



Lee County Natural Resources Water Quality Update

Roland Ottolini, P.E.
Director, Natural Resources Division

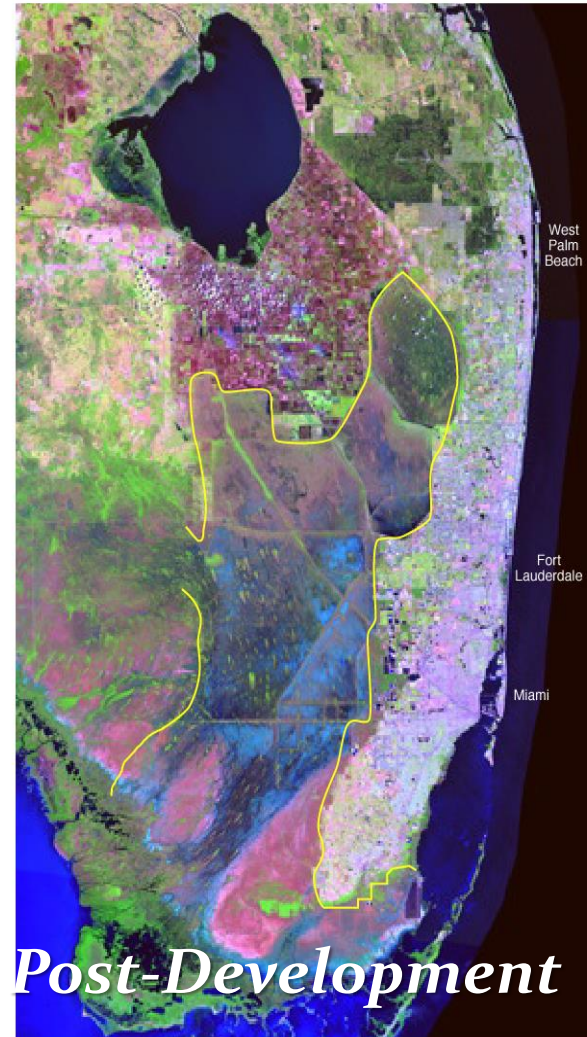
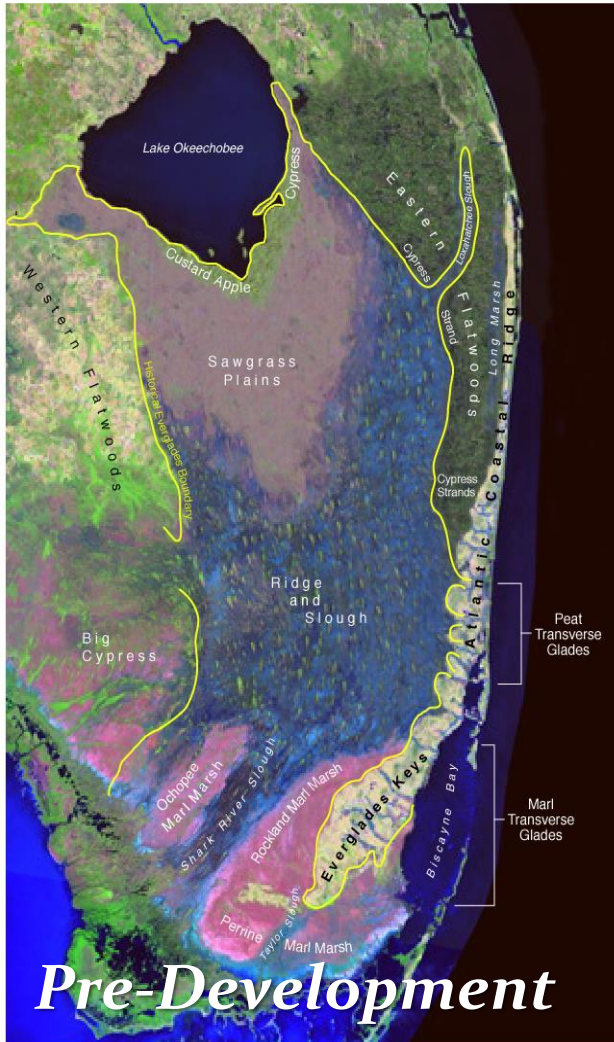
Presented to the Lee County Tourist Development Council

May 11, 2017

Presentation Overview

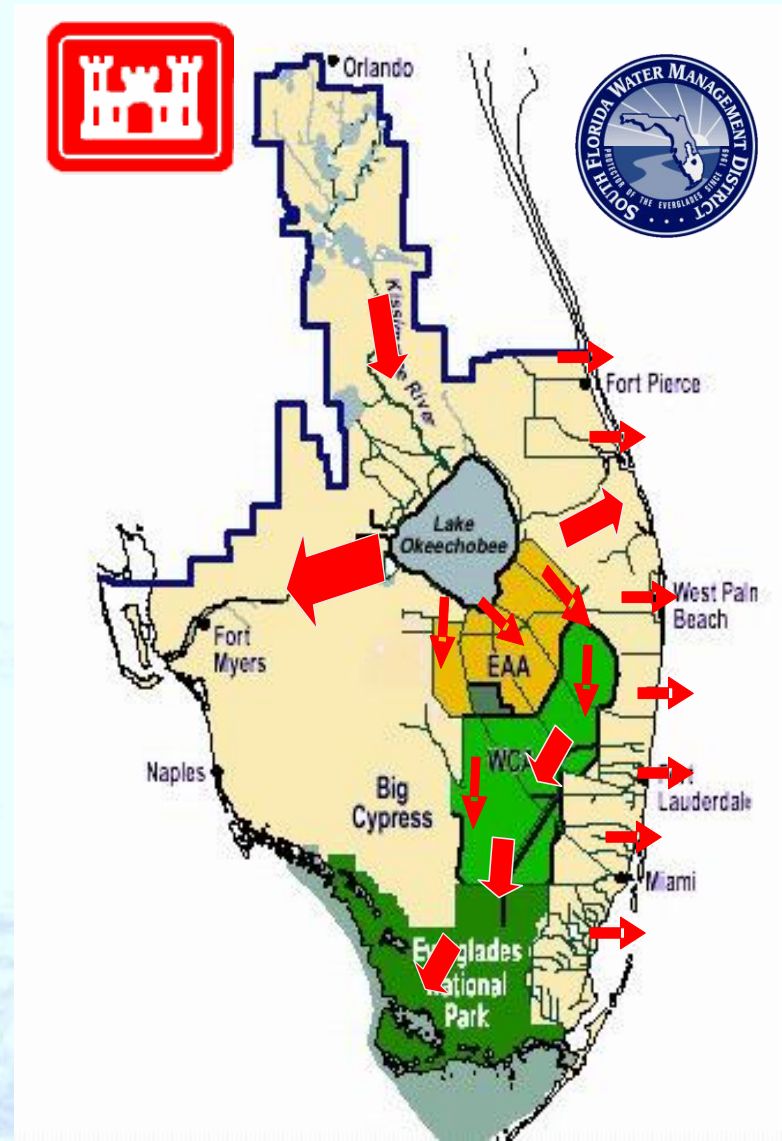
- Regional Water Management
- Caloosahatchee Issues
- Lee County Water Quality/Storage Initiatives
- Moving Forward- Action Plan

Regional Issues



Central & South Florida (C&SF) Project

- Designed for multiple purposes
 - Flood Control
 - Water Supply
 - Navigation
 - Prevention of Saltwater Intrusion
 - Protection of Fish & Wildlife
- Constructed by the U.S. Army Corps of Engineers between 1949 and 1970

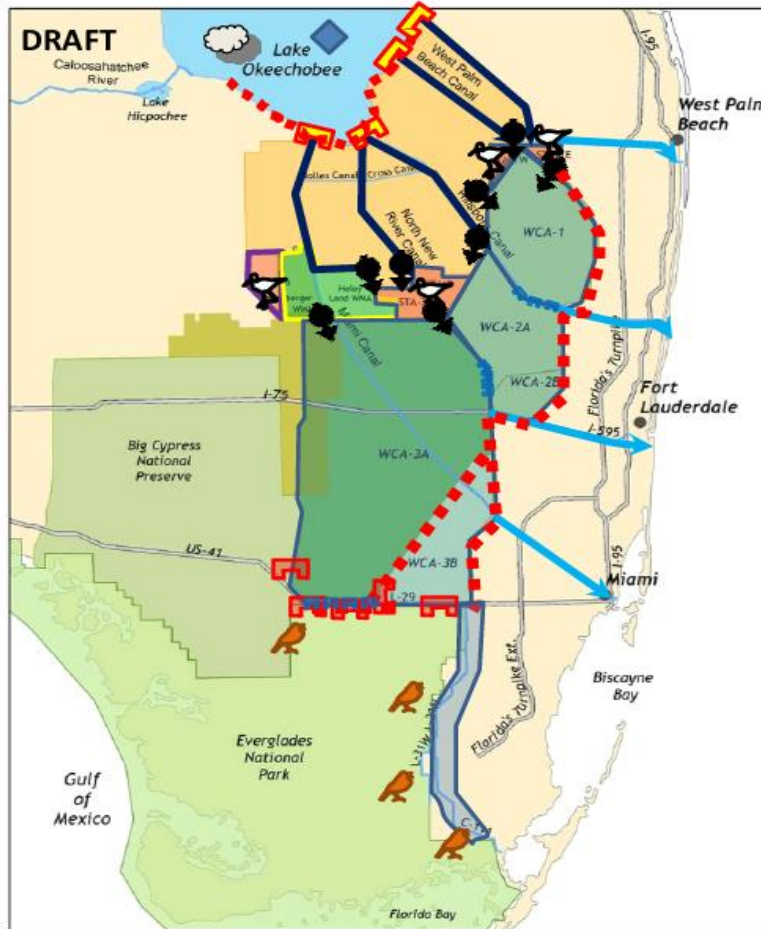


Water Management System

- 2,100 miles of canals
- 2,000 miles of levees
- 1,225 water control structures/culverts
- 71 stormwater pumping stations
- Regional telemetry system
- 57,000 acres of regional wetland Stormwater Treatment Areas
- Lake Okeechobee
 - 450,000 acre water storage
- Water Conservation Areas
 - 959,000 acre water storage



Challenges to Moving Water South



Symbol	Constraint
	Weather Patterns
	Herbert Hoover Dike
	2008 LORS
	Structure Capacity
	Canal Conveyance
	Species protection
	STA Treatment Capability
	Pump Capacity
	STA 5 / 6 Connectivity
	Wildlife Management Area
	Water Level Limitation (Tree Islands & Wildlife)
	LEC Canal Conveyance
	Levee Safety
	Flow Limitation
	Flood Risk (G3273, SDCS)

1

Comprehensive Everglades Restoration Plan (CERP)

- 50/50 state-federal partnership
- Restore and improve quality, quantity, timing and flow of water
- Provide sustainable water supply to meet environmental, agricultural and urban needs



Maximizing Storage: Utilizing Public and Private Lands



Moving Forward – Build Project and Provide Benefits

- Complete ongoing projects and start seeing benefits
- Send more clean water south
- Look for additional storage opportunities



Restoration Projects

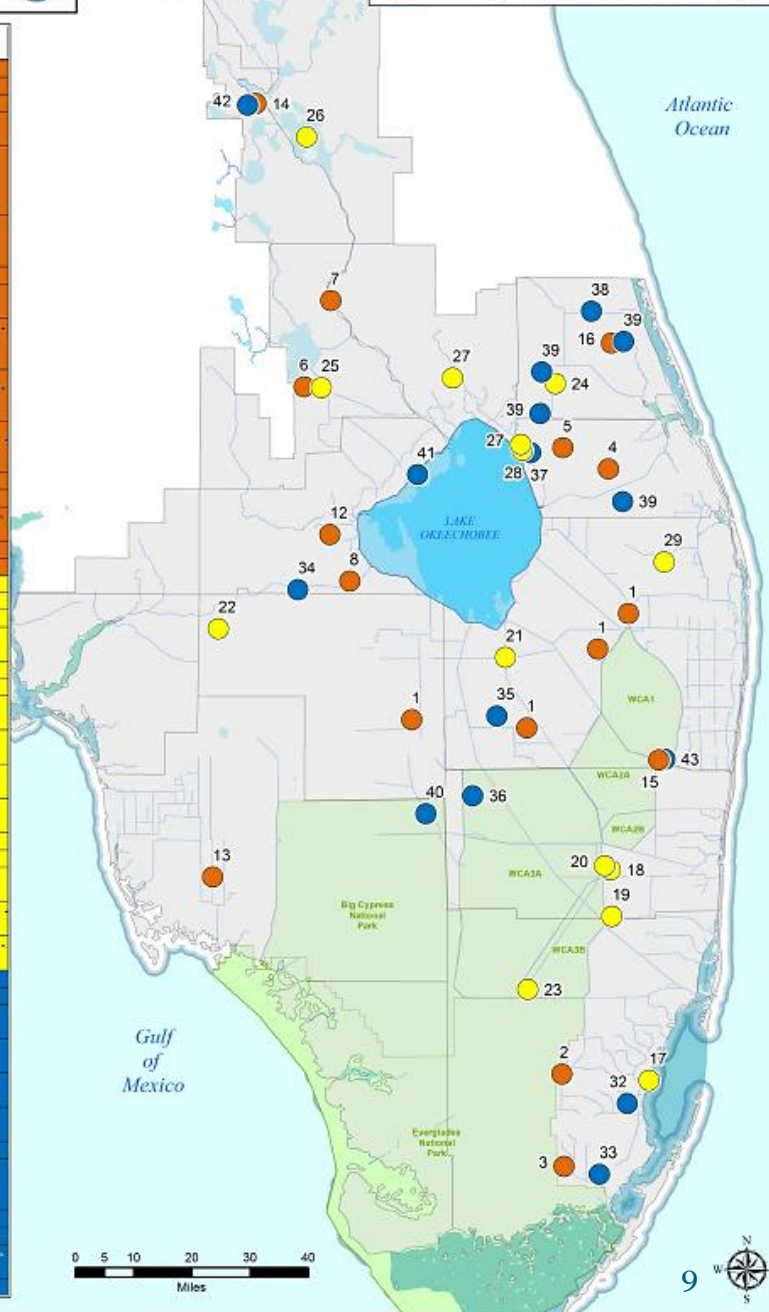
September 03, 2014



Restoration Project Map ID	Name
1	Restoration Strategies
2	C-111 South Dade
3	C-111 West Spreader Canal
4	IRLS Phase 1 - C-44 Reservoir and STAs
5	IRLS Phase 2 - Natural Storage and Treatment Areas (A - land acquisition completed and WRP improvements underway)
6	Istokpoga Marsh Improvement District Water Quality Project - Phase I
7	Kissimmee River Restoration
8	Lake Hippochee North Hydrologic Enhancement Project
9	NEEPP - Dispersed Water Management - Existing Private w/ contract (see DWM map)
10	NEEPP - Dispersed Water Management - Existing Public (see DWM map)
11	NEEPP - Dispersed Water Management - Future Public (see DWM map)
12	Nicodemus Slough
13	Picayune Strand Restoration
14	Rolling Meadows Wetland Restoration - Phase I
15	Site 1 Impoundment - Phase 1
16	Ten Mile Creek
17	BCWV Phase 1
18	BCWPA - C-11 Impoundment
19	BCWPA - C-9 Impoundment
20	BCWPA - WCA-3A/3B Seepage Management Area
21	Bolles Canal Improvement
22	C-43 West Basin Reservoir
23	Central Everglades Planning Project - South
24	IRLS Phase 1 - C-23/C-24 Reservoir and STAs
25	Istokpoga Marsh Improvement District Water Quality Project - Future Phases
26	Kissimmee Headwaters Revitalization Project
27	Lake Okeechobee Watershed Project
28	Lakeside Ranch STA Phase II
29	Loxahatchee River Watershed Restoration
30	NEEPP - Dispersed Water Management - Future NE-PES (not shown)
31	NEEPP - Dispersed Water Management - Future Water Farming (not shown)
32	BCWV - Phase 2
33	C-111 Eastern Canal - Phase 2
34	C-43 Water Quality Treatment and Testing (Boma)
35	Central Everglades Planning Project - New Water
36	Central Everglades Planning Project - North
37	Grassy Island and Brady Ranch Properties
38	IRLS Phase 1 - C-25 Reservoir and STAs
39	IRLS Phase 2 - Natural Storage and Treatment Areas (B - some or no land acquired, no WRP)
40	L-28 Interceptor: Western Basins
41	Lake Okeechobee Regional Scale ASR
42	Rolling Meadows Wetland Restoration - Phase II
43	Site 1 Impoundment - Phase 2

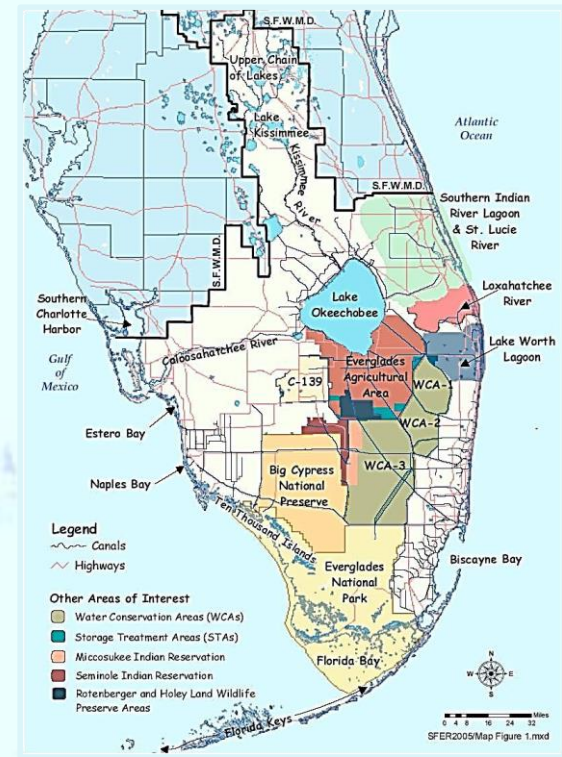
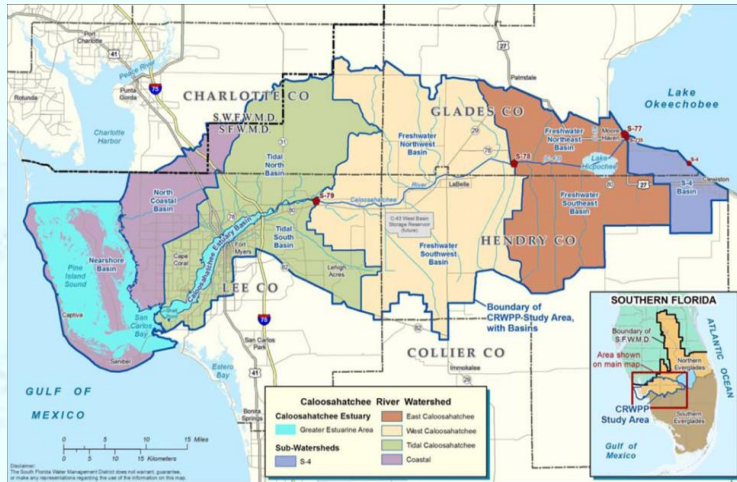
Key

- A - Under Construction & Mandated or Authorized
- B - Land Acquisition & Planning Underway or Complete
- C - Land Acquisition & Planning Not Initiated or in Initial Phases



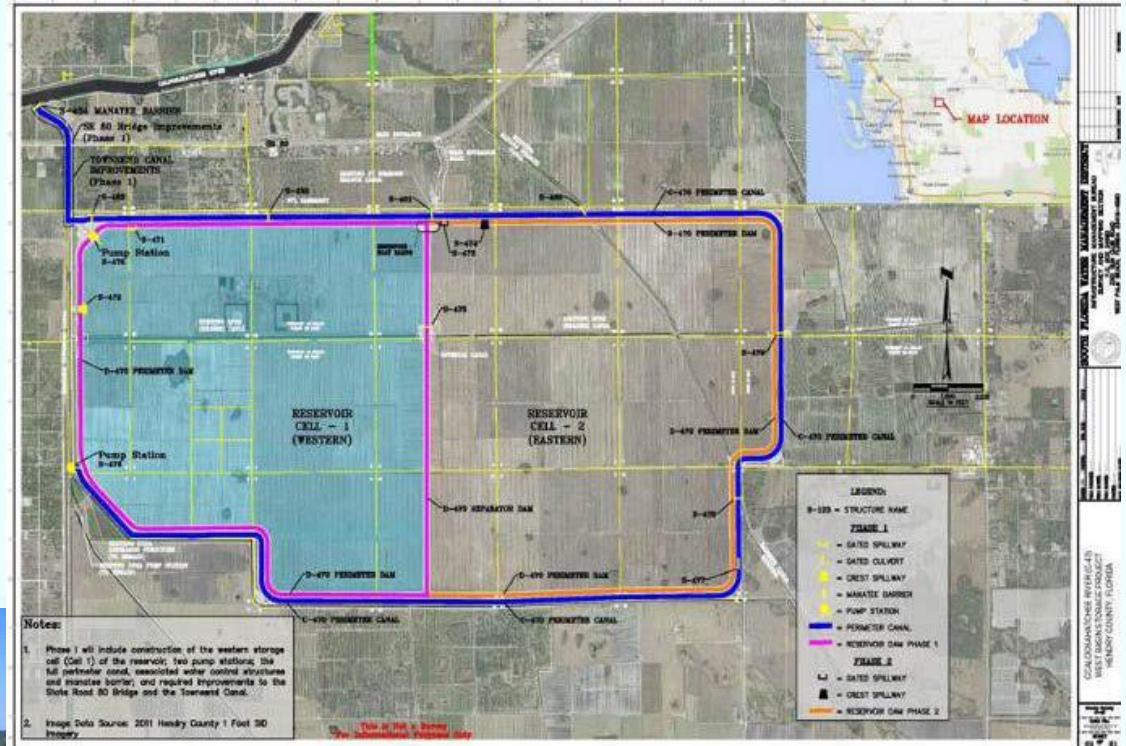
Caloosahatchee Watershed

- Caloosahatchee River - 70 miles, Moore Haven to Shell Point
- 1,400 square mile watershed
 - Shrinks during droughts
 - Expands with wet conditions
- Estuary of National and State Significance



C-43 West Basin Storage Reservoir

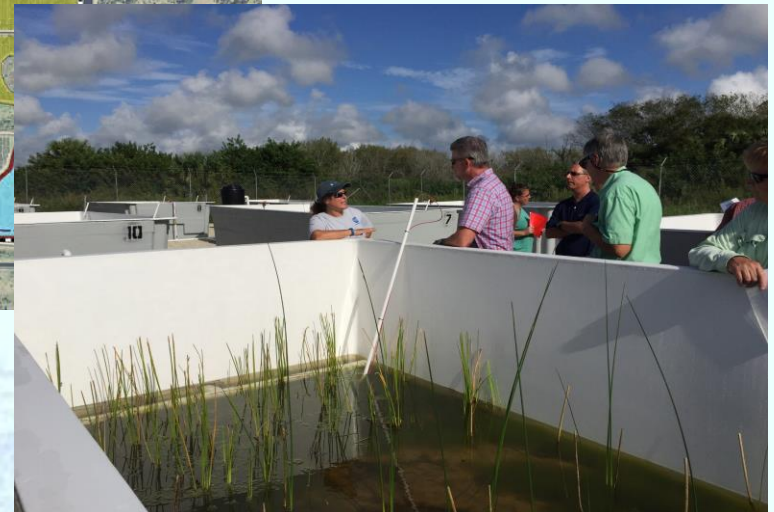
- 10,000 acre footprint
- 170,000 acre-feet storage
- Dry season flows – salinity regime
- \$585M cost estimate
- Construction underway by SFWMD
- Secure funding priority



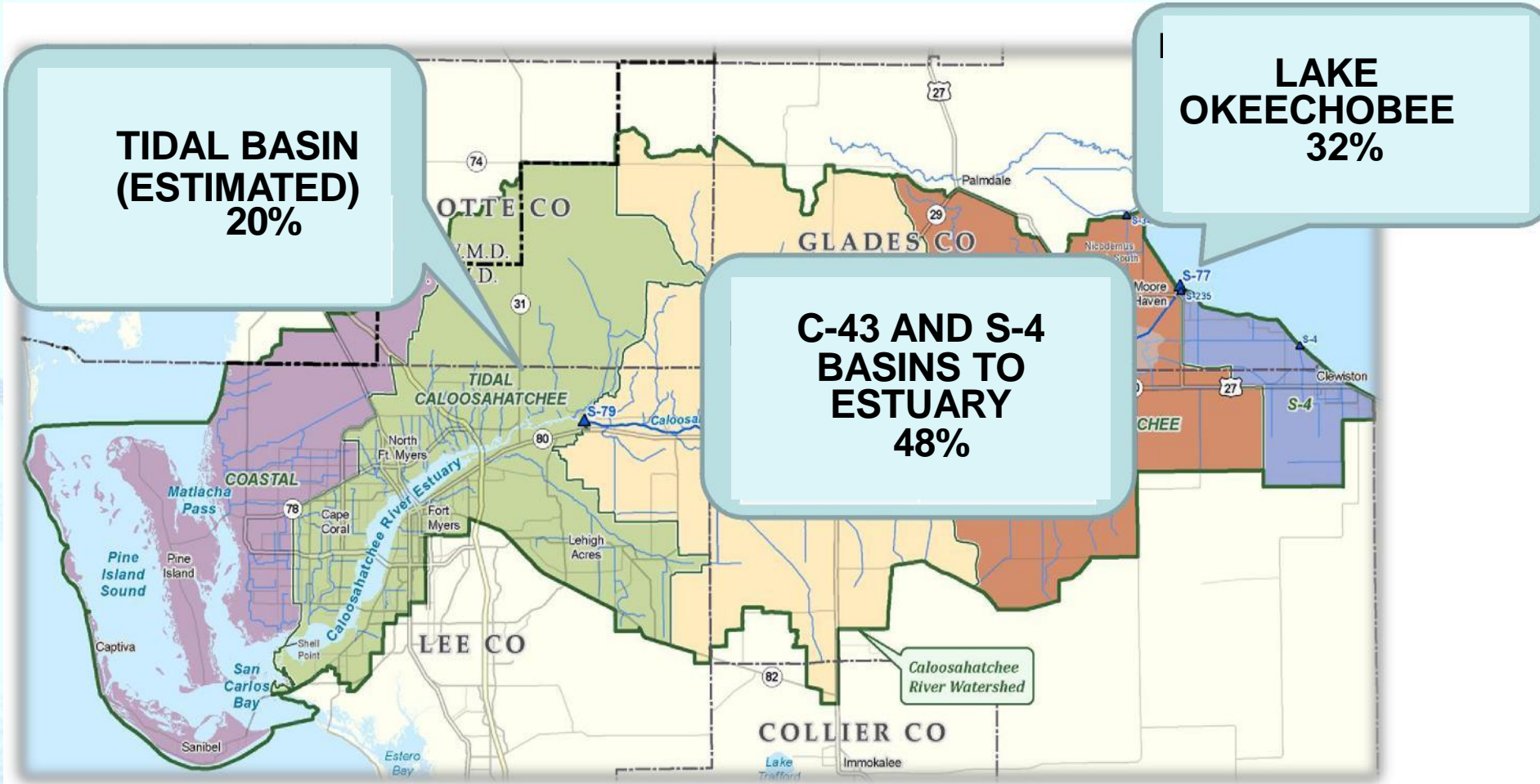
C-43 Water Quality Treatment and Testing Facility Project (Boma)



- 1700 acre parcel
- Purchase in 2007
- Water quality improvement – Nitrogen
- Testing facility- analysis underway
- Pilot scale project next step
- \$90 M cost estimate



Where the nutrients come from (based on 2011-15 Nitrogen data)



Lee County Initiatives

Proactive role in addressing the quality, quantity, timing and distribution of surface waters in Lee County

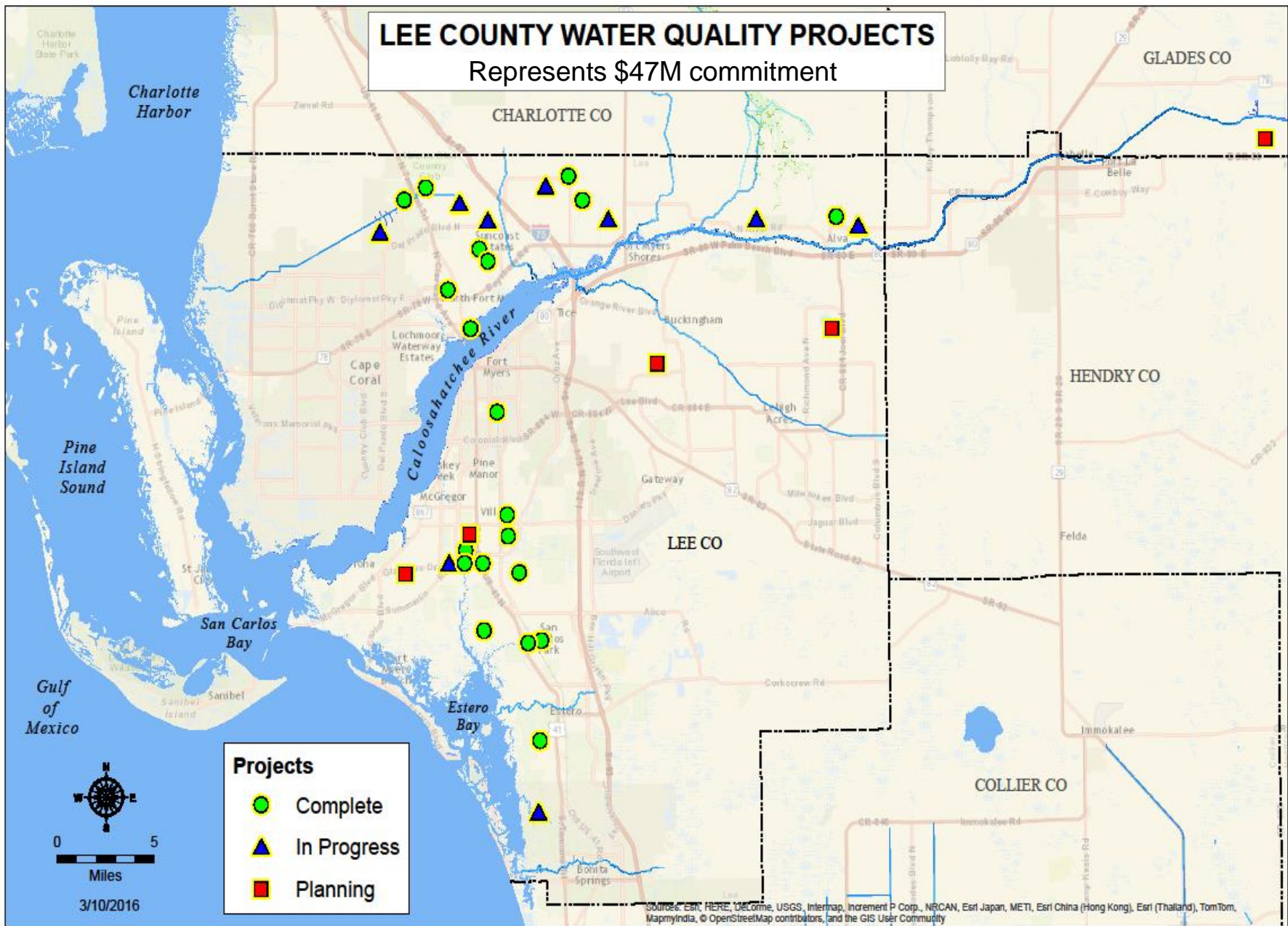
Major driver is TMDL/BMAP compliance

- Capital Improvements
- Source Control
- Conservation Land



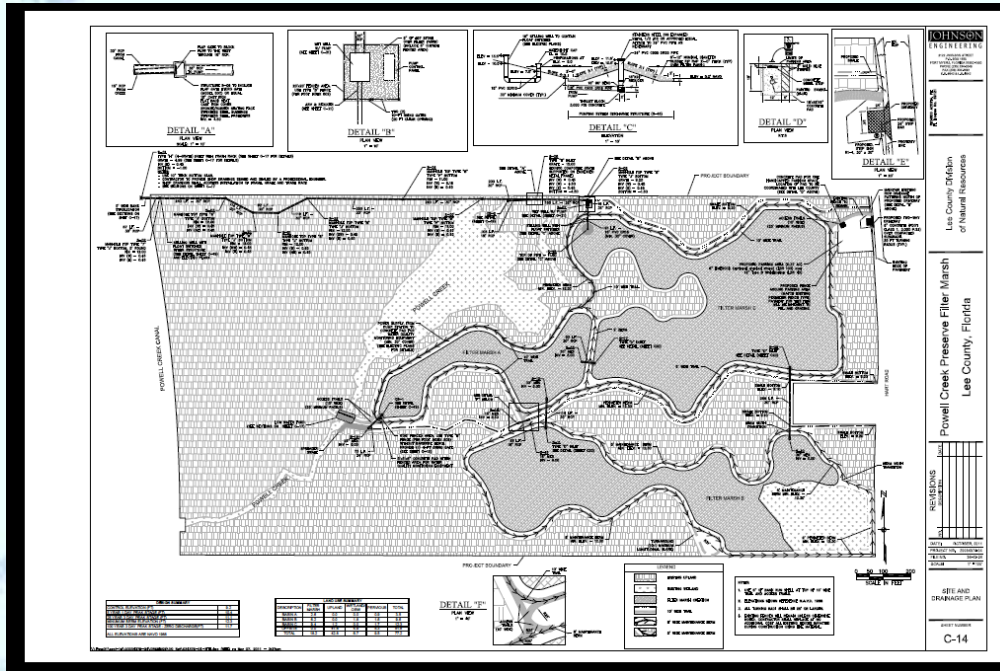
LEE COUNTY WATER QUALITY PROJECTS

Represents \$47M commitment



Source: Esri, HERE, DeLorme, USGS, Intermap, Increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Powell Creek Preserve



- 20 ac filter marsh on 77 ac parcel
- Reduction of 1188 lbs/yr TN

Popash Creek Preserve

- Interconnection of former mine pits, filter marsh and sheet flow restoration on 307 ac parcel
- 3700 acre watershed
- Reduction of 6600 lbs/yr TN



1-800-723-7425
Photo by Florida Aerial Services, Inc

092011-7832

Lakes Park Water Quality Improvements

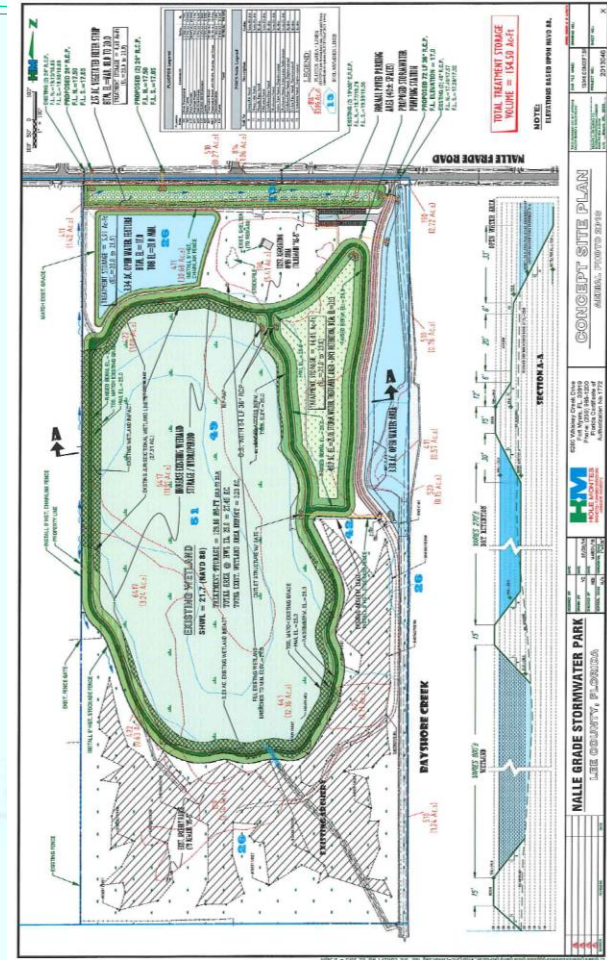
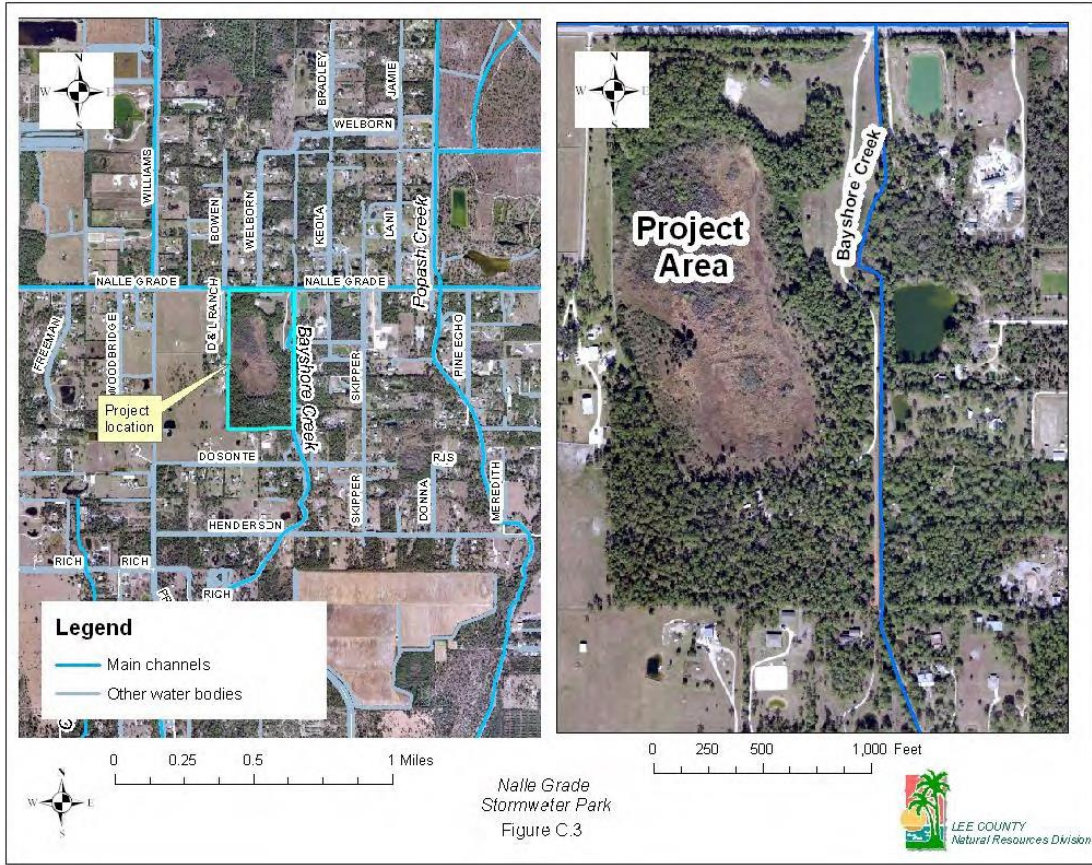
- 30 ac meandering flow-way added to regional park
- 1749 ac watershed
- Reduction of 4533 lbs/yr TN



1-800-723-7425
Photo by www.FastAerial.com

032114-4997

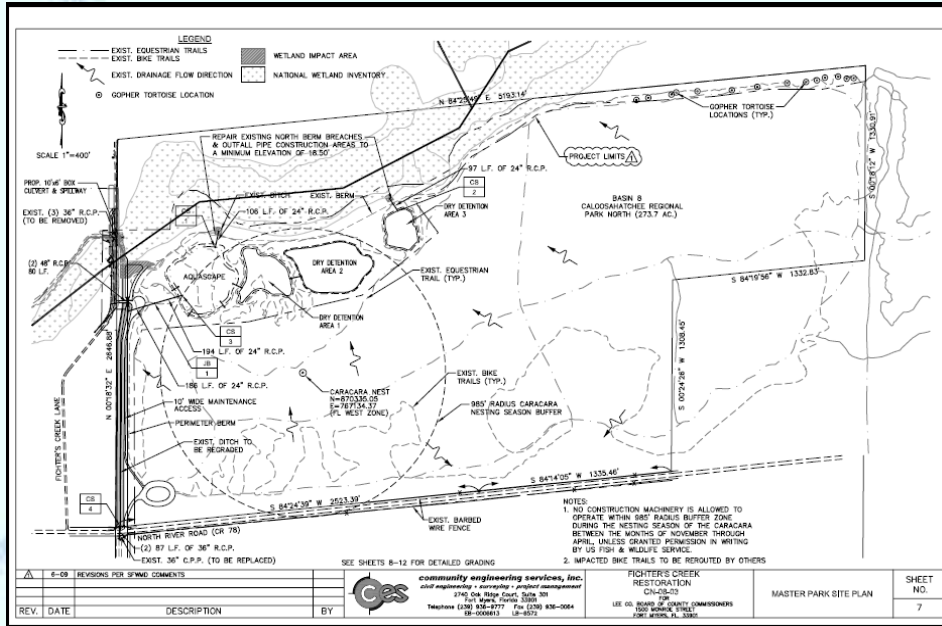
Nalle Grade Stormwater Park



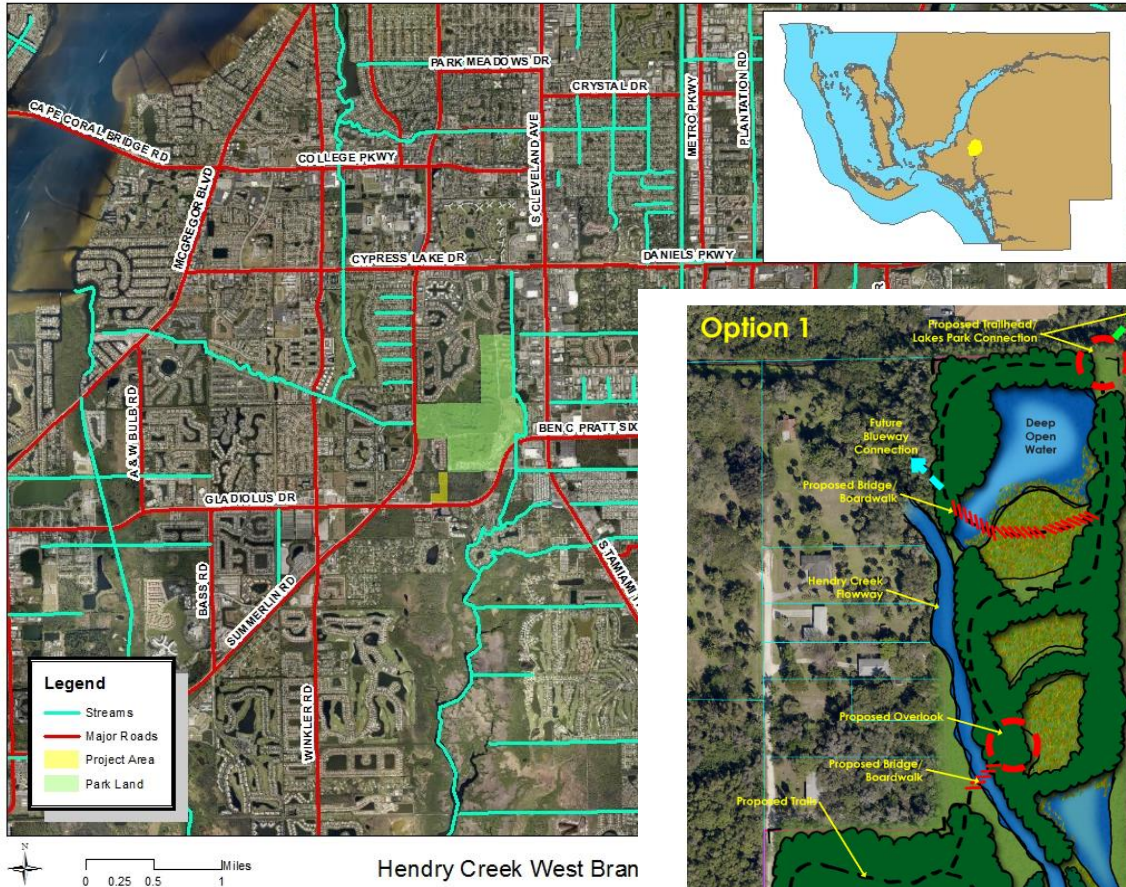
- 76.8 Acre Park Site
- 720 Acre Watershed
- Reduction of 1350 lbs/yr TN

Fichter's Creek

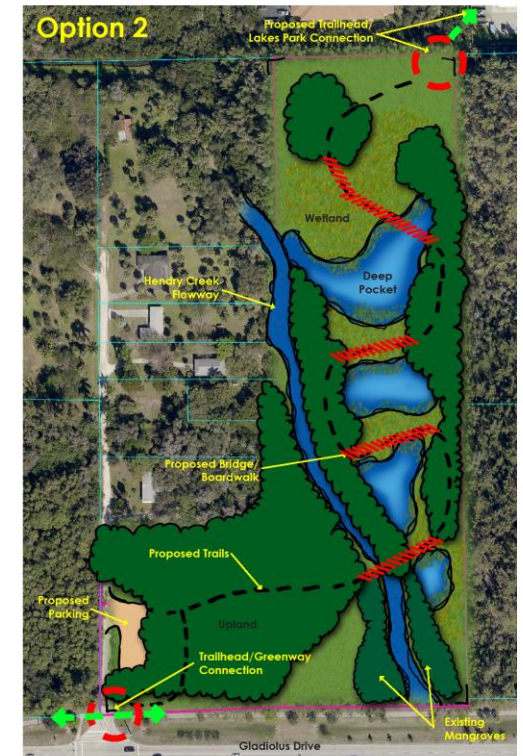
- 53 ac project on 768 ac park
- 4580 ac watershed
- Reduction of 800 lbs/yr TN



Hendry Creek West Branch Restoration

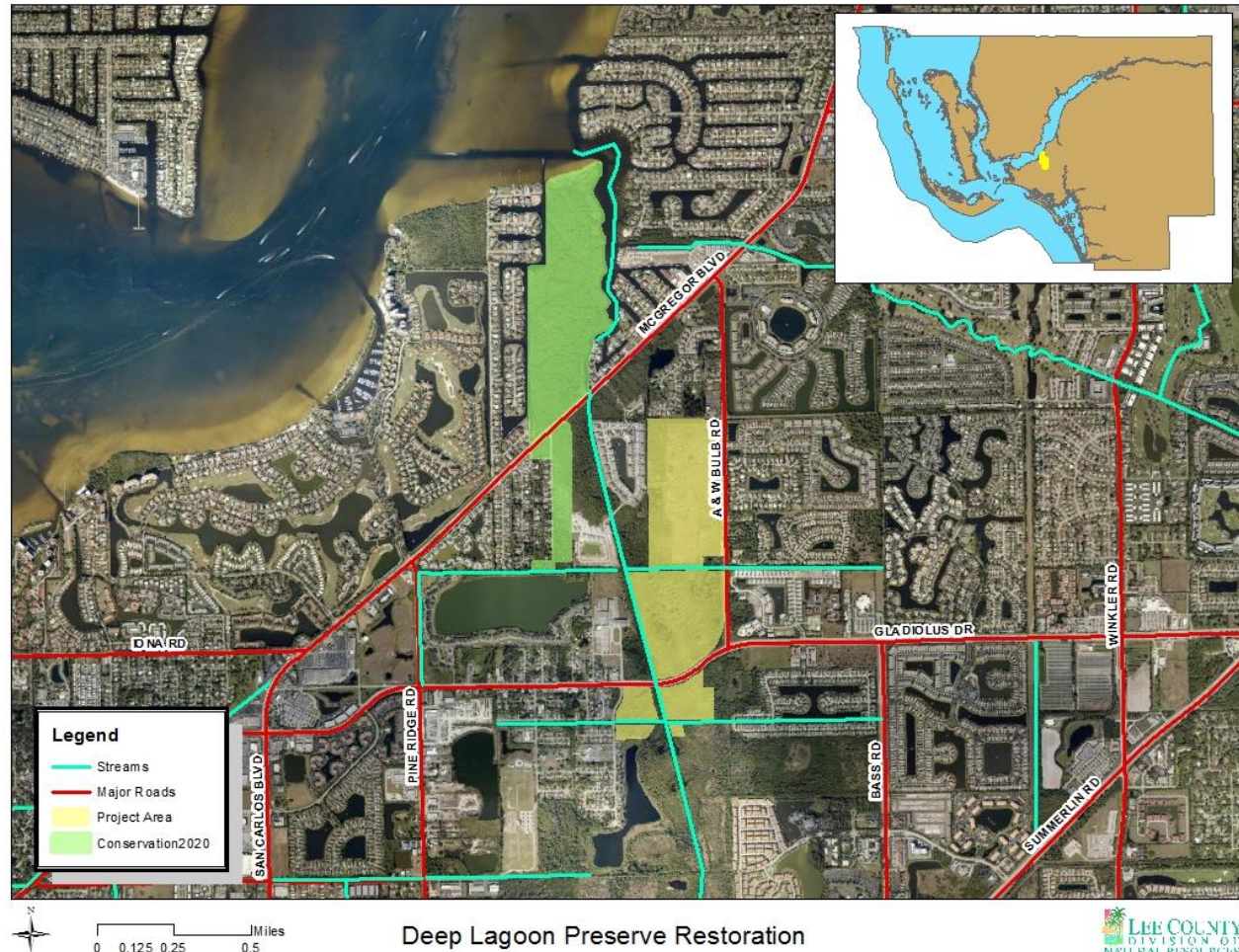


- 11 ac parcel
- Tidal influence
- TN reduction



Deep Lagoon Preserve Hydrologic Restoration

- Source identification study
- TN reduction
- C2020 lands



Filter Marsh / BMP Maintenance



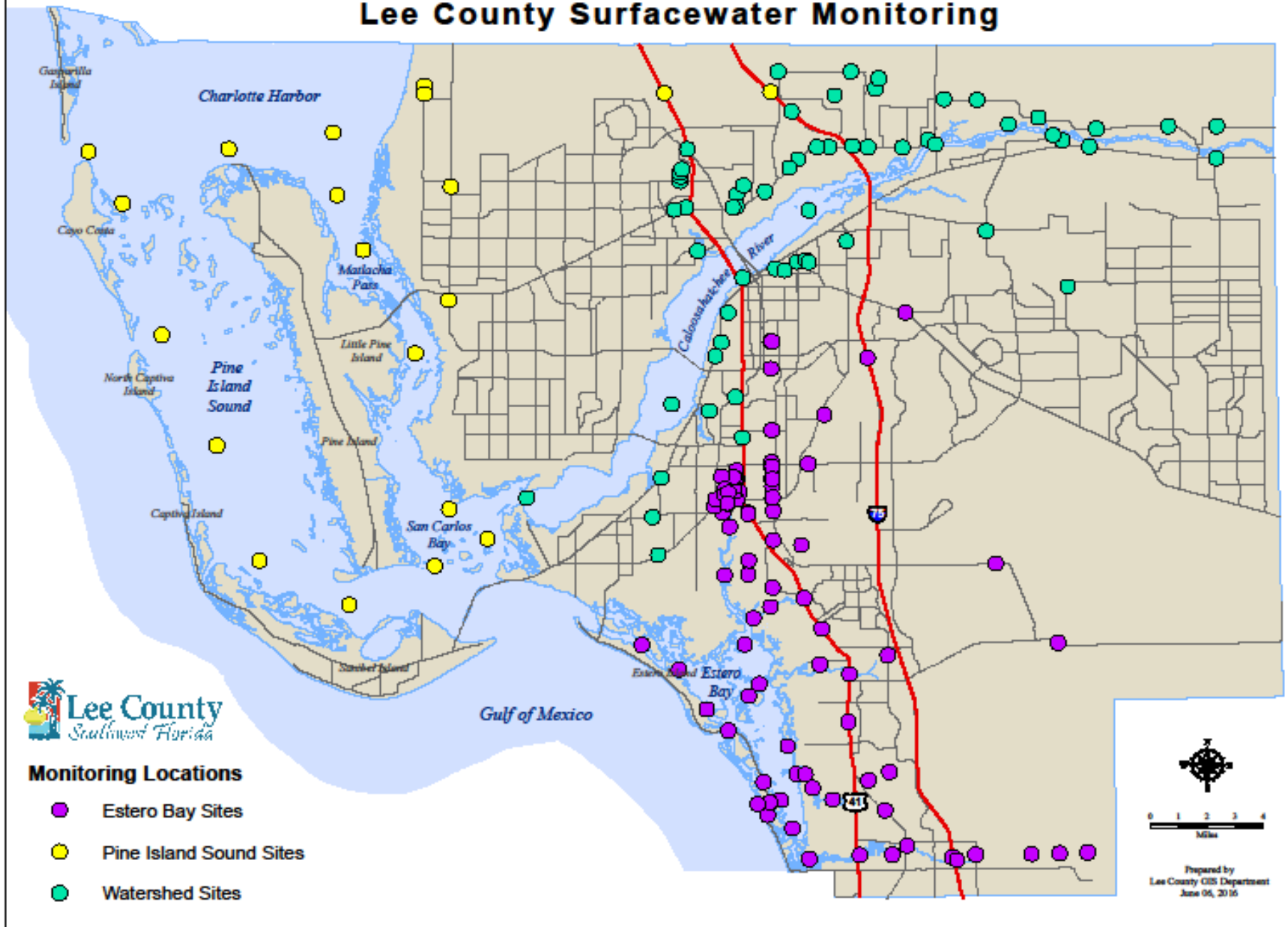
Water Quality Source Control

**Lee County
Fertilizer
Ordinance**

**Pet Waste Public
Education**



Lee County Surfacewater Monitoring



CONSERVATION LANDS

C2020 \$316m, 25,000 acres

State/Federal and other conservation lands /preserves: 69,536 acres

Private: 3605 acres

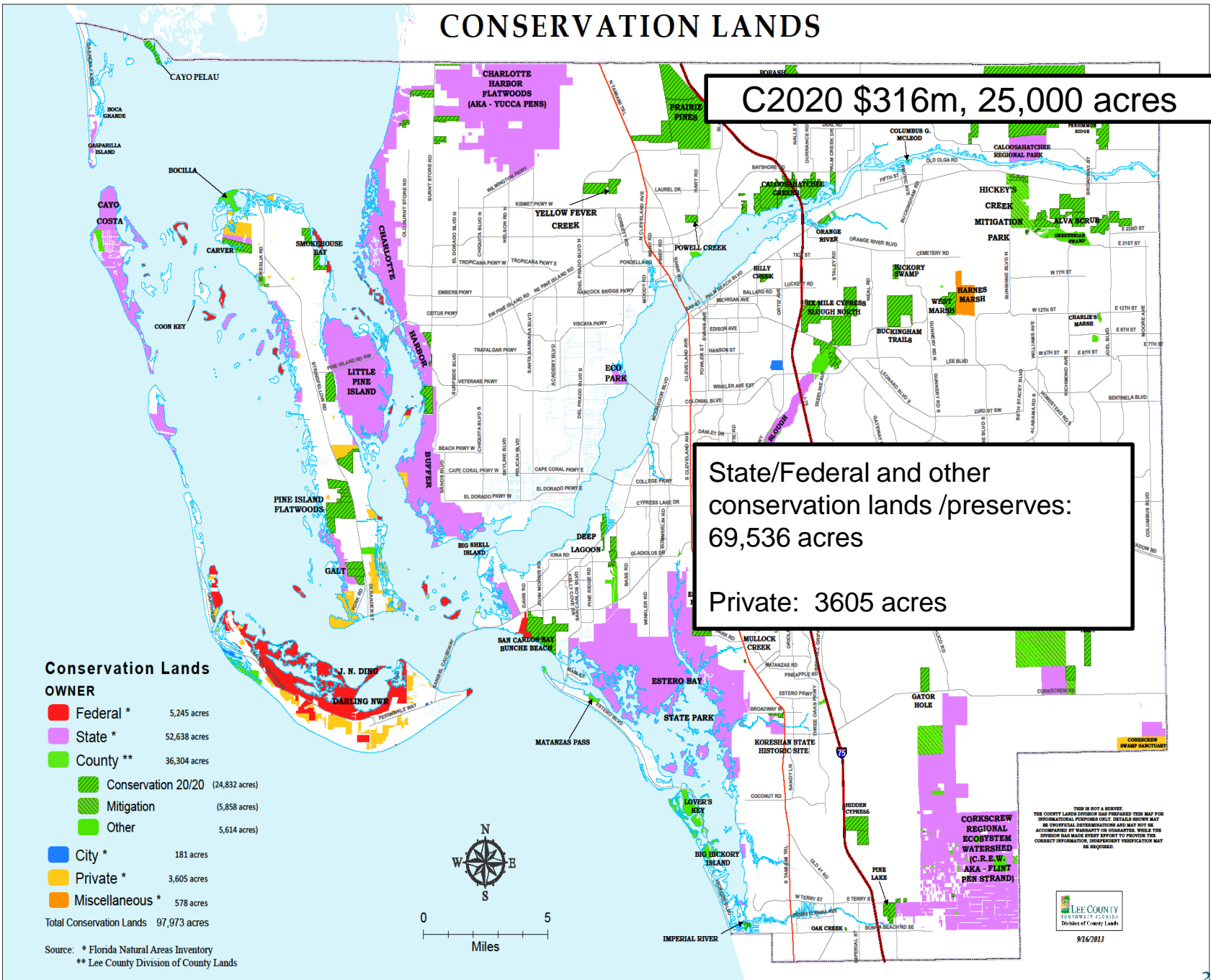
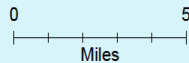
Conservation Lands

OWNER

- Federal * 5,245 acres
- State * 52,638 acres
- County ** 36,304 acres
- Conservation 20/20 (24,832 acres)
- Mitigation (5,858 acres)
- Other 5,614 acres
- City * 181 acres
- Private * 3,605 acres
- Miscellaneous * 578 acres

Total Conservation Lands 97,973 acres

Source: * Florida Natural Areas Inventory
 ** Lee County Division of County Lands



THIS IS NOT A SERVICE. THE COUNTY LARNS DIVISION HAS PREPARED THIS MAP FOR INFORMATIONAL PURPOSES ONLY. DETAILS SHOWN MAY BE INCOMPLETE, OUTDATED, OR INACCURATE. THIS THE DIVISION HAS MADE EVERY EFFORT TO PROVIDE THE CORRECT INFORMATION. INDEPENDENT VERIFICATION MAY BE REQUIRED.

LEE COUNTY
 DIVISION OF COUNTY LANDS
 9/16/2013

Lee County Investments in Water Quality/Storage

How long?

Since the early 80s Lee County has taken pro-active measures to address impairments to our waterways and preserve our natural systems....Six Mile Cypress Slough, CREW, filter marshes, storage

How much?

- 25,000 acres purchased (\$316m) from C2020 land acquisition program
- \$25 million spent on projects since 2009
- \$22 million budgeted for current and future projects through FY 20/21.
- Significant project expenditures expected over next 15 years for balance of TMDL compliance
- \$96m spent over the last 5 years in capital and operations towards stormwater management activities (per NPDES reporting data)
- Granted over \$2.5 m for 10 projects from State Water Project Appropriations in last 2 years

Lee County – Water Action Plan

Operations / Lake Okeechobee Management

- Pursue Lake O Regulation Schedule modifications post Dam Risk Assessment Study
- Advocate shared adversity

State Funding / Cost Share

- Continue support Legacy Florida for Everglades funding
- Continue support for C-43 Reservoir
- Continue support for Boma Water Quality Project
- Continue pursuit of local water quality project funding

Federal

- Support the projects listed in the Integrated Delivery Schedule (IDS)
- Advocate expedited completion of Herbert Hoover Dike Repairs
- Support appropriations for Central Everglades Planning Project (CEPP) – WRDA 2016
- Support completion of Comprehensive Everglades Restoration Plan (CERP)

Local

- **Continue water quality projects and programs in fulfillment of TMDL obligations**

Questions?

