



ELAs in Florida DOT

Statewide Drainage Team

June 2016

Cooperative Agency Research

- FDOT, FDEP & UCF Stormwater Academy
- FDOT, Suwannee River Water Management District & UCF Stormwater Academy

FDOT Research: Bio Activated Media (BAM)

- *Another Tool in the Toolbox*
- Use in impaired springsheds



BAM Retrofit Project

Phase 1 - Site Selection

- Silver Springs Springshed, State Road 35
- Site Screening:
 - Priority 1: Water Quality & Accessibility
 - Priority 2: Distance to Springs & Basin Size
 - Priority 3: Contributing Area, Land Use, GW depth & Soil Permeability

Selected Sites



State Road 35 – Pond 9B



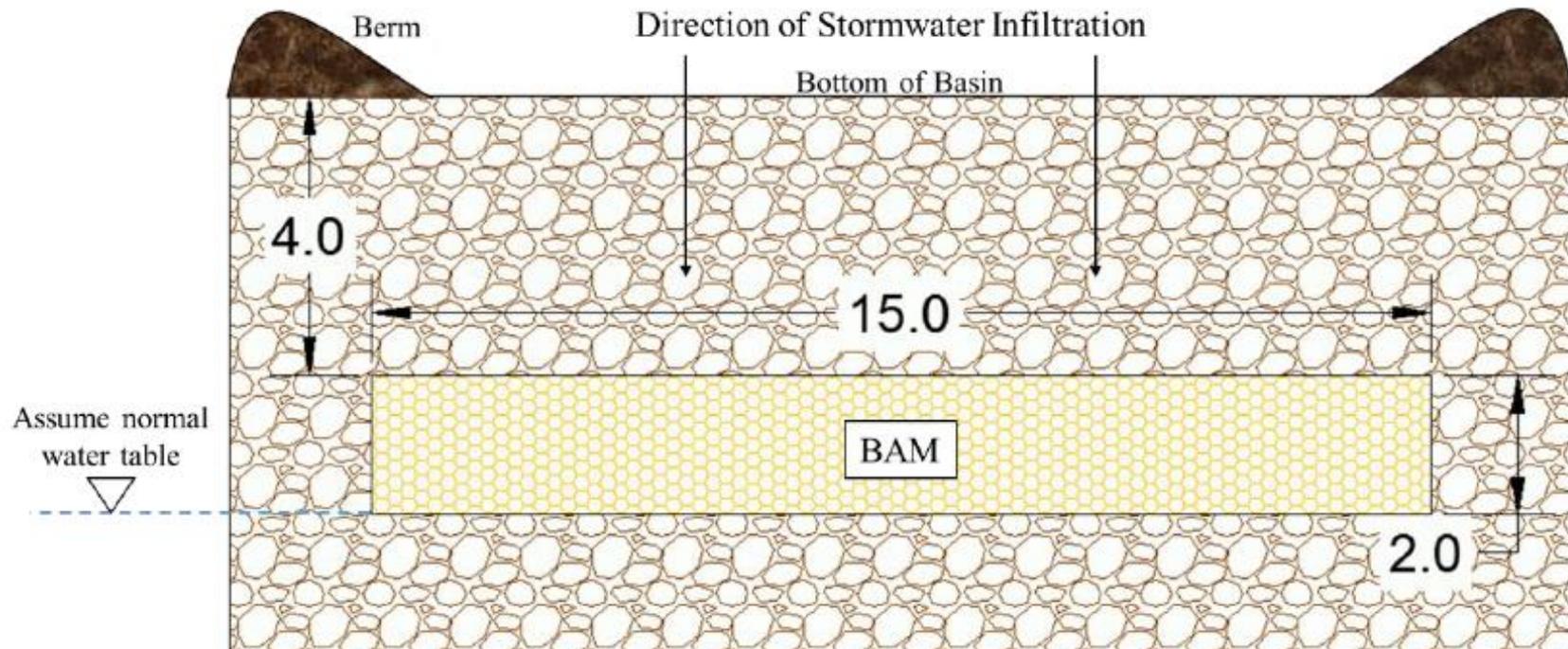
State Road 35 – Pond 2

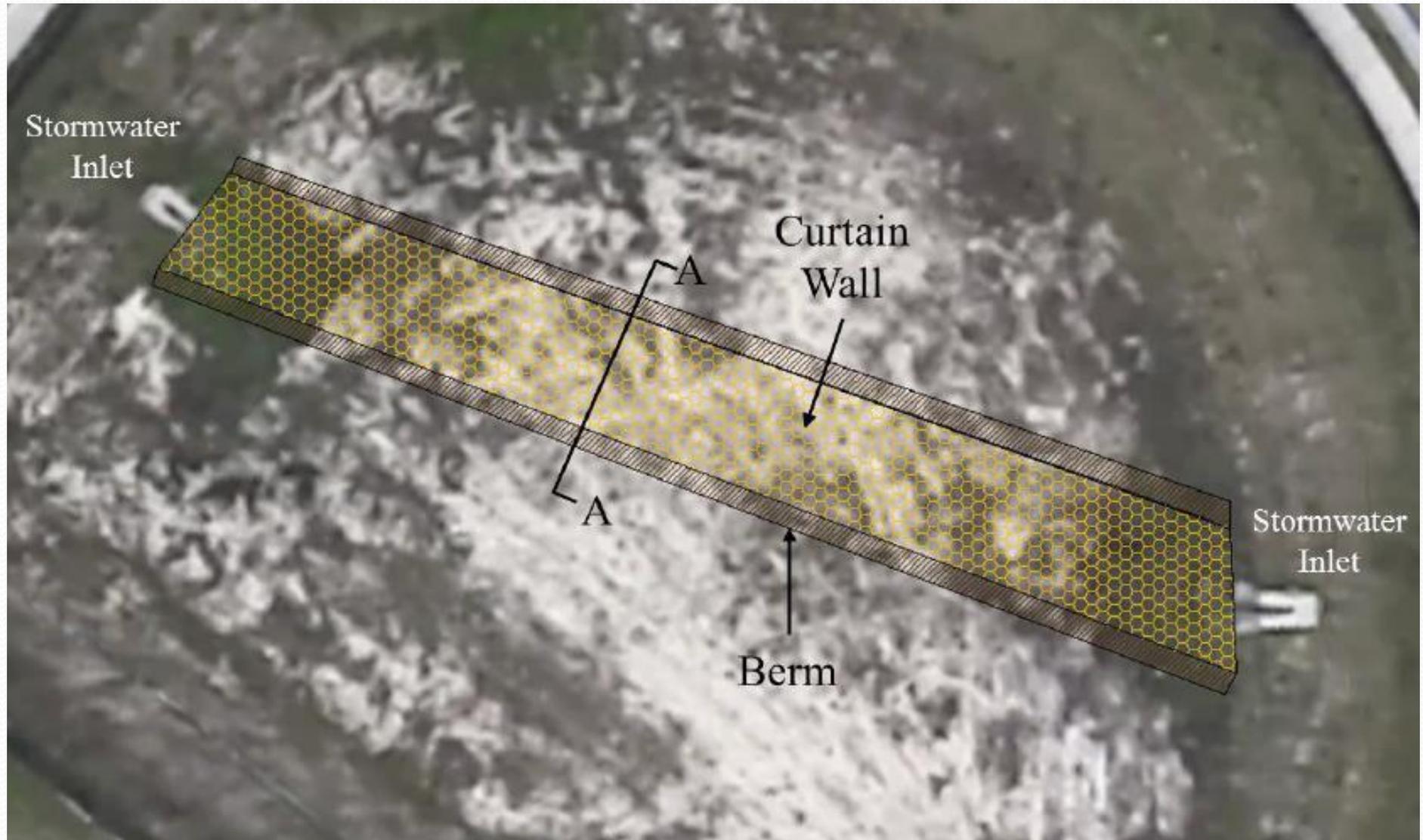
Site Investigation

- Soil samples
- Ground Penetrating Radar – karst features, anomalies
- Groundwater Borings / Monitoring Wells
- Double Ring Infiltrometer Tests

BAM based BMPs

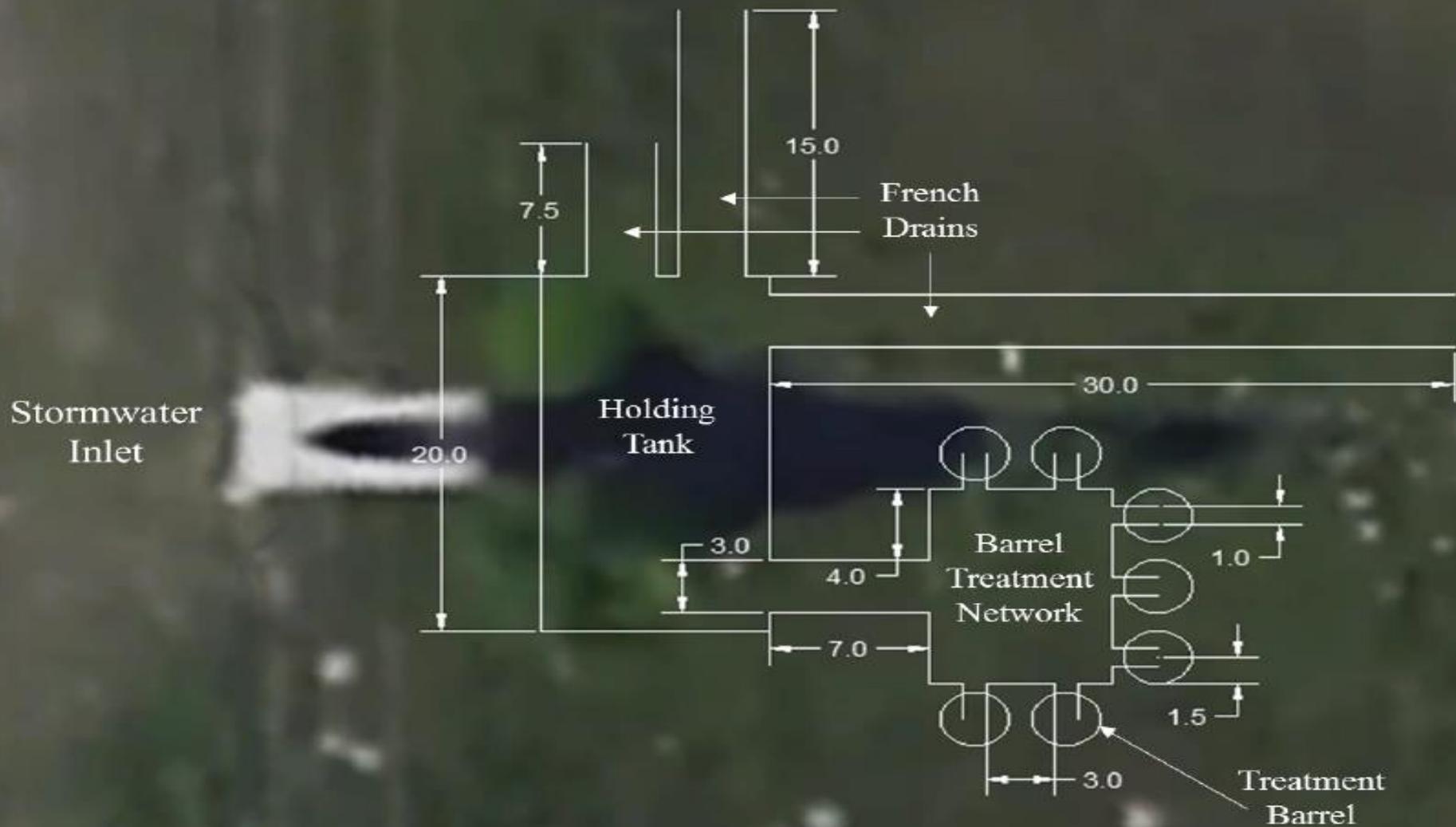
- Curtain Walls
- Horizontal layer of soil amendment





BAM-based BMPs

- Pipe Based Systems
 - French Drain System (horizontal)
 - Infiltration Barrels (vertical)



Schedule

- Phase 1 : Complete
- Phase 2:
 - BAM BMP Installation
 - Sampling Plan Implementation
- Project Schedule August 2016 - 1year?

Today's Expectations

- Better Awareness of the Watershed Characteristics
- More Aggressive Thinking
- Avoid “Going Through The Motions”!!!

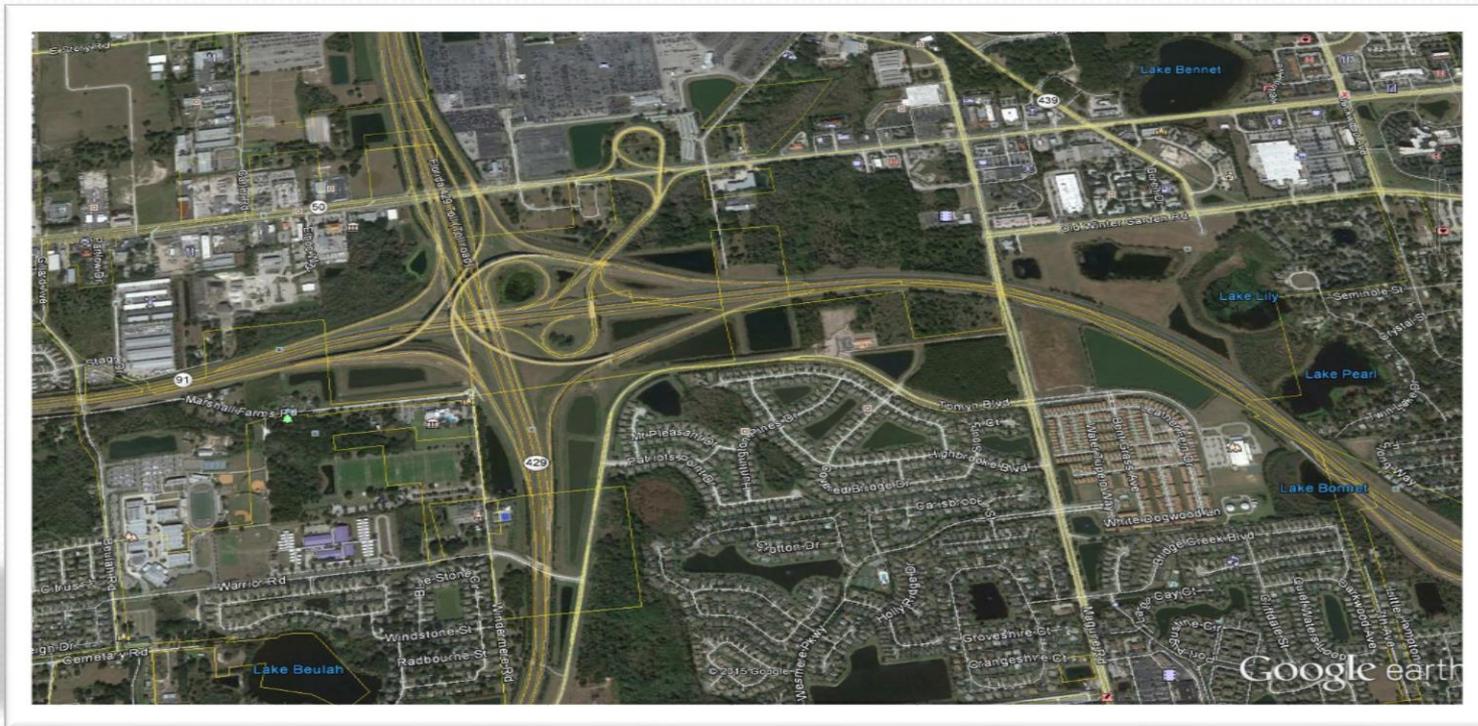
Traditional Design Approach

- Standard Pond Design



Traditional Design Approach

Multiple “Stand-Alone” Ponds
Turnpike and S.R. 429 Interchange



Traditional Design Approach

Multiple “Stand-Alone” Ponds

Lee Roy Selmon and U.S. 301 Interchange



Traditional Design Approach

Dual Systems



Current Design Strategies

- Environmental Look-Around (ELAs) – PD&E Phase
- Linear Systems
- Filter Systems
- Regional Facilities

Regional Alternatives

- Accomplish Both Stormwater and Floodplain Needs
- Reservoirs
- Joint-Use Opportunities
- Watershed “Wise” Improvements

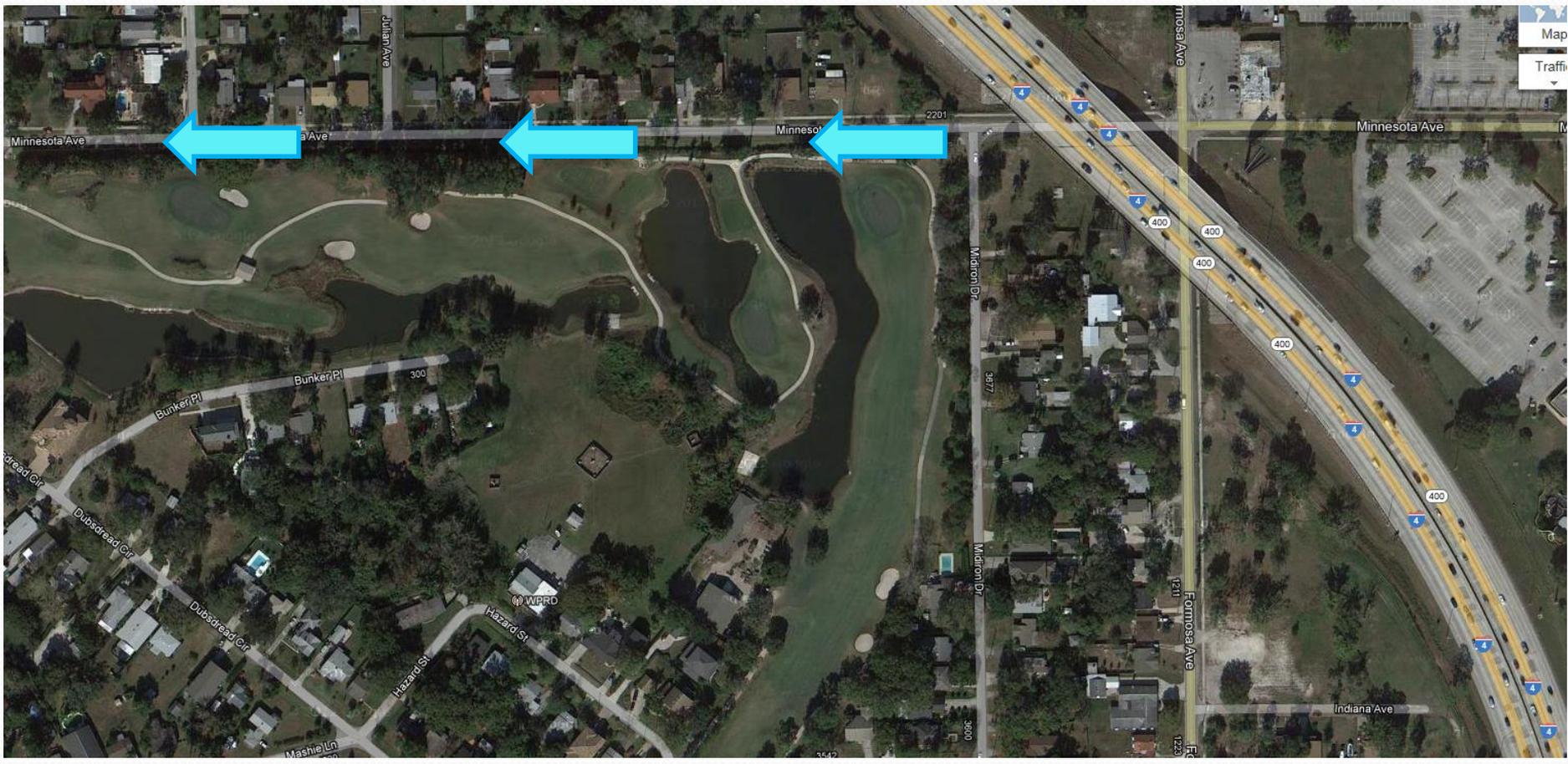
Inter-Agency Stormwater Partnering Opportunities District 5

- Dubsdread Golf Course Renovations
- A-FIRST
- Seminole County Regional Alum Pond

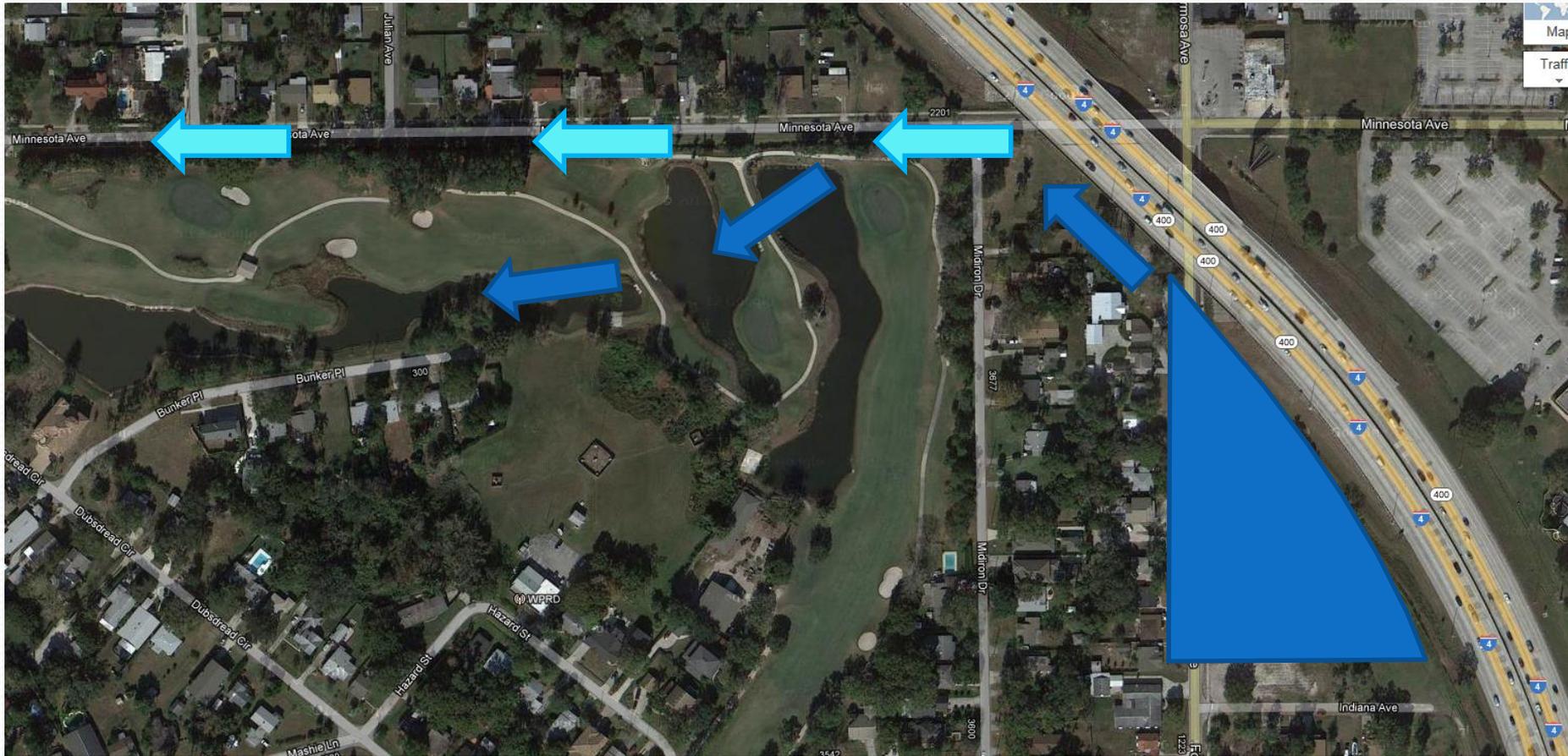
Dubsdread Golf Course Renovations



Dubsdread Golf Course Renovations



Dubsdread Golf Course Renovations

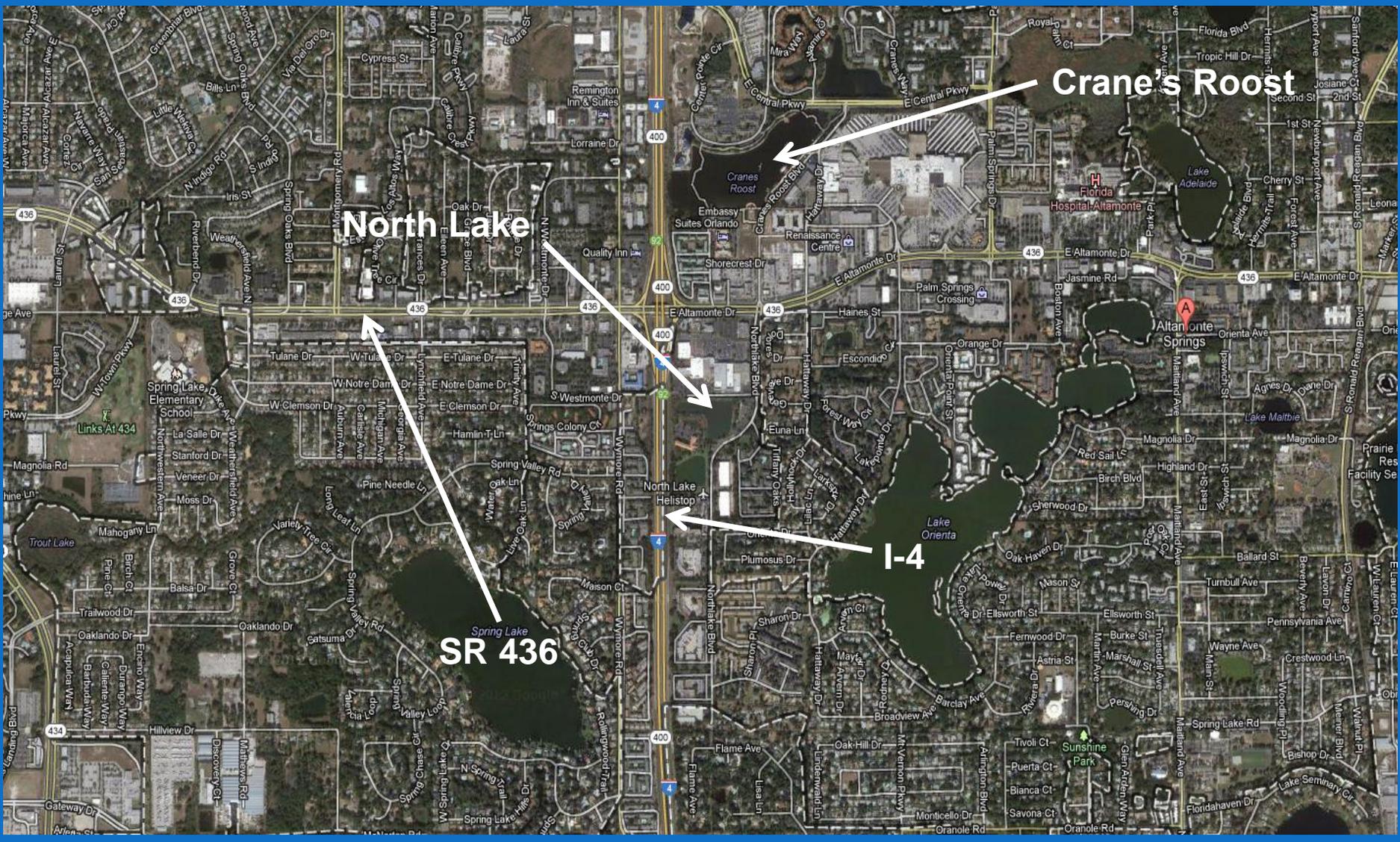


A-FIRST



Altamonte-FDOT Integrated Reuse & Stormwater Treatment

A - FIRST



A-FIRST

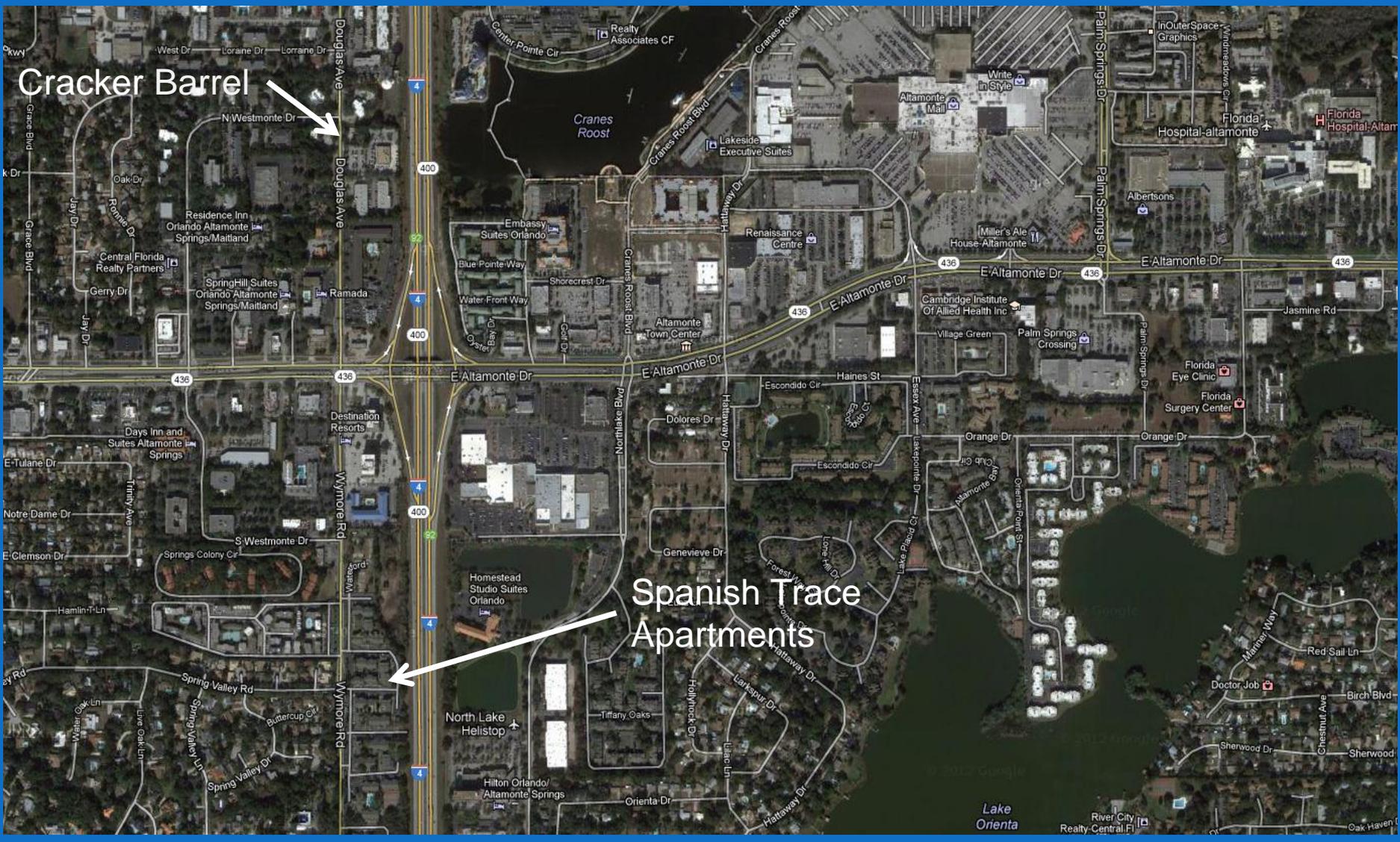


A-FIRST

Cracker Barrel



Spanish Trace
Apartments





A-FIRST

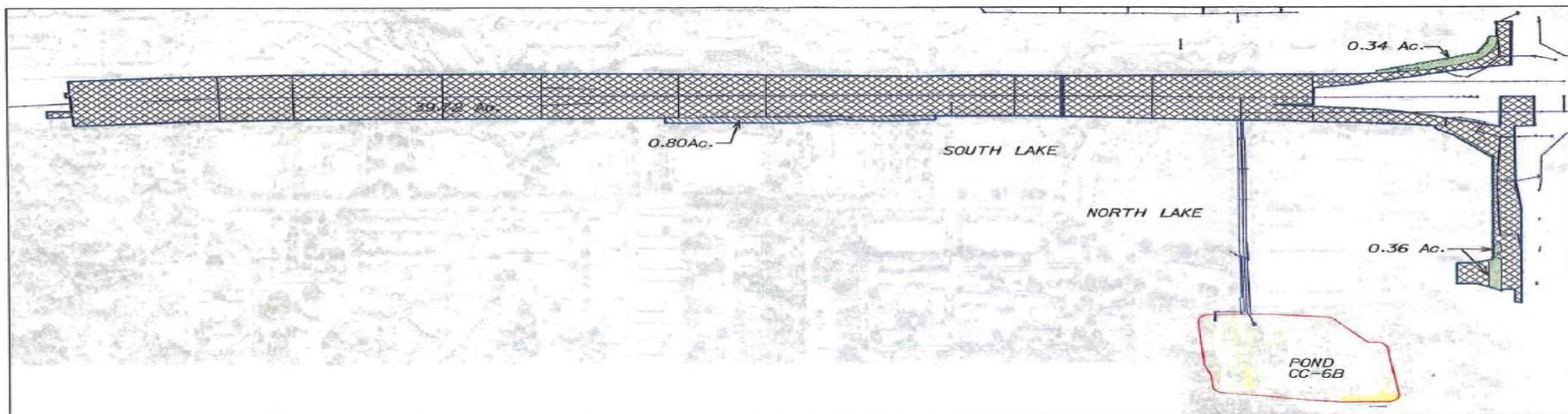
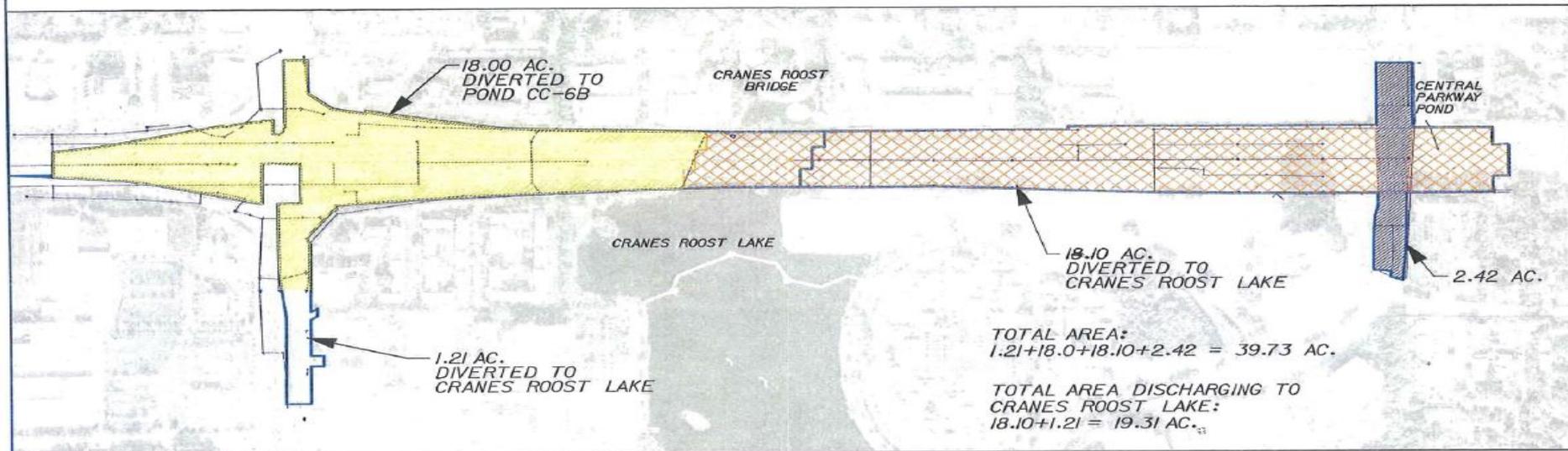
- City of Altamonte approached FDOT during I-4 design about Project Apricot (aka A-First)
- FDOT to fund Apricot, City of Altamonte to accept all I-4 stormwater to be treated at a treatment plant and conveyed to the City of Apopka
- Eliminates major R/W acquisition of Cracker Barrel and Spanish Trace Apartments (which later became condominiums)
- Minimize emergency pumping to the Wekiva River

Design Concept



- Costs of Apricot escalated
- FDOT had to maintain control of schedule, so Apricot remained on different track
- City of Altamonte looking for FDOT to cover Apricot design costs
- Elections

Risks/Problems

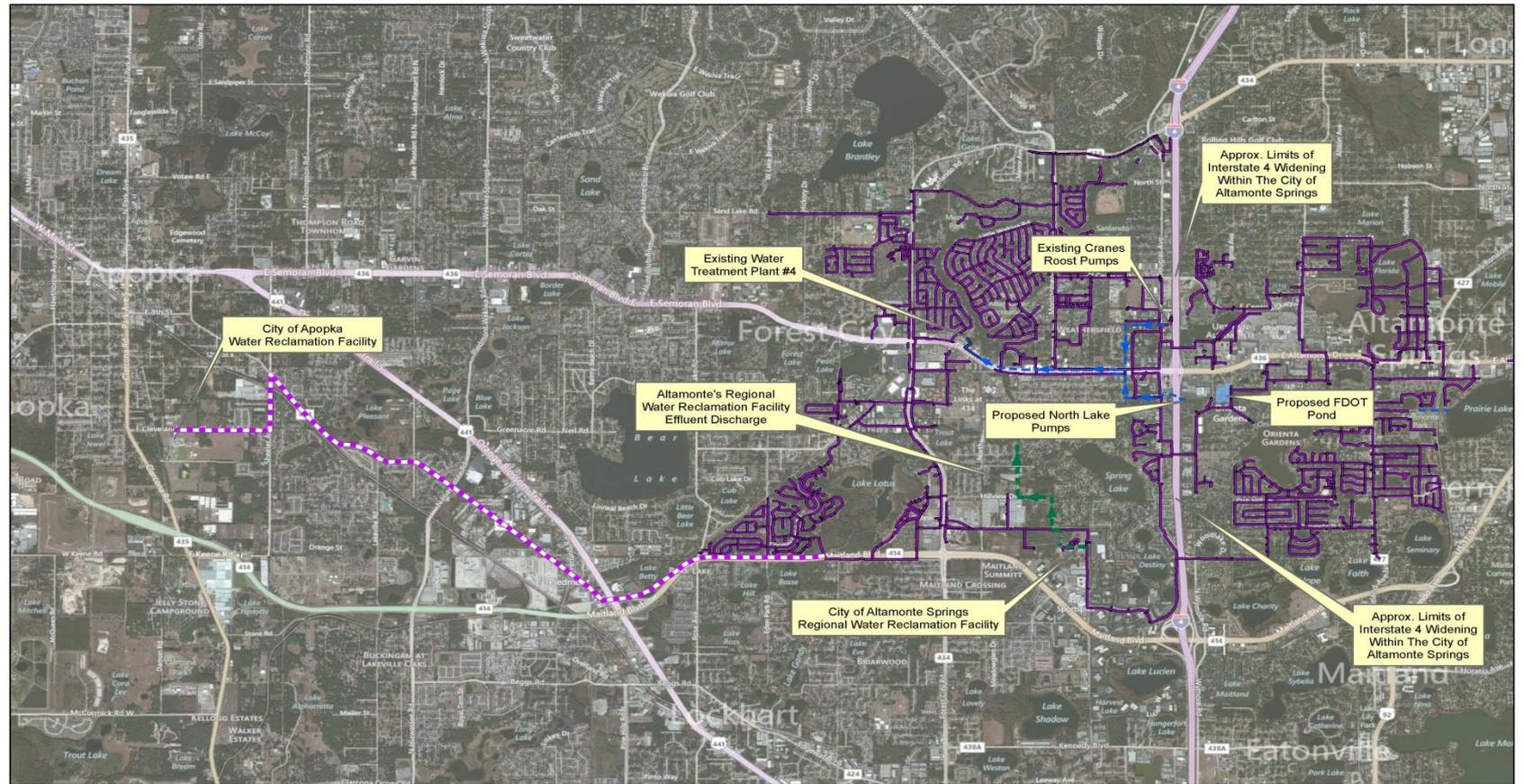




- City of Altamonte Re-Approached FDOT During Ultimate I-4 RFP Development
- Divert All North Lake Basin Runoff to Crane's Roost
- City to Pump the Stormwater from Crane's Roost to Abandoned Wastewater Treatment Plant
- Treated Stormwater Augments City's Reclaimed Water System
- New Pipeline Conveys Excess to City of Apopka

Apricot Resurrected as A-First

A-FIRST



Interstate 4 Integrated Stormwater Management & Water Supply Project

- Altamonte Existing Reclaimed Network
- - - Stormwater Force Main
- - - Proposed Reclaimed Main to Apopka
- Proposed Stormwater FM
- - - Effluent Discharge



Path: G:\GIS\Projects\Reclaim@Porto\Apopka\Reclaim@Apopka.mxd

Date: 05/2012

A-FIRST

FDOT \$4.5M



SJRWMD \$3.5M



FDEP \$1.5M



Altamonte Springs \$3M + O&M



The Right People in the Right Place at the Right Time



- Substantially Reduces/Possibly Eliminates Emergency Discharge to Wekiva River
 - Wekiva River – OFW, Expedited TMDL's, Draft BMAP
 - Stormwater Source Estimated Nutrient Reductions: 643 lbs/yr of TP and 3,259 lbs/yr of TN
- Protects Potable Water Supply
 - Stormwater Harvesting Reduces Groundwater Withdrawal
 - Reduces groundwater pumping needs in the Apopka and Altamonte springshed, which directly correlates with spring flows and MFLs

A-First Environmental Benefits



- Drawdown
- Resolves Easement Acquisition Issue with Shopping Center that Would Require Expensive Micro-Tunneling and Construction of 96” Pipe
- Use of the I-4 Pond Site for Potential Construction Staging Area
- Pumping from Crane’s Roost No Longer Restricted to Emergency

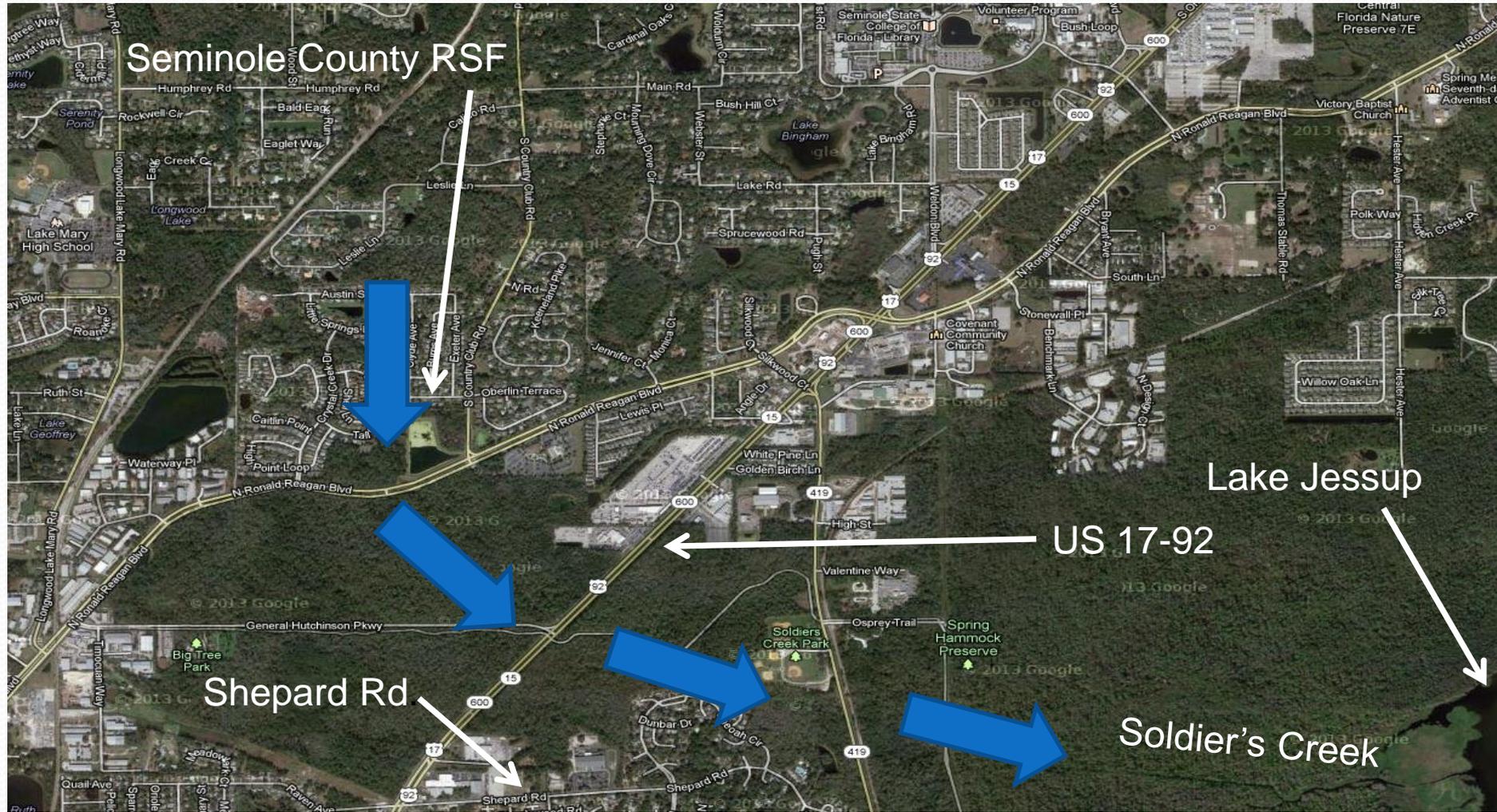
A-First FDOT Benefits



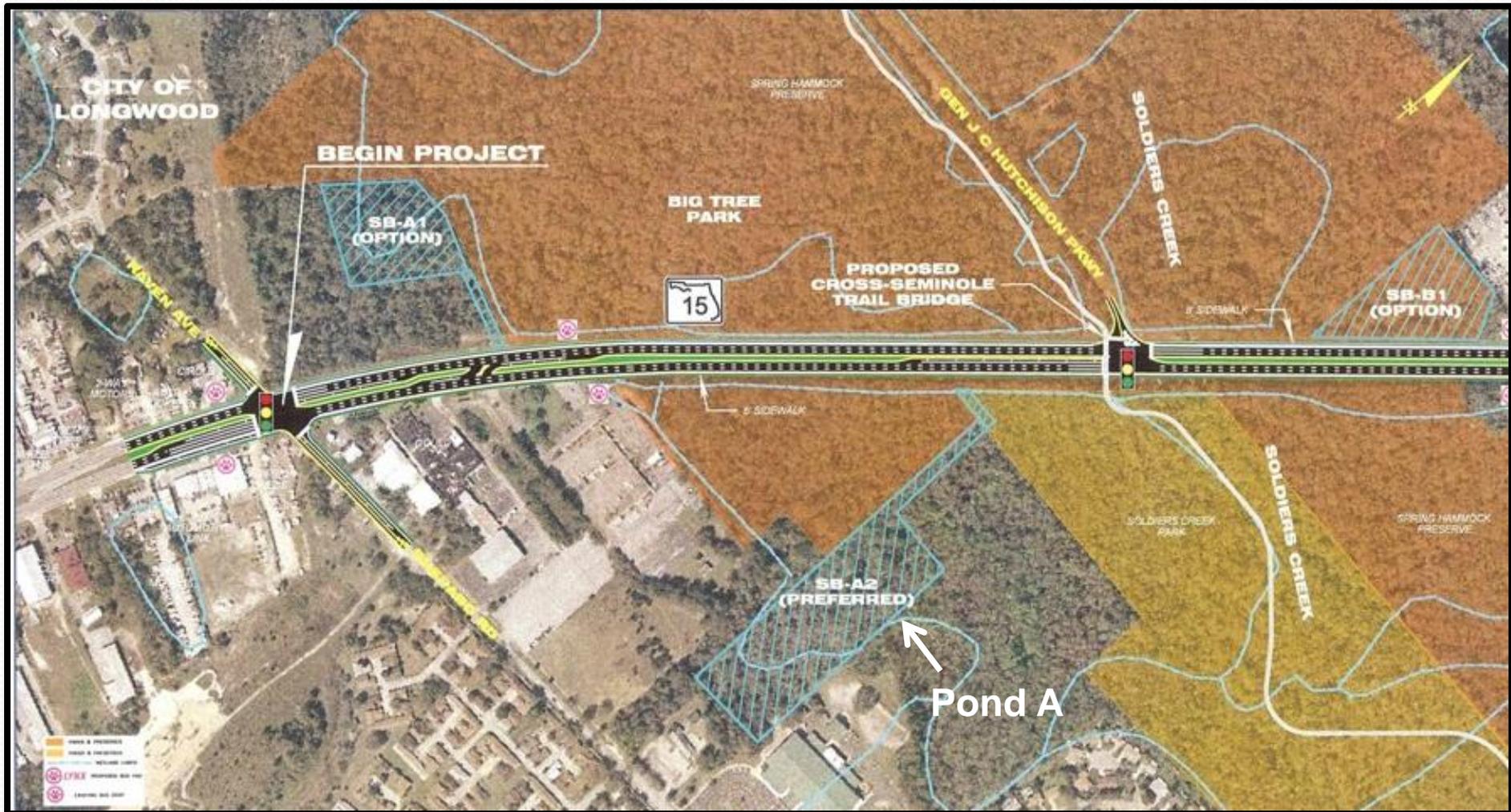
- Addition of Wing House Stormwater
- Elimination of the Crane's Roost Bridge
- Flood Protection for the North Lake Basin

A-First Potential FDOT Benefits

Seminole County Regional Stormwater Facility



Seminole County Regional Stormwater Facility



Seminole County Regional Stormwater Facility



Seminole County Regional Stormwater Facility

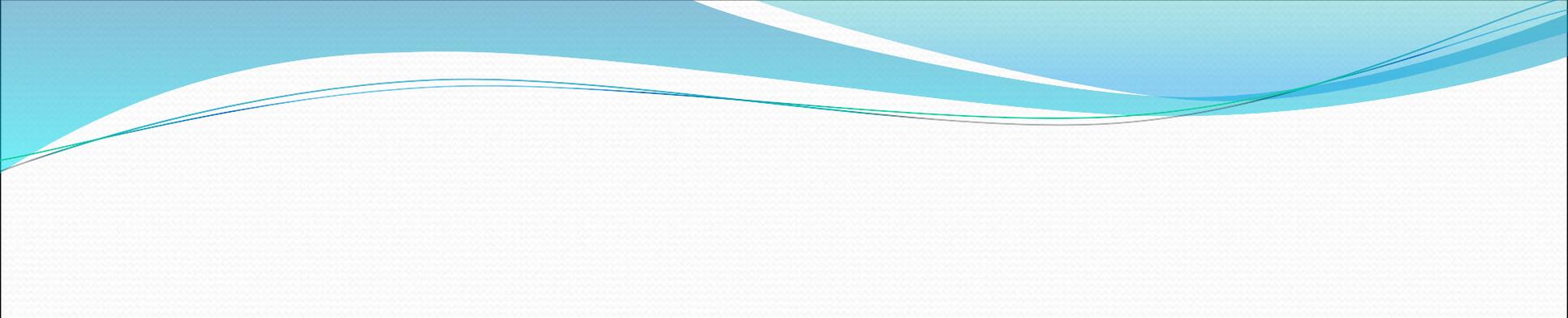


Seminole County Regional Stormwater Facility

- Benefits
 - Provides compensatory treatment to meet FDOT's ERP requirements for US 17-92
 - Eliminates Pond B, reduces size of Pond A, minimizes wetland impacts
 - Seminole County Owns, Operates and Maintains the Regional Pond; FDOT Funded Maintenance
 - Eliminates All Remaining FDOT Pollutant Loading Reduction Obligations for the Lake Jessup BMAP
 - All Left Over BMAP Credits Go to Seminole County
 - No Out-of-Pocket for Seminole County

- 
- Recognize Synergies Between Department and Municipality Projects to Accomplish Similar Goals in a Smaller Footprint
 - Significant Cost Savings
 - Reduction in R/W
 - Reduction in Construction and Maintenance Costs
 - Tax Base Preservation
 - Revenue Creation
 - Wetland Mitigation
 - Significant Environmental Benefits
 - Satisfaction of BMAP Obligations/Nutrient Discharge Reductions
 - Wetland Preservation

Running Theme?

- 
- Early Coordination is Paramount
 - Establish and Cultivate Relationships
 - Establish a Department Policy Regarding Risk
 - Standardize Agreements Similar to Boilerplate RFP's

Lessons Learned and Suggestions



Examples of ELAs In West Central Florida

Daniel Lauricello, D7 Drainage Engineer

Pinellas County Sherriff's Office Site



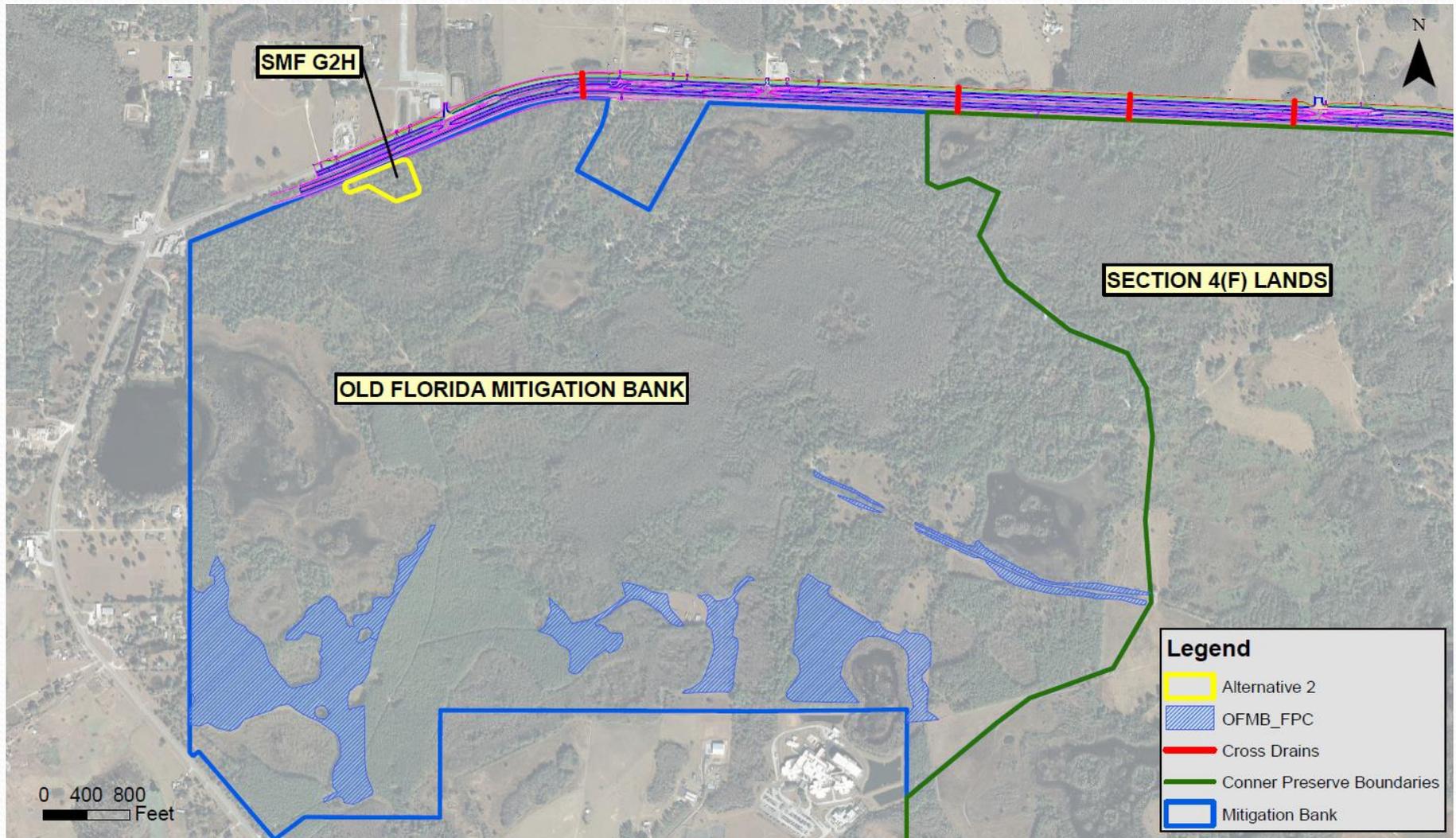
Pinellas County Sherriff's Office Site



Ulmerton Road (SR 688)

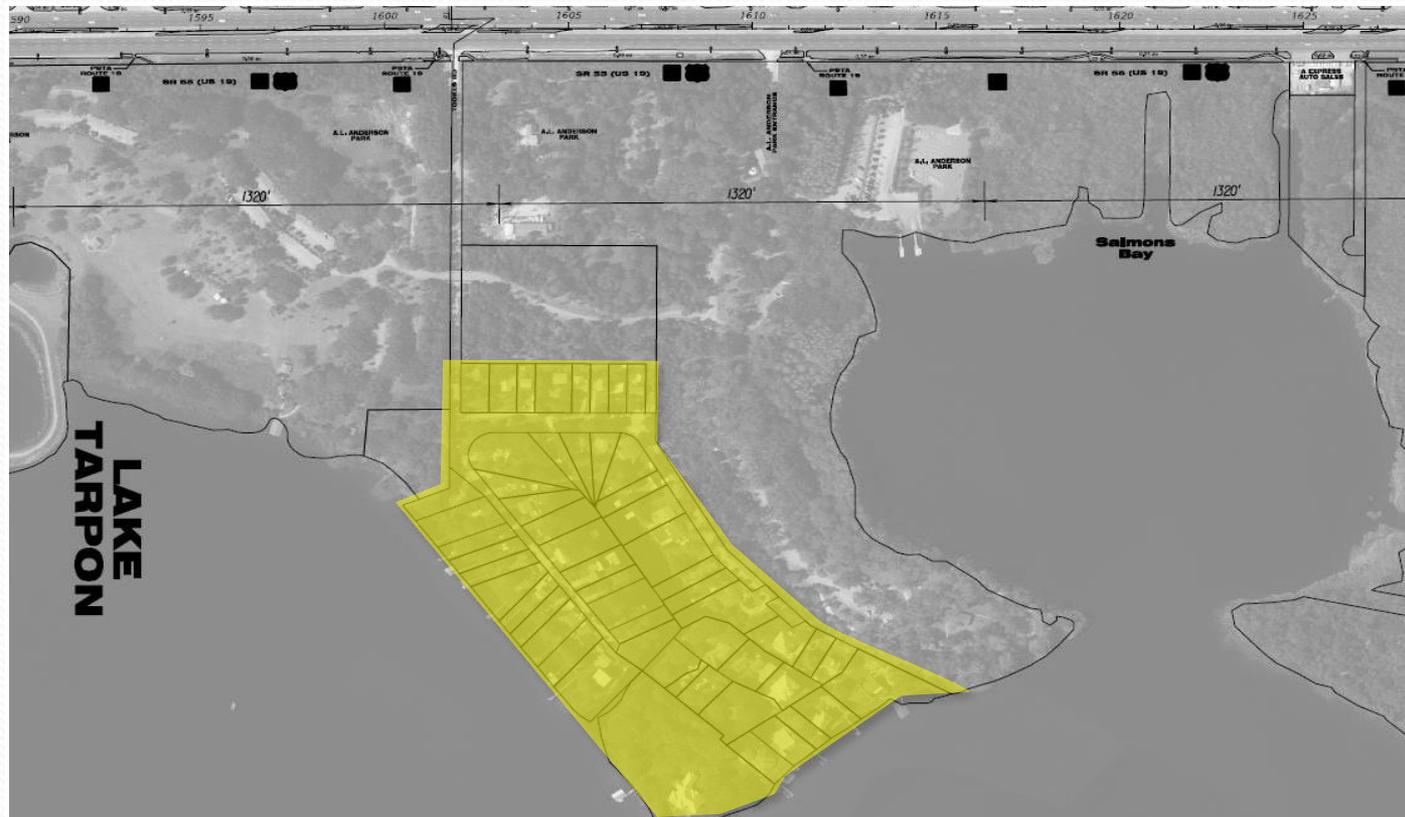
Post-Condition

Old Florida Mitigation Bank



ELA – Concept “Sep-sew-tastic”

Convert homes on septic to sewer system



ELA – Concept “Sep-sew-tastic”



Preferred area convert 52 residential homes

Requires lift station and collection system: Cost = \$730k
10x more pollutant removal
Supported by City, Residences & SWFWMD

- **Compensatory treatment for both US 19 projects**

433796-1

433797-1 (US 19 - Nebraska to Timberlane)

- **ROW Cost Savings = \$3.4M-\$ 7.5M !**



Coming to a Design
Expo Session Near You

OLD TAMPA BAY

WATER QUALITY IMPROVEMENT PROJECT

- Daniel Lauricello, P.E.*
- Virginia Creighton, P.W.S.*
- David Tomasko, Ph.D.*
- Shayne Paynter, Ph.D., P.E., P.G.*



Scoping the ELA

- Scoping Challenges Prior to Design
- Staff Hour forms cover meeting only
- ELA meeting “kicks off” once R/W needs preliminarily identified
- Supplemental Agreements possible if ELA opportunities exist



Examples of ELAs In Northwest Florida

Miranda Glass, D3 Drainage Engineer

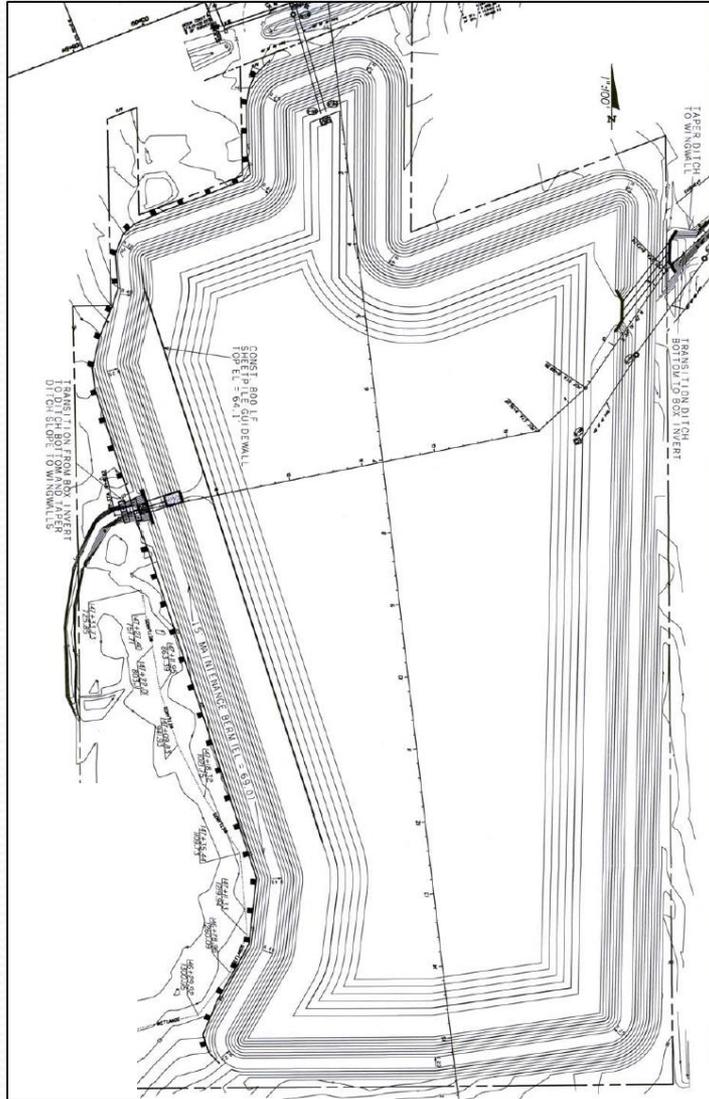
SR 263 (Capital Circle Northwest) Project

- 4-lane to 6-lane capacity project
- Located in Tallahassee, FL
- Initial concept included 2 ponds serving southern basin
- Leon County (Blueprint 2000), NFWFMD, and Florida Fish and Wildlife Commission Conservation participated

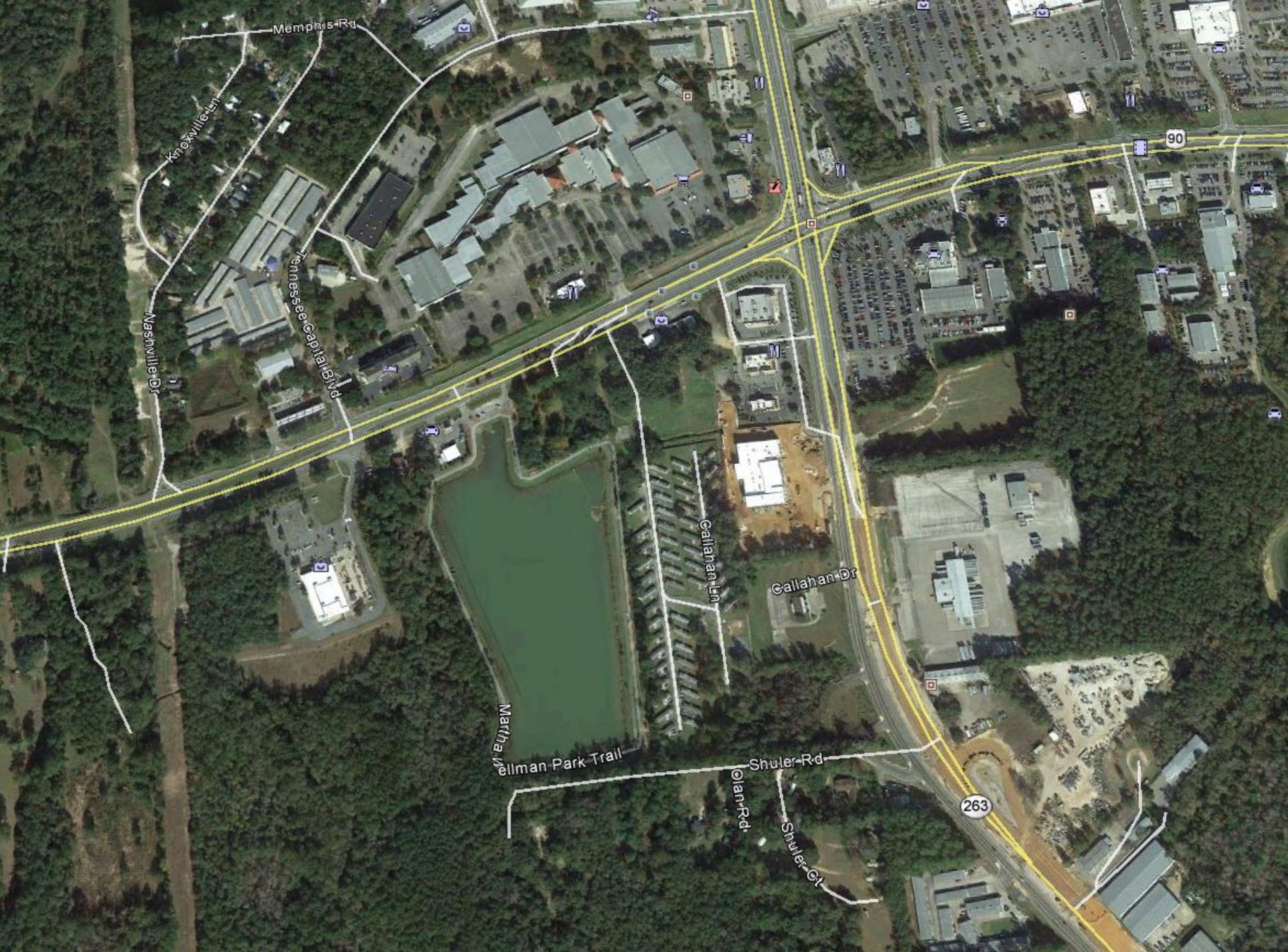


SR 263 Capital Circle NW Project

- Utilized property along the existing outfall ditch for southern basin to create a single regional facility
- FDOT responsibility to design and construct the pond and County responsibility was ultimate ownership and future maintenance of the pond
- Facility developed into a walking park
- Martha Wellman Park Trail includes a 10' paved trail approximately 0.8 mile long with park benches, lighting, and wildlife



- 15 acre wet pond
- Bisects an existing mosquito ditch
- Pond designed to provide treatment for approximately 326 acres (224 acres from offsite, 87 acres of project, 15 acres of extra capacity for shared use with FDOT and County)
- Trash and sediment capture at infall to pond
- Unique shape of the pond



Memphis-Rd

Knoxville-Ln

Nashville-Dr

Tennessee Capital Blvd

Martha Way

Callman Park Trail

Callahan Ln

Callahan-Dr

Shuler Rd

Olan Rd

Shuler Ct

90

263



5317

MARTHA WELLMAN PARK
DIVISION OF PARKS & RECREATION

01/24/2003



01/24/2003



/2003

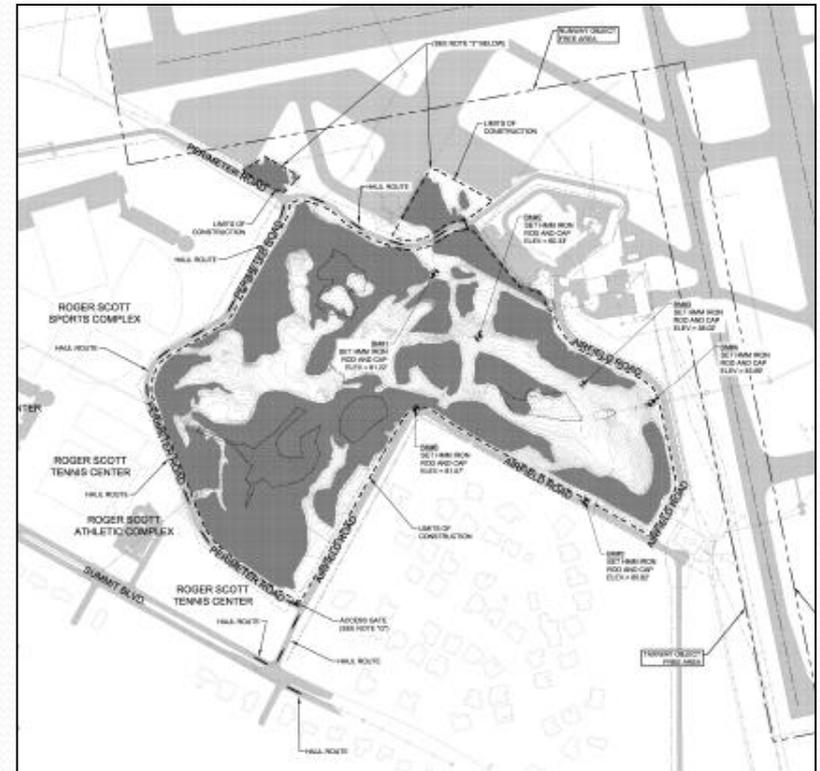
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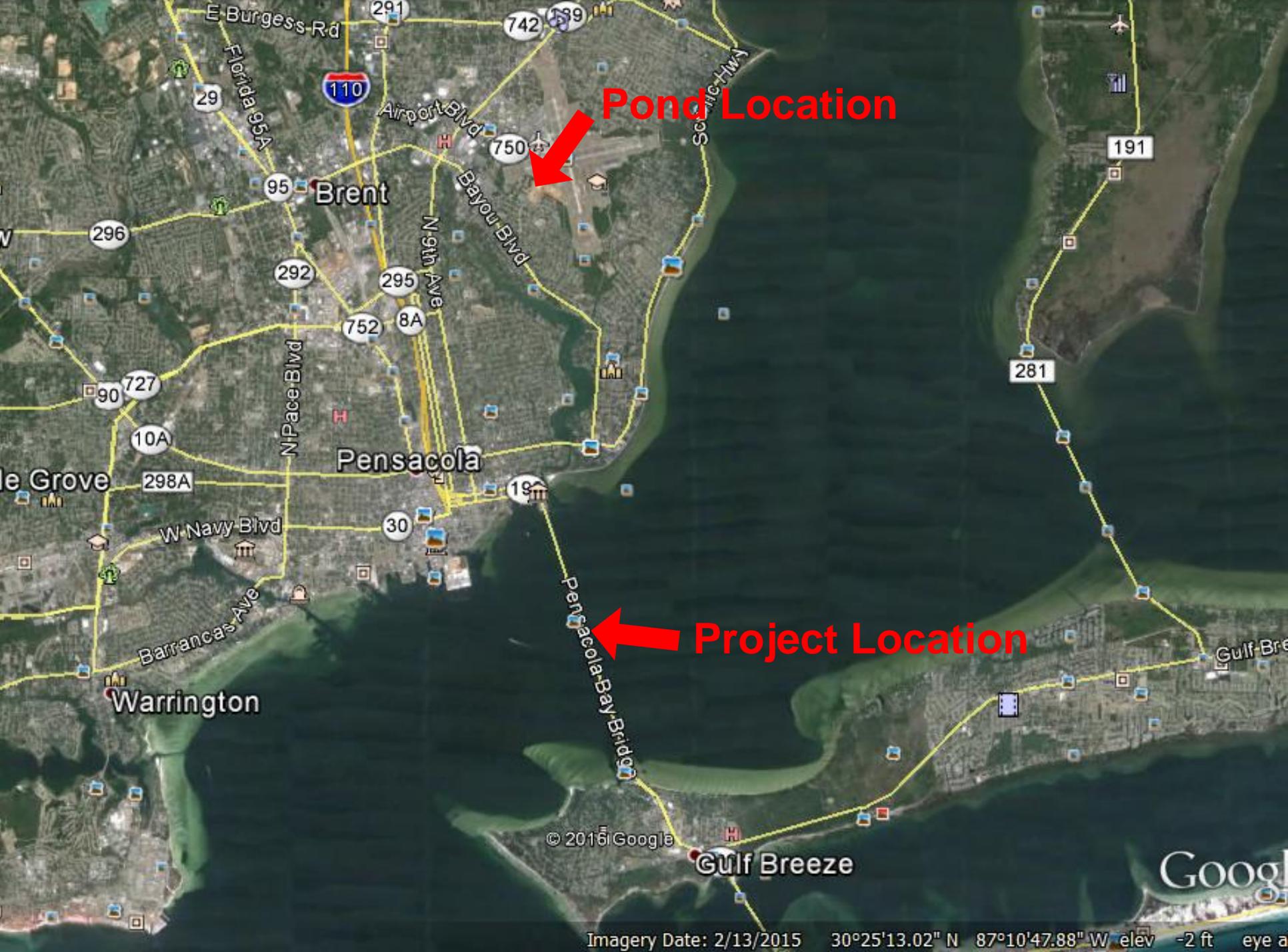
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Pensacola Bay Bridge Project

- Design-Build Bridge replacement project
- Pond located in Pensacola, FL
- Expand an existing borrow pit
- City of Pensacola and Pensacola Airport participated
- Airport is a municipal enterprise of the City



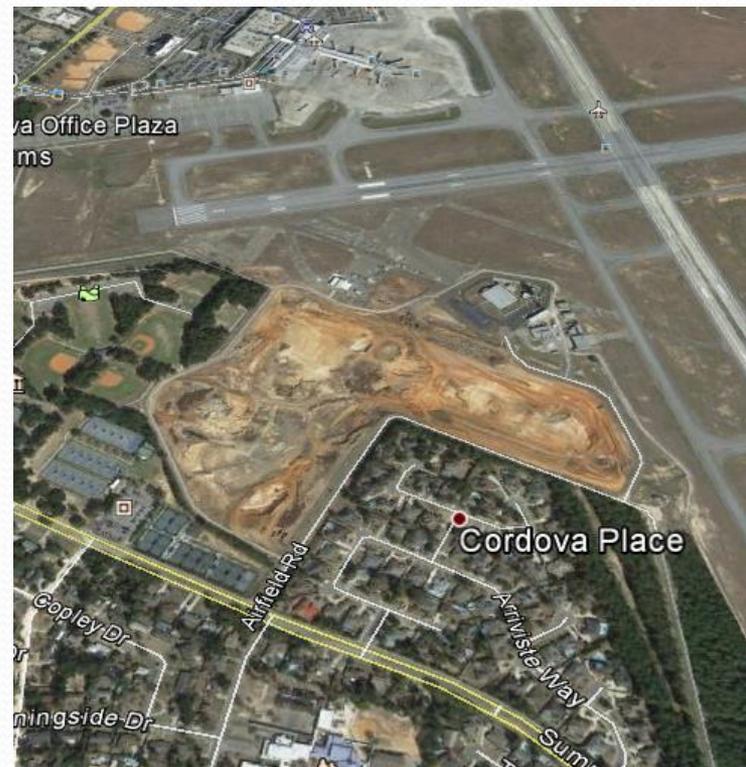
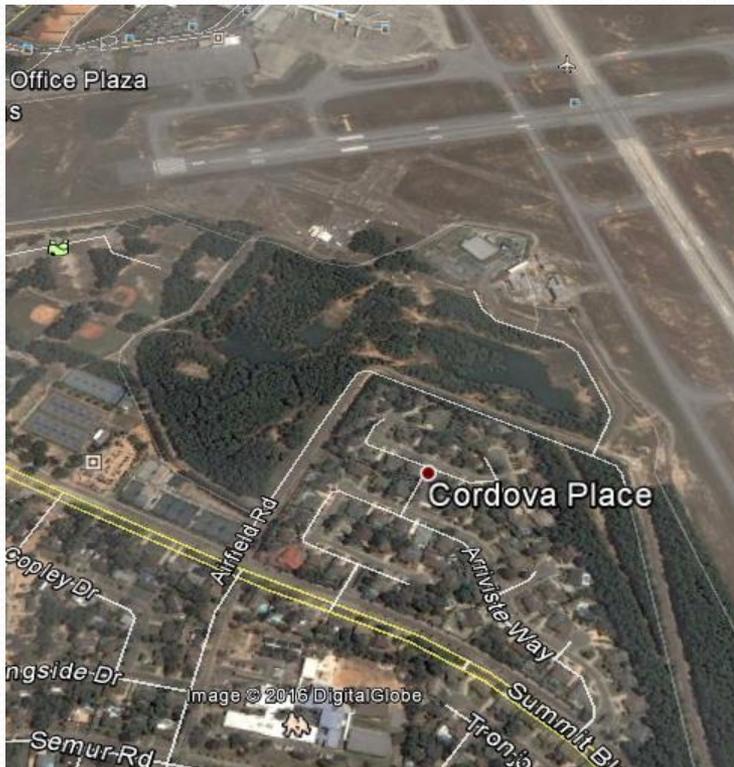


Pond Location

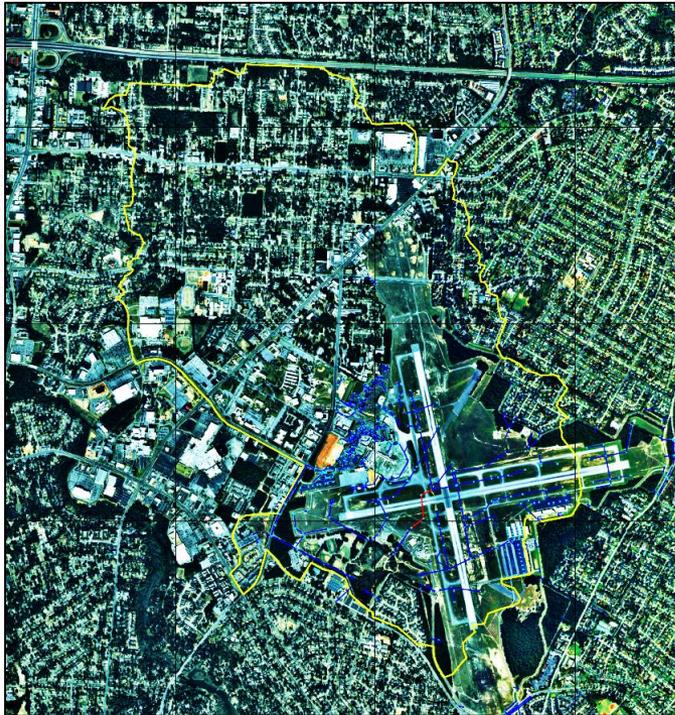
Project Location

© 2016 Google

Pensacola Bay Bridge Project



Pensacola Bay Bridge Project



- 48 acre dry pond converted from 38 acre borrow pit
- Treatment serves the Carpenters Creek basin and ultimately Pensacola Bay
- Pond designed to provide treatment for approximately 2,458 acres (serving the basin with 49 acre-feet of extra capacity for shared use with FDOT, County, and City/Airport)





Questions / Discussion?