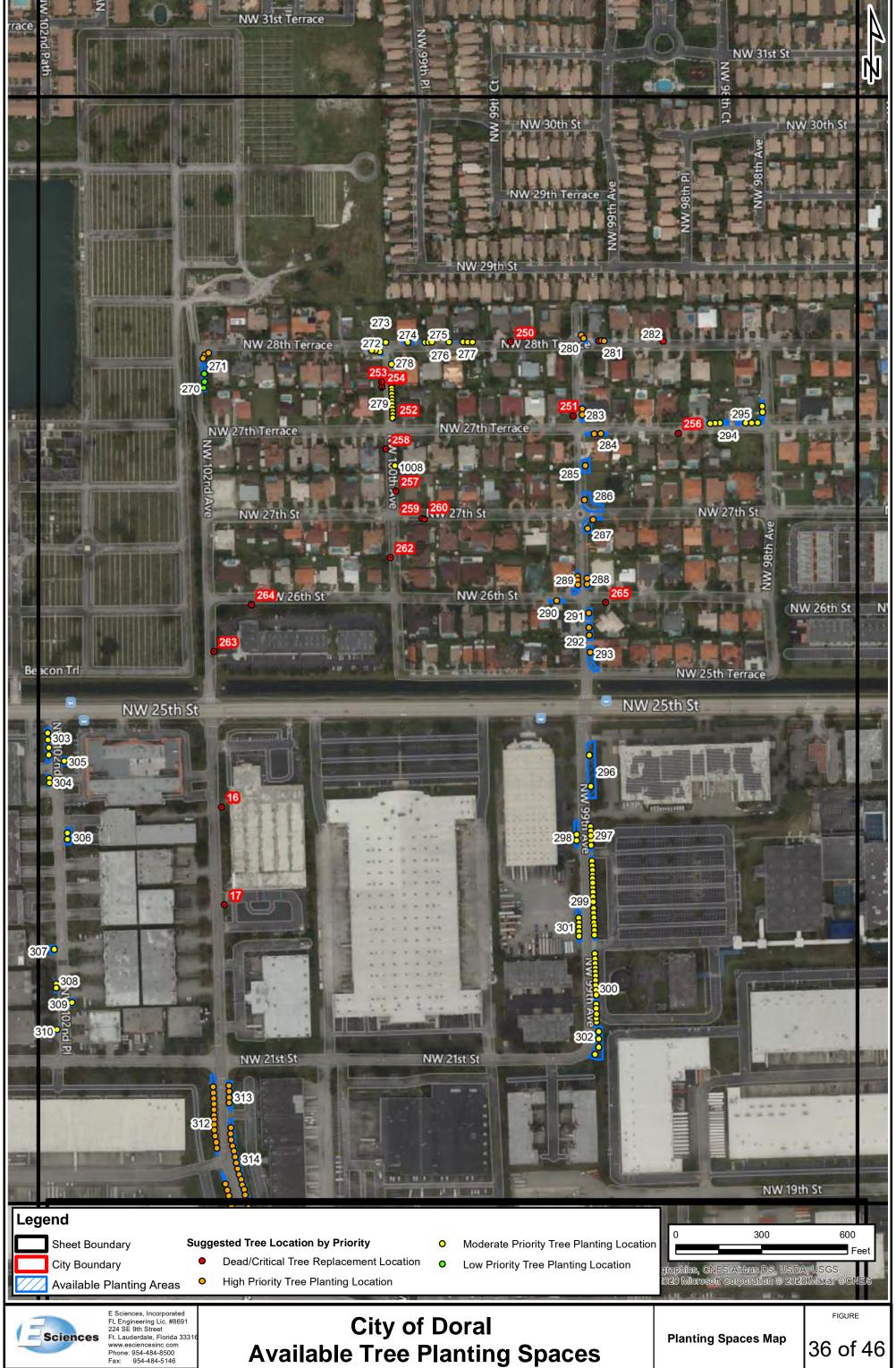
Available Tree Planting Spaces

DATE: 7/27/2020

SCALE:

35 of 46

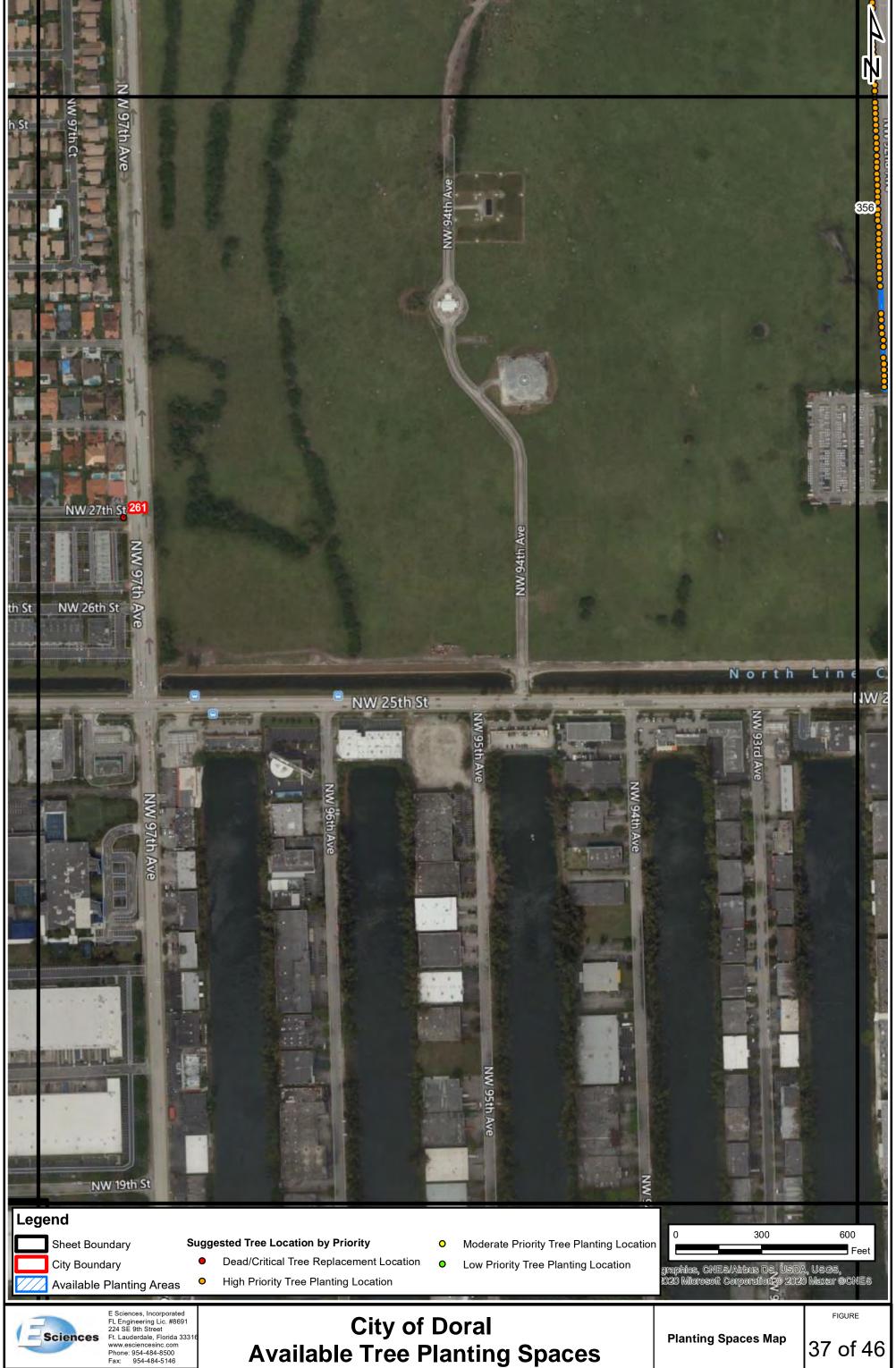
Doral, Miami-Dade County, Florida



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

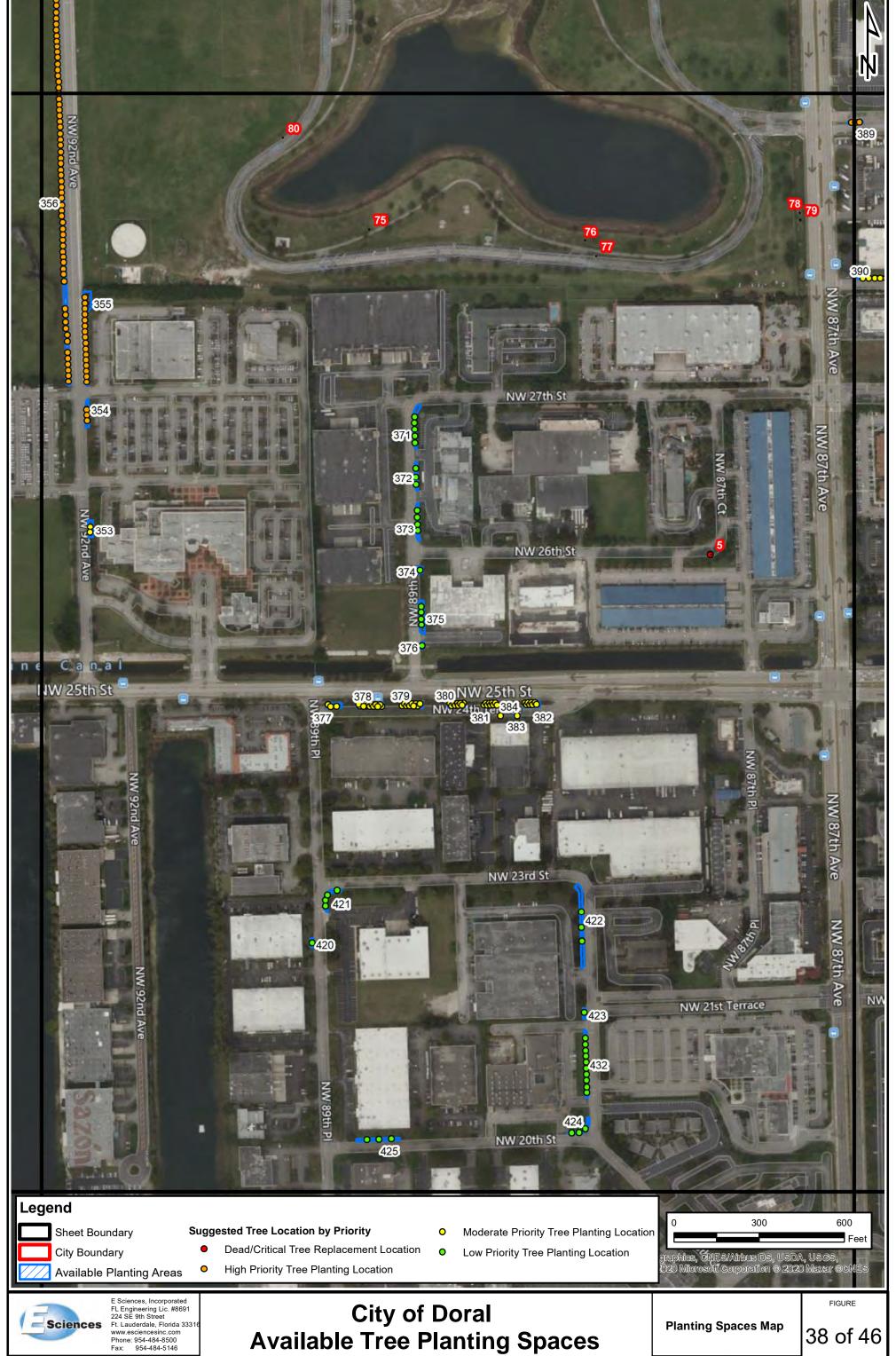
36 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

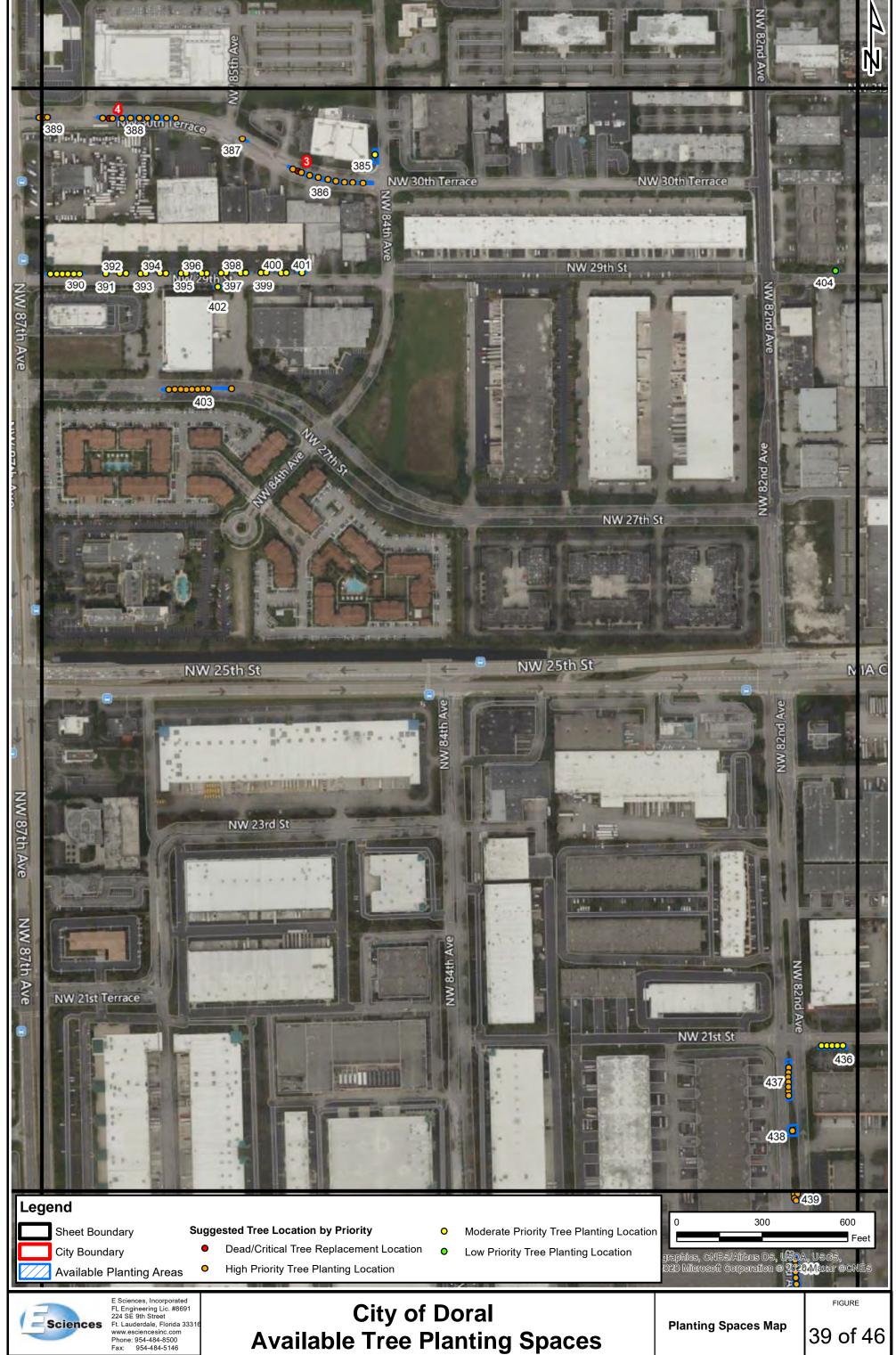
37 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

38 of 46



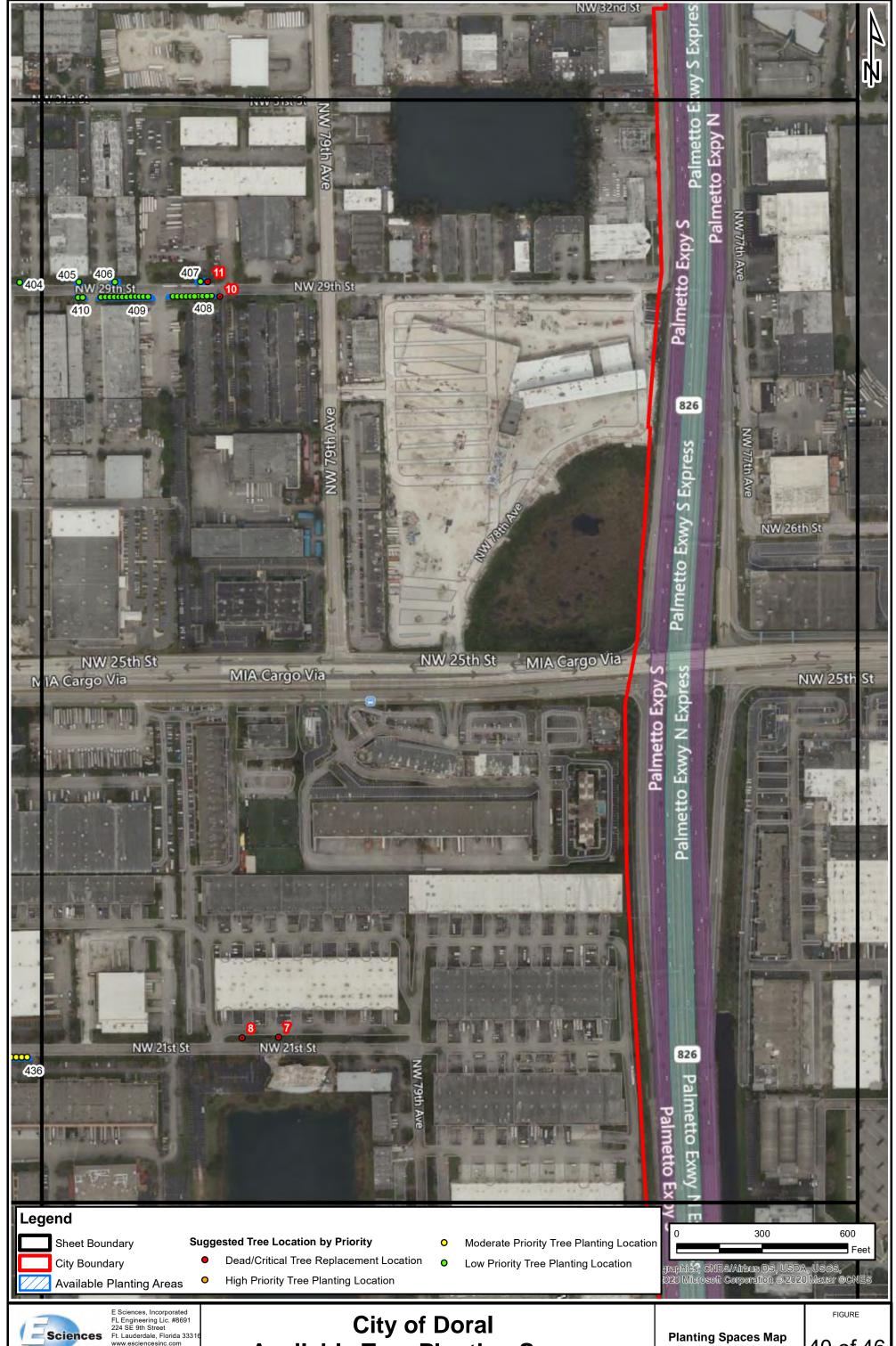
Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

39 of 46

SCALE:

DATE: 7/27/2020



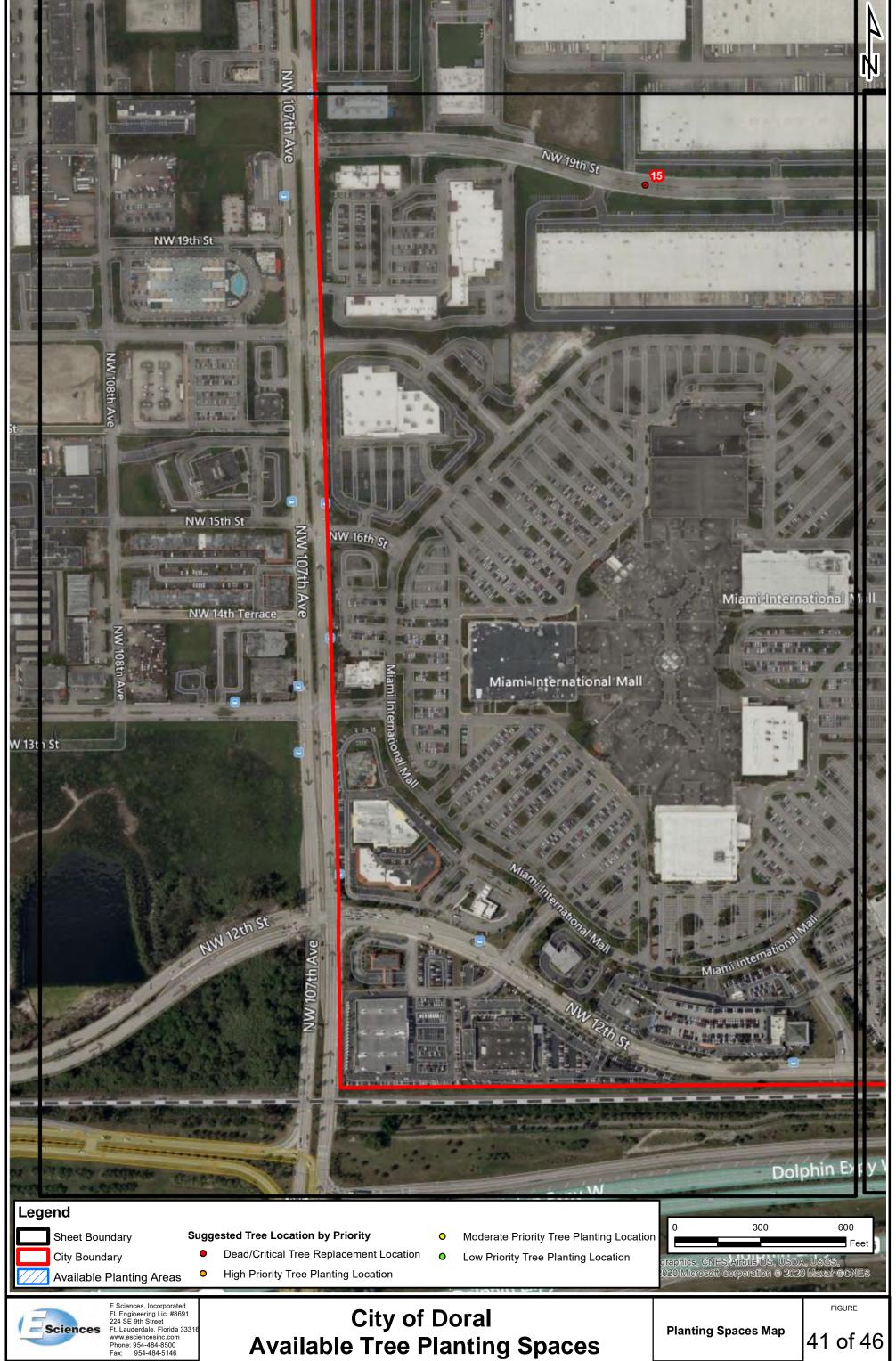
E Sciences, Incorporated FL Engineering Lic. #8691 224 SE 9th Street Ft. Lauderdale, Florida 3331 www.esciencesinc.com Phone: 954-484-8500 Fax: 954-484-5146

Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

40 of 46

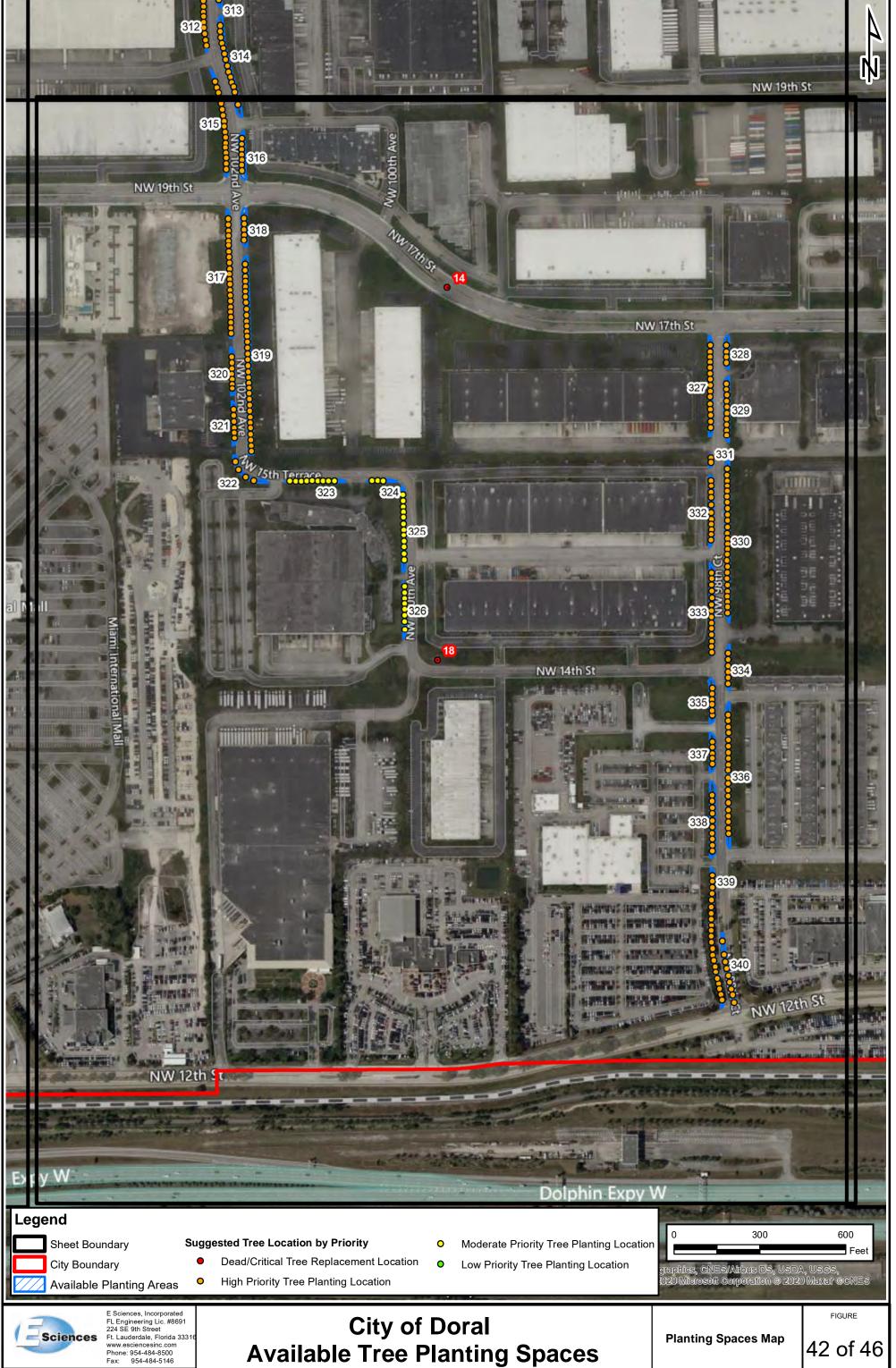
SCALE: DATE: 7/27/2020



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

41 of 46



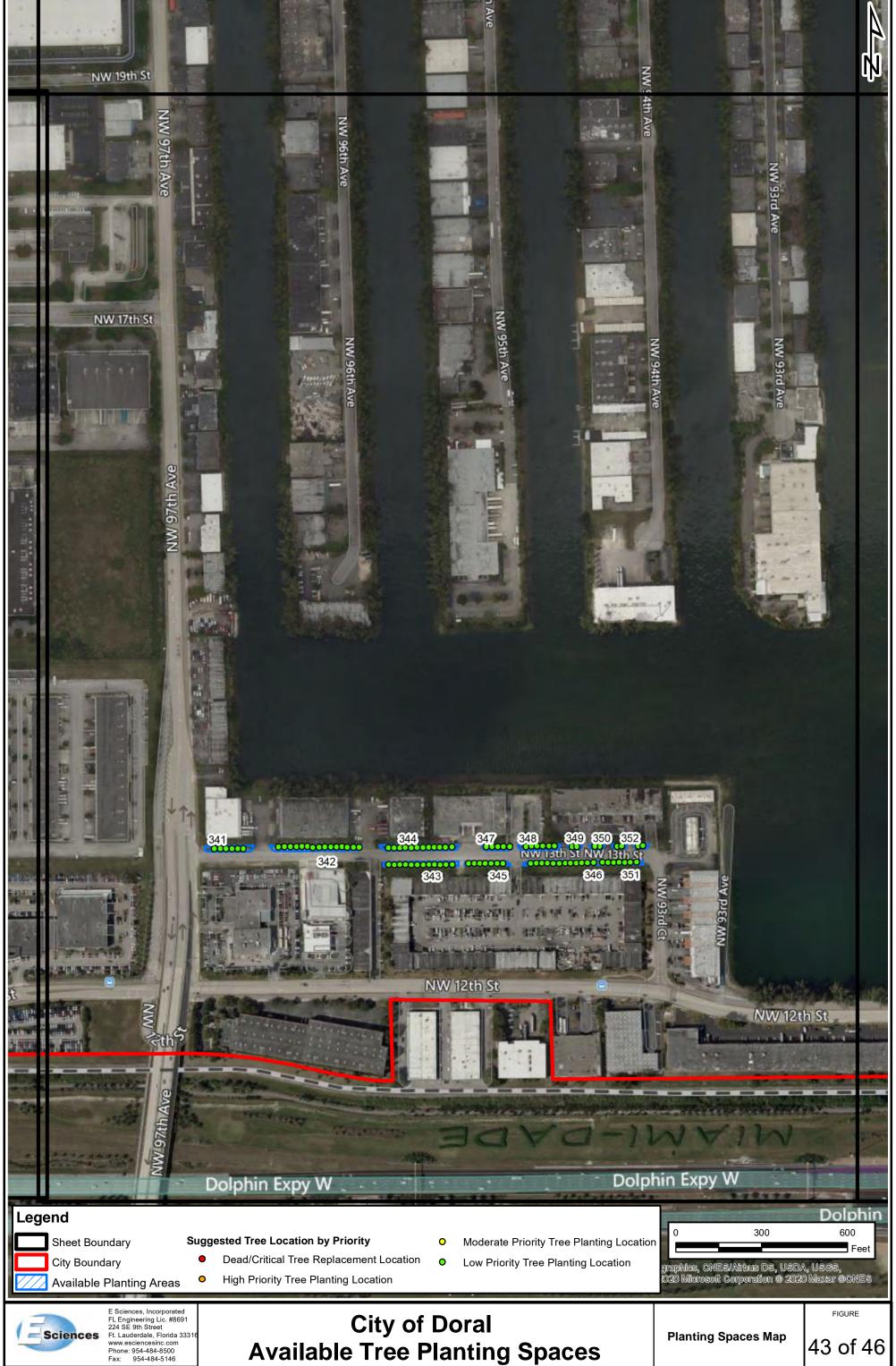
Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

42 of 46

SCALE:

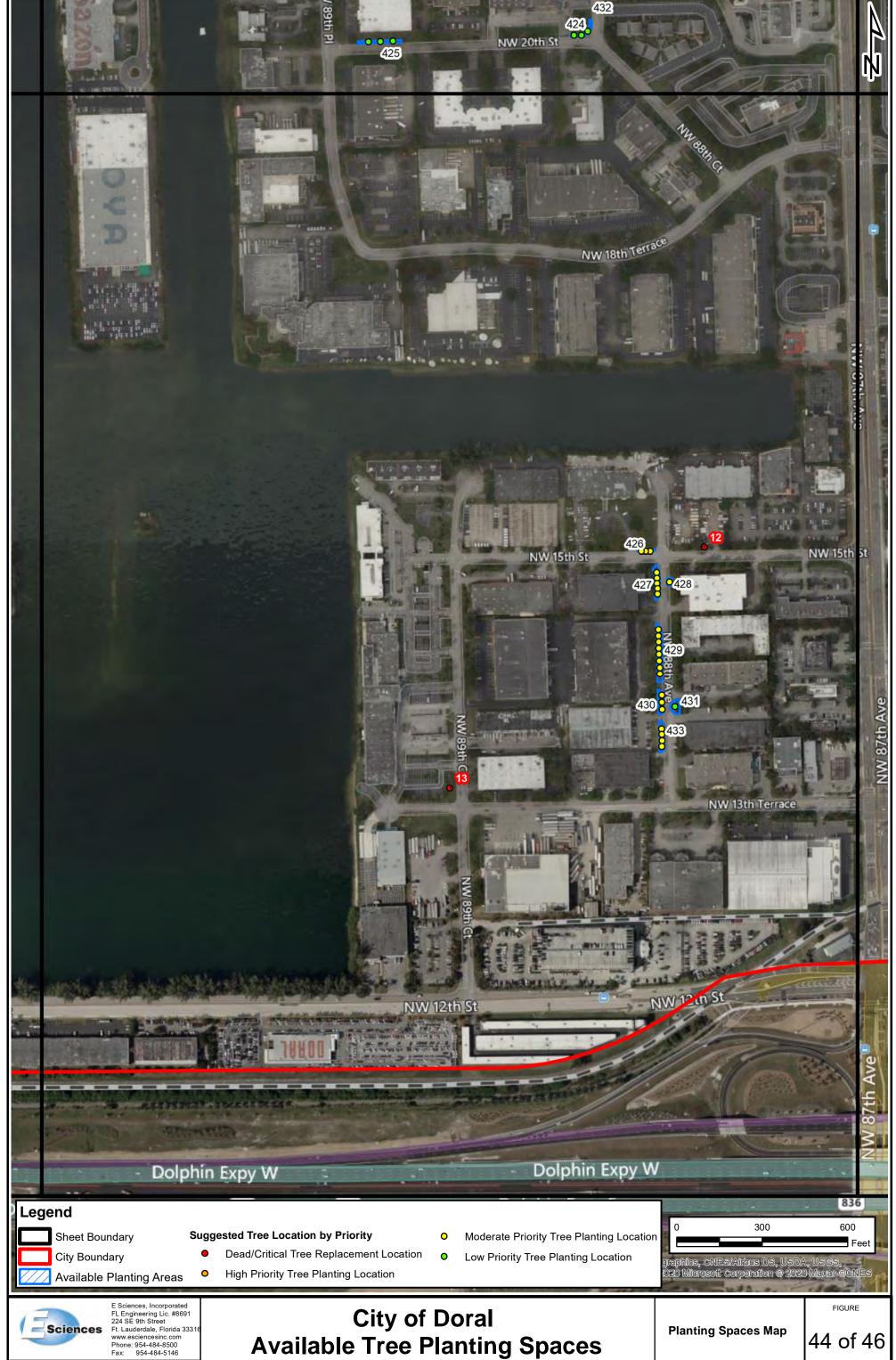
DATE: 7/27/2020



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

43 of 46



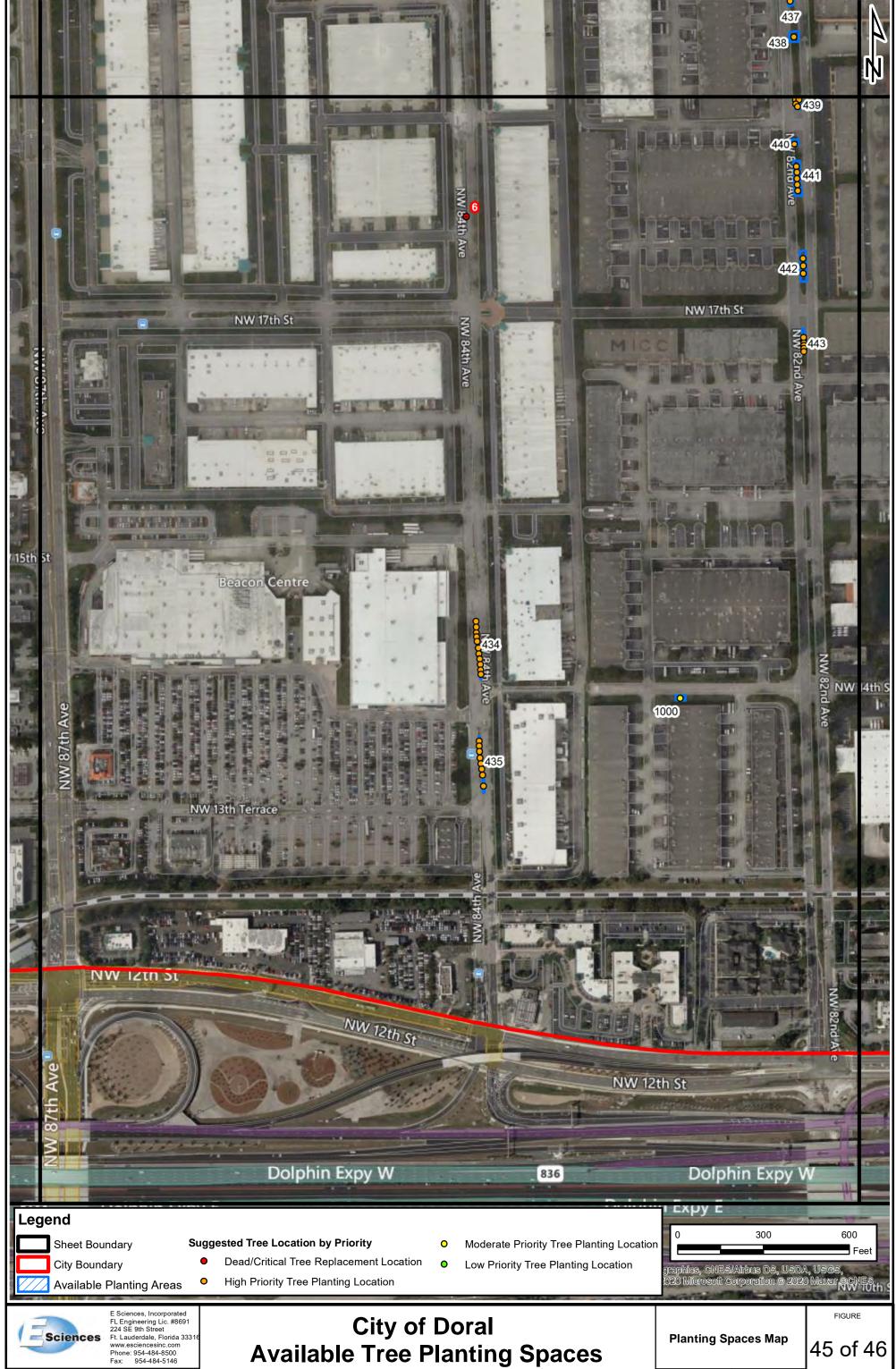
Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

44 of 46

SCALE:

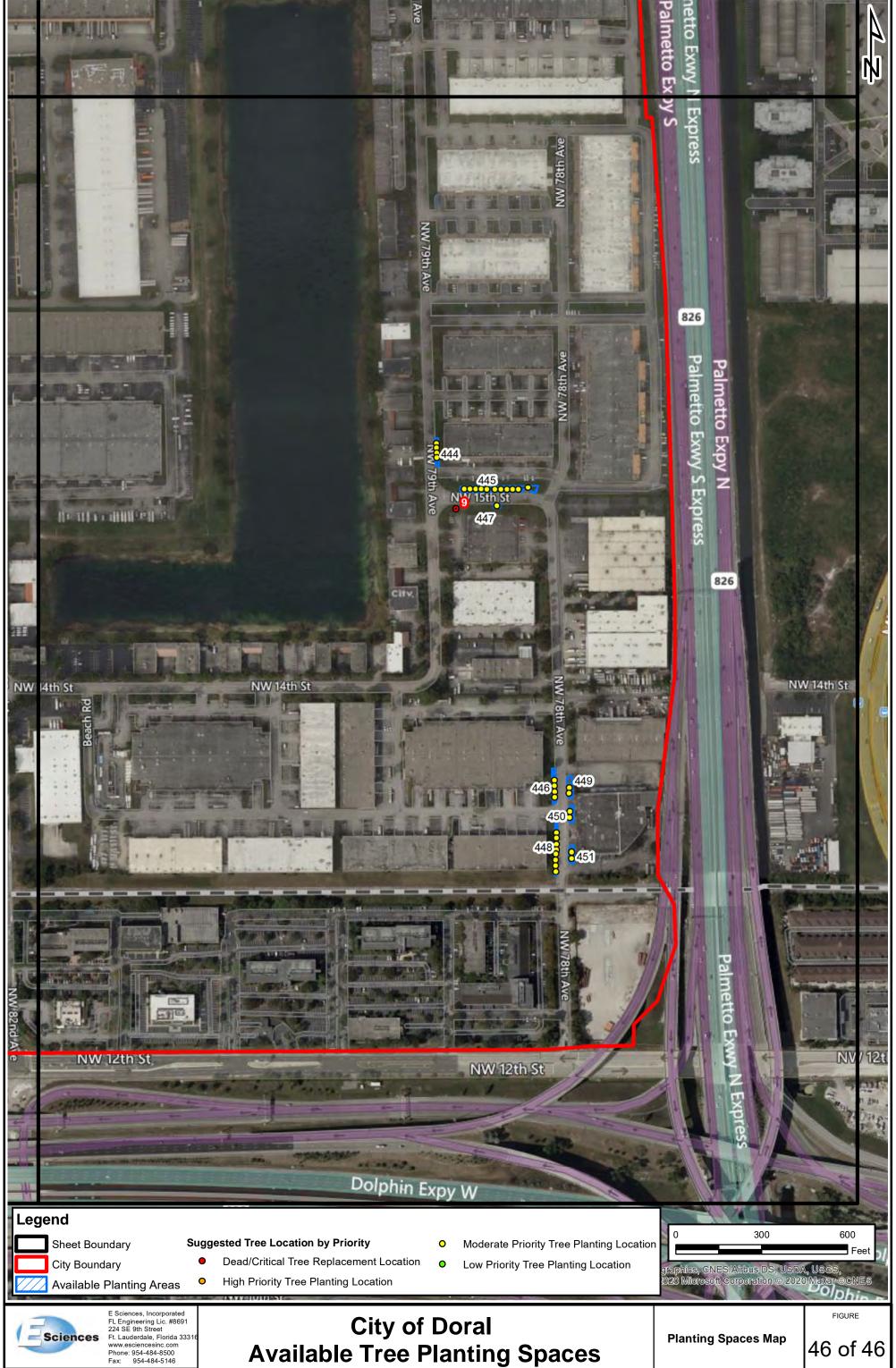
DATE: 7/27/2020



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

45 of 46



Available Tree Planting Spaces

Doral, Miami-Dade County, Florida

46 of 46

APPENDIX B

Planting Space Tables with Proposed Replacement Trees

	Average Appro dth (feet) Length	feet) (2) Specie	es ⁽³⁾	Proposed Quantity	Approximate Spacing (feet) ⁽⁴⁾	Approach for Recommended Replacements	Alternative Replacement Tree Options (by Category) ⁽⁵⁾	Current Status of Area	Description of Area	Utilities Present?	Tree Planting Limitations ⁽⁶⁾	Replanting Priority
2	8 1:			4 5	20 20	Matches palms on north side of road Matches palms on north side of road	Medium Medium	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
3	8 1	9 Royal I		5	20	Matches palms on north side of road	Medium	Empty ROW	Residential Main Road			High
4		8 Royal		4	20	Matches palms on north side of road	Medium	Empty ROW	Residential Main Road			High
5 6	8 7			2	20 20	Matches species on north side of road Matches species on north side of road	Medium Medium	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
7	8 1			4	105	Matches species on north side of road	Medium	Empty ROW	Residential Main Road			High
8	8 7			2	20	Matches species on north side of road	Medium	Empty ROW	Residential Main Road			High
9	8 7	0		2	20 7	Matches species on north side of road Matches species on west side of road	Medium Medium	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
11	8 8			2	30	Continuation of trees around park	Medium	Empty ROW	Residential/Park			High
12	9 7			2	25	Continuation of trees in area	Medium	Partially planted ROW	Residential Main Road			High
13 14	8 1	9 Spanish S 4 Spanish S		6	30 25	Small space with existing trees in proximity Small space with existing trees in proximity	Small Small	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
15	7 9			2	15	Small space with existing trees in proximity	Small	Empty ROW	Residential Main Road			High
16	7 8	L Spanish S	Stopper	1	30	Small space with existing trees in proximity	Small	Empty ROW	Residential Main Road			High
17	8 3			5	10	Continuation of trees in area	Small	Empty ROW	Residential Main Road			High
18 19	8 2			1	0 30	Continuation of trees in area Continuation of trees in area	Medium Medium	Empty ROW Partially planted ROW	Residential Main Road Residential Main Road			High High
20	7 3			1	0	Continuation of trees in area	Medium	Partially planted ROW	Residential			Moderate
21	7 3			1	0	Continuation of trees in area	Medium	Empty ROW	Residential			Moderate
22	8 1			4	20 20	Continuation of trees in area	Large	Empty ROW	Residential Residential			Moderate Moderate
24	10 5			2	20	Continuation of trees in area Continuation of trees in area	Large Large	Empty ROW Empty ROW	Residential			Moderate
25	8 1			3	20	Continuation of trees in area	Large	Partially planted ROW	Residential			Moderate
26	8 9			4	20	Continuation of trees in area	Large	Empty ROW	Residential		· · · · · · · · · · · · · · · · · · ·	Moderate
27 28	8 9			4	20 20	Continuation of trees in area Continuation of trees in area	Large Large	Empty ROW Empty ROW	Residential Residential			Moderate Moderate
29	8 1			4	20	Continuation of trees in area	Large	Empty ROW	Residential			Moderate
30	8 3	Live (2	15	Continuation of trees in area	Large	Empty ROW	Residential Main Road			Moderate
31	8 8			4	20	Continuation of trees in area	Large	Empty ROW	Residential Main Road			Moderate
32	8 3			2	15 35	Continuation of trees in area Continuation of trees in area	Large Large	Empty ROW Empty ROW	Residential Main Road Residential Main Road			Moderate Moderate
34	8 7			3	20	Smaller planting space with adjacent canopy	Small	Empty ROW	Residential Main Road			High
35	9 2	0 Green Butt	tonwood	4	50	Continuation of trees in area	Medium	Empty ROW	Residential Main Road			Low
36 37	6 1			4	20	Suitable area for small trees Suitable area for small trees	Small	Empty ROW	Commercial/Park			Low
38	6 4			22	20	Suitable area for small trees	Small Small	Empty ROW Empty ROW	Commercial/Park Commercial/Park			Low
39	6 10			4	20	Suitable area for small trees	Small	Empty ROW	Commercial/Park			Low
40	15 8			2	40	Continuation of trees in area	Large	Partially planted ROW	Commercial	Utility Lines Above	Moderate canopy coverage	Low
41	15 1: 15 9			3	30 35	Continuation of trees in area Continuation of trees in area	Large Large	Partially planted ROW Partially planted ROW	Commercial Commercial/Government Center	Utility Lines Above	Moderate canopy coverage	Low
43	9 5			2	20	Continuation of trees in area	Large	Empty ROW	Government Center			Low
44	8 5	Live (Oak	2	20	Continuation of trees in area	Large	Partially planted ROW	Commercial			Low
45	15 2			1	0	Continuation of trees in area	Large	Partially planted ROW	Commercial			Low
46 47	9 3			7 24	30 15	Continuation of trees in area	Large Small	Empty ROW Empty ROW	Commercial Residential		Dense canony coverage	Low Moderate
48	9 4			22	15	Narrow space adjacent to canopy Narrow space adjacent to canopy	Small	Empty ROW	Residential		Dense canopy coverage Dense canopy coverage	Moderate
49	9 3			2	15	Visual consistency - continuaton of row of same species	Medium	Partially planted ROW	Park	Utility Lines Above		High
50	9 3			1	0	Continuation of trees in area	Large	Partially planted ROW	Residential/Park			High
51 52	10 6 9 5			2	25 0	Continuation of trees in area Continuation of trees in area	Large Large	Empty ROW Partially planted ROW	Residential/Park Residential/Park			High High
53	10 6			2	20	Continuation of trees in area	Large	Partially planted ROW	Residential/Park			High
54	7 3:	O Simpson's	Stopper	14	20	Narrow space adjacent to canopy	Medium	Partially planted ROW	Residential Main Road			High
55 56	10 20			3	25 0	Spacefor medium or medium/large canopy tree	Medium, Large	Partially planted ROW	Residential Main Road Residential Main Road			Moderate Moderate
57	11 3			1 14	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Partially planted ROW Empty ROW	Residential Main Road			High
58		7 Wild Tar		24	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
59	11 1			8	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
60 61	10 6 11 4			2	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Empty ROW Empty ROW	Residential Main Road Residential Main Road		Bus stop present within planting space	High Moderate
62	10 6			2	20	Spacefor medium or medium/large canopy tree	Medium, Large	Partially planted ROW	Residential Main Road		bus stop present within planting space	High
63	11 3			1	20	Spacefor medium or medium/large canopy tree	Medium, Large	Partially planted ROW	Residential Main Road		Bus stop present within planting space	Moderate
64	11 10			4	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
65 66	12 10	Wild Tar Wild Tar		7 6	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
67	12 2			10	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
68	11 7			2	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
69 70	12 8 12 4			3 23	20 20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road Residential Main Road			High High
70	12 49			23	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Empty ROW Empty ROW	Residential Main Road			High High
72	12 10	3 Wild Tar	marind	4	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
73	12 1			6	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
74 75	12 19	9 Wild Tar 3 Wild Tar		8 10	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
76	12 1:			5	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road		Bus stop present within planting space	Moderate
77	9 20			9	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
78	10 59			27	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road Residential Main Road			High
79 80	10 4- 17 3			22	20 0	Spacefor medium or medium/large canopy tree Visual consistency - continuaton of row of same species	Medium, Large Small	Empty ROW Partially planted median	Residential Main Road Residential Main Road			High Replacement
81	10 9			3	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
82		0 Wild Tar		18	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
83 84	17 6 10 3			2 16	20	Visual consistency - continuation of row of same species Spacefor medium or medium/large canopy tree	Large Medium, Large	Partially planted median Empty ROW	Residential Main Road Residential Main Road		Includes dead tree replacement	Replacement High
85	10 3			16	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
86	11 5	8 Wild Tar	marind	26	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
87	11 1:			4	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
88 89	11 4:			20	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
90	11 1			5	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
91	12 8	B Wild Tar		1	0	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
92	13 1			6	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road		· · · · · · · · · · · · · · · · · · ·	High
93 94	6 3	2 Royal 3 Royal		1 13	0 20	Dead Tree Replacement Visual consistency - continuation of row of same species	Medium (Palm) Medium (Palm)	Partially planted median Partially planted median	Residential Main Road Residential Main Road			High High
95	12 3			18	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
96	10 3	0 Wild Tar	marind	14	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road		Moderate canopy coverage	Moderate
97		5 Wild Tar		6	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
98	9 3			16 1	20 0	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
99		vviiu I di	marind	14	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High

Planting Average Space ID # ⁽¹⁾ Width (feet	Approximate t) Length (feet) (2)	Recommended Replacement Species ⁽³⁾	Proposed Quantity	Approximate Spacing (feet) ⁽⁴⁾	Approach for Recommended Replacements	Alternative Replacement Tree Options (by Category) (5)	Current Status of Area	Description of Area	Utilities Present?	Tree Planting Limitations ⁽⁶⁾	Replanting Priority
101 10 102 9	55 181	Wild Tamarind Wild Tamarind	2	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High
102 9	77	Wild Tamarind	3	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High High
104 9	217	Wild Tamarind	6	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
105 10 106 9	59 304	Wild Tamarind Wild Tamarind	12	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Partially planted ROW Empty ROW	Residential Main Road Residential Main Road			High High
107 10	409	Wild Tamarind	19	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road		Moderate canopy coverage	High
108 8	466	Wild Tamarind	21	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
109 9 110 9	143 224	Wild Tamarind Wild Tamarind	10	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
111 7	469	Wild Tamarind	21	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road		Moderate canopy coverage	High
112 8	78	Wild Tamarind	3	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
113 8 114 8	495 226	Wild Tamarind Wild Tamarind	9	20	Spacefor medium or medium/large canopy tree Spacefor medium or medium/large canopy tree	Medium, Large Medium, Large	Empty ROW Empty ROW	Residential Main Road Residential Main Road			High High
115 8	151	Wild Tamarind	6	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
116 9	316	Wild Tamarind	16	20	Spacefor medium or medium/large canopy tree	Medium, Large	Empty ROW	Residential Main Road			High
117 9 118 7	319 55	Wild Tamarind Queen Palm	12	20	Spacefor medium or medium/large canopy tree Dead Tree Replacement	Medium, Large Medium (Palm)	Empty ROW Partially planted median	Residential Main Road Residential Main Road			High High
119 7	200	Spanish Stopper	9	20	Spacefor small trees in median	Small	Partially planted median	Residential Main Road			High
120 6	270	Crepe Myrtle	12	20	Visual consistency - continuaton of row of same species	Small	Partially planted median	Residential Main Road			High
121 17 122 7	49 83	Crepe Myrtle Crepe Myrtle	2	12 15	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small Small	Partially planted median Partially planted median	Commercial Residential Main Road			Moderate High
123 9	55	Japanese Privet	2	20	Dead Tree Replacement	Small	Partially planted ROW	Commercial	Utilitiy Lines Above		Moderate
124 7	32	Wild Tamarind	1	0	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted ROW	Commercial			Moderate
125 23 126 23	59 43	Japanese Privet Japanese Privet	3	10 10	Need low growing tree due to powerlines Need low growing tree due to powerlines	Small Small	Empty ROW Empty ROW	Commercial Commercial	Utility Lines Above Utility Lines Above		Moderate Moderate
127 20	41	Japanese Privet	2	0	Need low growing tree due to powerlines	Small	Used for parking	Commercial	Utility Lines Above	Soil compaction present	Low
128 23	44	Japanese Privet	3	10	Need low growing tree due to powerlines	Small	Used for parking	Commercial	Utility Lines Above	Soil compaction present	Low
129 23 130 23	123 169	Japanese Privet Japanese Privet	11 19	10 10	Need low growing tree due to powerlines Need low growing tree due to powerlines	Small Small	Used for parking Empty ROW	Commercial Main Road	Utility Lines Above Utility Lines Above	Soil compaction present	Low
131 20	323	Green Buttonwood	19	15	Visual consistency - continuation of row of same species	Medium	Empty ROW	Commercial	Othicy Lines Above	Soil compaction present	High Low
132 20	53	Green Buttonwood	1	0	Visual consistency - continuaton of row of same species	Medium	Partially planted ROW	Commercial		Moderate canopy coverage and compacted soils	Moderate
133 12 134 12	79 91	Live Oak Live Oak	3	20	Consistent with trees in area	Large	Used for parking Empty ROW	Commercial Commercial	Utility Lines Adjacent	Soil compaction present Moderate canopy coverage and compacted soils	Low
134 12	61	Live Oak	2	20	Consistent with trees in area Consistent with trees in area	Large Large	Empty ROW	Commercial		Moderate carropy coverage and compacted soils	Moderate
136 12	53	Christmas Palm	2	20	Consistent with trees in area	Small (Palm)	Used for parking	Commercial		Excessive soil compaction present	Low
137 11 138 12	22	Christmas Palm Christmas Palm	2	0 20	Consistent with trees in area Consistent with trees in area	Small (Palm) Small (Palm)	Partially planted ROW	Commercial Commercial	Utility Lines Above	Canony sover and soil some estimate and the control	High
139 12	55 60	Christmas Palm Christmas Palm	2	20	Consistent with trees in area	Small (Palm)	Used for parking Used for parking	Commercial	Utility Lines Adjacent	Canopy cover and soil compaction- mostly gravel Excessive soil compaction- mostly gravel	Low
140 12	43	Christmas Palm	2	20	Consistent with trees in area	Small (Palm)	Used for parking	Commercial	Utility Lines Adjacent	Excessive soil compaction- mostly gravel	Low
141 12	115	Christmas Palm	5	20	Consistent with trees in area	Small (Palm)	Partially planted ROW	Commercial	Utility Lines Above		Moderate
142 12 143 8	41 37	Christmas Palm Christmas Palm	2	15 15	Consistent with trees in area Consistent with trees in area	Small (Palm) Small (Palm)	Partially planted ROW Used for parking	Commercial Commercial		Soil compaction present Soil compaction present	Low High
144 12	25	Christmas Palm	2	15	Consistent with trees in area	Small (Palm)	Partially planted ROW	Commercial	Utility Lines Above	Soil compaction present	Low
145 11	21	Christmas Palm	1	0	Consistent with trees in area	Small (Palm)	Partially planted ROW	Commercial	Utility Lines Adjacent		High
146 12 147 12	17 27	Christmas Palm Christmas Palm	3	0 15	Consistent with trees in area Consistent with trees in area	Small (Palm) Small (Palm)	Partially planted ROW Used for parking	Commercial	Utility Lines Above Utility Lines Adjacent	Moderate canopy coverage and compacted soils	Low
148 15	109	Florida Thatch Palm	6	15	Limited space for small trees	Small Small	Empty ROW	Commercial	Utility Lines Above	Soil compaction present	Moderate
149 17	43	Florida Thatch Palm	2	15	Limited space for small trees	Small	Used for parking	Commercial	Utility Lines Above	Excessive soil compaction- mostly gravel	Low
150 15	37	Florida Thatch Palm	1	0	Limited space for small trees	Small	Used for parking	Commercial		Excessive soil compaction- mostly gravel	Low
151 15 152 17	55 57	Florida Thatch Palm Florida Thatch Palm	3	15 15	Limited space for small trees Limited space for small trees	Small Small	Used for parking Used for parking	Commercial Commercial		Soil compaction present Soil compaction present	Low
153 15	23	Florida Thatch Palm	1	0	Limited space for small trees	Small	Used for parking	Commercial	Utility Lines Above	Soil compaction present	Low
154 15	53	Florida Thatch Palm	3	15	Limited space for small trees	Small	Used for parking	Commercial	Utility Lines Above	Soil compaction present	Low
155 15 156 15	29 30	Florida Thatch Palm Florida Thatch Palm	2	10 10	Limited space for small trees Limited space for small trees	Small Small	Empty ROW Empty ROW	Commercial Commercial			Moderate Moderate
157 13	295	Florida Thatch Palm	18	15	Limited space for small trees	Small	Used for parking	Commercial		Excessive soil compaction- mostly gravel	Low
158 15	77	Florida Thatch Palm	4	15	Limited space for small trees	Small	Used for parking	Commercial	Utility Lines Above	Soil compaction present	Low
159 15 160 15	60	Florida Thatch Palm	3	15	Limited space for small trees	Small Small	Empty ROW	Commercial Commercial	Utility Lines Above	Soil compaction present	Moderate
160 15 161 10	83 41	Florida Thatch Palm Sweet Acacia	3	15 10	Limited space for small trees Limited space for small trees (powerlines present)	Small	Used for parking Used for parking	Commercial Main Road	Utility Lines Above	Soil compaction present Soil compaction present	Low Moderate
162 15	47	Sweet Acacia	3	10	Limited space for small trees (powerlines present)	Small	Used for parking	Commercial Main Road	Utility Lines Above	Soil compaction present	Moderate
163 19	37	Sweet Acacia	3	10	Limited space for small trees (powerlines present)	Small	Used for parking	Commercial Main Road	Utility Lines Above	Moderate canopy coverage and compacted soils	Moderate
164 21 165 23	47 45	Sweet Acacia Sweet Acacia	4	10 10	Limited space for small trees (powerlines present) Limited space for small trees (powerlines present)	Small Small	Partially planted ROW Empty ROW	Commercial Main Road Commercial Main Road	Utility Lines Above Utility Lines Above	Soil compaction present	Moderate High
166 11	155	Sweet Acacia	9	15	Limited space for small trees (powerlines present) Limited space for small trees (powerlines present)	Small	Empty ROW	Commercial Main Road	Utility Lines Above		High
167 12	51	Sweet Acacia	2	15	Limited space for small trees (powerlines present)	Small	Empty ROW	Commercial Main Road	Utility Lines Above		High
168 10 169 12	35 81	Sweet Acacia Sweet Acacia	3	15 15	Limited space for small trees (powerlines present) Limited space for small trees (powerlines present)	Small Small	Empty ROW Partially planted ROW	Commercial Main Road Commercial Main Road	Utility Lines Above Utility Lines Above	Moderate canopy coverage Dense canopy coverage	High Moderate
170 13	49	Sweet Acacia	3	15	Limited space for small trees (powerlines present) Limited space for small trees (powerlines present)	Small	Empty ROW	Commercial Main Road	Utility Lines Above	Бензе сапору сочегаде	High
171 11	35	Sweet Acacia	1	15	Limited space for small trees (powerlines present)	Small	Empty ROW	Commercial Main Road	Utility Lines Above		High
172 15	45	Sweet Acacia	7	15	Limited space for small trees (powerlines present)	Small	Empty ROW Partially planted ROW	Commercial Main Road	Utility Lines Above		High
173 23 174 19	111 39	Sweet Acacia Sweet Acacia	2	15 15	Limited space for small trees (powerlines present) Limited space for small trees (powerlines present)	Small Small	Partially planted ROW Partially planted ROW	Commercial Main Road Commercial Main Road	Utility Lines Above Utility Lines Above		High High
175 17	105	Sweet Acacia	5	15	Limited space for small trees (powerlines present)	Small	Partially planted ROW	Commercial Main Road	Utility Lines Above	Moderate canopy coverage	High
176 21	45	Sweet Acacia	2	15	Limited space for small trees (powerlines present)	Small	Empty ROW	Commercial Main Road	Utility Lines Above	Moderate construction	High
177 19 178 19	47 57	Sweet Acacia Sweet Acacia	3	15 15	Limited space for small trees (powerlines present) Limited space for small trees (powerlines present)	Small Small	Empty ROW Empty ROW	Commercial Main Road Commercial Main Road	Utility Lines Above Utility Lines Above	Moderate canopy coverage	High High
179 19	48	Sweet Acacia	2	15	Limited space for small trees (powerlines present)	Small	Empty ROW	Commercial Main Road	Utility Lines Above		High
180 23	62	Sweet Acacia	2	25	Limited space for small trees (powerlines present)	Small	Empty ROW	Commercial Main Road	Utility Lines Above		High
181 23 182 15	99 55	Sweet Acacia Sweet Acacia	3	15 15	Limited space for small trees (powerlines present) Limited space for small trees (powerlines present)	Small Small	Empty ROW Empty ROW	Commercial Main Road Commercial/Government Center	Utility Lines Above Utility Lines Above	Moderate canopy coverage	High High
183 11	80	Sweet Acacia	5	15	Limited space for small trees (powerlines present) Limited space for small trees (powerlines present)	Small	Empty ROW	Commercial/Government Center	Utility Lines Above		High
184 11	32	Sweet Acacia	2	15	Limited space for small trees (powerlines present)	Small	Empty ROW	Commercial/Government Center	Utility Lines Above		High
185 11	53	Sweet Acacia	3	15	Limited space for small trees (powerlines present)	Small (Balm)	Partially planted ROW	Commercial/Government Center	Utility Lines Above		High
186 5 187 10	25 30	Foxtail Palm Foxtail Palm	2	0	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small (Palm) Small (Palm)	Empty ROW Empty ROW	Commercial/Government Center Commercial/Government Center			High High
188 9	14	Foxtail Palm	1	0	Visual consistency - continuation of row of same species Visual consistency - continuation of row of same species	Small (Palm)	Empty ROW	Commercial/Government Center			High
189 10	30	Foxtail Palm	1	0	Visual consistency - continuaton of row of same species	Small (Palm)	Empty ROW	Commercial/Government Center			High
190 9 191 9	15 10	Foxtail Palm Foxtail Palm	1	0	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small (Palm) Small (Palm)	Empty ROW	Commercial/Government Center Commercial/Government Center			High
191 9	13	Foxtail Palm Foxtail Palm	1	0	Visual consistency - continuation of row of same species Visual consistency - continuation of row of same species	Small (Palm) Small (Palm)	Empty ROW Empty ROW	Commercial/Government Center Commercial Main Road			High High
193 9	19	Foxtail Palm	1	0	Visual consistency - continuaton of row of same species	Small (Palm)	Empty ROW	Commercial Main Road			High
194 9	23	Foxtail Palm	1	0	Visual consistency - continuation of row of same species	Small (Palm)	Empty ROW	Commercial Main Road			High
405	155	Foxtail Palm Foxtail Palm	5	30 0	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small (Palm) Small (Palm)	Empty ROW Empty ROW	Commercial Main Road Commercial Main Road			High High
195 16 196 16	27		1 +		• isaa consistency - continuation of row of same species	Jiliaii (Fallii)	Empty NOVV				
195 16 196 16 197 9	27 25	Foxtail Palm	1	0	Visual consistency - continuaton of row of same species	Small (Palm)	Empty ROW	Commercial Main Road			High
196 16			1 1 1	0 0 0	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small (Palm) Small (Palm) Small (Palm)	Empty ROW Empty ROW Empty ROW	Commercial Main Road Commercial Main Road Commercial Main Road			High High High

	erage Approximate n (feet) Length (feet)	Recommended Replacement Species (3)	Proposed Quantity	Approximate Spacing (feet) (4)	Approach for Recommended Replacements	Alternative Replacement Tree Options (by Category) (5)	Current Status of Area	Description of Area	Utilities Present?	Tree Planting Limitations ⁽⁶⁾	Replanting Priority
	10 53	Foxtail Palm	4	15	Visual consistency - continuaton of row of same species	Small (Palm)	Partially planted ROW	Commercial Main Road			High
	10 16 8 17	Foxtail Palm Foxtail Palm	1	0	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small (Palm) Small (Palm)	Empty ROW Empty ROW	Commercial Main Road Commercial Main Road			High High
	8 11	Foxtail Palm	1	0	Visual consistency - continuaton of row of same species	Small (Palm)	Empty ROW	Commercial Main Road			High
	20 20	Royal Palm	1	0	Consistent with trees in area	Medium (Palm)	Empty Median	Government Center			High
	16 20 16 40	Live Oak Crepe Myrtle	3	10	Dead Tree Replacement Visual consistency - continuaton of row of same species	Large Small	Partially planted median Partially planted median	Commercial Commercial			Moderate Moderate
208 1	17 45	Montgomery Palm	2	10	Visual consistency - continuaton of row of same species	Small (Palm)	Partially planted median	Commercial			Moderate
	18 37	Wild Tamarind	2	15	Spacefor medium canopy tree	Medium	Partially planted median	Commercial			Moderate
	17 52 17 41	Crepe Myrtle Crepe Myrtle	1	15	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small Small	Partially planted median Partially planted median	Commercial Commercial			Moderate Moderate
212 1	16 41	Live Oak	1	0	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted median	Commercial			Moderate
	17 35	Crepe Myrtle	2	0	Visual consistency - continuation of row of same species	Small	Partially planted median	Commercial			Moderate
	15 17 21 336	Montgomery Palm Gumbo Limbo	12	10 25	Visual consistency - continuaton of row of same species Space for large tree	Small (Palm) Large	Partially planted median Empty ROW	Commercial Residential Main Road			Moderate High
	20 55	Gumbo Limbo	1	0	Space for large tree	Large	Empty ROW	Residential Main Road			High
	21 161	Gumbo Limbo	5	25	Space for large tree	Large	Empty ROW	Residential Main Road			High
	21 199 27 100	Gumbo Limbo Mahogany	6	25 25	Space for large tree Space for large tree	Large Large	Empty ROW Partially planted ROW	Residential Main Road Commercial		Soil compaction present	High Moderate
220 2	27 36	Mahogany	1	25	Space for large tree	Large	Partially planted ROW	Commerical		Soil compaction present	Moderate
	0 0	rmine after construction is com		0	Under Construction	etermine after construction is comple		Commercial		New planting areas on 41st after construction	Moderate
	17 93 20 85	Live Oak Japanese Blueberry	3	20 20	Consistent with trees in area Live oaks are adjacent, but recommend smaller tree due to po	Large Small	Partially planted ROW Empty ROW	Commercial Commercial	Utility Lines Above		Low
	20 43	Japanese Blueberry	1	0	Live oaks are adjacent, but recommend smaller tree due to po	Small	Empty ROW	Commercial	Utility Lines Above		Low
	33 77	Live Oak	4	15	Visual consistency - continuaton of row of same species	Medium, Large	Empty ROW	Commercial			Moderate
	16 76 23 160	Wild Tamarind	5	35	Spacefor medium canopy tree Mahogany trees are adjacent, but recommend smaller tree due	Medium Small	Empty ROW Partially planted ROW	Commercial Commercial	Utility Lines Above		Moderate Moderate
	25 160 25 173	Japanese Blueberry Live Oak	3	25 35	Mahogany trees are adjacent, but recommend smaller tree due Spacefor Large Tree	Large	Partially planted ROW Partially planted ROW	Commercial	Utility Lines Above Utility Lines Above		Moderate Moderate
229 2	23 110	Yellow Poinciana	2	45	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted ROW	Commercial			Moderate
	20 842 15 49	Dahoon Holly	39	20	Space for medium canopy tree	Medium	Partially planted ROW	Commercial			Moderate
	15 49 16 145	Dahoon Holly Dahoon Holly	6	20	Space for medium canopy tree Space for medium canopy tree	Medium Medium	Partially planted ROW Partially planted ROW	Commercial Commercial			Moderate Moderate
233 2	21 27	Dahoon Holly	1	0	Space for medium canopy tree	Medium	Partially planted ROW	Commercial			Moderate
	23 109	Dahoon Holly	4	20	Space for medium canopy tree	Medium	Partially planted ROW	Commercial			Moderate
	23 38 30 29	Dahoon Holly Dahoon Holly	1	0	Space for medium canopy tree Space for medium canopy tree	Medium Medium	Partially planted ROW Empty ROW	Commercial Commercial			Moderate Moderate
	15 35	Live Oak	1	0	Visual consistency - continuation of row of same species	Medium, Large	Partially planted ROW	Commercial			Moderate
	17 200	Dahoon Holly	9	20	Space for medium canopy tree	Medium	Partially planted ROW	Commercial			Moderate
	16 173 14 43	Gumbo Limbo Pigeon Plum	5	25	Space for large canopy tree Space for medium canopy tree	Large Medium	Empty ROW Empty ROW	Commercial Commercial			Low
	13 97	Pigeon Plum	3	20	Space for medium canopy tree	Medium	Empty ROW	Commercial			Low
	9 102	Simpson's Stopper	4	20	Limited space for small tree	Small	Partially planted median	Commercial Main Road		(interspace between royal palms)	High
-	15 397 15 447	Simpson's Stopper	15 12	25 25	Limited space for small tree	Small Small	Partially planted median	Commercial Main Road Commercial Main Road		(interspace between royal palms)	High
	10 432	Simpson's Stopper Simpson's Stopper	16	25	Limited space for small tree Limited space for small tree	Small	Partially planted median Partially planted median	Commercial Main Road		(interspace between royal palms) (interspace between royal palms)	High High
	10 211	Simpson's Stopper	8	25	Limited space for small tree	Small	Partially planted median	Commercial Main Road		(interspace between royal palms)	High
	15 1085	Simpson's Stopper	35	25	Limited space for small tree	Small	Partially planted median	Commercial Main Road		(interspace between royal palms)	High
	13 284 12 535	Simpson's Stopper Simpson's Stopper	10 17	25 25	Limited space for small tree Limited space for small tree	Small Small	Partially planted median Partially planted median	Commercial Main Road Commercial Main Road		(interspace between royal palms) (interspace between royal palms)	High High
250	6 716	Fiddlewood	33	20	Space for medium canopy tree	Medium	Empty ROW	Commercial Main Road		Thin planting strip in ROW south of fence	High
251	6 2013	Fiddlewood	98	20	Space for medium canopy tree	Medium	Empty ROW	Commercial Main Road		Thin planting strip in ROW south of fence	High
	13 81 19 73	Mahogany Mahogany	2	0	Consistent with trees in area Visual consistency - continuaton of row of same species	Medium, Large Medium, Large	Partially planted ROW Partially planted ROW	Commercial Commercial			Moderate Moderate
	15 57	Mahogany	1	0	Consistent with trees in area	Medium, Large	Empty ROW	Commercial			Moderate
	20 96	Mahogany	1	0	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted ROW	Commercial			Moderate
	19 97 7 242	Mahogany Fiddlewood	1 12	0 15	Visual consistency - continuation of row of same species	Medium, Large Medium	Partially planted ROW	Commercial Commercial	Utility Lines Above		Moderate Low
	7 31	Fiddlewood	1	0	Space for medium canopy tree Space for medium canopy tree	Medium	Empty ROW Empty ROW	Commercial	Utility Lines Above		Low
259	7 33	Fiddlewood	1	0	Space for medium canopy tree	Medium	Empty ROW	Commercial	Utility Lines Above		Low
	11 70	Cabbage Palm Silver Palm	9	10	Visual consistency - continuaton of row of same species	Small (Palm)	Partially planted Median	Commercial		(continue zigzag planting pattern)	Low
	13 35 12 55	Silver Palm	2	20	Space for small canopy tree Space for small canopy tree	Small Small	Empty ROW Empty ROW	Commercial Commercial	Utility Lines Adjacent		Low
	11 111	Silver Palm	4	20	Space for small canopy tree	Small	Empty ROW	Commercial	,,		Low
	20 73	Silver Palm	2	20	Space for small canopy tree	Small	Empty ROW	Commercial			Low
	23 101	Silver Palm Silver Palm	5	20	Space for small canopy tree Space for small canopy tree	Small Small	Partially planted ROW Partially planted ROW	Commercial Commercial			Low
267 2	20 95	Silver Palm	3	20	Space for small canopy tree	Small	Partially planted ROW	Commercial			Low
	17 47	Live Oak	2	20	Visual consistency - continuation of row of same species	Medium, Large	Partially planted ROW	Commercial			Low
	13 38 11 96	Live Oak Pygmy Date Palm	3	20	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Medium, Large Small (Palm)	Empty ROW Partially planted ROW	Commercial Residential Main Road		Moderate canopy coverage and compacted soils	Low Moderate
271	9 58	Live Oak	3	15	Consistent with trees in area	Large	Partially planted ROW	Residential Main Road		.,,	High
	6 58	Christmas Palm	3	15	Visual consistency - continuaton of row of same species	Small (Palm)	Empty ROW	Residential	11675-17	Call course in	Moderate
	9 20 9 39	Crepe Myrtle Spanish Stopper	1	0	Visual consistency - continuaton of row of same species Space for small canopy tree	Small Small	Empty ROW Empty ROW	Residential Residential	Utility Lines Above	Soil compaction present	Moderate Moderate
275 1	11 46	Spanish Stopper	3	10	Space for small canopy tree	Small	Empty ROW	Residential			Moderate
276 1	10 25	Spanish Stopper	1	0	Space for small canopy tree	Small	Empty ROW	Residential			Moderate
	11 53 12 20	Spanish Stopper Christmas Palm	3	15 0	Space for small canopy tree Visual consistency - continuaton of row of same species	Small Small (Palm)	Empty ROW Partially planted ROW	Residential Residential	Utility Lines Above		Moderate Moderate
	8 155	Spindle Palm	13	10	Visual consistency - continuation of row of same species Visual consistency - continuation of row of same species	Small (Palm)	Partially planted ROW Empty ROW	Residential	Utility Lines Above Utility Lines Above		Moderate
280 1	11 40	Christmas Palm	2	15	Consistent with trees in area	Small (Palm)	Partially planted ROW	Residential Main Road	Utility Lines Above		High
	11 42	Christmas Palm	3	10	Dead Tree Replacement	Small (Palm)	Partially planted ROW	Residential Main Road			Replacement
	7 15 11 54	Spindle Palm Crepe Myrtle	2	20	Critical Tree Replacement Consistent with trees in area	Small (Palm) Small	Critical Tree Location Empty ROW	Residential Residential Main Road	Utility Lines Above		Replacement High
284	9 73	Gumbo Limbo	2	20	Visual consistency - continuaton of row of same species	Medium	Partially planted ROW	Residential Main Road	Jamey Enter 10046		High
	27 46	Crepe Myrtle	1	0	Visual consistency - continuaton of row of same species	Small	Partially planted ROW	Residential Main Road	Utility Lines Above		High
	23 115 20 94	Crepe Myrtle Crepe Myrtle	2	0 25	Visual consistency - continuaton of row of same species Consistent with trees in area	Small Small	Partially planted ROW Partially planted ROW	Residential Main Road Residential Main Road	Utility Lines Above Utility Lines Above		High High
	13 44	Crepe Myrtle	2	15	Visual consistency - continuation of row of same species	Small	Partially planted ROW	Residential Main Road	Utility Lines Above		High
	7 52	Queen Palm	3	15	Visual consistency - continuaton of row of same species	Small (Palm)	Partially planted ROW	Residential Main Road			High
	11 89	Gumbo Limbo	1	0	Visual consistency - continuation of row of same species	Medium (Palm)	Partially planted ROW	Residential Main Road	Utility Lines Above		High
	17 35 17 63	Royal Palm Crepe Myrtle	2	0 30	Dead Tree Replacement Consistent with trees in area	Medium (Palm) Small	Partially planted ROW Partially planted ROW	Residential Main Road Residential Main Road	Utility Lines Above Utility Lines Above		Replacement High
293 1	17 85	Royal Palm	1	0	Visual consistency - continuaton of row of same species	Medium (Palm)	Partially planted ROW	Residential Main Road	Utility Lines Above		High
	12 75	Gumbo Limbo	3	15	Visual consistency - continuaton of row of same species	Medium	Empty ROW	Residential			Moderate
	14 163 25 101	Gumbo Limbo Green Buttonwood	5	20	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Medium Medium	Empty ROW Partially planted ROW	Residential Commercial	Utility Lines Above		Moderate Moderate
	10 95	Spanish Stopper	5	15	Space for small canopy tree	Small	Partially planted ROW Partially planted ROW	Commercial	Othicy Lines Above		Moderate
298 1	11 92	Spanish Stopper	2	20	Space for small canopy tree	Small	Partially planted ROW	Commercial	Utility Lines Above		Moderate
	9 287	Spanish Stopper	17	15 15	Space for small canopy tree	Small	Empty ROW	Commercial			Moderate Moderate
300	9 262	Spanish Stopper	15	15	Space for small canopy tree	Small	Empty ROW	Commercial	1		Moderate

Space ID # (1) W	Average lidth (feet)	Approximate Length (feet) (2)	Recommended Replacement Species ⁽³⁾	Proposed Quantity	Approximate Spacing (feet) (4)	Approach for Recommended Replacements	Alternative Replacement Tree Options (by Category) (5)	Current Status of Area	Description of Area	Utilities Present?	Tree Planting Limitations ⁽⁶⁾	Replanting Priority
301	13	112	Spanish Stopper	5	15	Space for small canopy tree	Small	Empty ROW	Commercial	Utility Lines Above		Moderate
302 303	27 15	115 121	Live Oak Pink Tabebuia	4	25 25	Space for large canopy tree Visual consistency - continuaton of row of same species	Large Medium	Empty ROW Empty ROW	Commercial Commercial			Moderate Moderate
304	15	42	Pink Tabebuia	2	15	Visual consistency - continuaton of row of same species	Medium	Partially planted ROW	Commercial			Moderate
305	13	26	Pink Tabebuia	1	0	Dead Tree Replacement	Medium	Partially planted ROW	Commercial			Moderate
306 307	20	59 25	Pink Tabebuia Pink Tabebuia	2	20 0	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Medium Medium	Partially planted ROW Partially Planted ROW	Commercial Commercial			Moderate Moderate
308	11	40	Pink Tabebuia	2	15	Visual consistency - continuaton of row of same species	Medium	Empty ROW	Commercial			Moderate
309	15	22	Pink Tabebuia	1	0	Visual consistency - continuation of row of same species	Medium	Partially planted ROW	Commercial			Moderate
310 311	13 11	19 110	Pink Tabebuia Mahogany	3	0 25	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Medium Medium, Large	Partially planted ROW Partially planted ROW	Commercial Commercial			Moderate Moderate
312	11	269	Pigeon Plum	12	20	Space for Small, Medium canopy tree	Small, Medium	Empty ROW	Commercial Main Road			High
313	16	96	Pigeon Plum	4	20	Space for Small, Medium canopy tree	Small, Medium	Empty ROW	Commercial Main Road			High
314 315	16 9	351 369	Pigeon Plum Pigeon Plum	15 17	20	Space for Small, Medium canopy tree Space for Small, Medium canopy tree	Small, Medium Small, Medium	Empty ROW Empty ROW	Commercial Main Road Commercial Main Road			High High
316	16	163	Pigeon Plum	7	20	Space for Small, Medium canopy tree	Small, Medium	Empty ROW	Commercial Main Road			High
317	11	444	Pigeon Plum	20	20	Space for Small, Medium canopy tree	Small, Medium	Empty ROW	Commercial Main Road		Construction occuring adjacent to planting area	High
318 319	18 17	131 689	Pigeon Plum Pigeon Plum	5 34	20	Space for Small, Medium canopy tree Space for Small, Medium canopy tree	Small, Medium Small, Medium	Empty ROW Empty ROW	Commercial Main Road Commercial Main Road			High High
320	12	162	Pigeon Plum	7	20	Space for Small, Medium canopy tree	Small, Medium	Empty ROW	Commercial Main Road			High
321	12	143	Pigeon Plum	6	20	Space for Small, Medium canopy tree	Small, Medium	Empty ROW	Commercial Main Road			High
322 323	9	160	Live Oak	4 9	30	Space for large canopy tree	Large	Empty ROW	Commercial Main Road			High
323	9	199 96	Live Oak Live Oak	3	20 20	Space for large canopy tree Space for large canopy tree	Large Large	Empty ROW Empty ROW	Commercial Commercial			Moderate Moderate
325	10	291	Live Oak	12	20	Space for large canopy tree	Large	Empty ROW	Commercial			Moderate
326	11	185	Live Oak	8	20	Space for large canopy tree	Large	Empty ROW	Commercial			Moderate
327	13 17	351 115	Sweet Acacia	15 4	20	Space for small trees adjacent to large canopy trees Space for small trees adjacent to large canopy trees	Small Small	Empty ROW	Commercial Main Road Commercial Main Road			High
328 329	17	115 231	Sweet Acacia Sweet Acacia	10	20 20	Space for small trees adjacent to large canopy trees Space for small trees adjacent to large canopy trees	Small	Empty ROW Empty ROW	Commercial Main Road			High High
330	14	555	Sweet Acacia	26	20	Space for small trees adjacent to large canopy trees	Small	Empty ROW	Commercial Main Road			High
331	14	40	Sweet Acacia	2	15	Space for small trees adjacent to large canopy trees	Small	Empty ROW	Commercial Main Road			High
332 333	13 14	244 315	Sweet Acacia Sweet Acacia	11 14	20 20	Space for small trees adjacent to large canopy trees Space for small trees adjacent to large canopy trees	Small Small	Empty ROW Empty ROW	Commercial Main Road Commercial Main Road			High High
334	13	154	Sweet Acacia	6	20	Space for small trees adjacent to large canopy trees	Small	Empty ROW	Commercial Main Road			High
335	17	156	Sweet Acacia	6	20	Space for small trees adjacent to large canopy trees	Small	Empty ROW	Commercial Main Road			High
336 337	10 18	501 132	Sweet Acacia Sweet Acacia	20 5	20	Space for small trees adjacent to large canopy trees Space for small trees adjacent to large canopy trees	Small Small	Empty ROW Empty ROW	Commercial Main Road Commercial Main Road			High High
338	16	262	Sweet Acacia	10	20	Space for small trees adjacent to large canopy trees	Small	Empty ROW	Commercial Main Road			High
339	11	487	Sweet Acacia	22	20	Space for small trees adjacent to large canopy trees	Small	Partially planted ROW	Commercial Main Road			High
340	10	253	Sweet Acacia	9	25	Space for small trees adjacent to large canopy trees	Small	Partially planted median	Commercial Main Road		(interspace between royal palms)	High
341 342	19 20	169 313	Cabbage Palm Florida Thatch Palm	6 15	20 20	Visual consistency - continuaton of row of same species Active area, limited space for small palms	Small (Palm) Small (Palm)	Used for parking Used for parking	Commercial Commercial		Excessive soil compaction- mostly gravel Excessive soil compaction- mostly gravel	Low
343	15	263	Florida Thatch Palm	12	20	Active area, limited space for small palms Active area, limited space for small palms	Small (Palm)	Used for parking	Commercial		Excessive soil compaction- mostly gravel	Low
344	18	269	Florida Thatch Palm	12	20	Active area, limited space for small palms	Small (Palm)	Used for parking	Commercial		Excessive soil compaction- mostly gravel	Low
345	15	155	Florida Thatch Palm	7	20	Active area, limited space for small palms	Small (Palm)	Used for parking	Commercial		Excessive soil compaction- mostly gravel	Low
346 347	15 18	413 101	Florida Thatch Palm Florida Thatch Palm	19 5	20 20	Active area, limited space for small palms Active area, limited space for small palms	Small (Palm) Small (Palm)	Used for parking Empty ROW	Commercial Commercial		Excessive soil compaction- mostly gravel	Low
348	18	142	Florida Thatch Palm	6	20	Active area, limited space for small palms	Small (Palm)	Empty ROW	Commercial			Low
349	17	46	Florida Thatch Palm	2	15	Active area, limited space for small palms	Small (Palm)	Empty ROW	Commercial			Low
350 351	17 14	49 50	Florida Thatch Palm Florida Thatch Palm	2	15 15	Active area, limited space for small palms Active area, limited space for small palms	Small (Palm) Small (Palm)	Empty ROW Empty ROW	Commercial Commercial			Low
352	14	45	Florida Thatch Palm	2	15	Active area, limited space for small palms	Small (Palm)	Empty ROW	Commercial			Low
353	18	61	Silver Palm	2	20	Narrow planting spaces	Small (Palm)	Partially planted ROW	Government Center	Utility Lines Above	Soil compaction present	Moderate
354	6	92 333	Silver Palm Silver Palm	3 16	20	Narrow planting spaces	Small (Palm) Small (Palm)	Partially planted ROW	Government Center Government Center	Utility Lines Above		High
355 356	7	1587	Silver Palm Silver Palm	71	20	Narrow planting spaces Narrow planting spaces	Small (Palm) Small (Palm)	Partially planted ROW Empty ROW	Government Center Government Center	Utility Lines Above	Wet swale area	High High
357	9	61	Spanish Stopper	2	25	Small planting space	Small	Partially planted ROW	Commercial			Replacement
358	13	32	Live Oak	1	0	Visual consistency - continuation of row of same species	Medium, Large	Partially planted ROW	Commercial			Moderate
359 360	14 16	28 171	Crepe Myrtle Crepe Myrtle	5	0 25	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small Small	Partially planted ROW Partially planted ROW	Commercial Commercial			Moderate Low
361	15	55	Crepe Myrtle	1	0	Dead Tree Replacement	Small	Partially planted ROW	Commercial		Moderate canopy coverage	Low
362	15	29	Crepe Myrtle	1	0	Visual consistency - continuaton of row of same species	Small	Partially planted ROW	Commercial			Low
363 364	15 15	369 302	Crepe Myrtle Crepe Myrtle	9	30 30	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small Small	Empty ROW Empty ROW	Commercial Commercial		Moderate canopy coverage	Low
365	15	150	Spanish Stopper	2	0	Small planting space	Small	Empty ROW Empty ROW	Commercial		Dense canopy coverage	Low
366	14	34	Spanish Stopper	1	0	Small planting space	Small	Empty ROW	Commercial			Low
367	8	17	Coconut Palm	1	0	Dead Tree Replacement	Medium (Palm)	Empty ROW	Commercial		Madanta	Replacement
368 369	17 15	263 40	Crepe Myrtle Florida Thatch Palm	8	30 0	Visual consistency - continuaton of row of same species Small planting space	Small Small	Empty ROW Partially planted ROW	Commercial Commercial		Moderate canopy coverage	Low
370	7	212	Florida Thatch Palm	9	20	Small planting space	Small	Empty Median	Commercial Main Road			Moderate
371	7	120	Silver Palm	5	25	Small planting space	Small	Empty ROW	Commercial			Low
372 373	7	100 112	Silver Palm Silver Palm	3	25 25	Small planting space Small planting space	Small Small	Empty ROW Empty ROW	Commercial			Low
374	15	24	Mahogany	1	0	Visual consistency - continuation of row of same species	Medium, Large	Partially plated ROW	Commercial			Low
375	15	115	Mahogany	4	20	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted ROW	Commercial		Includes dead tree replacement	Low
376 377	12	21	Royal Palm	1	0	Visual consistency - continuation of row of same species	Medium (Palm)	Partially planted ROW	Commercial	Hellian Linna Alinna	(continue sience sleet)	Low Moderate
377	15 19	52 93	Cabbage Palm Cabbage Palm	14	10 10	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small (Palm) Small (Palm)	Partially planted ROW Partially planted ROW	Commercial Commercial	Utility Lines Above	(continue zigzag planting pattern) (continue zigzag planting pattern)	Moderate
379	19	75	Cabbage Palm	10	10	Visual consistency - continuaton of row of same species	Small (Palm)	Partially planted ROW	Commercial		(continue zigzag planting pattern)	Moderate
380	19	60	Cabbage Palm	9	10	Visual consistency - continuaton of row of same species	Small (Palm)	Partially planted ROW	Commercial		(continue zigzag planting pattern)	Moderate
381 382	17 18	54 54	Cabbage Palm Cabbage Palm	9	10 10	Visual consistency - continuaton of row of same species Visual consistency - continuaton of row of same species	Small (Palm) Small (Palm)	Partially planted ROW Partially planted ROW	Commercial Commercial		(continue zigzag planting pattern) (continue zigzag planting pattern)	Moderate Moderate
383	9	20	Mahogany	1	0	Visual consistency - continuation of row of same species Visual consistency - continuation of row of same species	Medium, Large	Partially planted ROW	Commercial		(Moderate
384	8	17	Mahogany	1	0	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted ROW	Commercial			Moderate
385 386	17	47 304	Mahogany Spanish Stopper	9	0	Visual consistency - continuaton of row of same species	Medium, Large Small	Partially planted ROW	Commercial Main Road			Moderate
385	6	304	Spanish Stopper Spanish Stopper	1	25 0	Narrow planting spaces Narrow planting spaces	Small	Partially planted median Empty Median	Commercial Main Road			High High
388	12	274	Spanish Stopper	9	30	Narrow planting spaces	Small	Partially planted median	Commercial Main Road			High
389	8	45	Spanish Stopper	3	15	Narrow planting spaces	Small Small (Palm)	Partially planted median	Commercial Main Road			High
390 391	7	131 23	Silver Palm Silver Palm	6	20 0	Small planting spaces adjacent to large royal palms Small planting spaces adjacent to large royal palms	Small (Palm) Small (Palm)	Empty ROW Empty ROW	Commercial Commercial			Moderate Moderate
392	7	27	Silver Palm	2	20	Small planting spaces adjacent to large royal paims Small planting spaces adjacent to large royal paims	Small (Palm)	Empty ROW	Commercial			Moderate
393	7	39	Silver Palm	2	20	Small planting spaces adjacent to large royal palms	Small (Palm)	Empty ROW	Commercial			Moderate
	7	38	Silver Palm	2	20	Small planting spaces adjacent to large royal palms	Small (Palm)	Empty ROIW	Commercial			Moderate
394	7	37	Silver Palm	2	20 20	Small planting spaces adjacent to large royal palms	Small (Palm) Small (Palm)	Empty ROW	Commercial Commercial			Moderate Moderate
395	7	39	Silver Palm	2		Small planting spaces adjacent to large royal naims						
395 396 397		39 39	Silver Palm Silver Palm	2	20	Small planting spaces adjacent to large royal palms Small planting spaces adjacent to large royal palms	Small (Palm)	Empty ROW Empty ROW	Commercial			Moderate
395 396	7											

Planting Space ID # ⁽¹⁾	Average Width (feet)	Approximate Length (feet) (2)	Recommended Replacement Species ⁽³⁾	Proposed Quantity	Approximate Spacing (feet) (4)	Approach for Recommended Replacements	Alternative Replacement Tree Options (by Category) (5)	Current Status of Area	Description of Area	Utilities Present?	Tree Planting Limitations ⁽⁶⁾	Replanting Priority
401	7	29	Silver Palm	1	0	Small planting spaces adjacent to large royal palms	Small (Palm)	Empty ROW	Commercial			Moderate
402	9	27	Silver Palm	1	0	Small planting spaces adjacent to large royal palms	Small (Palm)	Partially planted ROW	Commercial	Utility Lines Above		Moderate
403	11	253	Royal Palm	9	20	Narrow median	Medium (Palm)	Empty Median	Commercial Main Road			High
404	11	20	Yellow Poinciana	1	0	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted ROW	Commercial			Low
405	12	25	Yellow Poinciana	1	0	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted ROW	Commercial			Low
406	15	30	Yellow Poinciana	1	0	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted ROW	Commercial			Low
407	17	40	Mahogany	2	0	Dead Tree Replacement	Large	Partially planted ROW	Commercial			Replacement
408	9	175	Simpson's Stopper	10	15	Space for medium canopy tree	Medium	Partially planted ROW	Commercial	Utility Lines Above		Low
409 410	16 15	201 38	Simpson's Stopper	12	15	Space for medium canopy tree	Medium Small, Medium	Empty ROW	Commercial Commercial	Utility Lines Above		Low
		58 524	Orange Geiger	_	15	Visual consistency - continuation of row of same species	,	Partially planted ROW		Utility Lines Above		Moderate
411	15 11	60	Gumbo Limbo Gumbo Limbo	26 3	20 10	Space for medium canopy tree Space for medium canopy tree	Medium Medium	Partially planted ROW Empty ROW	Commercial Commercial			Moderate
412	15	44	Silver Buttonwood	2	20	Visual consistency - continuation of row of same species	Medium	Partially planted ROW	Commercial			Moderate
414	15	60	Cabbage Palm	2	10	Consistent with trees in area	Small (Palm)	Empty ROW	Commercial			Moderate
414	9	29	Christmas Palm	2	10	Visual consistency - continuaton of row of same species	Small (Palm)	Used for parking	Commercial		Excessive soil compaction- mostly gravel	Low
416	9	37	Christmas Palm	2	10	Visual consistency - continuation of row of same species Visual consistency - continuation of row of same species	Small (Palm)	Used for parking	Commercial		Excessive soil compaction- mostly gravel	Low
417	10	23	Christmas Palm	1	0	Visual consistency - continuation of row of same species Visual consistency - continuation of row of same species	Small (Palm)	Used for parking	Commercial		Excessive soil compaction- mostly gravel	Low
418	11	42	Christmas Palm	2	15	Visual consistency - continuation of row of same species	Small (Palm)	Used for parking	Commercial		Excessive soil compaction- mostly gravel	Low
419	11	72	Christmas Palm	3	15	Visual consistency - continuation of row of same species Visual consistency - continuation of row of same species	Small (Palm)	Used for parking	Commercial	Utility Lines Above	Excessive soil compaction- mostly gravel	Low
420	10	28	Live Oak	1	0	Visual consistency - continuation of row of same species Visual consistency - continuation of row of same species	Medium, Large	Partially planted ROW	Commercial	Othicy Lines Above	Excessive soil compaction- mostly graver	Low
421	11	107	Wild Tamarind	4	20	Space for medium canopy tree	Medium	Empty ROW	Commercial			Low
422	10	285	Wild Tamarind	3	60	Visual consistency - continuation of row of same species	Medium	Partially planted ROW	Commercial			Low
423	10	35	Wild Tamarind	1	0	Visual consistency - continuation of row of same species	Medium	Partially planted ROW	Commercial			Low
424	8	107	Fiddlewood	3	25	Space for medium canopy tree	Medium	Empty ROW	Commercial			Low
425	9	151	Mahogany	3	40	Visual consistency - continuation of row of same species	Medium, Large	Partially planted ROW	Commercial			Low
426	10	60	Fiddlewood	3	15	Space for medium canopy tree	Medium	Empty ROW	Commercial			Moderate
427	17	120	Fiddlewood	5	20	Space for medium canopy tree	Medium	Empty ROW	Commercial			Moderate
428	15	25	Fiddlewood	1	0	Space for medium canopy tree	Medium	Partially planted ROW	Commercial			Moderate
429	17	203	Fiddlewood	8	20	Space for medium canopy tree	Medium	Empty ROW	Commercial			Moderate
430	19	82	Fiddlewood	3	20	Space for medium canopy tree	Medium	Empty ROW	Commercial			Moderate
431	30	52	Spanish Stopper	1	0	Small planting space with overhead utility lines	Small	Used for parking	Commercial	Utility Lines Above	Soil compaction present	Low
432	8	238	Live Oak	10	20	Visual consistency - continuation of row of same species	Medium, Large	Empty ROW	Commercial	,,		Low
433	19	109	Fiddlewood	4	20	Space for medium canopy tree	Medium	Empty ROW	Commercial	Utility Lines Above		Moderate
434	5	211	Spanish Stopper	11	15	Narrow median	Small	Partially planted median	Commercial Main Road	,		High
435	5	196	Spanish Stopper	8	20	Narrow median	Small	Partially planted median	Commercial Main Road			High
436	17	99	Crepe Myrtle	5	20	Visual consistency - continuaton of row of same species	Small	Partially planted ROW	Commercial			Moderate
437	15	139	Cabbage Palm	7	15	Visual consistency - continuaton of row of same species	Small (Palm)	Partially planted median	Commercial Main Road			High
438	25	44	Mahogany	1	0	Visual consistency - continuaton of row of same species	Medium, Large	Partially planted median	Commercial Main Road			High
439	21	50	Cabbage Palm	4	5	Visual consistency - continuaton of row of same species	Small (Palm)	Partially planted median	Commercial Main Road			High
440	21	23	Cabbage Palm	1	0	Visual consistency - continuaton of row of same species	Small (Palm)	Partially planted median	Commercial Main Road			High
441	21	123	Orange Geiger	4	20	Spaces in median for medium sized trees	Medium	Partially planted median	Commercial Main Road			High
442	20	105	Orange Geiger	3	25	Spaces in median for medium sized trees	Medium	Partially planted median	Commercial Main Road			High
443	9	91	Orange Geiger	6	10	Spaces in median for medium sized trees	Medium	Partially planted ROW	Commercial Main Road			High
444	10	96	Pigeon Plum	4	15	Space for Small, Medium canopy tree	Small, Medium	Partially planted ROW	Commercial			Moderate
445	20	266	Pigeon Plum	11	20	Space for Small, Medium canopy tree	Small, Medium	Partially planted ROW	Commercial	Utility Lines Above		Moderate
446	13	121	Japanese Privet	4	20	Limted space due to overhead powerlines	Small	Partially planted ROW	Commercial	Utility Lines Above		Moderate
447	11	23	Mahogany	1	0	Dead Tree Replacement	Medium, Large	Partially planted ROW	Commercial			Moderate
448	8	185	Japanese Privet	8	20	Limted space due to overhead powerlines	Small	Empty ROW	Commercial	Utility Lines Above		Moderate
449	18	80	Bridalveil Tree	2	20	Space for medium canopy tree	Medium	Empty ROW	Commercial	Utility Lines Adjacent		Moderate
450	19	60	Bridalveil Tree	2	20	Space for medium canopy tree	Medium	Empty ROW	Commercial			Moderate
451	18	62	Bridalveil Tree	2	20	Space for medium canopy tree	Medium	Empty ROW	Commercial			Moderate
1000	15	35	Gumbo Limbo	1	0	Single dead gumbo limbo was removed, replace in kind	Medium, Large	Partially planted ROW	Commercial			Moderate
1001	13	18	Spindle Palm	4	10	Add four palms to fill open space	Small (Palm)	Park	Government Center	Utility Lines Above		High
1002	9	22	Live Oak	1	0	Replace one removed yellow poinciana	Large	Partially planted ROW	Residential Main Road			High
1003	60	22	Live Oak	1	0	Replace one removed yellow poinciana	Large	Partially planted ROW	Residential Main Road			High
1004	10	31	Live Oak	1	0	Replace one removed live oak	Large	Partially planted ROW	Residential Main Road			High
1005	9	21	Wild Tamarind	1	0	Replace one removbed wild tamarind	Large	Partially planted ROW	Government Center			High
1006	9	35	Crepe Myrtle	2	20	Replace two removed Crepe Myrtle, keep consistent row	Small	Partially planted ROW	Commercial			Moderate
1007	12	52	Gumbo Limbo	2	20	Replace two removed gumbo limbo, keep consistent row	Medium, Large	Partially planted ROW	Commercial			Moderate
1008	13	14	Live Oak	1	0	Replace one removed live oak	Large	Partially planted ROW	Residential			Moderate

- 1. Tree planting spaces with numbers in the thousands were generated from a separate review of dead or critical trees that were removed but not replaced, thereby generating candiate planting areas.

 2. Please note that, in many instances where planting spaces were open and displayed no existing trees, the proposed tree species was selected arbitrarily from the list of preferred species of the appropriate size class. For example, wild tamarind (Lysiloma latisiliquum), a desirable, native, large canopy species, is recommended in many cases where open strips are available for new trees. This species is interchangeable with any of the recommended (green highlighted) large or medium canopy trees from the proposed species list (provided separately).

 3. The planting space dimensions, approximate spacing, and presence of utilities/infrastructure were considered when determining the appropriate number of trees per planting space.

 4. Based on the spacing of existing trees at different size classes.

 5. For each of the recommended replacement species, alternative species options are listed based on size class. A complete table of proposed species is included as a separate attachment.

 6. Plant installation "limitations" (e.g. soil compaction) were identified for certain planting spaces that may require remediation efforts prior to plant installation.

Table 2 - Dead and Critical Tree List with Recommended Replacements

Tree	Original						Existing Tree Data				Proposed Tree Data		
Number	Inventory Number	Tree Species	Scientific Name	Esisting Condition	DBH Class	Multi Trunk?	Utilities? Observation 1	Observation 2	Observation 3	Approach	Proposed Tree	Scientific Name	Alternative Tree Size
1	6236	Sylvester Date Palm	Phoenix sylvestris	Dead - 0%	10-15"	No				Replace in kind (consider native species)	Sylvester Date Palm	Phoenix sylvestris	Small (Palm)
3	6829 6918	Live Oak Royal Palm	Quercus virginiana Roystonea regia	Dead - 0% Dead - 0%	0-5" 15-20"	No No	Dead Wood Utility Lines Adjacent Dead Meristem			Replace in kind Replace in kind	Live Oak Royal Palm	Quercus virginiana Rovstonea regia	Large Medium
4	6926	Royal Palm	Roystonea regia	Dead - 0%	15-20"	No	Dead Meristem			Replace in kind	Royal Palm	Roystonea regia	Medium
5	7090 7735	Live Oak Royal Palm	Quercus virginiana Roystonea regia	Dead - 0% Dead - 0%	5-10" 15-20"	No No	Dead Meristem			Replace in kind Replace in kind	Live Oak Royal Palm	Quercus virginiana Roystonea regia	Large Medium
7	8211	Pink Tabebuia	Tabebuia heterophylla	Critical - 20%	15-20"	No	Crown Density - Very Low	Conks on Trunk	Dead Wood	Replace with wind resistant species	Live Oak	Quercus virginiana	Large
8	8214 8330	Live Oak Mahogany	Quercus virginiana Swietenia mahagoni	Critical - 20% Dead - 0%	15-20" 10-15"	No No	Apical Dieback Sloughing Bark	Dead Wood Dead Wood	Conks on Limb	Repalce in kind Replace in kind	Live Oak Mahogany	Quercus virginiana Swietenia mahagoni	Large Large
10	8492	Chinese Tallow	Triadica sebifera	Critical - 20%	10-15"	No	Trunk Damage - Major	Constricted Roots	Dead Wood	Replace with wind resistant species	Orange Geiger	Cordia sebestena	Medium
11	8500 8574	Mahogany Unidentified Dead Tree	Swietenia mahagoni #N/A	Dead - 0% Dead - 0%	5-10" 20-30"	No No	Dead Wood Dead Wood	Decay Observed Disease	Sloughing Bark	Replace in kind Replace with large native species	Mahogany Live Oak	Swietenia mahagoni Quercus virginiana	Large Large
13	8678	Glaucous Cassia	Cassia surattensis	Critical - 20%	5-10"	No	Trunk Damage - Major	Decay Observed	Sloughing Bark	Replace with wind resistant species	Simpson's Stopper	Myrcianthes fragrans	Medium
14 15	8881 8917	Royal Palm Laurel Oak	Roystonea regia Quercus laurifolia	Dead - 0% Critical - 20%	15-20" 10-15"	No No	Dead Meristem Girdling Roots	Conks on Trunk	Dead Wood	Replace in kind Replace with wind resistant species	Royal Palm Live Oak	Roystonea regia Quercus virginiana	Medium Large
16	9189	Live Oak	Quercus virginiana	Critical - 20%	0-5"	No	Improperly Mulched	Crown Density - Very Low	Sprouting	Replace in kind	Live Oak	Quercus virginiana	Large
17 18	9202 9324	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Dead - 0% Dead - 0%	0-5" 15-20"	No No	Improperly Mulched Sloughing Bark	Dead Wood Dead Wood	Sloughing Bark	Replace in kind Replace in kind	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Large Large
19 20	9379	Cabbage Palm	Sabal palmetto	Dead - 0%	15-20"	No No	Reduced Canopy - Major			In kind replacement	Cabbage Palm	Sabal palmetto	Small (Palm)
20	9433 9552	Cabbage Palm Cabbage Palm	Sabal palmetto Sabal palmetto	Dead - 0% Dead - 0%	10-15" 10-15"	No	Reduced Canopy - Major Reduced Canopy - Major			In kind replacement In kind replacement	Cabbage Palm Cabbage Palm	Sabal palmetto Sabal palmetto	Small (Palm) Small (Palm)
22	9558	Cabbage Palm	Sabal palmetto	Dead - 0%	10-15"	No	Reduced Canopy - Major			In kind replacement	Cabbage Palm	Sabal palmetto	Small (Palm)
24	9562 9820	Cabbage Palm Cabbage Palm	Sabal palmetto Sabal palmetto	Dead - 0% Dead - 0%	15-20" 15-20"	No No	Reduced Canopy - Major Reduced Canopy - Major			In kind replacement In kind replacement	Cabbage Palm Cabbage Palm	Sabal palmetto Sabal palmetto	Small (Palm) Small (Palm)
25	10385	Cabbage Palm	Sabal palmetto	Dead - 0%	10-15"	No	Reduced Canopy - Transplant Purning			Replace in kind	Cabbage Palm	Sabal palmetto	Small (Palm)
26 27	10449 10572	Cabbage Palm Washington Palm	Sabal palmetto Washingtonia robusta	Dead - 0% Dead - 0%	10-15" 15-20"	No No	Reduced Canopy - Transplant Purning			Replace in kind Replace in kind for continunity (consider native)	Cabbage Palm Washington Palm	Sabal palmetto Washingtonia robusta	Small (Palm) Medium (Palm)
28	10574	Washington Palm	Washingtonia robusta	Dead - 0%	15-20"	No				Replace in kind for continunity (consider native)	Washington Palm	Washingtonia robusta	Medium (Palm)
29 30	10583 10590	Washington Palm Glaucous Cassia	Washingtonia robusta Cassia surattensis	Dead - 0% Critical - 20%	10-15" 5-10"	No No	Decay Observed	Sloughing Bark	Crown Density - Very Low	Replace in kind for continunity (consider native) Replace with wind resistant species	Washington Palm Japanese Privet	Washingtonia robusta Ligustrum japonicum	Medium (Palm) Small
31	10598 10605	Washington Palm	Washingtonia robusta	Dead - 0%	10-15"	No No				Replace in kind for continunity (consider native)	Washington Palm	Washingtonia robusta	Medium (Palm)
32 33	10605	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0% Dead - 0%	10-15" 15-20"	No No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm) Medium (Palm)
34 35	10624 10625	Washington Palm	Washingtonia robusta	Dead - 0% Dead - 0%	15-20" 15-20"	No No				Replace in kind for continunity (consider native)	Washington Palm	Washingtonia robusta	Medium (Palm)
36	10625	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0% Dead - 0%	15-20"	No No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm) Medium (Palm)
37 38	10645 10685	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0% Dead - 0%	20-30" 15-20"	No No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm Washington Palm	Washingtonia robusta	Medium (Palm) Medium (Palm)
39	10686	Washington Palm Washington Palm	Washingtonia robusta	Dead - 0%	15-20"	No				Replace in kind for continuity (consider native)	Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm)
40 41	10691 10695	Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0% Dead - 0%	15-20" 15-20"	No No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm Washington Palm	Washingtonia robusta	Medium (Palm) Medium (Palm)
42	10693	Washington Palm Washington Palm	Washingtonia robusta	Dead - 0%	15-20"	No				Replace in kind for continuity (consider native)	Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm)
43	10712 10714	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0% Dead - 0%	15-20" 15-20"	No No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm) Medium (Palm)
45	10714	Washington Palm	Washingtonia robusta	Dead - 0%	15-20"	No				Replace in kind for continuity (consider native)	Washington Palm	Washingtonia robusta	Medium (Palm)
46 47	10717 10718	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0% Dead - 0%	15-20" 15-20"	No No				Replace in kind for continunity (consider native)	Washington Palm	Washingtonia robusta	Medium (Palm) Medium (Palm)
48	10718	Washington Palm Washington Palm	Washingtonia robusta	Dead - 0%	15-20"	No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm)
49 50	10721 10722	Washington Palm Washington Palm	Washingtonia robusta	Dead - 0%	15-20" 15-20"	No No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm Washington Palm	Washingtonia robusta	Medium (Palm) Medium (Palm)
51	10725	Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0%	15-20"	No				Replace in kind for continuity (consider native)	Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm)
52 53	10809 10810	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0% Dead - 0%	15-20" 15-20"	No No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm) Medium (Palm)
54	10811	Washington Palm	Washingtonia robusta	Dead - 0%	15-20"	No				Replace in kind for continuity (consider native)	Washington Palm	Washingtonia robusta	Medium (Palm)
55 56	10812 10814	Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0% Dead - 0%	10-15" 15-20"	No No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm) Medium (Palm)
57	10815	Washington Palm Washington Palm	Washingtonia robusta	Dead - 0%	15-20"	No				Replace in kind for continuity (consider native)	Washington Palm Washington Palm	Washingtonia robusta	Medium (Palm)
58 59	10818 10822	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Dead - 0% Dead - 0%	15-20" 15-20"	No No				Replace in kind for continunity (consider native) Replace in kind for continunity (consider native)	Washington Palm Washington Palm	Washingtonia robusta Washingtonia robusta	Medium (Palm) Medium (Palm)
60	10848	Washington Palm	Washingtonia robusta	Dead - 0%	15-20"	No				Replace in kind for continunity (consider native)	Washington Palm	Washingtonia robusta	Medium (Palm)
61	10850 11064	Washington Palm Green Buttonwood	Washingtonia robusta Conocarpus erectus	Dead - 0% Dead - 0%	15-20" 10-15"	No No				Replace in kind for continunity (consider native) Replace in kind	Washington Palm Green Buttonwood	Washingtonia robusta Conocarpus erectus	Medium (Palm) Medium
63	11396	Bald Cypress	Taxodium distichum	Dead - 0%	0-5"	No				Replace in kind	Bald Cypress	Taxodium distichum	Medium
64	11462 11463	Pink Cassia Pink Cassia	Cassia javanica Cassia javanica	Critical - 20% Critical - 20%	5-10" 5-10"	No No	Crown Density - Very Low Strap Constricting Tree	Sloughing Bark Reduced Canopy - Major	Dead Wood Crown Density - Low	Replace with wind resistant species Replace with wind resistant species	Bridalveil Bridalveil	Caesalpinia granadillo Caesalpinia granadillo	Medium Medium
66	11465	Pink Cassia	Cassia javanica	Critical - 20%	5-10"	No	Trunk Damage - Major	Decay Observed	Crown Density - Moderate	Replace with wind resistant species	Bridalveil	Caesalpinia granadillo	Medium
67 68	11490 11491	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Critical - 20% Dead - 0%	0-5"	No No	Crown Density - Very Low Crown Density - Very Low	Dead Wood Dead Wood	Improperly Mulched Improperly Mulched	Replace in kind Replace in kind	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Large Large
69	11492	Live Oak	Quercus virginiana	Critical - 20%	5-10"	No	Uprooted - Mostly	Girdling Roots	Crown Density - Excessive (Due to Epicormic Growth)	Replace in kind	Live Oak	Quercus virginiana	Large
70 71	11825 11943	Gumbo Limbo Cabbage Palm	Bursera simaruba Sabal palmetto	Critical - 20% Dead - 0%	5-10" 10-15"	No No	Trunk Damage - Major	Topped	Crown Density - Very Low	Replace in kind Replace in kind	Gumbo Limbo Cabbage Palm	Bursera simaruba Sabal palmetto	Large Small
72	11997	Gumbo Limbo	Bursera simaruba	Critical - 20%	0-5"	No No	Improperly Mulched	Crown Density - Very Low	Dead Wood	Replace in kind	Gumbo Limbo	Bursera simaruba	Large
73 74	12109 12113	Coconut Palm Jacaranda	Cocos nucifera Jacaranda mimosifolia	Dead - 0% Dead - 0%	5-10" 5-10"	No No	Disease Decay Observed	Dead Wood			Park Under Redesign Park Under Redesign		_
75	12280	Unidentified Dead Tree (Defoliated)	#N/A	Dead - 0%	5-10"	No					Park Under Redesign		
76 77	12317 12328	Tamarind Live Oak	Tamarindus indica Quercus virginiana	Dead - 0% Dead - 0%	5-10" 5-10"	No No	Conks on Trunk Improperly Mulched	Crown Density - Very Low			Park Under Redesign Park Under Redesign		
78	12463	Japanese Privet	Ligustrum japonicum	Critical - 20%	5-10"	No	Reduced Canopy - Moderate	Epicormic Growth	Disease		Park Under Redesign		
79 80	12495 12609	Washington Palm Live Oak	Washingtonia robusta Quercus virginiana	Dead - 0% Dead - 0%	10-15" 5-10"	No No					Park Under Redesign Park Under Redesign		
81	41	Bismark Palm	Bismarckia nobilis	Critical - 20%	10-15"	No No	Trunk Damage - Major	T 1T 1	D. IM.:	Repalce in kind	Bismark Palm	Bismarkia nobillis	Medium
82 83	145 282	Royal Palm Bismark Palm	Roystonea regia Bismarckia nobilis	Critical - 20% Critical - 20%	20-30" 15-20"	No No	Reduced Canopy - Major Reduced Canopy - Major	Tapered Trunk Dead Meristem	Dead Meristem	Replace in kind Replace in kind	Royal Palm Bismark Palm	Roystonea regia Bismarkia nobillis	Large Medium
84 85	356 357	Japanese Fern Tree Japanese Fern Tree	Filicium decipiens Filicium decipiens	Critical - 20% Critical - 20%	5-10" 5-10"	No No	Reduced Canopy - Major Reduced Canopy - Major			Replace with native species Replace with native species	Fiddlewood Fiddlewood	Citharexylum spinosum	Medium Medium
86	441	Mahogany	Swietenia mahagoni	Critical - 20%	0-5"	No	Insect Damage - Leaves	Improperly Mulched	Crown Density - Very Low	In kind replacement	Mahogany	Citharexylum spinosum Swietenia mahagoni	Large
87 88	562 786	Mahogany Yellow Tabebuia	Swietenia mahagoni Tabebuia caraiba	Critical - 20% Critical - 20%	10-15" 0-5"	No No	Crown Density - Very Low Utility Lines Above Uprooted - Partially	Limb Damage - Major Crown Density - Very Low	Epicormic Growth	In kind replacement Replace with wind resistant species	Mahogany Live oak	Swietenia mahagoni	Large Large
89	835	Foxtail Palm	Wodyetia bifurcata	Critical - 20%	5-10"	No	Nutrient Deficiency	Nutrient Deficiency	Cracks in Trunk	Replace in kind for consistency with area	Foxtail Palm	Quercus virginiana Wodyetia bifurcata	Small (Palm)
90 91	836 867	Foxtail Palm Royal Poinciana	Wodyetia bifurcata Delonix regia	Critical - 20% Critical - 20%	5-10" 5-10"	No No	Nutrient Deficiency Reduced Canopy - Major	Nutrient Deficiency	Cracks in Trunk	Replace in kind for consistency with area Replace with wind resistant species	Foxtail Palm Live Oak	Wodyetia bifurcata Quercus virginiana	Small (Palm) Large
92	868	Royal Poinciana	Delonix regia	Critical - 20%	5-10"	No	Reduced Canopy - Major			Replace with wind resistant species	Live Oak	Quercus virginiana	Large
93 94	878 879	Green Buttonwood Mahogany	Conocarpus erectus Swietenia mahagoni	Critical - 20% Critical - 20%	10-15" 10-15"	No No	Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major		Replace with wind resistant species Replace in kind	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
95	882	Mahogany	Swietenia mahagoni	Critical - 20%	5-10"	No	Reduced Canopy - Major	Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
96 97	905 957	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Critical - 20% Critical - 20%	10-15" 5-10"	No No	Reduced Canopy - Major Reduced Canopy - Major			Replace in kind Replace in kind	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
98	967	Mahogany	Swietenia mahagoni	Critical - 20%	5-10"	No	Trunk Damage - Major	Reduced Canopy - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
99 100	1003 1171	Live Oak Royal Palm	Quercus virginiana Roystonea regia	Critical - 20% Critical - 20%	0-5" 20-30"	No No	Reduced Canopy - Major Nutrient Deficiency	Sloughing Bark Crown Density - Very Low	Loose Trunk Cracks in Trunk	Replace in kind Replace in kind	Live Oak Royal Palm	Quercus virginiana Roystonea regia	Large Large
		·y	,	20/0									

Table 2 - Dead and Critical Tree List with Recommended Replacements

Tree Original						Existing Tree Data					Proposed Tree Data		
Number Inventory Number	Tree Species	Scientific Name	Esisting Condition	DBH Class	Multi Trunk?	Utilities?	Observation 1	Observation 2	Observation 3	Approach	Proposed Tree	Scientific Name	Alternative Tree Size
101 1516	Live Oak	Quercus virginiana	Critical - 20%	5-10"	No		Reduced Canopy - Major	Improperly Mulched		Replace in kind	Live Oak	Quercus virginiana	Large
102 1532 103 1590	Royal Palm Gumbo Limbo	Roystonea regia Bursera simaruba	Critical - 20% Critical - 20%	15-20" 5-10"	No No		Dead Meristem Reduced Canopy - Major	Reduced Canopy - Major Trunk Damage - Major		Replace in kind Replace in kind	Royal Palm Gumbo Limbo	Roystonea regia Bursera simaruba	Medium Large
104 1591	Gumbo Limbo	Bursera simaruba	Critical - 20%	5-10"	No		Reduced Canopy - Major	Trunk Damage - Major	Decay Observed	Replace in kind	Gumbo Limbo	Bursera simaruba	Large
105 1634 106 1669	Gumbo Limbo Gumbo Limbo	Bursera simaruba Bursera simaruba	Critical - 20% Critical - 20%	5-10" 10-15"	No No		Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major		Replace in kind Replace in kind	Gumbo Limbo Gumbo Limbo	Bursera simaruba Bursera simaruba	Large Large
107 1671	Gumbo Limbo	Bursera simaruba	Critical - 20%	5-10"	No		Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Gumbo Limbo	Bursera simaruba	Large
108 1682 109 1752	Mahogany	Swietenia mahagoni	Critical - 20%	10-15" 15-20"	No No		Reduced Canopy - Major	Stubs with Dead Wood	Circlina/Constriction Boots	Replace in kind	Mahogany	Swietenia mahagoni	Large
109 1752 110 1754	Royal Poinciana Royal Poinciana	Delonix regia Delonix regia	Critical - 20% Critical - 20%	10-15"	No		Crown Density - Very Low Reduced Canopy - Major	Crown Density - Very Low	Circling/ Constricting Roots Decay Observed	Replace with wind resistant species Replace with wind resistant species	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Large Large
111 1755	Live Oak	Quercus virginiana	Critical - 20%	0-5"	No		Crown Density - Very Low	D IW I		Replace in kind	Live Oak	Quercus virginiana	Large
112 1759 113 1764	Royal Poinciana Royal Poinciana	Delonix regia Delonix regia	Critical - 20% Critical - 20%	15-20" 20-30"	No No		Crown Density - Very Low Reduced Canopy - Major	Dead Wood Limb Damage - Major	Decay Observed	Replace with wind resistant species Replace with wind resistant species	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Large Large
114 1776	Royal Poinciana	Delonix regia	Critical - 20%	5-10"	No		Reduced Canopy - Major		•	Replace with wind resistant species	Live Oak	Quercus virginiana	Large
115 1779 116 1781	Royal Poinciana Royal Poinciana	Delonix regia Delonix regia	Critical - 20% Critical - 20%	5-10" 5-10"	No No		Reduced Canopy - Major Reduced Canopy - Major	Decay Observed		Replace with wind resistant species Replace with wind resistant species	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Large Large
117 1789	Royal Poinciana	Delonix regia	Critical - 20%	10-15"	No		Reduced Canopy - Major	·		Replace with wind resistant species	Live Oak	Quercus virginiana	Large
118 1792 119 1793	Royal Poinciana Royal Poinciana	Delonix regia Delonix regia	Critical - 20% Critical - 20%	15-20" 15-20"	No No		Reduced Canopy - Major Reduced Canopy - Major	Decay Observed Dead Wood		Replace with wind resistant species Replace with wind resistant species	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Large Large
120 1812	Royal Poinciana	Delonix regia	Critical - 20%	5-10"	No		Reduced Canopy - Major	Dead Wood		Replace with wind resistant species	Live Oak	Quercus virginiana	Large
121 1817 122 1831	Royal Poinciana Royal Poinciana	Delonix regia Delonix regia	Critical - 20% Critical - 20%	10-15" 15-20"	No No		Reduced Canopy - Major Trunk Damage - Major	Trunk Damage - Major Decay Observed		Replace with wind resistant species Replace with wind resistant species	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Large Large
123 1833	Mahogany	Swietenia mahagoni	Critical - 20%	0-5"	No		Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Live Oak	Quercus virginiana	Large
124 1841 125 1843	Yellow Poinciana Jacaranda	Peltophorum pterocarpum Jacaranda mimosifolia	Critical - 20% Critical - 20%	15-20" 10-15"	No No		Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major		Replace with wind resistant species Replace with wind resistant species	Live Oak Live Oak	Quercus virginiana	Large
126 1882	Mahogany	Swietenia mahagoni	Critical - 20%	15-20"	No		Reduced Canopy - Major	Trunk Damage - Major Limb Damage - Major		Replace in kind	Mahogany	Quercus virginiana Swietenia mahagoni	Large Large
127 1901	Mahogany	Swietenia mahagoni	Critical - 20%	10-15"	No		Reduced Canopy - Major	Limb Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
128 1914 129 1944	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Critical - 20% Critical - 20%	5-10" 10-15"	No No		Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major		Replace in kind Replace in kind	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
130 1950	Mahogany	Swietenia mahagoni	Critical - 20%	10-15"	No		Reduced Canopy - Major	Limb Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
131 1979 132 2207	Queen Crepe Myrtle Glaucous Cassia	Lagerstroemia speciosa Cassia surattensis	Critical - 20% Critical - 20%	0-5" 0-5"	No No		Crown Density - Very Low Crown Density - Very Low	Improperly Mulched Sloughing Bark		Replace with wind resistant species Replace with wind resistant species	Crepe Myrtle Simpson's Stopper	Lagerstroemia indica Myrcianthes fragrans	Small Medium
133 2231	Live Oak	Quercus virginiana	Critical - 20%	0-5"	No		Crown Density - Very Low	Epicormic Growth		Replace in kind	Live Oak	Quercus virginiana	Large
134 2234 135 2247	Mahogany Wild/Cuban Tamarind	Swietenia mahagoni Lysiloma latisiliquum	Critical - 20% Critical - 20%	5-10" 5-10"	No No		Trunk Damage - Major Reduced Canopy - Major	Decay Observed Trunk Damage - Major		Replace in kind Replace in kind	Mahogany Wild Tamarind	Swietenia mahagoni Lysiloma latisiliquum	Large Large
136 2248	Wild/Cuban Tamarind	Lysiloma latisiliquum	Critical - 20%	5-10"	No		Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major		Replace in kind	Wild Tamarind	Lysiloma latisiliquum	Large
137 2251 138 2261	Red Maple Wild/Cuban Tamarind	Acer rubrum Lysiloma latisiliquum	Critical - 20% Critical - 20%	10-15" 10-15"	No No		Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major		Replace with wind resistant species Replace in kind	Wild Tamarind Wild Tamarind	Lysiloma latisiliquum Lysiloma latisiliquum	Large Large
139 2266	Wild/Cuban Tamarind	Lysiloma latisiliquum	Critical - 20%	10-15"	No	Utility Lines Above	Reduced Canopy - Major	Limb Damage - Major		Replace in kind	Wild Tamarind	Lysiloma latisiliquum	Large
140 2269 141 2343	Wild/Cuban Tamarind	Lysiloma latisiliquum Swietenia mahagoni	Critical - 20% Critical - 20%	10-15" 5-10"	No No	Utility Line Conflict Utility Line Conflict	Trunk Damage - Major Reduced Canopy - Major	Decay Observed Trunk Damage - Major	Leaning - Moderate	Replace in kind Replace in kind	Wild Tamarind Mahogany	Lysiloma latisiliquum	Large Large
142 2348	Mahogany Mahogany	Swietenia mahagoni	Critical - 20%	15-20"	No	Utility Line Conflict	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni Swietenia mahagoni	Large
143 2351 144 2391	Mahogany Wild/Cuban Tamarind	Swietenia mahagoni Lysiloma latisiliquum	Critical - 20% Critical - 20%	15-20" 15-20"	No No		Trunk Damage - Major Reduced Canopy - Major	Decay Observed Trunk Damage - Major		Replace in kind	Mahogany Wild Tamarind	Swietenia mahagoni	Large
145 2401	Wild/Cuban Tamarind	Lysiloma latisiliquum	Critical - 20%	10-15"	No		Trunk Damage - Major	Reduced Canopy - Major		Replace in kind Replace in kind	Wild Tamarind Wild Tamarind	Lysiloma latisiliquum Lysiloma latisiliquum	Large Large
146 2410	Brazilian Beauty Leaf Pink Tabebuia	Calophyllum brasiliense	Critical - 20% Critical - 20%	0-5" 0-5"	No No	Utility Line Conflict	Reduced Canopy - Major			Replace with native species	Wild Tamarind Wild Tamarind	Lysiloma latisiliquum	Large
147 2412 148 2513	Pink Tabebuia	Tabebuia heterophylla Tabebuia heterophylla	Critical - 20%	0-5"	No No		Reduced Canopy - Major Reduced Canopy - Major			Replace with wind resistnat species Replace with wind resistant species	Mahogany	Lysiloma latisiliquum Swietenia mahagoni	Large Large
149 2529	Cabbage Palm	Sabal palmetto	Dead - 0%	10-15"	No					Replace in kind	Cabbage Palm	Sabal Palmetto	Small (Palm)
150 2647 151 2648	Pink Tabebuia Pink Tabebuia	Tabebuia heterophylla Tabebuia heterophylla	Critical - 20% Critical - 20%	0-5" 0-5"	No No	Utility Lines Above	Reduced Canopy - Major Reduced Canopy - Major			Replace with wind resistant species Replace with wind resistant species	Live Oak Live Oak	Quercus virginiana Quercus virginiana	Large Large
152 2657	Mahogany	Swietenia mahagoni	Critical - 20%	10-15"	No	, i	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
153 2665 154 2807	Mahogany Brazilian Beauty Leaf	Swietenia mahagoni Calophyllum brasiliense	Critical - 20% Critical - 20%	10-15" 10-15"	No No		Trunk Damage - Major Trunk Damage - Major	Reduced Canopy - Major		Replace in kind Replace with native species	Mahogany Wild Tamarind	Swietenia mahagoni Lysiloma latisiliquum	Large Large
155 2846	Royal Poinciana	Delonix regia	Critical - 20%	10-15"	No		Reduced Canopy - Major	Trunk Damage - Major		Replace with wind resistant species	Mahogany	Swietenia mahagoni	Large
156 2847 157 2855	Royal Poinciana Mahogany	Delonix regia Swietenia mahagoni	Critical - 20% Critical - 20%	10-15" 5-10"	No No		Reduced Canopy - Moderate Reduced Canopy - Moderate	Trunk Damage - Major Trunk Damage - Major	Limb Damage - Major	Replace with wind resistant species Replace in kind	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
158 2857	Mahogany	Swietenia mahagoni	Critical - 20%	10-15"	No		Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
159 2863 160 2865	Satin Leaf Mahogany	Chrysophyllum oliviforme Swietenia mahagoni	Critical - 20% Critical - 20%	10-15" 10-15"	No No	Utility Lines Above	Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major		Replace in kind Replace in kind	Satin Leaf Mahogany	Chrysophyllum oliviforme Swietenia mahagoni	Large Large
161 2867	Satin Leaf	Chrysophyllum oliviforme	Critical - 20%	10-15"	No	Cunty Lines Above	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Satin Leaf	Chrysophyllum oliviforme	Large
162 2871 163 2882	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Critical - 20% Critical - 20%	10-15" 10-15"	No No		Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Limb Damage - Major		Replace in kind Replace in kind	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
164 2898	Pink Tabebuia	Tabebuia heterophylla	Critical - 20%	0-5"	No		Reduced Canopy - Major	Trunk Damage - Major		Replace with wind resistant species	Live Oak	Quercus virginiana	Large
165 2902 166 2903	Brazilian Beauty Leaf Brazilian Beauty Leaf	Calophyllum brasiliense Calophyllum brasiliense	Critical - 20% Critical - 20%	5-10" 5-10"	No No		Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major		Replace with native species Replace with native species	Live Oak Live Oak	Quercus virginiana	Large
167 2904	Pink Tabebuia	Tabebuia heterophylla	Critical - 20%	5-10"	No		Reduced Canopy - Major	Trunk Damage - Major		Replace with marve species Replace with wind resistant species	Live Oak	Quercus virginiana Quercus virginiana	Large Large
168 2905 169 2907	Brazilian Beauty Leaf	Calophyllum brasiliense	Critical - 20%	5-10"	No No		Reduced Canopy - Major	Trunk Damage - Major		Replace with native species	Live Oak	Quercus virginiana	Large
170 2931	Brazilian Beauty Leaf Mahogany	Calophyllum brasiliense Swietenia mahagoni	Critical - 20% Critical - 20%	5-10" 10-15"	No No		Reduced Canopy - Major Trunk Damage - Major	Trunk Damage - Major		Replace with native species Replace in kind	Live Oak Mahogany	Quercus virginiana Swietenia mahagoni	Large Large
171 2935	Mahogany	Swietenia mahagoni	Critical - 20%	10-15"	No No	Thelian Firms 41	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
172 2939 173 2946	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Critical - 20% Dead - 0%	10-15" 5-10"	No No	Utility Lines Above Utility Lines Above	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind Replace in kind	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
174 2947	Mahogany	Swietenia mahagoni	Critical - 20%	5-10"	No	Utility Lines Above	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
175 2948 176 2950	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Critical - 20% Critical - 20%	0-5" 5-10"	No No	Utility Line Conflict	Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major		Replace in kind Replace in kind	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
177 2967	Mahogany	Swietenia mahagoni	Critical - 20%	10-15"	No	Utility Lines Above	Reduced Canopy - Major	Limb Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
178 2968 179 2969	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Critical - 20% Critical - 20%	10-15" 5-10"	No No	Utility Line Conflict Utility Line Conflict	Reduced Canopy - Major Reduced Canopy - Major	Limb Damage - Major Trunk Damage - Major		Replace in kind Replace in kind	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
180 2971	Mahogany	Swietenia mahagoni	Critical - 20%	5-10"	No	Utility Line Conflict	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
181 2975 182 2984	Mahogany Pink Tabebuia	Swietenia mahagoni Tabebuia heterophylla	Critical - 20% Critical - 20%	5-10" 10-15"	No No		Reduced Canopy - Major Reduced Canopy - Major	Limb Damage - Major Trunk Damage - Major		Replace in kind Replace with wind resistant species	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
183 3116	Royal Palm	Roystonea regia	Critical - 20%	15-20"	No		Reduced Canopy - Major	Pencil Top		Replace in kind	Royal Palm	Roystonea regia	Large
184 3120 185 3124	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Critical - 20% Critical - 20%	20-30" 15-20"	No No		Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Limb Damage - Major		Replace in kind Replace in kind	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Large Large
186 3169	Cabbage Palm	Sabal palmetto	Critical - 20%	5-10"	No	Utility Lines Above	Trunk Damage - Major			Replace in kind	Cabbage Palm	Sabal Palmetto	Small (Palm)
187 3181 188 3221	Mahogany Weeping Fig	Swietenia mahagoni Ficus beniamina	Critical - 20% Critical - 20%	20-30" 30-40"	No No		Reduced Canopy - Major	Trunk Damage - Major Limb Damage - Major		Replace in kind Replace with wind resistant species	Mahogany Pigeon Plum	Swietenia mahagoni	Large Medium
188 3221 189 3235	Weeping Fig Java Plum	Syzygium cumini	Critical - 20% Critical - 20%	60+"	No No		Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major		Replace with wind resistant species Replace with wind resistant species	Pigeon Plum Pigeon Plum	Coccoloba diversifolia Coccoloba diversifolia	Medium
190 3241	Bottlebrush Silver Putternycod	Callistemon rigidus	Critical - 20%	10-15"	No No		Reduced Canopy - Major	Trunk Damage - Major	Decay Observed	Replace with wind resistant species	Pigeon Plum	Coccoloba diversifolia	Medium Medium
191 3242 192 3253	Silver Buttonwood Mahogany	Conocarpus erectus var. sericeus Swietenia mahagoni	Critical - 20% Critical - 20%	20-30" 15-20"	No No		Reduced Canopy - Major Trunk Damage - Major	Limb Damage - Major Decay Observed	Basal Co-Dominant	Replace with wind resistant species Replace in kind	Orange Geiger Mahogany	Cordia sebestena Swietenia mahagoni	Medium Large
193 3255	Mahogany	Swietenia mahagoni	Critical - 20%	15-20"	No	The transfer of the	Reduced Canopy - Major	Trunk Damage - Major	D C' '	Replace in kind	Mahogany	Swietenia mahagoni	Large
194 3257 195 3264	Mahogany Cabbage Palm	Swietenia mahagoni Sabal palmetto	Critical - 20% Critical - 20%	15-20" 5-10"	No No	Utility Line Conflict	Reduced Canopy - Major Trunk Damage - Major	Trunk Damage - Major	Decay Observed	Replace in kind Replace in kind	Mahogany Cabbage Palm	Swietenia mahagoni Sabal palmetto	Large Small (Palm)
196 3276	Mahogany	Swietenia mahagoni	Critical - 20%	20-30"	No	Utility Lines Above	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Mahogany	Thrinax radiata	Large
197 3277 198 3280	Mahogany Mahogany	Swietenia mahagoni Swietenia mahagoni	Critical - 20% Critical - 20%	15-20" 15-20"	No No	Utility Lines Above Utility Lines Above	Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major	Decay Observed	Replace in kind Replace in kind	Mahogany Mahogany	Thrinax radiata Thrinax radiata	Large Large
199 3281	Silver Buttonwood	Conocarpus erectus var. sericeus	Critical - 20%	10-15"	No		Uprooted - Partially	Reduced Canopy - Moderate	Stubs with Dead Wood	Replace with wind resistant species	Orange Geiger	Cordia sebestena	Medium
200 3284	Silver Buttonwood	Conocarpus erectus var. sericeus	Critical - 20%	5-10"	No		Reduced Canopy - Major	Limb Damage - Major		Replace with wind resistant species	Orange Geiger	Cordia sebestena	Medium

Table 2 - Dead and Critical Tree List with Recommended Replacements

Tree	Original						Existing Tree Data				Proposed Tree Data		
Number	Inventory	Tree Species	Scientific Name	Esisting Condition	DRH Class	Multi Trunk?	Utilities? Observation 1	Observation 2	Observation 3	Approach	Proposed Tree	Scientific Name	Alternative Tree Size
201	Number 3286	Silver Buttonwood	Conocarpus erectus var. sericeus	Critical - 20%	15-20"	No No	Reduced Canopy - Major	Limb Damage - Major	Observation 3	Replace with wind resistant species	Orange Geiger	Cordia sehestena	Medium
202	3288	Silver Buttonwood	Conocarpus erectus var. sericeus	Critical - 20%	0-5"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace with wind resistant species	Orange Geiger	Cordia sebestena	Medium
203	3292	Mahogany	Swietenia mahagoni	Critical - 20%	20-30"	No	Trunk Damage - Major	Decay Observed	Basal Co-Dominant	Replace in kind	Mahogany	Swietenia mahagoni	Large
204	3332	Weeping Fig	Ficus benjamina	Critical - 20%	30-40"	No	Reduced Canopy - Major	Limb Damage - Major		Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
205	3353	Weeping Fig	Ficus benjamina	Critical - 20%	20-30"	No	Reduced Canopy - Major	Trunk Damage - Major	Decay Observed	Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
206	3452	Live Oak	Quercus virginiana	Critical - 20%	5-10"	No	Reduced Canopy - Major	Sprouting		Replace in kind	Live Oak	Quercus virginiana	Large
207	3462 3464	Live Oak Live Oak	Quercus virginiana	Critical - 20% Critical - 20%	10-15" 15-20"	No No	Reduced Canopy - Major Reduced Canopy - Major	Stubs with Sprouts Utility Pruned		Replace in kind Replace in kind	Live Oak Live Oak	Quercus virginiana	Large
208	3465	Live Oak	Quercus virginiana Quercus virginiana	Critical - 20%	10-15"	No	Reduced Canopy - Major Reduced Canopy - Major	Utility Pruned		Replace in kind	Live Oak	Quercus virginiana Quercus virginiana	Large Large
210	3478	Live Oak	Quercus virginiana	Critical - 20%	5-10"	No	Crown Density - Very Low	Improperly Mulched		Replace in kind	Live Oak	Quercus virginiana	Large
211	3479	Mahogany	Swietenia mahagoni	Critical - 20%	10-15"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Live Oak	Quercus virginiana	Large
212	3481	Mahogany	Swietenia mahagoni	Critical - 20%	5-10"	No	Reduced Canopy - Major	Limb Damage - Major		Replace in kind	Live Oak	Quercus virginiana	Large
213	3525	Live Oak	Quercus virginiana	Critical - 20%	5-10"	No	Leaning - Moderate	Uprooted - Partially		Replace in kind	Live Oak	Quercus virginiana	Large
214	3610	Gumbo Limbo	Bursera simaruba	Critical - 20%	0-5"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Gumbo Limbo	Bursera simaruba	Large
215	3716 3717	Mahogany	Swietenia mahagoni	Critical - 20% Critical - 20%	10-15" 5-10"	No No	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
216	3723	Mahogany Live Oak	Swietenia mahagoni Quercus virginiana	Critical - 20%	0-5"	No	Trunk Damage - Major Uprooted - Mostly			Replace in kind Replace in kind	Mahogany Live Oak	Swietenia mahagoni Quercus virginiana	Large
218	3757	Live Oak	Quercus virginiana	Critical - 20%	0-5"	No	Reduced Canopy - Major	Limb Damage - Major		Replace in kind	Live Oak	Quercus virginiana	Large Large
219	3816	Pongam	Pongamia pinnata	Critical - 20%	10-15"	No	Reduced Canopy - Major	Dead Wood		Replace with wind resistant species	Live Oak	Quercus virginiana	Large
220	3880	Mahogany	Swietenia mahagoni	Critical - 20%	15-20"	No	Trunk Damage - Major	Reduced Canopy - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
221	3885	Mahogany	Swietenia mahagoni	Critical - 20%	10-15"	No	Reduced Canopy - Major	Limb Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
222	3928	Wild/Cuban Tamarind	Lysiloma latisiliquum	Critical - 20%	10-15"	No	Reduced Canopy - Major	Limb Damage - Major		Replace in kind	Wild Tamarind	Lysiloma latisiliquum	Large
223	3955 3988	Pink Tabebuia	Tabebuia heterophylla	Critical - 20% Critical - 20%	5-10" 10-15"	No No	Reduced Canopy - Major	Trunk Damage - Major		Replace with wind resistant species Replace in kind	Crepe Myrtle Live Oak	Lagerstroemia indica	Small
224	4000	Mahogany Royal Palm	Swietenia mahagoni Roystonea regia	Dead - 0%	15-20"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind Replace in kind	Royal Palm	Quercus virginiana Rovstonea regia	Large Medium
226	4043	Mahogany	Swietenia mahagoni	Critical - 20%	20-30"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
227	4087	Crepe Myrtle	Lagerstroemia indica	Critical - 20%	0-5"	No	Crown Density - Very Low	Trum Buringe Trujer		Replace in kind	Crepe Myrtle	Lagerstroemia indica	Small
228	4178	Green Buttonwood	Conocarpus erectus	Critical - 20%	10-15"	No	Reduced Canopy - Major			Replace with wind resistant species	Live Oak	Quercus virginiana	Large
229	4229	Silver Buttonwood	Conocarpus erectus var. sericeus	Critical - 20%	0-5"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
230	4230	Silver Buttonwood	Conocarpus erectus var. sericeus	Critical - 20%	0-5"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
231	4301	Black Olive	Bucida buceras	Critical - 20%	20-30"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace with more desirable native species	Gumbo Limbo	Bursera simaruba	Large
232	4302	Glaucous Cassia	Cassia surattensis	Critical - 20%	5-10"	No	Reduced Canopy - Major	Limb Damage - Major		Replace with wind resistant species	Gumbo Limbo	Bursera simaruba	Large
233	4304 4317	Mahogany Glaucous Cassia	Swietenia mahagoni Cassia surattensis	Critical - 20% Critical - 20%	15-20" 0-5"	No No	Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Leaning - Moderate	Trunk Damage - Major	Replace in kind Replace with wind resistant species	Mahogany Spanish Stopper	Swietenia mahagoni Eugenia foetida	Large Small
235	4317	Glaucous Cassia Glaucous Cassia	Cassia surattensis	Critical - 20%	0-5"	No	Reduced Canopy - Major	Leaning - Moderate	Trunk Damage - Major Trunk Damage - Major	Replace with wind resistant species Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
236	4345	Glaucous Cassia	Cassia surattensis	Critical - 20%	5-10"	No	Trunk Damage - Major			Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
237	4360	Glaucous Cassia	Cassia surattensis	Critical - 20%	0-5"	No	Reduced Canopy - Major	Limb Damage - Major	Leaning - Moderate	Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
238	4372	Mahogany	Swietenia mahagoni	Critical - 20%	15-20"	No	Reduced Canopy - Major	Limb Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
239	4374	Mahogany	Swietenia mahagoni	Critical - 20%	15-20"	No	Reduced Canopy - Major	Dead Wood		Replace in kind	Mahogany	Swietenia mahagoni	Large
240	4387	Glaucous Cassia	Cassia surattensis	Critical - 20%	0-5"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace with low growing, wind resistant species	Japanese Privet	Ligustrum japonicum	Small
241 242	4388 4389	Glaucous Cassia Glaucous Cassia	Cassia surattensis Cassia surattensis	Critical - 20% Critical - 20%	0-5"	No No	Reduced Canopy - Major Reduced Canopy - Major	Trunk Damage - Major Trunk Damage - Major		Replace with low growing, wind resistant species Replace with low growing, wind resistant species	Japanese Privet Japanese Privet	Ligustrum japonicum	Small Small
243	4390	Wild/Cuban Tamarind	Lysiloma latisiliquum	Critical - 20%	5-10"	No	Reduced Canopy - Major	Trunk Damage - Major		Replace in kind	Wild Tamarind	Ligustrum japonicum Lysiloma latisiliquum	Large
244	4433	Pongam	Pongamia pinnata	Critical - 20%	20-30"	No	Reduced Canopy - Major	Trunk Damage - Major	Decay Observed	Replace with wind resistant species	Orange Geiger	Cordia sebestena	Medium
245	4434	Mahogany	Swietenia mahagoni	Critical - 20%	15-20"	No	Reduced Canopy - Major	Trunk Damage - Major	•	Replace with smaller native species	Orange Geiger	Cordia sebestena	Medium
246	4443	Black Olive	Bucida buceras	Critical - 20%	10-15"	No	Reduced Canopy - Major	Utility Pruned		Replace with more desireable native species	Mahogany	Swietenia mahagoni	Large
247	4444	Black Olive	Bucida buceras	Critical - 20%	15-20"	No	Lopsided/Significantly Reduced Canopy	Utility Pruned		Replace with more desireable native species	Mahogany	Swietenia mahagoni	Large
248 249	4445	Black Olive	Bucida buceras	Critical - 20%	15-20" 15-20"	No No	Lopsided/Significantly Reduced Canopy	Utility Pruned		Replace with more desireable native species	Mahogany	Swietenia mahagoni	Large
249	4774 4970	Royal Palm Mahogany	Roystonea regia	Dead - 0% Critical - 20%	15-20" 5-10"	No No	Hat Racked	Reduced Canopy - Major		Replace in kind Replace in kind	Royal Palm Mahogany	Roystonea regia	Medium Large
251	5148	Live Oak	Quercus virginiana	Critical - 20%	0-5"	No	Reduced Canopy - Major	Discolored Foliage		Replace in kind	Live Oak	Swietenia mahagoni Quercus virginiana	Large
252	5156	Wild/Cuban Tamarind	Lysiloma latisiliquum	Critical - 20%	15-20"	No	Reduced Canopy - Major	Lopsided/Significantly Reduced Canopy	Decay Observed	Replace in kind	Crepe Myrtle	Lagerstroemia indica	Small
253	5186	Weeping Fig	Ficus benjamina	Critical - 20%	10-15"	No	Hat Racked	Recumbent	Uprooted - Mostly	Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
254	5188	Weeping Fig	Ficus benjamina	Critical - 20%	5-10"	No	Hat Racked	Broken Branches	Sprouting	Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
255	5189	Weeping Fig	Ficus benjamina	Critical - 20%	5-10"	No	Hat Racked	Reduced Canopy - Major	Sprouting	Replace with wind resistant species	Spanish Stopper	Eugenia foetida	Small
256	5260	Montgomery Palm	Veitchia montgomeryana	Critical - 20%	0-5"	No	Nutrient Deficiency	Reduced Canopy - Major		Replace in kind	Montgomery Palm	Veitchia montgomeryana	Medium (Palm)
257	5351	Paradise Tree	Simarouba glauca	Dead - 0%	5-10"	No No	H (1 D C)	T : M 1 .	C (L IP (Replace with small, native tree	Spanish Stopper	Eugenia foetida	Small
258 259	5356 5409	Mahogany Foxtail Palm	Swietenia mahagoni Wodvetia bifurcata	Critical - 20% Critical - 20%	15-20" 5-10"	No No	Uprooted - Partially Nutrient Deficiency	Leaning - Moderate Reduced Canopy - Major	Constricted Roots Cracks in Trunk	Replace in kind Replace with native species (less nutrient issues)	Mahogany Florida Thatch Palm	Swietenia mahagoni Thrinax radiata	Large Small (Palm)
260	5410	Foxtail Palm	Wodyetia bifurcata	Critical - 20%	5-10"	No No	Nutrient Deficiency Nutrient Deficiency	Reduced Canopy - Major Reduced Canopy - Major	Cracks in Trunk	Replace with native species (less nutrient issues)	Florida Thatch Palm	Thrinax radiata	Small (Palm)
261	5476	Royal Palm	Roystonea regia	Critical - 20%	10-15"	No	Reduced Canopy - Major	Dead Wood	Cracks in Frank	Replace in kind	Royal Palm	Roystonea regia	Large
262	5552	Paradise Tree	Simarouba glauca	Critical - 20%	10-15"	No	Reduced Canopy - Major	Trunk Damage - Major	Uprooted - Partially	Replace with wind resistant species	Wild Tamarind	Lysiloma latisiliquum	Medium
263	5576	Mahogany	Swietenia mahagoni	Critical - 20%	5-10"	No	Uprooted - Mostly	Limb Damage - Major	Lopsided/Significantly Reduced Canopy	Replace in kind	Mahogany	Swietenia mahagoni	Large
264	5584	Mahogany	Swietenia mahagoni	Critical - 20%	5-10"	No	Lopsided/Significantly Reduced Canopy	Limb Damage - Major		Replace in kind	Mahogany	Swietenia mahagoni	Large
265	5644	Royal Palm	Roystonea regia	Dead - 0%	15-20"	No				Replace in kind	Royal Palm	Roystonea regia	Medium
266	5756 5879	Mahogany	Swietenia mahagoni	Critical - 20%	0-5"	No No	Trunk Damage - Major	Reduced Canopy - Major		Repalce in kind	Mahogany	Swietenia mahagoni	Large
267 268	5879	Foxtail Palm Foxtail Palm	Wodyetia bifurcata Wodyetia bifurcata	Critical - 20% Critical - 20%	5-10" 0-5"	No No	Nutrient Deficiency Nutrient Deficiency	Reduced Canopy - Major Frizzled Fronds		Replace with native species (less nutrient issues) Replace with native species (less nutrient issues)	Florida Thatch Palm Florida Thatch Palm	Thrinax radiata Thrinax radiata	Small (Palm) Small (Palm)
269	5882	Foxtail Palm Foxtail Palm	Wodyetia bifurcata Wodyetia bifurcata	Critical - 20%	0-5"	No No	Nutrient Deficiency Nutrient Deficiency	Frizzled Fronds Frizzled Fronds		Replace with native species (less nutrient issues) Replace with native species (less nutrient issues)	Florida Thatch Palm	Thrinax radiata Thrinax radiata	Small (Palm)
270	5896	Bottlebrush	Callistemon rigidus	Critical - 20%	5-10"	No	Hat Racked	Sloughing Bark	Reduced Canopy - Major	Replace with wind resistant species	Pigeon Plum	Coccoloba diversifolia	Medium
271	5897	Earleaf Acacia	Acacia auriculiformis	Critical - 20%	20-30"	No	Hat Racked	Sloughing Bark	Reduced Canopy - Major	Replace with wind resistant species	Live Oak	Quercus virginiana	Large

APPENDIX C Tree Installation Species Options

Table 3 - Tree Installation Species Options

Small Tree Options

	Species	Max Height	Max Spread	Native?	Wind Resistance	Drought	Commercial Availability	Other Notes
Common Name	Scientific Name	(feet)	(feet)	ivatives	willu kesistalice	Tolerance	Commercial Availability	Other Notes
Cabbage Palm	Sabal palmetto	50	15	Yes	High	High	Widely Available	
Christmas Palm	Adonidia merrillii	25	8	No	High	High	Widely Available	
Crepe Myrtle	Lagerstroemia indica	30	25	No	High	High	Widely Available	
Florida Thatch Palm	Thrinax radiata	20	10	Yes	High	High	Widely Available	
Foxtail Palm	Wodyetia bifurcata	30	20	No	High	High	Widely Available	Does not thrive in south Florida soils (typically nutrient deficient)
Japanese Privet	Ligustrum japonicum	12	25	No	High	Moderate	Widely Available	
Pygmy Date Palm	Phoenix roebelenii	12	8	No	High	High	Widely Available	
Silver Palm	Coccothrinax argentata	20	10	Yes	High	High	Widely Available	Slow growing
Spanish stopper	Eugenia foetida	20	15	Yes	High	High	Widely Available	Good for small planting spaces
Spindle Palm	Hyophorbe verschaffeltii	20	20	No	Moderate	High	Widely Available	Does not thrive in south Florida soils (typically nutrient deficient)
Sweet Acacia	Vachellia farnesiana	25	10	Yes	High	High	Widely Available	Sharp spines

Medium Tree Options

	Species	Max Height	Max Spread	Native?	Wind Resistance	Drought	Commercial Availability	Other Notes
Common Name	Scientific Name	(feet)	(feet)	ivatives	willu kesistalice	Tolerance	Commercial Availability	Other Notes
Bald Cypress	Taxodium distichum	80	35	Yes	High	High	Widely Available	
Bismark Palm	Bismarckia nobilis	60	15	No	Moderate	High	Widely Available	
Bridalveil Tree	Caesalpinia granadillo	35	35	No	High	Moderate	Widely Available	
Coconut Palm	Cocos nucifera	80	25	No	High	High	Widely Available	FLEPPC Category II Invasive/Exotic Species
Dahoon Holly	Ilex cassine	30	12	Yes	Moderate	High	Widely Available	Can tolerate drier locations with some watering, but often has a thin crown in this environment.
Fiddlewood Tree	Citharexylum spinosum	35	25	Yes	High	High	Widely Available	
Green Buttonwood	Conocarpus erectus	35	25	Yes	High	High	Widely Available	
Japanese Blueberry	Elaeocarpus decipiens	20	15	No	N/A	N/A	Widely Available	
Montgomery Palm	Veitchia montgomeryana	25	20	No	N/A	N/A	Widely Available	
Orange Geiger	Cordia sebestena	30	25	Yes	High	High	Widely Available	Can often be heavily defoliated from geiger beetle damage
Pigeon Plum	Coccoloba diversifolia	40	35	Yes	High	High	Widely Available	Litter problem from fruit on sidewalks
Pink Tabebuia	Tabebuia heptaphylla	50	50	No	Low	High	Widely Available	Weak wood - prone to breakage in storms
Queen Palm	Syagrus romanzoffiana	50	25	No	Moderate	Moderate	Widely Available	FLEPPC Category II Invasive/Exotic Species
Royal Palm	Roystonea regia	75	25	Yes	Moderate	Moderate	Widely Available	
Satin Leaf	Chrysophyllum oliviforme	45	25	Yes	Moderate	High	Widely Available	
Silver Buttonwood	Conocarpus erectus var. sericeus	20	20	Yes	High	High	Widely Available	
Simpson's Stopper	Myrcianthes fragrans	30	20	Yes	High	High	Widely Available	Showy bark, fragrant leaves
Washington Palm	Washingtonia robusta	100	20	No	Low	Moderate	Widely Available	FLEPPC Category II Invasive/Exotic Species

Large Tree Options

	Species	Max Height	Max Spread	Native 2	Wind Resistance	Drought	Commercial Availability	Other Notes
Common Name	Scientific Name	(feet)	(feet)	ivatives	willu kesistalice	Tolerance	Commercial Availability	Other Notes
Gumbo Limbo	Bursera simaruba	50	50	Yes	High	High	Widely Available	
Live Oak	Quercus virginiana	80	120	Yes	High	High	Widely Available	Need large space for both canopy and trunk
West Indian Mahogany	Swietenia mahagoni	60	60	Yes	Moderate	High	Widely Available	Hard seed pods - better for medians than near sidewalks; need to structure prune to avouid co-dominant leaders
Wild Tamarind	Lysiloma latisiliquum	60	50	Yes	High	High	Widely Available	
Yellow Poinciana	Peltophorum pterocarpum	50	50	No	Moderate	High	Widely Available	Shallow root system (susceptibel to failure in storm events)

 $Notes: \\ Information on tree sizes, wind resistance, and drought tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information on tree sizes, wind resistance, and drought tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information on tree sizes, wind resistance, and drought tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information on tree sizes, wind resistance, and drought tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information on tree sizes, wind resistance, and drought tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information on tree sizes, wind resistance, and drought tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS websites (https://edis.ifas.ufl.edu) \\ Information of the upper leaf tolerance obtained from UF-IFAS$

Recommended Species (many of these species are already existing in the landscape). As discussed in the report, these are typically native vs. non-native species, that are also drought tolerant and wind resistant.

APPENDIX D Planting Space Replacement Tree Costs Summary

Doral Street Tree Planting Plan - Replacement Tree Costs Summary (All Planting Spaces)

	SPECIES	QUANTITY PER	RECOMMENDED INSTALLATION SIZE	UNIT COST	INSTALLED COST	TOTAL COST PER
Common Name	Scientific Name	SPECIES	(gallons for trees, overall height for palms)	(avg. raw cost)	(with 2.7 X Multiplier)	SPECIES
Bald Cypress	Taxodium distichum	1	65	\$280.00	\$756.00	\$756.00
Bismark Palm	Bismarckia nobilis	2	25 ft	\$764.75	\$2,064,83	\$4,129,65
Bridalveil Tree	Caesalpinia granadillo	9	45	\$270.00	\$729.00	\$6,561,00
Cabbage Palm	Sabal Palmetto	96	20 ft	\$185.77	\$501.58	\$48,151.58
Christmas Palm	Adonidia merrillii	49	10 ft	\$149.18	\$402.79	\$19.736.51
Coconut Palm	Cocos nucifera	1	20 ft	\$958.61	\$2.588.25	\$2,588,25
Crepe Myrtle	Lagerstroemia indica	82	30	\$120.00	\$324.00	\$26,568.00
Dahoon Holly	Ilex cassine	62	45	\$223.13	\$602.44	\$37,351.13
Fiddlewood	Citharexylum spinosum	173	25	\$87.50	\$236.25	\$40.871.25
Florida Thatch Palm	Thrinax radiata	194	15 ft	\$476.10	\$1,285.47	\$249,381.18
Foxtail Palm	Wodyetia bifurcata	29	20 ft	\$293.42	\$792.23	\$22,974,79
Green Buttonwood	Conocarpus erectus	28	45	\$225.26	\$608.21	\$17.029.89
Gumbo Limbo	Bursera simaruba	85	65	\$300.00	\$810.00	\$68,850.00
Japanese Blueberry	Elaeocarpus decipiens	9	45	\$291.00	\$785.70	\$7.071.30
Japanese Privet	Ligustrum japonicum	59	30	\$100.14	\$270.38	\$15,952.30
Live Oak	Quercus veirginiana	200	65	\$381.71	\$1,030,61	\$206,121,18
Mahogany	Swietenia mahagoni	105	65	\$316.67	\$855.00	\$89.775.00
Montgomery Palm	Veitchia montgomeryana	5	20 ft	\$260.13	\$702.35	\$3.511.76
Orange Geiger	Cordia sebestena	24	45	\$205.00	\$553.50	\$13.284.00
Pigeon Plum	Coccoloba diversifolia	166	45	\$210.83	\$569.25	\$94,495.50
Pink Tabebuia	Tabebuia heptaphylla	16	45	\$257.50	\$695.25	\$11,124,00
Pygmy Date Palm	Phoenix roebelenii	3	9 ft	\$112.95	\$304.97	\$914.90
Queen Palm	Syagrus romanzoffiana	3	25 ft	\$178.25	\$481.28	\$1.443.83
Royal Palm	Roystonea regia	63	25 ft	\$477.08	\$1,288,12	\$81,151.31
Satin Leaf	Chrysophyllum oliviforme	2	45	\$255.00	\$688.50	\$1.377.00
Silver Buttonwood	Conocarpus erectus var. sericeus	2	45	\$248.08	\$669.82	\$1,339,63
Silver Palm	Coccothrinax argentata	154	15	\$145.83	\$393.75	\$60.637.50
Simpson's Stopper	Myrcianthes fragrans	155	45	\$278.33	\$751.50	\$116,482.50
Spanish Stopper	Eugenia foetida	182	25	\$103.89	\$280.50	\$51,051.00
Spindle Palm	Hyophorbe verschaffeltii	18	7 ft	\$121.00	\$326.70	\$5.880.60
Sweet Acacia	Vachellia farnesiana	240	65	\$250.00	\$675.00	\$162,000.00
Sylvester Date Palm	Phoenix sylvestris	1	15 ft	\$935.36	\$2,525.47	\$2,525.47
Washington Palm	Washingtonia robusta	34	30 ft	\$285.00	\$769.50	\$26.163.00
Wild Tamarind	Lysiloma latisiliquum	600	65	\$350.00	\$945.00	\$567,000,00
Yellow Poinciana	Peltophorum pterocarpum	5	45	\$187.50	\$506.25	\$2,531.25

TOTAL S \$2,066,782.25 2.857

Recommended Species (many of these species are already existing in the landscape)

Existing species - recommended to maintain continuity, not considered optimum selection (other species in the size class may be preferable alternatives)

Notes:

- 1. This cost estimate assumes that trees will be installed in all "available planting spaces" based on a preliminary analysis. Note that some of the planting spaces identified in this analysis may be determined to have unforeseen restrictions that may limit plant installation. Any reduction in available planting spaces will lower the final cost estimate.
- 2. The proposed sizes for each species may be modified (reduced) from the recommended value, which would lower the final cost estimte.
- 3. Please note that, in many instances where planting spaces were open and displayed no existing trees, the proposed tree species was selected arbitrarily from the list of preferred species of the appropriate size class. For example, wild tamarind (Lysiloma latisiliquum), a desirable, native, large canopy species, is recommended in many cases where open strips are available for new trees. This species is interchangeable with any of the recommended (green highlighted) large or medium canopy trees from the proposed species list. Changed to the quantities per species may reduce (or possibly increase) the final cost estimate.

Doral Street Tree Planting Plan - Replacement Tree Costs Summary (High Priority Planting Spaces)

SPECIES		QUANTITY PER	RECOMMENDED INSTALLATION SIZE	UNIT COST	INSTALLED COST	TOTAL COST PER
Common Name	Scientific Name	SPECIES	(gallons for trees, overall height for palms)	(avg. raw cost)	(with 2.7 X Multiplier)	SPECIES
Bald Cypress	Taxodium distichum	0	65	\$280.00	\$756.00	\$0.00
Bismark Palm	Bismarckia nobilis	0	25 ft	\$764.75	\$2,064.83	\$0.00
Bridalveil Tree	Caesalpinia granadillo	0	45	\$270.00	\$729.00	\$0.00
Cabbage Palm	Sabal Palmetto	12	20 ft	\$185.77	\$501.58	\$6,018.95
Christmas Palm	Adonidia merrillii	13	10 ft	\$149.18	\$402.79	\$5,236.22
Coconut Palm	Cocos nucifera	0	20 ft	\$958.61	\$2,588.25	\$0.00
Crepe Myrtle	Lagerstroemia indica	24	30	\$120.00	\$324.00	\$7,776.00
Dahoon Holly	llex cassine	0	45	\$223.13	\$602.44	\$0.00
Fiddlewood	Citharexylum spinosum	130	25	\$87.50	\$236.25	\$30,712.50
Florida Thatch Palm	Thrinax radiata	0	15 ft	\$476.10	\$1,285.47	\$0.00
Foxtail Palm	Wodyetia bifurcata	27	20 ft	\$293.42	\$792.23	\$21,390.32
Green Buttonwood	Conocarpus erectus	0	45	\$225.26	\$608.21	\$0.00
Gumbo Limbo	Bursera simaruba	30	65	\$300.00	\$810.00	\$24,300,00
Japanese Blueberry	Elaeocarpus decipiens	0	45	\$291.00	\$785.70	\$0.00
Japanese Privet	Ligustrum japonicum	18	30	\$100.14	\$270.38	\$4,866.80
Live Oak	Quercus veirginiana	10	65	\$381.71	\$1,030.61	\$10,306.06
Mahogany	Swietenia mahagoni	12	65	\$316.67	\$855.00	\$10,260,00
Montgomery Palm	Veitchia montgomeryana	0	20 ft	\$260.13	\$702.35	\$0.00
Orange Geiger	Cordia sebestena	14	45	\$205.00	\$553.50	\$7,749.00
Pigeon Plum	Coccoloba diversifolia	144	45	\$210.83	\$569.25	\$81,972.00
Pink Tabebuia	Tabebuia heptaphylla	2	45	\$257.50	\$695.25	\$1,390,50
Pygmy Date Palm	Phoenix roebelenii	0	9 ft	\$112.95	\$304.97	\$0.00
Queen Palm	Syagrus romanzoffiana	3	25 ft	\$178.25	\$481.28	\$1,443,83
Royal Palm	Roystonea regia	48	25 ft	\$477.08	\$1,288,12	\$61,829.57
Satin Leaf	Chrysophyllum oliviforme	0	45	\$255.00	\$688.50	\$0.00
Silver Buttonwood	Conocarpus erectus var. sericeus	0	45	\$248.08	\$669.82	\$0.00
Silver Palm	Coccothrinax argentata	90	15	\$145.83	\$393.75	\$35,437,50
Simpson's Stopper	Myrcianthes fragrans	131	45	\$278.33	\$751.50	\$98,446.50
Spanish Stopper	Eugenia foetida	64	25	\$103.89	\$280.50	\$17,952.00
Spindle Palm	Hyophorbe verschaffeltii	4	7 ft	\$121.00	\$326.70	\$1,306.80
Sweet Acacia	Vachellia farnesiana	224	65	\$250.00	\$675.00	\$151,200.00
Sylvester Date Palm	Phoenix sylvestris	0	15 ft	\$935.36	\$2,525.47	\$0.00
Washington Palm	Washingtonia robusta	0	30 ft	\$285.00	\$769.50	\$0.00
Wild Tamarind	Lysiloma latisiliquum	547	65	\$350.00	\$945.00	\$516.915.00
Yellow Poinciana	Peltophorum pterocarpum	0	45	\$187.50	\$506.25	\$0.00

TOTALS 1,547 \$1,096,509.54

Recommended Species (many of these species are already existing in the landscape)

Existing species - recommended to maintain continuity, not considered optimum selection (other species in the size class may be preferable alternatives

Notes:

- 1. This cost estimate assumes that trees will be installed in all "available planting spaces" based on a preliminary analysis. Note that some of the planting spaces identified in this analysis may be determined to have unforeseen restrictions that may limit plant installation. Any reduction in available planting spaces will lower the final cost estimate.
- 2. The proposed sizes for each species may be modified (reduced) from the recommended value, which would lower the final cost estimte.
- 3. Please note that, in many instances where planting spaces were open and displayed no existing trees, the proposed tree species was selected arbitrarily from the list of preferred species of the appropriate size class. For example, wild tamarind (*Lysiloma latisiliquum*), a desirable, native, large canopy species, is recommended in many cases where open strips are available for new trees. This species is interchangeable with any of the recommended (green highlighted) large or medium canopy trees from the proposed species list. Changed to the quantities per species may reduce (or possibly increase) the final cost estimate.

Doral Street Tree Planting Plan - Replacement Tree Costs Summary (Moderate Priority Planting Spaces)

SPECIES		OLIANITITY F	RECOMMENDED			
		QUANTITY PER	INSTALLATION SIZE	UNIT COST	INSTALLED COST	TOTAL COST PER
Common Name	Scientific Name	SPECIES	(gallons for trees, overall height	(avg. raw cost)	(with 2.7 X Multiplier)	SPECIES
			for palms)			
Bald Cypress	Taxodium distichum	0	65	\$280.00	\$756.00	\$0.00
Bismark Palm	Bismarckia nobilis	0	25 ft	\$764.75	\$2,064.83	\$0.00
Bridalveil Tree	Caesalpinia granadillo	6	45	\$270.00	\$729.00	\$4,374.00
Cabbage Palm	Sabal Palmetto	55	20 ft	\$185.77	\$501.58	\$27,586.85
Christmas Palm	Adonidia merrillii	9	10 ft	\$149.18	\$402.79	\$3,625.07
Coconut Palm	Cocos nucifera	0	20 ft	\$958.61	\$2,588.25	\$0.00
Crepe Myrtle	Lagerstroemia indica	19	30	\$120.00	\$324.00	\$6,156.00
Dahoon Holly	llex cassine	62	45	\$223.13	\$602.44	\$37,351.13
Fiddlewood	Citharexylum spinosum	24	25	\$87.50	\$236.25	\$5,670.00
Florida Thatch Palm	Thrinax radiata	68	15 ft	\$476.10	\$1,285.47	\$87,411.96
Foxtail Palm	Wodyetia bifurcata	0	20 ft	\$293.42	\$792.23	\$0.00
Green Buttonwood	Conocarpus erectus	3	45	\$225.26	\$608.21	\$1,824.63
Gumbo Limbo	Bursera simaruba	40	65	\$300.00	\$810.00	\$32,400.00
Japanese Blueberry	Elaeocarpus decipiens	5	45	\$291.00	\$785.70	\$3,928.50
Japanese Privet	Ligustrum japonicum	21	30	\$100.14	\$270.38	\$5,677.94
Live Oak	Quercus veirginiana	89	65	\$381.71	\$1,030.61	\$91,723.92
Mahogany	Swietenia mahagoni	18	65	\$316.67	\$855.00	\$15,390.00
Montgomery Palm	Veitchia montgomeryana	4	20 ft	\$260.13	\$702.35	\$2,809.40
Orange Geiger	Cordia sebestena	0	45	\$205.00	\$553.50	\$0.00
Pigeon Plum	Coccoloba diversifolia	15	45	\$210.83	\$569.25	\$8,538.75
Pink Tabebuia	Tabebuia heptaphylla	14	45	\$257.50	\$695.25	\$9,733.50
Pygmy Date Palm	Phoenix roebelenii	0	9 ft	\$112.95	\$304.97	\$0.00
Queen Palm	Syagrus romanzoffiana	0	25 ft	\$178.25	\$481.28	\$0.00
Royal Palm	Roystonea regia	2	25 ft	\$477.08	\$1,288.12	\$2,576.23
Satin Leaf	Chrysophyllum oliviforme	0	45	\$255.00	\$688.50	\$0.00
Silver Buttonwood	Conocarpus erectus var. sericeus	2	45	\$248.08	\$669.82	\$1,339.63
Silver Palm	Coccothrinax argentata	29	15	\$145.83	\$393.75	\$11,418.75
Simpson's Stopper	Myrcianthes fragrans	0	45	\$278.33	\$751.50	\$0.00
Spanish Stopper	Eugenia foetida	52	25	\$103.89	\$280.50	\$14,586.00
Spindle Palm	Hyophorbe verschaffeltii	13	7 ft	\$121.00	\$326.70	\$4,247.10
Sweet Acacia	Vachellia farnesiana	16	65	\$250.00	\$675.00	\$10,800.00
Sylvester Date Palm	Phoenix sylvestris	0	15 ft	\$935.36	\$2,525.47	\$0.00
Washington Palm	Washingtonia robusta	0	30 ft	\$285.00	\$769.50	\$0.00
Wild Tamarind	Lysiloma latisiliquum	31	65	\$350.00	\$945.00	\$29,295.00
Yellow Poinciana	Peltophorum pterocarpum	2	45	\$187.50	\$506.25	\$1,012.50
	TOTALS	599				\$419,476.87

Recommended Species (many of these species are already existing in the landscape)

Existing species - recommended to maintain continuity, not considered optimum selection (other species in the size class may be preferable alternatives)

Notes:

2. The proposed sizes for each species may be modified (reduced) from the recommended value, which would lower the final cost estimate.

^{1.} This cost estimate assumes that trees will be installed in all "available planting spaces" based on a preliminary analysis. Note that some of the planting spaces identified in this analysis may be determined to have unforeseen restrictions that may limit plant installation. Any reduction in available planting spaces will lower the final cost estimate.

Doral Street Tree Planting Plan - Replacement Tree Costs Summary (Low Priority Planting Spaces)

SPECIES		QUANTITY PER	RECOMMENDED INSTALLATION SIZE	UNIT COST	INSTALLED COST	TOTAL COST PER
Common Name	Scientific Name	SPECIES	(gallons for trees, overall height for palms)	(avg. raw cost)	(with 2.7 X Multiplier)	SPECIES
Bald Cypress	Taxodium distichum	0	65	\$280.00	\$756.00	\$0.00
Bismark Palm	Bismarckia nobilis	0	25 ft	\$764.75	\$2,064.83	\$0.00
Bridalveil Tree	Caesalpinia granadillo	0	45	\$270.00	\$729.00	\$0.00
Cabbage Palm	Sabal Palmetto	15	20 ft	\$185.77	\$501.58	\$7,523.69
Christmas Palm	Adonidia merrillii	26	10 ft	\$149.18	\$402.79	\$10,472.44
Coconut Palm	Cocos nucifera	0	20 ft	\$958.61	\$2,588.25	\$0.00
Crepe Myrtle	Lagerstroemia indica	36	30	\$120.00	\$324.00	\$11,664.00
Dahoon Holly	Ilex cassine	0	45	\$223.13	\$602.44	\$0.00
Fiddlewood	Citharexylum spinosum	17	25	\$87.50	\$236.25	\$4,016.25
Florida Thatch Palm	Thrinax radiata	123	15 ft	\$476.10	\$1,285.47	\$158,112.81
Foxtail Palm	Wodyetia bifurcata	0	20 ft	\$293.42	\$792.23	\$0.00
Green Buttonwood	Conocarpus erectus	23	45	\$225.26	\$608.21	\$13,988.84
Gumbo Limbo	Bursera simaruba	5	65	\$300.00	\$810.00	\$4.050.00
Japanese Blueberry	Elaeocarpus decipiens	4	45	\$291.00	\$785.70	\$3,142.80
Japanese Privet	Ligustrum japonicum	16	30	\$100.14	\$270.38	\$4,326.05
Live Oak	Quercus veirginiana	43	65	\$381.71	\$1,030.61	\$44,316.05
Mahogany	Swietenia mahagoni	9	65	\$316.67	\$855.00	\$7.695.00
Montgomery Palm	Veitchia montgomeryana	0	20 ft	\$260.13	\$702.35	\$0.00
Orange Geiger	Cordia sebestena	2	45	\$205.00	\$553.50	\$1,107.00
Pigeon Plum	Coccoloba diversifolia	4	45	\$210.83	\$569.25	\$2,277.00
Pink Tabebuia	Tabebuia heptaphylla	0	45	\$257.50	\$695.25	\$0.00
Pygmy Date Palm	Phoenix roebelenii	3	9 ft	\$112.95	\$304.97	\$914.90
Queen Palm	Svagrus romanzoffiana	0	25 ft	\$178.25	\$481.28	\$0.00
Royal Palm	Roystonea regia	1	25 ft	\$477.08	\$1,288.12	\$1,288.12
Satin Leaf	Chrysophyllum oliviforme	0	45	\$255.00	\$688.50	\$0.00
Silver Buttonwood	Conocarpus erectus var. sericeus	0	45	\$248.08	\$669.82	\$0.00
Silver Palm	Coccothrinax argentata	35	15	\$145.83	\$393.75	\$13,781.25
Simpson's Stopper	Myrcianthes fragrans	22	45	\$278.33	\$751.50	\$16,533.00
Spanish Stopper	Eugenia foetida	57	25	\$103.89	\$280.50	\$15,988.50
Spindle Palm	Hyophorbe verschaffeltii	0	7 ft	\$121.00	\$326.70	\$0.00
Sweet Acacia	Vachellia farnesiana	0	65	\$250.00	\$675.00	\$0.00
Sylvester Date Palm	Phoenix sylvestris	0	15 ft	\$935.36	\$2,525.47	\$0.00
Washington Palm	Washingtonia robusta	0	30 ft	\$285.00	\$769.50	\$0.00
Wild Tamarind	Lysiloma latisiliquum	8	65	\$350.00	\$945.00	\$7,560.00
Yellow Poinciana	Peltophorum pterocarpum	3	45	\$187.50	\$506.25	\$1,518.75

TOTALS \$330,276.44

Recommended Species (many of these species are already existing in the landscape)

Existing species - recommended to maintain continuity, not considered optimum selection (other species in the size class may be preferable alternatives)

Notes:

- 1. This cost estimate assumes that trees will be installed in all "available planting spaces" based on a preliminary analysis. Note that some of the planting spaces identified in this analysis may be determined to have unforeseen restrictions that may limit plant installation. Any reduction in available planting spaces will lower the final cost estimate.
- 2. The proposed sizes for each species may be modified (reduced) from the recommended value, which would lower the final cost estimte.

Doral Street Tree Planting Plan - Dead and Critical Replacement Tree Costs Summary

SPECIES		QUANTITY PER	RECOMMENDED INSTALLATION SIZE	UNIT COST	INSTALLED COST	TOTAL COST PER
Common Name	Scientific Name	SPECIES	(gallons for trees, overall height for palms)	(avg. raw cost)	(with 2.7 X Multiplier)	SPECIES
Bald Cypress	Taxodium distichum	1	65	\$280.00	\$756.00	\$756.00
Bismark Palm	Bismarckia nobilis	2	25 ft	\$764.75	\$2,064.83	\$4,129.65
Bridalveil Tree	Caesalpinia granadillo	3	45	\$270.00	\$729.00	\$2,187.00
Cabbage Palm	Sabal Palmetto	14	20 ft	\$185.77	\$501.58	\$7,022.11
Christmas Palm	Adonidia merrillii	1	10 ft	\$149.18	\$402.79	\$402.79
Coconut Palm	Cocos nucifera	1	20 ft	\$958.61	\$2,588.25	\$2,588.25
Crepe Myrtle	Lagerstroemia indica	3	30	\$120.00	\$324.00	\$972.00
Dahoon Holly	llex cassine	0	45	\$223.13	\$602.44	\$0.00
Fiddlewood	Citharexylum spinosum	2	25	\$87.50	\$236.25	\$472.50
Florida Thatch Palm	Thrinax radiata	3	15 ft	\$476.10	\$1,285.47	\$3,856.41
Foxtail Palm	Wodvetia bifurcata	2	20 ft	\$293.42	\$792.23	\$1,584,47
Green Buttonwood	Conocarpus erectus	2	45	\$225.26	\$608.21	\$1,216.42
Gumbo Limbo	Bursera simaruba	10	65	\$300.00	\$810.00	\$8,100,00
Japanese Blueberry	Elaeocarpus decipiens	0	45	\$291.00	\$785.70	\$0.00
Japanese Privet	Ligustrum japonicum	4	30	\$100.14	\$270.38	\$1,081.51
Live Oak	Quercus veirginiana	58	65	\$381.71	\$1.030.61	\$59,775,14
Mahogany	Swietenia mahagoni	66	65	\$316.67	\$855.00	\$56,430.00
Montgomery Palm	Veitchia montgomeryana	1	20 ft	\$260.13	\$702.35	\$702.35
Orange Geiger	Cordia sebestena	8	45	\$205.00	\$553.50	\$4.428.00
Pigeon Plum	Coccoloba diversifolia	3	45	\$210.83	\$569.25	\$1,707,75
Pink Tabebuia	Tabebuia heptaphylla	0	45	\$257.50	\$695.25	\$0.00
Pygmy Date Palm	Phoenix roebelenii	0	9 ft	\$112.95	\$304.97	\$0.00
Queen Palm	Syagrus romanzoffiana	0	25 ft	\$178.25	\$481.28	\$0.00
Royal Palm	Roystonea regia	12	25 ft	\$477.08	\$1,288,12	\$15.457.39
Satin Leaf	Chrysophyllum oliviforme	2	45	\$255.00	\$688.50	\$1,377,00
Silver Buttonwood	Conocarpus erectus var. sericeus	0	45	\$248.08	\$669.82	\$0.00
Silver Palm	Coccothrinax argentata	0	15	\$145.83	\$393.75	\$0.00
Simpson's Stopper	Myrcianthes fragrans	2	45	\$278.33	\$751.50	\$1,503.00
Spanish Stopper	Eugenia foetida	9	25	\$103.89	\$280.50	\$2,524.50
Spindle Palm	Hyophorbe verschaffeltii	1	7 ft	\$121.00	\$326.70	\$326.70
Sweet Acacia	Vachellia farnesiana	0	65	\$250.00	\$675.00	\$0.00
Sylvester Date Palm	Phoenix sylvestris	1	15 ft	\$935.36	\$2.525.47	\$2,525.47
Washington Palm	Washingtonia robusta	34	30 ft	\$285.00	\$769.50	\$26.163.00
Wild Tamarind	Lysiloma latisiliauum	14	65	\$350.00	\$945.00	\$13,230,00
Yellow Poinciana	Peltophorum pterocarpum	0	45	\$187.50	\$506.25	\$0.00

TOTALS \$220,519.41

Recommended Species (many of these species are already existing in the landscape)

Existing species - recommended to maintain continuity, not considered optimum selection (other species in the size class may be preferable alternatives)

1. The proposed sizes for each species may be modified (reduced) from the recommended value, which would lower the final cost estimate.

APPENDIX E Planting Specifications

Tree and Palm Selection Planting Specifications

These specifications provide guidelines for the selection and installation of trees and palms, including guidelines for bracing and watering during establishment.

DICOT TREES

Tree Selection

All tree material should have a "Florida Number 1" rating or higher per the *Florida Grades and Standards for Nursery Plants* (2015 Edition) published by the Florida Department of Agriculture and Consumer Services (FDACS).

The *Grades and Standards* document provide a seven-step process for selecting quality plant material at the time of installation. In general, these steps include an assessment of trunk shape, crown uniformity, trunk defects, and root defects. The "Cue Card" on the following pages summarizes the steps in the grading process and can be used in the field for efficient grading (**Figures 1 and 2**). A complete description of the tree grading process, including the tree shape categories and size matrix used during grading, are included in **Attachment 1**.

It is recommended that trees be graded at the nursery prior to delivery to the job site. Tree grading should be performed either by a City staff person specifically trained in tree grading or by an ISA Certified Arborist or LIAF Certified Landscape Inspector.

1 Choose appropriate tree matrix type.

Type 1 – tall and wide form ex. black-olive, live oak, mahogany, southern magnolia

Type 2 – tall and narrow form ex. bald-cypress, East Palatka holly, Japanese blueberry, pine

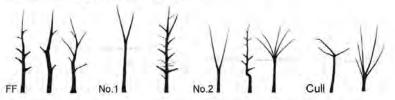
Type 3 – short/wide and multi-trunked form ex. silver buttonwood, tabebuia, yaupon holly, crape-myrtle

Refer to the matrix tables in the Grades and Standards to determine tree height, crown diameter and root ball or container size requirements.

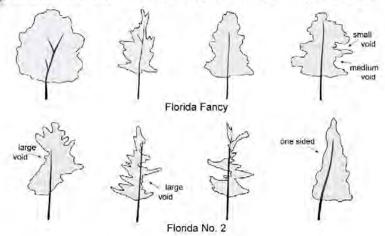
- a) For multi-trunked small maturing trees measure the container or root ball size.
- b) For all other trees measure the caliper.

Trunk caliper is measured 6 inches above the ground on trees up to and including 4 inches in caliper, and 12 inches above the ground for larger trees. Diameter at breast height (DBH) is not considered an appropriate measurement for nursery trees.

2 Grade the tree according to trunk structure. Small-maturing trees skip step 2.



3 Grade the tree according to crown uniformity.



Not all shapes and forms are represented here; however, these images represent what would be acceptable for Florida Fancy or Florida No. 2 of other shapes and forms. Note: For crown uniformity there is no Florida No. 1 or Cull grade.

4 Record the lowest grade determined in Steps 2 and 3.

5 If one of the following statements is true, reduce the grade determined in Step 4 by one.

If two or more are true, reduce the grade by two. Reference tree caliper and appropriate matrix for 5a, 5b, and 5d. For multi-trunked small maturing trees, use container size or root ball diameter (not caliper) for 5b and skip 5a and 5d.

- a) Tree does not meet height requirement.
- b) Crown does not meet diameter requirement.
- c) Root ball is not secure enough to successfully transplant.
- d) Root ball or container is undersized. If two or more sizes, reduce grade by two.
- e) Tree with a trunk caliper larger than two inches requires a stake to hold the trunk erect. For multi-trunked trees, this applies to each trunk individually.

6 If two of the following statements are true, reduce the grade determined in Step 5 by one.

If three or more of the statements are true, reduce the grade by two. It takes only one true statement to reduce Florida Fancy to Florida No. 1.

- a) Flush cuts were made when pruning branches from the trunk.
- b) Branch stubs were left beyond the collar.
- c) Open trunk wounds are evident.
- d) More than 10% of the crown exhibits necrosis, chlorosis or damage from pests, diseases or tip dieback.
- e) The crown is thin and sparsely foliated (allow for harvesting/ time of year).
- Included bark between the trunk and a major lateral branch or between main trunks.
- g) Trunks and/or major branches are touching.

7 The tree is a Cull if one of the following conditions is true:

- a) Top-most structural root emerges from trunk more than two inches below the top of the root ball surface. Soil, substrate and/or roots can be removed from the top 1/3 of the root ball to conform to this depth requirement.
- b) One or more roots greater than 1/10 the trunk caliper, circle more than 1/3 of trunk in the top 1/2 of the root ball. Circling roots less than 1/3 the trunk diameter can be cut at the point just inside where they begin to circle, following cutting, the tree is no longer a Cull.

Grading notes

- A dogleg is a significant S-shaped deformation in the trunk below the crown. If there is a dogleg in the clear trunk portion, the tree is graded Florida No. 2. If the dogleg is in the crown portion of the tree, the tree is not downgraded. The distance 'A' can be no more than the trunk diameter.
- trunk
- Grades and Standards do not apply to specialty trees like braided stems, poodles, espalier, topiary and bonsai.
- To download the complete G&S document visit http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry

Tree Installation

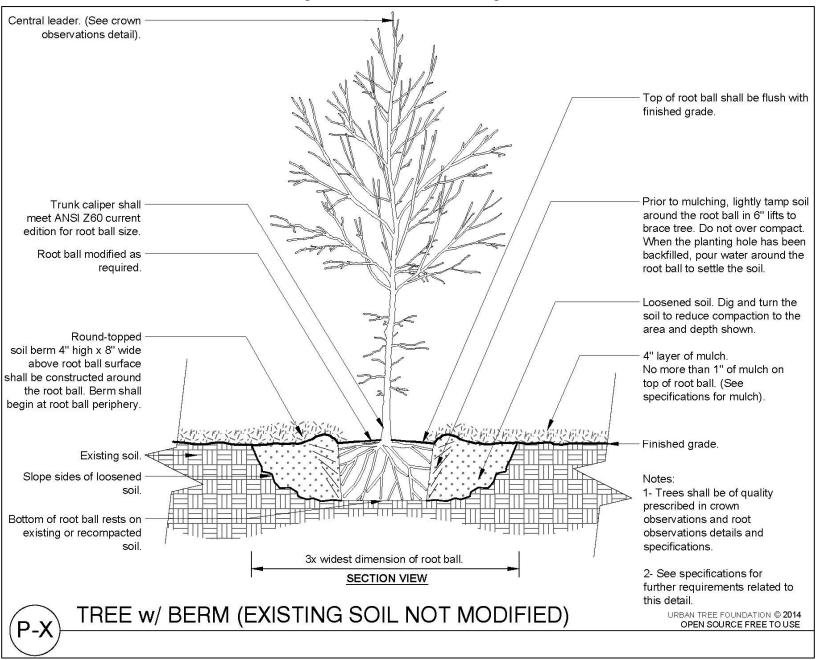
The tree planting hole should be three times as wide as the root ball and slightly less than the depth of the root ball. The planting hole can be dug shallower in areas with wet soil conditions (see Figure 3 – Tree Installation Diagram).

The tree container or any material around the root ball should be removed, and any circling roots should be cut prior to planting.

The following steps are recommended for plant installation (see **Figure 3**):

- Place tree in the center of the hole with the top most root in the root ball at or slightly higher than the finished landscape grade; in no case should the first root emerging from the trunk be more than 2 inches below the soil level.
- While keeping the tree straight, the hole should be backfilled with native soil.
 - o Soil should be tamped in 6-inch lifts to brace the tree, but not over-compacted.
 - When the hole has been backfilled, water should be poured around the root ball to settle the soil and to remove air pockets.
- Create 4-inch high berm of native soil at the edge of the root ball.
- Add 5 gallons of water per caliper inch immediately after planting.
- Apply 4-inch layer of mulch to an area two feet in diameter per trunk caliper inch, but with no more than one inch of mulch on top of root ball.
- Do not pile mulch directly against the tree trunk.

Figure 3 – Tree Installation Diagram



Source: UF-IFAS Website (https://hort.ifas.ufl.edu/woody/details-planting.shtml)

Tree Irrigation

The following table provides guidelines for irrigation during establishment. It is recommended that the guideline for "vitality" be followed to reduce transplant stress from the nursery environment and to promote healthy growth during the establishment period.

Table 1. Irrigation Guidelines

Size of nursery stock		Irrigation schedule for survival	
< 2-inch caliper	Daily for two weeks, every other day for two months, weekly until established	Two to three times weekly for two to three months	
2 - 4-inch caliper	Daily for one month, every other day for three months, weekly until established	Two to three times weekly for three to four months	
> 4-inch caliper	Daily for six weeks, every other day for five months, weekly until established	Twice weekly for four to five months	

Table notes:

- 1. At each irrigation, apply two to three gallons per inch trunk caliper to the root ball surface. Apply it in a manner so all water soaks the entire root ball. Do not water if root ball is wet/saturated on the irrigation day.
- 2. Establishment takes three months per inch trunk caliper. Never apply irrigation if the soil is saturated.
- 3. When irrigating for survival, trees take much longer to establish than regularly irrigated trees. Irrigation may be required in the normal hot, dry portions of the following year.

Source: Florida Grades and Standards for Nursery Plants (2015) – Best Management Practices

No additional amendments beyond water are recommended for tree establishment. Research has shown no benefit to using other soil amendments.

Tree Staking

Per research from the University of Florida Institute of Food and Agricultural Services (UF-IFAS), field-grown trees with good root systems may not require stakes to hold them firm in the soil because their root balls are heavy enough to prevent movement in moderately windy weather. Trees may require staking if the wire basket containing the root ball is removed at planting, or if the roots are not firm in the root ball.

Container grown trees often require stakes to hold them firm in the soil until roots become established due to the light weight of the root ball. Root balls must remain firm and stable in the soil so the fragile new roots growing into the backfill soil are not broken as the root ball moves in windy weather.

UF-IFAS provides details for several different tree staking systems (see **Attachment 2**). Each of these systems is designed to secure the tree during the establishment period while minimizing damage to the tree. It is important to note that the *staking systems must be removed* at the end of the establishment period (duration described earlier) or when the tree root ball is secure in the ground.

PALMS (MONOCOTS)

Palm Selection

The *Grades and Standards* document provide a three-step process for selecting quality palm trees at the time of installation, generally consisting of a review of palm structure, and leaf count, and root ball size. A complete description of the palms grading process is included in **Attachment 3**. As with dicot trees, it is recommended that palms be graded at the nursery prior to delivery to the job site by either an ISA Certified Arborist or LIAF Certified Landscape Inspector.

Palm Installation (including bracing and irrigation

The following steps are recommended by UF-IFAS for palm tree installation, including recommendations for irrigation and bracing/support.

- 1. Remove palm from container by the root ball. Do not grab palm from the trunk as this can damage the roots.
- 2. Excavate a planting hole; the planting hole should be twice the diameter of the root ball (or the original container the palm was in). The depth of the planting hole is determined by the location of the root-shoot interface. The hole should be deep enough that the palm can be planted with the root-shoot interface approximately one inch below the surface. **Figure 4** shows the results of planting a palm too shallow.
- 3. Remove burlap from around the root ball. Place palm in planting hole and ensure the root-shoot interface will fall approximately one inch below the ground level. Ensure the palm is centered and upright.
- 4. Backfill planting hole with the previously excavated soil until half of the root ball is covered. Saturate soil with water to remove any air pockets and continue backfilling the planting hole until the root-shoot interface is approximately one inch below the surface.
- 5. Apply a fertilizer high in nitrogen around the root ball, extending six to twelve inches beyond the edge of the root ball. Fertilizers high in nitrogen reduce the time required for palms to establish and decrease the risk of palms developing nutrient deficiencies during the establishment period.
- 6. Construct a berm around the outside of the root ball perimeter to assist with water retention. For the first two weeks following planting the berm will be filled with water daily. After two weeks, the berm should be filled with water once every other day until the eighth week after planting. The tree should be watered once a week from nine weeks until 12 weeks after the original transplant date.
- 7. Place a thin layer of mulch around the newly planted palm, avoiding the area on top of the root ball as shown in **Figure 5**.

- 8. Supports should be added to all new palms. These supports should consist of a burlap, five 2" X 4" X 18" wood battens, two ¾" carbon steel bands, and three 2" X 4" X 5' wooden planks.
- 9. Wrap a minimum of five layers of burlap around the trunk of the palm tree to protect the trunk from damage caused by the supports.
- 10. Place the five 2" x 4" x 18" wood battens evenly spaced around the section of the trunk wrapped in burlap. Use the two 3/4" carbon steel bands to secure the battens in place.
- 11. At an angle, attach the three 2" x 4" x 5' wooden poles to the battens with nails. Under no circumstances are nails to be driven directly into the palm. **Figures 6A and 6B** show how the supports should be attached.
- 12. After eight weeks the hemp tie around the fronds should be removed. The structural supports should be removed after the palm is established (six months minimum to twelve months maximum). It is crucial that these supports are removed within one year of transplanting the palms.

Sources:

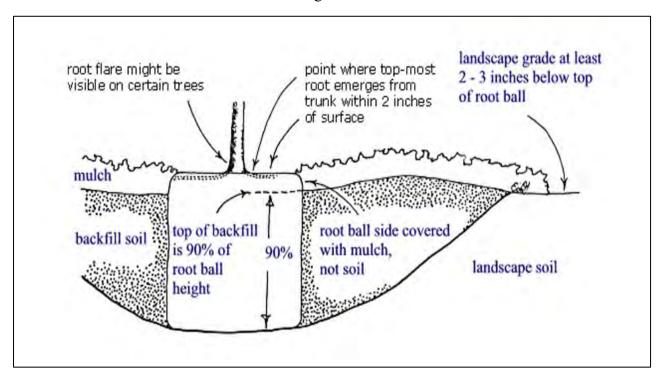
- 1. UF-IFAS Palm Transplanting Guidelines: http://edis.ifas.ufl.edu/ep001
- 2. UF-IFAS Tree Installation Guidelines: https://sfyl.ifas.ufl.edu/media/sfylifasufledu/miami-dade/documents/landscapes-amp-gardening/Tree-planting-Homeowners-2014.pdf
- 3. City of Sarasota Public Landscape Installation and Maintenance Guidelines: http://sarasota.granicus.com/MetaViewer.php?view_id=27&clip_id=4060&meta_id=273885

Figure 4.



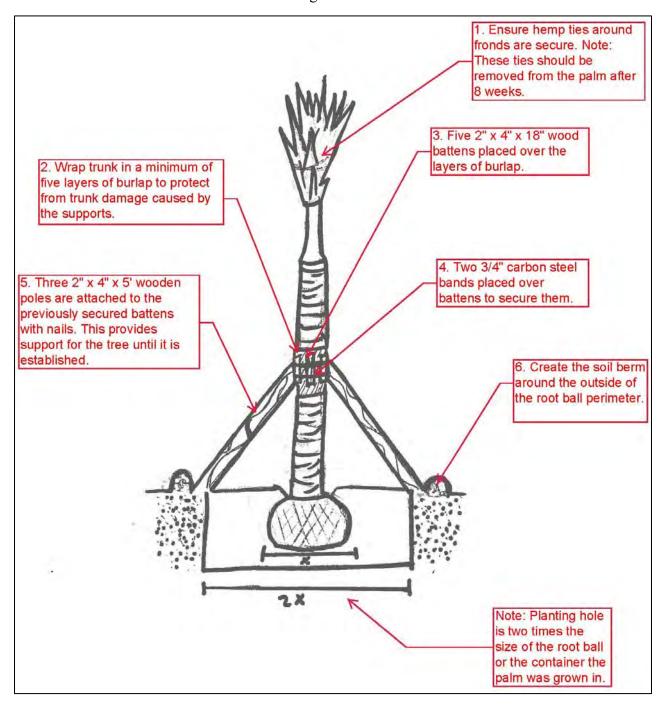
Container grown palm showing an elevated root-initiation zone due to shallow planting. The root-shoot interface was planted above ground, resulting in the elevated root-initiation zone and a decrease in overall stability for the palm. Source: http://edis.ifas.ufl.edu/pdffiles/ep/ep00100.pdf

Figure 5.



How to properly mulch recently planted palm trees to avoid the root ball area. Source: https://sfyl.ifas.ufl.edu/media/sfylifasufledu/miami-dade/documents/landscapes-ampgardening/Tree-planting-Homeowners-2014.pdf

Figure 6A.



How to attach tree supports to newly planted palm trees. Source: Note- Original diagram is modified slightly to include only relevant information. The original document is from http://sarasota.granicus.com/MetaViewer.php?view_id=27&clip_id=4060&meta_id=273885

Figure 6B.



Tree supports attached to a newly planted palm tree. Source: $\underline{\text{https://www.south-florida-plant-guide.com/planting-tips.html}}$

PLANTING SPECIFICATIONS ATTACHMENT 1 Florida Grades and Standards for Trees

TABLE OF CONTENTS

TREES

Grading Shade Trees	3
Steps for Determining the Grade of a Tree	4
Determining the Quality of Trunk Structure	10
Determining the Crown Uniformity	11
Determining if Pruning Cuts Were Made Correctly	
Type 1 Matrix — Tall and Wide	
Type 2 Matrix — Tall and Narrow	14
Type 3 Matrix — Short/Wide and Multi-Trunked	
Florida Fancy Examples	16
Florida No. 1 Examples	17
Florida No. 2 Examples	18
Index of Trees Listed by Common Name and Matrix Type	19
Index of Trees Listed by Scientific Name and Matrix Type	23
Index of Small-Maturing Trees	26
Glossary of Tree Terms	27
Appendix A — Best Management Practices (BMP)	29
Part One: Pruning Before, at, or After Planting	29
Part Two: Root Ball Correction	30
Part Three: Planting Details	32
Part Four: Irrigation After Planting and During Establishment	
Appendix B — Shade Tree Examples	34
Deferences for Trees	20



GRADING TREES

INTRODUCTION

Since most trees have a life expectancy of many years, it is important to plant quality trees. The quality or grade of a tree at planting can have a large impact on longevity in the landscape. Tree quality is based on trunk, branch, crown, leaf and root characteristics.

Large-maturing trees which are allowed to develop a double or multiple trunk should not be planted. These may be sturdy when they are small, but become increasingly prone to failure as they grow larger.

Trees graded **Florida Fancy** should have one dominant trunk up through the crown to the top of the tree. The exception would be for small-maturing trees (standard or multi-trunked) such as crape-myrtle, Japanese ligustrum and others. Branch diameter should not be larger than ½ the diameter of the trunk measured directly above the branch union. There should be no flush cuts anywhere on the tree, and no open wounds on the trunk or major branches. The crown should be full of foliage and show little, if any, evidence of chlorosis, necrosis, disease or insect infestation. The root ball should be appropriately sized (see any matrix, e.g., p. 13) and be free of severe defects.

Trees graded **Florida No. 1** may require some corrective pruning (Appendix A, Part 1, p. 29) so they develop good trunk and branch structure. They may have minor trunk injuries or could have other defects. Defects can be corrected by pruning the tree at planting and/or once or twice within a year or two after planting.

Florida No. 2 is a lesser grade. These trees require major corrective pruning to form a structurally strong tree, or are misshapen. Large pruning dose will be required to develop a structure in these trees which will promote longevity. Defects may take several prunings over time to correct.

Cull is the lowest grade. These trees lack vigor or vitality and/or have poor trunk and branch structure or circling roots. They have other problems such as large open wounds, flush cuts or a loose root ball which may prevent them from becoming established in the landscape. Defects may take several years to correct or may not be correctable.

The better grades of trees will require less pruning after planting, and they are likely to establish more quickly. These have been properly trained and pruned in the nursery to develop a structure which resists damage from winds and other outside forces. Most tree maintenance budgets have not been developed to allow for pruning a tree after planting, so it makes sense to start with a tree which is healthy and well formed. If there is a large tree pruning allocation in the landscape maintenance budget, trees with the lesser grades may be trained into sturdy trees in the landscape by skilled arborists.

Grades established for trees (Florida Fancy, Florida No. 1, and Florida No. 2) do not apply to trees used in wetland mitigation. For trees used in wetland mitigation, refer to the wetland section of this manual.

Grades and Standards do not apply to specialty trees like braided stems, poodles, espalier, topiary and bonsai.

STEPS FOR DETERMINING THE GRADE OF A TREE

Step 1.	Choose the appropriate tree matrix type. (Matrix 1 – p. 13; Matrix 2 – p. 14; Matrix 3 – p. 15.)	Step 5.	If one of the following statements is true, reduce the grade determined in Step 4 by one. If two or more are true, reduce the grade by two.
	Appropriate matrix type:		Reference tree caliper and appropriate matrix for 5a, 5b, and 5d. For multi-trunked small-maturing trees, use container size or root ball
	 a) For multi-trunked small maturing trees such as crape-myrtle and wax privet (Index of Small-Maturing Trees, p. 26), measure the container size or root ball diameter of the tree you are grading and ignore the caliper. For standard small maturing trees, measure the caliper of the tree. For all small maturing trees, skip Step 2. b) For all other trees, measure the caliper of the tree. Caliper: 	T F	 diameter (not caliper) for 5b and skip 5a and 5d. a) Tree does not meet height requirement. b) Crown does not meet diameter requirement. c) Root ball is not secure enough to successfully transplant. d) Root ball or container is undersized. If two or more sizes, reduce grade by two. e) Tree with a trunk caliper larger than two inches requires a stake to hold the trunk erect For multi-trunked trees, this applies to each trunk individually. Grade:
Step 2.	Grade the tree according to trunk structure (see Fig. 1, p. 10). Trees with one dominant trunk are graded Florida Fancy. Those with double or multiple trunks are given a lesser grade depending on the size and location of the defect. Circle the appropriate grade below based on trunk structure only. This step is skipped if grading a small-maturing tree (Index of Small-Maturing Trees, p. 26).		
	Florida Florida Cull Fancy No. 1 No. 2		
Step 3.	Grade the tree according to crown uniformity (see Fig. 2, p. 11). Circle the appropriate grade below based on crown uniformity only.		
Note:	For crown uniformity there is no Florida No. 1 or cull grade.		
	Florida Florida Fancy No. 2		
Step 4.	Record the lowest grade determined in Step 2 or 3.		
	Grade:		

Step 6.	reduce the grade determined in Step 5 by one. If three or more of the statements are true,	•	The tree is a Cull if one of the following conditions is true:
	reduce the grade by two. It takes only one true statement to reduce Florida Fancy to Florida No. 1.		a) The top-most structural root (roots among largest on the tree) emerges from trunk (root collar) more than two inches below the top of the root ball surface. Soil, substrate and/or
T F	a) Flush cuts were made when pruning branches from the trunk (Fig. 3, p. 12).		roots can be removed from the top ½ of the root ball to conform to this depth requirement. For example, see Appendix A, Part 2, p. 30-31.
	b) Branch stubs were left beyond the collar (Fig. 3, p. 12). A branch stub can be removed and not reduce the grade.		b) One or more roots greater than ½ of the trunk caliper, circle more than ½ of
- -	c) Open trunk wounds are evident. Wounds are considered open when they are greater than 10% of trunk circumference and/or more than two inches tall. Open or closed proper pruning cuts, surface abrasions or scratches to the bark should not be downgraded. See Glossary: Trunk wound .		trunk in the top ½ of the root ball. All three conditions (> ¼ trunk caliper, ⅓ around, top ½ of the root ball) must be true to grade as a Cull. One or more circling roots less than ⅓ the trunk diameter can be cut at the point just inside where they begin to circle. For multi-trunked trees, caliper equals the sum
	d) More than 10% of the crown exhibits necrosis, chlorosis or damage from pests, diseases or tip dieback.		of the three largest trunks. Following cutting, the tree is no longer a Cull. For example, see Appendix A, Part 2, p. 30-31).
	e) The crown is thin and sparsely foliated. Some species are thin and sparsely foliated in fall through early spring. Recently harvested field grown trees might also be thin and should not be downgraded.	Note:	Grades and Standards do not apply to specialty trees like braided stems, poodles, espalier, topiary and bonsai.
	f) There is included bark between the trunk and a major lateral branch or between main trunks (Appendix B, p. 37).		
	g) Trunks and/or major branches are touching.	Final G	rade:

EXAMPLE I

Grade a container-grown live oak (pictured below) with a three-inch caliper trunk measured six inches above the ground. The tree is 14-feet tall with a 66-inch crown diameter. The crown is uniform. The container is 45 gallons. The bark is intact and there are no flush cuts evident. There are several recent pruning cuts (not closed) along the lower trunk.

Step 1. Choose the appropriate tree matrix type. (See Index of Trees on pages 19-26 for guidance).

Appropriate matrix type: Type 1 Matrix, Tall and Wide. (The Index of Trees indicates Type 1 Matrix is appropriate for live oak.)

Measure the caliper of the tree and locate it in the left column of the appropriate matrix.

The caliper of the example tree is three inches.

Step 2. Grade the tree according to trunk structure based on the information on p. 10. Trees with one dominant trunk are graded Florida Fancy. Trees with double or multiple trunks are given a lesser grade depending on the extent of the defect.

Grade: Florida No. 2

The drawings and description of a Florida No. 2 in Fig. 1 most closely match the condition of the example tree. That is, the trunk divides into two equal-sized trunks in the lower ½ of the tree. This is difficult to see in this photograph. Look carefully at the bottom of the crown. See arrow in photo above right.

Step 3. Grade the tree according to structural uniformity (see Fig. 2, p. 11).

Grade: Florida Fancy
The example tree has a uniform crown as shown on p. 11.

Step 4. Record the lowest grade determined in Step 2 or Step 3.

Grade: Florida No. 2

The grade determined in Step 2 = Florida No. 2 and in Step 3 = Florida Fancy.



Quercus virginiana - live oak Florida No. 2

- **Step 5.** If one of the following statements is true, reduce the grade determined in Step 4 by one. If two or more are true, reduce the grade by two. Reference Type 1 Matrix and three-inch caliper for 5a, 5b and 5d.
 - a) Tree does not meet height requirement.
 - b) Crown does not meet diameter requirement.
 - c) Root ball is not secure enough to successfully transplant.
 - d) Root ball or container is undersized. If two or more sizes, reduce grade by two.
 - e) Tree with a trunk caliper larger than two inches requires a stake to hold the trunk erect. For multi-trunked trees, this applies to each trunk individually.

Grade: Florida No. 2

The grade determined in Step 4 is not reduced because all statements in Step 5 are false.

- **Step 6.** If two of the following statements are true, reduce the grade determined in Step 5 by one. If three or more of the statements are true, reduce the grade by two. It takes only one true statement to reduce Florida Fancy to Florida No. 1.
 - a) Flush cuts were made when pruning branches from the trunk (Fig. 3, p. 12).
 - b) Branch stubs were left beyond the collar (Fig. 3, p. 12). A branch stub can be removed and not reduce the grade.
 - c) Open trunk wounds are evident. Wounds are considered open when they are greater than 10% of trunk circumference and/or more than two inches tall. Open or closed, proper pruning cuts, surface abrasions or scratches to the bark should not be downgraded. See Glossary: Trunk wound.
 - d) More than 10% of the crown exhibits necrosis or chlorosis or damage from pests, diseases or tip dieback.
 - e) The crown is thin and sparsely foliated.

 Some species are thin and sparsely foliated in fall through early spring; recently harvested field grown trees might also be thin and should not be downgraded.
 - f) There is included bark between the trunk and a major lateral branch or between main trunks. (Appendix B, p. 37.)
 - g) Trunks and/or major branches are touching.

Grade: Florida No. 2
The grade determined in Step 5 is not reduced because all statements in Step 6 are false.

- **Step 7.** The tree is a Cull if one of the following three conditions are true:
 - a) The top-most structural root (roots among largest on the tree) emerges from trunk (root collar) more than two inches below the top of the root ball surface. Soil, substrate and/or roots can be removed from the top 1/3 of the root ball to conform to this depth requirement. For example, see Appendix A, Part 2, p. 30-31.
 - b) One or more roots greater than ½ of the trunk caliper circle more than ⅓ of trunk in the top ½ of the root ball. All three conditions (> ⅙ trunk caliper, ⅓ around, top ⅙ of the root ball) must be true to grade as a Cull. One or more circling roots less than ⅓ the trunk diameter can be cut at the point just inside where they begin to circle. For multi-trunked trees, caliper equals the sum of the three largest trunks. Following cutting, the tree is no longer a Cull. For example, see Appendix A, Part 2, p. 30-31.

Final Grade: Florida No. 2 The grade determined in Step 2 is Florida No. 2. None of the statements in Steps 6 and 7 are true, so the grade remains Florida No. 2.

EXAMPLE 2

Grade a six-foot tall wax privet with a six-foot crown diameter grown in a 30-gallon container (pictured below). The tree stands erect by itself and root ball is secure enough to transplant. There is chlorosis on 4% or 5% of the crown, and the crown was sheared. There is bark included between the trunks but no trunks or major braches are touching one another. Skip Step 2 because you are grading a small-maturing tree (Index of Small-Maturing Trees, p. 26).



Ligustrum japonicum - wax privet

Step 1. Find the container size or root ball diameter. Choose the appropriate tree matrix (see Index of Trees on pages 19-26 for guidance). Skip Step 2.

Appropriate tree matrix type: Type 3 Matrix, Short and Wide/Multi-Trunked. (The Index of Trees indicates Type 3 Matrix is appropriate for ligustrum.)

- **Step 2**. Skip because the tree you are grading is a small-maturing multi-trunked tree.
- **Step 3.** Grade the tree according to structural uniformity (see Fig. 2, p. 11).

Grade: Florida Fancy
The example tree has a small portion of the crown missing and most closely matches the Florida Fancy drawings in Figure 2.

Step 4. Record the lowest grade determined in Step 3.

Grade: Florida Fancy Step 2 was skipped, and Step 3 = Florida Fancy.

- Step 5. If one of the following statements is true, reduce the grade determined in Step 4 by one. If two or more are true, reduce the grade by two. For multi-trunked, small-maturing trees, use container size or root ball diameter (not caliper) for 5b and skip 5a and 5d. Reference Type 3 Matrix for 5b.
 - a) Tree does not meet height requirement.
 - b) Crown does not meet diameter requirement.
 - c) Root ball is not secure enough to successfully transplant.
 - d) Root ball or container is undersized. If two or more sizes, reduce grade by two.
 - e) Tree with a trunk caliper larger than 2 inches requires a stake to hold the trunk erect. For multi-trunked trees, this applies to each trunk individually.

Grade: Florida Fancy
There is no reason to reduce the grade from
Step 4 since none of the above are true.

- Step 6. If two of the following statements are true, reduce the grade determined in Step 5 by one. If three or more of the statements are true, reduce the grade by two. It takes only one true statement to reduce Florida Fancy to Florida No. 1.
 - a) Flush cuts were made when pruning branches from the trunk (Fig. 3, p. 12).
 - b) Branch stubs were left beyond the collar (Fig. 3, p. 12). A branch stub can be removed and not reduce the grade.

- c) Open trunk wounds are evident. Wounds are considered open when they are greater than 10% of trunk circumference and/or more than two inches tall. Open or closed, proper pruning cuts, surface abrasions or scratches to the bark should not be downgraded. See Glossary: **Trunk wound**.
- d) More than 10% of the crown exhibits necrosis or chlorosis or damage from pests, diseases or tip dieback.
- e) The crown is thin and sparsely foliated. Some species are thin and sparsely foliated in fall through early spring. Recently harvested field grown trees might also be thin and should not be downgraded.
- f) There is included bark between the trunk and a major lateral branch, or between main trunks. (Appendix B, p. 37.)
- g) Trunks and/or major branches are touching.

Grade: Florida Fancy
The grade determined in Step 5 is not reduced because only one statement is true: (f).
Two statements must be true in order to downgrade a Florida Fancy to Florida No. 1.

Step 7. The tree is a Cull if one of the following conditions are true:

- a) The top-most structural root (roots among largest on the tree) emerges from trunk (root collar) more than two inches below the top of the root ball surface. Soil, substrate and/or roots can be removed from the top ½ of the root ball to conform to this depth requirement. For example, see Appendix A, Part 2, p. 30-31.
- b) One or more roots greater than ½0 the trunk caliper, circle more than ⅓0 of trunk in the top ½0 of the root ball. All three conditions (> ½0 trunk caliper, ⅓3 around, top ½0 of the root ball) must be true to grade as a Cull. One or more circling roots less than ⅓3 the trunk diameter can be cut at the point just inside where they begin to circle. For multi-trunked trees, caliper equals the sum of the three largest trunks. Following cutting, the tree is no longer a Cull. For example, see Appendix A, Part 2, p. 30-31.

Final Grade: Florida Fancy None of the statements in Steps 6 and 7 are true, so the grade remains Florida Fancy.



STEP 2—Determining the Quality of Trunk Structure

Instructions: Locate the drawing, caption and associated text below that most closely represents the trunk structure of the tree you are grading. Select the appropriate tree grade at the end of Step 2 on page 4. For photographic examples, see pages 16-18 and 34-35. Skip Step 2 when grading small-maturing trees (Index of Small-Maturing Trees, p. 26).

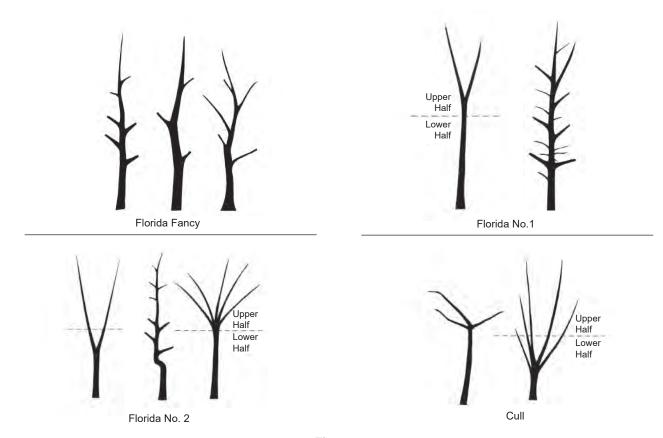


Figure 1.

Florida Fancy — There is one trunk, more or less in the center of the tree as shown above; trunk does not have to be perfectly straight. The tip of the leader on the main trunk must be intact and its terminal bud must be the highest part of the tree. No trunk or branch can have a diameter greater than ½ the trunk diameter measured directly above the branch union. If the trunk divides in two nearly equal diameter stems in the upper 10% of the tree, the trunk is not downgraded to a Florida No. 1.

Florida No. 1 — The trunk divides into two nearly equal diameter trunks in the upper ½ of the tree. If one trunk is ¾ or less than the diameter of the other trunk, they do not have equal diameters, making the tree a Florida Fancy. Pruning in the upper ½ of the tree to subordinate the competing trunk may leave a noticeable void in the crown. The tip of the leader on the main trunk must be intact and its terminal bud must be the highest part of the tree.

Florida No. 2 — The trunk divides into two nearly equal trunks along the lower ½ of the tree or the trunk divides into three or more nearly equal diameter trunks in the upper ½ of the tree. Do not downgrade the tree if competing trunks are ¾ or less the diameter of one main trunk measured above the union. Pruning to subordinate competing trunks will leave a large void in the crown. If there is a dogleg in the clear trunk portion of the tree, grade the tree a Florida No. 2. A dogleg in the crown of the tree is not a downgrading factor. (See Glossary: **Dogleg**).

Cull — The trunk divides into three or more nearly equal diameter trunks along the lower ½ of the trunk.

Note: See Appendix A - Best Management Practices, Part One, p. 29, for corrective pruning suggestion.



STEP 3 — Determining the Crown Uniformity

Instructions: Identify the drawing, caption and associated text below that most closely represents the crown uniformity of the tree you are grading. Select the appropriate tree grade, Florida Fancy or Florida No. 2, at the end of Step 3 on page 4.

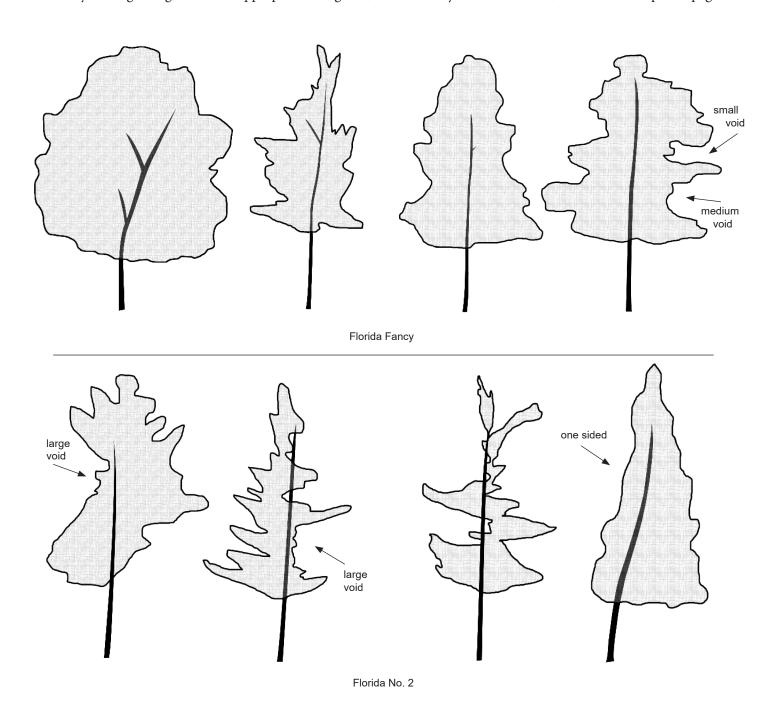


Figure 2.

Florida Fancy — There may be small to medium voids, and crown shapes may vary.

Florida No. 2 — There are large voids, and/or the tree may be one sided.

Not all shapes and forms are represented here. These images include a sample of what would be considered acceptable for Florida Fancy and Florida No. 2. **Note:** For crown uniformity there is no Florida No. 1 or cull grade. Carry a Florida Fancy or Florida No. 2 grade to Step 4.



Step 6 (a) — Determining if Pruning Cuts Were Made Correctly

Instructions: Locate the photograph, drawing, caption and associated text below which most closely represents the condition of the pruning cuts on the tree you are grading. Check the 'true' column in Step 6 (a & b) if incorrect pruning cuts were made.

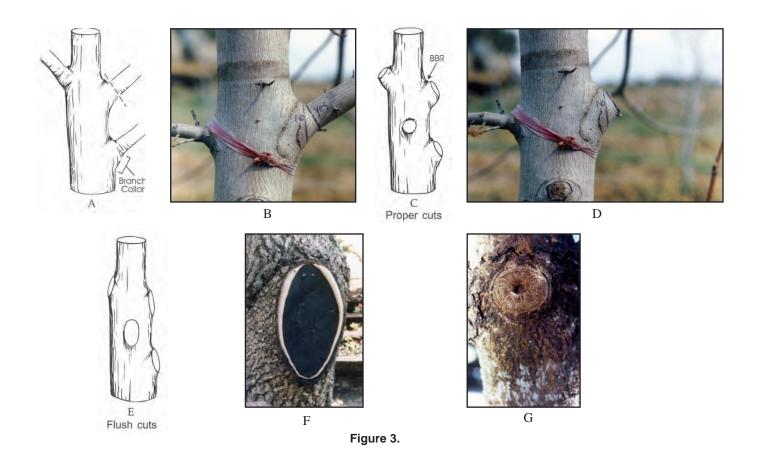


Figure 3A — Notice the swelling at the base of each branch. This is branch and trunk tissue (referenced as the collar) which helps hold the branch securely on the trunk. A proper cut is made along the dashed line. Some species have no swelling at the base of branches, and it may be more difficult to determine exactly where to make a proper pruning cut. Always begin the cut to the outside of the branch bark ridge, and angle it away from the trunk.

Figure 3B — Cut along the line just to the left of the word 'yes' to properly remove the branch. If the cut is made closer to the trunk, this is a flush cut. If it is made farther from the trunk, a stub will be left.

Figure 3C — This shows how to properly remove branches from the trunk. Always cut to the outside of the branch collar and branch bark ridge (BBR). Notice that the BBR is still visible on top of the pruning cut and the pruning cut is nearly circular.

Figure 3D — The right hand side of photograph shows a properly executed pruning cut with BBR and collar intact.

Figure 3E — Never make a flush cut as shown here. Notice that the BBR is missing from the top of the pruning cut. This improper cut, usually oval, initiates trunk decay and can reduce growth in the nursery and landscape after planting.

Figure 3F — The pruning cut and the woundwood or callus which closes over a flush cut is often shaped like an oval. Woundwood is often missing from the top or bottom of a flush cut.

Figure 3G — Woundwood or callus around a proper pruning cut is circular.

TYPE 1 MATRIX — TALL AND WIDE FORM

Examples: black-olive, golden shower tree, live oak, mahogany, red maple, river birch, royal poinciana, southern magnolia, sycamore, winged elm

Trunk caliper	Tree height greater than or equal to	Crown diameter greater than or equal to	B&B root ball diameter greater than or equal to	Container volume greater than or equal to
1½"	5'	34"	20"	15 Gal.
2"	6'	42"	24"	25 Gal.
2½"	7'	48"	28"	25 Gal.
3"	8'	54"	32"	45 Gal.
3½"	9,	5'	36"	65 Gal.
4"	10'	6'	40"	100 Gal.
4½"	12'	7'	44"	100 Gal.
5"	14'	8'	44"	100 Gal.
5½"	16'	9'	50"	200 Gal.
6"	17'	10'	52"	200 Gal.
7"	18'	11'	60"	300 Gal.
8"	19'	12'	70"	300 Gal.
9"	20'	13'	80"	670 Gal.
10"	20'	14'	80"	670 Gal.

Notes:

- 1. Trees to be graded under this matrix are listed in the Index of Trees on pages 19-26.
- 2. Root ball depth on B&B stock shall be at least ¾ of the root ball diameter shown. Trees grown in soils with high water table can have shallower root balls provided the root ball diameter is increased to the next larger tree size in the table.
- 3. For the purpose of determining minimum root ball size, hardened-off field grown trees can have a caliper up to one inch larger than indicated in the table.
- 4. If caliper does not appear in matrix, use the next smallest matrix caliper.

Note: ANSI standards Z60.1 designations for container size (e.g. #3, #15, #30, etc.) can be substituted for container volume.

TYPE 2 MATRIX — TALL AND NARROW FORM

Examples: bald-cypress, Eagleston holly, East Palatka holly, Italian cypress, Japanese blueberry, little gem magnolia, pine, southern red-cedar

Trunk caliper	Tree height greater than or equal to	Crown diameter greater than or equal to	B&B root ball diameter greater than or equal to	Container volume greater than or equal to
1½"	5'	20"	20"	15 Gal.
2"	6'	22"	24"	25 Gal.
2½"	7'	25"	28"	25 Gal.
3"	8'	28"	32"	45 Gal.
3½"	9'	32"	36"	65 Gal.
4"	10'	36"	40"	100 Gal.
4½"	12'	48"	44"	100 Gal.
5"	14'	54"	44"	100 Gal.
5½"	16'	5'	50"	200 Gal.
6"	17'	6'	52"	200 Gal.
7"	18'	7'	60"	300 Gal.
8"	19'	8'	70"	300 Gal.
9"	20'	9'	80"	670 Gal.
10"	20'	10'	80"	670 Gal.

Notes:

- 1. Trees to be graded under this matrix are listed in the Index of Trees on pages 19-26.
- 2. Root ball depth on B&B stock shall be at least ½ of the root ball diameter shown. Trees grown in soils with high water table can have shallower root balls provided the root ball diameter is increased to the next larger tree size in the table.
- 3. For the purpose of determining minimum root ball size, hardened-off field grown trees can have a caliper up to one inch larger than indicated in the table.
- 4. If caliper does not appear in matrix, use the next smallest matrix caliper.

Note: ANSI standards Z60.1 designations for container size (e.g. #3, #15, #30, etc.) can be substituted for container volume.



TYPE 3 MATRIX — SHORT/WIDE AND MULTI-TRUNKED FORM

Examples: bottle-brush, crape-myrtle, ligustrum, pigeon plum, sea-grape, silver buttonwood, tabebuia, wax-myrtle, yaupon holly

	onvoi battorivood, tabobata, vax mytto, yaapon nony				
Trunk caliper	Tree height greater than or equal to	Crown diameter greater than or equal to	B&B root ball diameter greater than or equal to	Container volume greater than or equal to	
1½"	5'	24"	20"	15 Gal.	
2"	6'	30"	24"	25 Gal.	
2½"	6'	36"	28"	25 Gal.	
3"	7'	42"	32"	45 Gal.	
3½"	8'	4'	36"	65 Gal.	
4"	9'	5'	40"	100 Gal.	
4½"	10'	6'	44"	100 Gal.	
5"	12'	7'	44"	100 Gal.	
5½"	14'	8'	50"	200 Gal.	
6"	14'	8'	52"	200 Gal.	

Notes:

- 1. Trees to be graded under this matrix are listed in the Index of Trees on pages 19-26.
- 2. Root ball depth on B&B stock shall be at least ¾ of the root ball diameter shown. Trees grown in soils with high water table can have shallower root balls provided the root ball diameter is increased to the next larger tree size in the table.
- 3. For the purpose of determining minimum root ball size, harden off trees field grown can have a caliper up to one inch larger than indicated in the table.
- 4. If caliper does not appear in matrix, use the next smallest matrix caliper.
- 5. For multi-trunked small-maturing trees, find the container size or root ball diameter of the tree you are grading and ignore the caliper.
- 6. Multi-trunked, small-maturing trees should not be downgraded if they are shorter than the minimum height.

Note: ANSI standards Z60.1 designations for container size (e.g. #3, #15, #30, etc.) can be substituted for container volume.

Florida Fancy Examples

Tree has one dominant trunk or is multi-trunked. Crown uniformity is Florida Fancy on all six crowns shown.



Type 1 Matrix: live oak



Type 1 Matrix: black-olive



Type 2 Matrix: East Palatka holly



Type 2 Matrix: bald-cypress



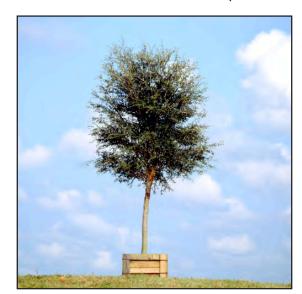
Type 3 Matrix: wax privet



Type 3 Matrix: loblolly bay

Florida No. 1 Examples

Tree is downgraded for a double trunk in top half, or a narrow crown. Crown uniformity is Florida Fancy on all six crowns shown.



Type 1 Matrix: live oak



Type 1 Matrix: sycamore



Type 2 Matrix: East Palatka holly



Type 2 Matrix: bald-cypress



Type 1 Matrix: red maple



Type 1 Matrix: sweetgum

Florida No. 2 Examples

Trees below represent a variety of downgrades including double trunk in the lower half, a dogleg in the clear trunk or a non-uniform crown. Not all downgrades are present on every tree.



Type 1 Matrix: live oak



Type 1 Matrix: black-olive



Type 1 Matrix: red maple



Type 1 Matrix: sweetgum



Type 3 Matrix: citrus



Type 3 Matrix: loblolly bay



INDEX OF TREES COMMONLY SOLD BY FLORIDA NURSERIES LISTED BY COMMON NAME AND MATRIX TYPE

Instructions: Find the tree you are grading in the list below and note the matrix type in the left column. Return to Step 1 on page 4.

Matrix type	Common Name*	Scientific Name
3	acacia, sweet	Acacia farnesiana
1	African tulip tree	Spathodea campanulata
1	almond, tropical	Terminalia catappa
2	American hophornbeam	Ostrya virginiana
3	arborvitae	Platycladus orientalis
1	ash	Fraxinus spp.
1	avocado	Persea americana
2	bald-cypress	Taxodium distichum
3	Barbados-cherry	Malpighia emarginata
1	basswood	Tilia americana
1	bauhinia	Bauhinia spp.
2	bay, loblolly	Gordonia lasianthus
3	bay, red	Persea borbonia
2	bay, sweet	Magnolia virginiana
3	beech, blue	Carpinus caroliniana
1	birch, river	Betula nigra & cvs.
1	black-gum	Nyssa sylvatica
1	black ironwood	Krugiodendron ferreum
1	black-olive	Bucida buceras
3	blue-beech	Carpinus caroliniana
3	bottle brush	Callistemon spp.
3	Brazilian beauty leaf	Calophyllum antillanum
3	carambola	Averrhoa carambola
3	cassia	Cassia spp.
2	cedar, eastern red	Juniperus virginiana
1	cedar, Japanese	Cryptomeria japonica
2	cedar, southern red	Juniperus silicicola
3	cherry, Barbados	Malpighia emarginata
3	citrus	Citrus spp.
1	cottonwood	Populus spp.
3	crape-myrtle	Lagerstroemia hybrids and
	cultivars	
3	crape-myrtle, queen	Lagerstroemia speciosa
2	cypress, bald	Taxodium distichum
2	cypress, Italian	Cupressus sempervirens
2	cypress, Leyland	X Cupressocyparis leylandii
2	cypress, pond	Taxodium ascendens
3	dogwood, flowering	Cornus florida & cvs.
3	elder, yellow	Tecoma stans
1	elm, American	Ulmus americana
2	elm, lace bark	Ulmus parvifolia
1	elm, winged	Ulmus alata

^{*}Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.



Matrix type	Common Name	Scientific Name
2	eucalyptus	Eucalyptus spp.
3	fig, rusty	Ficus rubiginosa
1	floss silk tree	Chorisia speciosa
3	frangipani	Plumeria rubra
3	fringetree	Chionanthus virginicus
3	fringetree, Chinese	Chionanthus retusus
3	geiger tree	Cordia sebestena
2	ginkgo	Ginkgo biloba & cvs.
3	glorybush	Tibouchina urvilleana
1	golden rain tree	Koelreuteria elegans
1	golden shower tree	Cassia fistula
1	green buttonwood	Conocarpus erectus & cvs. & vars.
3	guava	Psidium guajava
1	gum, black	Nyssa sylvatica
1	gumbo limbo	Bursera simaruba
2	hackberry	Celtis laevigata
3	hawthorn	Crataegus spp.
1	hickory	Carya spp.
1	holly, American	Ilex opaca
2	holly, dahoon	Ilex cassine & vars. & cvs.
2	holly, Eagleston	<i>Ilex x attenuate</i> 'Eagleston'
2	holly, East Palatka	Ilex x attenuata 'East Palatka'
2	holly, Foster	<i>Ilex x attenuata</i> 'Fosteri'
3	holly, Nellie R. Stevens	<i>Ilex</i> 'Nellie R. Stevens'
2	holly, Savannah	Ilex x attenuata 'Savannah'
2	holly, weeping yaupon	Ilex vomitoria 'Pendula'
3	holly, yaupon	Ilex vomitoria
1	Indian-rubber tree	Ficus elastica
1	jacaranda	Jacaranda mimosifolia
3	Jamaican dogwood	Piscidia piscipula
3	Japanese blueberry	Elaeocarpus decipens
2	Japanese cedar	Cryptomeria japonica
3	Japanese fern tree	Filicium decipiens
1	Japanese pagoda tree	Sophora japonica
3	Jerusalem thorn	Parkinsonia aculeata
1	kapok	Ceiba pentandra
3	lignum-vitae	Guaiacum sanctum
3	ligustrum, wax privet	Ligustrum japonicum
3	loquat	Eriobotrya japonica
3	lychee	Litchi chinensis
3	Madagascar olive	Noronhia emarginata
2	magnolia, 'Bracken Brown' Beauty	Magnolia grandiflora 'Bracken Brown' Beauty
2	magnolia, 'Little Gem'	Magnolia grandiflora 'Little Gem'
3	magnolia, saucer	Magnolia x soulangeana
1	magnolia, southern	Magnolia grandiflora
1	mahogany	Swietenia mahagoni
3	mango	Mangifera indica & cvs.

^{*}Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.



Matrix type	Common Name	Scientific Name
3	mangrove, black	Avicennia germinans
1	maple, Florida	Acer floridanum
3	maple, Japanese	Acer palmatum
1	maple, red	Acer rubrum & cvs.
1	maple, silver	Acer saccharinum
1	mastic tree	Sideroxylon foetidissimum
1	oak, bluff	Quercus austrina
1	oak, laurel	Quercus laurifolia
1	oak, live	Quercus virginiana
1	oak, pin	Quercus palustris
1	oak, post	Quercus stellata
1	oak, sand live	Quercus geminata
1	oak, sawtooth	Quercus acutissima
1	oak, Shumard	Quercus shumardii
1	oak, southern red	Quercus falcata
1	oak, swamp-chestnut	Quercus michauxii
1	oak, water	Quercus nigra
1	oak, white	Quercus alba
1	oak, willow	Quercus phellos
3	olive, black	Bucida buceras
3	olive, spiny black	Bucida molinetii
1	paradise tree	Simarouba glauca
3	pigeon plum	Coccoloba diversifolia
2	pine	Pinus spp.
3	pine, screw	Pandanus utilis
3	pistache, Chinese	Pistacia chinensis
3	pitch-apple	Clusia rosea
3	plum, Chickasaw	Prunus angustifolia
3	plum, pigeon	Coccoloba diversifolia
2	podocarpus, Japanese yew	Podocarpus macrophyllus
2	podocarpus, nagi	Podocarpus nagi
2	podocarpus, weeping	Podocarpus gracilior
3	poinciana, dwarf	Caesalpinia pulcherrima
1	poinciana, royal	Delonix regia
1	poinciana, yellow	Peltophorum pterocarpum
1	red-bay	Persea borbonia
3	redbud	Cercis canadensis
1	river birch	Betula nigra & cvs.
3	rubber tree, Indian	Ficus elastica
1	satinleaf	Chrysophyllum oliviforme
3	screw-pine	Pandanus utilis
3	sea-grape	Coccoloba uvifera
1	silk-cotton tree, red	Bombax ceiba
3	silver buttonwood	Conocarpus erectus
3	small leaf clusia	Clusia guttifera
3	spiny black-olive	Bucida molinetii
3	stopper	Eugenia spp.

^{*}Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.



Matrix type	Common Name	Scientific Name
1	sweet gum	Liquidambar styraciflua & cvs.
1	sycamore	Platanus occidentalis
3	syzygium	Syzygium spp.
3	tabebuia	Tabebuia spp.
1	tamarind	Tamarindus indica
1	tamarind, wild	Lysiloma latisiliquum
1	tropical-almond	Terminalia catappa
1	tulip tree, African	Spathodea campanulata
1	tulip-poplar	Liriodendron tulipifera
1	tupelo	Nyssa ogeche
3	verawood	Bulnesia arborea
3	wax-myrtle	Myrica cerifera
1	weeping willow	Salix babylonica
3	wild-tamarind	Lysiloma latisiliquum

^{*}Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.



INDEX OF TREES COMMONLY SOLD BY FLORIDA NURSERIES LISTED BY SCIENTIFIC NAME AND MATRIX TYPE

Instructions: Find the tree you are grading in the list below and note the matrix type in the left column. Return to Step 1 on page 4.

Matrix Type	Scientific Name	Common Name*
3	Acacia farnesiana	acacia, sweet
1	Acer floridanum	maple, Florida
3	Acer palmatum	maple, Japanese
1	Acer rubrum & cvs.	maple, red
1	Acer saccharinum	maple, silver
3	Averrhoa carambola	carambola
3	Avicennia germinans	mangrove, black
1	Bauhinia spp.	bauhinia
1	Betula nigra & cvs.	birch, river; river birch
1	Bombax ceiba	silk-cotton tree, red
1	Bucida buceras	black-olive; olive, black
3	Bucida molinetii	olive, spiny black; spiny black-olive
3	Bulnesia arborea	verawood
1	Bursera simaruba	gumbo limbo
3	Caesalpinia pulcherrima	poinciana, dwarf
3	Callistemon spp.	bottle brush
3	Calophyllum antillanum	Brazilian beauty leaf
3	Carpinus caroliniana	blue-beech; beech,blue
1	Carya spp.	hickory
1	Cassia fistula	golden shower tree
3	Cassia spp.	cassia
1	Ceiba pentandra	kapok
2	Celtis laevigata	hackberry
3	Cercis canadensis	redbud
3	Chionanthus retusus	fringetree, Chinese
3	Chionanthus virginicus	fringetree
1	Chorisia speciosa	floss silk tree
1	Chrysophyllum oliviforme	satinleaf
3	Citrus spp.	citrus
3	Clusia guttifera	small leaf clusia
3	Clusia rosea	pitch-apple
3	Coccoloba diversifolia	pigeon plum; plum, pigeon
3	Coccoloba uvifera	sea-grape
3	Conocarpus erectus	silver buttonwood
1	Conocarpus erectus & cvs. & vars.	green buttonwood
3	Cordia sebestena	geiger tree
3	Cornus florida & cvs.	dogwood, flowering
3	Crataegus spp.	hawthorn
1	Cryptomeria japonica	cedar, Japanese; Japanese cedar
2	Cupressus sempervirens	cypress, Italian
1	Delonix regia	poinciana, royal
3	Elaeocarpus decipens	Japanese blueberry
3	Eriobotrya japonica	loquat

^{*}Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

23



Matrix Type	Scientific Name	Common Name
2	Eucalyptus spp.	eucalyptus
3	Eugenia spp.	stopper
1	Ficus elastica	Indian-rubber tree; rubber tree, Indian
3	Ficus rubiginosa	fig, rusty
3	Filicium decipiens	Japanese fern tree
1	Fraxinus spp.	ash
2	Ginkgo biloba & cvs.	ginkgo
2	Gordonia lasianthus	bay, loblolly
3	Guaiacum sanctum	lignum-vitae
3	<i>Ilex</i> 'Nellie R. Stevens'	holly, Nellie R. Stevens
2	Ilex cassine & vars. & cvs.	holly, dahoon
1	Ilex opaca	holly, American
3	Ilex vomitoria	holly, yaupon
2	Ilex vomitoria 'Pendula'	holly, weeping yaupon
2	<i>Ilex x attenuata</i> 'East Palatka'	holly, East Palatka
2	<i>Ilex x attenuata</i> 'Fosteri'	holly, Foster
2	Ilex x attenuata 'Savannah'	holly, Savannah
2	<i>Ilex x attenuate</i> 'Eagleston'	holly, Eagleston
1	Jacaranda mimosifolia	jacaranda
2	Juniperus silicicola	cedar, southern red
2	Juniperus virginiana	cedar, eastern red
1	Koelreuteria elegans	golden rain tree
1	Krugiodendron ferreum	black ironwood
3	Lagerstroemia hybrids and cultivars	crape-myrtle
3	Lagerstroemia speciosa	crape-myrtle, queen
3	Ligustrum japonicum	ligustrum, wax privet
1	Liquidambar styraciflua & cvs.	sweet gum
1	Liriodendron tulipifera	tulip-poplar
3	Litchi chinensis	lychee
1	Lysiloma latisiliquum	wild-tamarind; tamarind, wild
1	Magnolia grandiflora	magnolia, southern
2	Magnolia grandiflora 'Bracken Brown' Beauty	magnolia, 'Bracken Brown' Beauty
2	Magnolia grandiflora 'Little Gem'	magnolia, 'Little Gem'
2	Magnolia virginiana	bay, sweet
3	Magnolia x soulangeana	magnolia, saucer
3	Malpighia emarginata	Barbados-cherry; cherry, Barbados
3	Mangifera indica & cvs.	mango
3	Myrica cerifera	wax-myrtle
3	Noronhia emarginata	Madagascar olive
1	Nyssa ogeche	tupelo
1	Nyssa sylvatica	black-gum; gum, black
2	Ostrya virginiana	American hophornbeam
3 3	Pandanus utilis Pandanus utilis	pine, screw
3	Parkinsonia aculeata	screw-pine Jerusalem thorn
3 1		
_	Peltophorum pterocarpum Persea americana	poinciana, yellow avocado
1	reisea americana	avucadu

^{*}Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.



Matrix Type	Scientific Name	Common Name
1	Persea borbonia	red-bay
2	Pinus spp.	pine
3	Piscidia piscipula	Jamaican dogwood
3	Pistacia chinensis	pistache, Chinese
1	Platanus occidentalis	sycamore
3	Platycladus orientalis	arborvitae
3	Plumeria rubra	frangipani
2	Podocarpus gracilior	podocarpus, weeping
2	Podocarpus macrophyllus	podocarpus, Japanese yew
2	Podocarpus nagi	podocarpus, nagi
1	Populus spp.	cottonwood
3	Prunus angustifolia	plum, Chickasaw
3	Psidium guajava	guava
1	Quercus acutissima	oak, sawtooth
1	Quercus alba	oak, white
1	Quercus austrina	oak, bluff
1	Quercus falcata	oak, southern red
1	Quercus geminata	oak, sand live
1	Quercus laurifolia	oak, laurel
1	Quercus michauxii	oak, swamp-chestnut
1	Quercus nigra	oak, water
1	Quercus palustris	oak, pin
1	Quercus phellos	oak, willow
1	Quercus shumardii	oak, Shumard
1	Quercus stellata	oak, post
1	Quercus virginiana	oak, live
1	Salix babylonica	weeping willow
1	Sideroxylon foetidissimum	mastic tree
1	Simarouba glauca	paradise tree
1	Sophora japonica	Japanese pagoda tree
1	Spathodea campanulata	African tulip tree; tulip tree, African
1	Swietenia mahagoni	mahogany
3	Syzygium spp.	syzygium
3	Tabebuia spp.	tabebuia
1	Tamarindus indica	tamarind
2	Taxodium ascendens	cypress, pond
2	Taxodium distichum	bald-cypress; cypress, bald
3	Tecoma stans	elder, yellow
1	Terminalia catappa	tropical-almond; almond, tropical
3	Tibouchina urvilleana	glorybush
1	Tilia americana	basswood
1	Ulmus alata	elm, winged
1	Ulmus americana	elm, American
2	Ulmus parvifolia	elm, lace bark
2	X Cupressocyparis leylandii	cypress, Leyland

^{*}Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

INDEX OF SMALL-MATURING TREES

Scientific Name Common Name*

Acacia farnesianaacacia, sweetAcer palmatum and cultivarsJapanese mapleCallistemon spp. and cultivarsbottle-brush

Cassia bicapsularis cassia

Chionanthus retusus Chinese fringetree

Chionanthus virginicus fringetree Citrus spp. citrus

Guaiacum spp.lignum-vitaeIlex vomitoria and cultivarsyaupon hollyLagerstroemia hybrids and cultivarscrape-myrtle

Ligustrum japonicum ligustrum, wax privet
Magnolia x soulangiana magnolia, saucer
Malpighia emarginata Barbados-cherry
Myrica cerifera wax-myrtle
Parkinsonia aculeata Jerusalem thorn
Platycladus orientalis arborvitae

Prunus spp. and cultivarsplumPsidium spp.guava

Tecoma stans elder, yellow

Note: This list is not inclusive of all small-maturing trees. Other trees can be considered small-maturing as long as they naturally remain small at maturity.

^{*}Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

GLOSSARY OF TREE TERMS

Balled and burlapped (B&B): A soil ball containing roots of the plant wrapped and secured in natural or treated burlap and/ or wire.

Branch stub: The typically short portion of a branch left beyond the collar.

Caliper: Trunk caliper (trunk diameter) is measured six inches from the ground on trees up to and including four inches in caliper, and 12 inches above the ground for larger trees. Since trunks are seldom round, the average of the largest diameter and that perpendicular to it, is referred to as caliper. Any accurate device including a diameter tape may be used to measure caliper. Trees are placed in diameter classes in order to grade them. For example, trees in the two-inch class include those calipering two inches up to, but not including 2½ inches. Those in the 2½-inch class include trees calipering 2½ inches up to, but not including three inches, and so forth.

Callus: Undifferentiated, meristematic tissue with little lignin formed by the cambium layer; callus can form sprouts.

Chlorosis: A lightness or bleaching (typically yellowing) of green color in the foliage unlike the normal color. This indicates that the plant has not been maintained in the best of health. Chlorosis is not to be confused with normal yellowing of foliage common on many deciduous species late in the season. It is also not to be confused with yellowing of leaves on evergreens just prior to a new leaf flush, or with the normal yellow coloration of variegated foliage.

Clear trunk: That portion of the trunk maintained free of branches. The clear trunk is the lower portion of the trunk measured from the soil line up to the first major branch. Small temporary branches may exist on a clear trunk.

Container: A vessel made from plastic, fabric, wood or other material held above ground or partially in the ground that holds substrate and a root system.

Collar: The swelling formed by the trunk and branch wood intermingling in a union with a branch much smaller than the trunk.

Corrective pruning: Pruning which removes or shortens one or more branches or trunks to create strong, well-structured architecture.

Crown: The branches, twigs and leaves that make up the foliage portion of the tree.

Crown diameter: Crown diameter is the average of the widest branch spread and that perpendicular to it (see Fig. 4).

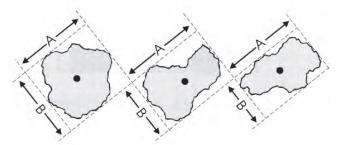


Figure 4. Add A and B together and divide by two to obtain crown diameter.

DBH: Diameter at breast height (4½ feet from the ground). This is not an appropriate method for measuring nursery trees.

Dogleg: A significant S-shaped deformation in the trunk below the crown (see Fig. 5). If there is a dogleg in the clear trunk portion, the tree is graded Florida No. 2. If the dogleg is in the crown portion of the tree, the tree is not downgraded.

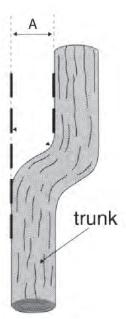


Figure 5. The distance 'A' can be no more than the trunk diameter.

Dominant trunk: The trunk that grows up through the crown of the tree and obviously dominates the rest of the branches.

Flush cut: A pruning cut made too close to, or flush with, the trunk. This type of cut is detrimental to tree health and is not recommended (Fig. 3, p. 12).

Grow-bag: A fabric container used for trees in field soil. Synthetic fabric grow bags must be removed prior to planting. Fabric used to hold substrate and the plant above ground is considered a container.

Hardened-off trees: Field-grown trees that are balled and burlapped in the nursery with visible roots growing through the burlap (Fig. 6).

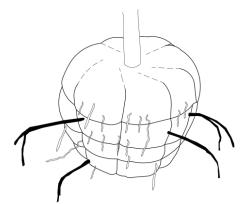


Figure 6. Hardened-off trees have roots growing through the burlap.

Included bark: Bark between a branch and trunk or between trunks that is squeezed together in the branch union (see page 37).

Leader: That part of the trunk that extends into the top \(^1\)4 on the tree.

Major lateral branches: Branches growing from the main trunk that are among the largest on the tree.

Multi-trunked: Several stems growing from the ground or from a short trunk.

Necrosis: Dead, typically brown, foliage and/or stem tissue.

Root ball diameter: The average diameter of the widest portion of the root ball and that perpendicular to it.

Small-maturing: Trees that remain small in stature, even in old age.

Specialty trees: A formal, man-manipulated plant form, either tree or shrub, developed and maintained by frequent clipping and shearing. Such forms include sheared pyramids, espaliers, columns, animal topiaries, large bonsai and other special shapes. Grades and Standards do not apply to specialty trees.

Standard: Tree trained to grow with a single trunk below the crown.

Subordination (subordination pruning): Removing the terminal, typically upright or end portion of a parent branch or stem to slow growth rate so other portions of the tree grow faster.

Tree height: The distance from the ground to the top most portion of the tree (see Fig. 7). On small, multi-trunked trees such as crapemyrtle, Japanese ligustrum and wax-myrtle, tree height is measured to the top of the main body of the crown.

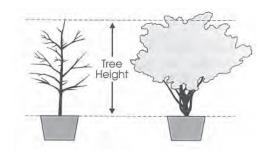


Figure 7. Measuring tree height.

Trunk wound: Wood (xylem) exposed due to injury (from mechanical, biological, or environmental agents) that killed or removed bark. Wounds are considered open when they are greater than 10% of trunk circumference and/or more than two inches tall. The following are not considered trunk damage: scrapes, surface abrasions or discoloration; shallow gouges; evidence of rubbing that does not expose wood; closed pruning wounds, or the woundwood growing over or around any wound.

Vitality: Ample growth as a result of cultural conditions.

Vigor: Ample growth as a result of genetic capacity.

Woundwood: Differentiated woody tissue forming around a wound, such as a pruning cut; typically follows callus.



APPENDIX A - BEST MANAGEMENT PRACTICES (BMP)

IMPORTANT NOTE: This BMP Appendix is NOT part of the grading process!

Introduction

The Best Management Practices (BMP) contained within this section are NOT part of the grading process. Specifying that trees meet a particular grade in the Grades and Standards for Nursery Plants does not imply that the practices outlined in the BMPs are recommended or required. They are presented to teach the best available research- and experience-based practices associated with tree planting and maintenance. Their use is completely optional unless the contract specifications and details call for their inclusion, in which case they are a part of the contract, not the grading process.

Part One:

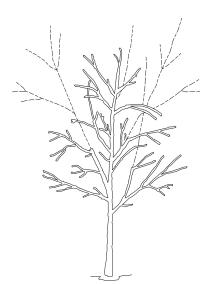
Pruning Before, At, or After Planting

Trees may be delivered with a dominant trunk, but without one leader to the top of the tree. Florida Fancy and Florida No. 1 grades both meet this condition. Under normal nursery practices, it is impractical to maintain every tree with one leader to the very top of the tree. Trees can be pruned before planting, at planting, or after planting without impacting establishment or root growth. Trees pruned as suggested below, generally develop better structure at maturity than those not receiving this treatment (Kristoffersen et al. 2010; Gilman 2014). Following pruning, the tree must meet the grade called for by the project.

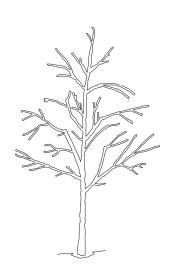
The illustrations below are for the very simple case of two stems competing with the central leader. Real-world scenarios are more complicated and require a skilled professional to make judgments as to which branches should be pruned and by how much. This can depend on the tree species, time of year, extent of defects and other factors. Refer to the University of Florida Landscape Plants website at http://hort.ifas.ufl.edu/woody/pruning.shtml for more detail.

Several stems competing with leader

Remove stems competing with leader



After pruning, one leader dominates crown



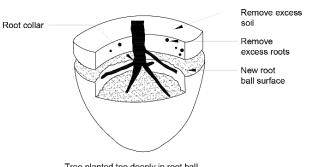


Part Two:

Root Ball Correction

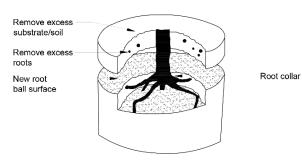
Distance between the substrate or soil surface and the root collar is largely set by the original planting depth in the nursery. The root collar is the point where the top-most structural roots meet the trunk and may or may not be associated with a swelling depending on tree species or age. In some cases, the root collar may be too deep in the root ball. Substrate soil, and/or roots can be removed so the root collar is closer to the root ball top surface. Roots circling or crossing over structural roots can be removed by cutting at the point just before a root turns abruptly to circle or plunge (descend) deeper into the root ball. Roots growing at the edge of the root ball can be removed at time of planting.

Remove soil and roots over the root collar



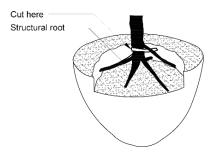
Tree planted too deeply in root ball. Remove excess soil and roots.

Remove soil and roots over the root collar

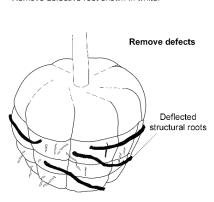


Tree planted too deeply in root ball. Remove excess soil and roots.





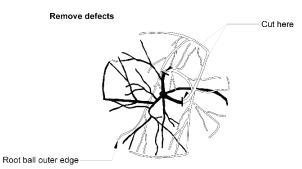
Structural (large) roots shown in black. Remove defective root shown in white.



Remove structural roots deflected

on the outer edge of root ball.

Four structural roots shown in black.
Remove root (white) growing over structural roots.



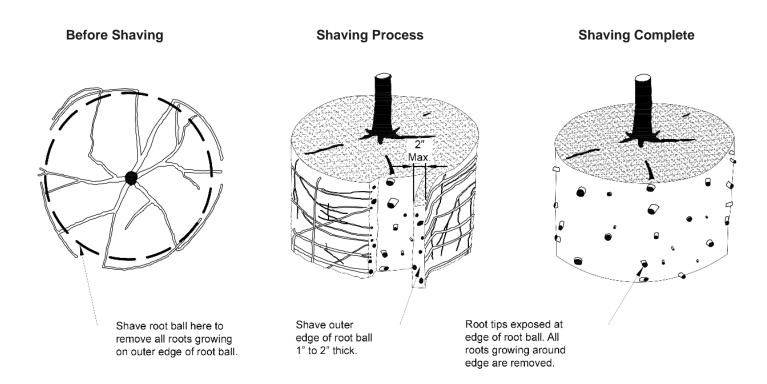
Cut structural root just before they make abrupt turn by cutting tangent (parallel) to the trunk (two cuts shown).

Note: Not all roots in the root ball are shown.



Root Ball Correction (continued)

It has been recognized that trees cannot be grown without roots present on the outer edge of the container or hardened-off field-grown root balls. Roots growing up, down and around the edge is a normal condition on nursery-grown trees. Woody (non-fibrous) roots can be removed individually at planting just prior to where they turn. The outer one or two inches (depending on root ball size) of a container root ball can be shaved from the root ball.

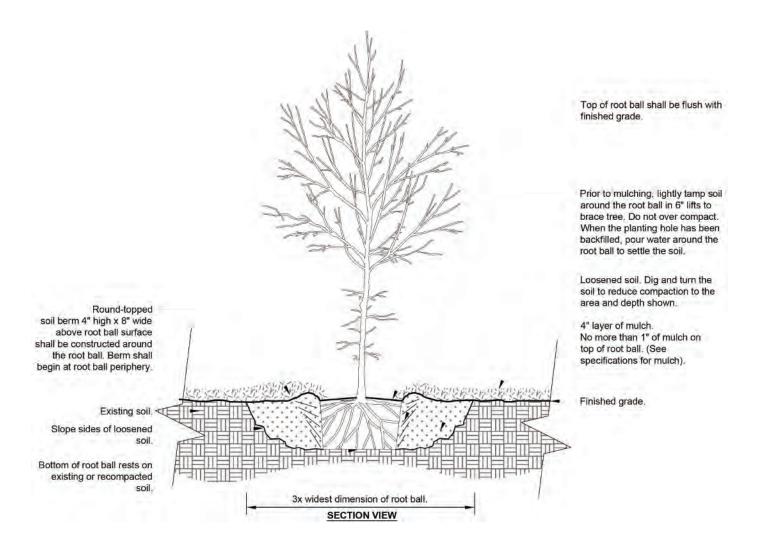




Part Three:

Planting Detail

The generalized planting detail presented below is designed for a well-drained, good soil. Modify with written specifications and details as needed. Examples of these in dwg. and pdf. formats can be found at http://hort.ifas.ufl.edu/woody/details-specs.shtml.



Note: Details from pages 29-32 are printed from open-source, editable, and free details and specifications. Thanks to the Urban Tree Foundation, Visalia, California for permission to use these images.



Part Four:

Irrigation After Planting and During Establishment

Regular irrigation after planting is essential for survival and establishment of almost all trees. Establishment is the amount of time required for trees to grow a sufficient root system to support growth in their planted environment. Regular irrigation after planting encourages rapid root growth that is essential for establishment. Irrigation also helps maintain and encourage the desirable dominant leader in the tree crown on large-maturing shade trees. Instead of a dominant leader, trees that are under-irrigated during the establishment period can die back, and often develop undesirable, low, codominant stems and double leaders that can split from the tree later.

Size of nursery stock	Irrigation schedule for vitality	Irrigation schedule for survival
< 2-inch caliper	Daily for two weeks, every other day for two months, weekly until established	Two to three times weekly for two to three months
2 - 4-inch caliper	Daily for one month, every other day for three months, weekly until established	Two to three times weekly for three to four months
> 4-inch caliper	Daily for six weeks, every other day for five months, weekly until established	Twice weekly for four to five months

Table notes:

- 1. At each irrigation, apply two to three gallons per inch trunk caliper to the root ball surface. Apply it in a manner so all water soaks the entire root ball. Do not water if root ball is wet/saturated on the irrigation day.
- 2. When irrigating for vitality, delete daily irrigation when planting in winter or when planting in cool climates. Establishment takes three (hardiness zones 10-11) to four (hardiness zones 8-9) months per inch trunk caliper. Never apply irrigation if the soil is saturated.
- 3. When irrigating for survival, trees take much longer to establish than regularly irrigated trees. Irrigation may be required in the normal hot, dry portions of the following year.



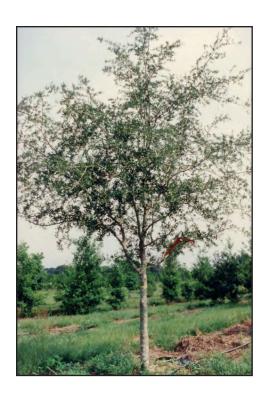
APPENDIX B - SHADE TREE GRADING EXAMPLES



1. Florida
Fancy live oak
in winter.
There is one
dominant trunk.



2. Florida
Fancy live oak
in late spring.
The dominant
trunk curves
slightly up
through the
crown. This
is perfectly
acceptable
for a Florida
Fancy.



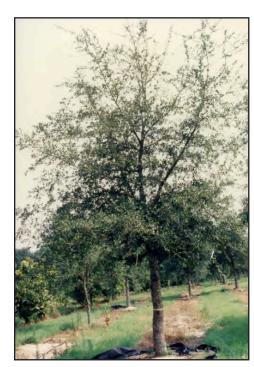
3. Florida Fancy live oak. Major branches are less than 3/3 the trunk diameter. Several small diameter branches are growing upright at the top of the tree. These can be removed, or preferably cut back to a more horizontal branch, to ensure the trunk remains dominant.



4. Florida
Fancy southern
magnolia in
spring. One
trunk dominates
the tree.



5. Florida No. 1 live oak. There is one dominant trunk in the lower half of the tree, but the trunk forks in the top half. If one of the two small trunks at the top of the tree were removed, the tree would probably grade to a Florida Fancy. Another alternative which takes less foliage out of the tree is to cut one of the two trunks back to a more horizontally oriented branch.



6. Florida No. 2 live oak. The large branch on the right is larger than ½ the trunk diameter and is in the lower half of the tree, making it a Florida No. 2.



7. Take out the right hand stem at the top of the tree, and this Florida No. 1 becomes a Florida Fancy.



8. Two equally sized trunks originate from the lower half of the tree, making this a Florida No. 2. Remove the left trunk now, and in about 18 months the crown will probably be upgraded to at least a Florida No. 1.



greater than 3/3 the trunk diameter.

9. The diameter of a branch relative to the trunk is an important comparison that is made in the Tree Section of the Grades and Standards. Measure the branch diameter just beyond the union and beyond the swelling that may be present at the base of the branch. Measure the trunk diameter just above the



10. This is a Florida Fancy trunk because none of the branches are larger than 3/3 the diameter of the trunk. Note that the trunk does not have to be straight on a Florida Fancy.



11. This trunk has a slight dogleg but not enough to downgrade it to a lower grade.



12. This trunk has a dogleg nearly bad enough to downgrade the tree. If the dogleg was worse, the tree would be downgraded. This bend in the trunk is not a downgrade for two reasons: 1) it is in the crown of the tree, and 2) it is not severe enough to downgrade the tree.



13. Note the included bark in the branch union. The branch bark ridge is not visible because it is included inside the union. The union is shaped like the letter V.



14. Note the included bark in the branch union. The branch bark ridge is not visible because it is included inside the union. The union is shaped like the letter V.



15. There is no included bark in this union. The branch bark ridge is clearly visible in the union as a raised area of bark tissue.



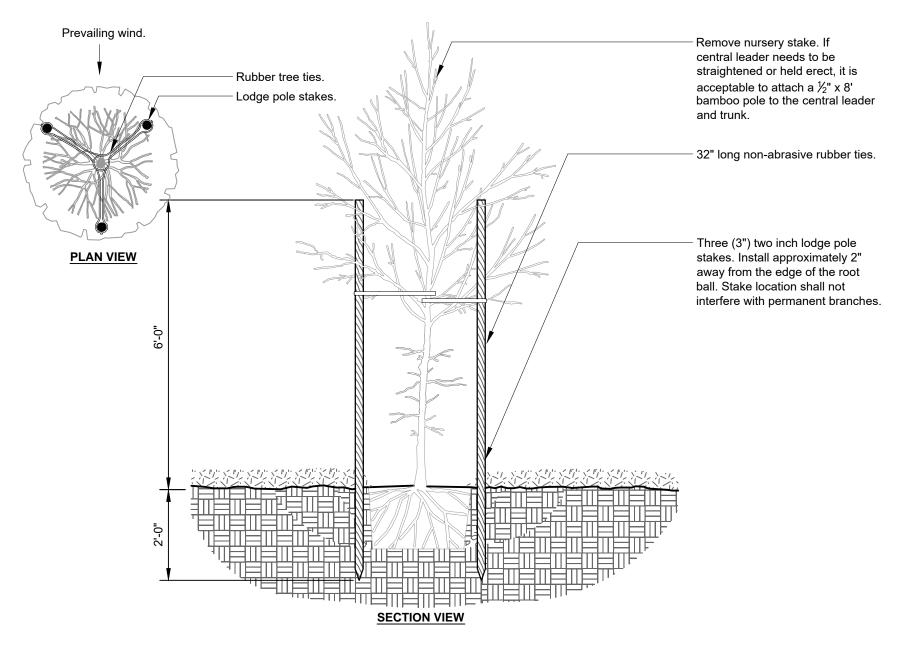
16. There is no included bark in this union. The branch bark ridge is clearly visible in the union as a raised line of bark tissue. The union is more or less shaped like the letter U.

REFERENCES FOR TREES

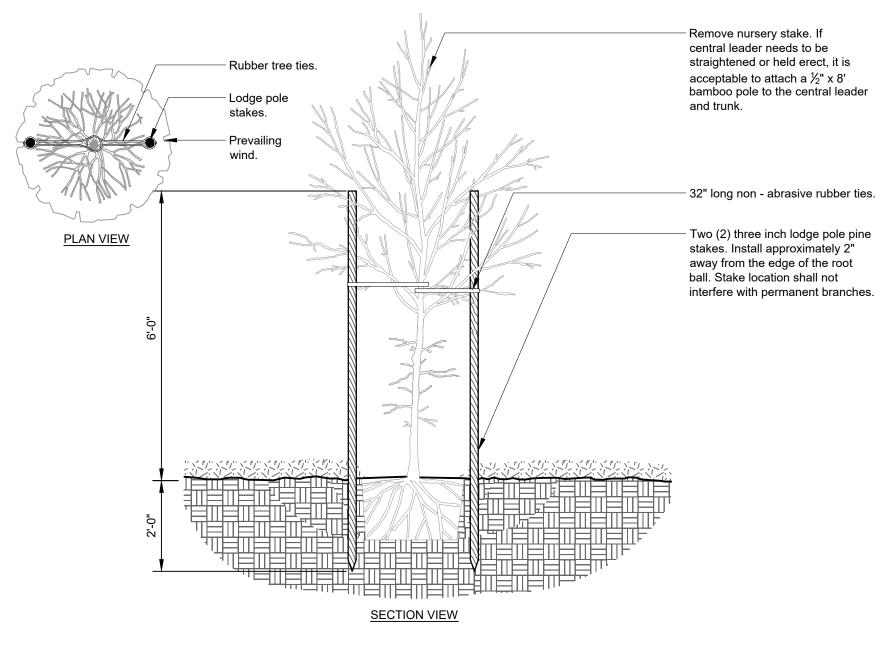
- Broschat, Timothy K. and Alan W. Meerow. 1991. Betrock's reference guide to Florida landscape plants. Betrock Information Systems, Inc. 427 pp.
- Brummitt, R. K. and C. E. Powell. 1992. Authors of plant names. Royal Botanic Gardens, Kew, Great Britain. 732 pp.
- Burch, Derek, Daniel B. Ward, and David W. Hall. 1988. Checklist of the woody cultivated plants of Florida. Extension Sale Publication SP-33. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. 80 pp.
- Correll, Donovan S. and Helen B. Correll. 1982. Flora of the Bahama Archipelago. J. Cramer, Hirschberg, Germany. 1692 pp.
- Everett, Thomas H. 1982. The New York Botanical Garden illustrated encyclopedia of horticulture, 10 vols. Garland Publishing, Inc., New York, NY. 3596 pp.
- Godfrey, Robert K. 1988. Trees, shrubs and woody vines of northern Florida and adjacent Georgia and Alabama. University of Georgia Press, Athens, GA. 734 pp.
- Hansell, Dorothy E. (ed.) 1970. Handbook of hollies, A special issue on Ilex. The American Horticultural Magazine. 49 (4): 150-330.
- Huxley, Anthony (ed.) 1992. The new Royal Horticultural Society dictionary of gardening, 4 vols. The Stockton Press, New York, NY. 3353 pp.

- Kartesz, John T. 1994. A synonymized checklist of the vascular flora of the United States, Canada, and Greenland. 2nd edition. Timber Press, Portland, OR. 2 vols. 622 & 816 pp.
- Krussman, Gerd. 1985. Manual of cultivated conifers. Timber Press, Portland, OR. 361 pp.
- Mabberley, D. J. 1989. The plant-book. Cambridge University Press, Cambridge. 706 pp.
- Staff of Liberty Hyde Bailey Hortorium. 1976. Hortus third. MacMillan Publishing Co., Inc., New York, NY. 1290 pp.
- United States Department of Agriculture, Soil Conservation Service. 1982. National list of scientific plant names, 2 vols. SCS-TP-159. 416 + 438 pp.
- van Geldren, D. M. 1986. Conifers. Photographs by J. R. P. van Hoey Smith. Royal Boskoop Horticultural Society. Timber Press, Portland, OR. 375 pp.

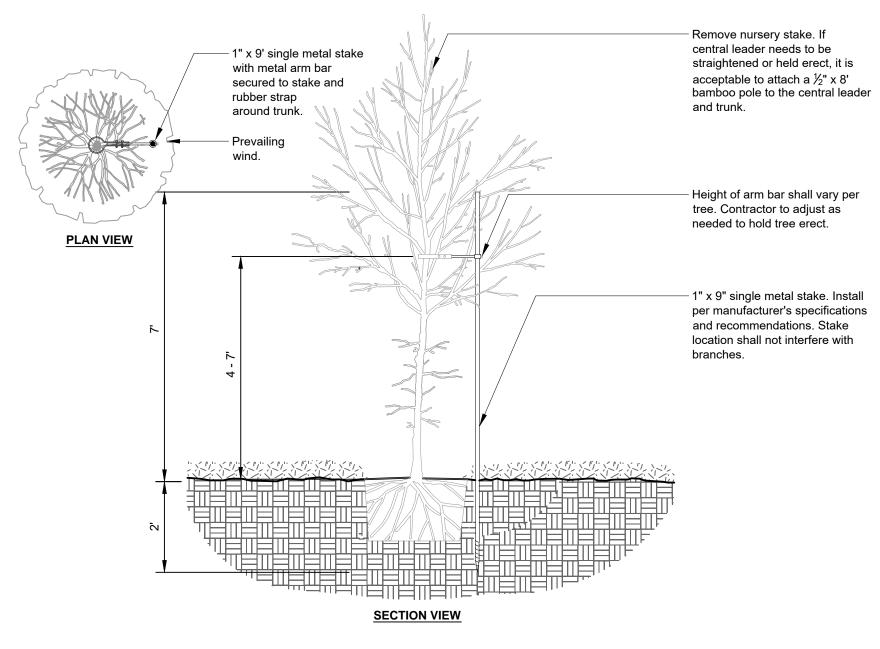
PLANTING SPECIFICATIONS ATTACHMENT 2 Tree Staking Systems per UF-IFAS



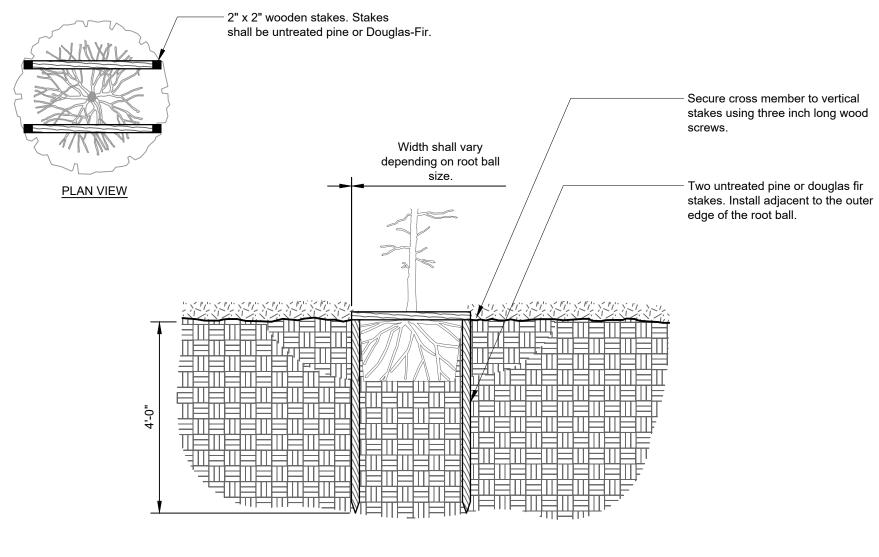












SECTION VIEW



PLANTING SPECIFICATIONS ATTACHMENT 3 Florida Grades and Standards for Palms

PAIMS



TABLE OF CONTENTS

PALMS

Grading Palms Introduction	3
Glossary of Palm Grading Terminology	
Requirements for Leaf Count and Root Ball Measurements (Table 1)	
Palm Grading Steps	8
Palm Grading Form	9
Processes for Specifying Palms	10
Glossary of Palm Specifying Terminology	. 11
Palm Specifying Terms Illustration	13
Transplanting Palms — Sabal Species	. 14
References	15



GRADING PALMS

INTRODUCTION

Florida Grades and Standards for Palms is constructed to measure only the health of palms at the time of delivery. Palm health is measured by an examination of the leaves, trunk and root ball.

These health characteristics are defined in a format used in calculating the grade of a palm. Form and dimensional characteristics are preferential criteria and are not used in the grading process. Therefore, palm grading is a process using this document, and palm specifying is a separate process left to the design professional. This document contains two glossaries of terms: one for palm grading and one for palm specifying. The glossary used by specifiers is included in the Processes for Specifying Palms.

This practical approach allows contractors, municipalities, inspectors and others charged with grading palms, to grade objectively using quantifiable benchmarks to identify quality-grown palms with health characteristics that have the best chance of transplant success.

The initial grade of the palm is assigned at the time of delivery. Although design specifications may require palms be maintained at a particular grade for a period of time, that requirement is outside the scope of this document.

GLOSSARY OF PALM GRADING TERMINOLOGY

The following terms are presented for use in the grading process.

Chlorosis: The loss of chlorophyll from leaves resulting in light green, yellow, orange, or white tissue. The presence of chlorosis denotes a nutrient deficiency, a physiological problem or the presence of a disease.

Clustering palms: Palms that naturally have more than one trunk.

Container Grown Palm: Palms grown in container allowing transplanting without cutting roots. The roots must be completely contained within the container.

Depression: Mechanically produced indentation into the pseudobark that can indicate damage to underlying vascular tissue.

Excellent leaf: A fully emerged leaf (all leaflets are fully expanded) with a strong petiole with less than 1% of the area showing chlorosis, necrosis, nutrient deficiencies, leaf spots, pests or insect damage, or physical damage.

Extreme succulence: Soft, tender, elongated, weak petioles caused by over-fertilization, over-irrigation or over-crowding in the nursery. The palm may not survive when transplanted. Typically identified by weak elongated petioles.

Field Grown Palm: Palms grown and harvested from the ground by cutting the roots.

Good leaf: A fully emerged leaf (all leaflets are fully expanded) with a strong petiole with 1% to 10% of the area showing chlorosis, necrosis, nutrient deficiencies, leaf spots, pests or insect damage, or physical damage.

Grade: A designation of palm health assigned at the time of delivery using this document to evaluate the palm. One of three grades is possible: Florida Fancy, Florida No. 1 or Florida No. 2.

Leaf count: The number of fully emerged (all leaflets are fully expanded) good or excellent leaves counted during the grading process.



Chlorosis



Extreme succulence

GLOSSARY OF PALM GRADING TERMINOLOGY

Necrosis: Desiccated plant tissue typically but not necessarily brown, tan or gray in color.

Primary Trunk: Trunks ¾ or greater the height of the tallest clear trunk in clustering palms and single trunk palms intentionally grown with more than one trunk.

Pseudobark: Outer non-vascular portion of the trunk. Pseudobark damage can be unsightly but can also indicate damage to underlying vascular tissue.

Pup scars: Scars near the base of the trunk in clonally produced palms (palms propagated by division or propagated from offshoot removal; e.g., *Phoenix dactylifera*) that are the result of offshoot or pup removal. These scars present no health risk to the palm.

Re-grade: An official re-grade is conducted by the Florida Department of Agriculture and Consumer Services Division of Plant Industry. The request must be submitted to the Chief Plant Inspector, Division of Plant Industry within 30 days following delivery.

Root ball measurement: Measurement from the lowest part of the trunk exclusive of exposed roots or persistent leaf bases perpendicular out to the edge of the root ball for field grown palms. Gradable palms in containers are not subject to root ball measurements.

Tipped Leaf: A specified procedure of shortening the leaves by cutting the leaf tips. Tipped leaves are not gradable therefore this must occur after the grading process.

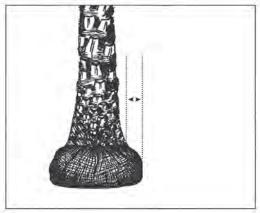
Trunk tapering: The tapering or reduction in diameter with increasing trunk height.

Vascular tissue: Water and carbohydrate conducting plant tissue that is covered by the outer non-vascular pseudobark.

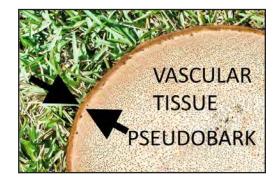
Vertical fissures: Naturally occurring vertical expansion cracks. These present no health risk to the palm when less than one-inch deep.



Pup scars



Root ball measurement





Trunk taper

REQUIREMENTS FOR LEAF COUNT AND ROOT BALL MEASUREMENT

Each of the palm species in Table 1 has been assigned a minimum leaf count of good or excellent leaves and root ball measurement to qualify as gradable. Note that minimum leaf counts are to establish a root-to-shoot ratio for transplant success, and are not necessarily the recommended leaf counts for established palms.

Species not listed in Table 1 are graded using the downgrading and eliminating factors other than the minimum leaf count and root ball measurement. For clustering palms and single trunked palms intentionally grown with more than one trunk, each primary trunk is graded as a single trunk palm. The final grade of the palm is the lowest grade applied to the primary trunks.

Use the grading forms to evaluate eliminating and downgrading factors.

Table 1. Palms Commonly Used in Florida (Revised November 2016)

SCIENTIFIC NAME COMMON NAME		MINIMUM LEAF COUNT(1)			MINIMUM ROOT BALL MEASUREMENT ⁽²⁾ IN INCHES BASED ON OVERALL HEIGHT (OA)		
		FL FANCY Excellent Leaves	FL No. 1 Good or Excellent Leaves	FL No. 2 Good or Excellent Leaves	## ft or less = ## inches	More than ## ft and less than ## ft = ## inches	More than ## ft = ## inches
Acoelorraphe wrightii	Paurotis Palm	6	5	4		4 at any OA	
Adonidia merrillii	Christmas Palm	6	5	4		6 at any OA	
Archontophoenix alexandrae	Alexandra Palm	5	4	3		6 at any OA	
Archontophoenix cunninghamiana	Piccabeen Palm	5	4	3		6 at any OA	
Arenga engleri	Dwarf Sugar Palm	5	4	3	4 at any OA		
Arenga tremula	Dwarf Sugar Palm	5	4	3		4 at any OA	
Bismarckia nobilis	Bismarck Palm	6	5	4	≤8 FT=6	>8FT ≤ 18 FT=9	>18 FT=12
Butia odorata (formerly B. capitata)	Pindo Palm	12	10	7	≤14 FT=6		>14 FT=9
Butiagrus nabonnandii	Mule Palm	15	12	9	≤15 FT=6		>15 FT=9
Carpentaria acuminata	Carpentaria Palm	6	5	4		6 at any OA	
Caryota mitis	Clustering Fishtail Palm	6	5	4		4 at any OA	
Chamaedorea cataractarum	Cat Palm	5	4	3		4 at any OA	
Chamaedorea erumpens	Bamboo Palm	5	4	3		4 at any OA	
Chamaedorea microspadix	Hardy Bamboo Palm	5	4	3		4 at any OA	
Chamaedorea seifrizii	Reed Palm	5	4	3		4 at any OA	
Chamaerops humilis	European Fan Palm	20	16	12	6 at any OA		
Chambeyronia macrocarpa	Red Feather Palm	6	5	4		4 at any OA	
Coccothrinax spp. (incl. C. alta, argentata, C. crinita, C. miraguama)	Silver Palm	8	6	5	≤12 FT=6		>12 FT=9
Cocos nucifera	Coconut Palm	6	5	4	≤20 FT=6		>20 FT=9
Copernicia alba	Caranday Palm	30	24	18	≤15 FT=6		>15 FT=9
Copernicia prunifera	Carnauba Palm	25	20	15		6 at any OA	
Dictyosperma album	Princess Palm	9	7	6		6 at any OA	
Dypsis cabadae	Cabada Palm	4	3	2		4 at any OA	

⁽¹⁾ Refer to Leaf Count Definition in the Grading Glossar

⁽²⁾ Refer to Root Ball Measurement Definition in the Grading Glo sary

⁽³⁾ Exempt from abrupt tapering grading factors

Dypsis decaryii	Triangle Palm	10	7	5	≤15 FT=6		>15 FT=9
Dypsis lastelliana	Teddy Bear Palm	8	6	5	1	6 at any OA	
Dypsis lutescens	Areca Palm	6	5	4	4 at any OA		
Heterospathe elata	Sagisi Palm	6	5	4		6 at any OA	
Hyophorbe lagenicaulis ⁽³⁾	Bottle Palm	4	3	2		6 at any OA	
Hyophorbe verschafeltii	Spindle Palm	4	3	2		6 at any OA	
Latania loddigesii	Blue Latan Palm	6	5	4		6 at any OA	
Latania lontaroides	Red Latan Palm	6	5	4		6 at any OA	
Leucothrinax morrisii	Key Thatch Palm	8	6	5		6 at any OA	
Livistona australis	Australian Fan Palm	10	8	6	≤15 FT=6		>15 FT=9
Livistona chinensis	Chinese Fan Palm	10	8	6	≤20 FT=6		>20 FT=9
Livistona decora (formerly L. decipiens)	Ribbon Palm	25	20	15	≤20 FT=6		>20 FT=9
Livistona nitida	Carnavon Gorge	20	16	12	≤20 FT=6		>20 FT=9
Livistona saribus	Taraw Palm	20	16	12	≤20 FT=6		>20 FT=9
Phoenix canariensis	Canary Island Date Palm	15	12	9	≤12 FT=6	>12 FT ≤ 20 FT=9	>20 FT=12
Phoenix dactylifera (Medjool)	Date Palm	29	23	17	≤26 FT=6	>26 FT ≤ 39 FT=9	>39 FT=12
Phoenix dactylifera (Zahidi)	Date Palm	29	23	17	≤26 FT=6	>26 FT ≤ 39 FT=9	>39 FT=12
Phoenix dactylifera (Deglet Noor)	Date Palm	25	20	15	≤26 FT=6	>26 FT ≤ 39 FT=9	>39 FT=12
Phoenix reclinata	Senegal Date Palm	15	12	9	≤20 FT=6	>12 FT ≤ 20 FT=9	>20 FT=9
Phoenix roebelenii	Pygmy Date Palm	25	20	15		6 at any OA	
Phoenix sylvestris	Wild Date Palm	40	32	24	≤15 FT=6	>15 FT ≤ 25 FT=9	>25 FT=12
Pseudophoenix sargentii	Buccaneer Palm	8	6	5		6 at any OA	
Ptychosperma elegans	Solitaire Palm	5	4	3	ĺ	6 at any OA	
Ptychosperma macarthurii	Macarthur Palm	5	4	3		4 at any OA	
Rhapis excelsa	Lady Palm	7	6	4		4 at any OA	,
Rhapis multifida	Finger Palm	5	4	3	ĺ	4 at any OA	
Roystonea regia	Royal Palm	6	5	4	≤20 FT=6	>20 FT ≤ 30FT=9	>30 FT=12
Sabal sp.	Cabbage Palm (Regenerated)	4	3	2		3 at any OA	•
Sabal sp.	Cabbage Palm (Cropped)	0	0	0		3 at any OA	
Syagrus romanzoffiana	Queen Palm	8	6	5	≤20 FT=6		>20 FT=9
Thrinax radiata	Florida Thatch Palm	8	6	5		6 at any OA	
Trachycarpus fortunei	Windmill Palm	12	10	7		6 at any OA	
Veitchia arecina (formerly V. montgomeryana)	Montgomery Palm	5	4	3	≤20 FT=9		>20 FT=12
Washingtonia robusta	Mexican Fan Palm	8	6	5	≤20 FT=6		>20 FT=9
Wodyetia bifurcata	Foxtail Palm	8	6	5	≤20 FT=6		>20 FT=9

^{*} Refer to Leaf Count Definition in the Grading Glossar ** Refer to Root Ball Measurement Definition in the Grading Glossar *** Exempt from abrupt tapering grading factors



PALM GRADING STEPS

Following are the steps to complete the Palm Grading Form:

- **Step 1.** Examine the palm using the list of eliminating factors on the Palm Grading Forms. If there are no eliminating factors, proceed to Step 2.
- Step 2. Refer to Table 1 and note the minimum leaf count and root ball measurment for the species being graded.
- **Step 3.** Examine the palm against the list of downgrading factors on the Palm Grading Forms.

PALM GRADING FORM

Palm #	Species:	
	GRADES	
Florida Fancy:	A palm with no eliminating or downgrading factors, meeting the require 100% excellent leaves. One 'YES' response to the downgrading factors lis Florida No. 1.	
Florida No. 1:	A palm with no eliminating factors, meeting the requirements shown in to the downgrading factors listed above renders the palm a Florida No. 2	-
Florida No. 2:	A palm with no eliminating factors, meeting the requirements shown in to the downgrading factors listed above renders the palm not gradable.	Table 1. One 'YES' response
Any on	ating factors are severe problems that decrease the palm's chance for survive of these factors eliminates the palm from Grades and Standards consideradable," regardless of other attributes.	
		Answer 'YES' if true
Fusa trun b) Woo c) Expo d) Trun diam e) Root top s f) Extro g) Natu h) Pseu i) Failu Flori	ence of palm weevils or symptoms of lethal diseases such as rium wilt, phytoplasma diseases, Ganoderma butt rot, Thielaviopsis k rot or Phytophtora bud rot. d boring insect damage. soure of or damage to vascular tissue.* k taper within the top foot of the woody trunk reducing the leter by more than 20%. ball vertical surface has less than 50% covered by visible roots, excluding its inches. (For Regenerated Sabal only) eme succulence. rally occurring vertical fissures exceeding one inch in depth. dobark damage totaling more than 20 square inches.** lite to meet the minimum requirements for root ball measurement or da No. 2 leaf count in Table 1.	a) b) c) d) e) f) g) h)
	YES' responses to the eliminating factors listed above, renders the palm	not gradable.
Step 3. Downg	grade established by Table 1:	Answer 'YES' if true
each b) Pseu the p c) Trun 5% a d) Trun	dobark damage between 5 and 10 square inches. Enter one 'YES' for occurrence.** Idobark damage between 10 and 20 square inches. This is in addition to previous pseudobark damage downgrade.** Ik taper within the top foot of the woody trunk between nd 10%. Ik taper within the top foot of the woody trunk between and 15%. This is in addition to the previous trunk taper downgrade.	a) b) c) d)
valudina nun aaana	in alonally must decord malms, mosticide inication sites	

^{*} Excluding pup scars in clonally produced palms, pesticide injection sites and naturally occurring vertical fissures less than one-inch in depth.

^{**} Excluding naturally occurring vertical fissures less than one-inch in depth and pesticide injection sites



PROCESSES FOR SPECIFYING PALMS

Florida Grades and Standards for Palms is constructed to measure only the health of palms at the time of delivery. Design professionals seeking specific palm form and dimensional characteristics must include these requirements in the contract documents, along with details and other installation, establishment and warranty requirements. The terms defined in the Glossary of Palm Grading and Palm Specifying are used in the Florida Grades and Standards for Palms as the prescribed language for specifying palms. Some specifications to consider are listed below:

Trunk Measurements

- Caliper at specified heights
- Clear Trunk
- Clear Wood
- Terminus Height

Trunk Characteristics

- Curved Trunk or straight trunk or multi trunk
- Type of Leaf Base Trimming
- Pseudobark Appearance

Leaves

- Cropped Palm
- Canopy Spread
- Leaf Tipping (after grading)
- Leaf counts of those species not listed in Table 1

Other

- Overall Height
- Rootball measurements of those species not listed in Table 1
- Certifications
- Vertical clearance

ТОР

GLOSSARY OF PALM SPECIFYING TERMINOLOGY

Abrupt constriction: A point along the trunk having a reduction in diameter greater than 10% than the diameter within 1 foot above and/or below, typically indicating a period of stress occurred in the past.

Boot: The leaf base or enlarged basal portion of the petiole remaining affixed to the trunk after the leaf has died and been broken or cut off.

Booted: Used to specify palms with leaf bases still attached to the trunk.

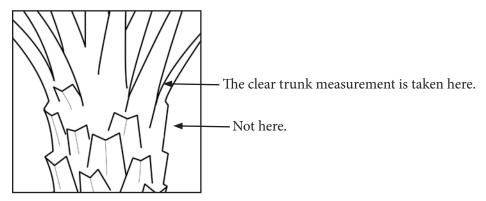
Caliper: The diameter of a palm's trunk. The height that this diameter is measured must be specified.

Canopy spread: A measurement taken from leaf tip to leaf tip, in their natural state, at the widest point.

Character palms, Curved palms: Used to specify unusual trunk shapes.

Clean trunk: See "Leaf base trimming (Clean cut photo)."

Clear trunk: A measurement from the top of the root ball to the point where the lowest untrimmed leaf's petiole diverges from the trunk. The remaining leaf counts must meet the minimum requirements for the chosen grade - See leaf counts in Table 1 for FL Fancy, FL No. 1 and FL No. 2. Reducing the leaf count to achieve more clear trunk can result in a lower grade.



Clear wood, Gray Wood: A measurement from the top of rootball to the highest point on the trunk free of persistent leaf bases. On palms with a crownshaft, the measurement is from the top of rootball to the base of the crownshaft. Palms with very persistent leaf bases may not have clear wood.

Cropped palms: Palms with all leaves removed before transplanting. Typically performed on field harvested Sabal species. Previously known as Hurricane Cut.

Crownshaft: A conspicuous neck-like structure formed by tubular leaf bases on some pinnate-leaved palms.

Debooted: See "Clean trunk" definition.

Frond: A common term used to describe a palm leaf.

Gray wood: See "Clear wood" definition.

Hurricane cut: See "Cropped palms" definition.

Leaf base: The basal portion of a leaf that is attached to the trunk.

GLOSSARY OF SPECIFYING TERMINOLOGY

Leaf base trimming: A process of cutting leaf bases to achieve a particular appearance, typically performed by the grower. There are several types of trimming cuts that may be specified including classic, clean, diamond and shelf.









Classic cut

Clean cut

Diamond cut

Shelf cut

Leaf length: The distance along the petiole from the point where the petiole diverges from the trunk to the leaf's tip.

Main trunk: For clustering palms and single trunk palms intentionally grown with more than one trunk the tallest trunk in the cluster is considered the main trunk.

Multi-trunk: A term used to specify multiple single trunked palms grown together.

Overall height: The highest point in the canopy measured from the top of rootball to the natural position of the last fully emergered (all leaflets are fully expanded) leaf.

Regenerated palms: Field-grown or collected palms that have some type of containment placed around the root ball. The palm is maintained until the minimum number of good or excellent leaves are present. A substantial number of new root tips are visible on the outside of the root ball. This process takes several months or more and can improve transplant success.







Regenerated root ball

Slick trunk: Trunk with leaf bases mechanically removed often causing damage to the pseudobark and exposing vascular tissue. This practice is not recommended.

Sloughing: The natural degradation and dropping of leaf bases. This is not detrimental to the palm's health.

Suckers: Small shoots emerging from the base of main trunks in clustering palms.

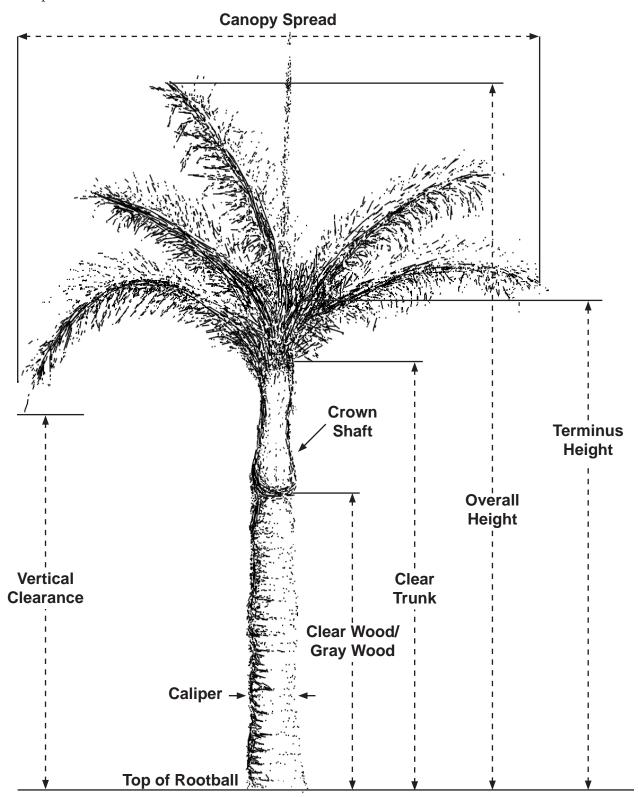
Terminus height: Measurement from the top of rootball to the point of emergence of the spear leaf. This is a practical measurment method for cropped palms.

Vertical clearance: A measurement from the top of rootball to the lowest leaf. Pruning may be required to achieve clearance for pedestians, vehicles, signs, etc. If minimum leaf counts are maintained, grading is not affected.



PALM SPECIFYING TERMS ILLUSTRATION

Specifications regarding form and dimensional characteristics (other than grading factors) are the responsibility of design professionals. The following illustrates terms that provide a common language for describing parts and measurements of palms.





TRANSPLANTING PALMS - SABAL SPECIES

Sabal palms (Sabal palmetto) are the most widely planted palms in the southeastern United States. Virtually all are mature specimens harvested from natural stands because their slow growth rate makes nursery production uneconomical. Recognizing that sabal palms are harvested from the wild, they have been separated from the other palms in this document and are addressed in this section. Note that some of the conditions applied to sabal palms as eliminating factors in previous editions are modified in this edition.

Sabal palms grow naturally in many diverse habitats including swamps, pine flatlands and fire climax ecosystems, and are adaptable to a wide range of landscape environments. They are recognized as a renewable but finite natural resource. In the past, many sabal palms that were otherwise healthy, but had certain downgrading factors such as superficial fire damage, were not collected because they were considered not gradable. This document no longer considers superficial fire damage or superficial methods to remove charred areas as eliminating factors.

It is also important to consider the methods used to harvest sabal palms. Sabal palms are usually harvested using heavy equipment which may cause trunk damage. However, if this damage occurs in pseudobark trunk tissue, it is unlikely to be an entry point for insects and disease and does not compromise the structural integrity of the palm.

Historically, survival rates for transplanted sabal palms were often low. In sabal palms no cut roots survive; however, roots are continually produced from the root initiation zone. In the late 1980s, studies showed that the removal of all leaves (cropping) increased the survival rate of transplanted sabal palms by 30%. Since that time, the standard procedure for transplanting collected sabal palms is to remove all leaves during harvesting operations. Postharvest care greatly affects the survivability of all palms. If the root ball dessicates, newly formed adventitious roots may die.

Inadequate watering may lead to decline and eventual death of the palm. It may also predispose the palm to insect infestation and disease.

Excessive removal of leaf bases is another factor that may affect survivability of transplanted sabal palms and should be avoided. Removal of leaf bases may lead to the desiccation of the palm. This may also increase the likelihood of the introduction of trunk rotting fungi like Thielaviopsis. Thielaviopsis has become one of the major factors in the death of transplanted sabal palms, resulting in losses of up to 90%. In addition, excessive removal of leaf bases may also predispose the palm to insect infestations such as palm weevils.

Recent postharvest production methods include the concept of regeneration. Regeneration is the establishment of a new root system and leaves. This is accomplished by wrapping the root ball of a freshly harvested sabal palm with multiple layers of plastic sufficient to contain the emerging roots, or placing the freshly harvested palm into a container. The palm is held for a sufficient amount of time to establish a new root system and leaves.

ТОР

REFERENCES

Palm Transplanting

Transplanting Palms in the Landscape http://edis.ifas.ufl.edu/ep001

Nutritional and Physiological Problems of Palms

Nutrient Deficiencies of Landscape and Field-Grown Palms in Florida http://edis.ifas.ufl.edu/ep273 Physiological Disorders of Landscape Palms http://edis.ifas.ufl.edu/ep263

Palm Diseases

Bud Rot of Palm http://edis.ifas.ufl.edu/pp144
Ganoderma Butt Rot of Palms http://edis.ifas.ufl.edu/pp100
Graphiola Leaf Spot (False Smut) of Palm http://edis.ifas.ufl.edu/pp140
Lethal Yellowing (LY) of Palm http://edis.ifas.ufl.edu/pp146
Texas Phoenix Palm Decline http://edis.ifas.ufl.edu/pp163
Thielaviopsis Trunk Rot of Palm http://edis.ifas.ufl.edu/pp143

Insect Pests of Palms

Palmetto weevil, *Rhynchophorus cruentatus* Fabricius (Insecta: Coleoptera: Curculionidae) http://edis.ifas.ufl.edu/in139

Royal Palm Bug, *Xylastodoris luteolus* Barber (Insecta: Hemiptera: Thaumastocoridae)

http://edis.ifas.ufl.edu/in254

Silky Cane Weevil, *Metamasius hemipterus sericeus* (Olivier) (Insecta: Coleoptera: Curculionidae) http://edis.ifas.ufl.edu/in210