AGENDA ITEM 3

TREES/SIDEWALKS

M E M O R A N D U M

Building & Development Services Department
1112 Manatee Avenue West
Bradenton, FL 34205

MANATEE COUNTY
FLORIDA

Phone: 941-748-4501
Fax: 941-749-3071
www.mymanatee.org

To: Board of County Commissioners
From: John Barnott, Director
Date: October 11, 2013
Subject: BOCC Worksession 10/15/2013 – Trees / Sidewalks

Statement of Purpose:

For three decades Manatee County has required landscaping and street trees to be installed concurrent with new development. In recent years, environmental and engineering staff have identified recurring conflicts with private/public infrastructure and tree roots and canopies. This issue is becoming more acute with the market trends of smaller lots and underground infrastructure resulting in an inordinate amount of expenditures in dealing with issues on single-family lots. While the merits of landscaping and trees in particular are widely embraced, a determination needs to be made about the applicability on single-family lots.

TREE ISSUES

Board of County Commissioners Work Session

October 15. 2013

County Administration Building

Building & Development Services - Public Works

Building & Development Services

- Section 714 Tree Protection *Manatee County Land Development Code (LDC)*
- Section 715 Landscape and Screening Standards *Manatee County Land Development Code (LDC)*

Recurring issues with implementation of the LDC

- Requirement for Street Trees
- Single-family Lots
- Conflicts with Infrastructure
- Time of Installation
- Unauthorized Locations
- Staffing – 1 FTE dedicated to Tree Protection

Public Works

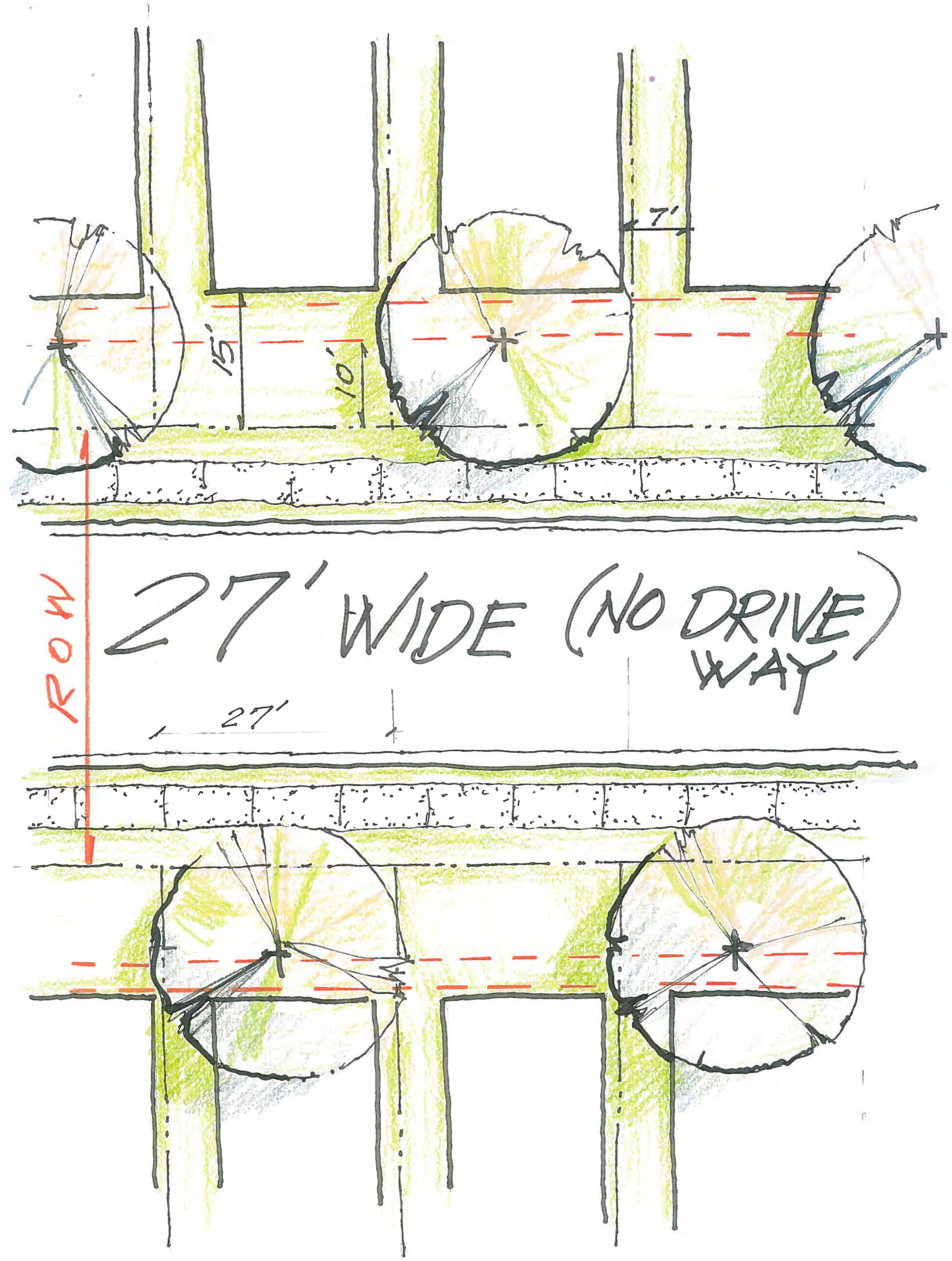
Trees in Rights-of-Way Can be in Conflict with Pavement or Utilities

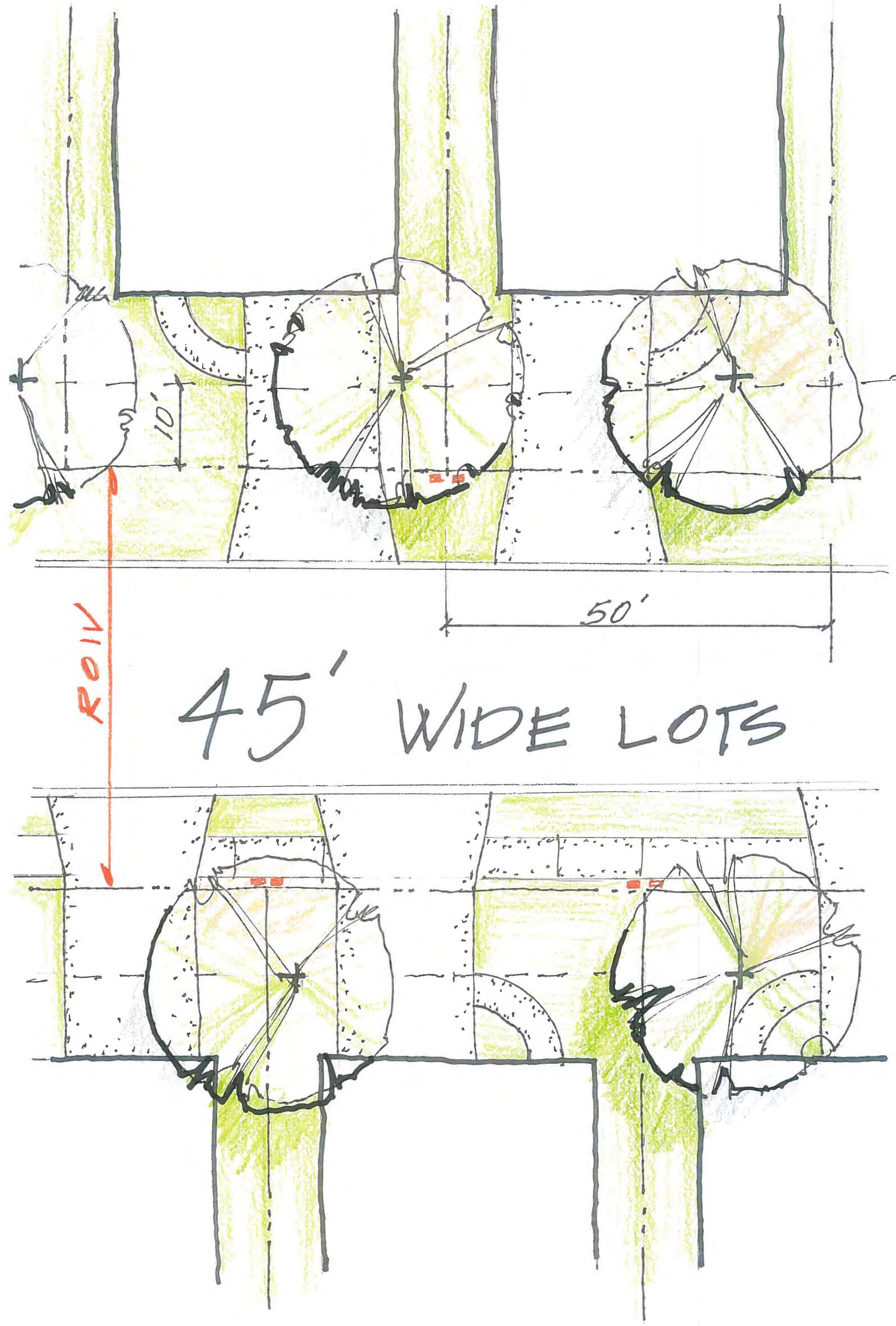
- Examples of Issues
- County staff Removal –(What becomes of the street tree requirement and the fact in many cases no tree should be these locations)
- Authorization for Citizen Removal – ROW Use Permit – (Situations where private property is being damaged by a ROW tree but public infrastructure is not)
- Water Meters, Back Flow Preventers and Reclaimed Water Line Meters

Current Design Standards Sidewalk and Pavement Design

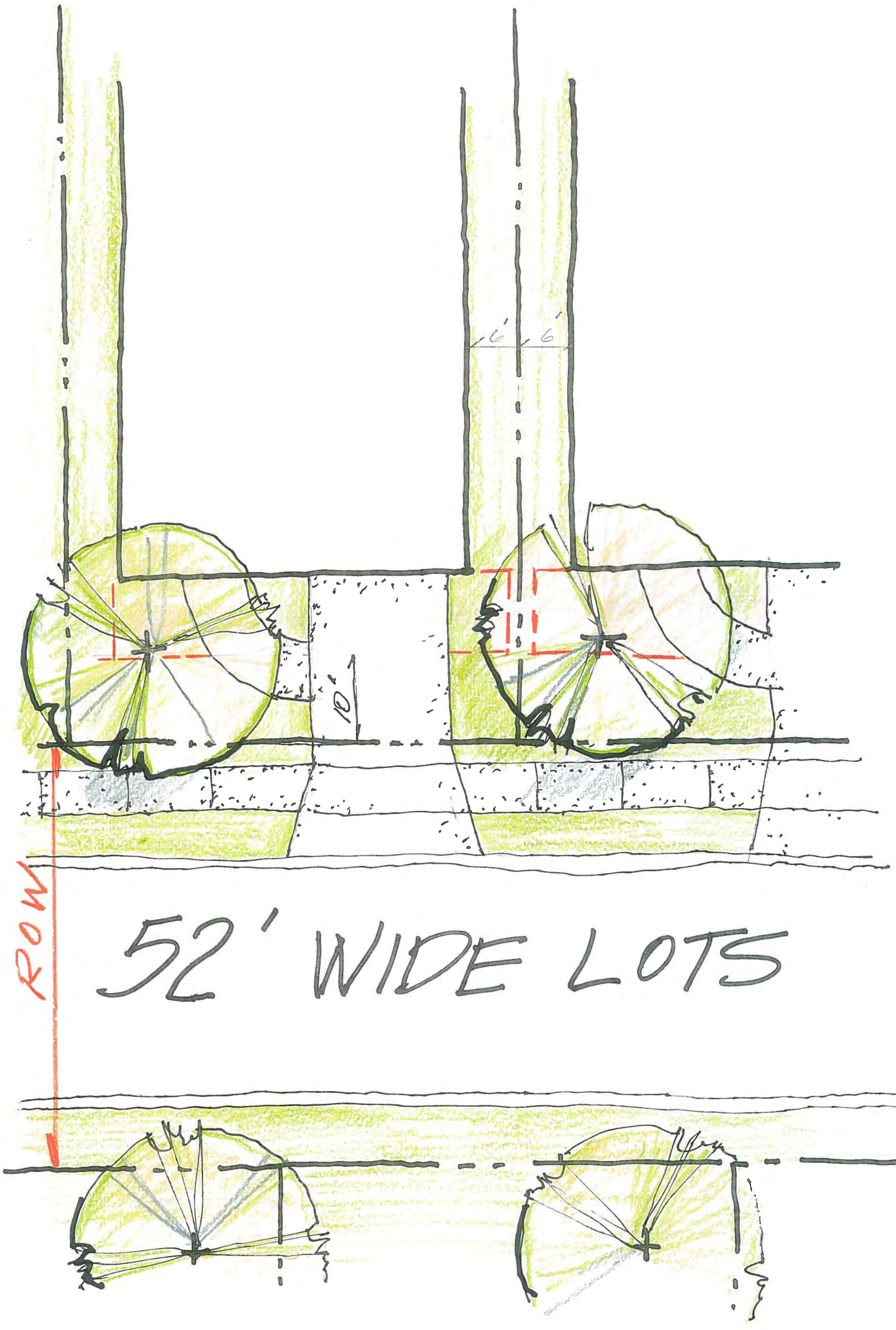
- Requires Sidewalk to be 5” Instead of 4” and Rebar if a Tree is Within 10’ of the Sidewalk
- Existing Problems Predate this Standard - (This Method May Create Exposed Edge of Sidewalk Issue Instead of Trip Hazards if the entire Sidewalk Lifts)

Submitted by Doug Means





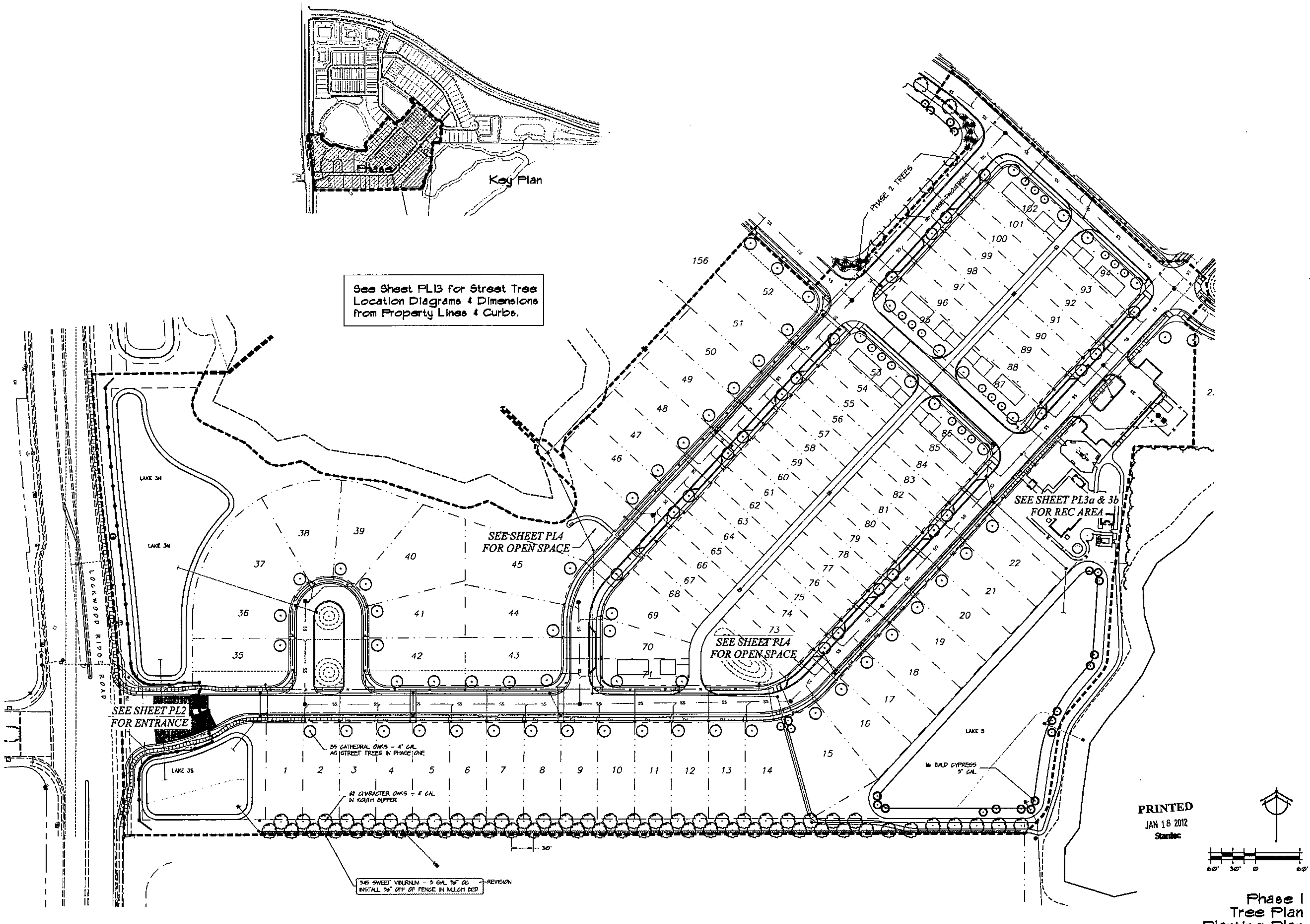
45' WIDE LOTS


16'
6'
10'
ROW
52' WIDE LOTS

Submitted by Chad Butzow


10/14/2013


10/14/2013



PRINTED
JAN 18 2012
Stantec

Phase I
Tree Plan
Planting Plan

1/11/12

CERTIFICATE OF AUTHORIZATION
NO. LC-0000260

Stewart~Washmuth & Co., Inc.
LANDSCAPE ARCHITECTS
1916 Rain Forest Trail
Sarasota, Florida 34240
Phone: 941-377-4704
Fax: 941-377-1849

PROJECT NO.	2010
SCALE	1" = 60'-0"
DATE	05/12/10
DRAWN BY	LRW
ISSUED	3/30/11

Woodbrook

NEAL COMMUNITIES
Lockwood Ridge Road & Honore Avenue
Manatee County, Florida

REVISIONS		
1	8/05/11	Buffer Shrubs
2	8/24/11	Civil Utilities

SHEET NO.
PL 1

D:\My Documents\AutoCad-Files\2010 Projects\1009-Woodbrook\Planting & Hardscape\WD\1009-WD-5.DWG

TREE EVALUATION AND GRADING TABLE

Tree	Species	Size (Cal.)	Grade	Mitigate	
A	Quercus virginiana	45"	A	NO	
B	Quercus virginiana	37"	B	NO	
C	Quercus virginiana	28"	B	NO	
D	Quercus virginiana	36"	B	NO	
E	Quercus virginiana	36"	B	YES	
F	Quercus virginiana	36"	B	YES	
G	Quercus virginiana	40"	A	NO	
H	Quercus virginiana	12"	C	NO	
I	Quercus virginiana	27"	C	NO	
J	Quercus virginiana	36"	C	YES	
K	Quercus virginiana	15"	C	NO	
L	Quercus virginiana	12"	C	NO	
M	Quercus virginiana	11"	C	NO	
N	Quercus virginiana	28"	B	NO	
O	Quercus virginiana	28"	B	YES	
P	Quercus virginiana	28"	B	YES	
Q	Quercus virginiana	27"	C	YES	
R	Quercus virginiana	14"	C	YES	
S	Quercus virginiana	32"	C	NO	
T	Quercus virginiana	34"	C	YES	
U	Quercus virginiana	14"	F	NO	
V	Quercus virginiana	26"	F	NO	
W	Quercus virginiana	36"	D	NO	
X	Quercus virginiana	48"	B	YES	
Y	Quercus virginiana	38"	B	YES	
Z	Quercus virginiana	48"	F	NO	
~~AA~~	~~Quercus virginiana~~	~~36"~~	~~B~~	~~NO~~	IN 'SP' LOT
BB	Quercus virginiana	39"	B	NO	
CC	Quercus virginiana	20"	B	NO	
DD	Quercus virginiana	24"	C	YES	
EE	Quercus virginiana	34"	B	NO	
FF	Quercus virginiana	24"	B	NO	

NOTES:

1. THE TREES IN THIS TABLE HAVE BEEN IDENTIFIED AS EXISTING TREES WITHIN CLOSE PROXIMITY TO PROPOSED DRIVES, SIDEWALKS/PATHS, UNDERGROUND UTILITIES, AND/OR OTHER IMPROVEMENTS AND COULD POTENTIALLY BE IMPACTED BY DEVELOPMENT.

2. TREES LISTED AS REQUIRING NO MITIGATION ARE EITHER OF POOR HEALTH OR HAVE NO PROPOSED IMPACT .

3. APPROXIMATE DRIPLINES OF THE TREES ARE ILLUSTRATED ON SHEETS L1 AND L2 AND ARE BASED ON THE SURVEYED LOCATION OF THE TREE AND IT'S CALIPER (SEE SHEET L3 FOR DRIPLINE/CALIPER RELATIONSHIP).

4. TREES WITHIN CLOSE PROXIMITY TO PROPOSED DRIVES, SIDEWALKS/PATHS, OR OTHER AREAS OF PEDESTRIAN/VEHICULAR USE SHOULD HAVE LOW HANGING LIMBS PRUNED AND MAINTAINED TO CREATE A CLEAR ZONE BETWEEN THE GROUND-PLAIN AND THE LOWEST LIMB.

5. THESE TREES SHOULD BE FIELD LOCATED AND CONFIRMED BY THE LANDSCAPE ARCHITECT.

NOTES:

1. BUYER RELIEVES COUNTY OF FUTURE RESPONSIBILITY REGARDING CONFLICT BETWEEN STREET TREES AND UTILITY SERVICE CONNECTIONS, VIA "NOTICE TO BUYERS" IN HOMEOWNER'S DOCUMENTS.

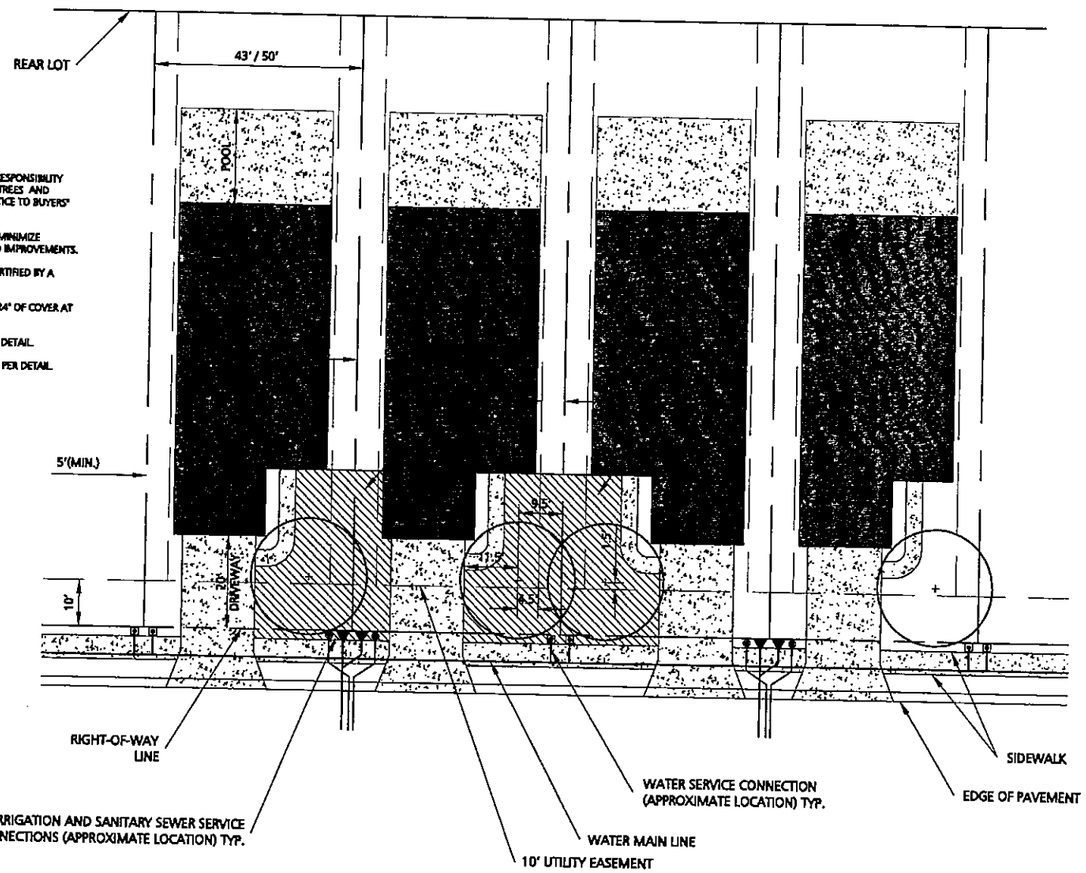
2. TREES ARE LOCATED WITH INTENT TO MINIMIZE CONFLICT WITH PROPOSED UTILITIES AND IMPROVEMENTS.

3. STREET TREE LOCATIONS ARE TO BE CERTIFIED BY A LANDSCAPE ARCHITECT POST PLANTING.

4. SEWER SERVICES TO BE INSTALLED AT 24" OF COVER AT BUILDING FOOTER.

5. WATER SERVICES TO BE INSTALLED PER DETAIL.

6. IRRIGATION SERVICES TO BE INSTALLED PER DETAIL.



Street Tree Location Plan - 33' & 40' Chassis (Irrigation Within The Right-Of-Way)
T1A SCALE: 1" = 20'

PRINTED
MAR 29 2012
Standard

SURV NO.	REVISION	DATE	DRWN BY / CHK. NO	CHECKED BY / CHK. NO
1	ADDED TREE INVENTORY AND GRADING TABLE PER COUNTY'S COMMENT	05/23/11	ASM/2015	

ACTIVITY	INITIALS/CHK. NO.	DATE
DESIGNED BY:	SAB/1330	03/2011
DRAWN BY:	ASM/2015	03/2011
CHECKED BY:		
CONTRACT ADMIN. BY:		
WM APPROVED BY:		

WilsonMiller
Planners • Engineers • Ecologists • Surveyors • Landscape Architects • Transportation Consultants
WilsonMiller, Inc.
Naples • Fort Myers • Sarasota • Bradenton • Tampa • Tallahassee
8900 Professional Parkway East, Suite 100 • Sarasota, Florida 34240-3491 • Phone 941-907-6900 • Fax 941-907-3910 • Web Site www.wilsonmiller.com

CLIENT: NEAL COMMUNITIES OF SOUTHWEST FLORIDA, LLC

PROJECT: FOREST CREEK PHASE III

DATE: 03/2011
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: N/A
SEC. TWP. RGE.
CROSS REFERENCE FILE NO.:
PROJECT NUMBER:

TITLE: CANOPY STREET TREE LAYOUT

SCOTT A. BUTLER, L.A.
FLORIDA LICENSE NO. 1758
FIRM NUMBER
D-215810309-01L01


05/16/2012


05/16/2012


5120


PROPERTY OF
MANATEE COUNTY


12/10/2010


10.03.2013 08:39


CAUTION
CAUTION
CAUTION
CAUTION


CAUTION
CAUTION
CAUTION
CAUTION

GENERAL NOTES

1. SIDEWALK SHALL BE CONSTRUCTED A MINIMUM OF 4" THICK, USING 3000 psi CONCRETE. WHERE SIDEWALK BISECTS A DRIVEWAY, THE MINIMUM SHALL BE 6" OF CLASS I CONCRETE REINFORCED WITH 6"x6" #10 WIRE MESH.

   * SEE SHEETS #101.2 & 101.3.

2. ALL SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY LAND DEVELOPMENT CODE, SECTION 722. A MINIMUM (5) FOOT WIDE SIDEWALK SHALL BE INSTALLED ALONG THE NORTH AND WEST SIDES OF ALL NEW LOCAL STREETS WHICH ARE CONSTRUCTED IN CONJUNCTION WITH A NEW RESIDENTIAL DEVELOPMENT. A SIDEWALK A MINIMUM OF (5) FEET IN WIDTH SHALL BE INSTALLED ON BOTH SIDES OF ALL THOROUGHFARES. REFER TO F.D.O.T. ROADWAY AND TRAFFIC STANDARDS, LATEST REVISION FOR CURB CUT RAMP SPECIFICATIONS.

3. THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/4" UNDER A TEN FOOT STRAIGHTEDGE, NOR MORE THAN 1/8" ON A FIVE-FOOT TRAVERSE SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2".

4. EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALKS AND THE CURB OR DRIVEWAY OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2" MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO M153 OR AASHTO M213. FOR LONG POORS, AN EXPANSION JOINT SHALL BE PLACED AT INTERVALS NOT TO EXCEED 120'.

5. CONTRACTION JOINTS:

   OPEN TYPE JOINTS

   OPEN TYPE CONSTRACTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND THE SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE FINISHED WITH A TOOL HAVING A 1/2" RADIUS.

   SAWED JOINTS

   A SLOT APPROXIMATELY 3/16" WIDE AND NOT LESS THAN 1" DEEP AT 10' CENTERS SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.

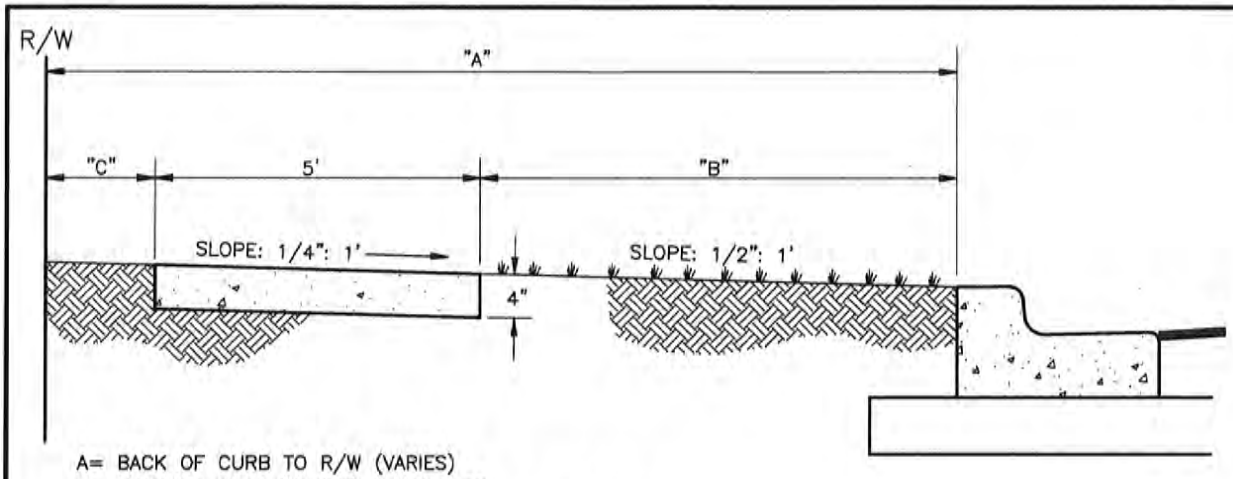
6. SIDEWALKS ALONG OTHER STREETS SHALL BE CONSTRUCTED AND DEDICATED AS REQUIRED BY THE APPROVING AUTHORITY WHEN NECESSARY TO CONTINUE AN EXISTING OR PROPOSED SIDEWALK.

7. HANDICAP RAMPS SHALL MEET FLORIDA ACCESSIBILITIES STANDARDS, AND SECTIONS 301.0, 301.1 AND 301.2.

8. ALL SIDEWALKS ON R/W WITHIN 10' OF AN EXISTING OR PROPOSED TREE THAT WILL EXCEED 6" IN DIAMETER AT MATURITY SHALL BE 5" THICK AND CONTAIN 2-#3 REBAR CENTERED VERTICALLY AND SPACED 3' ON CENTER. PALMS ARE NOT CONSIDERED TREES.

*NOTE: FOR COMPLETE SIDEWALK DETAILS, SEE F.D.O.T. DESIGN STANDARDS, 2006 EDITION, INDEX 304, SHEETS 1 THROUGH 6 AND INDEX 310, SHEETS 1 & 2.

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	SIDEWALKS GENERAL NOTES	301.0

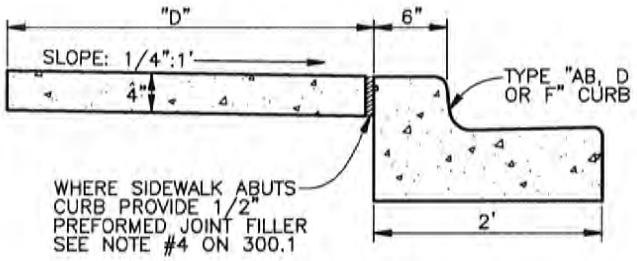


A= BACK OF CURB TO R/W (VARIES)

B= UNPAVED AREA (VARIES). REFER TO F.D.O.T. GREEN BOOK, TABLE 3-12, LATEST REVISION.

C= VARIES, SEE 401 SERIES

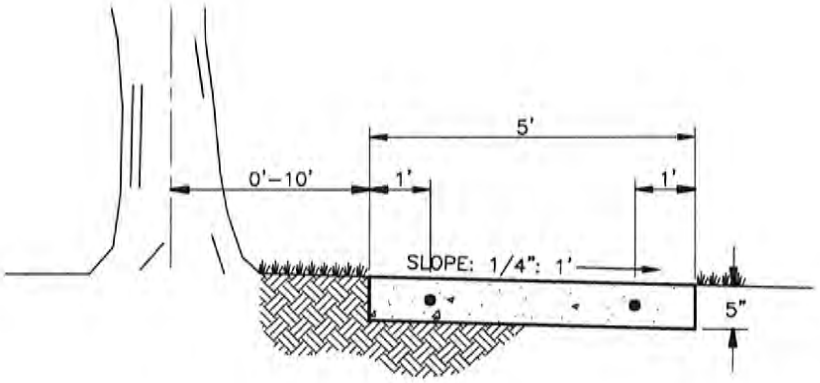
TYPICAL SIDEWALK LOCATION



D= SIDEWALK WIDTH SHALL BE 6' STANDARD, WHERE WALK ABUTS TYPE "AB, D OR F" CURB. WHERE SPEED LIMIT IS 25 MPH OR LESS, WIDTH CAN BE 5'-6".

* SEE SHEET 300.1 "GENERAL NOTES" FOR FURTHER INFORMATION

ALTERNATE SIDEWALK LOCATION



SIDEWALK LOCATION CLOSE TO TREES

MANATEE COUNTY TRANSPORTATION DEPARTMENT				
REV.BY	DATE	6/12/07 DATE OF B.O.C.C. APPROVAL	SIDEWALK REQUIREMENTS	301.1

This poster was developed as a partnership among the Florida Urban Forestry Council, Florida Power & Light, Tampa Electric Company, Florida Power, and Tallahassee Electric Company.
The mission of the Florida Urban Forestry Council is to promote sound urban forestry policies and practices by educating citizens and communities throughout the state. Our nonprofit volunteer organization acts as a forum, resource, and advocate to plan, preserve, and protect Florida's urban forests.

The Executive Committee of the Florida Urban Forestry Council is composed of representatives from the following groups and organizations:

- University of Florida Extension Service
- Florida Department of Transportation
- Florida Chapter, International Society of Arboriculture
- Society of American Foresters
- Florida Chapter, American Society of Landscape Architects
- Florida Recreation and Park Association
- City Arborists
- Private Arborists
- Utility Arborists
- Florida League of Cities
- Tree Advocacy Group, Conservation Organization and Garden Club
- Florida Nurserymen and Growers Association
- Florida Institute of Parks Personnel

References

E. F. Gilman. *Trees for Urban and Suburban Landscapes.* 1997. Delmar Publishers.

E. F. Gilman, H. W. Beck, D. C. Watson, P. Fowler, D. L. Weigle, and N. R. Morgan. *Southern Trees: An Expert System for Selecting Trees.* CD-ROM, 2nd ed. 1996. University of Florida and USDA Forest Service, Southern Region.

FLORIDA URBAN FORESTRY COUNCIL

FPL

For more information on the Florida Urban Forestry Council or to become a member, please contact us at Florida Urban Forestry Council • P.O. Box 547993 • Orlando, FL 32854 • www.fufc.org • 407/872-1738

Graphic Design & Illustration: Robert O'Brien Design

RIGHT TREE / RIGHT PLACE

SELECTING & PLANTING

Trees for the Central Florida URBAN FOREST

Florida Urban Forestry Council

Trees contribute to community pride, instill feelings of relaxation and tranquillity, enhance the environment, and add natural character and beauty through a variety of forms, colors, and textures. If you have a clear purpose for planting a tree and understand the soil, space, light, and temperature requirements of your planting site, you can choose the right tree for the right place. This Right Tree/Right Place guide will help you select a quality tree and plant it properly. With care and watering during establishment, your young tree will contribute to Florida's urban forest. Plant a tree you will enjoy for a lifetime, and then teach a friend!!

The Right Tree for the Right Place

Know Your Purpose for Planting

Ask yourself, "Why am I planting a tree?" You may want to beautify your landscape, shade your home for energy conservation, or honor an event by planting a tree. Having a specific goal will help you select where to plant and what species of tree to plant. For example, to conserve energy, choose a location that will shade the roof and sides of your house, and select a canopy tree from the Tree Selection Chart.

Understand the Planting Site

Before you decide what type of tree to plant, you must know where it will be planted. How much space will your tree have to grow? Consider space above the ground for the canopy, as well as space for root growth. These spaces will determine if a canopy tree, an understory tree, or a palm is compatible with your purpose. For example, a narrow space between a sidewalk and a curb that has a power line above will require an understory tree.

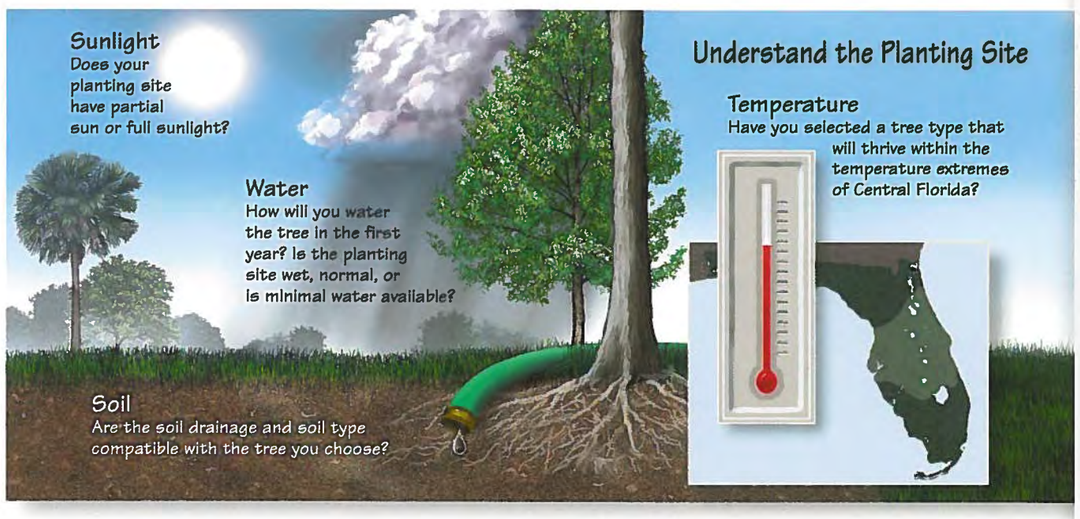
If you live in an urban or suburban area, chances are good that construction has disturbed the original soil. Shallow soil, hardpan, or coral rock may limit your tree selection to understory trees. Compacted soils are poorly drained, while planting sites on a slope or berm drain quickly and may require a more drought-tolerant tree.

Further consideration for sunlight, temperature, and any special situations will help you choose the right tree for the right place. Does your site receive any shade? Most flowering trees prefer full sunshine, but some require partial shade to bloom. Coastal areas stay warmer than inland areas. Trees species selected for Central Florida must be able to tolerate occasional freezing temperatures. Trees along coastal areas may require a higher salt tolerance. Refer to the Right Tree/Right Place Checklist to evaluate your planting site.

Select a Compatible Tree

This Right Tree/Right Place guide provides in-depth information on 30 trees appropriate for planting in Central Florida. Match the characteristics of your location with a tree that meets your purpose.

Consider the mature height and spread of the tree you select. If your location is limited by space, soil type, or special circumstances, select a species that



Right Tree/Right Place Checklist

Soil
Most Central Florida soils are well drained and sandy.
- ❑ Well drained/ Dry
- ❑ Poorly drained/ Wet
- ❑ Shallow soil depth
- ❑ Sandy
- ❑ Loam
- ❑ Clay

Space
Consider the mature height and spread of the tree.
- ❑ Open space
- ❑ Adjacent building
- ❑ Overhead utility lines
- ❑ Road signs or streetlights

Sunlight
Most trees require partial to full sunlight.
- ❑ Full sun
- ❑ Partial sunlight
- ❑ Full shade

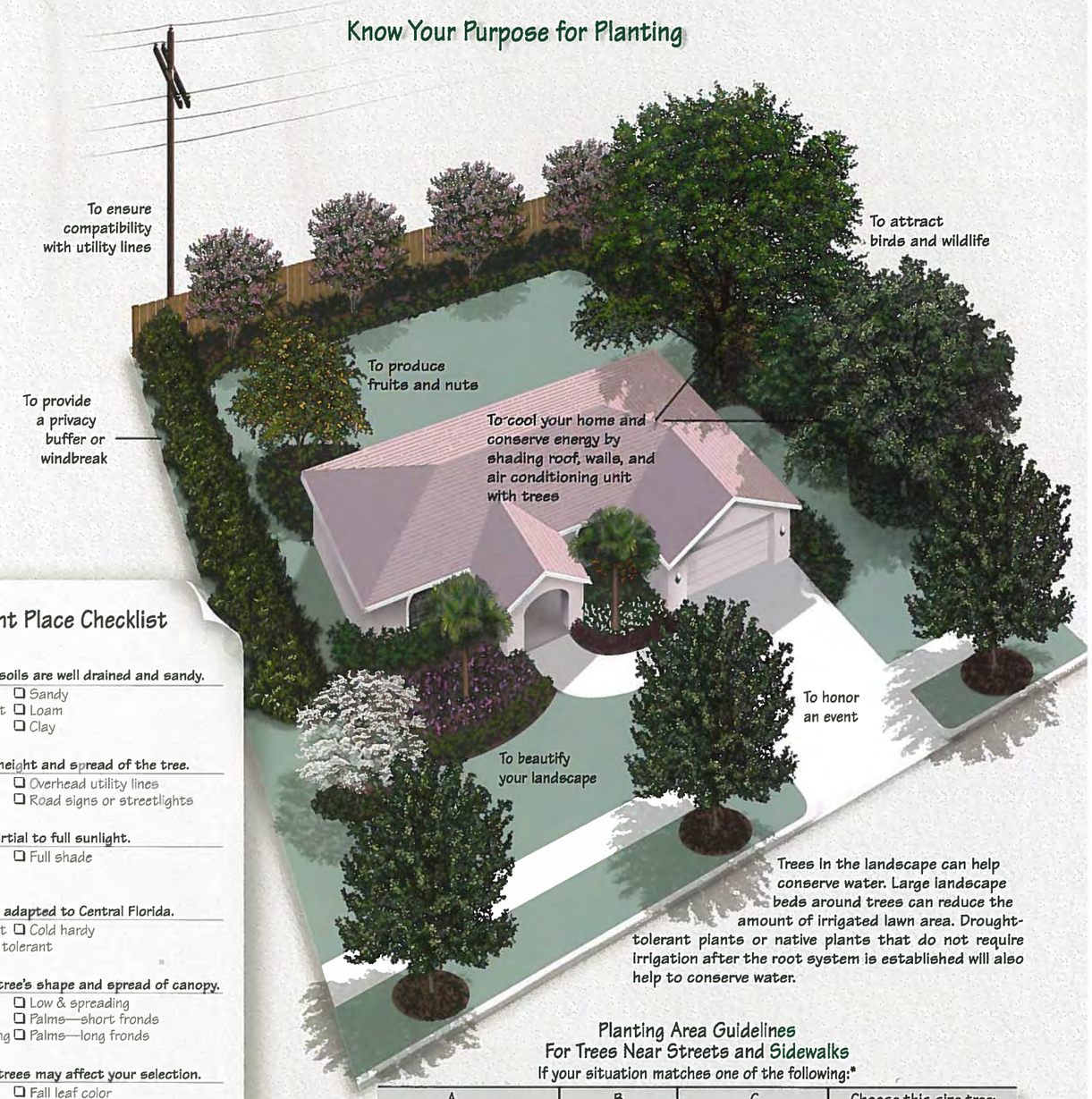
Temperature
Tree species listed are adapted to Central Florida.
- ❑ Not freeze tolerant
- ❑ Moderately freeze tolerant
- ❑ Cold hardy

Tree Shapes
Consider the mature tree's shape and spread of canopy.
- ❑ Upright & narrow
- ❑ Spreading canopy
- ❑ Upright & spreading
- ❑ Low & spreading
- ❑ Palms—short fronds
- ❑ Palms—long fronds

Characteristics
Unique attributes of trees may affect your selection.
- ❑ Flowering
- ❑ Fruiting
- ❑ Fall leaf color
- ❑ Bark texture

Types of Trees
Only deciduous trees drop leaves in winter.
- ❑ Evergreen
- ❑ Deciduous
- ❑ Conifers/Pines
- ❑ Palms

Special Situations
You may have additional site considerations.
- ❑ Salt spray
- ❑ Drought periods
- ❑ Slope
- ❑ Root space restrictions



Trees in the landscape can help conserve water. Large landscape beds around trees can reduce the amount of irrigated lawn area. Drought-tolerant plants or native plants that do not require irrigation after the root system is established will also help to conserve water.

Planting Area Guidelines For Trees Near Streets and Sidewalks

If your situation matches one of the following:*

A Total Planting Area (Lawn, island, or soil strip)	B Planting Strip Width	C Distance From Pavement or Walk	Choose this size tree: Maximum Tree Size at Maturity
Less than 100 square feet	3 to 4 feet	2 feet	Small (under 30 feet)
100 to 200 square feet	4 to 7 feet	4 feet	Medium (under 50 feet)
More than 200 square feet	More than 8 feet	More than 8 feet	Large (over 50 feet)

* Distances are for non-compacted/well-drained soils.
For compacted and poorly drained soils, distances should be increased.

Central Florida Tree Selection Chart

	Common Name	Foliage	At Maturity Height x Spread	Setback from Powerline**	Tree Shape	Growth Rate	Soil Preference	Salt Tolerance	Flower	Comments
CANOPY TREES	Bald Cypress*	Deciduous	60-80' x 25-30'	30'	Upright & narrow	Moderate	Moist to moderate	High	Not showy	Well adapted to most sites. Cold hardy. Attractive spring and fall leaf color.
	Chinese Elm	Deciduous	40-50' x 35-50'	30'	Spreading canopy	Rapid	Moderate	Moderate	Not showy	Interesting bark texture. Attractive vase-shaped street tree. Cold hardy. Cultivars include Drake, Allee and Athena.
	Live Oak*	Evergreen	60-80' x 60-120'	30'	Spreading canopy	Moderate	All except very wet	Moderate to high	Not showy	Excellent, broad-spreading tree that is very adaptable. Acorns attract wildlife. Cold hardy.
	Magnolia, "Little Gem"	Evergreen	40-50' x 15-20'	20'	Upright & narrow	Very slow	Moderate	Moderate	Showy white	Small leaves with bronze undersides; white flowers. Excellent small street tree. Cold hardy.
	River Birch*	Deciduous	40-50' x 40-50'	30'	Spreading canopy	Moderate	Wet to moderate	Low	Not showy	Attractive landscape tree with reddish brown bark that peels in papery curls. Cold hardy. Not adapted for warmest southern and coastal areas of central region.
	Shumard Oak*	Deciduous	60-80' x 40-50'	30'	Spreading canopy	Moderate	Moderate	Moderate	Not showy	Sawtooth-edged leaves; large acorns. Good fall color. Good street tree and parking lot tree. Cold hardy. Not adapted for warmest southern and coastal areas of central region.
	Slash Pine*	Evergreen	35-50' x 30-40'	30'	Upright & slightly spreading	Rapid	All except wet	Moderate	Not showy	Excellent landscape tree because of open crown habit. Drops sticky resin and cones. Cold hardy.
	Southern Magnolia*	Evergreen	60-80' x 30-40'	30'	Upright & slightly spreading	Slow	Wet to moderate	Moderate	Showy white	Fragrant flowers in spring to summer. Large leaves slow to decay. Cold hardy.
	Southern Redcedar*	Evergreen	30-40' x 20-30'	30'	Upright & spreading	Slow	Moist to dry	High	Not showy	Dense foliage makes good natural screen with enough space. Cold hardy.
	Swamp Chestnut Oak*	Deciduous	60-70' x 30-50'	30'	Spreading canopy	Moderate	Moderate	Low	Not showy	Sawtooth-edged leaves; large acorns. Excellent wildlife tree. Cold hardy. Not adapted for warmest southern and coastal areas of central region.
	Sweetbay Magnolia*	Semi-evergreen	40-50' x 15-25'	30'	Upright & narrow	Moderate	Wet to moderate	Low to moderate	Showy white	Fragrant flowers in summer. Excellent freestanding specimen tree. Cold hardy.
	Sweetgum*	Deciduous	60-75' x 40-50'	30'	Upright & slightly spreading	Rapid	Wet to moderate	Some	Not showy	Star-shaped leaves with fall color. Large tree with aggressive root system. Cold hardy.
	Sycamore*	Deciduous	75-90' x 60-70'	30'	Upright & spreading	Rapid	Moderate	Moderate	Not showy	Attractive bark. First to drop leaves; last to leaf out. Cold hardy.
	Tulip Poplar*	Deciduous	80-120' x 25-40'	30'	Upright & slightly spreading	Rapid	Moderate	None	Showy	Tulip-shaped leaves; greenish-yellow flowers in late spring. Fast grower. Cold hardy. Not adapted for warmest southern and coastal areas of central region.
	Winged Elm*	Deciduous	45-70' x 30-40'	30'	Upright & spreading	Rapid	Wet to moderate	Moderate	Not showy	Corky, wing-like projections on twigs and branches. Excellent street tree. Cold hardy.
UNDERSTORY TREES	Chickasaw Plum*	Deciduous	12-25' x 12-20'	10'	Low & spreading	Slow	Moderate to dry	None	Showy white	Flowers in early spring. Weedy growth habit; easily pruned. Cold hardy.
	Crape Myrtle	Deciduous	10-30' x 15-25'	10'	Low & slightly spreading	Rapid	All except wet	Moderate	Showy	Flowers in many colors; blooms from late spring to fall. Cold hardy.
	Dahoon Holly*	Evergreen	20-30' x 8-12'	10'	Slightly spreading canopy	Moderate	Moist to moderate	Moderate	Not showy	Used in moist areas but can be used in urban landscapes. Needs both sexes to develop red berries that attract wildlife. Moderately freeze tolerant.
	East Palatka Holly*	Evergreen	30-45' x 10-15'	20'	Upright & narrow	Moderate	Moist to moderate	Moderate	Not showy	Needs both sexes to develop red berries that attract wildlife. Excellent street tree. Cold hardy.
	Flowering Dogwood, "Weaver"*	Deciduous	20-30' x 10-15'	15'	Low & slightly spreading	Slow	Moderate to dry	Low	Showy white	Needs partial shade to reach full potential. Beautiful spring color. Cold hardy. Not adapted for warmest southern and coastal areas of central region.
	Fringe Tree*	Deciduous	15-20' x 10-15'	10'	Low & slightly spreading	Slow	Moderate	None	Showy white	Spring flowers before leafing out. Known as old man's beard. Cold hardy.
	Golden Trumpet	Deciduous	25-35' x 25-35'	20'	Slightly spreading canopy	Rapid	Moderate	Moderate	Showy yellow	Spectacular spring bloom. Ideal patio tree or lawn tree. *T. chrysostricha* is moderately freeze tolerant.
	Japanese Privet	Evergreen	12-20' x 15-25'	10'	Low & slightly spreading	Moderate	Moderate	Moderate	Not showy	Dense-canopied, with multiple trunks. Excellent specimen tree. Cold hardy.
	Loquat	Evergreen	20-30' x 15-25'	10'	Slightly spreading canopy	Slow	Moderate	Moderate	Showy white	Edible fruit that attracts wildlife. Ideal specimen tree or street tree. Moderately cold hardy.
	Redbud*	Deciduous	20-30' x 15-30'	20'	Slightly spreading canopy	Moderate	Moderate	None	Showy pink	Showy flowers in spring before leafing out. Not adapted for warmest southern and coastal areas of central region.
	Wax Myrtle*	Evergreen	15-20' x 15-20'	10'	Low & slightly spreading	Slow	Wet to moderate	High	Not showy	Excellent understory tree with spreading growth habit. Used for screening; attracts wildlife. Cold hardy.
PALMS	Canary Island Date Palm	Evergreen	40-60' x 15-25'	20'	Upright, long fronds	Slow	Moderate to dry	Moderate to high	Not showy	Large, stately palm. Fronds 8-12' long; heavy trunk. Excellent specimen tree. Moderately freeze tolerant.
	Chinese Fan Palm	Evergreen	30-50' x 10-12'	15'	Upright, short fronds	Moderate	Moderate to dry	Moderate	Not showy	Large, stately palm. Drooping fronds 5-6' long; moderate-sized trunk. Excellent specimen tree. Moderately freeze tolerant.
	Sabal Palm*	Evergreen	40-50' x 10-12'	15'	Upright, short fronds	Slow	Moderate to wet	High	Not showy	Easy to transplant; able to withstand hurricanes. Palmate fronds 6-8' long; slender trunk. Berries attract wildlife. Cold hardy.
	Washingtonia Palm	Evergreen	60-100' x 10-12'	15'	Upright, short fronds	Rapid	Moderate to wet	Moderate	Not showy	Large, stately palm. Palmate fronds 4-5' long; slender trunk. Excellent specimen tree. Moderately freeze tolerant.

* Native trees.
** Setback from powerline does not apply to high-voltage transmission rights-of-way.

Tree Shapes


Upright & Narrow


Spreading Canopy

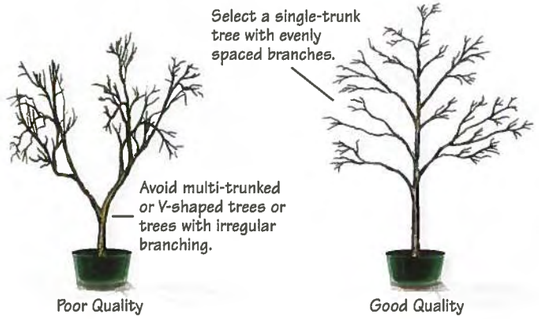

Upright & Spreading


Low & Spreading


Upright, Short Fronds


Upright, Long Fronds

Nursery Stock Selection For Single-Trunk Trees



will overcome that limitation. Your purpose, the planting site, and the tree species must all be compatible.

If you're still having trouble choosing which tree to plant, consult with experts. Contact the University of Florida extension agent in your county, the Florida Division of Forestry, or a local arborist, landscape architect, nurseryman, or other qualified professional. Visit a nursery or arboretum.

Purchase a Quality Tree

Choose quality trees with good branch structure, good root ball size relative to tree canopy, and a uniform canopy. Avoid trees with circling roots, signs of stress, and insect damage.

The Florida Department of Agriculture and Consumer Services has grades and standards for evaluating nursery stock. Ask for a Florida Chapter, International Society of Arboriculture-certified Florida Fancy or Florida #1 grade nursery tree. These trees have been evaluated according to the regulations of the State of Florida Division of Plant Industry.

When selecting a tree, consider that smaller trees take less time to establish and will reduce the time you may need to irrigate your tree. The branches should be evenly distributed along the upper two thirds of the trunk. The tree should stand freely without stakes. Ask for assistance to ensure that you purchase the best available tree.

Plant Your Tree Properly

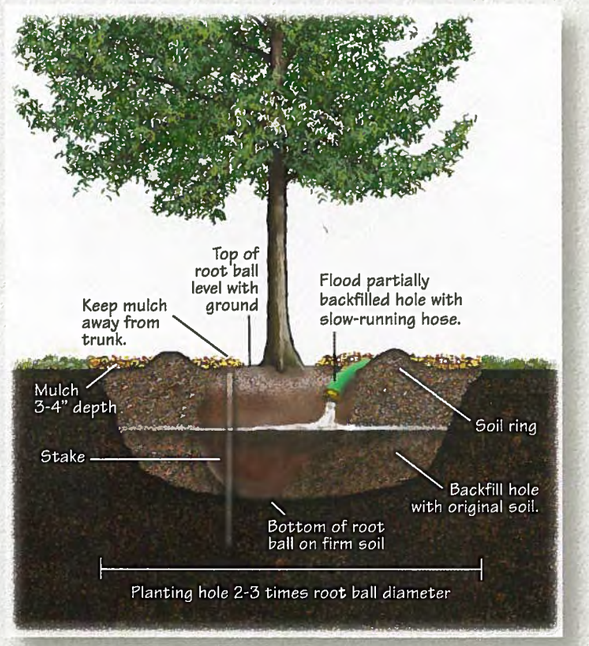
1. Mark out the planting area 2 to 3 times wider than the root ball diameter (the wider, the better), because loose soil around the root ball promotes early root growth.

2. The depth of the hole should equal the depth of the root ball. The bottom of the root ball should sit on firm soil.*

3. Place the tree in the hole. Be sure the container or root wrapping is removed before planting.

4. Place the root ball in the center of the hole, and adjust the tree so that it is straight and at the proper depth. After planting, the top of the root ball should be level with or slightly higher than the surrounding ground.

5. Backfill the hole with the original soil. Fill until the hole is half full of soil. Tamp gently with your foot to firm the soil. Flood the hole with a slowly running hose to settle the soil around the root ball and eliminate air pockets. Add soil until it is even with the root ball, but do not cover the root ball with soil. Construct a ring of soil 3 to 4 inches high at the edge of the root ball to hold water in the area near the tree's roots.



6. Secure the root ball. A thin bamboo stake through the root ball will prevent movement and protect new roots from damage.

7. Add 3 to 4 inches of mulch in an area equal to 2 feet per inch of trunk diameter. This will retain moisture, reduce competition from weeds, avoid mechanical damage from string trimmers and mowers, and regulate soil temperature. Do not pile mulch close to the trunk.

** Florida law requires calling for utility locations two working days before digging. The "One Call" utility locator service is free. Call 800-432-4770.*

Tree Watering and Establishment Guidelines
For Trees in Well-drained Sites During the Growing Season

Trunk Diameter of Nursery Tree	Watering Frequency	Minimum Time To Establish Tree
2 inches	Daily for 2-4 weeks; 2-4 times weekly until established	6 months
2-4 inches	Daily for 1-2 months; 2-4 times weekly until established	6-12 months
4 inches	Daily for 2 months; 2-4 times weekly until established	12 months

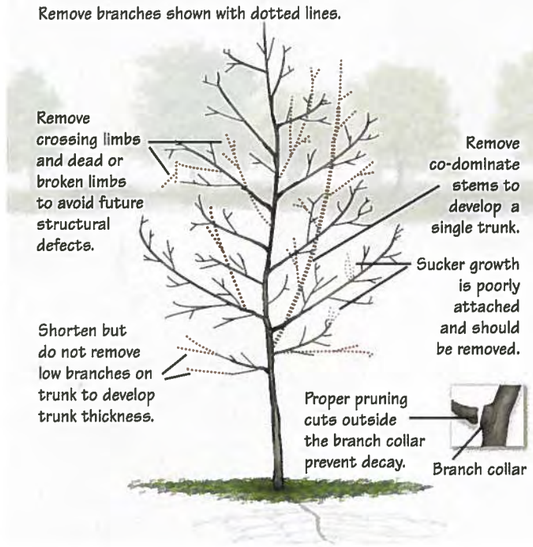
Water and Care for Your New Tree

The time it takes for a tree to become established can last from 3 to 12 months per inch of trunk diameter, depending on climate and irrigation. Trees watered infrequently after planting establish slowly because the roots grow slowly. Regular watering is the single most important care you can provide for your newly planted tree.

A newly planted tree needs at least 3 gallons of water per day per inch of trunk diameter applied to the root ball. Continue to water the tree until it is established, especially during months of little rainfall. Be careful not to overwater. Trees need air in the root zone as well as water.

Research continues on the effectiveness of fertilizing newly planted trees. Wait at least 3 months after planting to fertilize. Use a controlled-release fertilizer at a rate of 1/4 to 1/2 pound per inch of trunk diameter. Apply evenly in the area under the branch canopy or drip line. Do not overfertilize, and do not apply fertilizer directly to the base of the tree.

Young Tree Pruning



Pruning is not recommended until after your tree has overcome transplant stress and has a self-supporting root system. Before pruning any trees or hiring someone to prune your trees, consult with an International Society of Arboriculture certified arborist. Learn more about proper tree pruning from handouts available from the extension agent in your county.

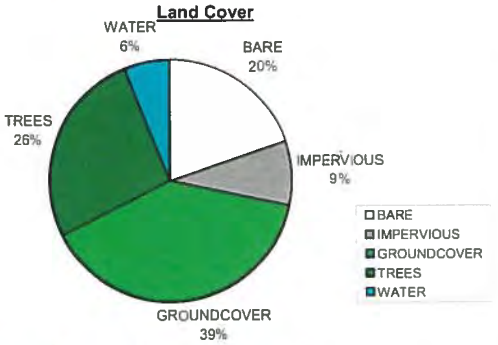
Things to Avoid in Planting


RIGHT TREE/RIGHT PLACE
SELECTING & PLANTING
Trees for the Central Florida
URBAN FOREST
Washingtonia Palm
Washingtonia robusta
Very tall, stately palm that makes a good specimen tree. Effective screening tree when planted in groups.
Slash Pine
Pinus elliottii
Large evergreen pine tree that prefers acidic soils. Plant in groups to create a natural effect.
Golden Trumpet
Tabebuia chrysotricha
Small, flowering deciduous tree with spectacular yellow flowers in spring. Only moderately freeze tolerant.
Dahoon Holly
Ilex cassine
Small native evergreen tree that attracts wildlife. Prefers moist soils but is adaptable to others.
Sabal Palm
Sabal palmetto
Tall native palm that is Florida's state tree. Hurricane resistant and very salt tolerant.
Crape Myrtle
Lagerstroemia indica
Small, flowering deciduous tree with interesting bark. The many cultivars provide several different colors in summer.
Flowering Dogwood "Weaver" Cornus florida
Small, flowering deciduous tree that likes partial shade. Beautiful white flowers in early spring. Not recommended south of Highway 60 coastal or Highway 70 inland.
Sycamore Platanus occidentalis
Large deciduous shade tree with wide spreading canopy and attractive bark.
Wax Myrtle
Myrica cerifera
Small native evergreen tree. Makes an effective screen and attracts wildlife.
Chinese Fan Palm
Livistona chinensis
Tall, stately palm with drooping fronds that create a weeping effect.
Bald Cypress Taxodium distichum
Large deciduous shade tree with attractive fall leaf color. Adapted to wet sites and very salt tolerant.
Canary Island Date Palm
Sweetbay Magnolia
Magnolia virginiana
Large specimen tree with showy white flowers. Prefers moist sites but tolerates most others.
Winged Elm Ulmus alata
Magnolia, "Little Gem"
Magnolia x "Little Gem"
Excellent small to medium-sized street tree with showy white flowers.
Loquat
Southern Magnolia
Magnolia grandiflora
Large evergreen tree with showy white flowers and big leaves that are slow to decay.
Japanese Privet
Ligustrum japonicum
Southern Redcedar
Juniperus silicicola
Large evergreen shade tree with dense foliage that makes a good natural screen. Very salt tolerant.
Fringe Tree
Chionanthus virginicus
Known as old-man's beard.
Shumard Oak
Quercus shumardii
Chickasaw Plum
Prunus angustifolia
Sweetgum
Chinese Elm
Ulmus parvifolia
Swamp Chestnut Oak
Quercus michauxii
East Palatka Holly
Ilex x attenuata "East Palatka"
Small to medium-sized evergreen tree that makes a good street tree. Adaptable to most sites.
Redbud
Cercis canadensis
River Birch
Betula nigra
Tulip Poplar
Liriodendron tulipifera
Live Oak
To Plant the Right Tree in the Right Place, Follow These Easy Steps
Tree Height and Spacing
Residential Sites
Commercial Sites
URBAN FORESTRY

Unincorporated Manatee County Urban Landscape Functional Analysis

2004 to 2009 Comparison

Unincorporated Manatee County 2004, pop. 212,266



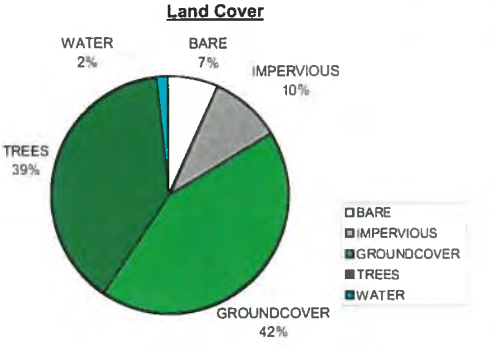
Agricultural or barren lands in 2004

Many agricultural and/or barren areas such as the section of unincorporated Manatee County shown in this picture were developed as new neighborhoods between 2003 and 2009.

Environmental Statistics 2004

Total area (acres).....	463,754
Forest canopy (acres).....	121,228
Forest canopy (percent of total area).....	26
Carbon sequestration (tons per year).....	40,663
Total carbon stored (tons).....	5,222,978
Annual value of C removal.....	$2,033,150
(based on $50 per ton for removal)	
Additional storage needed (cubic feet).....	1,037,620,409
(if trees were replaced with impervious surface)	
Annual stormwater value.....	$180,928,949
(based on $2 per cu ft for construction of facilities)	
Total air pollution removal (pounds per yr)	15,471,954
Annual pollutant removal value.....	$40,367,228
(based on health care cost, lost tourism)	
Total Annual Value.....	**$223,329,327**

Unincorporated Manatee County 2009, pop. 234,191



New developments in 2009

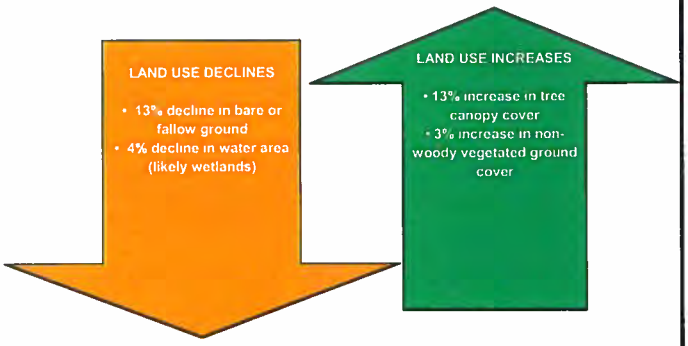
This type of land use change results in new roads and houses, but also new trees, landscape plants and sod. There is often a loss of wetlands associated with development.

Environmental Statistics 2009

Total area (acres).....	433,930
Forest canopy (acres).....	168,851
Forest canopy (percent of total area).....	39
Carbon sequestration (tons per year).....	56,614
Total carbon stored (tons).....	7,271,968
Annual value of C removal.....	$2,830,700
(based on $50 per ton for removal)	
Additional storage needed (cubic feet).....	906,153,726
(if trees were replaced with impervious surface)	
Annual stormwater value.....	$160,594,116
(based on $2 per cu ft for construction of facilities)	
Total air pollution removal (pounds per yr).....	21,541,657
Annual pollutant removal value.....	$56,203,429
(based on health care cost, lost tourism)	
Total Annual Value.....	**$219,628,245**

E Sciences analyzed 2004 and 2009 aerial photographs of unincorporated Manatee County using ERDAS Imagine 2010 and American Forests' CITYGreen. The most significant changes to land cover during this period include a reduction in agricultural and/ or vacant (bare) land, with an increase in tree canopy cover and impervious surface. There are two scenarios that could account for this type of land use change: 1) in 2004 the land was already cleared for development, but actual development (construction, landscape installation) did not occur until after 2004 and before 2009; or 2) farmland was converted to development. In the later scenario, despite the conversion of agricultural land use to residential land use, certain net environmental benefits are realized from the increased woody landscape plantings, which offset the effects of the additional impervious surfaces.

As of 2009 the forest canopy in unincorporated Manatee County is responsible for sequestering 56,614 tons of carbon from the atmosphere every year. The gain of approximately 13 percent of tree canopy between 2004 and 2009 increased the annual carbon sequestration rate by over 15,000 tons per year. The forest is currently storing more than 7.2 million tons of carbon within the biomass of standing trees, which helps reduce atmospheric carbon that otherwise would contribute to climate change. These trees are also reducing air and water pollution by annually: a) removing 21,541,657 lbs of air pollutants, and b) filtering water through roots and leaves, thus performing stormwater management functions equivalent to $160,594,116 that otherwise would have had to be spent on constructing facilities to treat and store the same amount of stormwater. In total, Unincorporated Manatee County's urban tree canopy is providing environmental benefits worth $219,628,245 each year.



Florida Department of Transportation

Rick Scott
Governor

605 Suwannee Street
Tallahassee, FL 32399-0450

Ananth Prasad, P.E.
Secretary

Business of Beautification

To me, in sum, beautification means our total concern for the physical and human quality we pass on to our children and the future. Mrs. Lyndon Johnson, 1993

Now and for the next few years, to make Florida the most attractive place to do business, to attract visitors and businesses to invest more time and money in Florida, the Department can implement **bold** roadside beautification projects using many large trees, and few if any shrubs. With thoughtful site specific design, this ***Consistent, Predictable, and Repeatable*** approach will produce the highest visual impact and distinctive sense of place at the lowest design, construction, and maintenance cost. Ten, twenty, thirty, and forty foot tall or taller trees generously and safely placed at the most highly traveled interchanges and gateways into and through the state (Florida's most visible landscapes) will instantly create a welcoming and enjoyable experience; the first and lasting impression of the state and individual communities. Overstocked Florida based nurseries are discounting large trees by 50% or more, and in at least one case offering 0% financing. Palms, especially in Central and South Florida, are the state's signature trees; what visitors and investors expect to see, what they pay to see. Palms are the only type of trees that can feasibly and effectively be transplanted (and re-transplanted if need be) when mature. No other type tree can provide such instant impact, and be as resilient to Florida's extreme weather events. Each District, in conjunction with other agencies, can identify and program the ten highest priority roadside landscapes (e.g., state line, sea ports, airports, rail stations, scenic highways, beaches, historic sites, resorts, REDI communities, national parks and forests); where beautification is most able to help attract and grow

business. Decisions about the selection, placement, and care of trees can continue to be made with full participation of the local governments and maintaining agencies. Where necessary to fully implement highest priority projects, the Department can budget and accept responsibility for landscape maintenance.

For the future, as the economy strengthens and as the highest priority roadside landscapes are being completed, beautification can be routinely integrated into the processes used to plan, design, construct, and maintain roadways; roadways that accommodate **bold** performing landscapes that enhance private enterprise and public health and safety. Roadside landscape projects can mimic natural processes that manage stormwater, filter air, abate noise, shade pedestrians, conserve energy, provide habitat, *and* be beautiful. **Bold** leadership at all levels within the Department can make it possible to create and sustain memorable landscapes that contribute to the State's overall well being.

Emphasis can increase on conservation and management of existing trees, and planting roadsides with many small trees that will grow large. There can be less emphasis on planting large trees. Less expensive smaller trees and widespread planting of tree seedlings will grow quickly to beautify and reforest urban, suburban, and rural roadsides. Planting and managing a diverse community of native and non-native tree species reinforces the **bold** landscapes already in place, and helps overcome other design, construction, and maintenance challenges. This simple and sound investment approach grows in value and pays meaningful environmental and economic dividends indefinitely, unimpeded by current or future recessions.

Let's get to work making beauty *everyone's* business at the Department of Transportation. A work plan developed by the District Landscape Architects and Managers describes strategies, tactics, and measures that can, upon implementation, increase and sustain the return on Florida's investment in highway beautification.

Work Plan Highlights:

- Strengthen the Department's Highway Beautification Policy to show renewed commitment.
- Increase landscape expertise in each District planning, design, construction, and maintenance office
- Address landscape conservation and improvements early in roadway planning, project development, and design (including drainage, utilities, ped/bike). The roadway design needs to safely accommodate the landscape design.
- Develop landscape project performance measures and targets tied to other department programs (safety, pedestrian and bicyclists, safe routes to schools, accessibility, drainage, transit, maintenance).
- Document the direct economic benefits of each landscape project, including number of full-time and part-time employees, suppliers, nurseries, etc.
- Develop system to track and monitor landscape projects over time and space. Create a report card for landscape projects with annual report cards on how the project matured and the cost and quality of care. Document what has been invested, where, and how the investment is growing.
- Utilize landscape projects to enhance mobility and safety, e.g., midblock crossing, delineation, headlight glare, traffic calming, etc.
- Upgrade online resources for landscape stakeholders. Include instruction and information about roadside landscape design, construction, and maintenance.
- Emphasize "right plant in right place", "sustainable", and "non-invasive" as well as "native".
- Establish specifications and method of payment for landscape soil to be placed during roadway construction and for soil replacement when necessary during landscape construction.
- As stand-alone projects, enhance oversight during landscape construction:
    - Develop process for maintaining agency to participate in final acceptance.
    - Revise inspection reports to include mulch, weeds, litter, etc.
    - Develop minimum education and experience requirements for landscape CEI.
    - Authorize post design services for RLA of record.
    - Develop process to pay contractor during establishment periods
- Improve landscape maintenance. Determine design life of the landscape project, and who and how maintenance will be paid for the duration. During design, establish a maintenance cost limit that cannot be exceeded. Review and approve landscape maintenance plans and projected annual maintenance costs before completing design. Determine if investment on front end can save on long term maintenance. Reconfirm agreements *before* installation. Develop and retain expertise in the art and science of tree care, roadside forestry, land and landscape management for safety, value, beauty, and soil and water quality.
- Develop programmatic landscape recommendations and requirements to minimize maintenance, e.g., large trees widely spaced with few shrubs to accommodate large machine mowing. Establish design guidelines for low and high maintenance commitments.
- Publish online photo gallery of successful landscape projects.
- Include landscape quality in customer satisfaction surveys.
- Explore opportunities for public private partnerships for landscape design, construction, and maintenance.

Imagine MANATEE

A VISION FOR MANATEE COUNTY

FOR A **GREEN**
BEAUTIFUL
ACCESSIBLE
EQUITABLE
PROSPEROUS
COLLABORATIVE
EDUCATED COUNTY

IMAGINE YOUR FUTURE – IMAGINE MANATEE!

DRIVE FOR A GREEN COUNTY

Green County

Manatee County will be known as a green county through actions and ethic.

Key Elements

- Active and passive parks.
- Aggressive acquisition program for environmentally sensitive lands.
- Multi-use trails system.
- Strategically direct growth.
- Strong environmental regulations.
- Environmental education in public schools.

Key Actions

- Establish funding source(s) for parks, trails and environmentally sensitive lands.
- Establish specific plan to manage growth east of I-75.
- Establish policies and incentives to direct development toward already urbanized areas.
- Develop Parks Master Plan, which includes Manatee County, Bradenton and Palmetto.
- Review and amend county and municipal codes as appropriate to ensure environmental protection.
- Expand opportunities for environmental education for all citizens.

DRIVE FOR A BEAUTIFUL COUNTY

Beautiful County

Manatee County will be a beautiful place.

Key Elements

- Favor redevelopment and infill development.
- Rehabilitation of older neighborhoods, commercial sites and industrial areas.
- Clustering new development into well-designed, distinct neighborhoods and communities with walkable mixed-use centers.
- Aggressive improvement and beautification of weak areas of the community.
- Protection of historic buildings and districts.

Key Actions

- Amend county and municipal plans and codes to provide incentives to favor redevelopment, infill development, rehabilitation and renovation.
- Establish tax credits and other funding methods to encourage historic preservation.
- Aggressively continue and expand programs that improve the weak areas of the community
- Develop a comprehensive recreational and cultural plan.

DRIVE FOR AN ACCESSIBLE COUNTY

Accessible County

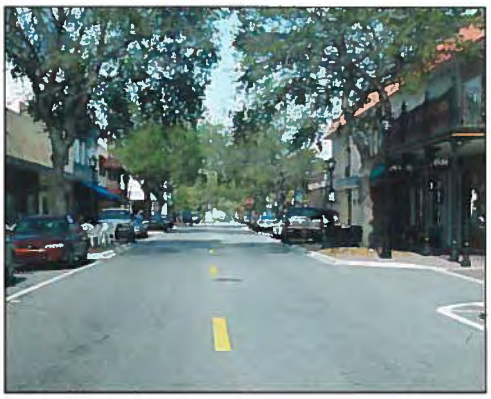
Manatee County will have a multi-modal transportation system maximizing accessibility while minimizing congestion.

Key Elements

- Offer greater choices in modes and methods of transportation.
- Fully integrated system with the regional transportation network.
- A convenient, reliable and safe public transportation system.
- An extensive network of sidewalks and bike facilities to complement public transportation.

Key Actions

- Establish a Transportation Task Force to assess needs and assist in planning and implementing appropriate changes, particularly in the area of public transportation.
- Develop a Transportation Master Plan, which includes the implementation of intelligent transportation system technology.
- Amend plans and codes of the county, municipalities and the Metropolitan Planning Organization consistent with the goal.
- Evaluate all current and potential funding sources to implement the Transportation Master Plan.
- Establish sidewalks and bike paths along all major roads and around schools.



DRIVE FOR AN EQUITABLE COUNTY

Equitable County

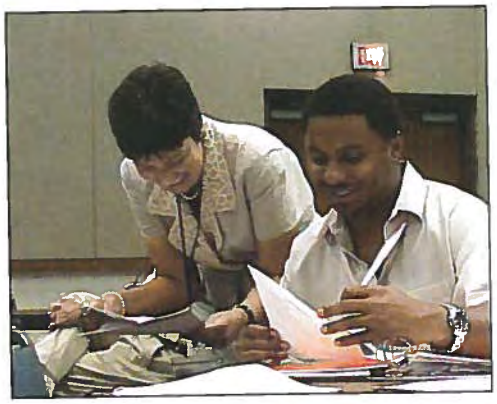
Manatee County will be a fair and just community.

Key Elements

- Diverse populations living in harmony in well maintained, diverse neighborhoods.
- Aggressive affordable housing program.
- Accessible, easily identified social services for those in need.
- Efficient and well-coordinated network of social services.
- A thriving arts community.

Key Actions

- Establish an Affordable Housing Task Force to seek new ways to stimulate the development of affordable housing.
- Establish a Social Services Coordinating Council to increase opportunities for collaboration and efficiency in the delivery of services.
- Increase police patrols (car, bike, and foot) to reduce crime.
- Establish neighborhood based citizen organizations to communicate community needs to elected officials.
- Establish and expand programs aimed at improving the physical appearance of the existing community and new development.
- Development of facilities, events and funding to support the arts.



DRIVE FOR A PROSPEROUS COUNTY

Prosperous County

Manatee County will have a thriving, diverse economy.

Key Elements

- Attractive, vibrant, economically sustainable downtowns throughout the County.
- Focus on downtown waterfronts of Bradenton and Palmetto.
- A skilled workforce.
- Employment for residents at all skill levels.
- Creation of value added jobs.

Key Actions

- Coordinate revitalization efforts of the downtown waterfronts.
- Create and/or update plans to encourage mixed-use development and round-the-clock activities for the downtowns.
- Create a downtown waterfront task force to develop a comprehensive waterfront strategy aimed at maximizing the downtown waterfront economic and recreational potential.
- Increase partnerships between business, government, schools and local colleges to provide workforce education and training consistent with changing needs.
- Continue successful business recruiting programs that bring high-skill, high-wage jobs.

DRIVE FOR A COLLABORATIVE COUNTY

Collaborative County

Manatee County will be a place where residents and governments proactively communicate and share decisions.

Key Elements

- Involved and informed citizens.
- Open government.
- Increased level of cooperation among governments.
- Increased efficiency and eliminatation of duplication in the delivery of services.

Key Actions

- County and local municipalities should step up efforts to improve cooperation and coordination among government entities and address consolidation of service delivery, such as law enforcement, fire and medical response.
- Expand outreach methods and frequency to inform and involve the general public in developing and implementing future programs, policies and actions.
- Develop citizen based neighborhood plans, which identify the desires of the community.

IMAGINE YOUR FUTURE

The Vision Process

"What can we do to make Manatee County the best that it can be in the coming years?" This question was posed to over 700 participants during the 13 public brainstorming meetings held throughout the county during January and February of 2003. They responded with over 2,550 ideas. These ideas were distilled into 19 goals and 105 strategies providing a dynamic road map for the future of Manatee County.

Participation in Imagine Manatee was very broad. Many residents who had never been involved in something of this nature found an opportunity to express their hopes, expectations and concerns about the future, thereby providing the foundation upon which the Vision is built.

The Vision process for Manatee County is the result of three complementary programmatic features:

1. *Brainstorming ideas for the future,*
2. *A focus on the physical environment, and*
3. *Understanding existing conditions.*

The ideas were generated at public brainstorming meetings and then refined into goals and strategies in follow up public meetings to provide a clear description of the desired future physical and social character of the County.

The physical development of the County received focused attention during a stakeholder workshop, which examined potential future land consumption and growth patterns. Additionally, during the brainstorming meetings attendees participated in an activity (Strong Places / Weak Places) designed to assess what works and what needs improvement in regards to the physical environment. This activity allowed participants to identify why they considered places weak and strong, and then encouraged them to identify methods to improve the weak. The principles developed as a result of these activities provide a snapshot of the desired physical form and appearance of the County.

IMAGINE MANATEE

A thorough analysis of data, conditions and trends provided the factual basis in which the Vision was created and in which it will be implemented. This material was summarized for all participants of the visioning process to create a common base of knowledge.

As the visioning process drew to a close the context provided the factual basis in which the Vision was created and in which it will be implemented. At the beginning of the process, a thorough analysis of data and trends helped build awareness among those who participated in the Vision process of the conditions presently affecting the County, as well as the trends that may influence it in the future. An extensive review of existing plans and programs provided insight into what will ultimately help or hinder the realization of the Vision and how to build on the strengths and minimize the obstacles to creating the community in which Manatee County residents aspire to live and work.

Implementing the Vision

A great vision in and of itself cannot improve Manatee County. The Vision must be more than a collection of good ideas and aspirations. It must put forth a clear path to implementation.

How can we now transform Imagine Manatee into reality? How can the good will expressed by the public's involvement be harnessed for implementation so that the quality of life rewards articulated in the vision are realized?

To facilitate implementation, the results of the vision have been distilled into seven implementation drives. Each implementation drive spells out how local governments must come together with the private sector, civic institutions, and residents to achieve the shared vision that will make Manatee County an even better place to live, work and play.

For more information on the background data, drives, goals, strategies and actions recommended by Imagine Manatee or to order the complete Vision Report, please go to the project website: www.imaginemanatee.org or call 941/749-3070.

DRIVE FOR AN EDUCATED COUNTY

Educated County

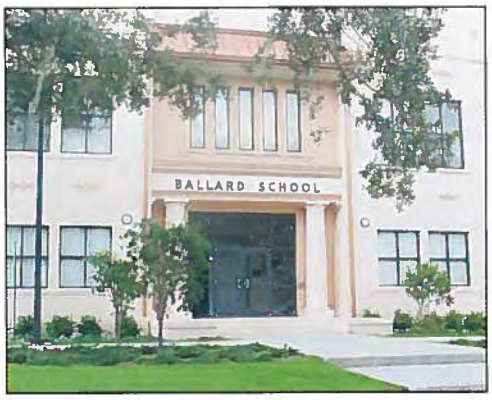
Manatee County will have a school system known for excellence and efficiency.

Key Elements

- Technologically advanced education and vocational training.
- Focus on student achievement.
- Well funded.
- Schools as community focal points.

Key Actions

- Develop methods to allow collaborative community input on how to increase the quality of education, system efficiency and to identify, seek and lobby for additional funds.
- Develop greater awareness in the general public of school needs and programs.
- Develop and operate schools as full time community centers.
- Implement one-on-one cross-generational mentoring.



MISSION

Steering Committee
Willie Mae Jackson
Rick Fawley
Co-Chairs

Mark Barnebey
Joan Blackford-Heintz
Fred Booth
Beverly Burdette
Patrick Carnegie
Clint Chapman
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Jim Delgado
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Linda Stevenson
Karen Stewart
Arlene Sweeting
Jean Van Delft
Wendy Vehling
Timothy Vining
Dale Weidemiller
Britton Williams

Imagine Manatee -- A Vision for Manatee County is a citizen driven vision program. The Vision summarized in this report embodies the ideas gained through a carefully crafted 7 month public involvement program. Led by a Citizen Steering Committee, county residents were the participants and critical decision makers in all phases of the vision process.

Imagine Manatee was initiated by all the local governments within Manatee County and included all the lands within the County.

City of Anna Maria
City of Bradenton
City of Bradenton Beach
City of Holmes Beach
City of Palmetto
Town of Longboat Key
Manatee County

IMAGINE YOUR FUTURE!
IMAGINE MANATEE!

Imagine MANATEE

A VISION FOR MANATEE COUNTY

1112 Manatee Avenue West, 4th Floor
Bradenton, Florida 34205
941/749-3070
941/708-6154 Fax

www.imaginemanatee.org

Benefits of Urban Forests

For policymakers and citizens to dedicate resources to their city's trees, people need to recognize the value and benefits of healthy urban forests. Well-funded urban forestry programs can be seen as an investment in one of the city's most important assets and a major contributor to the economic, social, environmental, and aesthetic standards of excellence for the city.

- Trees are important energy savers. According to a U.S. Forest Service report, trees cover 28% of residential areas in the United States, and the cooling effect of this canopy means an annual savings of almost $2 billion per year or about 5% of all energy use in the United States.
- Each urban tree cleans the air by removing up to 26 pounds of carbon dioxide and releasing about 13 pounds of oxygen every year. Leaves and twigs of a mature tree capture up to 50 pounds of airborne dust and dirt particles each year.
- Trees reduce stormwater runoff by absorbing rainfall and slowing its velocity. This reduces sediment volume and erosion.
- Urban trees provide food, shelter and nesting sites for birds and other forms of wildlife and are essential to the health of seasonal migrating flocks.
- Well-cared for mature trees add 5-7% to the sale price of a home. A tree-filled lot will sell for up to 15% more than a bare lot.
- Trees stabilize neighborhoods, add character and real estate value. Shaded sidewalks encourage outdoor recreation and act as a deterrent against crime.
- Recent retail studies show that shoppers are willing to drive further and pay up to 11% higher prices at stores on tree-lined streets.
- Trees make urban areas quieter, cooler and more attractive to residents and visitors. They also can shield unsightly areas from view.
- Trees contribute to community pride and sense of ownership. Involving volunteers in planting and caring for trees increases civic involvement in tangible and long-lasting ways.

Our Mission: ***The Florida Urban Forestry Council promotes sound urban forestry policies and practices by educating citizens and communities throughout the state.***

Photo by Dr. Ed Gilman, Professor, University of Florida

The purpose of this strategic plan is to create a vision for urban and community forestry in Florida, so that the resources will be allocated resulting in optimal urban forests for the benefit and enjoyment of Florida residents. Please keep the Florida Urban Forestry Council informed of your progress. For more information on educational resources, Council membership, annual conference and awards programs, please contact:

Florida Urban Forestry Council
Post Office Box 547993
Orlando, Fl 32854-7993
407.872.1738
Fax 407.872.6868
Fufc@aol.com
www.fufc.org

A Vision for Urban and Community Forestry

A strategic plan developed for the benefit of Florida and its communities by the Florida Urban Forestry Council in cooperation with the Florida Division of Forestry.

Florida Urban Forestry Council 2005-2010 Strategic Plan

By the year 2020, nine out of ten Florida residents will live in Urban Areas. With such vast growth of our state, there must be a plan in Florida's future for healthy, green and attractive urban forests.

Goal I: *Educate all segments of the public, ensuring inclusion of underserved population, on the full benefits of well-managed urban forests.*

- Develop communication materials on the importance and value of urban and community forests.
  - Develop public service announcements.
  - Develop a web-based clearinghouse of Urban Forestry resources.
- Develop programs to promote education on specific topics.
  - Develop right tree/right place educational programs and promotional materials.
  - Develop a recognition campaign for notable and specimen trees.
  - Educate Florida's youth on the importance and value of trees.
  - Develop partnerships to educate citizens on a fire-safe urban and community forest.
- Seek support of Urban and Community Forestry with state and local governments.
  - Participate in the legislative process that supports Urban Forestry.
  - Participate in coalitions in support of Urban and Community Forestry.

Goal II: *Promote the active involvement of citizen groups and volunteers in Urban and Community Forestry.*

- Encourage and facilitate the development of volunteer citizen groups.
  - Recognize the achievements of community forestry volunteers and volunteer organizations.
  - Develop directory of grassroots volunteer tree groups.
  - Identify funding sources and refer volunteer groups with projects to potential sources.
  - Develop a volunteer group mentoring program and training programs for volunteer groups.
- Celebrate your community's trees.
  - Promote Arbor Day programs for schools, youth groups, civic groups and plant societies.
  - Encourage tree plantings for Earth Day and other holiday programs.

Goal III. *Foster professionalism in Urban and Community Forestry.*

- Provide professional education programs for Urban Forestry practitioners.
  - Hold an annual, statewide conference in Urban and Community Forestry.
  - Provide continuing education opportunities for practitioners at the local, regional and state levels.
  - Develop a recognition program for participation in Urban Forestry continuing education.
- Encourage and promote certification for all Green Industry professionals.
  - Support a state-licensing program for arborists.

  - Utilize the website as a referral system to recommend qualified or certified arborists by region and county.
  - Promote certification for professionals in Urban Forestry or related fields in professional organizations.
- Encourage a healthy job market for educated Urban Forestry professionals.
  - Encourage Urban Forestry representation at job fairs at colleges and high schools.
  - Develop a mentoring program for colleges and high schools; i.e. "Forester for A Day."

Goal IV. *Promote best practices in tree care, production and management for sustainable urban forests.*

- Encourage communities to develop or review Urban Forestry programs and tree and landscape ordinances.
- Support and promote the Urban and Community Forestry grants program.
  - Outreach to municipalities and communities that have not applied.
  - Develop a publication to promote the grants program.
- Publish a directory of communities with outstanding Urban Forestry programs.

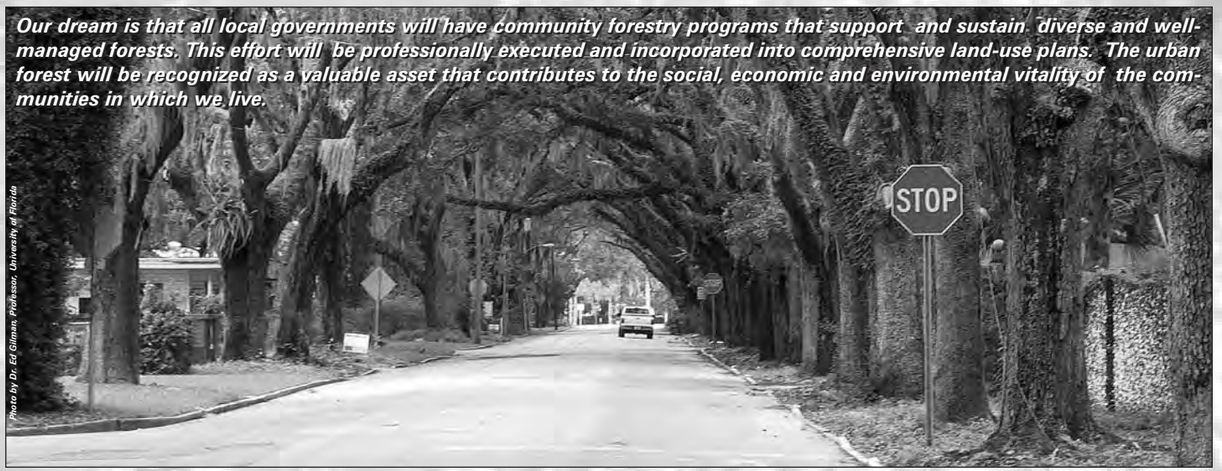
Goal V. *Encourage research in Florida's urban and community forests.*

- Encourage opportunities for public and private research in urban and community forests.
- Identify research needs in the state and communicate findings to established research organizations.

Goal VI. *Sustain the Florida Urban Forestry Council.*

- Diversify funding for the Council.
- Create an operational manual and Executive Committee member's guideline handbook.
- Develop an annual assessment process and celebrate successes.
- Identify the Council's membership and assess the needs of such and how well they are being met.

Our dream is that all local governments will have community forestry programs that support and sustain diverse and well-managed forests. This effort will be professionally executed and incorporated into comprehensive land-use plans. The urban forest will be recognized as a valuable asset that contributes to the social, economic and environmental vitality of the communities in which we live.



MANATEE COUNTY

ACKNOWLEDGEMENTS

MANATEE COUNTY BOARD OF COMMISSIONERS

District 1	Amy Stein
District 2	Gwen Brown
District 3	Jane von Hahmann
District 4	Ron Getman
District 5	Donna Hayes
At Large Seat 6	Patricia Glass
At Large Seat 7	Joe McClash

COUNTY ADMINISTRATOR

Ernie Padgett

DIRECTOR OF TRANSPORTATION

Larry R. Mau, P.E.

URBAN FORESTRY CITIZENS ADVISORY COMMITTEE

Beverly Burdette	Burdette & Associates, Inc.
Bob Simons	Lakewood Ranch
Dantia Gould	City of Holmes Beach / Keep Manatee Beautiful
Harry Mendenhall	Manatee County Transportation Dept. / Keep Manatee Beautiful
Jacki Dezelski	Manatee Chamber of Commerce
John Osborne	Manatee County Planning Dept.
Karen Fraley	Florida Native Plant Society
Lee Bosserman	Manatee County CRA
Mike Keegan	State Division of Forestry
Michael Wood	Manatee County Planning Dept.
Mike Burton	Environmental Affairs Consultants
Michael Kenton	Manatee County Transportation Dept.
Patrick Roff	City of Bradenton Tree Board
Peggy Dessaint	Manatee County Extension Service
Scott Gasaway	Centex Rooney Construction / Keep Manatee Beautiful

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Printed on Recycled Paper

Urban Forestry
Master Plan

2005

CONTENTS

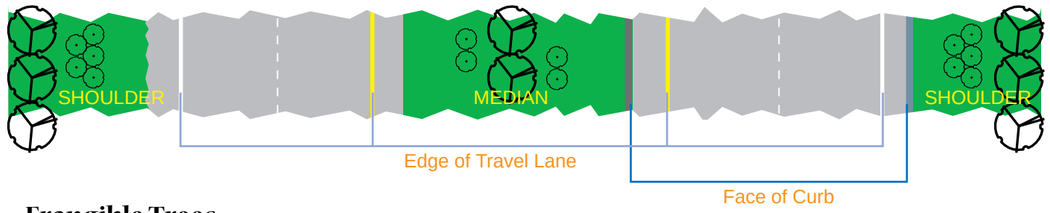
FLORIDA DEPARTMENT OF TRANSPORTATION

MINIMUM REQUIRED OFFSETS FOR TREE PLANTINGS

DEFINITIONS
Two categories of trees are identified in the FDOT requirements:

- FRANGIBLE TREES - Trees with 4" or less diameter at maturity measured at 6" above the ground.
- NON-FRANGIBLE TREES - Trees with 4" or greater diameter at maturity measured at 6" above the ground. (includes most palms)

ALL TREES ALONG ALL INTERSTATES AT ALL SPEEDS ARE REQUIRED TO BE OFFSET A MINIMUM OF 36' FROM TRAVEL LANES



Frangible Trees

	Minimum Offset (in feet)	
	Median	Outside Edge
Flush Shoulders (No Curbs) Measured from edge of Travel Lane	12'	12'
Curbed Shoulders	6' Measured from edge of travel lane	4' Measured from face of curb

Non-Frangible Trees - minimum offsets (in feet)

Speed (MPH)	From Edge of Inside Travel Lane	From Edge of Outside Travel Lane	From Face of Outside Curb
WITH VERTICAL CURB PRESENT			
≤45	6'	-	4'
50	24'	24'	-
55	30'	30'	-
≥55	36'	36'	-
WITHOUT CURB			
≤45	18'	18'	-
45	24'	24'	-
50	24'	24'	-
55	30'	30'	-
≥55	36'	36'	-

*Information accurate as of June, 2005

MATURE TREE MAINTENANCE

In three to five years a tree should be well established. Weak trees will have died or be in a stressed condition that merits reevaluating their usefulness. The majority of street trees will be growing vigorously and the need for applied water and mulch will have passed. Weed control will be reduced with the shade from the tree canopy and fertilizer can be applied once a year in any place where the trees are in hot and restricted planting areas. Regular inspection for general health, pests and disease is necessary to note and take appropriate action on. Vehicular damage will normally not uproot a large tree, but branches may need to be pruned. Pruning will be primarily for safety. During inspections, hazardous conditions should be noted and scheduled for pruning. Refer to "Tree Hazards: 13 Questions" brochure by Shigo.

A planted street tree grouping will reach maturity and begin declining in twenty to one hundred years. The next generation will be removing and replanting for future generations.

TREE MAINTENANCE REFERENCE MATERIALS

Grades and Standards for Nursery Plants, 2nd Edition, Florida Department of Agriculture and Consumer Services, February 1998, PI# 97T-05.

Selecting and Planting Trees and Shrubs, Ingram, Black and Gilman, University of Florida Cooperative Extension,

Fertilization Recommendations for Trees and Shrubs in Home and Commercial Landscapes, Yeager and Gilman, University of Florida Cooperative Extension

Modern Arborculture: A Systems Approach to the Care of Trees and Their Associates, Alex Shigo

Pruning Landscape Trees and Shrubs, Gilman and Black, University of Florida Cooperative Extension.

Tree, Shrub, and Other Woody Plant Maintenance Standard Practices (A300), American National Standards Institute, Inc.

Tree Hazards: 13 Questions, Alex Shigo

SECTION 1: INTRODUCTION

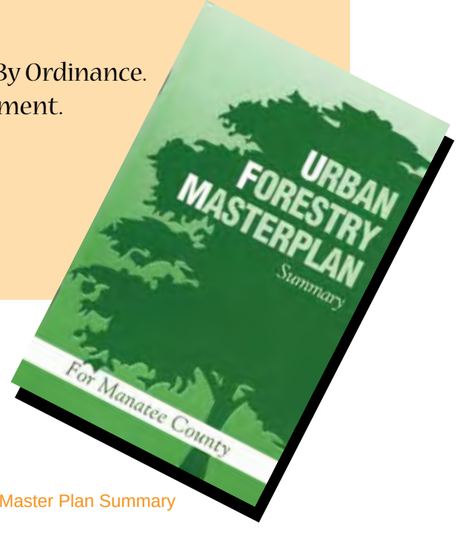
Trees have always played a crucial role in the long-term health, beauty, and vitality of any thriving community. More than a decade ago, many people in Manatee County became increasingly aware of the important contribution a tree makes to a desirable community and responded in 1995 by creating The Urban Forestry Master Plan.

The plan was developed with participation by numerous individuals, civic groups, and government agencies. The plan is a comprehensive document that includes all of Manatee County. It was designed to educate people on the importance of trees, list priority areas for planting, provide charts with appropriate trees for these locations, and present an implementation strategy with funding sources.

SYNOPSIS:

ORIGINAL URBAN FORESTRY MASTER PLAN

- Developed in 1994-1995.
- Noted the importance of trees in an urban environment.
- Provided charts denoting tree planting zones and street tree palettes.
- Listed possible funding sources.
- Identified areas for future tree plantings as determined by the Citizens Advisory Committee. Top Priority Sites were:
  - Palma Sola Causeway
  - I-75 and US 301 Interchange
  - State Road 64 (medians and I-75 interchange)
  - Cortez Road
- Included digital images and conceptual landscape plans for the Top Priority Sites.
- Incorporated steps for implementation:
  - Establish a Tree Advisory Board By Ordinance.
  - Designate a Lead County Department.
  - Retain an Urban Forester.
  - Provide Ongoing Maintenance.



Original Urban Forestry Master Plan Summary

WEED CONTROL

Keeping a weed free zone around a tree serves many valuable purposes. It reduces competition for water, prevents damage by keeping the mowers away from the trunks, and it is more attractive. Adding three to four inches of mulch will aid in weed control. Using a pre-emergent herbicide in the spring and fall will help control weed seed germination growth and minimize the need to use a contact herbicide.

PEST CONTROL/DISEASE

The urban forester or county arborist should regularly (monthly) inspect the street trees for insects, disease, water stress, and general health. Environmental pest management procedures as recommended by the Manatee County Cooperative Extension Service should be followed including the least toxic method of control.

FERTILIZER

A light, but frequent application of fertilizer will supply the tree roots with continuous nutrients during the early root forming years. Fertilizer content and frequency depend upon soil conditions (refer to the soil test) and installed species. Palm trees have special fertilizer requirements. Refer to the Cooperative Extension bulletin "Fertilization Recommendations for Trees and Shrubs in Home and Commercial Landscapes" by Yeager and Gilman.

PRUNING

Training Pruning

Young trees will have to be pruned to develop strong branching patterns and to raise the canopy fifteen feet above the street level. Each tree species has a different level of pruning intensity. In its first five to ten years a live oak will take considerable training pruning to raise the canopy above the height of trucks on the road. Once this strong, broad- reaching tree is up over the road, it will take very little care for many years. Conversely, a more upright species like red maple would only need to have the lower branches removed for site clearance requirements, and a little work on developing an early strong branching pattern.

Aesthetic Pruning

Some urban trees are pruned to look good. Palms need a yearly pruning (don't remove green fronds) or they can self-prune, with frond clean up after windy storms. Suckers at the base of crape myrtles are pruned once or twice a year to keep a clean appearance.

Unacceptable Pruning

Examples of topping, hat-racking, lion-tailing, and hurricane cutting can be viewed throughout the county. These pruning practices are unacceptable and in violation of Manatee County Ordinances. Refer to Alex Shigo's books and Cooperative Extension's bulletin "Pruning Landscape Trees and Shrubs" by Gilman and Black for correct pruning procedures.

VEHICULAR DAMAGE/DEAD TREES

Unfortunately vehicles will be hitting the trees on occasion. Once the damaged tree is reported, it is important that the tree be replanted or removed as soon as possible. Prompt action will promote a healthy urban tree program image. The need for replacement can be evaluated by the impact the individual tree makes on the overall design.

TREE ESTABLISHMENT MAINTENANCE

PURCHASING

It is important to select the best quality tree, a Florida Fancy grade or Florida Grade #1, per Florida Department of Agricultural and Consumer Services Grades and Standards, 2nd Edition.

In selecting trees, look for a central leader and symmetrical branching. The crown should not be pruned so that it forms a lollipop shaped tree and the canopy should have healthy, vigorous leaves. The root ball should be firm and without evidence of physical damage, circulating roots, or be rootbound in it's container. Be sure to have the nursery "harden off" (dig, ball and burlap, and hold the trees under a mist irrigation) all field grown trees three to four weeks prior to installation.

SOILS

In most cases, trees should be planted in existing native soils. Prior to planting, the soil should be tested for pH, organic matter and nutrients - at a minimum. Amendments should be added as necessary, and the soil tilled to a two-foot minimum depth. Remove and replace the soil only as a last resort when existing materials are completely incompatible (compacted roadway sub-base material). In these instances, existing soil should be removed a minimum depth of two feet and replaced with clean fill topsoil (tested and amended as required).

PLANTING

Trees should be planted at the same grade or up to two inches above the grade they were grown at in the nursery. Do not plant the trees deeper. The Division of Forestry reports that more trees are killed by deep planting than by any other cause. Supervision and inspection of tree installations are recommended. Many problems due to poor planting practices are not visible until years later.

WATER

The tree root ball needs to be kept moist during establishment to encourage vigorous root growth. The first 3 months are critical. Daily water is slowly weaned away from a transplanted tree as it becomes acclimated. The amount of water varies with the site location, temperature, season of the year (trees are mostly dormant in the winter - needing less water), amount of rain, type of soil, drainage patterns, and water table depth.

There is no absolute schedule, but the one suggested below covers the worst conditions.

Week 1-2	5 times/week	10 gal./day
Week 3-4	3 times/week	10 gal./day
Week 5-12	2 times/week	10 gal./day
Month 3-Year 3	1 time/week	10gal./(dry & stressful periods)

All urban trees should be on a watering system (either installed underground irrigation system or water truck). Automatic irrigation systems should be observed and maintained on a regular basis.

MULCH

A 4' diameter ring of organic mulch (it can be recycled mulch) will cool the soil, conserve water, look attractive, and retard weed growth. The mulch ring should be replenished and maintained at a three to four inch depth for the first 3 years, but always pulled back a minimum of six inches from the tree's trunk. The mulch should not be compacted in order to allow proper circulation of air and water. Over and improper use of mulch can be damaging to the tree.

URBAN FOREST PROGRESS

TREE INVENTORY DATABASE

(Location, Size, Species, Health, Irrigation)

- County maintained projects only
- Updated yearly
- 16.5% tree increase in from 2003 to 2004
- Currently not connected to GIS

HIRED STAFF

- Urban Forester
- Arborist
- Horticulturist
- Full-Time Irrigation Technician

MAINTENANCE

- 80% of maintenance is mowing (contracted out)
- Prison road crews perform weeding and trash collection
  (May teach pruning techniques)
- Currently 83% of installed trees are irrigated. Irrigation to be turned off once tree is established. Due to poor planting conditions, watering has been extended.
- No past yearly budget information for tree maintenance (in process for this year)

CURRENT FUNDING OPTIONS

(Funding for planting **not** maintaining.)

- Manatee County Tree Trust Fund - money contributed by developers who do not meet tree replacement requirements.
- Capital Improvements Program -
  All CIP projects include landscape installation costs.
- Joint Ventures with Local Municipalities.
- Private Sources.
- Grants:
  - FDOT Highway Beautification
    ($300,000 max - funds not always available)
  - Scenic Highway
  - Florida Division of Forestry ($10, 000 max)
  - Redevelopement Agencies

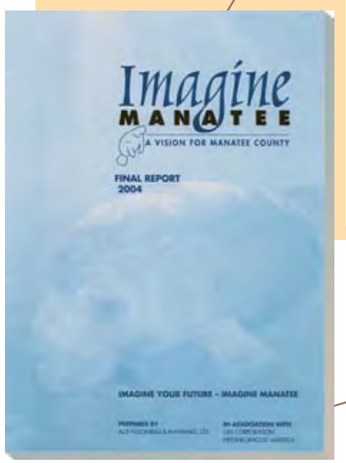
PROJECT UPDATE

Palma Sola Causeway - Phase I	Completed
Cortez Road - 75th St. West to Intercoastal	Completed
Lockwood Ridge Road	Completed
State Road 64 - Phase I	Completed
I-75 at US 301	Design Phase

IMAGINE MANATEE COLLABORATION

In 2002-2003, a series of thirteen public brainstorming meetings involving over seven hundred diverse Manatee County residents resulted in a concrete vision for the direction, appearance, and future of Manatee County. Throughout the meetings, the residents' ideas converged resulting in a unanimous desire for a healthier, greener, and more beautiful county. The Urban Forestry Master Plan seeks to meet the residents' needs for the beautification of the county by taking direction from the core plans and principles derived from the Imagine Manatee Final Report in 2004.

The following excerpt from chapter six of the Imagine Manatee Final Report illustrates the citizens' longing for a vibrant, lush community which is achievable and sustainable as detailed in this Master Plan.



"New and redeveloped existing neighborhoods and transportation corridors should be visually appealing to promote pride and sense of place.

There was an overwhelming consensus that a commitment should be made to make Manatee County a beautiful place. Participants cited the beneficial effects of beautification can have on creating a positive image of the community, supporting tourism, promoting ecological health of environment, and positively affecting residents and visitors"

SUPPLEMENT: MAINTENANCE & POLICIES

Trees are an investment in the future health, environmental quality, economy, and beauty of Manatee County. Simply planting a tree is not enough to insure it will grow and mature into a safe and valuable asset.

Regular planned maintenance is crucial for a healthy urban forest. The most intense care comes in the first few years after the tree is planted. Establishment maintenance, a critical step, aids the tree's transition from the nursery to it's new location. After the three year establishment period, the long-term maintenance schedule begins emphasizing tree health and public safety.

Trees planted close to the roadside and in medians will need more care during their lifetime. They are under more environmental stress, can cause more damage, and are under more public scrutiny than trees in informal, rural locations. Urban trees also have greater community benefits through cooling and cleaning the air and the beauty and value they accrue.

URBAN STREETSCAPES

Urban streetscape areas are roadways through densely populated areas of the county. Sidewalks and bike paths are used with regularity and posted speed limits are usually 35 MPH or less. These roadways may consist of two to six lanes - with or without medians.

US 41 - Before

US 41 - After

PROJECT DESIGN GUIDELINES

- Regularized street tree plantings spaced to reflect the design speed of the road.
- Emphasize native indigenous plant material with flowering tree accents
- Color trees for accents. Planting areas in urban streetscapes are usually very limited in size and number. Larger or specimen plant material should be considered for greater impact.
- Hardscape material accents

MANATEE COUNTY URBAN FORESTRY MASTER PLAN
Typical Urban Collector

PRIORITY PROJECTS

US 41
- Cortez Road north to 26th Avenue

Main route through Holmes Beach

Approach to downtown Anna Maria
- Gulf Drive to Magnolia Avenue

SECTION II: GOALS & OBJECTIVES

Goals and objectives are established as action steps towards implementing the Urban Forestry Master Plan. These include specific tasks which cover the establishment and maintenance of a viable urban forest. Goals and objectives include implementation strategies which include both the public and private sector.

Our Primary Goal:

Increase and Improve the Quality of Manatee County's Urban Forest

OBJECTIVES

ESTABLISH A MANATEE COUNTY TREE BOARD

- Create a Tree Care Ordinance.
- Establish a Community Forestry Program with a minimum annual budget of $2 per capita for tree maintenance.
- Establish and Arbor Day observance and proclamation.

PLANT MORE TREES

- Develop active volunteer and community business support of the Urban Forestry Program to help with volunteer tree plantings, fund raising, and tree donations.
- Apply for grants and other outside funding.
- Plant native trees to reflect the natural ecosystems within Manatee County.
- Establishment of Canopy Roadways:
  - New Roadways will allot areas large enough to plant trees either at time of roadway construction or in the future.
  - Buffer planting strips protect pedestrians from roadway traffic. Typically, the roadways and sidewalks that scored low in the Imagine Manatee Future Vision Assessment Survey provided no canopy or pedestrian protection from the roadway. (Imagine Manatee Design Principles 6.11)

PERFORM BEST MANAGEMENT PRACTICES

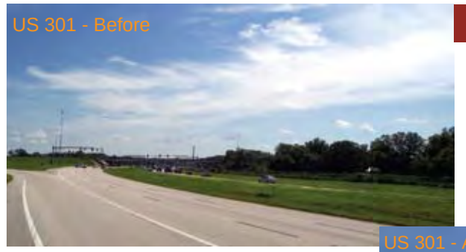
- Follow current best practices for water conservation.
- Realizing healthy young trees grow into strong, valuable, mature trees, the Care of trees during the establishment period (approximately three(3) years) shall be diligently implemented.
- Incorporate use of recycled water into watering street trees as new lines are installed on major roadways.
- Plant trees on all new road construction projects where feasable.
- Design new roadway projects with sufficient room for canopy trees.
- Encourage new roadway designs to incorporate space for street trees.
  - No street lights and/or utilities in medians.
  - Design median width to accommodate trees.
  - Provide adequate space for roadside plantings.

ENCOURAGE REMOVAL OF INVASIVE EXOTIC SPECIES

- Work with FDOT to remove invasive exotic species within their ROW
- Coordinate removal of invasive exotic species within Manatee County ROW.

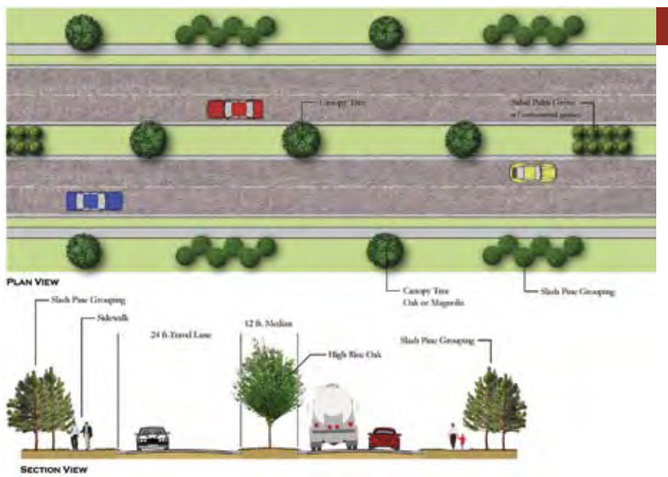
MAJOR THOROUGHFARES

Major thoroughfares can be defined as highly traveled roadways throughout our community; usually consisting of four or more traffic lanes traveling at or in excess of 40 MPH. Bike paths and sidewalks are typically provided.



PROJECT DESIGN GUIDELINES

- Relaxed informal plantings becoming more ordered at intersections.
- Emphasize native, indigenous plant material with flowering tree accents



Typical Major Thoroughfare - Illustrative Plan and Section View

PRIORITY PROJECTS

Lakewood Ranch Blvd.
- SR 70 North to SR 64

Honore Ave.
- Cooper Creek Road to Natalie Way

US 41
- Experimental Farm Rd. to I-275 (plantings behind guardrail)
- Sarasota County Line north to Hillsborough County Line

SR 64
- Morgan Johnson Rd. east to I-75

Cortez Rd.
- US 41 west to 75th St. West

75th St. West
- 27th Ave. north to 17th Ave.

US 301
- 9th St. East south to University

INTERSTATE GATEWAYS

For many people, their first impression of Manatee County comes from their ride along the interstates. The interchanges become their "gateways" into our community.

PROJECT DESIGN GUIDELINES

- Relaxed informal landscape
- Emphasized indigenous plant material with flowering tree accents
- Extended Sabal Palm groves with Fakahatchee Grass

PRIORITY PROJECTS

Interstate 75

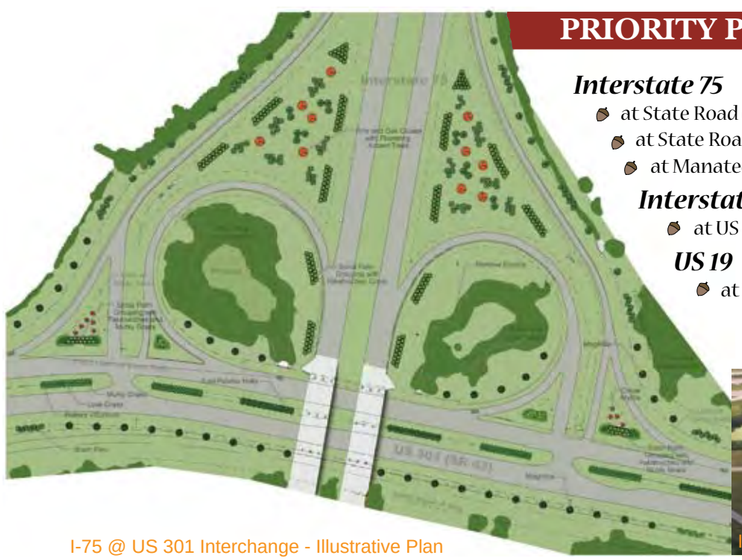
- at State Road 64 Interchange
- at State Road 70 Interchange
- at Manatee/Hillsborough County Line

Interstate 275

- at US 41 Junction

US 19

- at US 41 Junction



SHORT TERM GOALS (5-10 YEARS)

- Implement the Urban Forestry Master Plan
  - Coordinate training and scheduling of Manatee County arborists to maintain trees.
  - Purchase trees.
  - Coordinate tree planting (paid or volunteer).
  - Work with Urban Forestry Committee.
  - Coordinate future project planning with state and county transportation staff.
  - Identify county personnel to maintain street trees (water, fertilize, remove weeds, mulch, training pruning, and replanting or removing trees damaged by vehicles), or contract with an outside consultant for maintenance.
  - Certify proper pruning knowledge among maintenance personnel.
- Encourage cooperation between county departments to facilitate a comprehensive urban forestry program.
- Educate the Public, Civic Groups, and Elected Officials on the value of trees to the environment and on the importance of good maintenance for the urban forest.
  - Newspaper Articles (Quarterly minimum)
  - Develop a promotional brochure
  - Present an Arborist Training short course through Cooperative Extension each year to instruct proper tree pruning (young and old mature trees), and other tree maintenance operations.
  - Require that government employees and subcontractors demonstrate knowledge of proper pruning techniques before pruning trees on government properties and right-of-ways.
- Focus the Urban Forestry program on quality projects, implementing a limited number until a planning and maintenance system is in place.

LONG TERM GOALS (10+ YEARS)

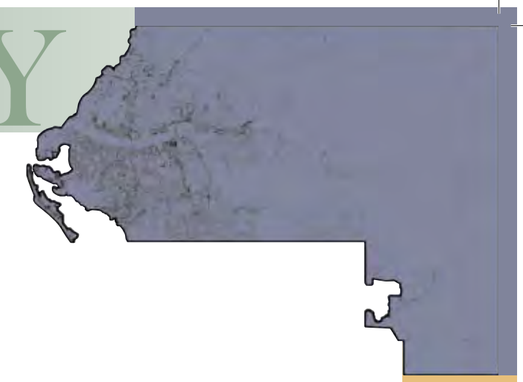
- Allocate 5% of Manatee County Roadway Construction budgets for street tree plantings (Consistant with FDOT landscape budget of $200,000 per centerline mile)
- Update and adopt the Urban Forestry Master Plan as neccessary to stay current with county growth patterns and new technologies.
- Obtain Support of major committees and organizations which support a better urban environment.
- Increase the County Staff to Maintain the growing Urban Forest.
- Evaluate the success of the Urban Forestry Program by analyzing the street tree inventory database.
- Establish Manatee County as a "Tree County, USA"

PUBLIC PROPERTY: IMPLEMENTATION STRATEGY

- Increase allotted budget for maintenance of Manatee County's Urban Forest.
- Removal of invasive exotic species on public lands and right-of-way including FDOT row.
- Work with FDOT on their maintenance levels of roadway landscaping.
- Coordinate with design professionals to create a strong foundation for the Urban Forest.
  - Utilities shall be planned to allow adequate space for tree plantings.
    Manatee County requires trees to be planted ten feet minimum from utilities. Traditionally, this allows for minimal to zero tree space.
  - Soil Samples shall be tested to aid in plant selection.
  - Planting and irrigation plans shall be designed in accordance with Manatee County specifications.
- Increase the accountability of installation contractors to reduce future maintenance.
  - On site soils shall be tested and amended as necessary prior to plant material installation.
  - Installed plant material and irrigation systems shall meet Manatee County Specifications.
  - Work not done per specifications will not be approved and will result in liquidated damages for installation contractor.
  - All trees planted in the county ROW shall be inspected and approved by the County Urban Forester or County Arborist prior to Manatee County acceptance of the project.
- Increase the accountability of maintenance contractors.
  - Award maintenance contract to lowest qualified bidder.
    Bidder must have a strong economic history, positive references, a certified/trained staff, and must have completed projects of similar scope.
  - Structure contract to make contractor more accountable.
  - Revise landscape installation specifications to provide the "best possible conditions" for the plant material to grow.

PRIVATE PROPERTY: GOALS & OBJECTIVES

- Revisit the Manatee County Land Development Code to coordinate tree landscape issues with the Urban Forestry Master Plan.
- Enforce Manatee County Landscape maintenance ordinance.
  - Citations/Fines for improper trimming of trees (hat racking, topping, or lion-tailing, etc.)
  - Require replacement of poorly maintained plant material for sites requesting rezoning or redevelopment (submitted to planning/building departments).
- Establish residential street tree program.
- Encourage citizens to remove invasive exotic species by supplying donated replacement trees.
- Implement the land development code tree preservation/planting ordinances. Conduct annual surveys of off-street parking lots for compliance with the ordinances and enforce violations.



SECTION III: DESIGN PROTOTYPES & STANDARDS

After reviewing the original Urban Forestry Master Plan, the CAC members determined that it would be more beneficial to provide typical design scenarios for several types of roadways, rather than focus on a few locations. These "typicals" would then serve as models for most of the future roadway landscaping in Manatee County. This design scheme would provide a sense of "connectivity" within the county.

CAC recommends utilizing indigenous plant material with "naturalistic" placements, (large clusters and grouping rather than single specimens) to reflect the unique characteristics of Manatee County. Tree canopy establishment is a priority and will require less maintenance than shrubs or ground covers.

The three typical designs include interstate gateways, major thoroughfares, and urban streetscapes. Please note that the following design schemes are general design typicals. Designs for individual sites will adhere to local, state, and federal regulations as necessary.

URBAN FORESTRY MASTER PLAN

City of Bradenton, FL

UPDATE

SEPTEMBER 2011

CONTENTS

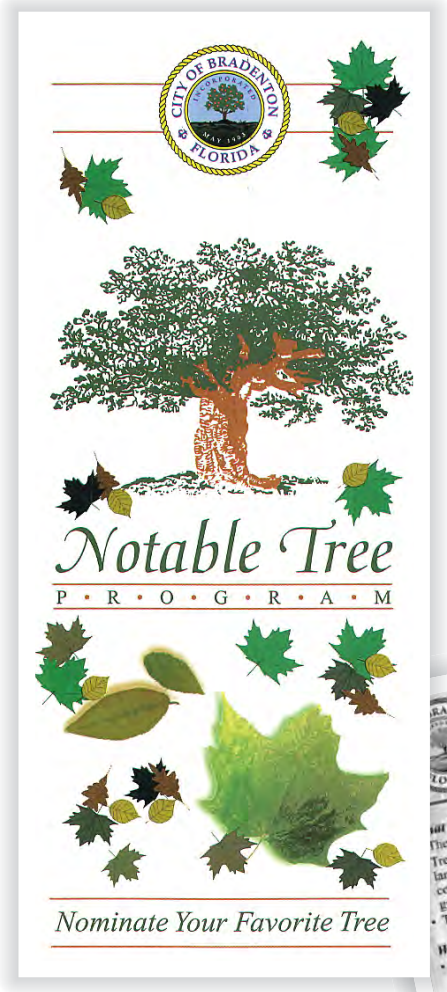
INTRODUCTION

Purpose and Scope

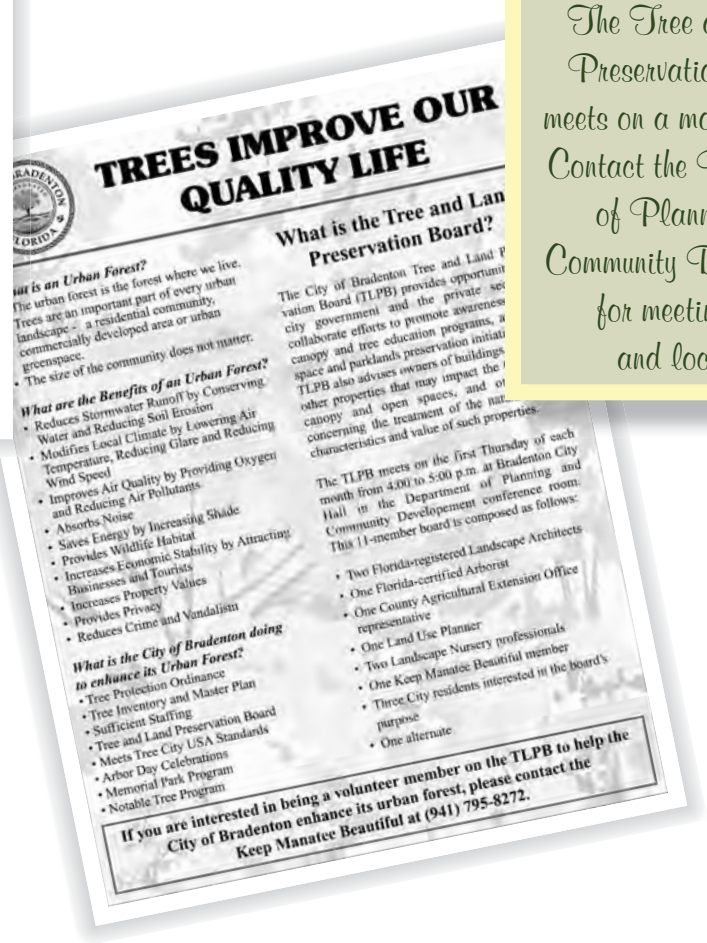
The purpose of this document is to serve as a blueprint for developing an incremental approach to the issues of urban forestry for the City of Bradenton. The major goals are as follows:

1. Provide an organizational framework for the City of Bradenton's urban forestry program.
2. Establish street tree-planting opportunities for urban and suburban commercial corridors.
3. Inventory and assess the City's existing tree canopy.
4. Identify opportunities to increase and improve tree canopy.
5. Establish standards for the implementation of canopy roadways.
6. Revise the preferred tree-planting palette.
7. Revise establishment and maintenance guidelines to include urban and suburban commercial corridors.
8. Develop corridor guidelines as correlated to the future land use map.
9. Revise the list of potential grant/funding opportunities that are available to implement improvements to the urban forest.
10. Involve and educate the community through public workshops.

Tree and Land Preservation Board



The Tree and Land Preservation Board (TLPB) was established in December 1992 and is composed of a broad cross section of citizenry concerned with fostering the growth of the urban forest. The purpose of the Tree and Land Preservation Board is to promote awareness of the City-wide tree canopy and tree education programs as well as open space and parklands preservation initiatives. The TLPB may also, when determined by the Department of Planning and Community Development (PCD), advise owners of buildings, land, and other properties that may impact the City's tree canopy and open spaces, and other lands concerning the treatment of the natural, visual characteristics and value of such properties. The TLPB works closely with City departments, various civic and private groups, individuals, and outside agencies and organizations.



TREES IMPROVE OUR QUALITY LIFE

What is the Tree and Land Preservation Board?

The City of Bradenton Tree and Land Preservation Board (TLPB) provides opportunities for city government and the private sector to collaborate efforts to promote awareness of the City-wide tree canopy and tree education programs, as well as open space and parklands preservation initiatives. The TLPB also advises owners of buildings, land, and other properties that may impact the City's tree canopy and open spaces, and other lands concerning the treatment of the natural, visual characteristics and value of such properties.

The TLPB meets on the first Thursday of each month from 4:00 to 5:00 p.m. at Bradenton City Hall in the Department of Planning and Community Development conference room. This 11-member board is composed as follows:

- Two Florida-registered Landscape Architects
- One Florida-certified Arborist
- One County Agricultural Extension Office representative
- One Land Use Planner
- Two Landscape Nursery professionals
- One Keep Manatee Beautiful member
- Three City residents interested in the board's purpose
- One alternate

What is an Urban Forest?

The urban forest is the forest where we live. Trees are an important part of every urban landscape – a residential community, commercially developed area or urban greenspace.

- The size of the community does not matter.

What are the Benefits of an Urban Forest?

- Reduces Stormwater Runoff by Conserving Water and Reducing Soil Erosion
- Modifies Local Climate by Lowering Air Temperature, Reducing Glare and Reducing Wind Speed
- Improves Air Quality by Providing Oxygen and Reducing Air Pollutants
- Absorbs Noise
- Saves Energy by Increasing Shade
- Provides Wildlife Habitat
- Increases Economic Stability by Attracting Businesses and Tourists
- Increases Property Values
- Provides Privacy
- Reduces Crime and Vandalism

What is the City of Bradenton doing to enhance its Urban Forest?

- Tree Protection Ordinance
- Tree Inventory and Master Plan
- Sufficient Staffing
- Tree and Land Preservation Board
- Meets Tree City USA Standards
- Arbor Day Celebrations
- Memorial Park Program
- Notable Tree Program

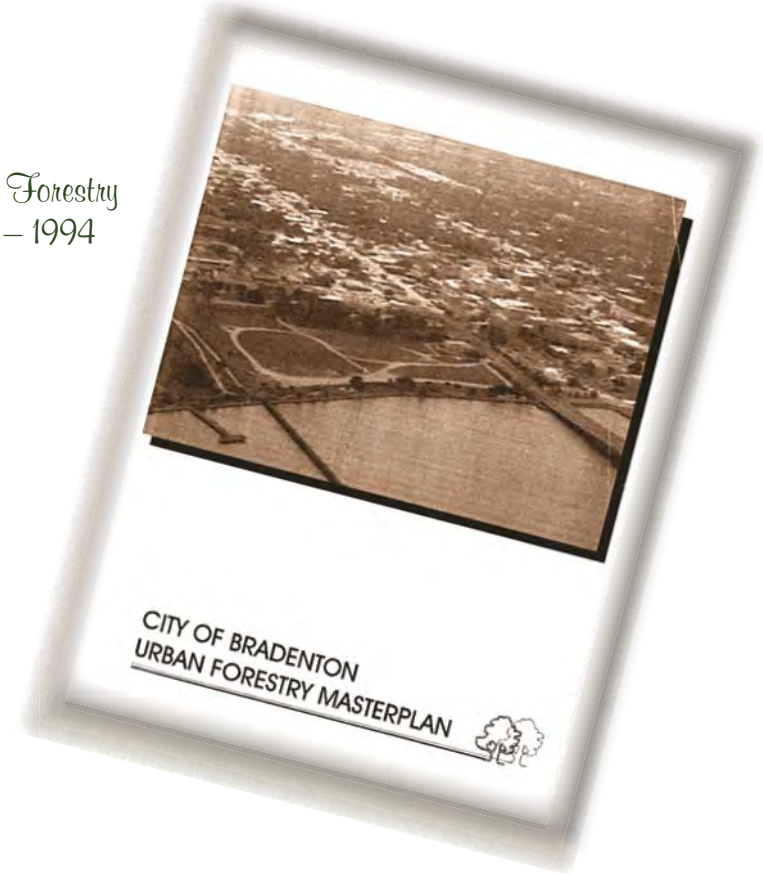
If you are interested in being a volunteer member on the TLPB to help the City of Bradenton enhance its urban forest, please contact the Keep Manatee Beautiful at (941) 795-8272.

The Tree and Land Preservation Board meets on a monthly basis. Contact the Department of Planning and Community Development for meeting times and location.

Original Urban Forestry Master Plan

- Developed in 1994.
- Provided organizational framework for the City's tree program.
- Established planting opportunities for major thoroughfares and the downtown area.
- Developed street tree-planting palette.
- Developed guidelines for establishment and maintenance of urban trees.
- Provided a reference for funding opportunities for street tree projects.
- Provided conceptual planting plans for two specific priority projects.
  - Palma Sola Causeway
  - State Road 64 at the Braden River

Original Urban Forestry Master Plan – 1994



Tree Benefits

TREE CITY USA

The City of Bradenton has been recognized as a Tree City USA since December of 1992, which means it is dedicated to the preservation and planting of trees. The City has received five growth awards from the National Arbor Day Foundation: in 1997, 2000, 2002, 2004, and 2008. The Tree City USA Growth Award is provided in cooperation with the National Association of State Foresters and the USDA Forest Service to recognize environmental improvement and encourage higher levels of tree care throughout America. The National Arbor Day Foundation designed the award not only to recognize achievement, but also to communicate new ideas and help communities plan for improvements to tree care.

It is the premise of this document that trees are an integral part of the urban infrastructure, as are the traditional public works components of streets, water, sewer and sanitation. The economic benefits of a tree, however, are often overlooked but well documented. Benefits of trees to the overall quality of life include:

Tree City USA Signage, Old Main Street

Water Quality

In addition to the visual impact of trees, tree canopies and root systems provide a natural filter to our water supply and reduce storm water runoff, flooding, and erosion.

Air Quality

Trees are natural air filters. Their foliage reduces particulate matter from the air, including dust, micro-sized metals, and pollutants such as ozone, nitrogen oxides, ammonia and sulfur dioxides. Trees take in carbon dioxide and produce oxygen. These processes can have a significant impact on reducing smog and overall air pollution.

Energy

Trees cool the air naturally. Homes shaded by trees need less energy for cooling, which in turn means lower monthly utility bills in the summer. Four trees planted around each home could save up to 30% on summer cooling costs.

Real Estate

Shaded neighborhoods have a positive economic influence on real estate values, timeliness of home sales, and neighborhood desirability.

Business

Trees are good for business. Research shows that consumers respond positively to shopping environments with healthy urban forests. In fact, shaded business districts yield an 11% increase in business.*

(Note: Information provided by the Florida Urban Forestry Council.)
**Center for Urban Horticulture, Fact Sheet #5, University of Washington*

Urban Forestry Progress

Manatee County Urban Forest Canopy Analyses

A canopy coverage goal is important to ensure that a healthy, sustainable forest can be maintained as the City continues to develop and expand. In the *Manatee County Urban Forest Canopy Analysis 2004 and 2009,* there was a small increase in total acreage and population within the City, but a much larger increase in canopy coverage: from 24% to 33%, or approximately 830 acres. This is important to understand so that the City can create or adjust tree codes and goals and objectives to properly manage the urban forest to attain canopy coverage goals. American Forests, the oldest national nonprofit conservation organization in the United States, which aims to protect, restore and enhance the natural capital of trees and forests, has established the following canopy coverage goals:

- Average tree cover counting all zones 40%
- Suburban residential zones 50%
- Urban residential zones 25%
- Central business districts 15%

These goals may not exactly reflect what is right for the City of Bradenton, but they are a great starting point for beginning to assess the urban forest and create or adjust the City's canopy goals.

Significant benefits of the current urban forest include:

- 1,030 tons of carbon sequestration per year
- 132,271 tons of carbon storage—a 35,744 ton increase since 2004 (more than any other incorporated area within the County)
- Air pollutant removal of 391,823 pounds per year
- Without the urban forest, it is estimated that the City of Bradenton would need 33.7 million cubic feet of additional stormwater storage. This is approximately equal to:
  - 1" of water over the entire City
  - 100 football fields over 6' deep
  - 100 acres nearly 8' deep
  - 1 square mile 1.25' deep
- Annual value of urban forest benefits based on 2009 canopy
  - Carbon Sequestration $51,500
  - Air Pollutant Removal $1,022,290
  - Stormwater Management $5,880,129
  - Total benefit $6,953,919

2nd Avenue East

CANOPY ROADS

A Canopy Road is a roadway with canopy trees that border each side of the road while providing a significant amount of canopy over or directly adjacent to the roadway. Preservation and maintenance of healthy trees that comprise Canopy Roads will help maintain their historic, aesthetic, cultural, and environmental value. In order to designate, preserve, promote, and protect Canopy Roads, the City and TLPB should consider:

- Developing appropriate definitions for a Canopy Road Protection Zone.
  - A designated section of right-of-way and up to 15 feet of the adjacent private property.
- Developing appropriate definitions of a Clear Zone.
  - The canopy above a roadway must be maintained to a 16-foot clearance over drivable surface from curb to curb for vehicular use. It shall also mean the canopy above pedestrian zones trimmed to 10 feet above ground surface and 2 feet laterally from edge of sidewalk.

18th Street Northeast

Clear Zones listed above are suggestions and will be further defined as the Canopy Road program is further developed. Clear Zones shall be required to meet current Florida Department of Transportation (FDOT) and all other local requirements at the time projects are implemented.

- Developing preferred Canopy Road characteristics such as:
  - A Canopy Road shall have a minimum length of one-eighth mile (660 feet) with a minimum of 50% overhead coverage (excluding invasive species) per section of roadway as measured by branching, drip Line, shading, and other visual cues; or
  - A Canopy Road shall have a minimum length of one-quarter mile (1,320 feet) with overhead coverage contributing to a point-based evaluation based on tree canopy coverage as a percentage of overall roadway length, canopy condition, and composition; and
  - A Canopy Road shall consist of a minimum of 75% native plant species and naturalized plant species; and
  - A Canopy Road may be composed of more than one segment of differently named roads providing they are contiguous and the combined length meets the minimum requirement.
  - Canopy Roads shall have appropriate signage to delineate the limits of the Canopy Road.

- Developing special pruning requirements so not to compromise the integrity of the canopy to shade the road. For example:
  - Requirements for franchised utilities to notify the City prior to any utility line clearing on Canopy Roads, and that such proposed maintenance be performed under the direct supervision of an ISA Certified Arborist, urban forester, or registered consulting arborist (RCA).
- Developing permit requirements for protection of Canopy Roads for projects with proposed impacts to Canopy Roads.

The City Council should be authorized to designate roads as Canopy Roads and set standards for their implementation through the adoption of an appropriate ordinance. Requests for Canopy Roads could be made by residents, City staff, the TLPB, or other members of the community. Once the above standards are further established, the following process for designating Canopy Roads should be further developed and implemented:

48th Street Court East

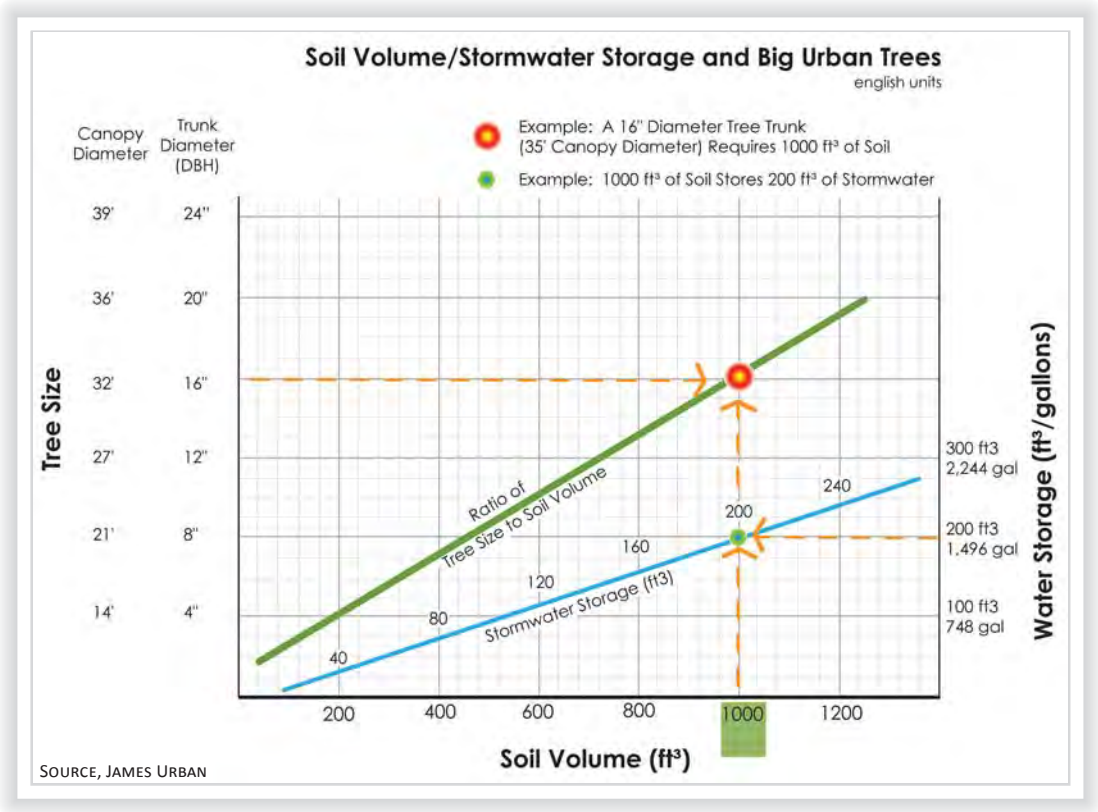
- A written public meeting notice should be provided to property owners residing on a potential Canopy Road and the appropriate neighborhood associations.
- The public meeting notice should detail the Canopy Road standards that would become applicable if the road is designated a Canopy Road.
- A public meeting notice should be posted on the potential Canopy Road a minimum of 15 days prior to the public meeting.
- Requests should be coordinated and brought to the Council by PCD for approval.

Potential Canopy Roads

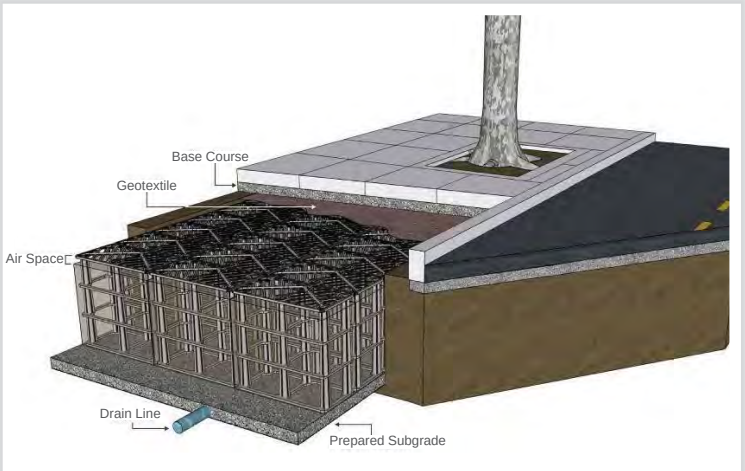
- 12th Street West from Manatee Avenue to Barccarrota Boulevard
- Manatee Avenue East from 1st Street to 15th Street East
- 2nd Avenue East from 15th Street East to 24th Street East
- 48th Street Court East from Manatee Avenue to 8th Avenue East
- 18th Street Northeast from 1st Avenue East to 4th Avenue East

SOIL VOLUME

Soil volume is extremely important to the long-term health of trees. The proposed concepts show many of the trees in very small confined spaces. Trees typically do not thrive in this situation but often live several years before they begin to decline due to inadequate soil volume. It is recommended that a minimum of 1,000 cubic feet of non compacted soil be provided for each tree.



Source, James Urban



This graphic shows how Silva Cells (a product by DeepRoot) may be used to provide non-compacted, subsurface soil volumes to provide a healthier growing environment for trees in the urban forest.

COMMERCIAL CORRIDORS

In Bradenton, like many finer-scaled cities, the smaller urban blocks and streets in the urban core create a basic grid of potential corridor parks that can enhance the living environment of both residents and visitors. These corridors and associated plazas can be valuable frameworks to enhance the urban forest with creative plantings, hardscaping, street furniture, and lighting.

When these key components are successfully combined with creative and efficient infrastructure, community identity is strengthened at a pedestrian scale that enhances safety and promotes connectivity. Over time, a system of successful streetscapes can attract quality development and retail tenants, thus increasing property values and economic vitality.

Priority Projects

- Cortez Road West from 51st Street West to 43rd Street West
- 6th Avenue East from 1st Street to 15th Street East
- 6th Avenue West from 15th Street West to 1st Street
- 8th Avenue West from 14th Street to 9th Street West
- 9th Avenue East from 1st Street to 27th Street East
- 9th Avenue West from 9th Street West to 1st Street
- 13th Avenue East from 15th Street East to 27th Street East
- 13th Avenue West from 1st Street to 14th Street West
- 1st Street from Manatee Avenue East to 13th Avenue East
- 9th Street West from 8th Avenue West to 17th Avenue West
- 14th Street West from Manatee Avenue to 26th Avenue West
- 27th Street East from Manatee Avenue to Golf View Avenue

Concept plans are a key component for public involvement and gaining overall consensus. Three specific areas have been selected by the City for the following preliminary concepts. These concepts are correlated to the Bradenton Form-Based Code and the Future Land Use Map as applicable. Once additional opportunities are identified, the concept plans for urban and suburban commercial corridors can be modified and applied throughout the City to fit within the local context.* The following concepts will assist in communicating the City's vision for the urban forest and neighborhood beautification.

***Note:** The following prototypical landscape graphics are shown on three specific roadways and are meant to serve as a general guideline, which reflects the City of Bradenton's vision for the urban forest. As plans for each project are further developed, all current FDOT and other local standards must be adhered to. Specific tree locations will be subject to existing utilities.*

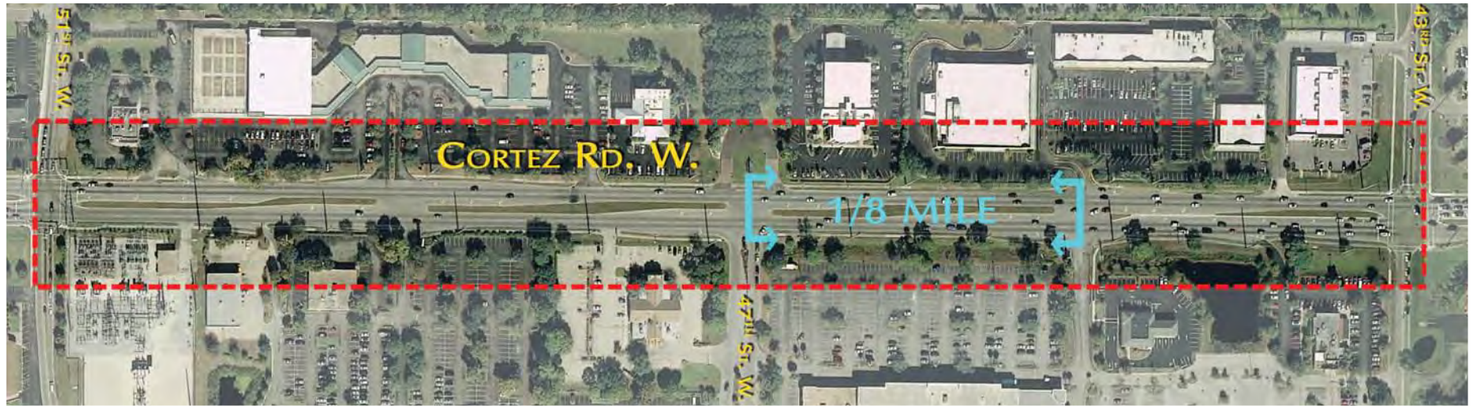
Suburban Commercial Corridors

Cortez Road West

This concept represents a section of Cortez Road from 51st Street West to 43rd Street West. The right-of-way (ROW) along this corridor currently runs immediately adjacent to the back of sidewalk, leaving little opportunity to plant trees within the ROW. It does provide an opportunity to develop public/private partnerships to implement street tree plantings on private property.

The majority of this section of roadway has turn lanes directly adjacent to the medians. Per FDOT Index No. 546, for design speeds of less than 50 MPH, no trees shall be permitted within 100' of the median nose (measured to edge of pavement). For 50 MPH and greater, no trees shall be permitted within 200' of the median nose.

- Thoroughfare Type: Road
- Right-of-way Width: Varies
- Pavement Width: Varies
- Transect Zone: NA
- Tree Spacing: 30' On Center (OC) Recommended
- Planter Type: Planting strips in medians and outside of right-of-way

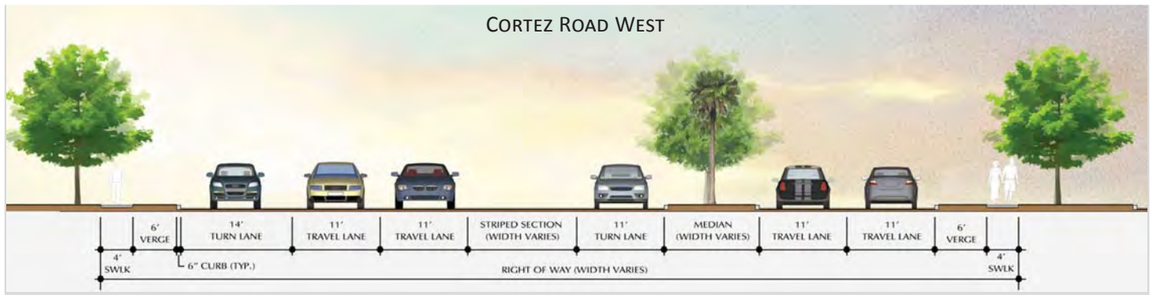


Recommended Trees

- **Canopy Trees**
  - American Sweetgum
  - Florida Elm
  - Gumbo Limbo
  - Red Maple
  - Southern Live Oak
- **Palm Trees**
  - Buccaneer Palm
  - Cabbage Palm
  - Paurotis Palm
- **Understory Trees** *(implemented wherever conflicts prohibit the use of a canopy tree):*
  - Buttonwood
  - Dahoon Holly
  - Orange Geiger Tree

PLAN VIEW

PERSPECTIVE VIEW



SECTION VIEW

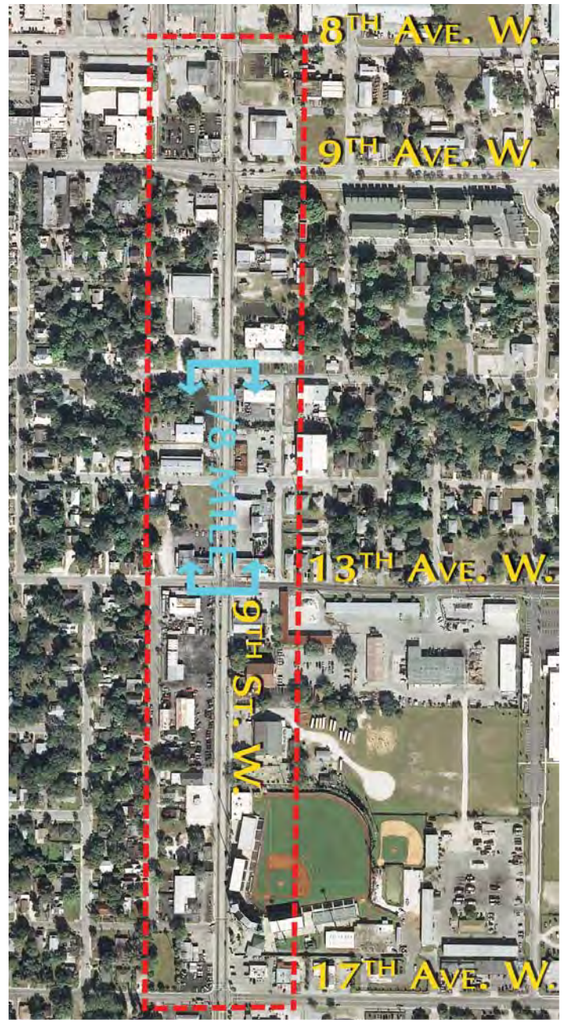
Urban Commercial Corridors

9th Street West

This concept represents a section of 9th Street West from 8th Avenue West to 17th Avenue West. The proposed concept represents what it might look like with the Form-Based Code implemented through redevelopment.

- Thoroughfare Type: Street
- Right-of-way Width: 58'
- Pavement Width: 42'
- Transect Zone: T4-O
- Tree Spacing: 15' OC Recommended
- Planter type: Planting strips at verge and 40' median planting area at mid block

PLAN VIEW, T4-O CORRIDOR AFTER REDEVELOPMENT



Recommended Trees

- **Canopy Trees**
  - American Sweetgum
  - Florida Elm
  - Red Maple
  - Southern Live Oak
  - Southern Magnolia
- **Palm Trees**
  - Buccaneer Palm
  - Cabbage Palm
  - Florida Thatch Palm
  - Royal Palm
  - Silver Palm
- **Understory Trees** *(implemented wherever conflicts prohibit the use of a canopy tree):*
  - Buttonwood
  - Dahoon Holly
  - Orange Geiger Tree

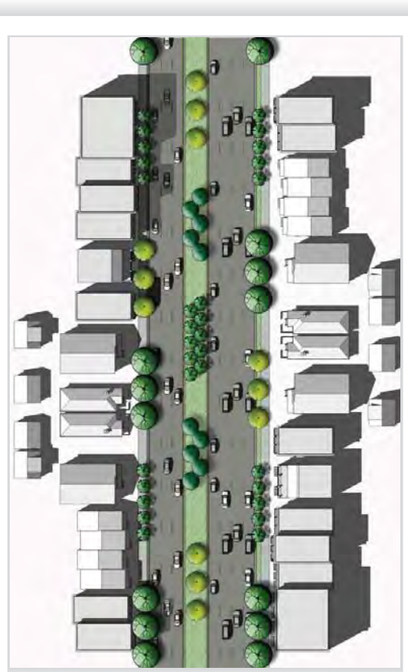
PERSPECTIVE VIEW

SECTION VIEW, TYPICAL ST-58-42

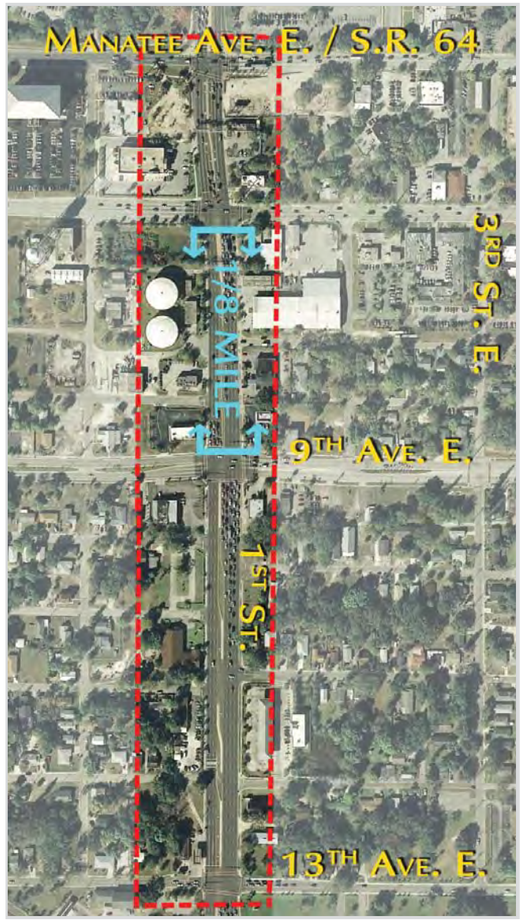
1st Street

This concept represents a section of 1st Street from Manatee Avenue East to 13th Avenue East. The proposed concept represents what it might look like with the Form-Based Code implemented through redevelopment.

- Thoroughfare Type: Street
- Right-of-way Width: 120'
- Pavement Width: 77'
- Sidewalk Width: 8'/12'
- Transect Zone: T5
- Tree Spacing: 30' OC, Average
- Planter type: Tree wells or planting strip with opportunity for subsurface soil volume



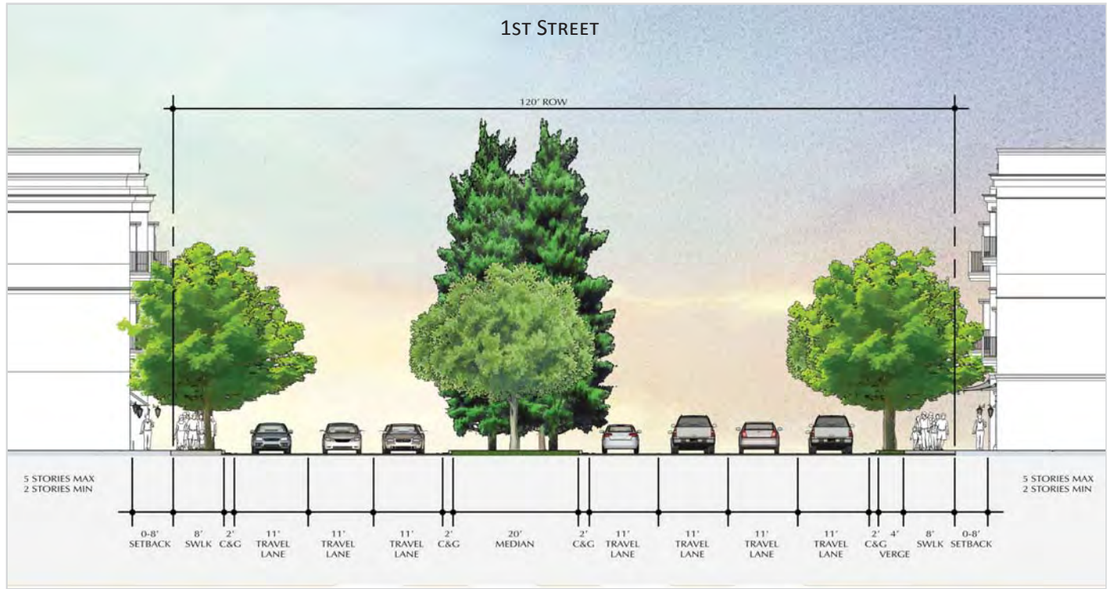
PLAN VIEW, T5 CORRIDOR AFTER REDEVELOPMENT



Recommended Trees

- **Canopy Trees**
  - American Sweetgum
  - Bald Cypress
  - Florida Elm
  - Longleaf Pine
  - Red Maple
  - Slash Pine
  - Southern Live Oak
  - Southern Magnolia
  - Winged Elm
- **Palm Trees**
  - Buccaneer Palm
  - Cabbage Palm
  - Paurotis Palm
  - Royal Palm
- **Understory Trees** *(implemented wherever conflicts prohibit the use of a canopy tree):*
  - Buttonwood
  - Dahoon Holly
  - Fringe Tree
  - Orange Geiger Tree

PERSPECTIVE VIEW



SECTION VIEW, TYPICAL HW-120-77

STREET TREE PALETTE

The Street Tree Palette is directly referenced from the Tree Lists in the City of Bradenton Form-Based Code. The Street Tree Palette may be updated periodically. Please contact the City of Bradenton, Department of Planning and Community Development to obtain the current Street Tree Palette. For additional Tree information resources, see *References and Additional Resources* on page 21.

RECOMMENDED TREE SPECIES

TREES

Acacia farnesiana	Sweet Acacia
Acacia pinetorum	Pineland Acacia
Acer rubrum	Red Maple
Bursera simaruba	Gumbo Limbo
Capparis cynophallophora	Jamaica Caper
Carya alba	Mockernut Hickory
Carya aquatica	Water Hickory
Celtis laevigata	Sugarberry
Cercis canadensis	Eastern Redbud
Chamaecyparis thyoides	Southern White Cedar
Chionanthus virginicus	Fringe Tree
Chrysophyllum oliviforme	Satin Leaf
Citharexylum fruticosum	Fiddlewood
Clusia rosea	Pitch Apple
Coccoloba uvifera	Sea Grape
Conocarpus erectus	Buttonwood
Cordia sebestena	Orange Geiger Tree
Diospyros virginiana	American Persimmon
Ilex x attenuata 'East Palatka'	East Palatka Holly
Ilex cassine	Dahoon Holly
Ilex vomitoria 'Pendula'	Weeping Yaupon Holly
Ilex vomitoria 'Will Fleming'	Will Fleming Yaupon Holly
Juniperus silicicola	Southern Red Cedar
Krugiodendron ferreum	Black Ironwood
Liquidambar styraciflua	American Sweetgum
Lysiloma latisiliqua	Wild Tamarind
Magnolia grandiflora	Southern Magnolia
Magnolia virginiana	Sweetbay Magnolia
Malus angustifolia	Southern Crabapple
Morus rubra	Red Mulberry
Ocotea coriacea	Lancewood
Persea borbonia	Redbay
Pinus Elliottii	Slash Pine
Pinus Elliottii var. densa	South Florida Slash Pine
Pinus palustris	Longleaf Pine
Pinus taeda	Loblolly Pine
Piscidia piscipula	Jamaican Dogwood
Prunus serotina	Wild Black Cherry
Prunus umbellata	Flatwoods Plum
Quercus geminata	Sand Live Oak
Quercus laurifolia	Laurel Oak
Quercus myrtifolia	Myrtle Oak
Quercus virginiana	Southern Live Oak
Quercus virginiana 'Highrise'	Highrise Southern Live Oak
Sideroxylon foetidissimum	Wild Mastic
Simarouba glauca	Paradise Tree
Swietenia mahagoni	Mahogany
Taxodium ascendens	Pond Cypress
Taxodium distichum	Bald Cypress
Ulmus alata	Winged Elm
Ulmus americana var. floridana	Florida Elm
Ximenia americana	Hog Plum
Zanthoxylum fagara	Wild Lime

PALMS

Acoelorraphe wrightii	Paurotis Palm
Coccothrinax argentata	Silver Palm
Pseudophoenix sargentii	Buccaneer Palm
Rhapidophyllum hystrix	Needle Palm
Roystonea elata	Royal Palm
Sabal palmetto	Cabbage Palm
Thrinax morisii	Keys Thatch Palm
Thrinax radiata	Florida Thatch Palm

MAINTENANCE GUIDELINES

Recommended Tree Policies and Maintenance Guidelines

An urban forestry maintenance program is invaluable to the health and safety of the urban forest. An overview of key policies and guidelines is provided below, however detailed information and procedures for each section should be further developed in an urban forestry maintenance program.

Selection

It is important to select the best quality tree, a Florida Fancy or Florida #1, per Florida Nurserymen's Grades and Standards. These standards apply equally to both field grown and container grown trees.

It is also very important to ensure trees selected do not have girdling roots. Girdling roots are often hidden and can eventually wrap around the trunk of the tree, essentially strangling it years down the road. This situation can occur in both field grown and container grown trees therefore trees should be selected from a grower that has demonstrated the capacity to establish good, healthy root systems, whether through balled and burlapped (B&B) field grown trees or properly managed container grown trees.

Field grown trees should be hardened off in the nursery for a minimum of 3-4 weeks. Hardened off means the trees have been held in the nursery after digging under optimum irrigation until new roots have begun to regenerate.

Roots Plus Growers (RPG) guarantees the best quality hardened off field grown tree available. All RPG trees are held until new roots develop and are ready to start growing into the landscape. Whether RPG/field grown trees or containerized trees are selected, careful attention to root management practices is recommended.

To ensure you are receiving the best quality trees as recommended above, your landscape architect should tag them at the nursery and further inspect them upon delivery to the project site.

Tree Transplanting

Project-specific tree mitigation notes should be provided for every project containing existing trees. These plans and specifications should be prepared by a registered landscape architect, ISA Certified Arborist, or Registered Consulting Arborist. In addition, transplanting should be performed by an ISA Certified Arborist or Registered Consulting Arborist with a minimum of five years experience transplanting and establishing trees of similar size and species.

MAINTENANCE GUIDELINES

Planting

One of the biggest mistakes that kill trees is planting them too deep. Many times, when you receive trees from the nursery they are already too deep, so an inch or two deeper on site often leads to a tree that is actually planted several inches too deep. In this condition, trees could survive several years and continually decline. Trees should be planted 1-2 inches higher on the project site than it was at the nursery. Other key things to look for are the trunk taper and the first lateral root. If the trunk taper is visible and the first lateral root is at or just below the surface, then the tree is at the proper depth. The project landscape architect should observe planting operations and inspect planting depths during and at the completion of every project.

Watering

Trees should be irrigated with automatic irrigation wherever possible. If irrigation is not available, watering bags such as Treegator, or a watering truck should be used throughout the establishment period. Below is a recommended watering schedule for establishment:

Week 1 – 8	5 times/week	25 gal/day
Week 9 – 12	3 times/week	25 gal/day
Month 4 – Year 3	1 time/week	25 gal*

*Watering amounts should also be implemented during drought periods and may vary due to the severity of the drought.

Weed Control

A regular maintenance program should be implemented for weed control and should, at a minimum, include:

- Pre-emergent herbicides applied in spring and fall
- Monthly (or as needed) weeding with approved herbicide such as Roundup
- Removal of all weeds by hand on a monthly basis

Mulch

At a minimum, the following mulching guidelines should be applied:

- A three-inch layer of mulch should be maintained and replenished as needed for the first three years.
- Mulch shall be kept one foot away from the bases of all trees and palms.
- Mulch should be melaleuca, eucalyptus, or other sustainably harvested hardwood mulch.
- Supplemental mulch shall be of the same type and quality originally applied to the project.

Pest Control

Trees should be inspected regularly for pests and disease and treated appropriately. The Manatee County Extension Office could be a valuable resource for such a program.

Fertilization

Trees should be fertilized regularly (minimum of three times in first year), or as needed to maintain a healthy, growing condition free of symptoms of nutritional deficiency or undesirable appearance. Fertilizer content and frequency will depend on soil conditions and tree species. Refer to the Extension Office bulletin *Fertilization Recommendations for Trees and Shrubs in Home and Commercial Landscapes.*

Pruning

Improper pruning techniques have a dramatic and adverse effect on trees. Each tree species will have a different level of pruning intensity, especially during establishment. This section is intended to provide general guidance in the area of proper pruning techniques. It is recommended that strong consideration be given to the following:

- Pruning cuts shall be in accordance with **ANSI A300 pruning standards**.
- Remove dead and damaged branches/fronds.
- Young trees should be pruned to develop strong branching patterns.
- Thin interior of canopy to promote air circulation.
- Provide clearance above sidewalks and roadways to avoid pedestrian and vehicular conflicts.
- Prune throughout the year (as needed) to keep trees within desired limits.
- Reduce potential hazardous conditions.
- Do not 'lollipop' or 'lions tail'. These practices deform trees and reduce canopy that is vital to the health of the trees.
- Crape myrtles should be minimally pruned (if necessary). Seed heads can be removed to pencil sized wood to encourage stronger blooming, but should not be topped.
- Do not remove more than 20% of live foliage at any one time.
- Never cut the central leader.
- Prune palms yearly, or as needed.
  - Do not remove fronds growing horizontally or pointed upward, prune only from the 3-9 o'clock position.
  - Cut fronds as close to the trunk as possible.
  - Remove all inflorescences.

FUNDING SOURCES

Implementation

State and Federal Funding

- Florida Department of Transportation – Highway Beautification Grant
- Department of Agriculture – "America the Beautiful"
- Florida Forest Service – Small Business Administration
- Florida Department of Transportation – Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)
- Department of Community Affairs – Community Development Block Grant

Local Government Funding

- Capital Improvement Program
- Local improvement districts
- Municipal funding
- City of Bradenton Woodbury Tree Fund
- Manatee County Tree Fund

Private Funding

- Community service groups and organizations
- Trusts and foundations
- Corporate and private donations
- Florida Urban Forestry Council

Maintenance

State Funding

- Florida Department of Transportation – Highway Maintenance Agreements

Local Government

Manatee County Operating Budget

- County employees and equipment
- Private sector – landscape maintenance companies

Municipality Operating Budget

- City employees and equipment
- Private sector – landscape maintenance companies

Sheriff's Department Workforce

Private

Community Service Groups and Organizations

- Keep Manatee Beautiful
- Garden clubs, etc.

Local Businesses

- Adopt-A-Spot Program

REFERENCES AND ADDITIONAL RESOURCES

- American Forests, *www.americanforests.org*
- An Illustrated Guide to Pruning, Second Edition, Edward F. Gilman
- Best Management Practices: Tree and Shrub Fertilization, Companion publication to the ANSI A300 Standard for Tree, Shrub, and Other Woody Plant Fertilization
- Best Management Practices: Tree Pruning, Companion publication to the ANSI A300 Part 1: Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices, Pruning
- City of Bradenton Form-Based Code
- City of Bradenton Urban Forestry Master Plan, 1994
- Florida Department of Transportation (FDOT), Maintenance Rating Program, *www.dot.state.fl.us*
- FDOT Design Standards, Index No. 546 and Index No. 700, *www.dot.state.fl.us*
- Florida Urban Forestry Council, *www.fufc.org*
- Grades and Standards for Nursery Plants, Florida Department of Agriculture and Consumer Services
- Manatee County Extension Office, University of Florida IFAS Extension, *http://manatee.ifas.ufl.edu*
- Manatee County Urban Forest Canopy Analysis 2004 and 2009
- Manatee County Urban Forestry Master Plan, 2005
- Plant the Right Tree in the Right Place Guidelines, Florida Power and Light (FPL), *www.fpl.com*
- Roots Plus Growers, *www.rootsplusgrowers.org*
- Up By Roots: Healthy Soils and Trees in the Built Environment, James Urban

ACKNOWLEDGEMENTS

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ADOPTION BY CITY COUNCIL
September 28, 2011
Resolution 11-56

TREE CITY USA®

U.S. GREEN BUILDING COUNCIL
FLORIDA GULF COAST CHAPTER
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An urban forest issue brief

Green Streets

Greener Streets are Safer Streets

Trees and landscape features are often perceived by transportation officials as a safety risk. However, evidence from national and local studies reveal that the inclusion of trees and other streetscape features may actually reduce crashes and injuries on roadways.

Tree-lined Streets...

- Are safer.
- Cost less to maintain.
- Reduce traffic congestion.
- Mitigate air and noise pollution.

Functioning highways need green infrastructure.

Community benefits from roadside landscapes:

Calmer traffic. Research done in several states has shown that motorists benefit from vertical features such as trees and buildings to gauge their speed. Three-fourths of Americans believe that being smarter about development and improving public transportation are better long-term solutions for reducing traffic congestion than building new roads.[1]

Less maintenance costs. All other factors equal, the condition of pavement on tree-shaded streets is better than on unshaded streets. In fact, shaded roads require significantly less maintenance and can save up to 60% of repaving costs over 30 years. That's a lot of savings considering the four million miles of roadways in this country (approximately 1% of the total area of the contiguous U.S.).[2]

Healthier residents. Human health effects from air pollution usually involve respiratory functions and can be quite severe. Studies show that trees and shrubs have the greatest impact at minimizing harmful automotive outputs. Not only are trees prettier to look at than asphalt and industrial areas, but also trees reduce noise pollution by acting as buffers. Let's turn all highways into greenways.[3]

Recommendations:

- Prioritize space and location for trees in the highway and streetscape design process.
- Incorporate stormwater management techniques like bioswales and infiltration planters.
- Update highway and streetscape standards to improve conditions for trees.
- Support H.R. 6435, the 'National Highway Chokepoint Congestion Relief Act,' specifically the provision that includes trees and green infrastructure as eligible capital improvements.
- Support an amendment to H.R. 1780 or H.R. 1329 to specifically includes tree planting as an eligible project for reducing greenhouse gas emissions from mobile sources.
- Support an amendment to S. 238- the 'Build America Bonds Act of 2009'- to specifically include nonprofit organizations working to improve our national transportation systems through the planting of trees and green infrastructure as qualified participants and projects.

Tree Benefit Facts

Serving Size 1 Million City Trees (2" caliper)
Recommended Servings Per City about 40%

Costs	
Volunteer Service $0	Trees $250 million
	Annual Value*
Energy Conservation 30% less usage	
Cost Savings	$10 million
Stormwater 350 million gallons captured	
Cost Savings	$3.5 million
Clean Air 1,000 tons less air pollutants	
Cost Savings	$5 million
Public Revenue 11% more for goods	
Cost Savings	varies by city
Property Value 1-10% higher	
Cost Savings	varies by city
Lower Crime 50% less violent crime	
Cost Savings	priceless
Total Cost Savings	**$18.5 million**

ROI within 14 years not including public revenue, property, and crime benefits.

* Annual Values are based on studies from the Center for Urban Forest Research, Center for Urban Horticulture, Lawrence Berkeley Lab, and the Univ. of Washington, and vary by city. Approximate values are indicated where the differences vary less significantly by city.

References:

1. Bratton, N. J. and K. L. Wolf. 2005. Trees and Roadside Safety in U.S. Urban Settings, Paper 05-0946. Proceedings of the 84th Annual Meeting of the Transportation Research Board (January 9-13, 2005). Washington D.C.: National Academies of Science.

2 McPherson, G. and Muchnick, J. Effects of Street Tree Shade on Asphalt and Concrete Pavement. Journal of Arobriculture 31(6). November 2005. pp. 303-310.

3 National Oceanic and Atmospheric Administration.

ACT
Tree by Tree
Street by Street
Alliance for Community Trees

4603 Calvert Road • College Park • Maryland • 20740 • 301.277.0040 • info@actrees.org