

The background of the slide is a photograph of a swampy forest. It shows tall, thin trees with dense foliage, their reflections visible in the calm, still water of a pond or swamp. The scene is serene and natural.

Stormwater Parks: New Use of an Old Concept

Brett Cunningham
Director of Water Resources
Jones Edmunds

Outline

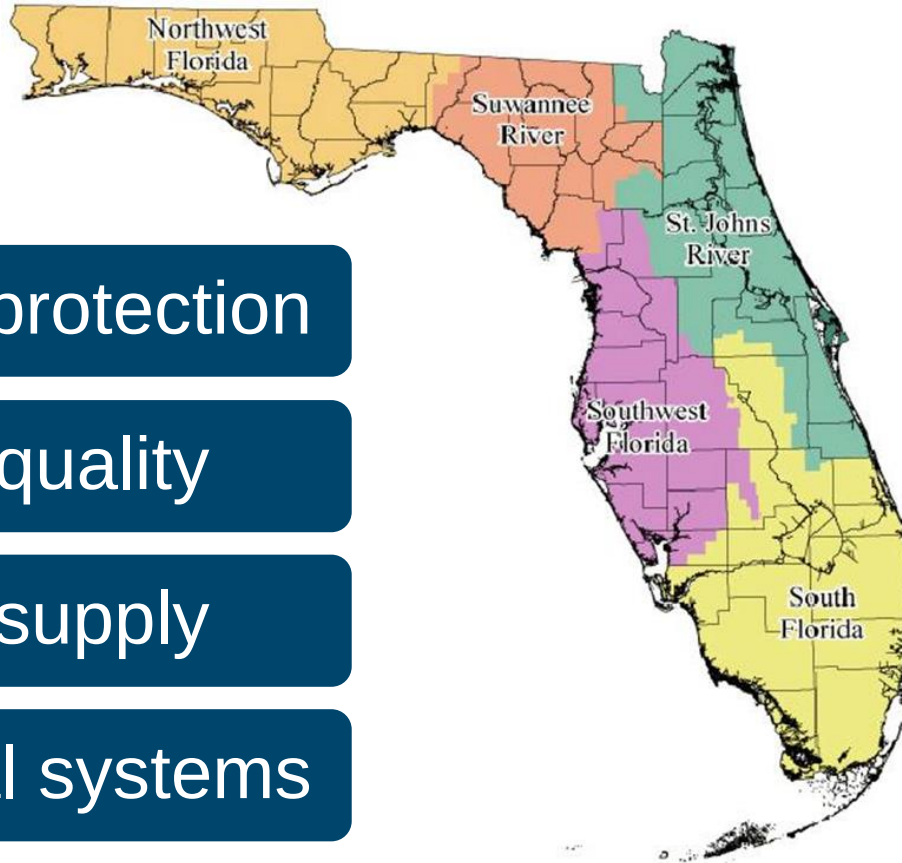
Objectives of
stormwater parks

Evolution of the
stormwater park
concept

Examples



Park Objectives



Flood protection

Water quality

Water supply

Natural systems

Parks and
recreation

Public education

Fill material

Urban
redevelopment and
infill

...

Achieve multiple objectives

Return on investment

Matching funding ties to multiple objectives

Greater specificity in water quality constituents

Increased use of treatment trains

Incorporation of green infrastructure / low-impact development techniques

Background

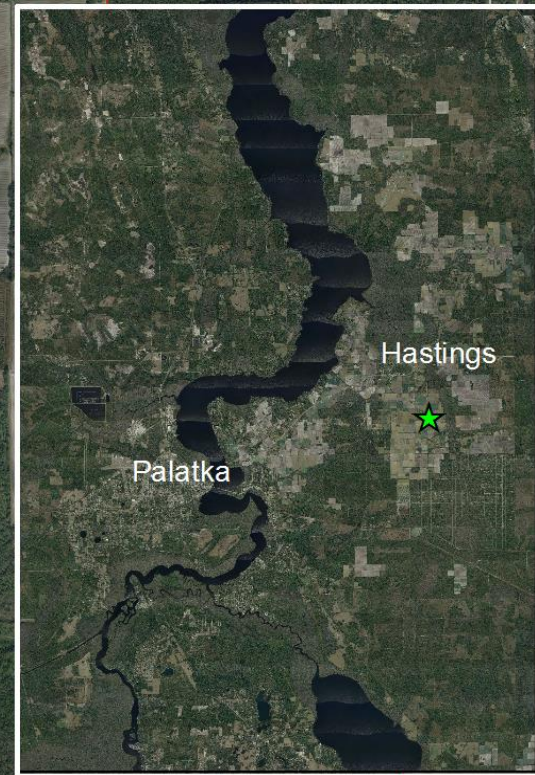
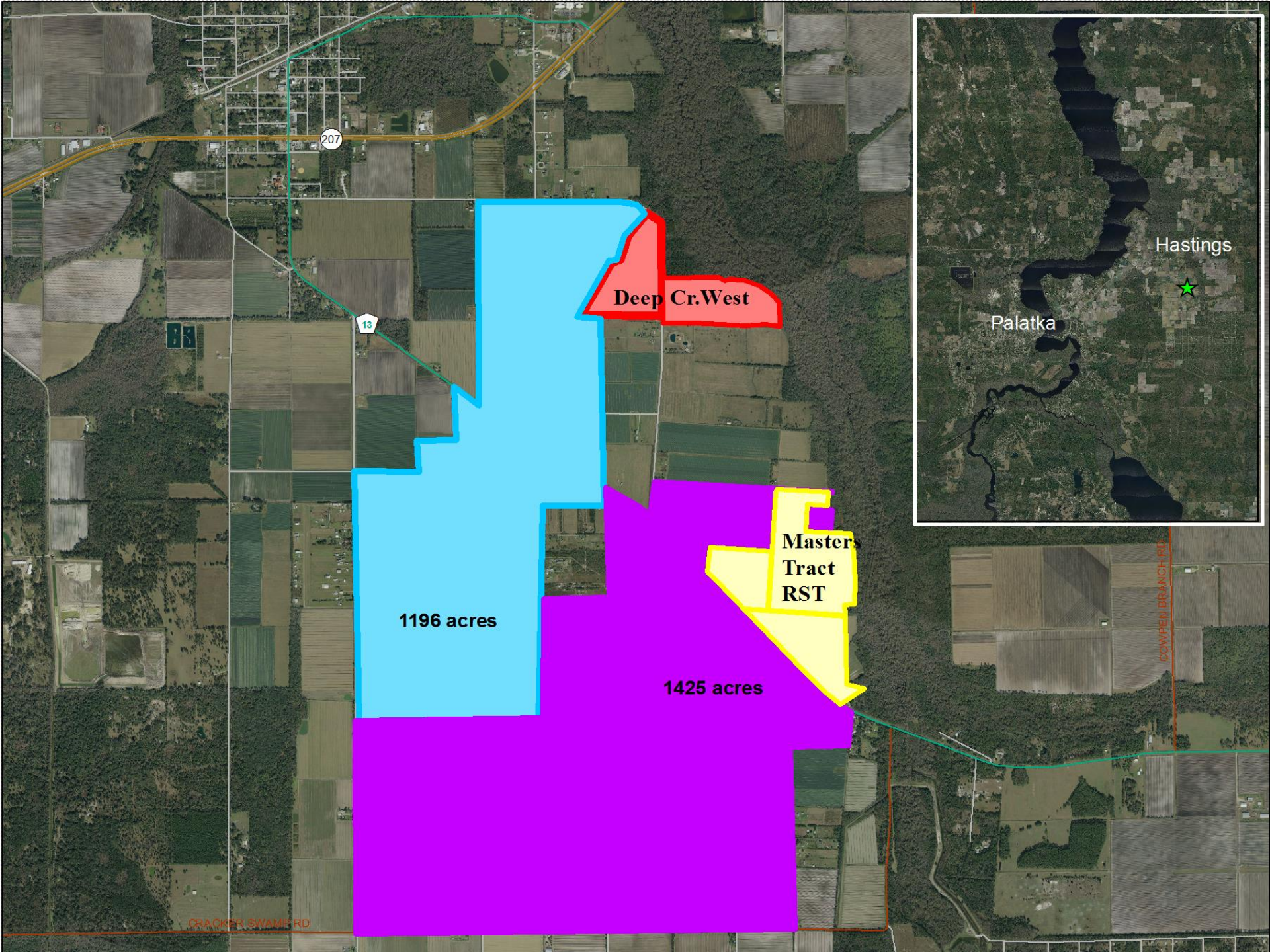
Tri-County Agricultural Area

St. Johns County MS4

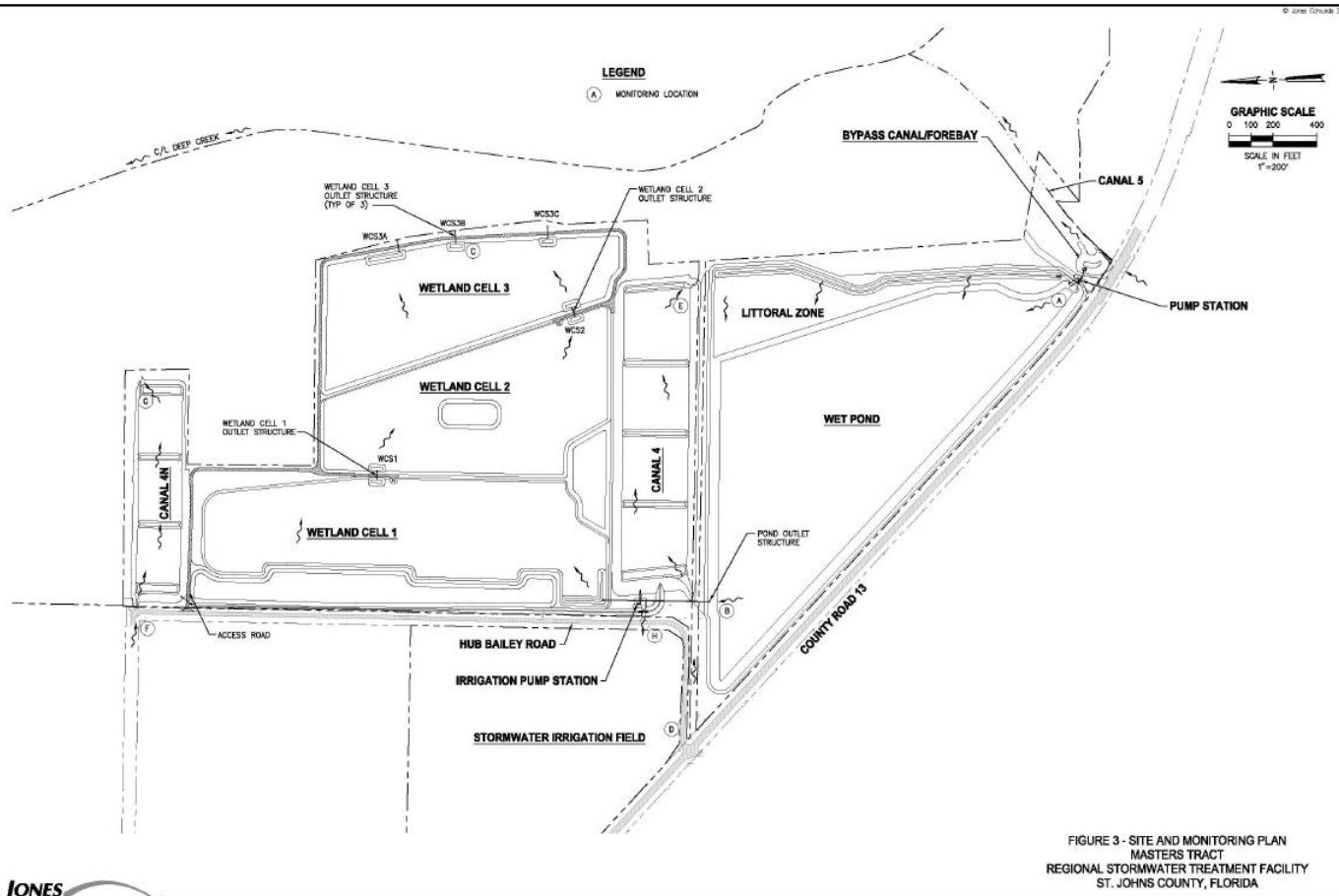
Lower St. Johns River BMAP

- 100% in-field BMPs
- 37% TN reduction
- 15% TP reduction





Master's Tract



Treatment
Train

Wet detention

Stormwater
harvesting

Treatment wetland

Wetland flow-way

Master's Tract

Multiple objectives:

- 5,225 lbs/yr TN
- 2,624 lbs/yr TP
- Alternative water supply
- Wetland mitigation credits
- “Dirt partner”

Awarded Bid: \$ 3,668,224

**SJRWMD contribution:
\$2,600,000**

EPA/FDEP 319 Grant: \$791,000



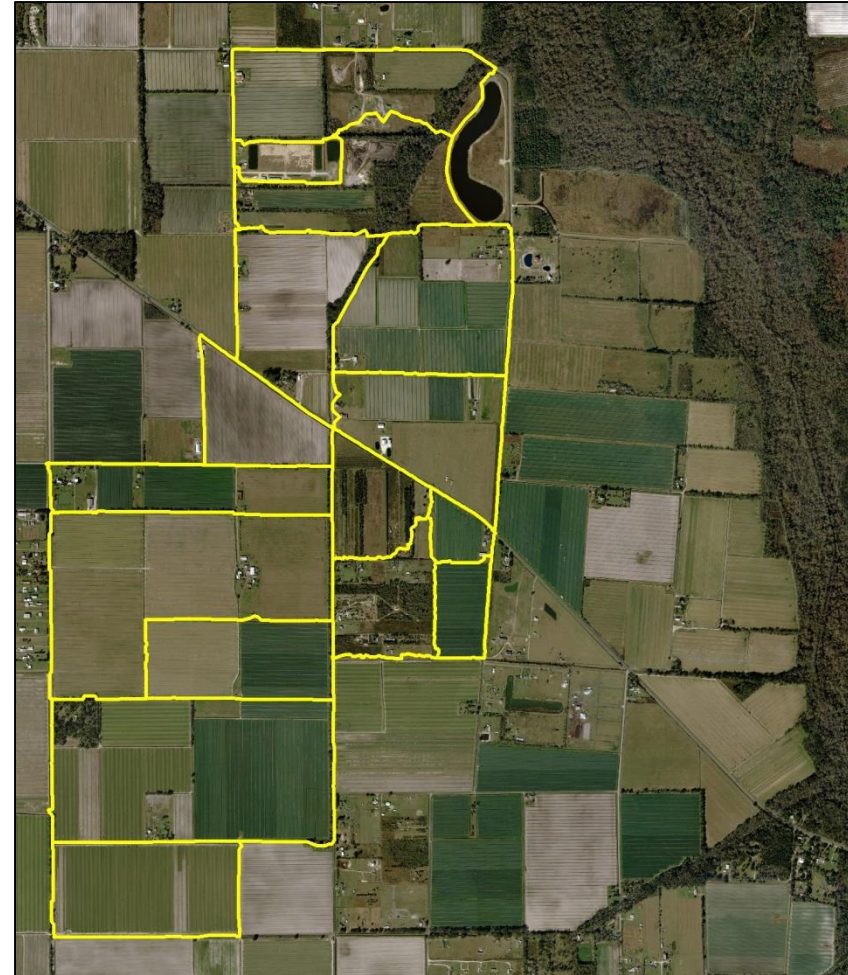
Deep Creek West Background



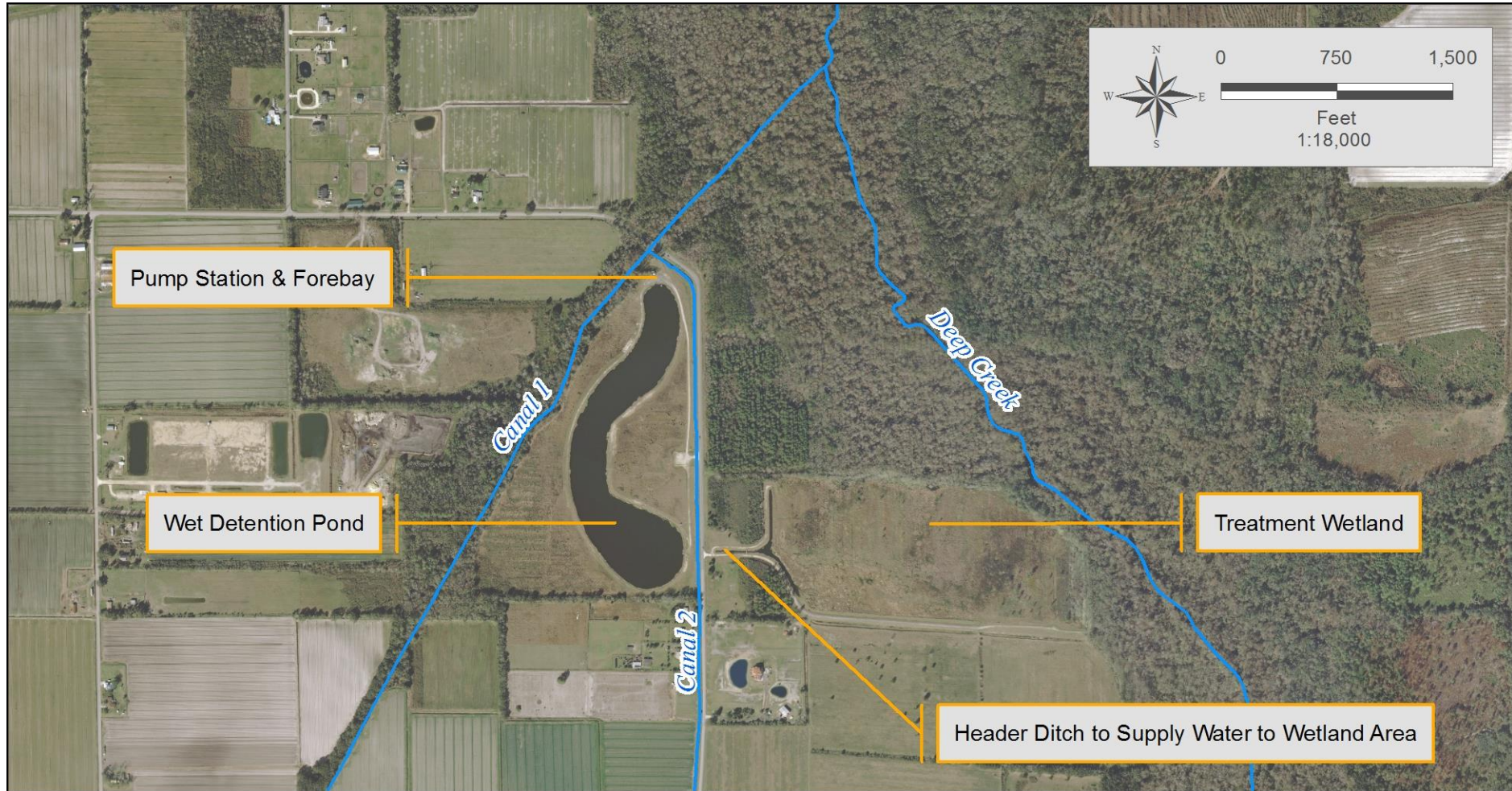
Serves ~1,200
acres

Owned by
SJRWMD

Operation and
maintenance by St.
Johns County for
BMAP credits



Background



Deep Creek West



Overall System Performance								
	Total Nitrogen				Total Phosphorus			
Year	TN Inflow (kg)	TN Outflow (kg)	TN Retained (kg)	Reduction TN (%)	TP Inflow (kg)	TP Outflow (kg)	TP Retained (kg)	Reduction TP (%)
2009	6,415	3,256	3,159	49%	3,650	2,353	1,297	36%
2010	5,477	2,435	3,042	56%	2,242	873	1,369	61%
2011	5,296	2,618	2,679	51%	2,227	851	1,376	62%
Average	5,729	2,769	2,960	52%	2,706	1,359	1,347	53%

Average 52% TN reduction

Average 53% TP reduction

Most of treatment occurring in pond

Treatment in pond and wetland affected by residence time

Wetland is a phosphorus source

Optimization

Forebay
expansion

Pump station
reconfiguration

Pond expansion

Wetland spreader
adjustments



Improved efficiency

- More efficient pump operations
- Increased pump station life
- Improved wetland performance

Cost-effective nutrient reduction

- More than double the reductions
- **More cost-effective than a new project**



Sweetwater Branch Historical Impacts



- Urbanization of Gainesville
 - Stormwater runoff
 - WW Effluent
 - Erosion and sedimentation
 - Alachua Sink TMDL
- Channeled directly to Alachua Sink
 - 1,300 acres of wetlands impacted.
 - Direct flow path from Gainesville to Alachua Sink
- Portion of Prairie Creek flow diverted away from Paynes Prairie

2012 Recreational Trails Program Grant Application

Proposed Park Improvements This Application

-  Berm Trails
-  Boardwalk
-  Viewpoints/Overlooks

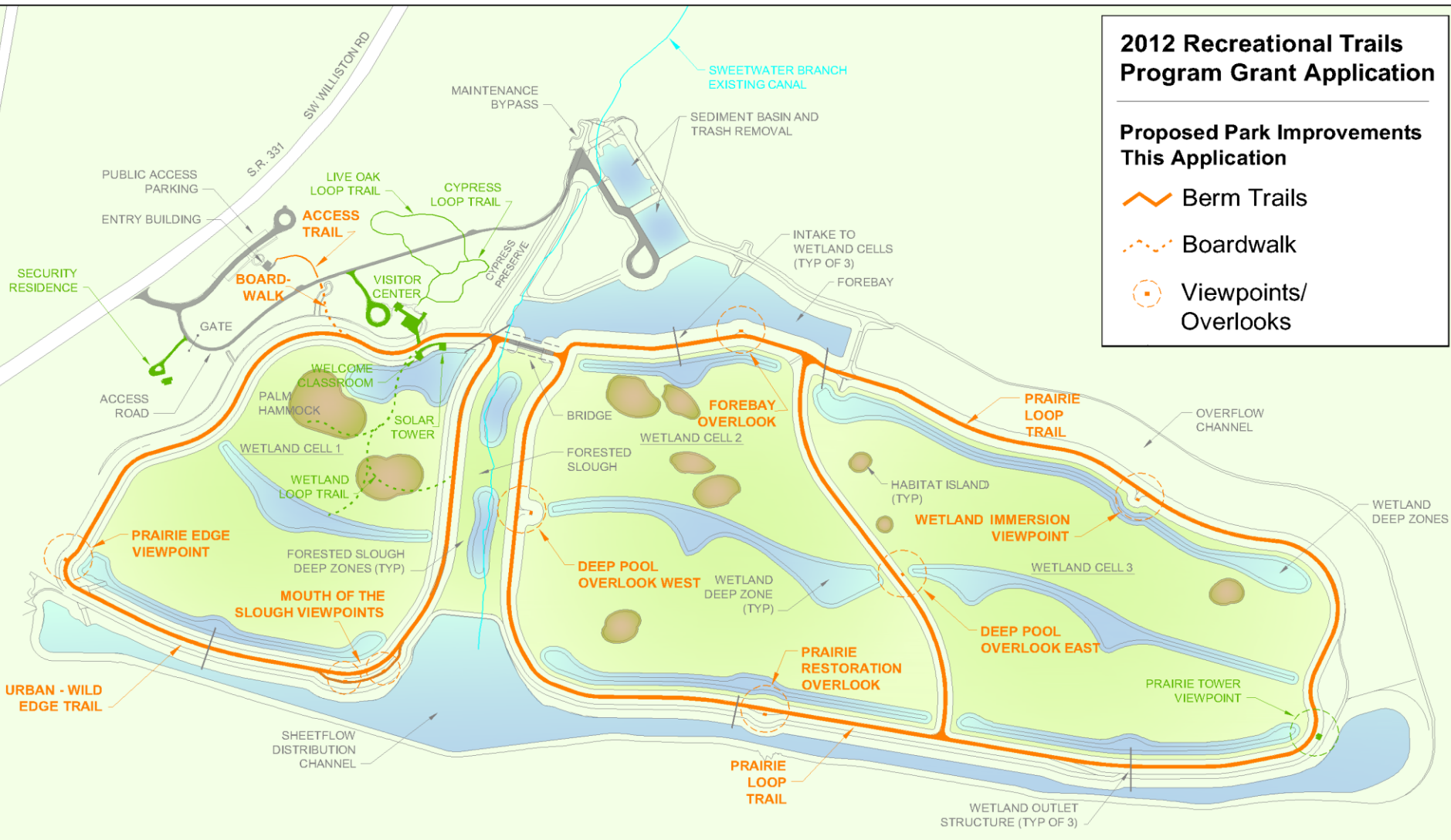


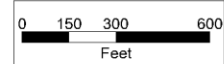
Exhibit E: Conceptual Site Plan Paynes Prairie Restoration

Concurrent Construction

- | | |
|--|--|
|  Access Road |  Sheetflow Distribution Channel |
|  Entry Building |  Wetland Cells 1, 2, & 3 |
|  Sediment & Trash Removal |  Forebay |
|  Bridge |  Forested Slough |
|  Shallow Water |  Habitat Island |
|  Deep Water | |

Future Park Improvements

-  Nature Trails
-  Boardwalk
-  Visitor Center Complex
-  Solar Viewing Tower
-  Security Residence
-  Additional Viewpoints



Multiple Benefits

Water Quality Benefits

- Exceeds total N TMDL
- Achieves background total N and P on Prairie
- Removes suspended sediment loads from Prairie

Hydrologic Restoration Benefits

- Restores Sweetwater Branch sheetflow to about 1,300 acres
- Reduces current water deficit on Prairie



Multiple Benefits (cont.)

Wetlands Restoration

- Removes 2 miles of Sweetwater Branch Canal, restores pre-existing grade,

Wetlands Creation

- Creates 125 acres of high-value emergent marsh and aquatic habitat in formerly impacted areas



Park Facilities



Future Park Facilities

- Solar Tower
- Visitor Center



Public Education

GRU

100 YEARS OF SERVICE | 1912-2012

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Paynes Prairie Sheetflow Restoration

Water is too precious to use only once.

GRU is working with the City Works Department on an improve water quality in the Preserve State Park. Our pr Florida Department of Enviro St. Johns River Water Mana Florida Department of Transj County.

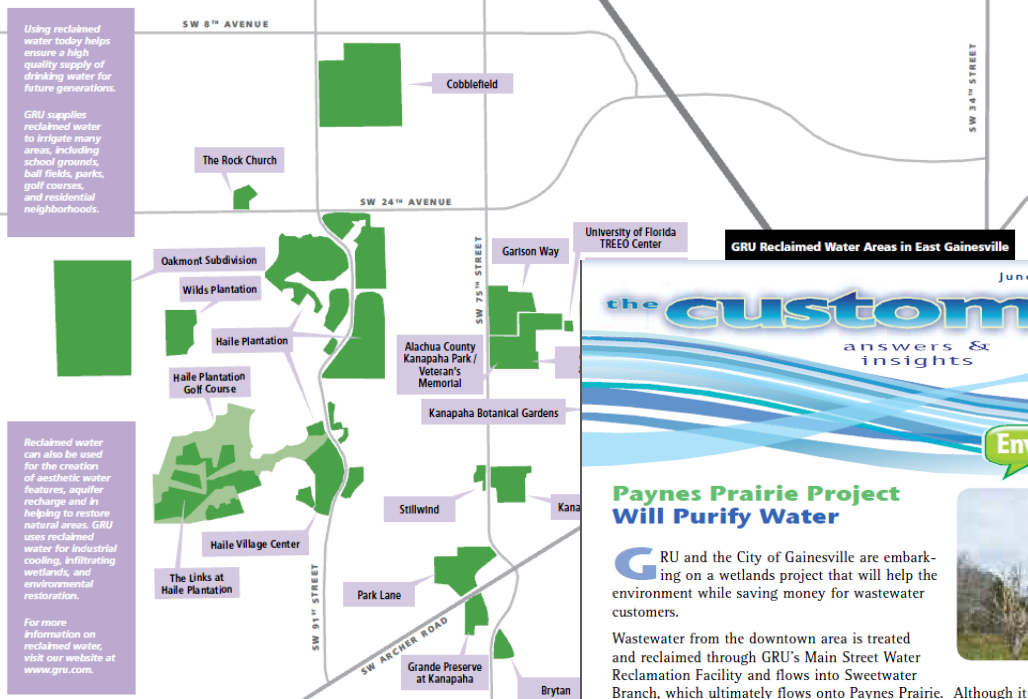
The project includes improve Street Water Reclamation F wetland. These upgrades wil Sweetwater Branch onto Pa outstanding habitat for wildlif Construction on the project i

[Video: Paynes Prairie Sheet](#)

[Learn more about the projec](#)

Water is too precious to use

GRU RECLAIMED WATER SITES



Using reclaimed water today helps ensure a high quality supply of drinking water for future generations.

GRU supplies reclaimed water to irrigate many areas, including school grounds, ball fields, parks, golf courses, and residential neighborhoods.

Reclaimed water can also be used for the creation of aesthetic water features, aquifer recharge and in helping to restore natural areas. GRU uses reclaimed water for industrial cooling, infiltrating wetlands, and environmental restoration.

For more information on reclaimed water, visit our website at www.gru.com.

GRU Reclaimed Water Areas in East Gainesville



Paynes Prairie Project Will Purify Water

GRU and the City of Gainesville are embarking on a wetlands project that will help the environment while saving money for wastewater customers.

Wastewater from the downtown area is treated and reclaimed through GRU's Main Street Water Reclamation Facility and flows into Sweetwater Branch, which ultimately flows onto Paynes Prairie. Although it is treated to safe irrigation standards, the reclaimed water still contains nitrate levels that are higher than the natural levels in Paynes Prairie.

The Paynes Prairie Sheetflow Restoration Project provides a solution by constructing a wetland where naturally occurring plants and bacteria will transform nitrate into harmless nitrogen gas, the main component of air. Water leaving the wetland will support the growth of healthy native plants. Construction will begin in early 2012.

"In addition to the environmental benefits, this wetlands project will be less expensive to construct and operate than other water treatment systems, providing savings for customers," said Alice Rankellor, GRU project manager.



Convenience

Outage Information Now on Twitter

GRU has launched a Twitter account to help keep customers informed when severe weather hits our area. Follow GRU on Twitter @GRUstormCentral to receive timely updates and helpful tips.



GRU will tweet about utility outages, restoration efforts and safety information before, during and after the storm. Customers should continue to call 352-334-2871 to report power outages to ensure they are properly logged into the system.

Tips

Seal In Summer Savings

Cracks around doors, windows and pipes can allow cooled air to escape from homes.

Project Partners

- FDEP
- SJRWMD
- FDEP
- US EPA
- Alachua County
- FFWCC



Questions

