

Lower Kissimmee Basin Stormwater Treatment Area Project (LKBSTA)

County Coalition for the Responsible Management
of Lake Okeechobee, St. Lucie and Caloosahatchee
Estuaries and Lake Worth Lagoon
September 8, 2023



**Ecosystem
Investment
Partners**

Introduction



↻ Coming Soon
 💧 Water Quality
 🐟 Species Habitat
 🌊 Stream
 🌿 Wetland
 📍 EIP IV
 📍 EIP III
 📍 EIP II

226+ Miles of Streams Restored and Conserved

46,900+ Acres of Wetlands Restored and Conserved

6,500 Tons of Nutrient and Sediment Pollution Eliminated Annually



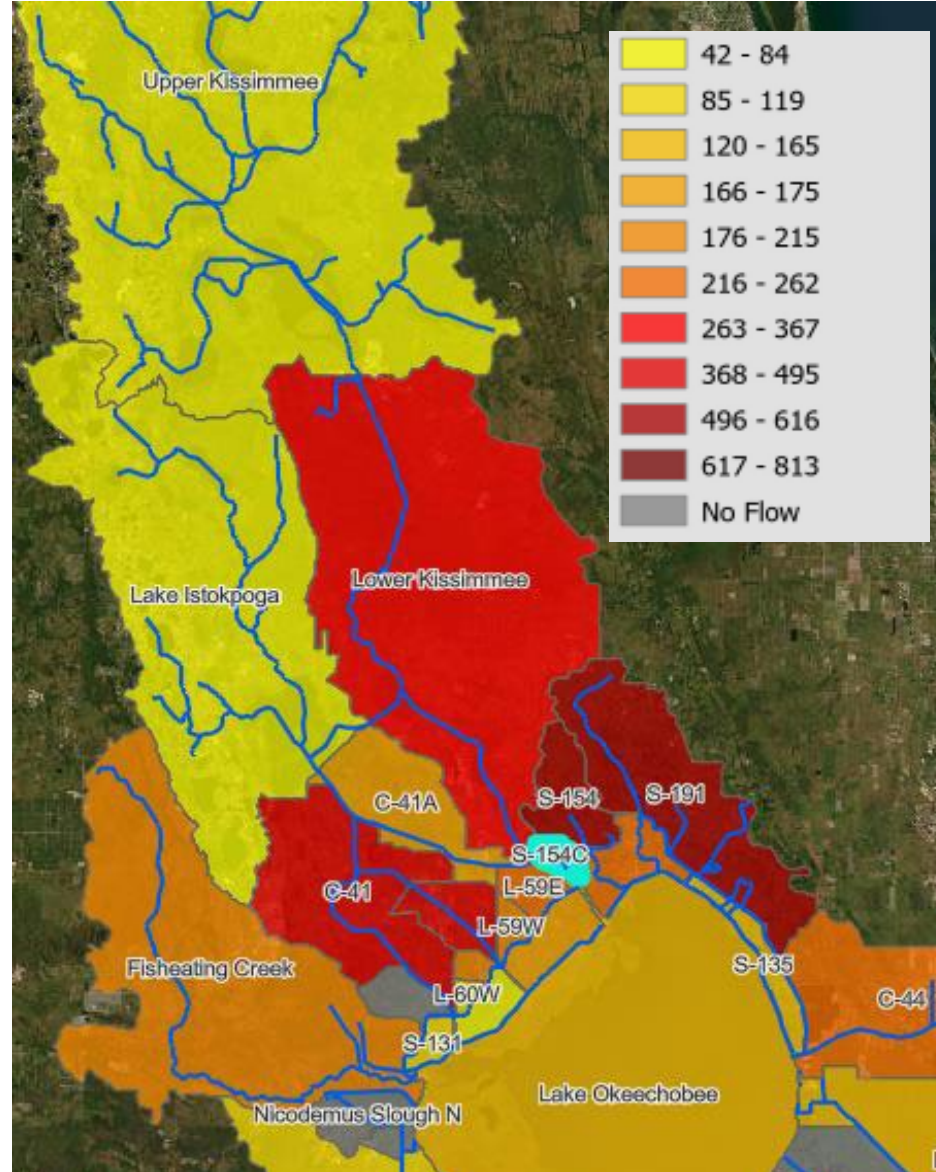
Property Location

LAKE OKEECHOBEE TMDL COMPARISON BY WATER YEAR							
	WY 2023* (mt)	WY 2022 (mt)	WY 2021 (mt)	WY 2020 (mt)	WY 2019 (mt)	WY 2018 (mt)	WY 2017 (mt)
Lake Okeechobee Watershed Phosphorus TMDL	140	140	140	140	140	140	140
TP Loads to Lake Okeechobee by Water Year	438	285	520	324	445	1081	484
Average	511						
TP Loads above TMDL	298	145	380	184	305	941	344
Average	371						

C-38 (KISSIMMEE RIVER) TOTAL PHOSPHORUS LOADS BY WATER YEAR							
	WY 2023* (mt)	WY 2022 (mt)	WY 2021 (mt)	WY 2020 (mt)	WY 2019 (mt)	WY 2018 (mt)	WY 2017 (mt)
Upper Kissimmee Subwatershed (S-65)	99.3	70.2	67.7	74.8	86.7	117.9	72.7
Lower Kissimmee Subwatershed [(S-65E) - (S-65)]	113.7	17.7	120.3	54.0	94.5	304.9	101.4
Lake Istokpoga Subwatershed (S-68)	41.6	30.0	46.3	24.3	30.2	63.4	41.0
C-41A Basin [(S-84) - (S-68)]	15.6	14.7	31.7	11.0	16.0	51.9	24.4
Total	270	133	266	164	227	538	239
Average	263						

L-62 CANAL TOTAL PHOSPHORUS LOADS BY WATER YEAR							
	WY 2023* (mt)	WY 2022 (mt)	WY 2021 (mt)	WY 2020 (mt)	WY 2019 (mt)	WY 2018 (mt)	WY 2017 (mt)
S-154 Basin	2.8	12.4	14.2	7.7	13.2	30.9	16.3
S-154C Basin	0.1	1.0	0.6	0.4	1.8	5.2	2.1
Total	2.9	13.4	14.8	8.1	15.0	36.1	18.4
Average	16						

Total Phosphorus (TP) Concentrations (µg/L) WY 2018-2022



* Water Year (WY) 2023 data is provisional and subject to change

LKBSTA Location



Source: South Florida Water Management District

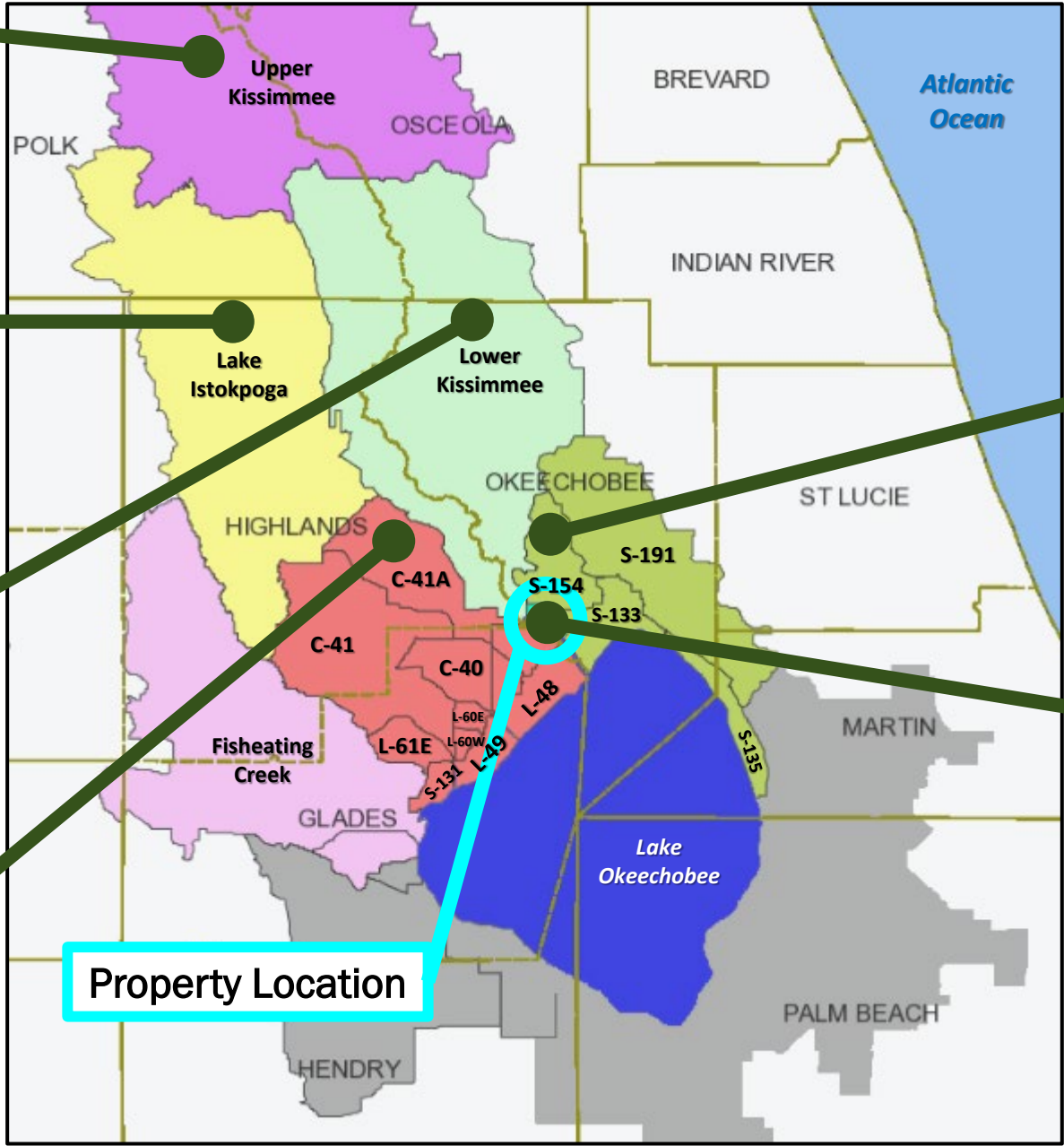
Total Phosphorus (TP) Loads and TP Concentrations for Water Years 2018-2022

Upper Kissimmee Subwatershed		
	TP Load (mt/yr)	TP Conc. (µg/L)
Average	83	82
Range	68 - 118	62 - 98

Lake Istokpoga Subwatershed		
	TP Load (mt/yr)	TP Conc. (µg/L)
Average	39	97
Range	24 - 63	84 - 120

Lower Kissimmee Subwatershed		
	TP Load (mt/yr)	TP Conc. (µg/L)
Average	118	285
Range	18 - 305	142 - 426

C-41A Basin		
	TP Load (mt/yr)	TP Conc. (µg/L)
Average	25	172
Range	11 - 52	145 - 189

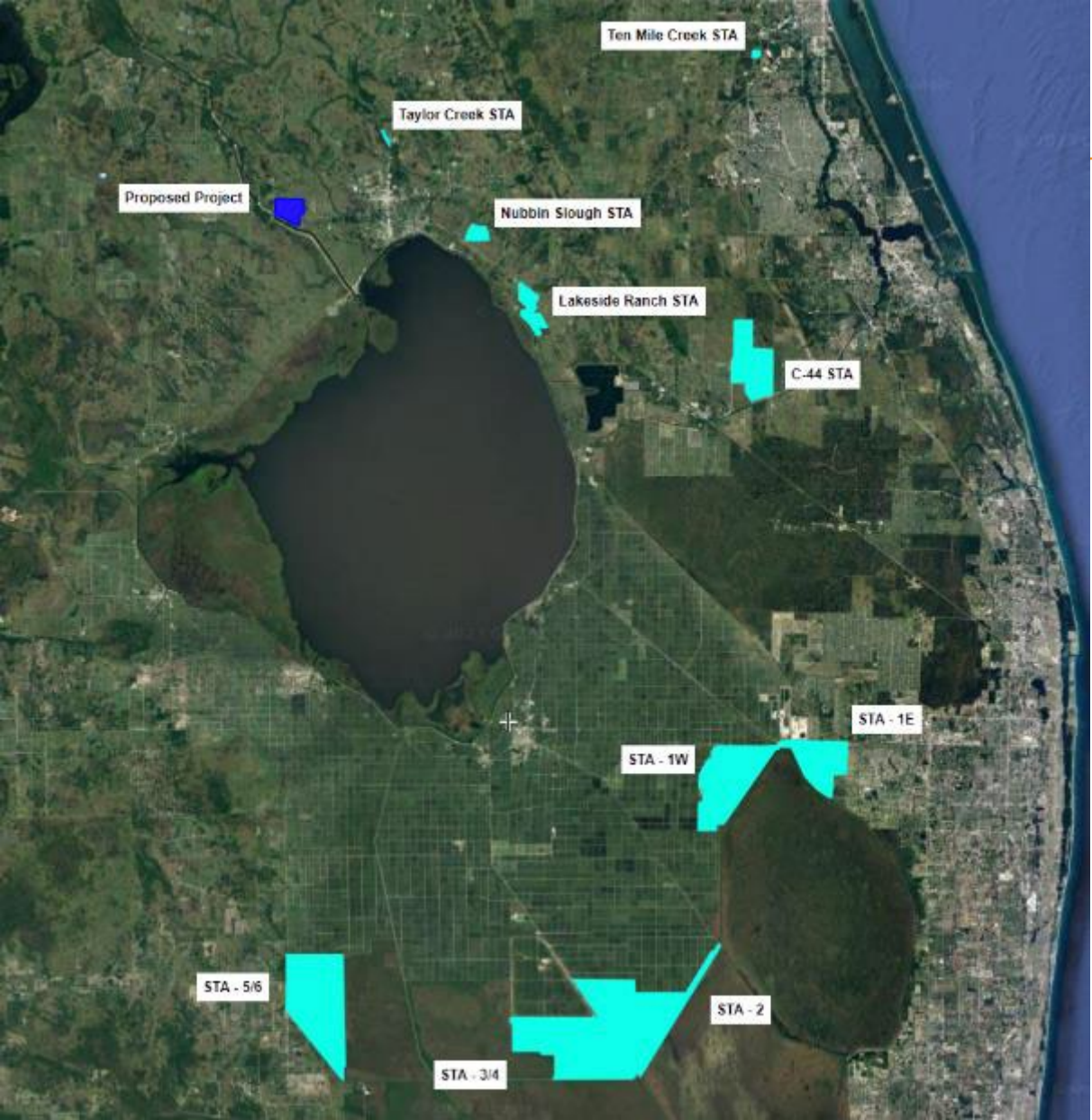


S-154 Basin		
	TP Load (mt/yr)	TP Conc. (µg/L)
Average	16	567
Range	8 - 31	403 - 857

S-154C Basin		
	TP Load (mt/yr)	TP Conc. (µg/L)
Average	1.8	720
Range	0.4 - 5.2	578 - 1374

mt/yr = metric tons per year
µg/L = micrograms per liter

Stormwater Treatment Areas



Emerging Aquatic Vegetation in an STA



Lakeside Ranch STA



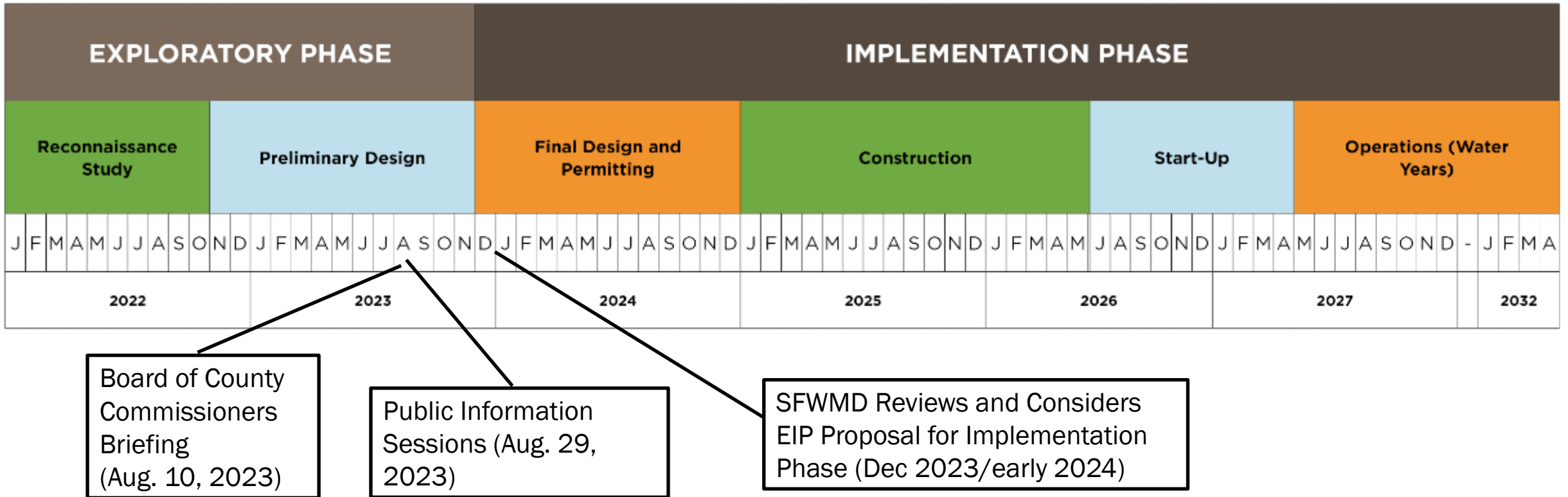
STA Overflow Weir



Lakeside Ranch STA

Contract

- **March 2021:** SFWMD solicited proposals to Design/Build/Operate a stormwater treatment project in the Lower Kissimmee Basin
- **December 2021:** EIP entered into contract with SFWMD



Exploratory Phase Activities to Date

Biological / Environmental Studies

Geological Studies

Field Surveys

Project Concept Development

Treatment Performance Evaluations

Infrastructure Assessments

Operational Strategy Development

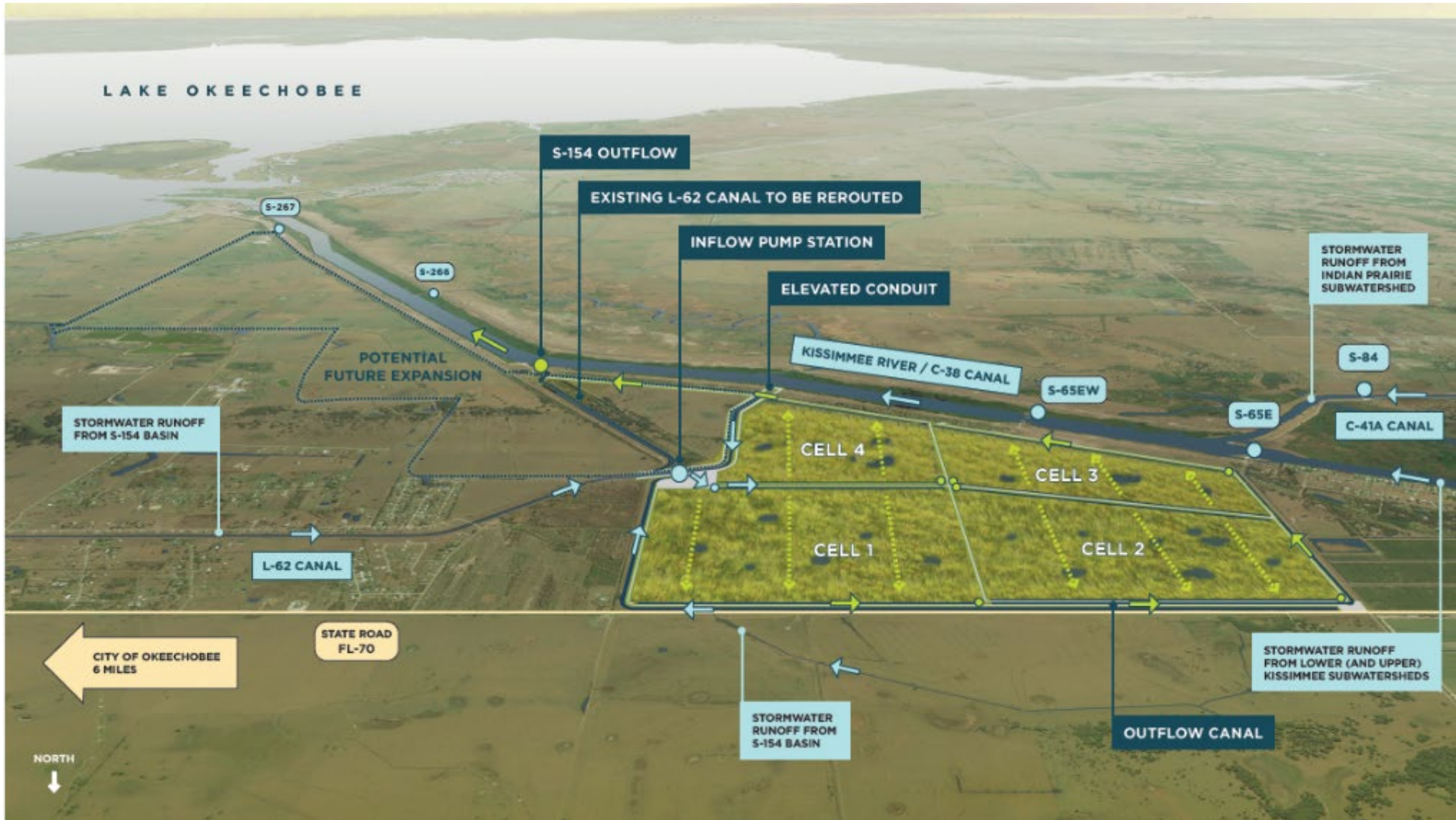
Permit Acquisition Coordination/Planning

Construction Planning

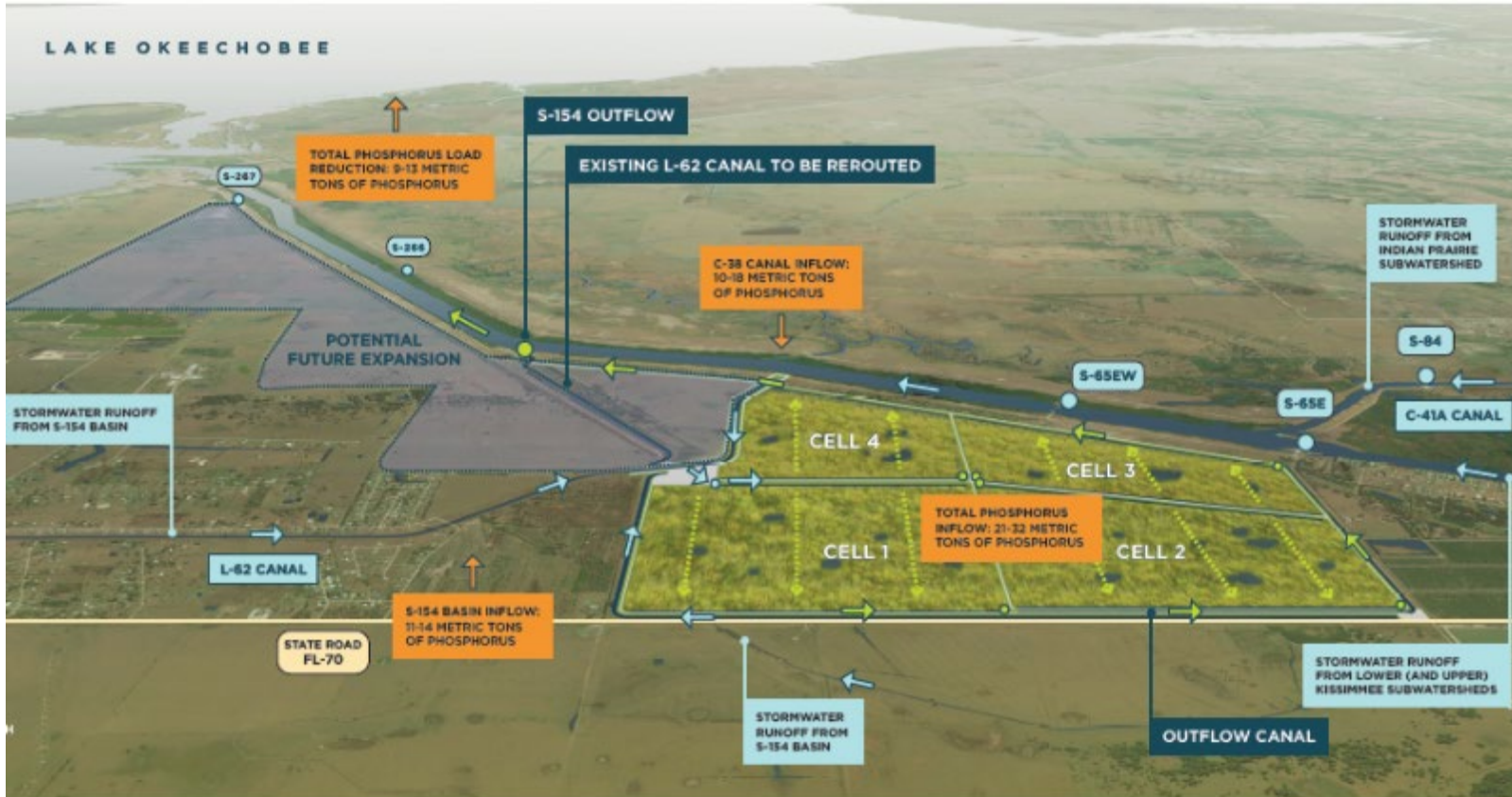
Conclusions

- Project site should be graded flat to facilitate long-term wetland vegetation health and treatment performance
- Re-locating a segment of the L-62 canal enables efficient STA cell configurations and construction methods
- C-38 canal water can be treated if L-62 canal water is not available
- One inflow pump station can convey water from both the L-62 and C-38 Canals

LOWER KISSIMMEE BASIN STORMWATER TREATMENT AREA PROJECT



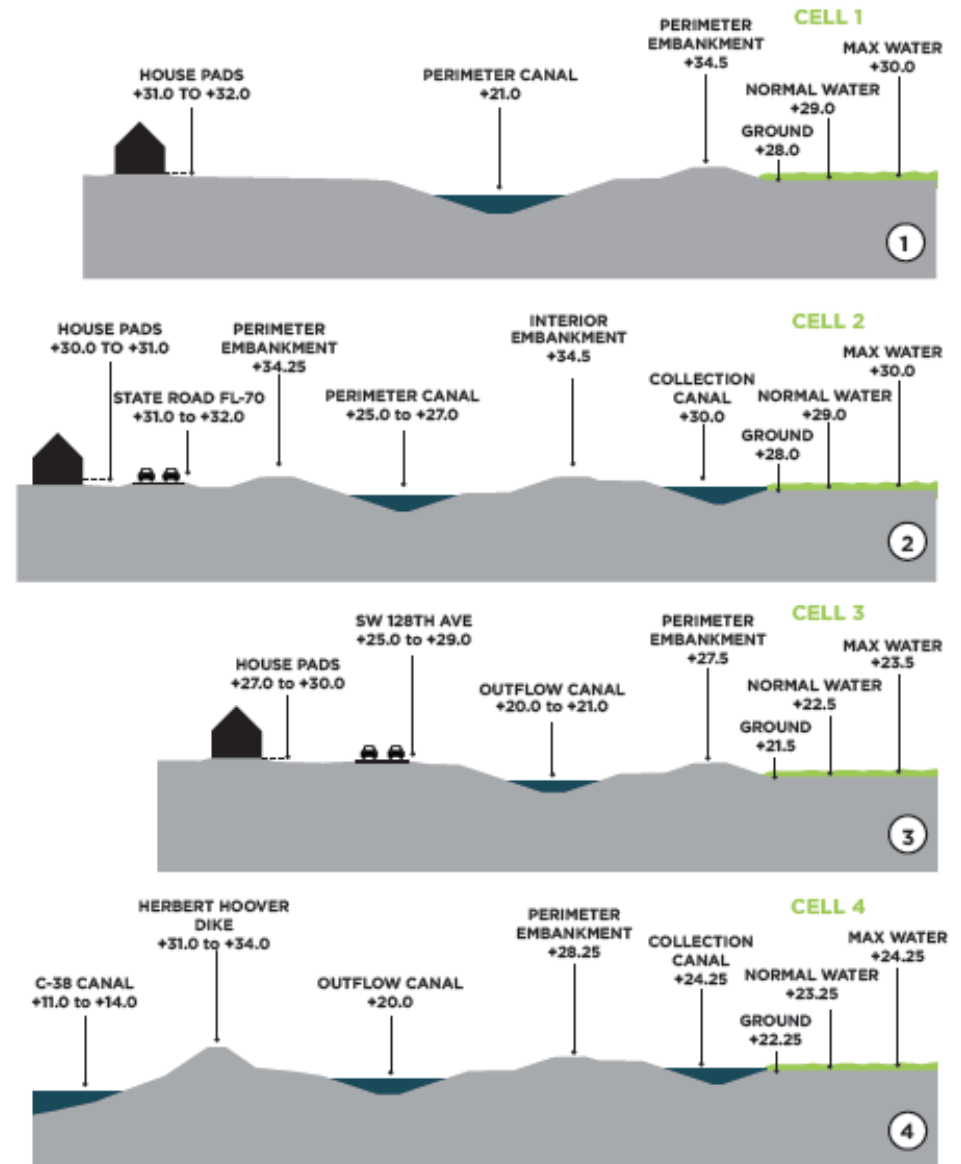
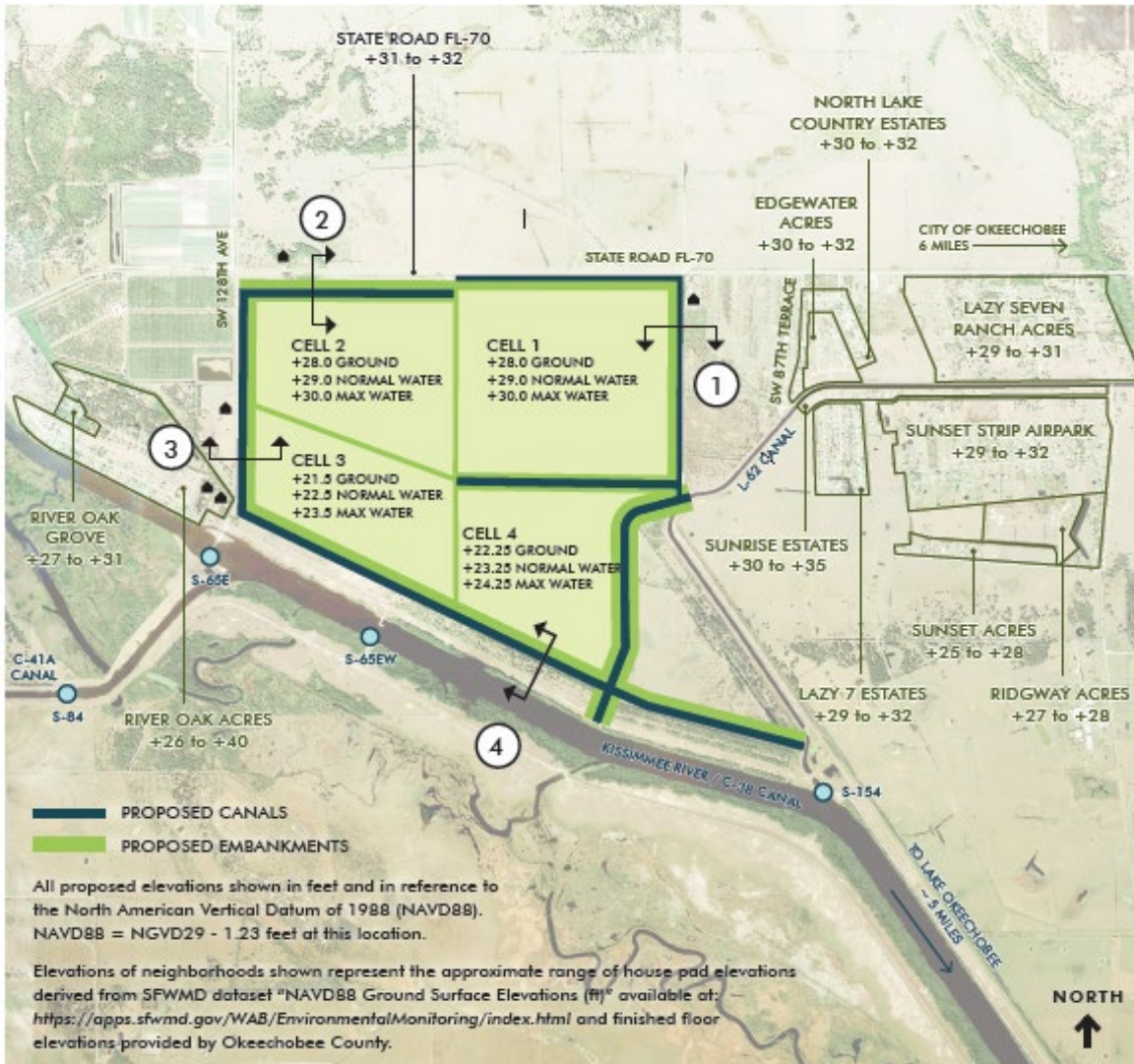
Project Benefits



	PROPOSED PROJECT
Project Components	1,600 acre STA (4 cells) 375 cfs inflow pump station
Projected Annual Inflow TP Load	S-154 = 11-14 mt C-38 Canal = 10-18 mt (includes 1-3 mt from Lake O) Total = 21-32 mt
Projected Annual TP Load Reduction with Project	9-13 mt (-41-43%)

	POTENTIAL FUTURE EXPANSION		
Project Components	2,700 acre STA (6 cells) 500 cfs inflow pump station	3,800 acre STA (8 cells) 625 cfs inflow pump station	Innovative Treatment Area
Projected Annual Inflow TP Load	S-154 = 13-14 mt C-38 Canal = 18-26 mt (includes 2-6 mt from Lake O) Total = 31-40 mt	S-154 = 14-15 mt C-38 Canal = 19-36 mt (includes 2-10 mt from Lake O) Total = 33-51 mt	TBD
Projected Annual TP Load Reduction with Project	14-17 mt (-43-45%)	20-22 mt (-43-61%)	3-6 mt
Anticipated Total Expansion Project TP Reductions	23-28 metric tons		

Project Elevations and Drainage



Recent Activities and Next Steps

August 29, 2023

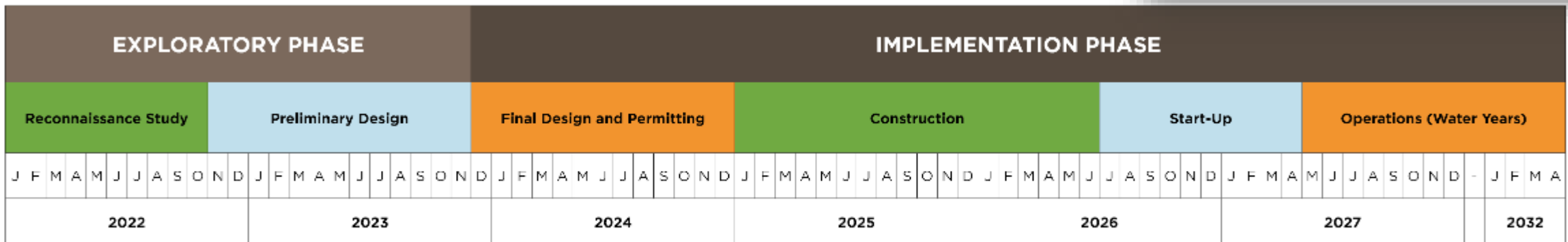
- EIP held public information sessions at Okeechobee Civic Center

September/October 2023

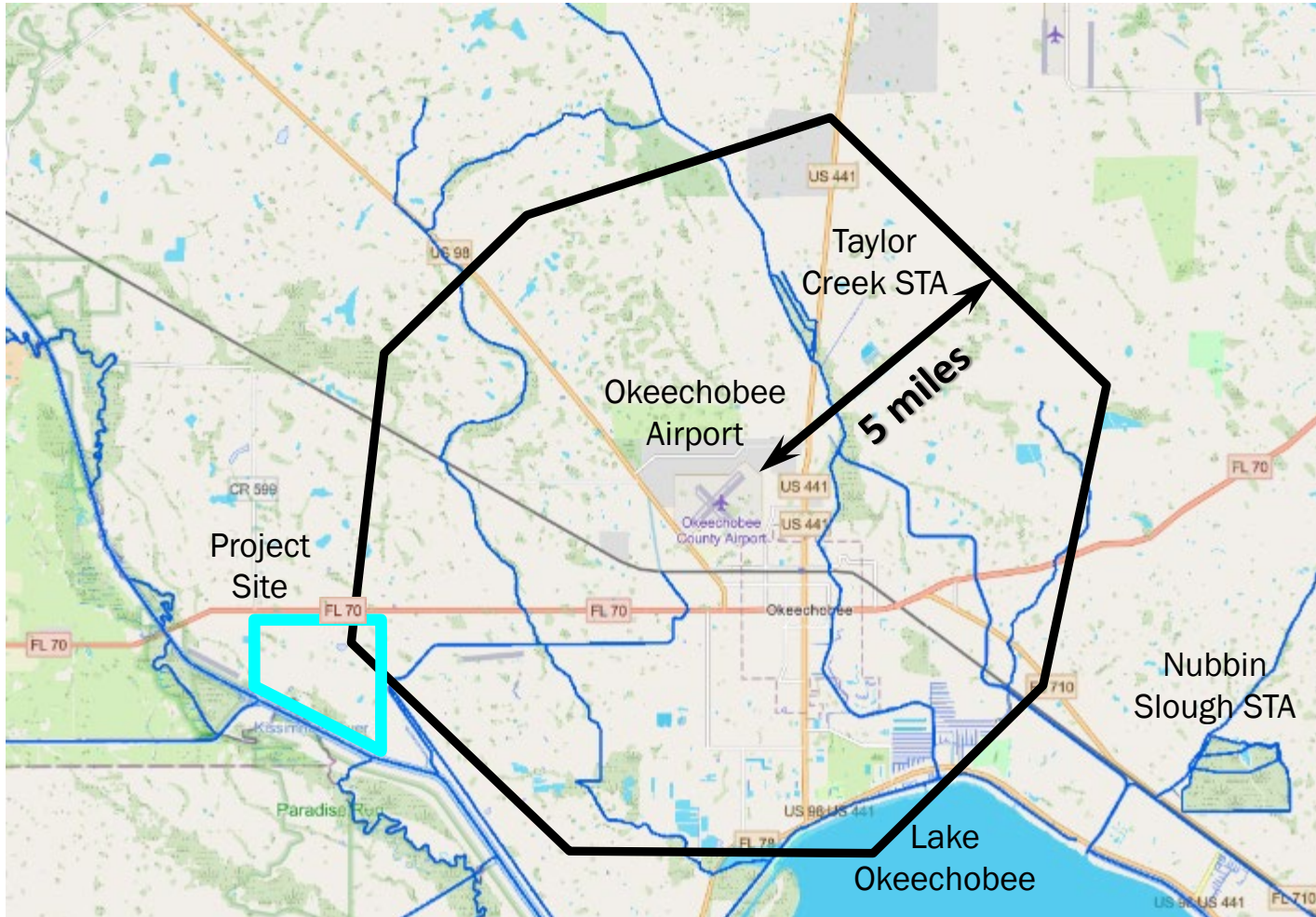
- Okeechobee County BOCC briefing (proposed)

November/December 2023

- SFWMD reviews and considers EIP proposal for Implementation Phase



Federal Aviation Administration – Advisory Circular on Hazardous Wildlife Attractants on or near Airports



- Advises against land-use practices that attract or sustain hazardous wildlife populations within 5 miles of aircraft operations area.
- Stormwater management facilities and constructed wetlands are listed as land uses of possible concern.
- Suggests engaging a “Qualified Airport Wildlife Biologist” to determine if land-use could attract hazardous wildlife.

Questions

Kyle Graham
Senior Program Manager
828-243-2674
kyle@ecosystempartners.com

Jeremy McBryan, PE, CFM, ENV SP
Director, Florida Water Quality
561-319-4995
jeremy@ecosystempartners.com

