



South Florida Water Management District Project Update

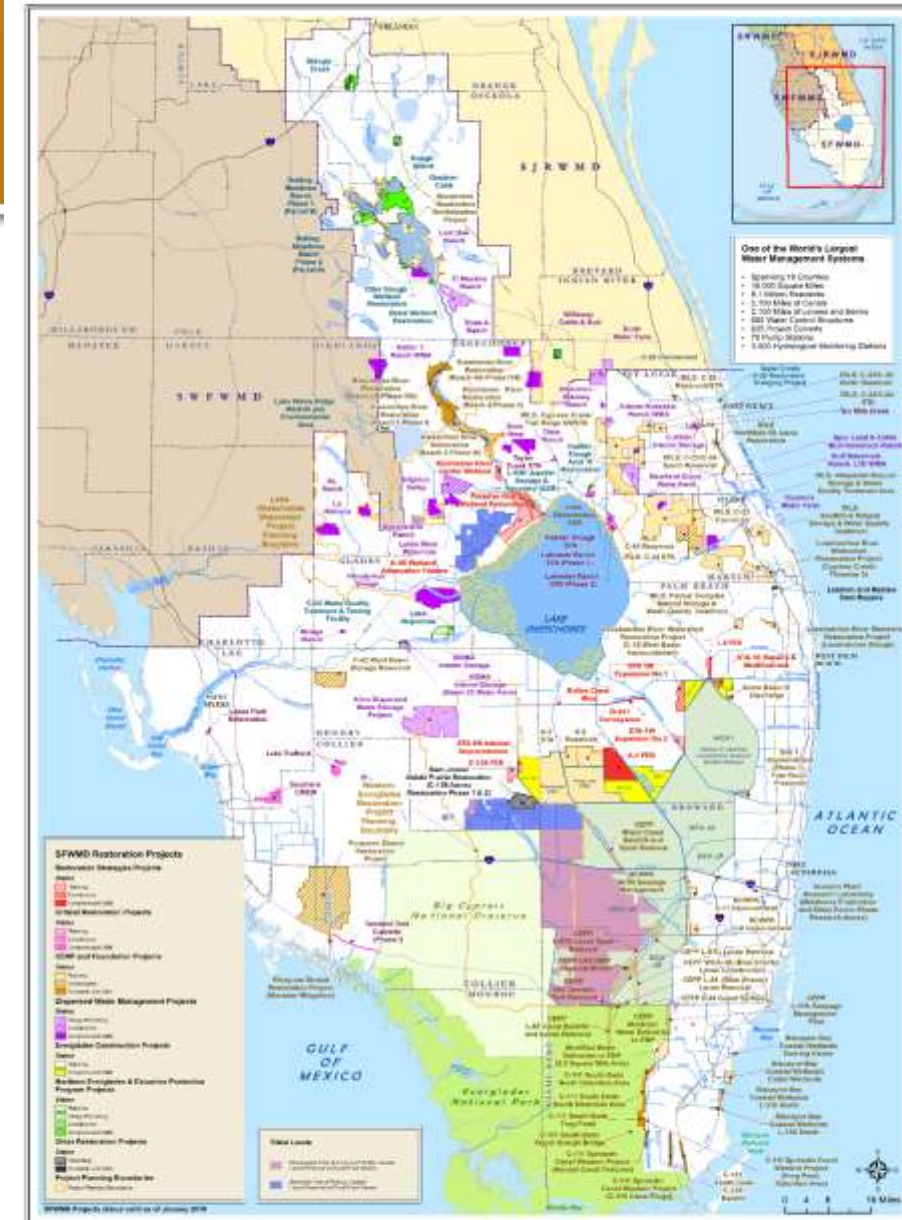
Southwest Florida Regional Planning Council
January 17, 2019

Lake Tohopekaliga in
Kissimmee



FY2018-19 Legislative Appropriation

Restoration Strategies	\$32,000,000
EAA Reservoir	\$64,000,000
Everglades Restoration	\$111,000,000
Northern Everglades	\$31,000,000
Dispersed Water Mgmt.	\$5,000,000
Herbert Hoover Dike	<u>\$50,000,000</u>
	\$293,000,000

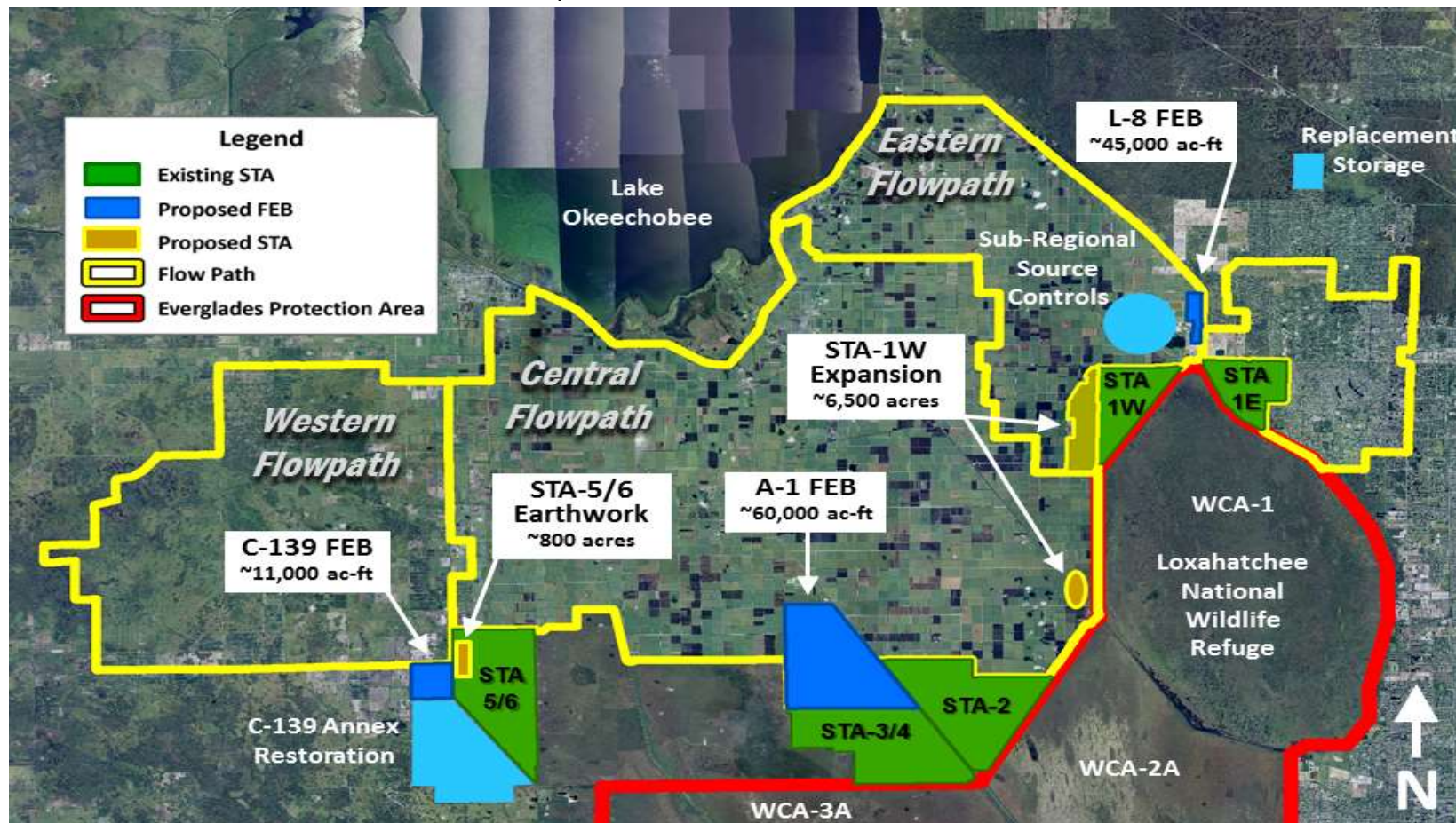




Restoration Strategies

Clean Water for the Everglades

\$880 million commitment



Storage

A-1 FEB	60,000 ac-ft
L-8 FEB	45,000 ac-ft
C-139 FEB	11,000 ac-ft

Treatment

STA-1W	6,500 acres
STA-5/6	800 acres



Dispersed Water Management Program

Shallow water distributed across parcel
landscapes using relatively simple structures



sfyrazd.gov

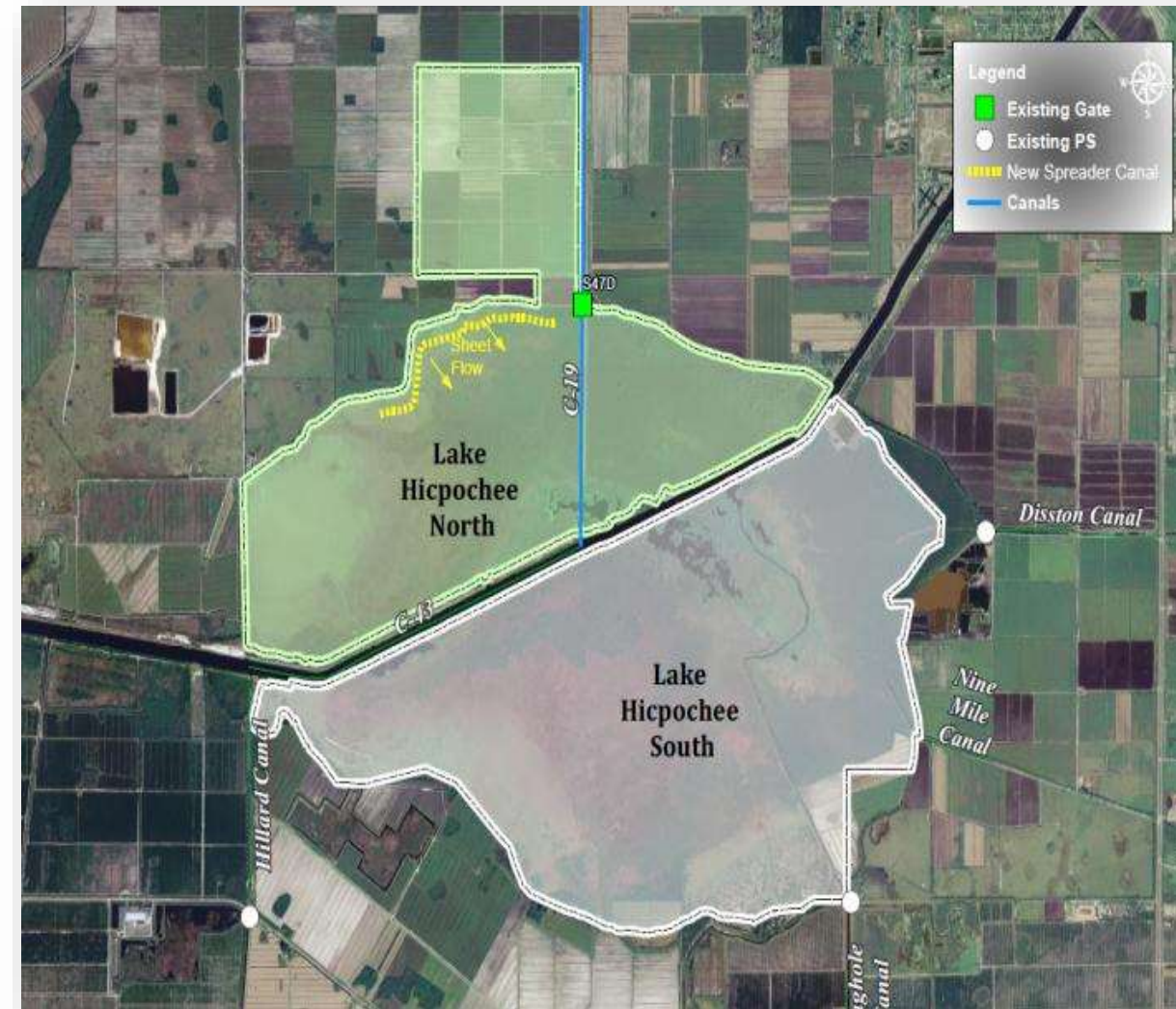
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- Map Key**
- Dispersed Water Management Projects**
Status as of August 2016
- XX Planning
 --- Design/Permitting
 ... Construction
 — O&M
- Program Plan Subtype**
- Orange Private Lands: FRESF
 Osceola Private Lands: NEPS
 Private Lands: Water Farming
 Private Lands: NEPPP
 Private Lands
 Public Lands
- Northern Everglades Watersheds**
- Lake Okechobee Watershed
 St. Lucie River Watershed
 Caloosahatchee River Watershed
- Map Labels:** SJRWMD, ORANGE, OSCEOLA, BREVARD, ATLANTIC OCEAN, GULF OF MEXICO, LOCATION MAP, Area shown on main map, SWFWMD, POLK, HIGHLANDS, DESOTO, CHARLOTTE, GLADES, HENDRY, COLLIER, PALM BEACH, BROWARD, LAKES, RANCHES, MARSHES, SLoughs, DISTRICTS, CITIES, COUNTIES, RIVERS, LAKES, OCEAN, GULF OF MEXICO, SCALE BAR (0 to 24 Miles), NORTH ARROW.



Lake Hicpochee Hydrologic Enhancement Project

Shallow water storage and hydrologic enhancement of northwest portions of headwaters of Caloosahatchee River

- 670 acre shallow storage
- First phase provides 1,279 acre-feet of storage
- Construction began 2017
- Construction complete, operational testing underway
- Acquisition of 2,510 acres for additional storage completed April 2018



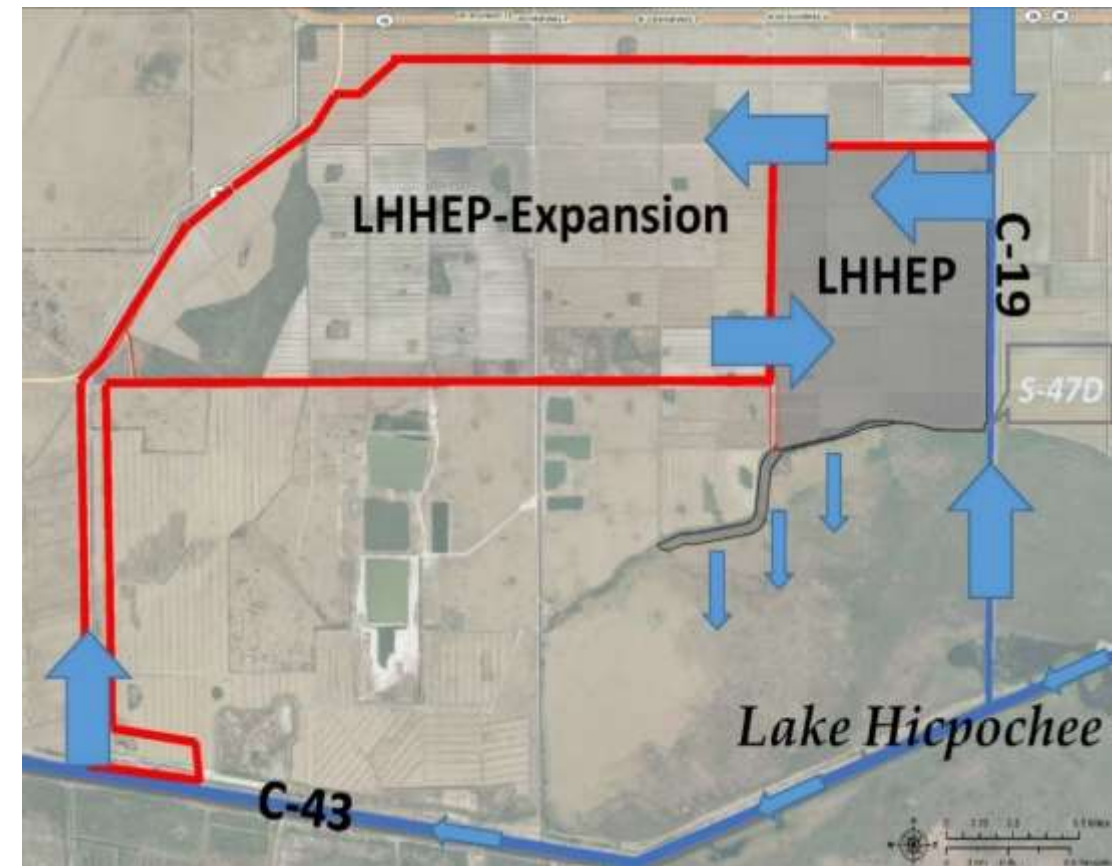


Lake Hicpochee Hydrologic Enhancement Project Expansion

Expand existing project to provide additional water storage to benefit Caloosahatchee River and Estuary

- Acquisition of 2,510 acres
- Approved by Governing Board April 2018
- 9,000 acre-feet of additional storage

Would provide additional storage, enhance ecological function, and aid in reducing nutrient loading into Caloosahatchee River





C-43 Water Quality Treatment and Testing Facility

Multi-phased project to test and implement wetland based strategies to remove dissolved organic nitrogen from the Caloosahatchee watershed

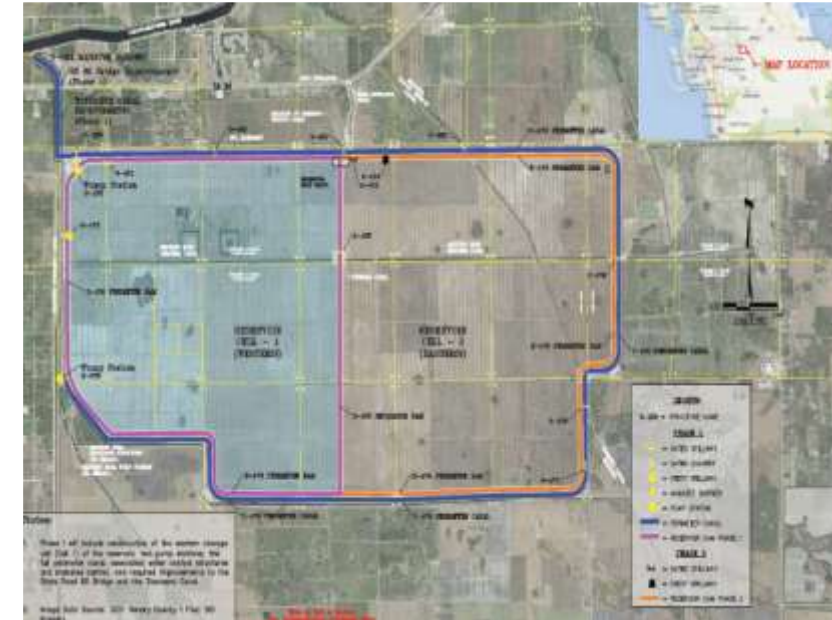
- Phase I study completed December 2018, awaiting final report
- Site being utilized for interim dispersed water management project, 2,623 acre-feet
- Additional 10,000 acre-feet of storage under development





Caloosahatchee River (C-43) West Basin Storage Reservoir

- 10,500 acres - 170,000 acre foot reservoir to improve the timing, quantity and quality of freshwater flows to the Caloosahatchee River and Estuary
- State began construction in 2015
 - Package 1: Preload & Demolition; completed
 - Package 2: Construction of S-476 (195 cfs) Pump Station; substantial completion winter 2018
 - Package 3: S-470 Pump Station; substantial completion spring 2022
 - Package 4: Civil Works (Dam); construction award in February 2019
- Scheduled for construction completion in 2022





Package 1 – Preload & Demolition

Typical Pre-Load Mound

S-474 Preload Mound Looking West





Package 2 – Irrigation PS S-476



12/31/18



Package 3 – Inflow Pump Sta S-470



S-471
Preload Mound

S-470 Excavation
Stockpile Area

Preload Mound
Stockpile Area

General Site
Stockpile Area

Dewatering
Settling Pond

Embankment
Preload Mound

Shoring Wall

Contractor's
Compound

12/31/18

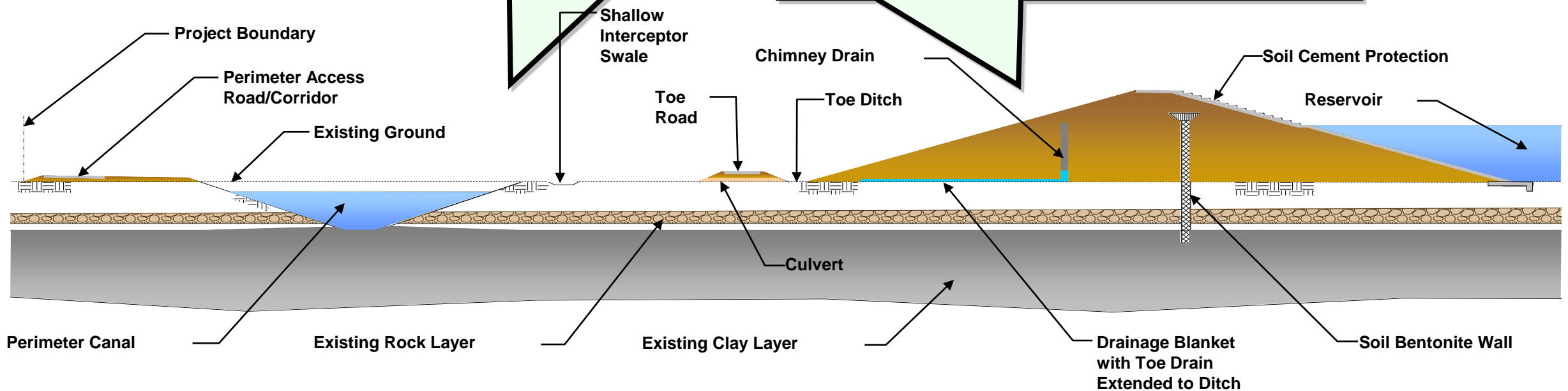
Package 4 - Dam and Canal Typical Sections

Perimeter Canal

- Approximate 110' top width
- Varying bottom width
- Varying bottom elevation
- Length: 15+/- Miles
- Excavation Volume: 3+M CY

Earth Dam

- Dam Height: 27 - 38 Feet
- Length: 16+/- Miles (Excludes Separator Dam)
- Crest Width: 14+ feet
- Water Depth: 15 - 25 Feet
- Embankment Volume: 16+M CY
- Soil-Bentonite Wall: 4+M SF
- Grassing: 600 +/- AC
- Soil Cement: 980K CY





Herbert Hoover Dike Rehabilitation

Rehabilitation being completed by
U.S. Army Corps of Engineers

Florida Legislative Appropriations to
Expedite Construction

- \$50 million FY2017
- \$50 million FY2018

Federal funds appropriated

Target to complete construction by 2022

Lake Okeechobee Regulation Schedule
(LORS) Revision Study



Tentatively Selected Plan



- Requires Remediation for Internal Erosion Risk
- Requires Remediation for Overwash Risk





Emergency Estuary Protection Well Evaluation

- Feasibility currently being explored by SFWMD. Test well beings developed to gather more scientific data
- Would be used when discharges to tide become necessary to avoid making damaging flood control discharges to the northern estuaries (i.e., no impact to available water for restoration, or water supply. Only reduction is to flow already lost to tide)
- Emergency Estuary Protection Wells could work in combination with reservoirs, Aquifer Storage and Recovery wells, Stormwater Treatment Areas and other planned restoration projects
- Long term tool to help meet estuary restoration goals



Deep injection well at Delray Beach South Central Facility, one of more than 200 active wells safely using deep injection technology in Florida



Everglades Agricultural Area Storage Reservoir

➤ Reservoir:

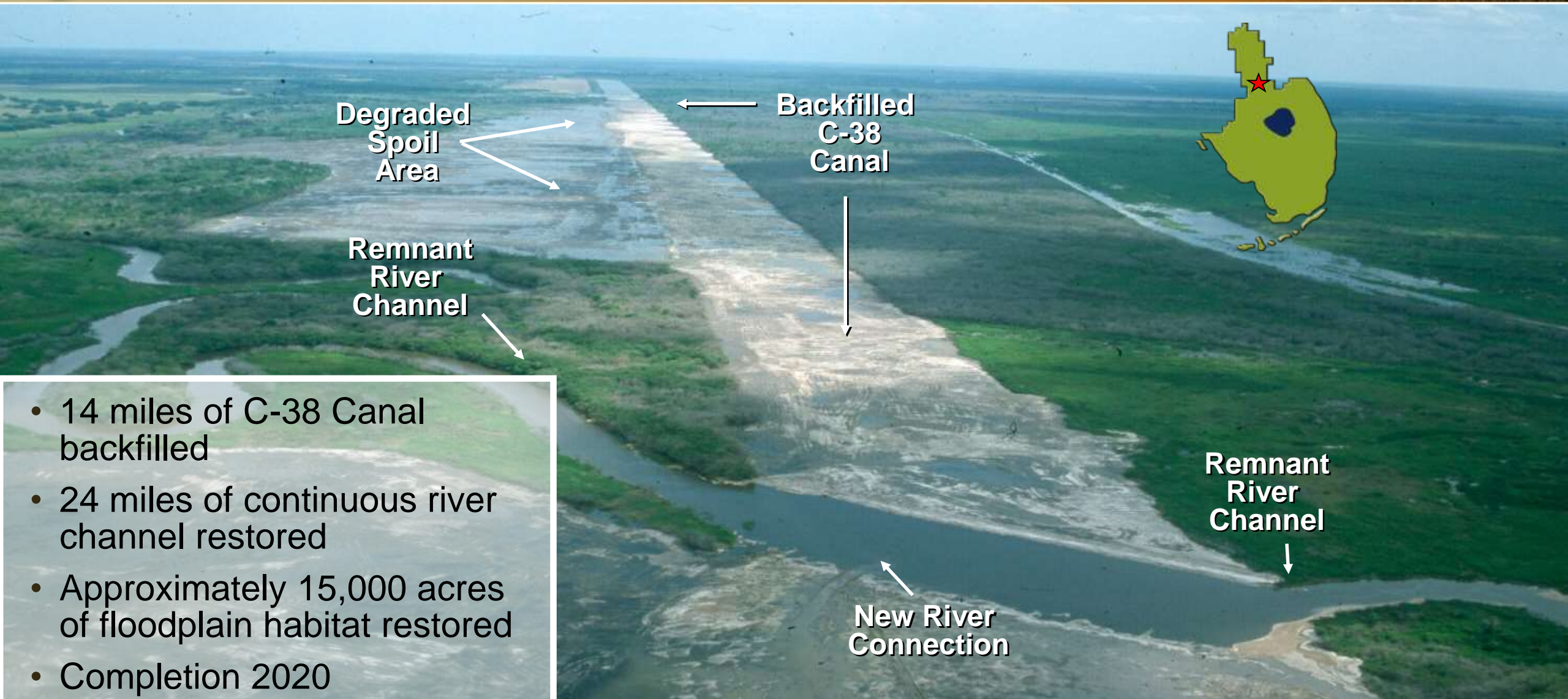
- 240,000 acre-foot of storage
- 10,500 acres, 23 feet deep
- Stormwater Treatment Area 6,500 acres
- Preserves the A-1 Flow Equalization Basin
- Site work and geotechnical investigations underway





Kissimmee River Restoration Project

Canal Backfilling Progress



- 14 miles of C-38 Canal backfilled
- 24 miles of continuous river channel restored
- Approximately 15,000 acres of floodplain habitat restored
- Completion 2020

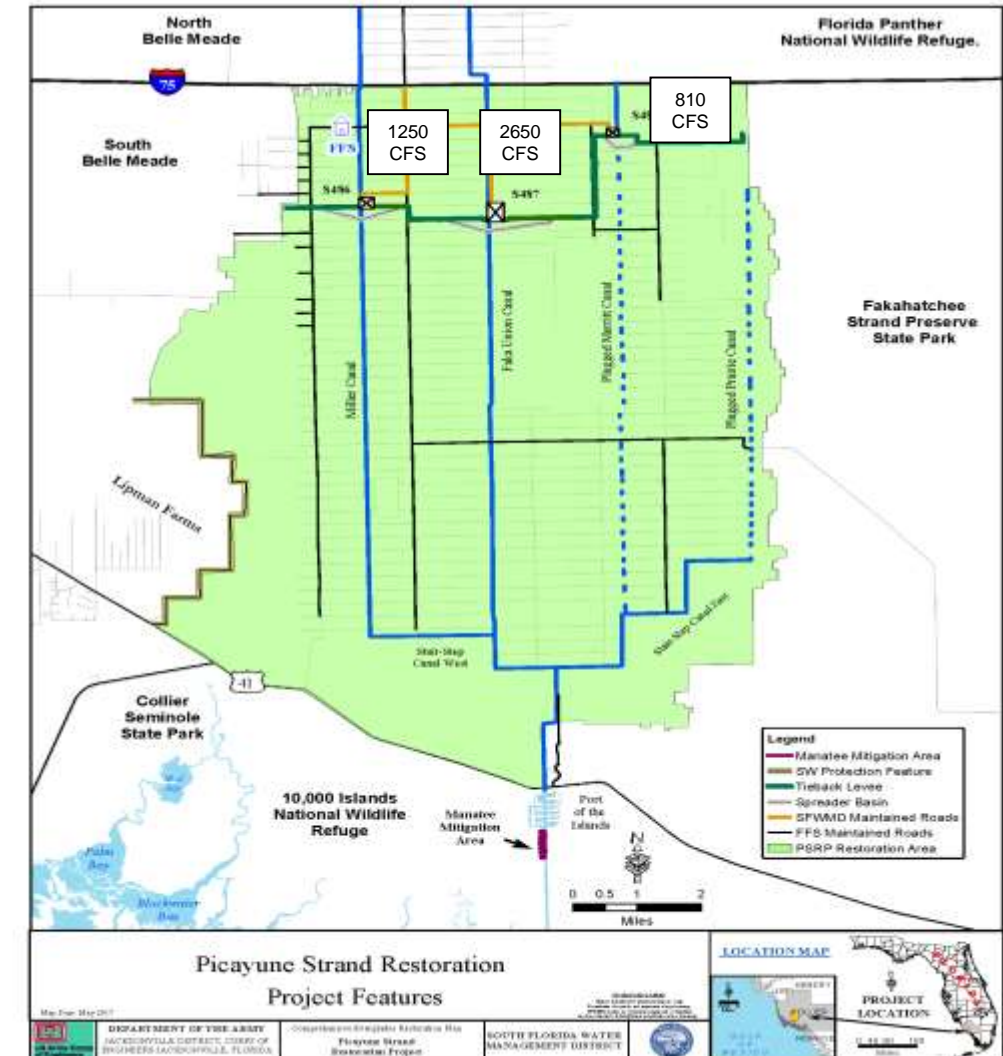


Picayune Strand Restoration Project

Restoration of water flow across 85 square miles that were drained in the early 1960s

Project features include:

- Plugging 42 miles of canals
- Removing 285 miles of roads
- Removing 62 miles of tram roads
- Three pump stations
- Protection features for adjacent lands
- Manatee mitigation
- Total project cost - \$622 M

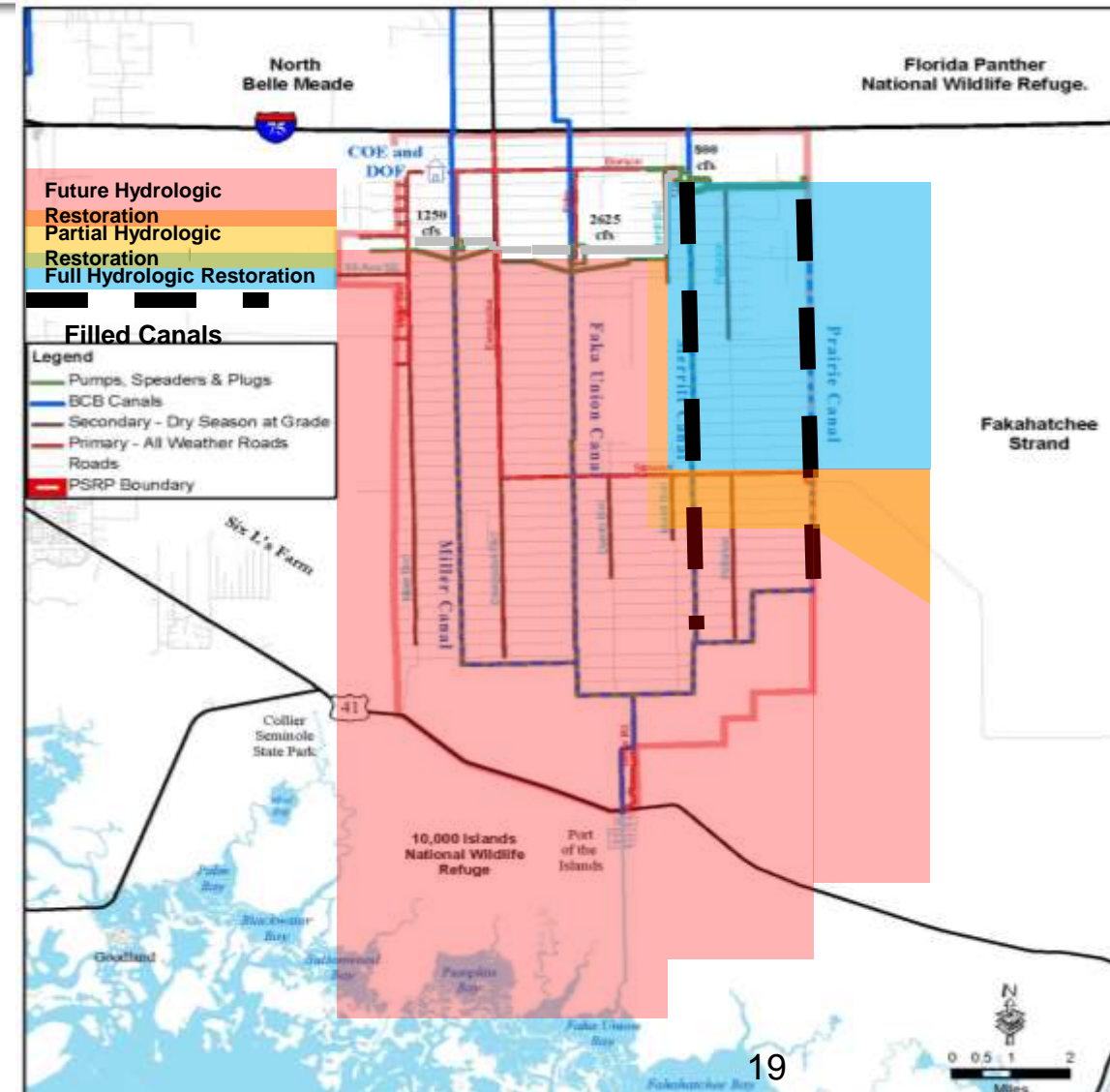




Picayune Strand Restoration Project

Current Status of the Hydrologic Restoration

- 75% of Roads Degraded
- 93% of Logging Trams Degraded
- 3 Pump Stations Complete
 - Merritt Pump Station fully operational
- Prairie and Merritt Canals Plugged
- Manatee Mitigation Feature Complete and Operational





Lake Okeechobee Watershed Project

Proposed Tentatively Selected Plan (TSP)

Alternative 1BW Wetland Attenuation Feature (WAF): Estimated Cost \$1.4 - 1.8 B



- Promotes resiliency of northern estuaries
- Promotes sustainability of Lake Okeechobee
- Increases spatial extent of wetlands in watershed
- Improves reliability of water supply
- The TSP will achieve the CERP goal of **80%** reduction in discharge events from Lake Okeechobee to the Northern estuaries. (When combined with the Everglades Agricultural Area Reservoir/CEPP planned by SFWMD last year)

<u>SHALLOW STORAGE:</u>	<u>AQUIFER, STORAGE & RECOVERY</u>	<u>WETLAND RESTORATION</u>
<ul style="list-style-type: none"> ▪ K-05 WAF ~ 13,700 acres ▪ 48,000 acre-feet of storage 	<ul style="list-style-type: none"> ▪ 80 ASR wells ▪ 448,000 acre-feet of storage per year (400 MG/Day) 	<ul style="list-style-type: none"> ▪ KRC: ~1,200 acres ▪ PR: ~3,500 acres

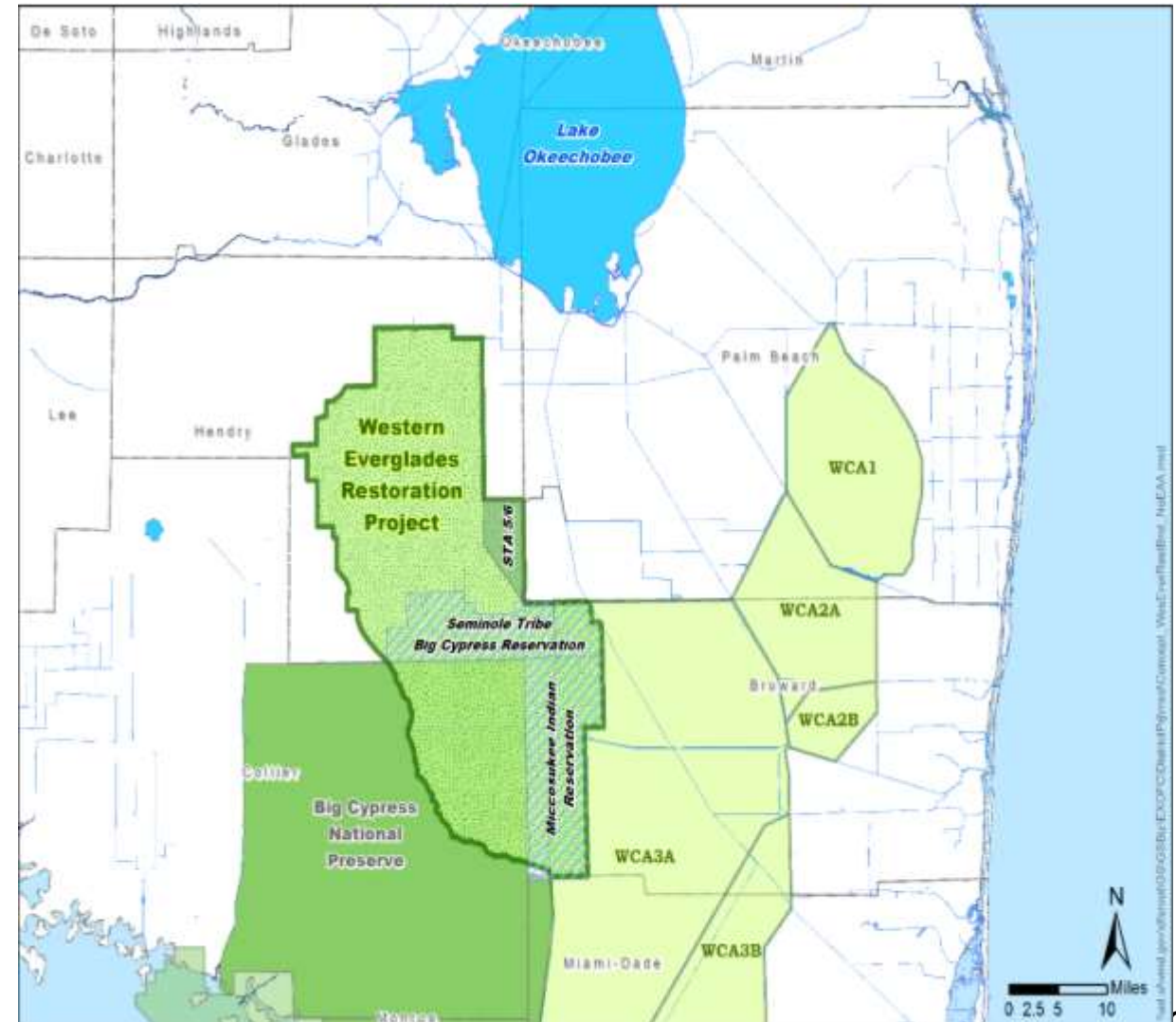
*Lake Okeechobee Regulation Schedule revision/study starts in February 2019



Western Everglades Restoration Project

Primary goals and objectives

- Improve the **quantity, quality, timing and distribution** of freshwater to natural areas
- **Reestablish sheetflow** from the West Feeder Canal across the Big Cypress Reservation into the Big Cypress National Preserve
- Maintain **flood protection**
- Feasibility analysis will investigate opportunities to improve system-wide **operational flexibility**



- Partnership between SFWMD and USACE
- Sequencing of restoration projects based on ecosystem needs, benefits and available funding

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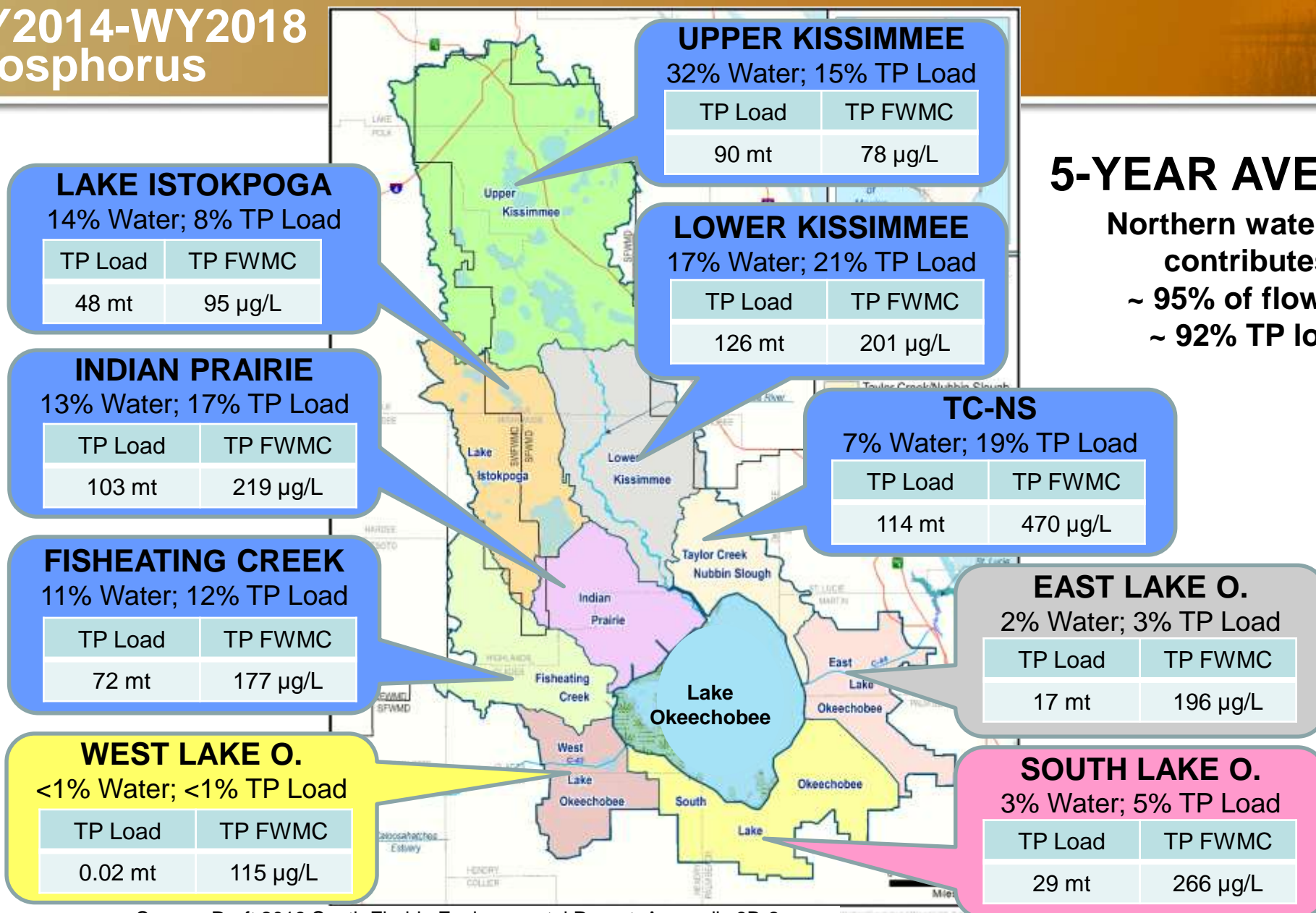
Questions

Kissimmee River channel and floodplain at Avon Park



Lake Okeechobee Inflow

WY2014-WY2018
Phosphorus



µg/L = ppb

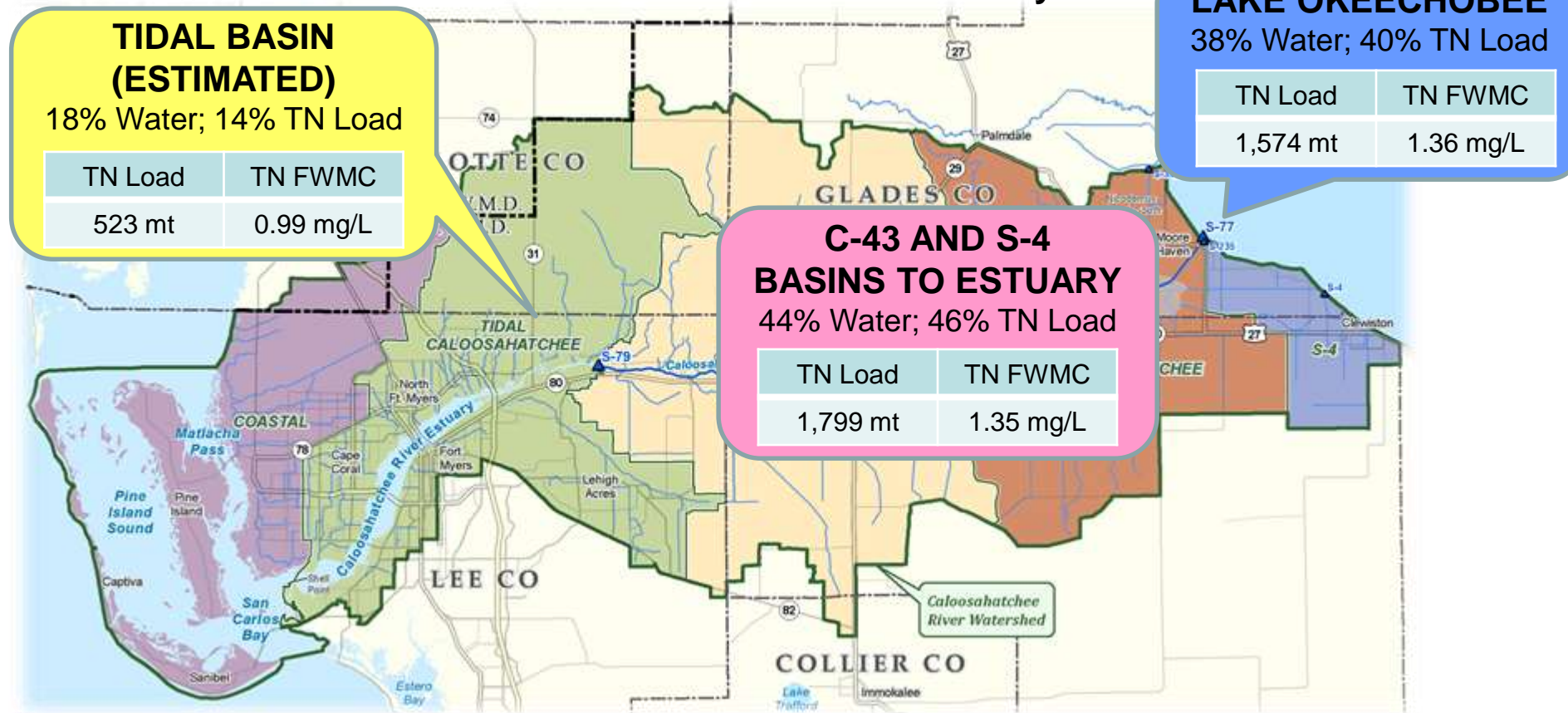


Caloosahatchee Estuary Inflows

Nitrogen WY2014-WY2018

5-YEAR AVERAGE

Local Basin Runoff accounted for about 62% of flow
and 60% of TN load to Estuary



Note: Coastal Basin runoff (west of Shell Point) is not included as Estuary contribution.

Source: Draft 2019 South Florida Environmental Report, Appendix 8C-1

mg/L = ppm

Development of an improved model watershed scale master wetland mitigation strategy for restoration, protection and public projects for local governments.

Demonstrate the effectiveness of local government scale mitigation planning coordinated with future public works projects in achieving the goals of wetland and water quality protection, watershed restoration, and completion of necessary public infrastructure projects.

Project Goals

- Develop an improved model local government watershed scale wetland mitigation strategy for wetland restoration, wetland protection, and water quality improvement and public project mitigation at the local government scale that is transferable to other Florida counties.
- Depending upon the parameters in other States this will likely be transferrable to other local governments in other States that have a governance system similar to the Florida's.

How to Do a Master Mitigation Plan (Lee County Example)

Review of the existing Lee County Mitigation Plan

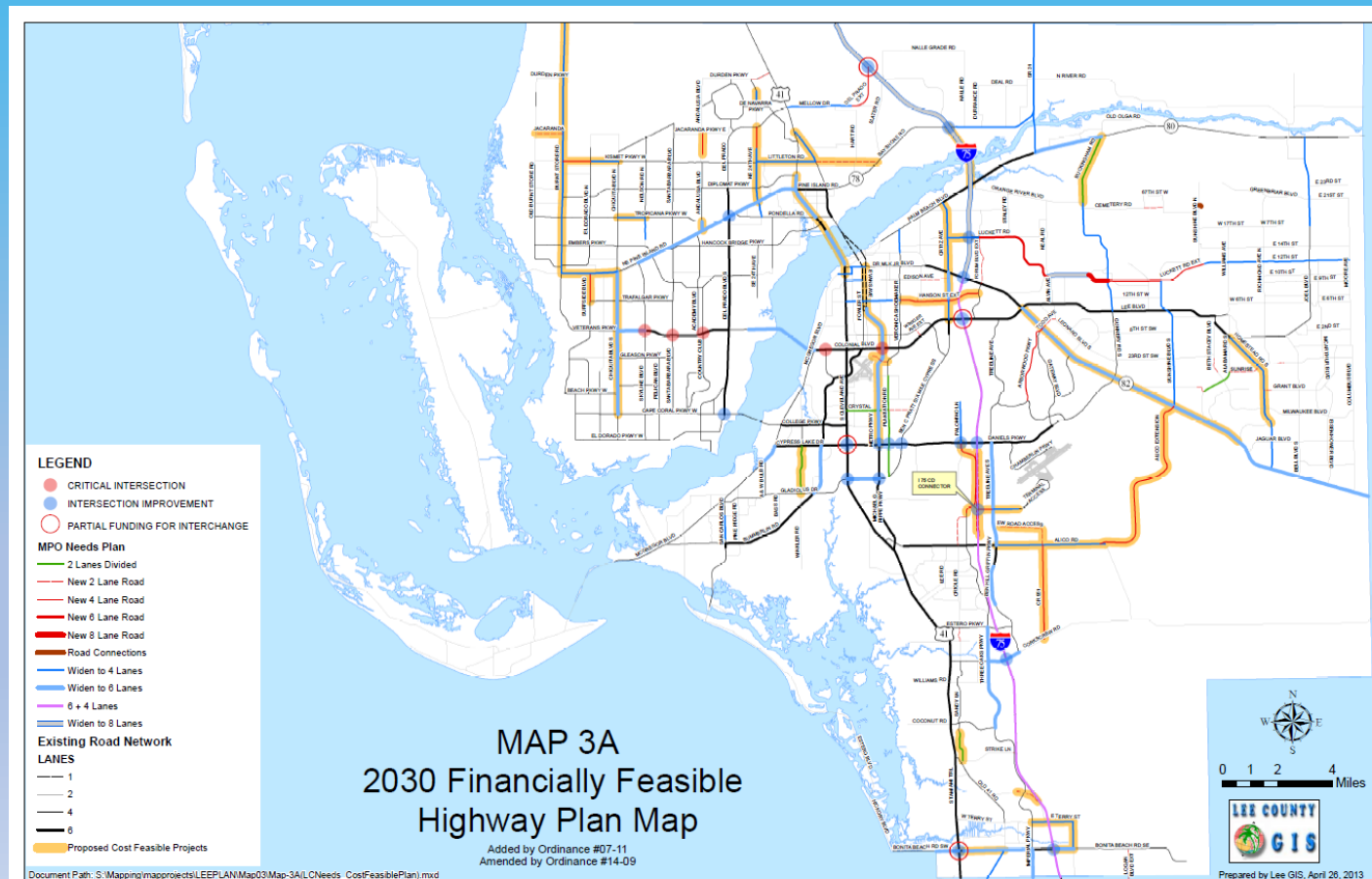
Lee County Master Mitigation Plan
(Environmental Quality Investment and Growth Mitigation Strategic Plan)

May 16, 2007

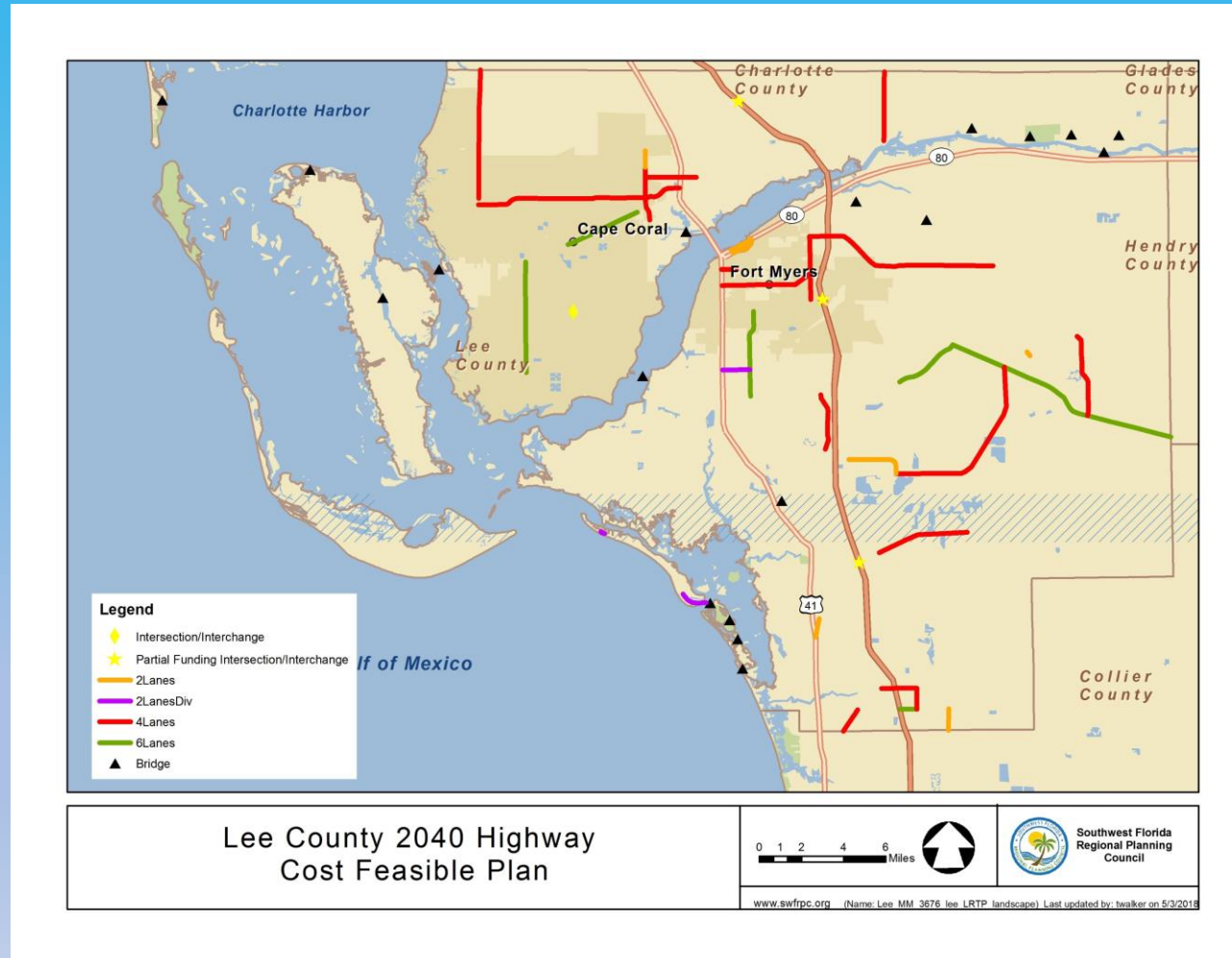
Calculation of the ecosystem services values for the collected mitigation projects using the ECOSERVE total ecosystem services method

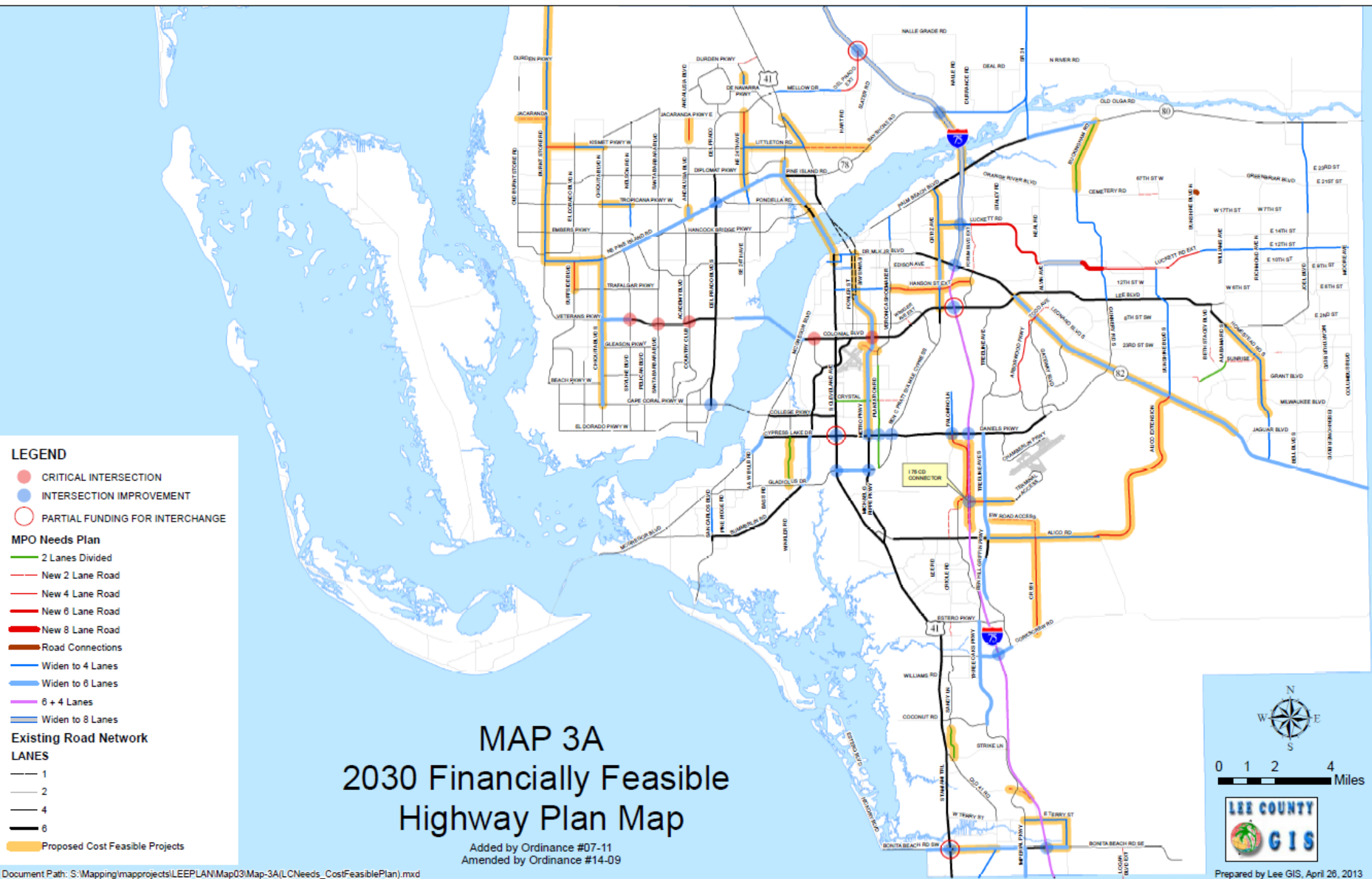
Project	Total Pre-construction Total Ecosystem Services Value (TEV) per year	Total Post-construction TEV per year	Net TEV gain	NET TEV gain/acre
Ten-Mile Filter Marsh Canal	\$111,674.38	\$467,647.38	\$355,973.00	\$12,921.82.
Estero Marsh Preserve	\$141,653.86	\$23,405,013.17	\$23,263,359.30	\$95,353.36
Briarcliff Canal Filter Marsh	\$60,806.70	\$254,634.00	\$193,827.30	\$12,921.82.
Totals	\$314,134.94	\$24,127,294.55	\$23,813,159.30	

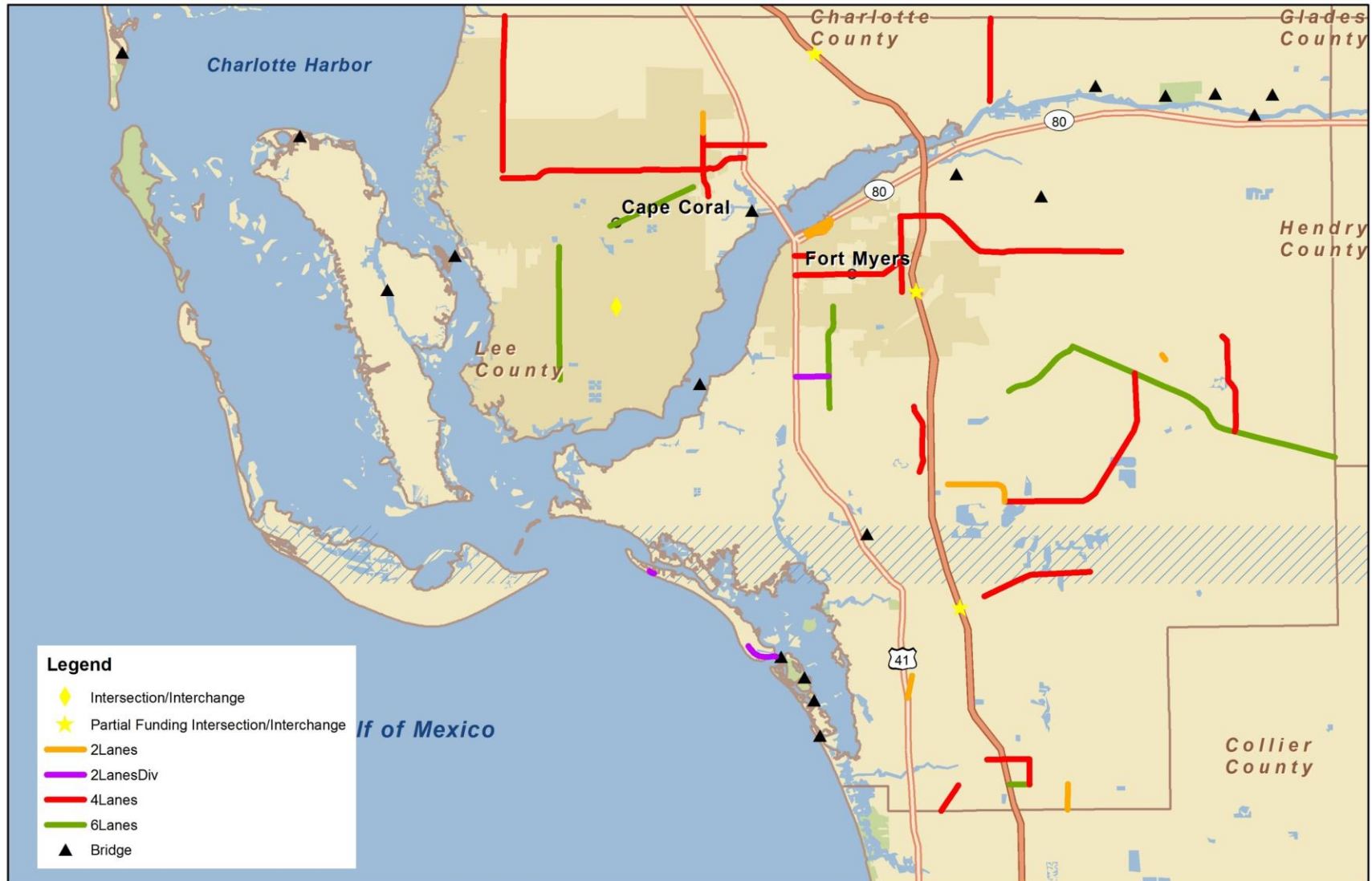
Development of the new list of upcoming public infrastructure projects for the projected planning future with the compatible in watershed mitigation project



Step 1: Collect data on the proposed road, rail, port, airport, public transit, and utilities projects proposed within the plan timeframe







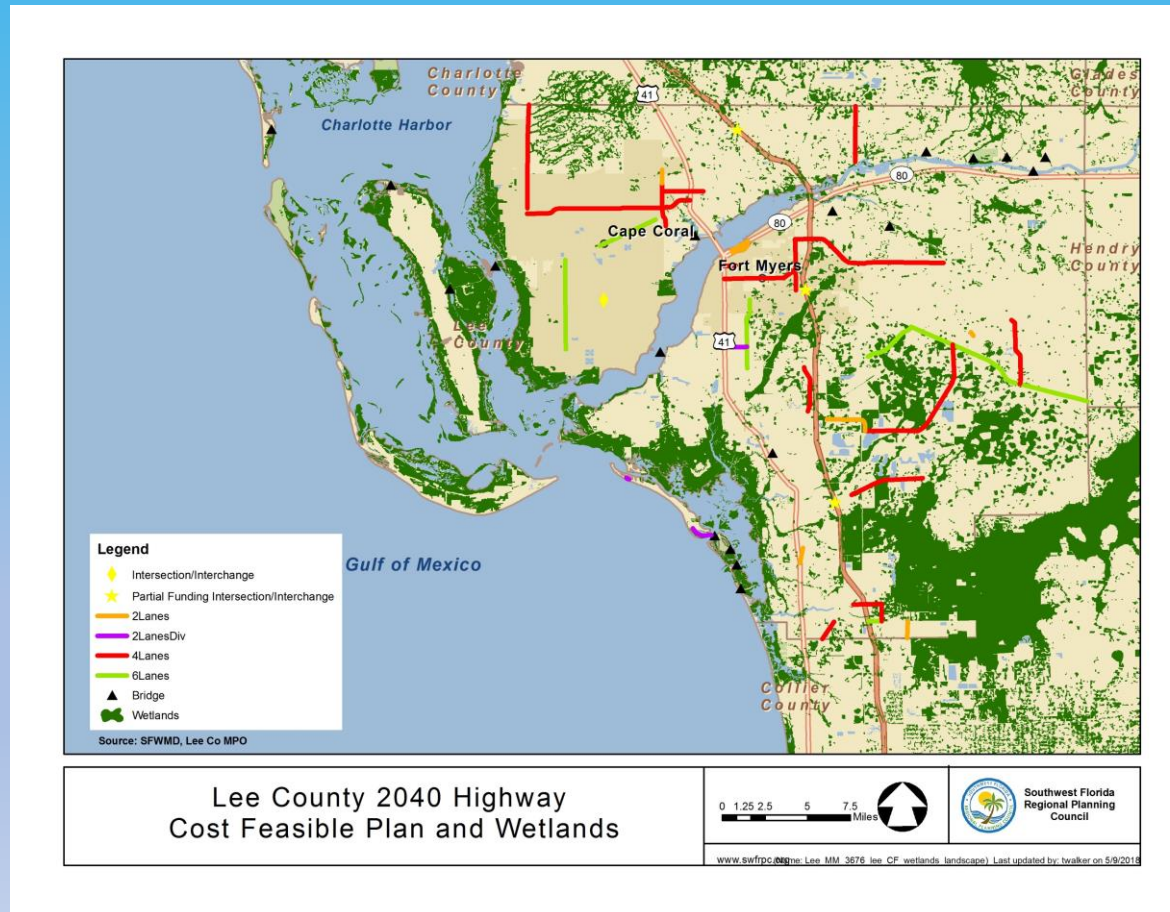
Lee County 2040 Highway Cost Feasible Plan

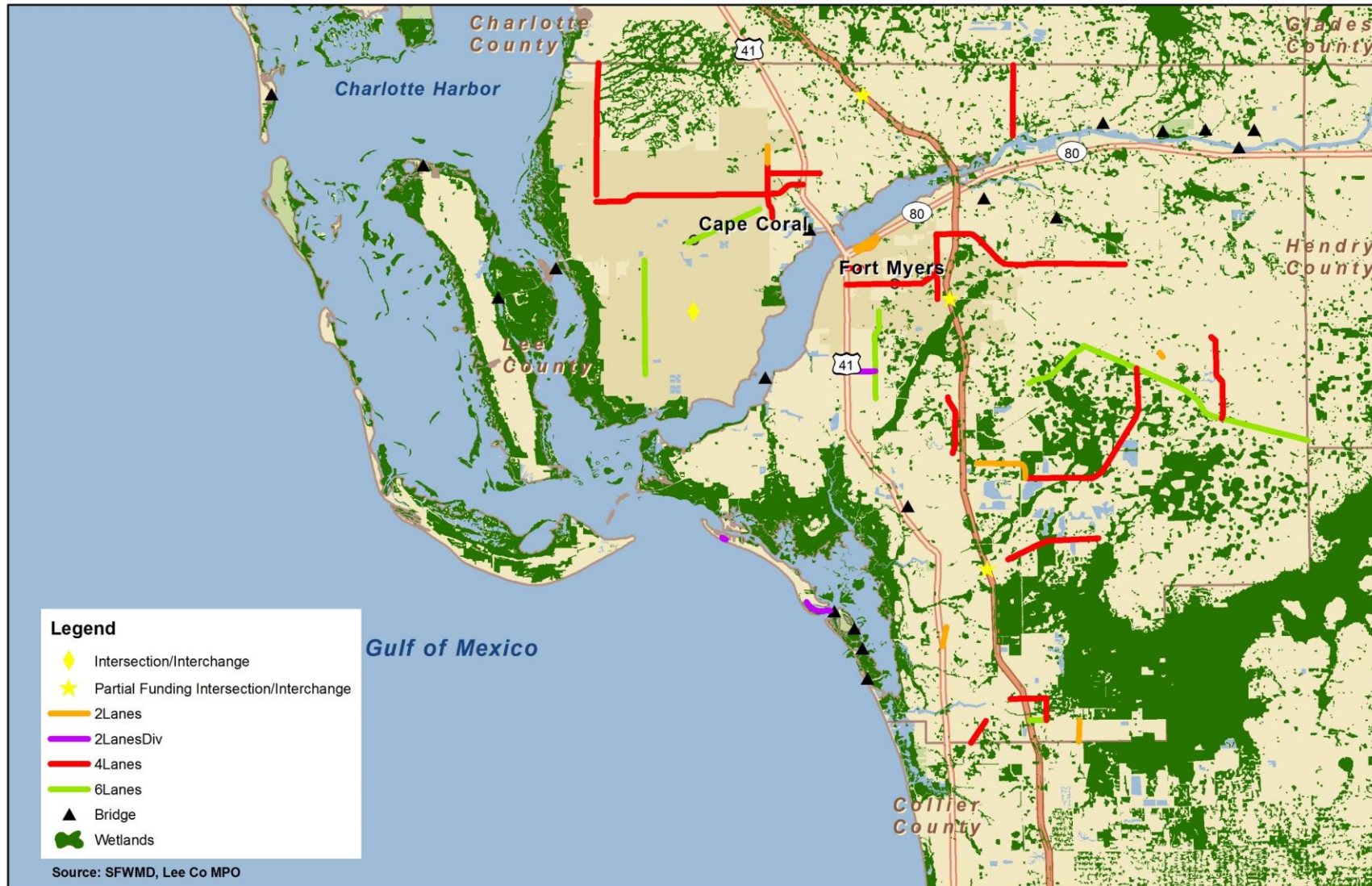
0 1 2 4 6 Miles



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Step 2: Overlay projects with maps of wetlands, listed species, conservation lands, and conservation easements. (This could also include archeological and cultural features)





Lee County 2040 Highway Cost Feasible Plan and Wetlands

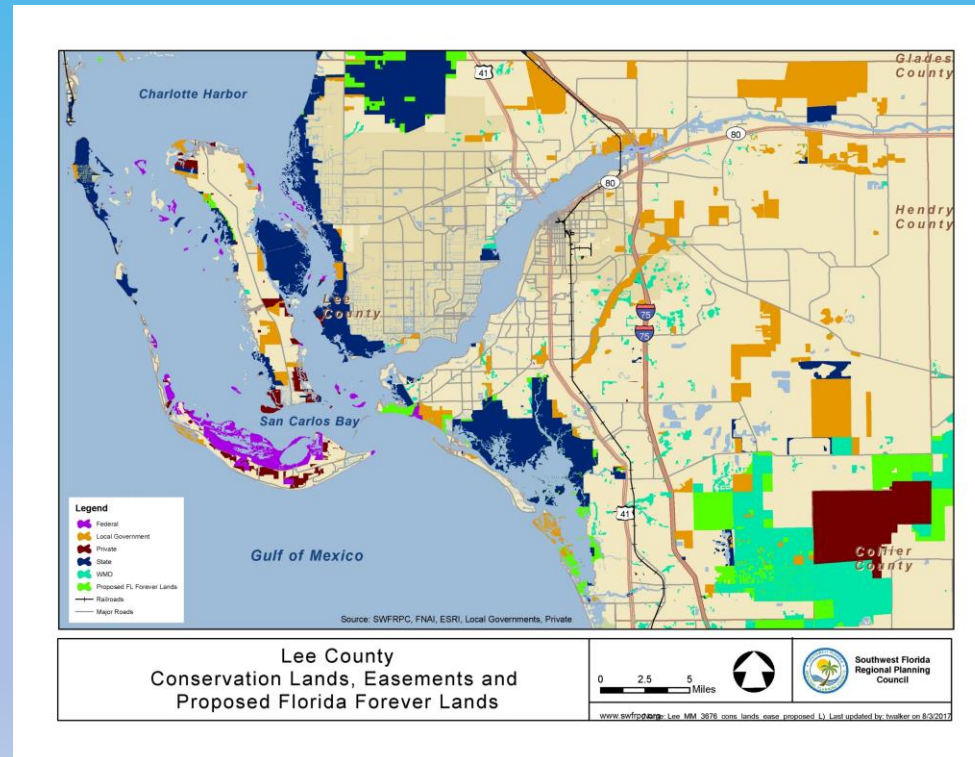


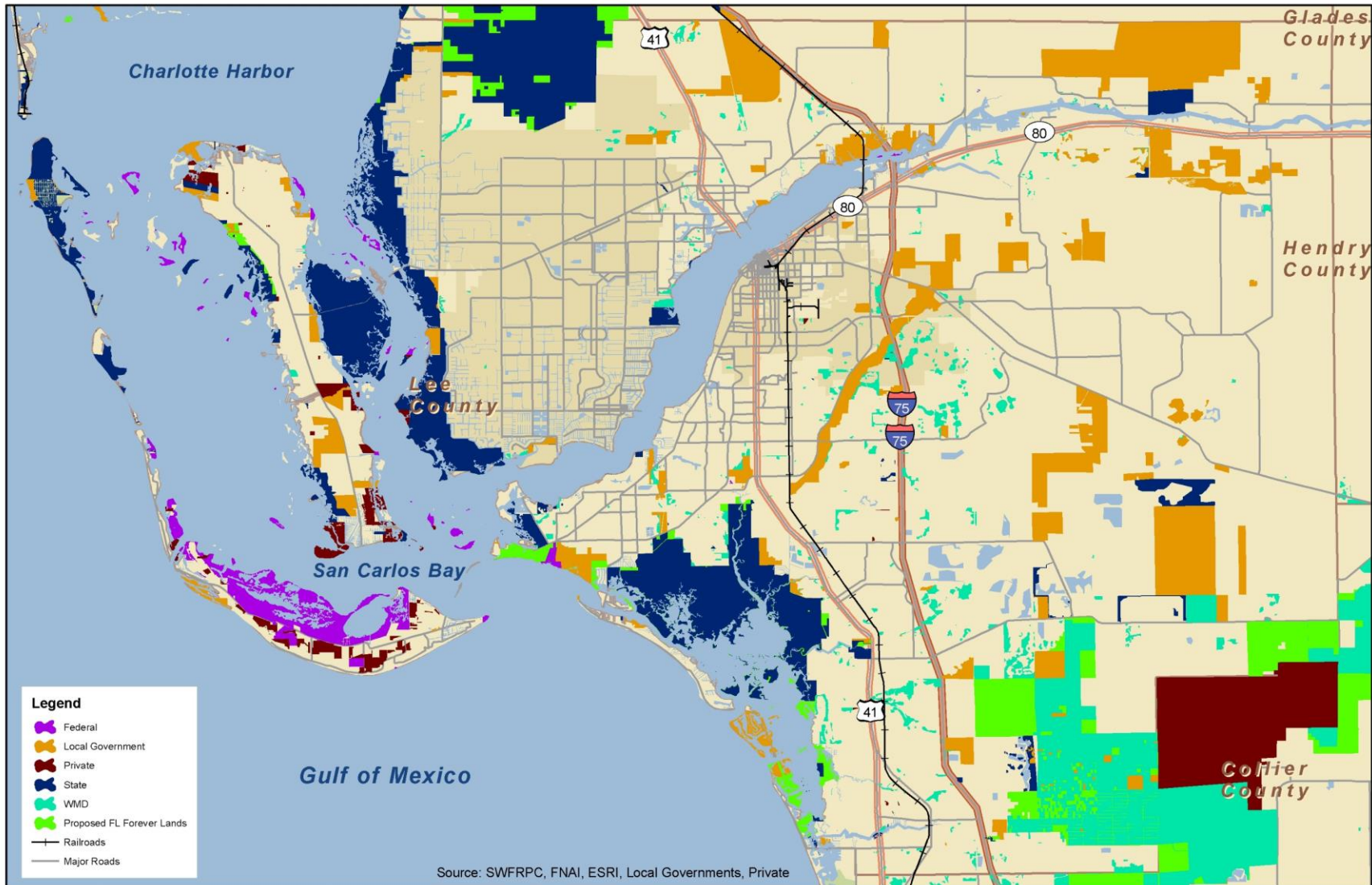
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Step 3: Quantify the intersection of the projects with the wetland resources

ID	Location	Lanes	Length in wetlands (ft)	Size of Lane (ft)	Area (square feet)	Acres of Impact
1	3 Oaks Pkwy Ext	4	2,650.29	68	180,219.84	4.14
2	Alico Green Meadows	4	14,280.90	68	971,101.42	22.29
3	Ben Hill to Alico	2	5,565.65	44	244,888.44	5.62
4	Burnt Store Rd	4	1,078.83	68	73,360.19	1.68
5	Corkscrew Rd	4	5,520.14	68	375,369.28	8.62
6	Diplomat Pkwy	4	54.53	68	3,707.89	0.09
7	E Terry St/Bonita Grande	4	5,246.39	68	356,754.52	8.19
8	Hanson Ext	4	83.52	68	5,679.62	0.13
9	Logan Ext	2	8.13	44	357.73	0.01
10	Luckett Ext	4	3,189.72	68	216,901.04	4.98
11	NE 24th Ave Ext	2	1,124.64	44	49,484.28	1.14
12	Seaboard St	2	540.01	44	23,760.46	0.55
13	SR 82	6	561.49	92	51,656.90	1.19
14	State Road 82	6	2,999.76	92	275,977.85	6.34
	Total					64.95

Step 4: Gather information of the conservation needs of local government, state government, federal government and Non-governmental conservation lands along with available mitigation banks.





Lee County Conservation Lands, Easements and Proposed Florida Forever Lands

0 2.5 5 Miles



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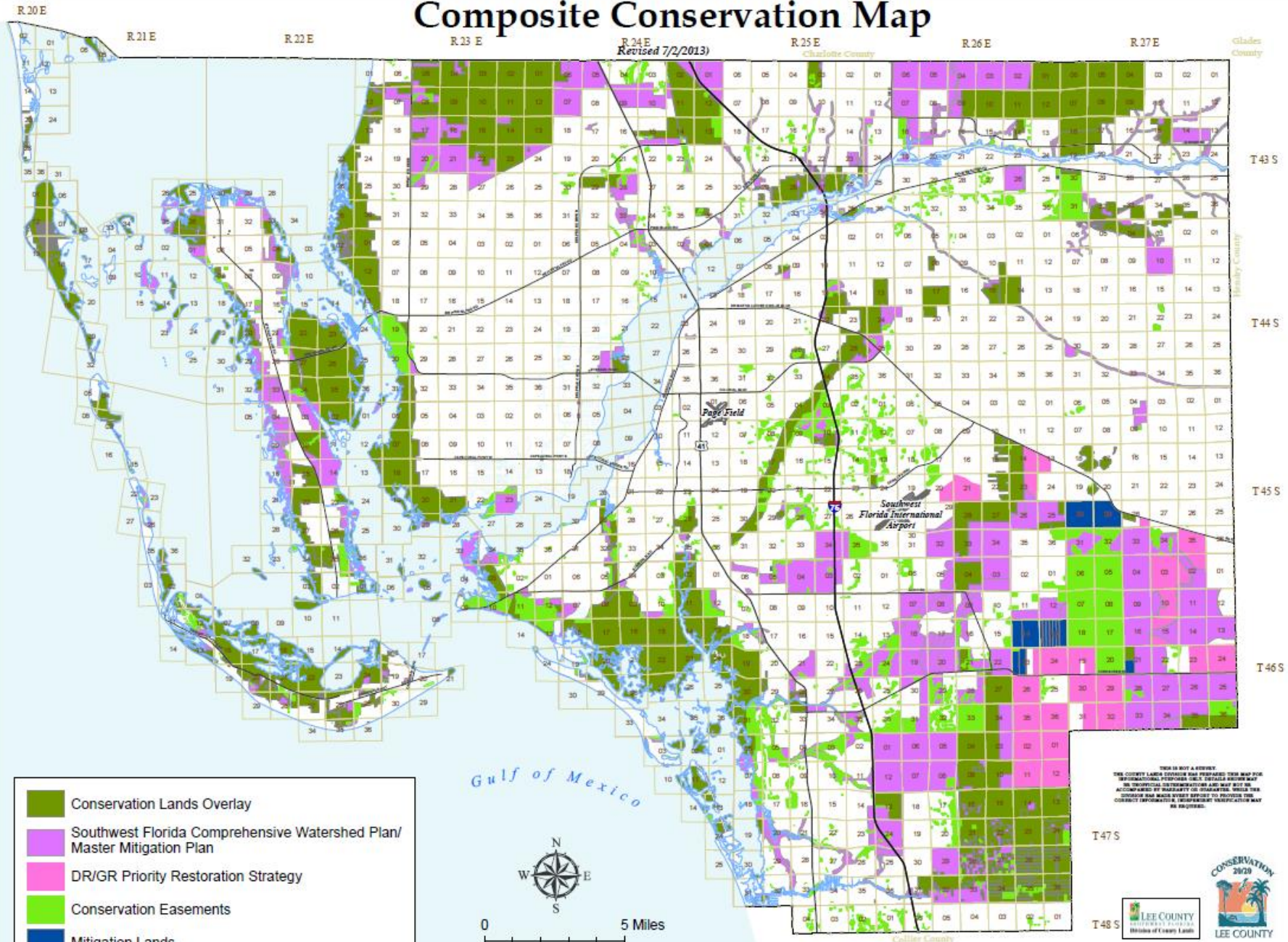
www.swfrpc.org Lee MM 3676 cons lands ease proposed L Last updated by: twalker on 8/3/2017

Updated Lee County Master Mitigation Plan (LCMMP)



Composite Conservation Map

R 24 E
Revised 7/2/2013



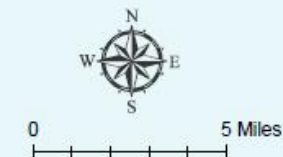
Conservation Lands Overlay

Southwest Florida Comprehensive Watershed Plan/
Master Mitigation Plan

DR/GR Priority Restoration Strategy

Conservation Easements

Mitigation Lands



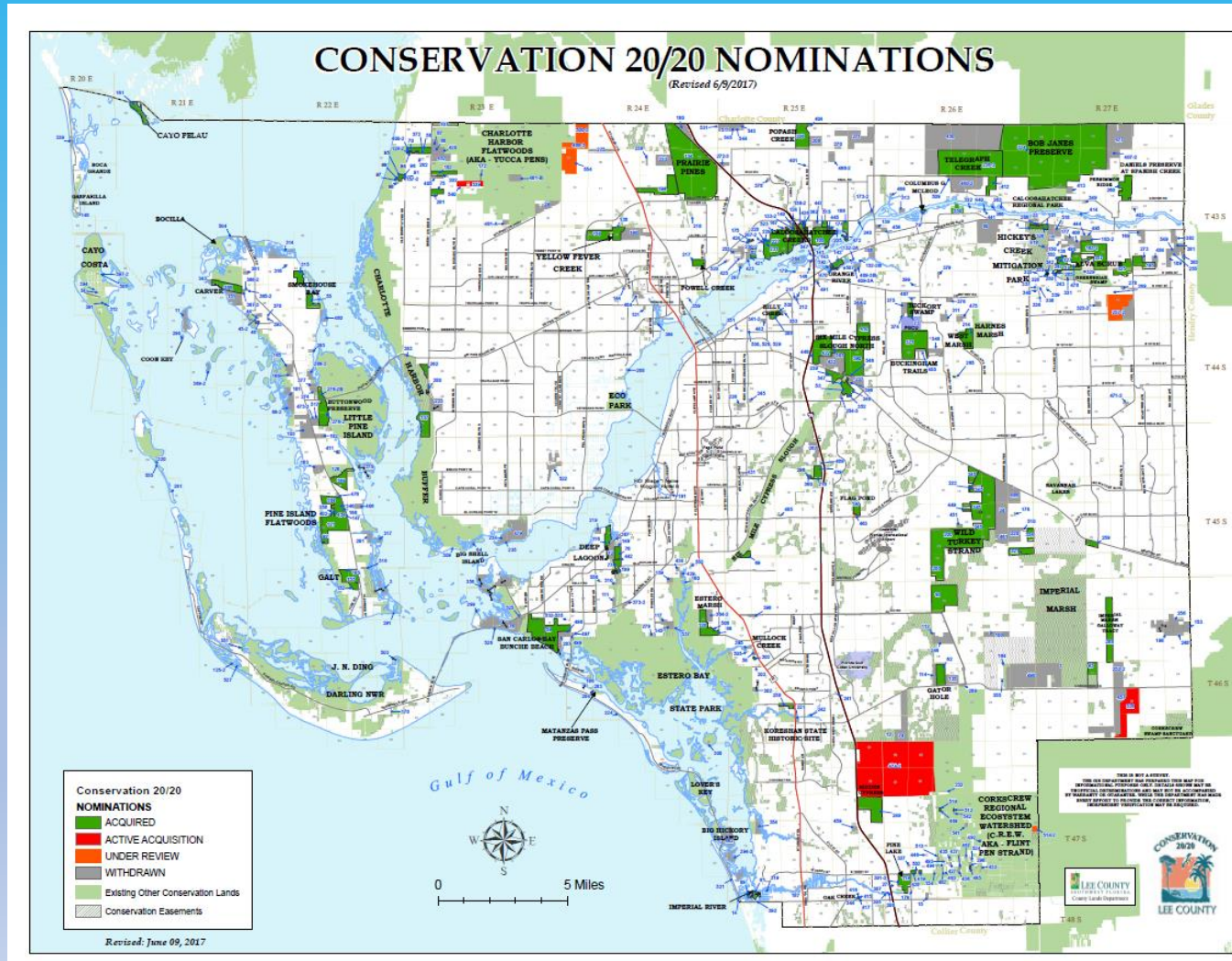
July 02, 2013

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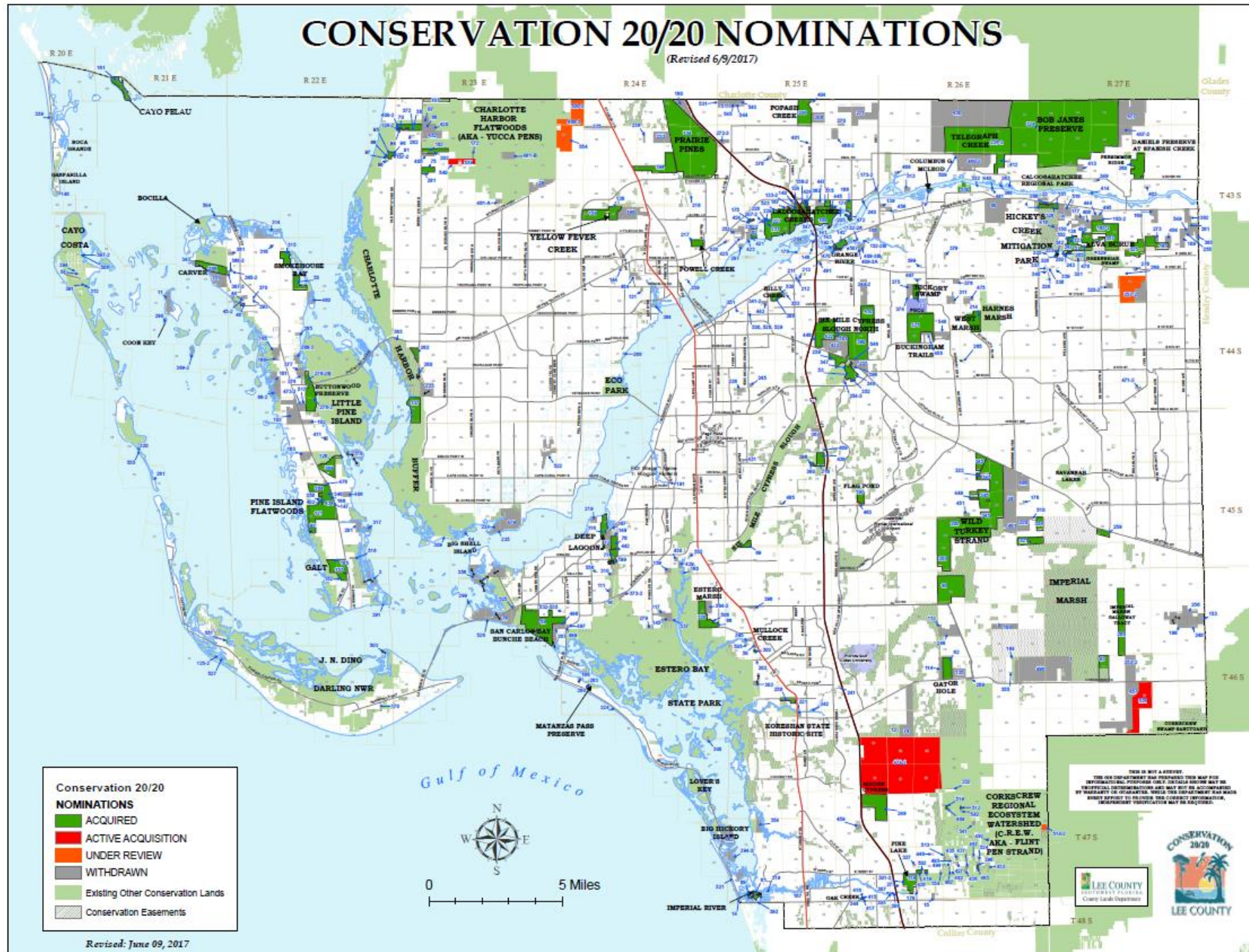


Step 5: Link proposed construction projects to conservation restoration and acquisition needs within the watersheds that the wetland impacts are occurring.



CONSERVATION 20/20 NOMINATIONS

(Revised 6/9/2017)



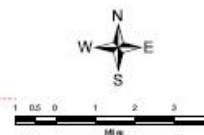
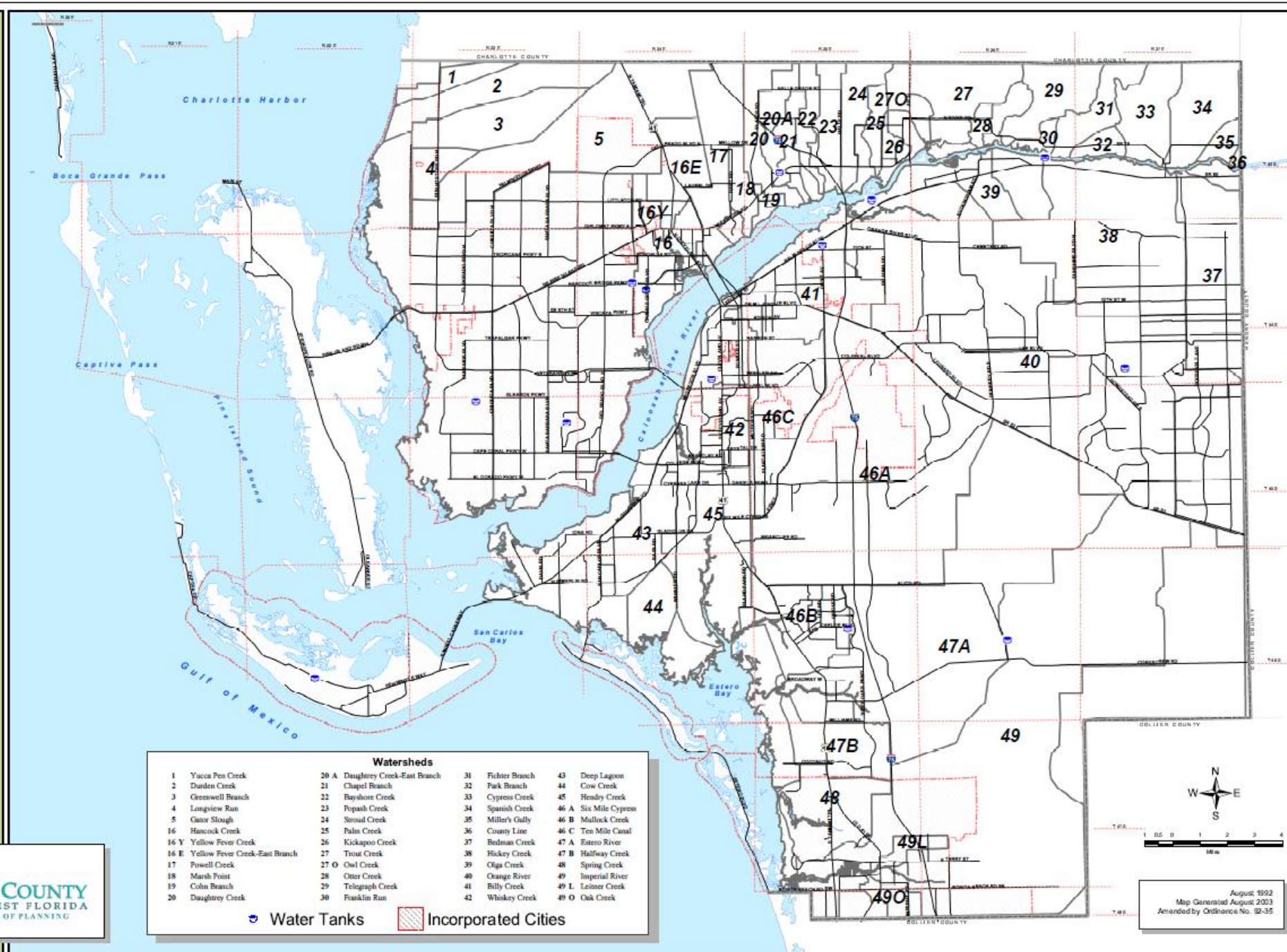
LEE COUNTY WATERSHED MAP

(Lee Plan Map 18)



Watersheds									
1	Yucca Pen Creek	20 A	Daughtrey Creek-East Branch	31	Fichter Branch	43	Deep Lagoon	48	
2	Darden Creek	21	Chapel Branch	32	Park Branch	44	Cow Creek	49	
3	Greenwell Branch	22	Bayshore Creek	33	Cypress Creek	45	Hendry Creek	49A	
4	Longview Run	23	Popash Creek	34	Spanish Creek	46 A	Six Mile Cypress	49B	
5	Gator Slough	24	Stroud Creek	35	Miller's Gully	46 B	Mullock Creek	49C	
16	Hancock Creek	25	Palm Creek	36	County Line	46 C	Ten Mile Canal	49D	
16 Y	Yellow Fever Creek	26	Kickapoo Creek	37	Bedman Creek	47 A	Estero River	49E	
16 E	Yellow Fever Creek-East Branch	27	Trout Creek	38	Hickey Creek	47 B	Halfway Creek	49F	
17	Powell Creek	27 O	Owl Creek	39	Oiga Creek	48	Spring Creek	49G	
18	Marsh Point	28	Otter Creek	40	Orange River	49	Imperial River	49H	
19	Cohn Branch	29	Telegraph Creek	41	Billy Creek	49 L	Leinster Creek	49I	
20	Daughtrey Creek	30	Franklin Run	42	Whiskey Creek	49 O	Oak Creek		

Water Tanks Incorporated Cities



August 1992
Map Generated August 2003
Amended by Ordinance No. 92-35

ID	Location	Acres of Impact	Watershed (s)	Watershed Names
1	3 Oaks Pkwy Ext	4.14	46A	Six-Mile Cypress
2	Alico Green Meadows	22.29	46A	Six-Mile Cypress
3	Ben Hill to Alico	5.62	46A	Six-Mile Cypress
4	Burnt Store Rd	1.68	1,2,3,4	Yucca Pen Creek, Durden Creek, Greenwell Branch, and Longview Run
5	Corkscrew Rd	8.62	47A	Estero Road
6	Diplomat Pkwy	0.09	16E	Yellow Fever Creek
7	E Terry St/Bonita Grande	8.19	49	Imperial River
8	Hanson Ext	0.13	46C	Ten-Mile Canal
9	Logan Ext	0.01	49	Imperial River
10	Luckett Ext	4.98	41	Billy's Creek
11	NE 24th Ave Ext	1.14	16E	Yellow Fever Creek
12	Seaboard St	0.55	41	Billy's Creek
13	SR 82 West	1.19	38	Hickey Creek
14	State Road 82 East	6.34	38	Hickey Creek, Bedman Creek

Watershed Names	Potential C2020 Projects	Other Mitigation Options
Bedman Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 109, 169, 255, 381,382, and 549.	Installation of wildlife undercrossing at Bedman Creek at SR 82.
Billy's Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 341-2, 351, 353, 443, 538. Restoration work on existing owned parcel 388.	Increased filter marsh locations on Billy's Creek. Source removal of the causes of bacteriological contamination.
Estero River	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 100, 112, 114, 135, 221, 242, 246, and 496. Restoration work on existing owned parcels 62, 90, 74, 200, 249, 474-2 and the recently acquired Edison Farms property.	Restoration and acquisition projects in the northern CREW
Hickey Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 23, 80, 130, 150, 177, 266,408, 273, 418, 484, 490, 518. Restoration work on existing owned parcel 57, 101, 127, 163-3, 195, 325, and 357.	Installation of wildlife undercrossing at Hickey's Creek and SR82. Expansion of the FWC Hickey's Creek Mitigation Park
Imperial River	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 15, 179, 232, 296, 327, 427, 433, 436, 437, 446, 467, 482, 492, 502, 513, 215-2, 524, 541, and 542. Restoration work on existing owned parcels 119, 249, 419, 428, and 465.	Implementation of parts of the City of Bonita Springs Flood Reduction and Watershed Restoration Plan. Restoration and acquisition projects in the southern CREW
Six-Mile Cypress	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 237, 244-2, 254-3, 267, 396, 432, 485, and 501. Restoration work on existing owned parcels 69, 216, 239, 298, 348, 352, 360, 390. 410, 422, and 439.	Restoration projects in Filter marches in major drainage ways.
Ten-Mile Canal	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 364-2. 395, 398, and 505.	Restoration and acquisition projects in the Estero Bay State Park.
Yellow Fever Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 138, 180 and 198. Restoration work on existing owned parcels 134, 156, and 194.	Restoration work in the Charlotte Harbor Flatwoods- Yucca-Panes, Babcock - Webb WMA hydrologic Restoration.
Yucca Pen Creek, Durden Creek, Greenwell Branch, and Longview Run	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 87, 86, 94, 91, 97, 98, 405, and 539. Restoration work on existing owned parcels 58, 75,95, 102, 107 and 281	Restoration projects in the FWC Yucca Pens Project; restoration work and exotic removal on the Charlotte Harbor State Park.

ID	Location	Acres of Impact	Watershed (s)	Watershed Names	Potential C2020 Projects	Other Mitigation Options
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2	Alico Green Meadows	22.29	46A	Six-Mile Cypress	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 237, 244-2, 254-3, 267, 396, 432, 485, and 501. Restoration work on existing owned parcels 69, 216, 239, 298, 348, 352, 360, 390. 410, 422, and 439.	Restoration projects in Filter marches in major drainage ways.
3	Ben Hill to Alico	5.62	46A	Six-Mile Cypress	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 237, 244-2, 254-3, 267, 396, 432, 485, and 501. Restoration work on existing owned parcels 69, 216, 239, 298, 348, 352, 360, 390. 410, 422, and 439.	Restoration projects in Filter marches in major drainage ways.
4	Burnt Store Rd	1.68	1,2,3,4	Yucca Pen Creek, Durden Creek, Greenwell Branch, and Longview Run	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 87, 86, 94, 91, 97, 98, 405, and 539. Restoration work on existing owned parcels 58, 75,95, 102, 107 and 281	Restoration projects in the FWC Yucca Pens Project; restoration work and exotic removal on the Charlotte Harbor State Park.
5	Corkscrew Rd	8.62	47A	Estero River	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 100, 112, 114, 135, 221, 242, 246, and 496. Restoration work on existing owned parcels 62, 90, 74, 200, 249, 474-2 and the recently acquired Edison Farms property.	Restoration and acquisition projects in the northern CREW
6	Diplomat Pkwy	0.09	16E	Yellow Fever Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 138, 180 and 198. Restoration work on existing owned parcels 134, 156, and 194.	Restoration work in the Charlotte Harbor Flatwoods-Yucca-Panes, Babcock - Webb WMA hydrologic Restoration.
7	E Terry St/Bonita Grande	8.19	49	Imperial River	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 15, 179, 232, 296, 327, 427, 433, 436, 437, 446, 467, 482, 492, 502, 513, 215-2, 524, 541, and 542. Restoration work on existing owned parcels 119, 249, 419, 428, and 465.	Implementation of parts of the City of Bonita Springs Flood Reduction and Watershed Restoration Plan. Restoration and acquisition projects in the southern CREW
8	Hanson Ext	0.13	46C	Ten-Mile Canal	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 364-2. 395, 398, and 505.	Restoration and acquisition projects in the Estero Bay State Park.
9	Logan Ext	0.01	49	Imperial River	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 15, 179, 232, 296, 327, 427, 433, 436, 437, 446, 467, 482, 492, 502, 513, 215-2, 524, 541, and 542. Restoration work on existing owned parcels 119, 249, 419, 428, and 465.	Implementation of parts of the City of Bonita Springs Flood Reduction and Watershed Restoration Plan. Restoration and acquisition projects in the southern CREW
10	Luckett Ext	4.98	41	Billy's Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 341-2, 351, 353, 443, 538. Restoration work on existing owned parcel 388.	Increased filter marsh locations on Billy's Creek. Source removal of the causes of bacteriological contamination.
11	NE 24th Ave Ext	1.14	16E	Yellow Fever Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 138, 180 and 198. Restoration work on existing owned parcels 134, 156, and 194.	Restoration work in the Charlotte Harbor Flatwoods-Yucca-Panes, Babcock - Webb WMA hydrologic Restoration.
12	Seaboard St	0.55	41	Billy's Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 341-2, 351, 353, 443, 538. Restoration work on existing owned parcel 388.	Increased filter marsh locations on Billy's Creek. Source removal of the causes of bacteriological contamination.
13	SR 82 West	1.19	38	Hickey Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 23, 80, 130, 150, 177, 266,408, 273, 418, 484, 490, 518. Restoration work on existing owned parcel 57, 101, 127, 163-3, 195, 325, and 357.	Installation of wildlife undercrossing at Hickey's Creek and SR82. Expansion of the FWC Hickey's Creek Mitigation Park
14	State Road 82 East	6.34	38	Hickey Creek, Bedman Creek	Acquisition and restoration of hydrology and removal of exotics on nominated parcels 23, 80, 130, 150, 177, 266,408, 273, 418, 484, 490, 518. Restoration work on existing owned parcel 57, 101, 127, 163-3, 195, 325, and 357. Acquisition and restoration of hydrology and removal of exotics on nominated parcels 109, 169, 255, 381,382, and 549.	Installation of wildlife undercrossing at Hickey's Creek and SR82. Expansion of the FWC Hickey's Creek Mitigation Park. Installation of wildlife undercrossing at Bedman Creek at SR 82.

Step 6: Add the Master Mitigation Plan to the Annual Work Plan of County.



UNIFIED PLANNING WORK PROGRAM FOR FISCAL YEARS 2016/17 – 2017/18 (July 1, 2016 – June 30, 2018)

Adopted May 19, 2016
Amended June 16, 2017

LEE COUNTY METROPOLITAN PLANNING ORGANIZATION

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Prepared by the staff and the participating agencies of the Lee County Metropolitan Planning Organization. This report was financed in part by the U.S. Department of Transportation, Federal Highway and Transit Administrations; the Florida Department of Transportation (FDOT); and participating local governments.

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CFDA # 20.205, Highway Planning and Construction
Federal AIG Project Number 0281 (051)
FDOT financial project number 438312-1-14-01 PL Funds
FDOT financial project number 438312-1-14-02 SU Funds
FDOT Contract Number 02861

CFDA # 20.505, Federal Transit Technical Studies Grant (Metropolitan Planning)

Step 7: Establish a Standing Coordination Team for the Mitigation Plan Implementation and Updating (including site review)



Step 8: Review and Updating of the Mitigation Plan Annually



Acknowledgements

This project has benefited from the contributions of numerous agencies and individuals that have contributed information, time, and opinion to the contents and recommendations.

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Disaster Recovery Coordinator Status Report

January 17, 2019

Discussing Today:

1. RECOVERY WORK IN SW FL
2. HOUSING REPAIR PROGRAMS
3. BUILDING RESILIENCE
4. LESSONS LEARNED

RECOVERY WORK IN SOUTHWEST FLORIDA

Disaster Recovery in Southwest Florida

- **VOADs (Volunteer Organizations Active in Disaster) and Long Term Recovery Groups formed to assist recovery from Hurricane Irma remain active in our region and other parts of the state**

Volunteer Florida & VOADs

Amateur Radio League
American Red Cross
Billy Graham Rapid Response Team
Branches, Inc.
Catholic Charities
Centro Campesino
Christ Church of Orlando
Christian Disaster Response
Church World Service
Coalition of Florida Farmworker Organizations
Convoy of Hope
Cooperative Baptist Fellowship
Corporation for National & Community Service (CNCS)
Crisis Clean-up
Crossroads Alliance
Disciples of Christ
The Eagles Wings Foundation
Episcopal Relief and Development
Farm Share
Feed the Children
Feeding Florida
Florida Alliance of Information and Referral Services
Florida Association for Volunteer Resource Management (FAVRM)
Florida Baptist Disaster Relief
Florida Catholic Conference
Florida Conference of Seventh-Day Adventists
Florida Department of Elder Affairs
Florida Immediate Response Stress Team (FIRST)
Florida United Methodist Conference
Disaster Recovery

Florida Voluntary Organizations Active in Disasters (FLVOAD)
Goodwill
Habitat for Humanity
HandsOn Orlando
Heart of Florida United Way
Hope Animal Assisted Crisis Response
International Orthodox Christian Charities
Islamic Center of North America
Islamic Relief USA
Latter Day Saints
Lake and Sumter Emergency Recovery
Lutheran Disaster Response
Mennonite Disaster Service
Metropolitan Community Church
Metropolitan Ministries
National Organization for Victim Assistance
Nazarene Disaster Response
NAACP
NECHAMA
Neighbors 4 Neighbors
Night Runners Mobile Crisis Services, Inc.
Operation Blessing
Operation Hope
Peacemakers Family Center
Pet Alliance of Greater Orlando
Points of Light
Presbyterian Church in America
Presbyterian Disaster Assistance
Rebuilding Together
Samaritan's Purse
Save the Children
Scientology Disaster Response
Senior Resource Alliance
Sheep Dog

Society of St. Vincent De Paul
Southern Baptist Convention — Disaster Relief
Star of the Sea Outreach Mission
State Emergency Responders and Volunteers of Florida
Team Rubicon
The Eagles Wings Foundation
The Humane Society of the United States
The LGBT Center of Central Florida
The Salvation Army
The United Way of Florida
Tool Bank Disaster Services
Two Spirit Health
Tzu Chi
United Church of Christ Disaster Response Ministries
United Way of Brevard County
United Way of Broward County- Broward Cares
United Way of Central Florida
United Way of Charlotte County
United Way of Collier County
United Way of the Florida Keys
United Way of Lake and Sumter Counties
United Way of Lee, Hendry, Glades, and Okeechobee
United Way of Miami-Dade – Helping Hands
United Way of North Central Florida
United Way of Palm Beach County
United Way of NE FL
United Way of Suncoast
United Way of Volusia-Flagler Counties
World Renew
Zebra Coalition

VOAD Profile: American Red Cross



Hurricane Irma Recovery Program Update I.U.N.C.



Hurricane Irma Financial Assistance

- Continues to be available to any renter or homeowner whose primary residence was destroyed and/or experienced major damage as a result of Irma
 - Through the Coordinated Assistance Network Recovery (CAN-R), financial assistance is provided, primarily, to eligible households vetted by local Disaster Case Managers (DCMs)
 - There are multiple ways to verify damage classification(s)
 - Previously inspected by FEMA or Insurance company, condemnation notices, image verification, on-site visits, Red Cross Damage Assessment
 - Basic needs assistance is fixed at \$2,000 per family; complex needs assistance is fixed at \$4,500; accelerated assistance
 - Community groups and organizations have applied for various grants supporting survivors and the community
-



**American
Red Cross**

Accelerated Assistance

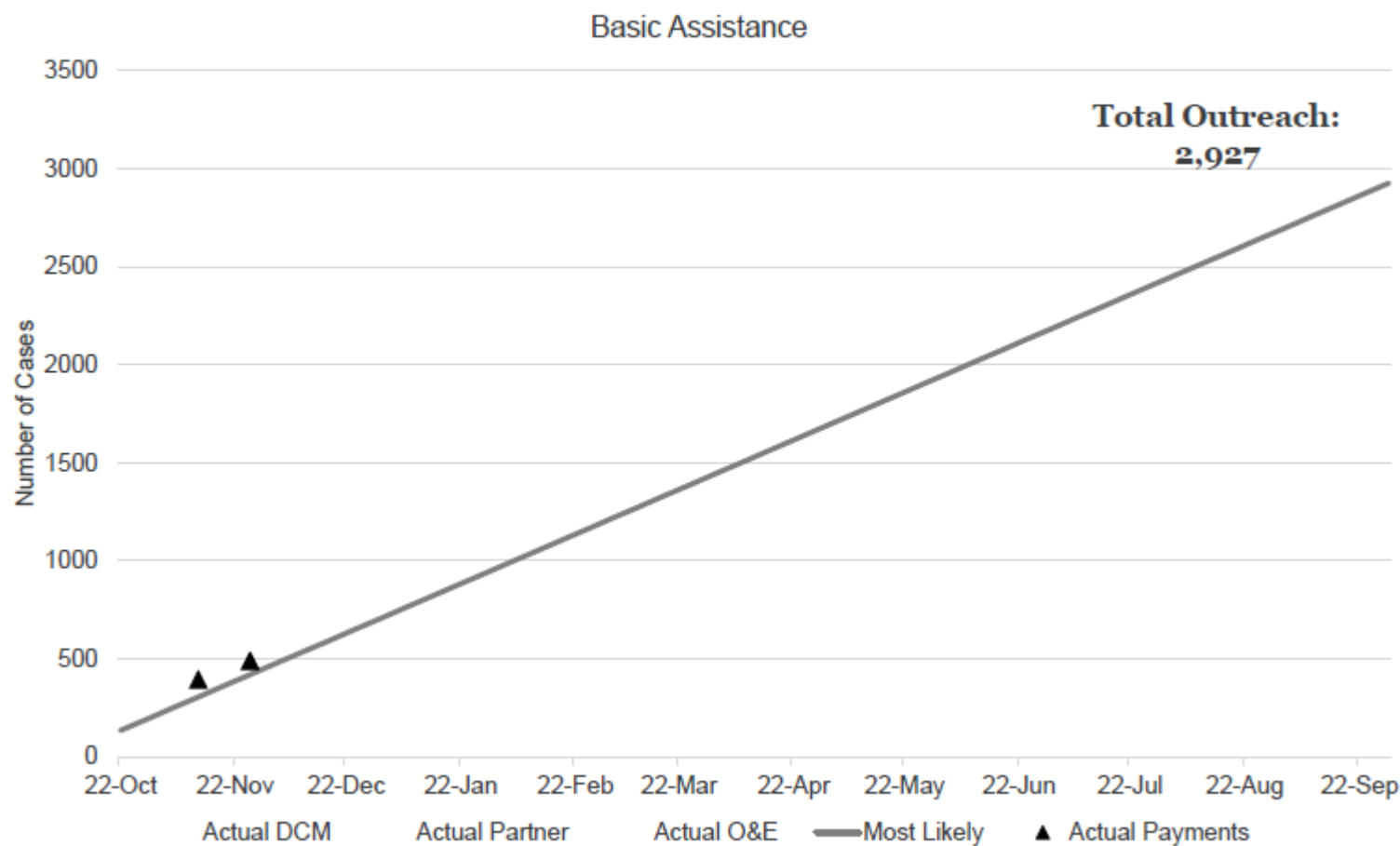
Outreach to almost 1,000+
HIFA eligible households in
Collier (~100 in Immokalee)

Basic assistance provided
to almost 300 households
total, 48 in Immokalee

How are we (collectively)
reaching everyone else?



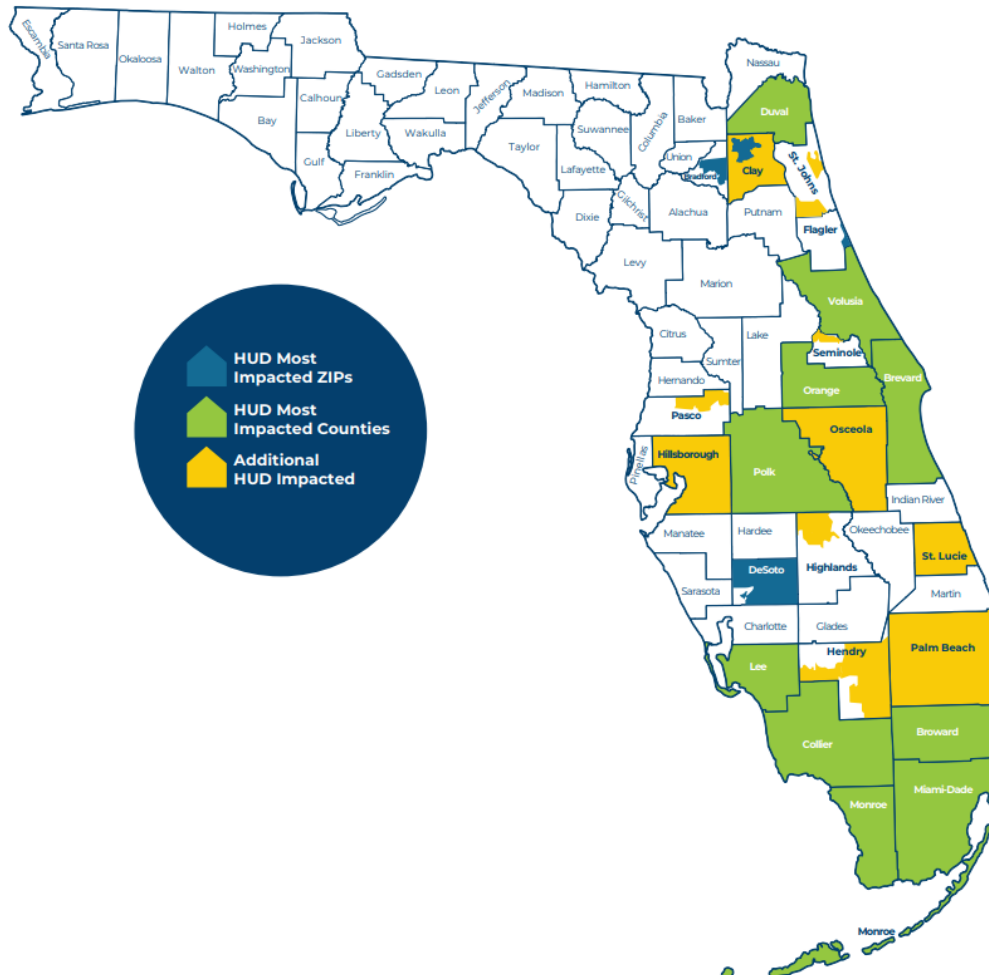
Irma Recovery Basic Assistance (Statewide) Forecast Trend Line



HOUSING REPAIR

REBUILD FLORIDA

Most Impacted and Distressed Communities



Disaster Recovery in Southwest Florida

Rebuild Florida

There are three Rebuild Florida programs:

1. Housing Repair Program
2. Business Recovery
3. Local Government & Community Partners

The Housing Repair Program is the only active program at the present time - no funds have been released for home repairs yet.

➤ **Registration Deadline:
December 23, 2018**

HOUSING UNITS DAMAGED BY IRMA

% of Units Damaged in County				High Damage Properties as % of State Total of High Damage		Lower Income Units as % of All Damaged Units	
County	# Units Damaged by Hurricane Irma	# of Total Non- Seasonal Units in County	% of Units in the County Impacted by Hurricane Irma	Total Properties with High Damage	% of State Damaged HO & Rental Properties/ Units with High Damage Level	# Lower Income Hhds (≤ \$40K) w/ Damage	Lower Income Units as % of Units Damaged
Charlotte	3,290	82,732	4.0%	25	0.4%	2,294	69.7%
Collier	16,689	148,059	11.3%	312	4.8%	11,268	67.5%
Glades	624	4,945	12.6%	14	0.2%	465	74.5%
Hendry	2,678	13,319	20.1%	53	0.8%	2,128	79.5%
Lee	29,803	289,116	10.3%	308	4.8%	20,626	69.2%
Sarasota	6,343	122,209	5.2%	31	0.5%	4,274	67.4%
SW FL	59,427	660,380	8.9%	743		41,055	
State Total	569,108	8,246,079	6.9%	6,465	100.0%	426,951	75.0%

Source: Compiled by Florida Housing Finance Corporation using data from FEMA, Bureau of Economic and Business Research, Shimberg Center for Housing Studies, US Census. March 5, 2018.



Irma made
landfall in
Florida
9-10-2017

494 days ago/
16 Months
and 7 days

Rebuild Florida Status Report

January 2019

Rebuild Florida is the Florida Department of Economic Opportunity's program responsible for administering Florida's HUD CDBG-DR funds.

Why Does It Take So Long?

- **It's a federal process. HUD didn't sign off on Florida's program until mid-2018, and then Florida had to wait until HUD signed off on amended Irma Action Plan.**

What is the current estimated time for homes to be repaired or replaced in Southwest Florida?

- **The program is hiring additional team members in anticipation of getting the Housing Repair and Replacement program (Housing R&R) rolling.**

How many applications have been submitted for assistance through the Housing Repair and Replacement Program?

- **To date, Rebuild Florida has received about 11,000 applications, and estimates that they will repair or replace about 6,000-7,000 homes (possibly more if additional funds are needed and approved by HUD). About 1,000 applicants have completed the eligibility review process. Rebuild Florida is kicking off a pilot program in February, and expects the Housing Repair and Replacement Program to be fully up and running in March.**

BUILDING RESILIENCE

Mitigation Saves:

**Federal Mitigation Grants Save \$6 per \$1 Spent,
Exceeding Building Codes Saves \$4 per \$1 Spent**

- “Investing in mitigation activities *before* the next disaster is the key to building a more resilient nation.”
- We cannot prevent natural disasters, but we do have the power to prepare for and potentially reduce their impacts through advanced planning.

Dr. Daniel Kaniewski, FEMA's Deputy Administrator for Protection and National Preparedness



Resilient Buildings: Mexico Beach

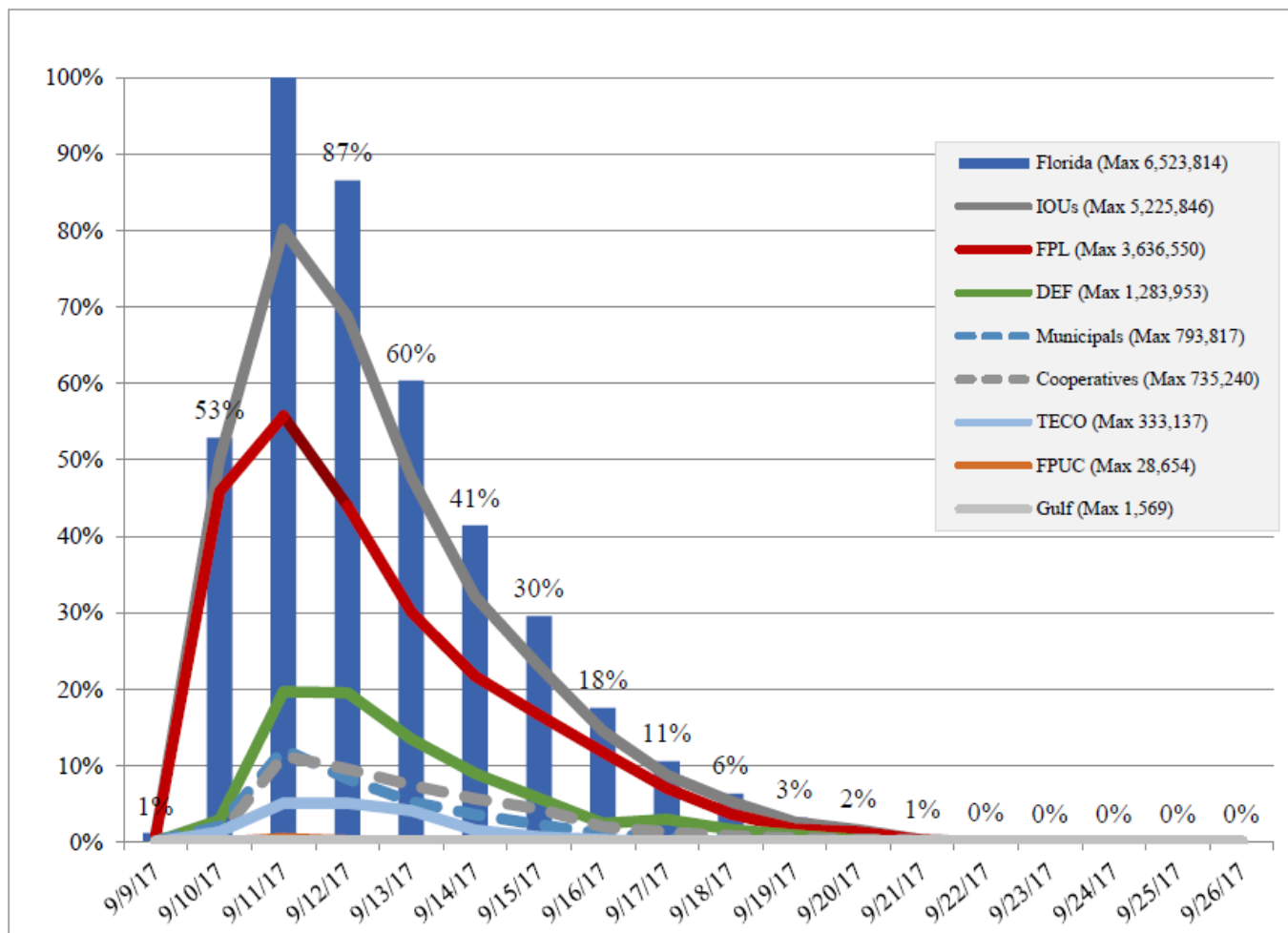
LESSONS LEARNED

Peak Number of Electric Utility Account Outages¶

County¶	Hermine¶		Matthew¶		Irma¶	
	Peak Accounts Out¶	% of Accounts Out¶	Peak Accounts Out¶	% of Accounts Out¶	Peak Accounts Out¶	% of Accounts Out¶
Charlotte¶	200¶	0.2%¶	220¶	0.2%¶	73,230¶	63.7%¶
Collier¶	110¶	0.0%¶	400¶	0.2%¶	236,141¶	96.0%¶
Glades¶	0¶	0.0%¶	10¶	0.1%¶	6,272¶	86.5%¶
Hendry¶	10¶	0.1%¶	10¶	0.1%¶	18,750¶	100.0%¶
Lee¶	50¶	0.0%¶	400¶	0.1%¶	361,999¶	82.5%¶
Sarasota¶	3,570¶	1.4%¶	280¶	0.1%¶	174,672¶	66.2%¶
State Totals¶	323,505¶	3.2%¶	1.13M¶	11.0%¶	6.52M¶	62.1%¶

Source: State EOC power outage reports; Appendix B, Florida Public Service Commission Review of Electric Utility Hurricane Preparedness and Restoration Actions, Report and Recommended Actions, July 2018.¶

Figure 4-2.
Hurricane Irma – Daily Maximum Percent of Affected Customers without Power



Source: State EOC power outage reports.

Note: Individual utility outage maximums occurred at different times and do not add to the total.

Florida Public Service Commission 2018 Report and Recommended Actions

Review of Electric Utility Hurricane Preparedness and Restoration Actions (Hurricane Irma)

Key Findings

- Florida's aggressive storm hardening programs are working.
- The length of outages was reduced markedly from the 2004-2005 storm season.
- Hardened overhead distribution facilities performed better than non-hardened facilities.
- Very few transmission structure failures were reported.
- Underground facilities performed much better compared to overhead facilities.
- Despite substantial, documented improvement, some customers were dissatisfied with the extent of Hurricane Irma outages and restoration times.
- Rising customer expectations are that resilience and restoration will have to continually improve.
- **The primary causes of power outages came from outside the utilities' rights of way including falling trees, displaced vegetation, and other debris.**
- **Vegetation management outside the utilities' rights of way is typically not performed by utilities due to lack of legal access.**
- In some instances, following Hurricane Irma, estimates of restoration time proved inaccurate, and consumer communication systems were overwhelmed.
- Some local governments see a need for better coordination and communication with utilities during and after storms.

Food & Shelter for Essential Personnel

- Feeding essential employees not coordinated for pre-landfall and during lockdown (Sarasota and Naples reports).
 - Solutions: Develop contracts with outside vendors in advance (preferably with contractors with generators and possibly outside evacuation zone). Develop pre-set menus and assign full service meal team within Planning Division to ensure distribution. Appoint food service coordinator in advance. Purchase pallets of water pre-hurricane season. List vendors not requiring electricity to provide services. Create shared spreadsheet of who, what, when, where for breakfast, lunch, dinner each day of week.

Communications: Before, During and After Tropical Cyclones (Hurricanes)

- The primary and back up data centers for Technology Services located in buildings that are rated only for Category three storms, making the City's IT mission critical infrastructure vulnerable to damage (Naples report)
 - Solution: Move primary data center to new City building which is more resilient

Health Care Facilities

(Florida Hospital Association Report)

- 36 hospitals were evacuated during Irma.
- Hospitals need housing/shelter for essential medical personnel and their families.
- Hospitals that lost utilities did not have them restored in a uniform manner as part of their critical infrastructure.

Personal Needs

- Extension faculty reported difficulty balancing the responsibilities of home and job.
 - *"Biggest issue is always personal and family preparation and cleanup balanced against need to return to work by the next morning to do Ag. disaster assessment."*
 - *"The county did not allow staff time to prepare their own home or make sure their own families were safe. ... There was limited gas available in the county and staff were expected to be on hand to help residents. While many of us don't have an issue helping we need to be able to make sure our families are safe first."*



Professional Needs

- Most common professional challenges reported by Extension faculty (in no particular order)
 - Programming and work responsibilities: canceling and rescheduling activities; catching up on work from missed time.
 - Communication: lack of power and inconsistent cell service made communication difficult.
 - Balancing work and personal needs.
 - Understanding professional expectations before and after hurricane.



