



St. Johns River State College Landscape Master Plan | STEP 1

Landscape Site Assessment & Programming Executive Summary

version 1.1 | 09.24.13

CRG ARCHITECTS/PALATKA, INC.



Creating Compelling Environments to Live, Work, and Play

Introduction: Tree Campus USA

St. Johns River State College (SJR State) has become a local leader for sustainable and environmentally conscious design. Most recently, the new Health Sciences Building at the St. Augustine campus incorporated green techniques ranging from energy efficiency and low water volumes to environmentally sensitive landscaping and natural stormwater pretreatment. The project earned the prestigious 3 Globe ranking from the Green Globes certification system and recognition from the UF/IFAS Florida Friendly Yards & Neighborhoods program.

The College is furthering its commitment to sustainable design and environmental stewardship through the Arbor Day Foundation's "Tree Campus USA" program. An extension of the "Tree City USA" program, the program is focused on providing natural benefits to colleges and universities including reduced energy costs and improved natural gathering areas for students. Tree Campus USA is composed of five standards:

- Standard 1** — Campus Tree Advisory Committee
- Standard 2** — Campus Tree Care Plan
- Standard 3** — Campus Tree Program with Dedicated Annual Expenditures
- Standard 4** — Arbor Day Observance
- Standard 5** — Service Learning Project

Landscape Master Plan Outline + Steps

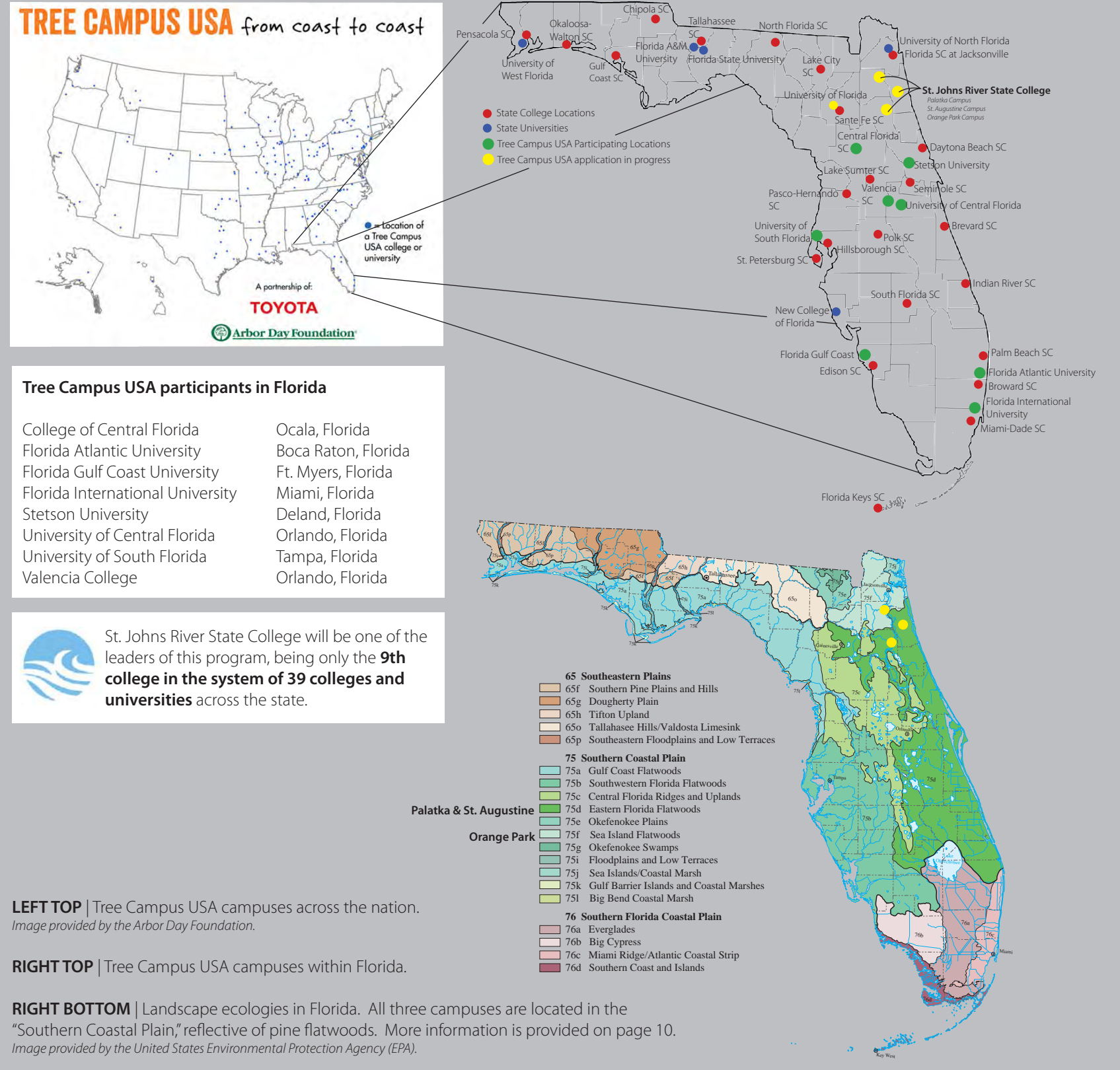
The College has retained the landscape architecture firm of Marquis Halback, Inc., to develop the Campus Tree Care Plan (Standard 2) and an associated landscape master plan for the tree campuses of SJR State. There are three steps to this effort, including:

- Step 1** – Site Assessment + Programming
- Step 2** – Campus Landscape Master Plan
- Step 3** – Campus Landscape and Tree Management Guidelines

Overview of Step 1: Site Assessment + Programming

This document focuses on Step 1 by providing an overview assessment of the Palatka, St. Augustine, and Orange Park campuses. Existing conditions, design opportunities, and an overall framework are provided for each campus. The analysis and a review of case studies are used to inform a series of conceptual recommendations, landscape designations, and Low Impact Development (LID) opportunities.

INDEPTH | Tree Campus USA + Landscape Ecosystems Overview



Palatka Campus: Existing Conditions

INDEPTH Campus Information	Size:	Approximately 91 acres							
	Parcel:	10-10-26-0000-0010-0000							
	Zoning:	R-3 (Residential, Multi-Family)							
	Main Roadways:	<table border="0"> <tr> <td>SOUTH</td> <td>SR20 / Crill Avenue</td> </tr> <tr> <td>NORTH</td> <td>St. Johns Avenue</td> </tr> <tr> <td>EAST</td> <td>Moody Road</td> </tr> <tr> <td>WEST</td> <td>College Road</td> </tr> </table>	SOUTH	SR20 / Crill Avenue	NORTH	St. Johns Avenue	EAST	Moody Road	WEST
SOUTH	SR20 / Crill Avenue								
NORTH	St. Johns Avenue								
EAST	Moody Road								
WEST	College Road								

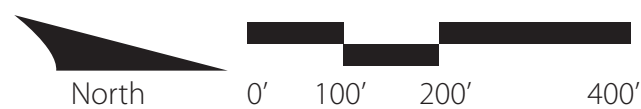
SJR State's original campus in Palatka was developed in the late 1950s in an area of the town which was once pine flatwoods and wetlands.

A large portion of the site is still covered by pines, but the wetlands have been largely drained and confined to narrow swales lined by sod. This treatment, while typical for development in the 1950s and 1960s, is less desirable today when natural systems are maintained and expanded for environmental sustainability.

The built portion of the site was largely cleared of trees, and the landscape is largely composed of sod and an assortment of tree types. The central "student gathering" zone is largely devoid of substantial shade, as are the parking areas surrounding the campus.



- A** Administration
- B** Business Administration / Education / IT
- E** Electrical Generator Building
- F** Florida School of the Arts; Fine Arts Complex
- G** Gym / Health Center
- I** Scenery Design Building
- L** Library / Health Sciences
- M** Maintenance
- S** Science Building
- T** Technical Building
- V** Student Services; Viking Center & Receiving



- Wetlands**, per Putnam Co. GIS
NOTE: Actual extents should be documented by environmental engineer.
- Administration + Support Zone**
- Water Extents**, per 1968 USGS map
- Student Gathering Zone**
- Athletics Zone**
- Parking Zone**
- Academics Zone**

Palatka Campus: Existing Conditions | Photo Documentation

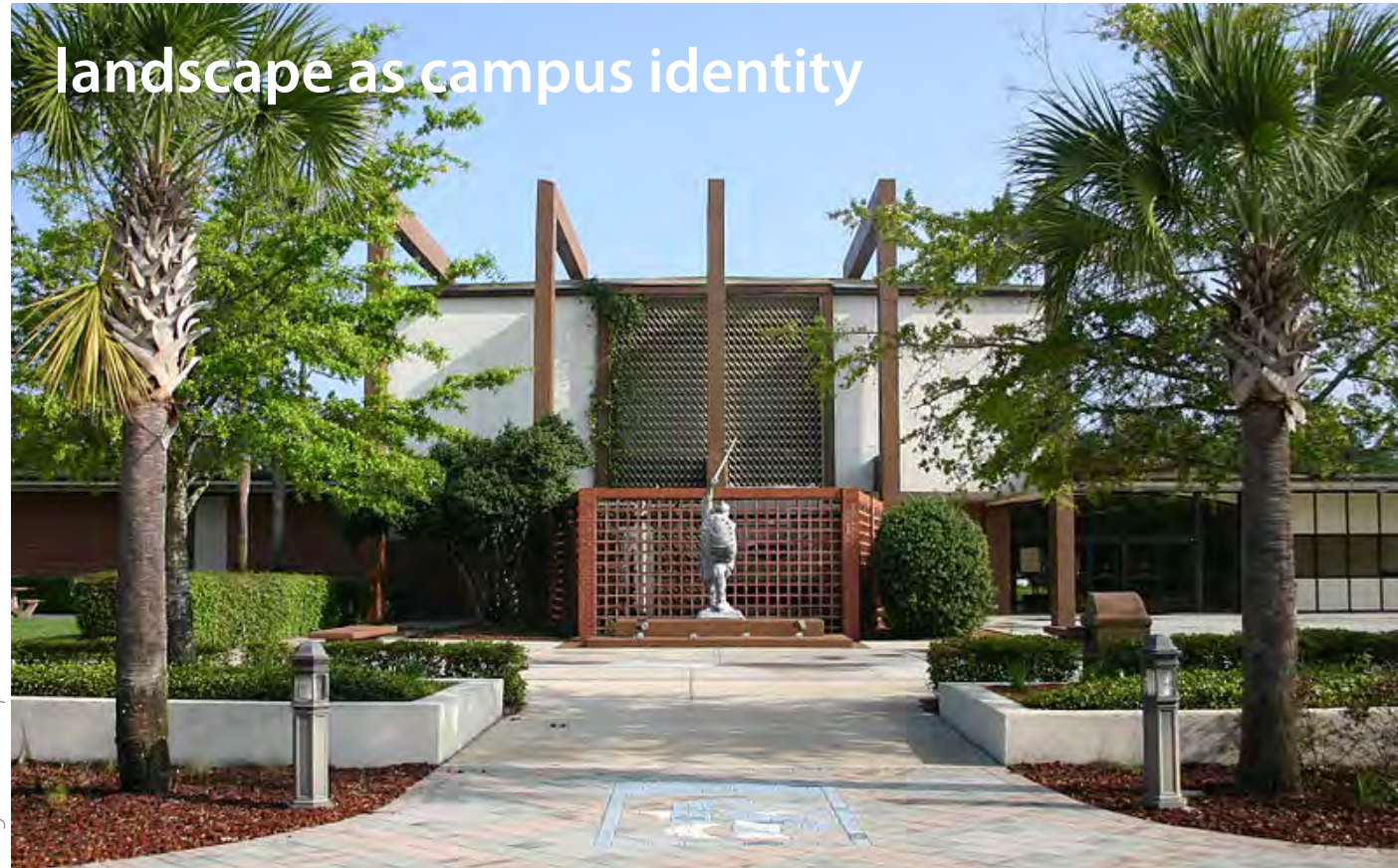


Image from Wikipedia.



Palatka Campus: Landscape Framework, Opportunities + Constraints

There are multiple areas at the Palatka campus where the landscape can be improved.

Central Greenspace

The central greenspace should function as an educational park, complete with active and passive recreational opportunities such as sand volleyball and picnic areas. Outdoor classrooms and small group study spaces should be incorporated as well. The natural focus of this space can be an interpretation of the creek and natural wetland restored wetland. Interpretive hardscape, cypress trees, native grasses, and boardwalk crossings can create a beautiful, engaging linear park connecting the academic buildings of the campus.

"FIRST STEP" Recommended Project

Create bioswale behind Softball Field. It has been requested that pines not be used in this area.

Natural stormwater pretreatment

Natural stormwater pretreatment should also be considered, especially along parking areas and the athletic fields. As an example, bioswales can be constructed beyond the outfield fence beside the softball and baseball fields and along parking areas. Nutrients from fertilizers will then run into the bioswale during rain events, allowing particulates to settle into the depression and be absorbed by native plantings, partially cleaning the stormwater before it enters the overall stormwater system.

"FIRST STEP" Recommended Project

Plant wildflowers in South Field, which will reduce the need to mow.

Maintaining the pine flatwoods + sod removal

The most striking element of the campus is the expansive pine flatwood on the south side of the campus. Some trees are showing signs of disease, and healthy trees should be added to maintain the long term canopy. Natural understory plantings should also be restored in lieu of grass, reducing lawn maintenance, pesticide needs, fertilizer needs, and overall cost. Throughout the campus, sod should be removed from within the dripline of the trees.

"FIRST STEP" Recommended Project

Reduce mowing under pines in South Field and allow natural underbrush to reestablish.

Shade trees + streetscapes

Shade trees should be incorporated throughout the parking areas and along the main roadways, helping to define the campus and maximizing the initial impression of the campus. Special views should also be framed, such as views along Crill Avenue and at the main entry sign at the intersection of Moody Road and St. Johns Avenue.

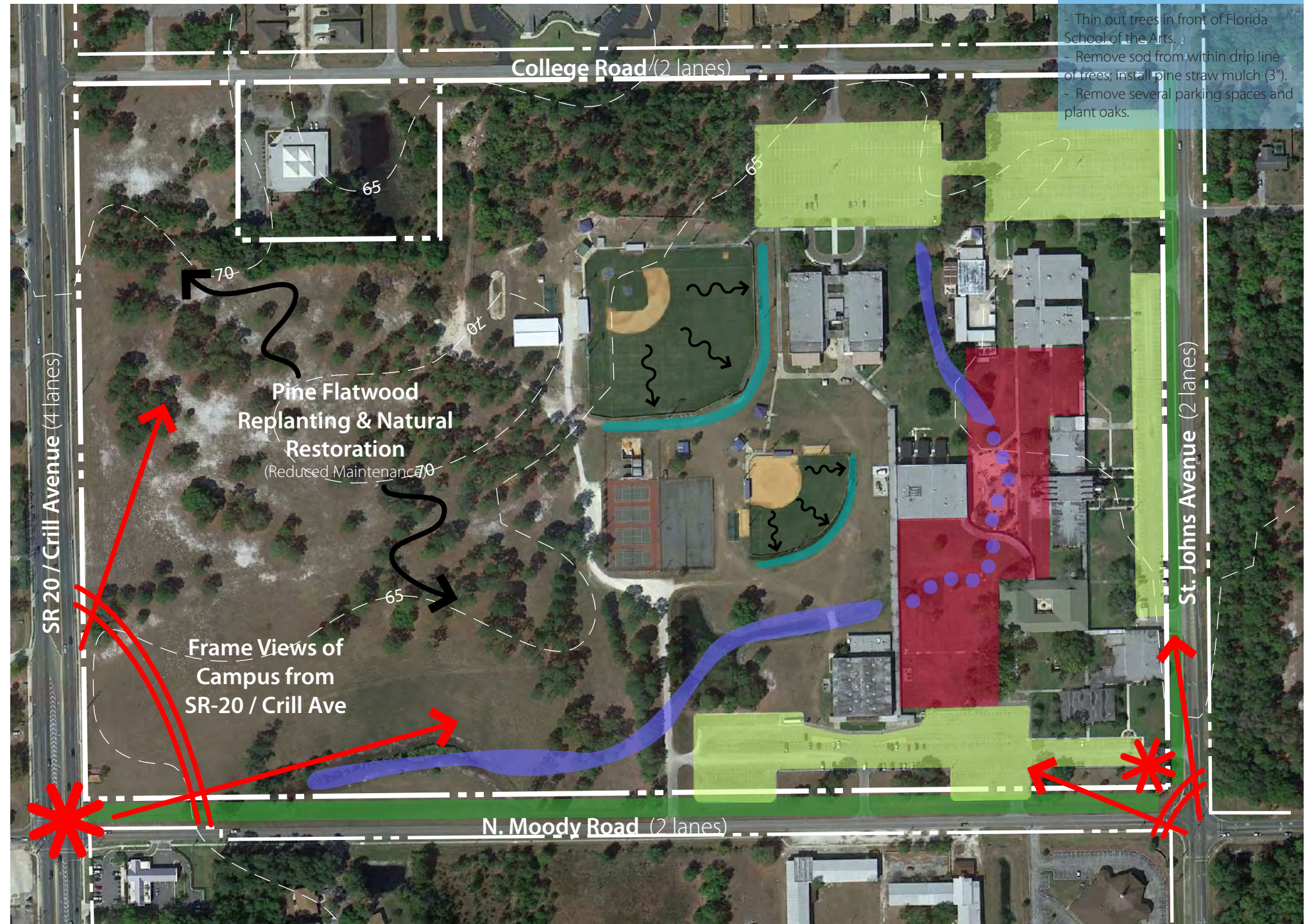
"FIRST STEP" Recommended Project

Plant oaks around the perimeter of Parking Lots 1, 2, 3, & 6.

ADDITIONAL STEPS

Recommended Projects

- Thin out trees in front of Florida School of the Arts.
- Remove sod from within drip line of trees, install pine straw mulch (3").
- Remove several parking spaces and plant oaks.



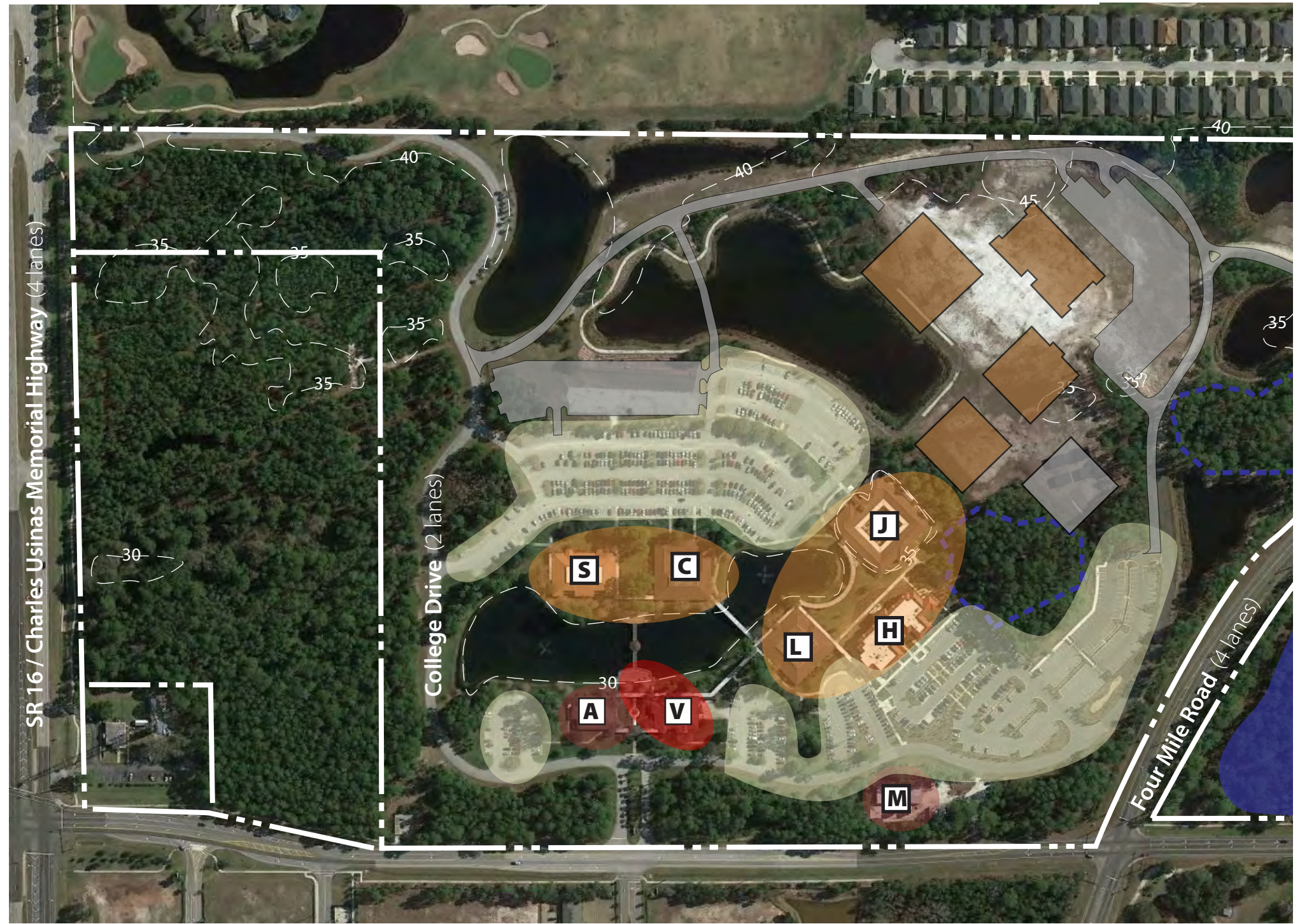
St. Augustine Campus: Existing Conditions (North of Four Mile Road)

INDEPTH Campus Information	Size:	Approximately 124 acres
	Parcel:	089325 0000
	Zoning:	Planned Unit Development
Main Roadways:		
	SOUTH	Four Mile Road
	NORTH	SR16 / Charles Usina Memorial Highway
	WEST	Kenton Morrison Road

The St. Augustine campus is divided into two approximately equal segments on either side of Four Mile Road. The north portion is currently the only segment utilized by the College.

Due to the low elevations and high water table, large ponds have been added to handle stormwater throughout the campus. In recent years, there have been efforts to provide a natural edge along the ponds and to maintain large stands of trees in future expansion areas. The pond at the heart of the north campus, located between Administration and classrooms, has sod running down to the water's edge, allowing grass clipping, fertilizer, and pesticides to enter the ponds.

There are a series of student gathering areas throughout the campus, complete with picnic tables, shade structures, and benches. Volleyball is also desired on the property.



- A** Administration
- C** Classroom
- H** Health Sciences
- J** Criminal Justice Workforce Center
- L** Learning Resource Center
- M** Maintenance
- S** Science
- V** Student Services

Administration + Support Zone

Student Gathering Zone

Academics Zone

Parking Zone

Future Roadways and Parking

Future Buildings

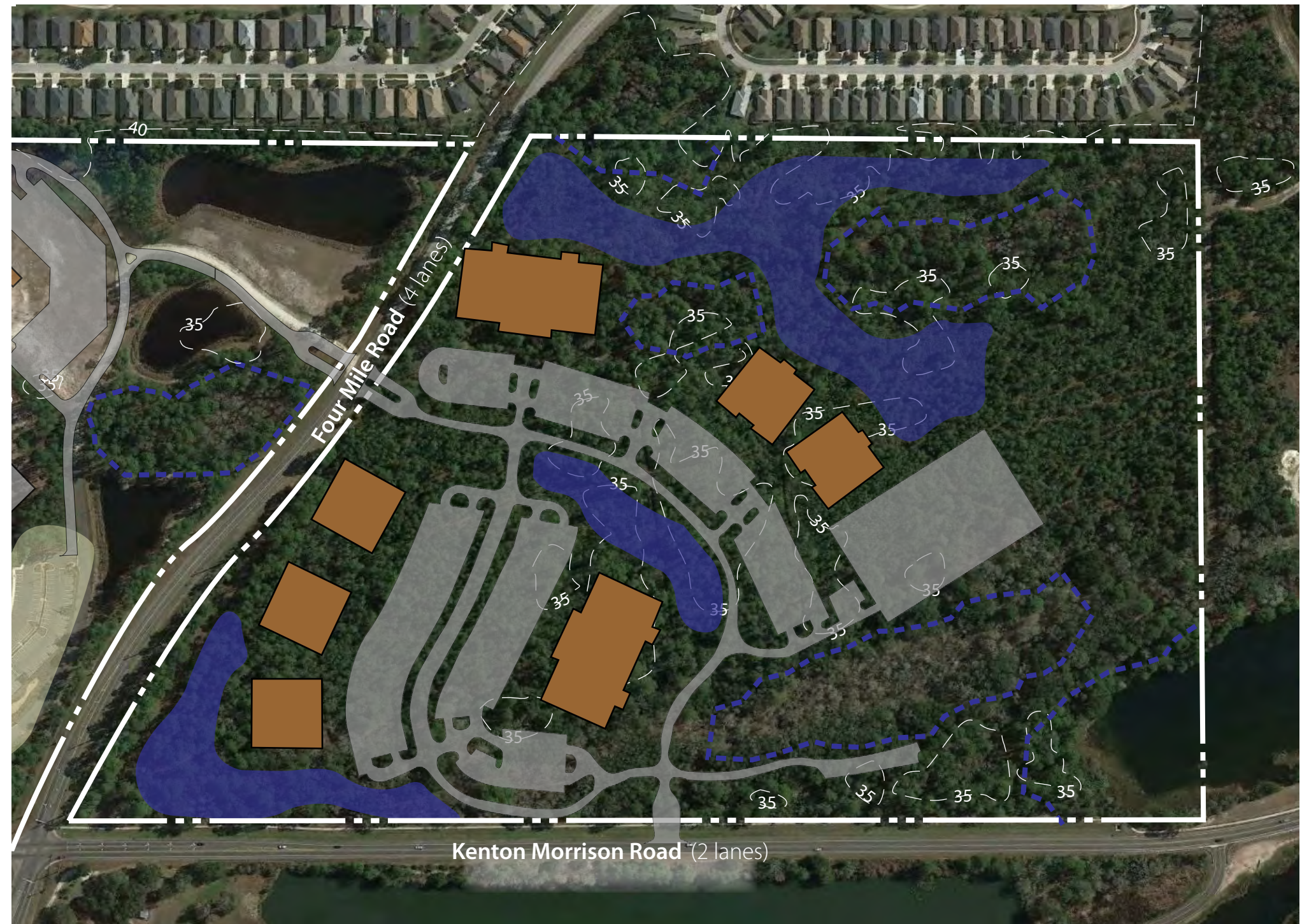
St. Augustine Campus: Existing Conditions (South of Four Mile Road)

INDEPTH Campus Information	Size:	Approximately 124 acres
	Parcel:	089325 0000
	Zoning:	Planned Unit Development
Main Roadways:		
	SOUTH	Four Mile Road
	NORTH	SR16 / Charles Usina Memorial Highway
	WEST	Kenton Morrison Road

On the south side of Four Mile Road, a four lane highway, is a future expansion area for the St. Augustine Campus.

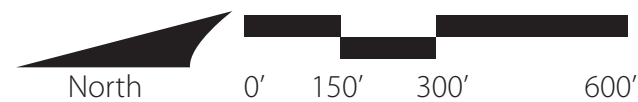
Originally permitted with the 2008 tree preservation and clearing plan for the north campus, the south campus was not cleared. Consequently, the SJRWMD and USACOE permits have now expired. The new wetland extents should be obtained prior to future master planning on this portion, as the extents may have shifted. It is also important to note that clearing must not occur in these jurisdictional wetlands.

The landscape character on the south portion is similar to the north campus: pines, palms, and select hardwoods, with a high water table and centralized lakes.



- A** Administration
- C** Classroom
- H** Health Sciences
- J** Criminal Justice Workforce Center
- L** Learning Resource Center
- M** Maintenance
- S** Science
- V** Student Services

- Future** Roadways and Parking
- Future** Buildings



St. Augustine Campus: Existing Conditions | Photo Documentation



entry courtyard needs refresh



reduce sod along lake banks =
less fertilizer / clippings in stormwater & lake



structural pruning
needs to be
practiced



parking area
needs shade



extend natural areas to water edge

St. Augustine Campus: Framework, Opportunities + Constraints

"FIRST STEP" Recommended Project

Extend natural areas to water's edge. Reduce sod along lake bank. Perhaps half of the lake could have sod. Pine straw beds could be placed where it's shaded.

The landscape is more developed at the St. Augustine campus. However, there are still opportunities to improve the aesthetic and environmental aspects of the landscape.

Naturalize the lake edge

The lakes provide the focal points at the center of the campus. The main lake currently has sod running down to the water line. It is proposed that this edge be naturalized by bringing in native grasses and shrubs, which will provide wildlife habitat, initial filtering of stormwater, and natural views across the lake.

"FIRST STEP" Recommended Project

Replant trees in parking lot. East parking lot is main need, where soil also needs to be replaced.

Natural stormwater pretreatment

Existing parking areas can be retrofitted to incorporate bioswales, which are already used at the Health Sciences building. Areas with existing piping can be redirected to bioswales as an initial treatment area, before entering the system of lakes.

Plant now for future development + more trees

Small caliper trees can be planted today for the proposed infrastructure improvements of tomorrow. For example, 2" caliper trees can be planted along the future multi-use trails and roadways established in the 2008 master plan, creating an outer green belt surrounding the campus.

"FIRST STEP" Recommended Project

Refresh entry courtyard with new River Birch tree (remove Cape Myrtle) and colorful groundcover in mulch areas (Dune Sunflower suggested).

Refresh entry landscaping

The landscape around the entry signs, the western entrance, and the central courtyard adjacent to administration should be refreshed. Native, yet colorful, plant material should be used to bring interest to the signs. In the courtyard, both native and Florida Friendly landscape should be used. The existing crape myrtles, which have been improperly pruned, should be removed.

Prepare for expansion south of Four Mile Road

When current plans are implemented for development of the Criminal Justice Complex south of the current campus, care should be shown to preserve trees when possible. Similar techniques as the north campus should be utilized, such as planting street trees for future roadways. Landscaped berms should also be considered, placed where needed for acoustical considerations.

ADDITIONAL STEPS

Recommended Projects

- Structural pruning needs to be practiced.
- Install drip irrigation to trees.
- Provide a buffer between campus and golf course.
- Establish tree canopy for student groups (i.e., Greenbelt Tree Planting or Voluntary Tree Planting Area).
- Continue Legacy Trees around Reedy Lake.



Parking Areas
for biofiltration and trees

Future Multi-Use Trails + Green Belt
small caliper trees can be planted along future planned roadways

Buffer landscape needed
to screen Royal St. Augustine

Naturalize Lake Edge
provide natural landscape where trees are currently planted along the water, at a minimum

Improved Entry Signage

Orange Park Campus: Existing Conditions

INDEPTH Campus Information	Size:	Approximately 107 acres	
	Parcel:	007990-000-00	
	Zoning:	PO-1 (Public ownership)	
	Main Roadways:	WEST	CR244 / College Drive
		NORTH	Peoria Cemetery Road
	EAST	Railroad R.O.W.	

SJR State's largest campus in Orange Park was developed in 1987. The style of the buildings and outdoor spaces is fairly traditional, and the campus is focused around a central greenspace. The radial pathways crossing through this space provide necessary connections but do not create suitable gathering spaces.

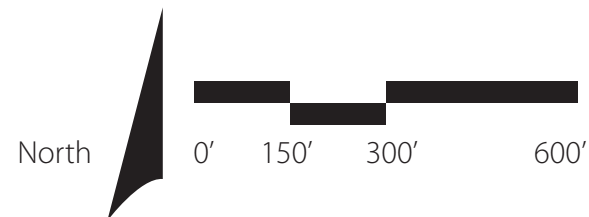
The majority of the developed portions of the site lack shade trees or other landscape interest. Sod dominates the landscape, requiring a great deal of resources to maintain. Generally, the campus is very hot due to the lack of shade trees, making a comfortable outdoor gathering space difficult to find given the current conditions.

Currently there is no connection to the natural area that encompasses the southeastern half of the site.

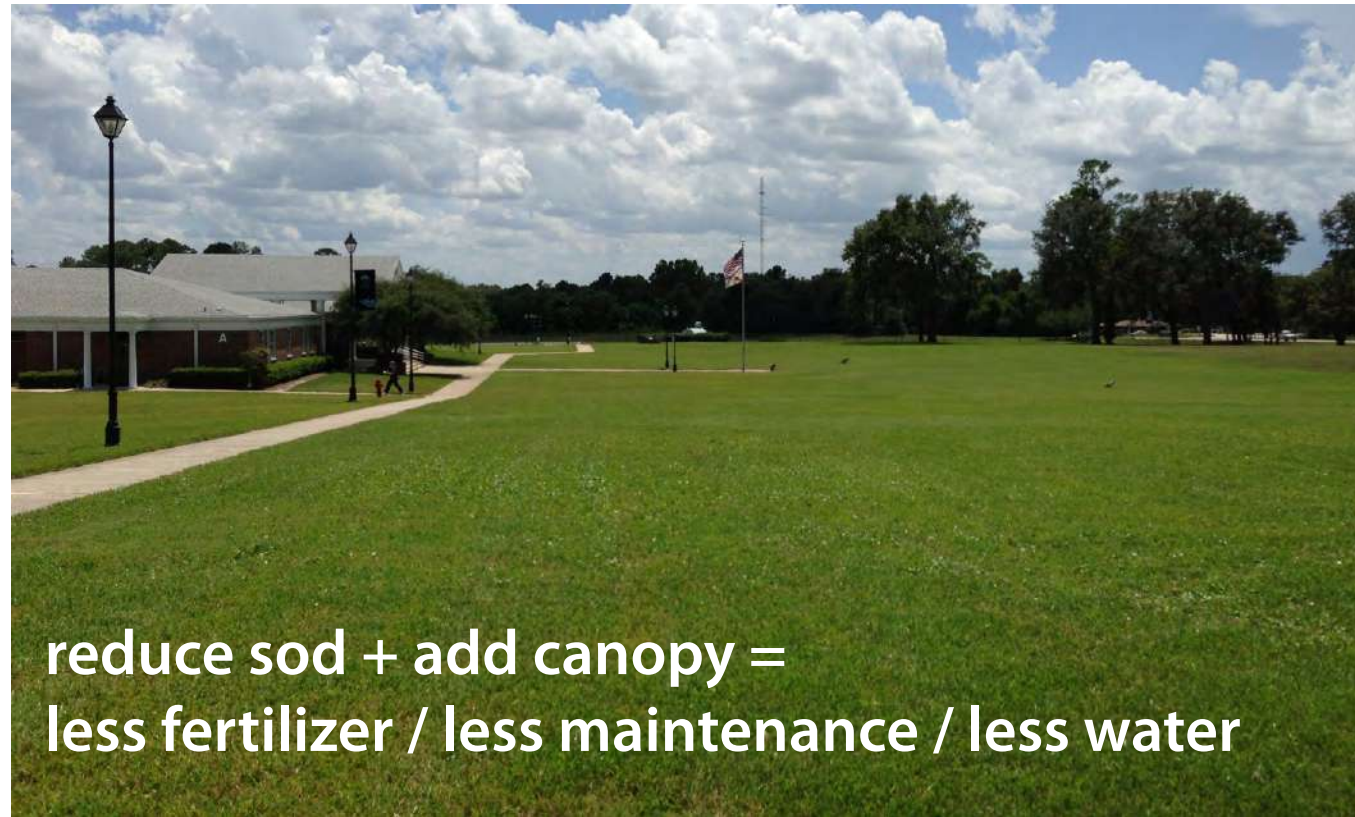


- A** Administration
- D** Classroom
- E** Equipment
- H** Health Sciences / Science Consortium
- L** Learning Resources
- M** Maintenance
- P** Thrasher Horne Center for the Performing Arts
- T** Technical
- V** Student Services

- Administration + Support Zone
- Student Gathering Zone
- Academics Zone
- Performance Arts Zone
- Parking Zone



Orange Park Campus: Existing Conditions | Photo Documentation



"FIRST STEP"
Recommended Project

Add trees at the perimeters of Parking Lots 1, 2, and 3 (main entrance drive to the North).

"FIRST STEP"
Recommended Project

Add additional shade trees (oaks) by Building H.

"FIRST STEP"
Recommended Project

Add additional shade trees by Building S, both sides.

Orange Park Campus: Framework, Opportunities + Constraints

A number of key strategies can improve the environment at the Orange Park campus:

Provide shade trees

Very few mature trees exist on the developed portion of the site. These trees should be maintained and supplemented with additional canopy trees to improve the aesthetics and environmental comfort of the campus. The parking lots in particular are in need of shade trees in the islands to reduce the heat island effect.

Create opportunities for gathering spaces

The greenspace at the heart of campus currently does not provide opportunities for students to gather. As the campus is further developed and the greenspace expands, opportunities for better social spaces should be explored. Outdoor spaces are currently oriented around movement, and spaces need to be provided to sit, study, and have classes.

Naturalize the lake edge

The form and material of the lakes should be naturalized and planted with native plants such as bald cypress and sand cordgrass. The southern lakes should also be considered for relocation, opening up the area for future buildings.

Use landscape as a unifying element

A refreshed and well-designed landscape can help to unite the various architectural styles on the campus.

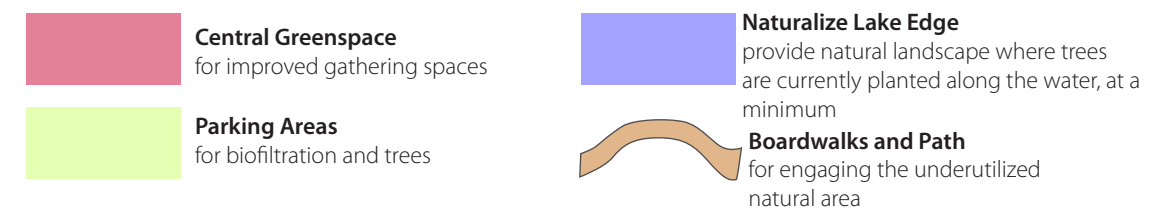
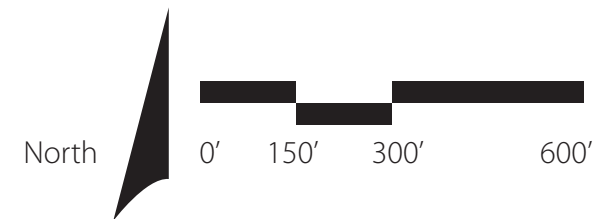
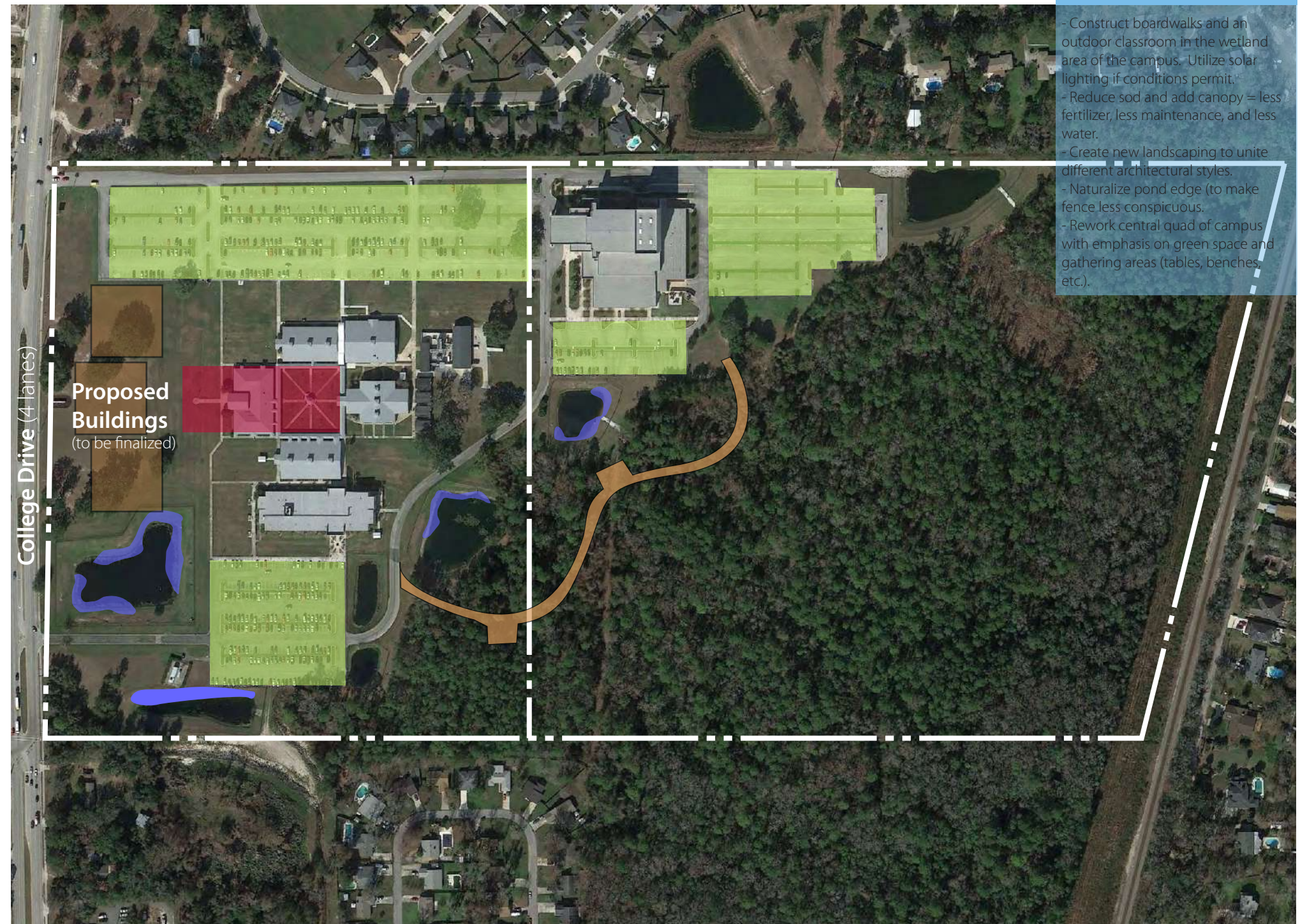
Embrace the wetland

The wetland / natural area encompassing the southeastern half of the site is not connected to the developed portion of the site. The introduction of boardwalks and pathways, and possibly an outdoor classroom space would allow the students and other users of the site to enjoy this currently inaccessible area of the property. Lighting along the boardwalk can utilize solar powered fixtures.

ADDITIONAL STEPS

Recommended Projects

- Construct boardwalks and an outdoor classroom in the wetland area of the campus. Utilize solar lighting if conditions permit.
- Reduce sod and add canopy = less fertilizer, less maintenance, and less water.
- Create new landscaping to unite different architectural styles.
- Naturalize pond edge (to make fence less conspicuous).
- Rework central quad of campus with emphasis on green space and gathering areas (tables, benches, etc.).



Case Studies

Eight other colleges and universities across Florida are participating in Tree Campus USA. Below is a brief overview of activities undertaken by each of these campuses as part of Tree Campus USA:

College of Central Florida has been recognized as a Tree Campus for the past four years. Since 2005, the college has added 1,000 trees to the campus. The college holds an annual Earth Day observance event that provides information about stormwater, aquifers, recycling, and more.

Florida Atlantic University is home to a community garden and the Robert J Huckshorn Arboretum, which is planted with native plants found in typical Florida ecosystems.

Florida Gulf Coast University planted a total of 10,650 trees in 2009. In 2012, FGCU received a \$5,000 grant from Tree Campus USA, which they used to plant 36 laurel oaks on their main library lawn. As part of their Tree Campus USA application, FGCU hired an engineering firm to create a conservation map of the campus. FGCU also holds annual events such as Earth Day celebrations, trail cleanups, and tree planting days.

Florida International University created a tree map, campus tree guide, and a palm guide as part of their tree care plan. FIU has a butterfly garden on campus and hosts multiple cleanups, tree planting, and educational events. The university has worked to preserve quality of water on campus, expand the campus canopy, and limit plantings to a native and low-maintenance palette.

Stetson University has had a native tree policy since 2002. Since 2011, students and community volunteers have planted about 600 trees on campus. This year, Stetson University set two main goals: continued development of their teaching landscape and the identification of potential tree bank sites on campus.

University of Central Florida pruned and remediated 111 young native hardwood trees and 650 young trees and shrubs installed from 2010-2011. Since 2011, UCF has removed 50 diseased trees, pruned over 400 trees and palms, and planted over 200 native trees. UCF Landscape & Natural Resources has an on-campus nursery and utilizes landscape assets inventory in order to improve grounds maintenance logistics.

University of South Florida planted over 1,300 trees in 2011. In 2012, the campus installed another 1,173 trees on campus. In the past 15 years, USF has planted 3,500 trees on campus. Funding is obtained from local suppliers, the Arbor Day Foundation, the Office of Sustainability, and a student-run fundraising campaign.

Valencia College celebrated Arbor Day 2012 with students and staff members gathering to plant 100 trees on campus. Since 2006, all new construction at Valencia College has been LEED Silver or Green Globes Level 2.

INDEPTH | Valencia College

Website Link: <http://valenciacollege.edu/sustainability/campuses/>
Sustainable and LID commitments, spearheaded by the Valencia College "Sustainability Office" include:

Buildings + Campus Infrastructure

- All new buildings to LEED Silver or Green Globes Level 2 (since 2006).
- Architecture & Engineering Guidelines focused on sustainable design.
- Landscape design focused on native plantings, natural preservation, and low maintenance.
- New "Green Campus" master plan for the east campus (AECOM).
- Butterfly gardens.
<http://thegrove.valenciacollege.edu/sustainability-office-creates-new-habitats-for-butterflies/>
- Bike trail connections in coordination with City of Orlando.
<http://thegrove.valenciacollege.edu/west-campus-works-with-city-of-orlando-to-connect-bike-trails/>

Operations

- Use of Green housekeeping products.
- Operations & Management Guidelines (best management practices)
- "Recycle Mania" competition as recycling initiative
<http://thegrove.valenciacollege.edu/valencia-wins-again-in-recyclemania-waste-minimization-competition/>
- Water-refilling stations
- Daylighting, LED bulbs, AC control
- Integrated Pest Management
- Landscape Waste Composting
- Carpool Program (with FDOT)
http://thegrove.valenciacollege.edu/save-your-green-and-be-green-with-fdot-rethink-carpool-program/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+valenciasustainability+%28The+Grove+%7C+Valencia+College+%C2%BB+Sustainability%29

Education

- Plant and Wildlife Education
- Tree Campus USA designation



TOP | Valencia College East Campus "Green Master Plan"
Image provided by Valencia College & AECOM

INDEPTH | Stetson University

Website Link: <http://www.stetson.edu/other/green/>
Stetson GREEN (Global and Regional Eco-Expertise Network)

Buildings + Campus Infrastructure

- Approximately 65% of Stetson's campus is covered by tree canopy.
QUOTE: "The City of DeLand has been a Tree City USA for 23 years, and Stetson has a long history of commitment to having a tree canopy. The university has had a native tree policy since 2002 and has about 65-percent canopy coverage. The university's students and surrounding community have been involved in campus tree-planting efforts for more than 15 years. In 2011, about 600 trees were planted on campus." from "Hug a Tree" 5/1/2012 in Stetson Today
<http://www.stetson.edu/portal/stetson-today/2012/05/hug-a-tree/>
- Only native plants are permitted to be planted on their campus.
<http://www.stetson.edu/other/native-plants/>

Education

- Rinker Environmental Learning Center (LEED Gold)
<http://www.bizjournals.com/orlando/stories/2009/04/20/daily9.html>
- Volusia Sandhill Teaching Landscape (south lawn of Rinker Environ. Center)
<http://www.stetson.edu/other/gillespie-museum/sandhill.php>
- Campus Community Garden & Farmers Market
<http://stetson.orgsync.com/org/hatterharvest/home>



TOP | A Stetson University student plants a turkey oak in front of the LEED Gold-certified Rinker Environmental Learning Center
Image provided by Stetson University

Tree Campus USA Conceptual Recommendations



1 Develop landscape to define SJR State as a cohesive entity, while celebrating the unique natural environment of each campus.

Specifically, the Eastern Pine Flatwoods should be reflected throughout each campus in both preserved pine stands as well as newly planted pines. As pine trees can be messy, it is recommended that appropriate understory plantings, such as saw palmetto, be utilized as an area to absorb pine cones, needles, and sap.

RIGHT & BELOW | Stormwater "creek" along Southwest Recreation Center at the University of Florida. *Images by others.*



2 Palatka Campus: Interpret the watershed + expanded greenspace

Palatka's campus should celebrate the natural wetland that once ran through the center of the site. Landscape and hardscape can both interpret this feature. This can become a natural organizational element, providing an iconic greenspace in the heart of the campus.



3 St. Augustine Campus: Maintain focus on lakes + add more natural landscape

The St. Augustine campus is focused on the chain of lakes throughout the site, and this focus should be maintained. However, the sod currently running along the lakes provides a direct pathway for excessive nutrients from fertilizers and grass clippings to enter the waterways. It is recommended that the lake edges be naturalized, providing a buffer between sod and waterline.



4 Orange Park Campus: Embrace the wetland + add tree cover

The Orange Park campus should engage the natural area and bring elements of that natural area back into the developed portion of the site through additional canopy, naturalizing of the lake edges and reduction of sod areas.

INDEPTH | Additional Conceptual Recommendations

1 Buildings + Campus Infrastructure

- Overall landscape master plan (Step 2 and 3, noted on page 1)
- Campus tree inventory/assessment
- Minimum standards for planting
- Native and Florida Friendly initiative
- Stormwater filtration systems & information

2 Operations

- Integrated Maintenance Program: (reduction in fertilizer and pesticide use; allow natural areas to become natural)
- Structural pruning & integrated maintenance plan
- Irrigation management plan
- Invasive & exotic plant management program

3 Education

- Annual tree planting events (Earth Day, Arbor Day, Tree Campus USA designation celebration)
- Landscape as an educational tool (community gardens, campus tree/plant guides, daylighting, ecosystem information booklets, information on water quality improvement tactics)



Images by others.

Landscape Designations & Landscape Character

INDEPTH | Landscape Typologies

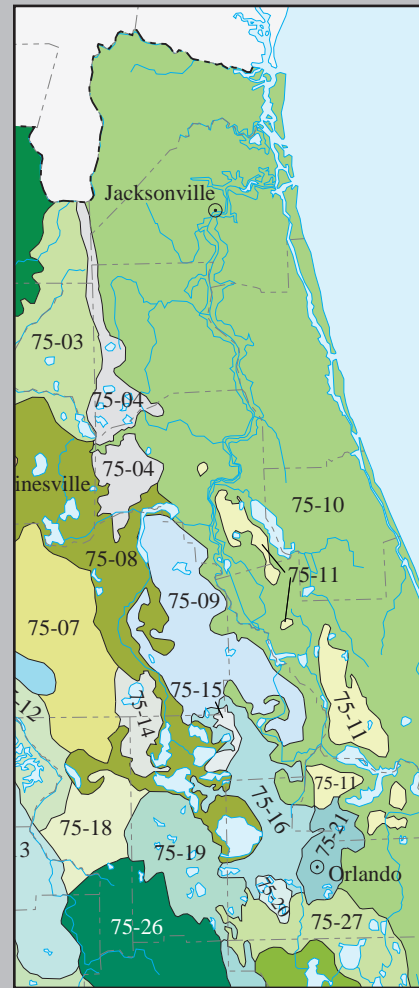
The three SJR State campuses span two landscape “ecoregions”, both of which are classified by the EPA and Florida Department of Environmental Protection as “Southern Coastal Plain” (see page 1 for more information).

Orange Park, the northernmost campus, is in the 75f “Sea Island Flatwoods”, while the other two are in 75d “East Florida Flatwoods.” All three campuses demonstrate landscape reflective of the pine flatwoods. Typically defined by tall pines, sporadic hardwoods / wetlands, and understory shrubs such as saw palmetto and wax myrtle.

As with other areas of Florida, water is also a defining characteristic of the landscape. According to the EPA and FDEP, the northeast corner of Florida, encompassing all three campuses, is designated as “Eastern Flatlands.” The St. Johns River and lakes are major components of the landscape.

RIGHT | Lake regions of Florida, showing the “Eastern Flatlands” of the St. Johns River basin.

Image provided by the United States Environmental Protection Agency (EPA).



“Due to landform variety and latitudinal extent, the Eastern Flatlands forms a diverse lake region. It is ribbed by low sand ridges, intervening valleys, and swampy lowlands that parallel the coast.

The St. Johns River and its associated large lakes are the dominant physical features of the area. There are a mix of different lake types in the region. The St. Johns River lakes tend to be alkaline, hardwater, eutrophic, colored lakes. To the south, the upper St. Johns marsh lakes are also alkaline, mesotrophic to eutrophic, darkwater lakes, but the chemical concentrations are somewhat lower than in the north.

Flatwoods lakes in the region are acid to slightly acid, colored, softwater lakes of moderate mineral content, with variable trophic states. Coastal ridge lakes and dredged “build” ponds are found along the more populated seaboard area.”

from “Lake Regions of Florida,” principal authors Glenn Griffith (US EPA), Daniel Canfield, Jr. (University of Florida), Christine Horsburgh (University of Florida), James Omernik (US EPA), Sandra Azevedo (OAO Corp.)

Primary Trees



Longleaf Pine (*Pinus palustris*) **PL SA OP**

TREE CHARACTERISTICS

Height: 60-120'
Spread: 30-50'
Excellent in drier sites.
More resistant to pine beetles.
Once covered 90 million areas of the Southern Coastal Plain (Gil Nelson, 2003).
Due to higher sap flows, they are more resistant than Loblolly Pine to pine beetles.



Loblolly Pine (*Pinus taeda*) **SA OP**

TREE CHARACTERISTICS

Height: 60-100'
Spread: 30-60'
Provides high level, denser shade.
Often times found with slash pines.
May develop fusiform rust, and pine beetles are known pests. Do not use in Palatka, as evidence of pine beetles has been noted.



Slash Pine (*Pinus elliotii*) **PL SA OP**

TREE CHARACTERISTICS

Height: 60-100'
Spread: 20-60'
Can be used in moderately wet sites.
May develop fusiform rust, and pine beetles are known pests. However, due to higher sap flows, they are more resistant than Loblolly Pine.

Secondary Trees | Shade



Live Oak (*Quercus virginiana*) **PL SA OP**

TREE CHARACTERISTICS

Height: 40-80'
Spread: 60-130'
Long living oaks, which can compartmentalize damage.
Salt tolerant.
A much better selection than Laurel Oak.



Red Maple (*Acer rubrum*) **PL SA OP**



Fall Color

TREE CHARACTERISTICS

Height: 30-70'
Spread: 20-40'
Fall color, from soft yellow to deep red (shown left).
Fairly fast growth habit.
Prefers wet soil, but can do well in drier conditions.



Cypress (*Taxodium distichum*) **PL SA**



TREE CHARACTERISTICS

Height: 50-80'
Spread: 20-30'
Fall color, with bright green spring growth.
Thrive in wet soils.
Fast growth for first 10 years, long lived.

Landscape Character Key

- PL** For use at Palatka campus.
- SA** For use at St. Augustine campus.
- OP** For use at Orange Park campus.

Native to Florida.
These plants are endemic to Florida.

Florida Friendly
These plant, while not originally from Florida, are non invasive and well acclimated to the Florida climate.

Images by others

Landscape Designations & Landscape Character

Secondary Trees | Flowering



Tulip Poplar
(*Liriodendron tulipifera*)

TREE CHARACTERISTICS Related to magnolias, this tree is not a poplar.
Height: 60-100'
Spread: 35-50'



Magnolia
(*Magnolia grandiflora*)

TREE CHARACTERISTICS Large flowers.
Height: 30-100'
Spread: 20-50'
Available in full-to-the-ground varieties, these can provide great buffer. The leaves are slow to decompose.



Dogwood
(*Cornus florida* 'Weaver White')

TREE CHARACTERISTICS Striking spring flowers and maroon autumn color. Best color when grown in morning sun. Must be planted in well-draining soil.
Height: 20-35'
Spread: 25-30'



Chickasaw Plum
(*Prunus angustifolia*)

TREE CHARACTERISTICS Available as a single stem or multi-trunked tree. Grows well in a wide range of sun exposure.
Height: 12-20'
Spread: 15-20'



Southern Crab Apple
(*Malus angustifolia*)

TREE CHARACTERISTICS Performs best in moist, well drained soil in a sunny area with good air circulation.
Height: 15-30'
Spread: 15-30'



Redbud
(*Cercis canadensis*)

TREE CHARACTERISTICS Small profuse flowers borne on old wood. Heart shaped leaves. Prefers well-drained soil in full sun to shade.
Height: 15-30'
Spread: 10-25'



Shrubs, Grasses, and Groundcovers



Wax Myrtle
(*Myrica cerifera*)



Saw Palmetto
(*Serenoa repens*)



Indian Hawthorne
(*Rhaphiolepis indica*)



Knock-Out Rose
(*Rosa* 'Knock Out')



Yaupon Holly
(*Ilex vomitoria*)



Fire Bush
(*Hamelia patens*)



Perennial Peanut
(*Arachis glabrata*)



Dune Sunflower
(*Helianthus debilis*)



Sand Cordgrass
(*Spartina bakeri*)



Fakahatchee Grass
(*Tripsacum dactyloides*)



Zoysia
(*Zoysia, spp.*)



Seashore Paspalum
(*Paspalum vaginatum*)



Shore Juniper
(*Juniperus conferta*)



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Low Impact Development (LID) Opportunities

All three campuses should incorporate “Low Impact Development” stormwater management techniques, which are designed to be both environmentally friendly and cost effective on an initial and life-cycle basis.

“LID is an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product.”
From United States Environmental Protection Agency (EPA)

According to researchers at the University of Texas, LID techniques such as bioswales and pervious pavement were the most effective in lowering the peak flow, runoff volume, and urbanized impacts for small storms (Rose & Hodges, 2010).

Additional Certification Programs

The landscape master plan should seek to satisfy criteria for a wide spectrum of green certification programs. Three examples include:



National Wildlife Federation “Certified Wildlife Habitat”
LINK: <http://www.nwf.org/How-to-Help/Garden-for-Wildlife/Certify-Your-Wildlife-Garden.aspx>
Three areas must be satisfied: (1) food sources (3 minimum), (2) water sources (1 minimum), and (3) cover and places to raise young (3 minimum). The College can likely apply for this certification today, but it is suggested that the College continue its leadership by doubling the minimum requirements for the three sources.

UF / IFAS “Florida Friendly Yard”

LINK: <http://fyn.ifas.ufl.edu/>

Areas of concern include (1) water efficiency, (2) mulch, (3) recycling, (4) wildlife, (5) Right Plant Right Place, (6) fertilizing, (7) stormwater runoff, and (8) yard care. This is a free certification. The Health Sciences Building at the St. Augustine campus has previously achieved this certification.

Florida Water Star Certification

LINK: <http://www.sjrwmd.com/floridawaterstar/technicalmanual/>

Provided through the St. Johns River Water Management District, this stringent program could be explored for the landscape and irrigation components of the three campuses. Florida-Friendly landscaping and low volume irrigation are central to this program.



Bioswales

Stormwater should be diverted from parking lots and athletic fields into low bioretention swales, which are planted with trees and shrubs tolerant of both “wet feet” and dry conditions. Locations such as the Florida Aquarium in Tampa have shown **decreased surface runoff and increased removal of particulates** from their bioswales. Bioswales are also currently incorporated at St. Augustine’s Health Sciences building.



Pervious Pavement

Pervious pavement helps to **capture rainwater directly in the parking and paved areas** where it lands. Small gaps between pavers are filled with gravel fines, providing a route for water to travel. In 2012, the city of Palmetto, Florida, won an award for using pervious pavers to help control the quantity of untreated stormwater entering the Manatee River from Sutton Park. (<http://pathwaycafe.com/2013/06/28/palmetto-florida-adds-permeable-paver-sidewalk-maintains-classic-identity/>)



Reduction in Sod & Increased Native Plantings

All three campuses have extensive sod, which results in large amounts of fertilizer, pesticides, carbon emissions from lawn equipment, and labor costs. In fact, **sod is one of the most expensive landscape options over its life cycle**. Long term beauty can be added to the campuses, along with a reduction in the costs and chemicals, by increasing native planting areas and reducing sod.

Increased Tree Canopies

At its core, Tree Campus USA is about trees. The addition of trees to parking lots, central gathering spaces, and along roadways provides cooling to the campus and habitat for wildlife, among other benefits. One of the main benefits may be the aesthetic impact of trees on the college experience. From Toomer’s Corner at Auburn University to Harvard Yard, **trees become as integral to the campus at the buildings**.

To ensure a sense of place, native trees are recommended whenever possible for the tree plantings.



Incorporate LID in Future for Cost Savings

Ultimately, cost is an important factor in the master planning process. Below are a series of project examples demonstrating that a 15-80% capital savings can be seen with LID (source: US EPA).

Table 1. Cost Comparisons Between Conventional and LID Approaches

Project*	Conventional Development Cost	LID Cost	Cost Difference*	Percent Difference*
2 nd Avenue SEA Street	\$868,803	\$651,548	\$217,255	25%
Auburn Hills	\$2,360,385	\$1,598,989	\$761,396	32%
Bellingham City Hall	\$27,600	\$5,600	\$22,000	80%
Bellingham Bloedel Donovan Park	\$52,800	\$12,800	\$40,000	76%
Gap Creek	\$4,620,600	\$3,942,100	\$678,500	15%
Garden Valley	\$324,400	\$260,700	\$63,700	20%
Kensington Estates	\$765,700	\$1,502,900	-\$737,200	-96%
Laurel Springs	\$1,654,021	\$1,149,552	\$504,469	30%
Mill Creek [†]	\$12,510	\$9,099	\$3,411	27%
Prairie Glen	\$1,004,848	\$599,536	\$405,312	40%
Somerset	\$2,456,843	\$1,671,461	\$785,382	32%
Tellabs Corporate Campus	\$3,162,160	\$2,700,650	\$461,510	15%

ABOVE | LID leads to cost savings, even for capital costs, by eliminating stormwater pipe, pond size, and wetland impact costs.

From factsheet on LID from the United States Environmental Protection Agency (EPA), December 2007.