SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Corkscrew Watershed Initiative (CWI)

Second Public Meeting
August 27, 2025

Agenda

- Welcome and Project Team
- CWI Background and Overview
- Modeling and Performance Measures
- Proposed Restoration Projects
- Next Steps and Public Comments

Welcome and Project Team

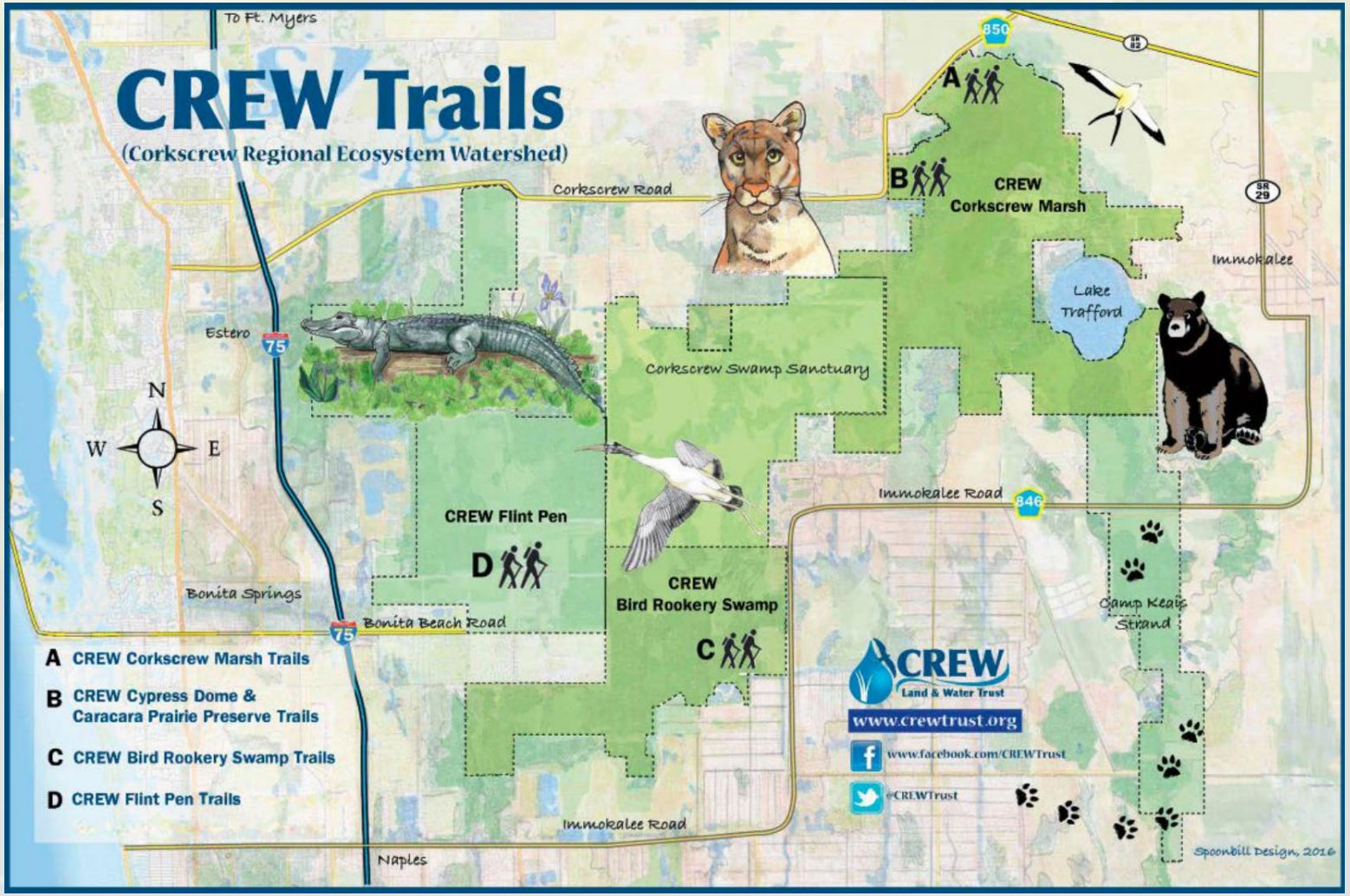
Project Team

- SFWMD staff from Fort Myers, Big Cypress Basin and Headquarters (WPB)
- Consultant Team: J-Tech; an alliance of Jacobs and Tetra Tech

CWI Background and Overview

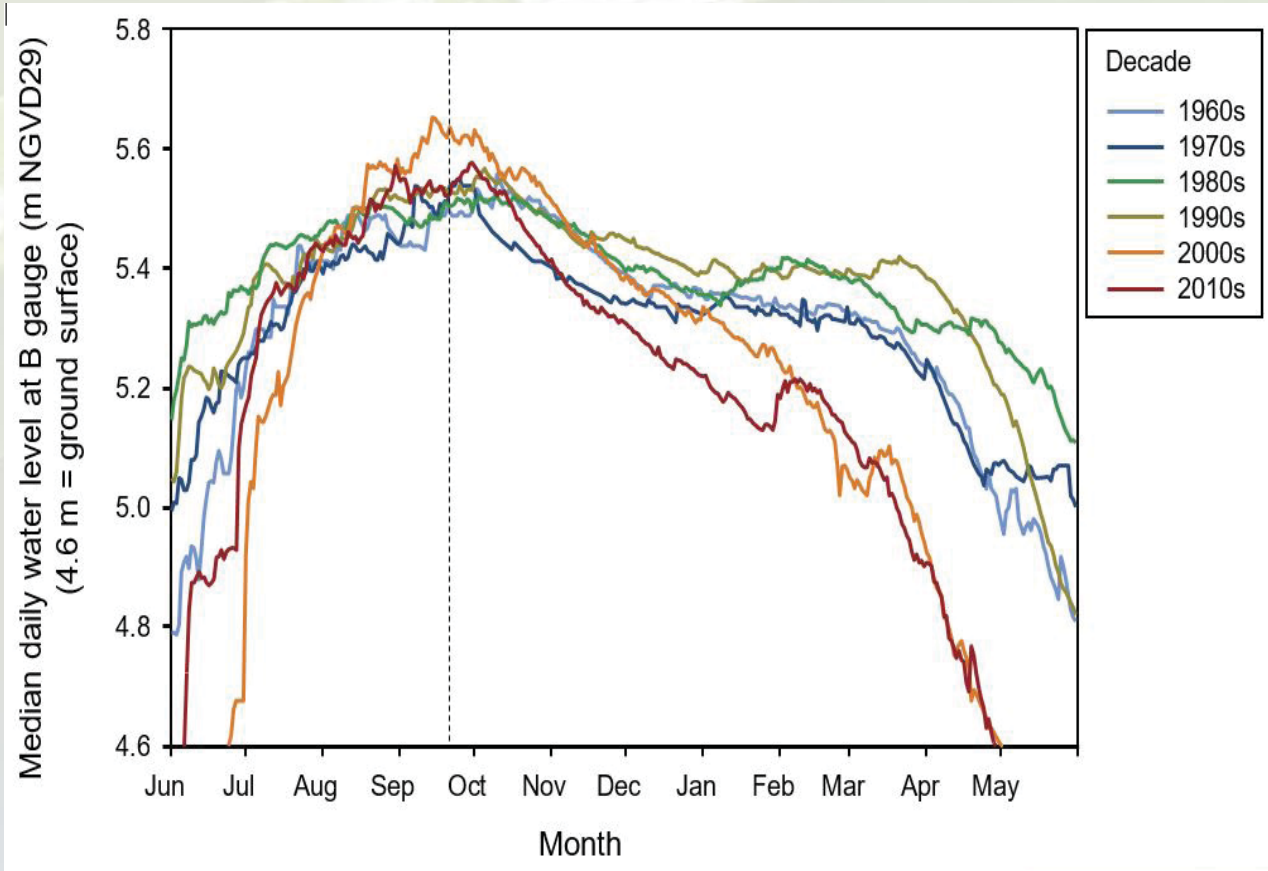
Corkscrew Regional Ecosystem Watershed (CREW)

- Important resources within CREW lands:
  - Flint Pen Strand
  - Bird Rookery Swamp
  - Corkscrew Swamp Sanctuary (CSS)
  - Corkscrew Marsh
  - Camp Keais Strand



Hydrologic Impacts in Corkscrew System

- Corkscrew Swamp Sanctuary (CSS) ecology is affected by shortened hydroperiods and increased water level recession rates throughout the dry season
- Approximately 60 years of data at CSS
- Reduced hydroperiods in various habitats:
  - Marshes- 29% (2.6 months)
  - Old Growth Bald Cypress- 18% (1.9 months)
  - Ponds- 17% (2.0 months)
- Cascading negative effects on ecosystem and wildlife



Source: Shawn E. Clem and Michael J. Duever

Impacts to Wildlife

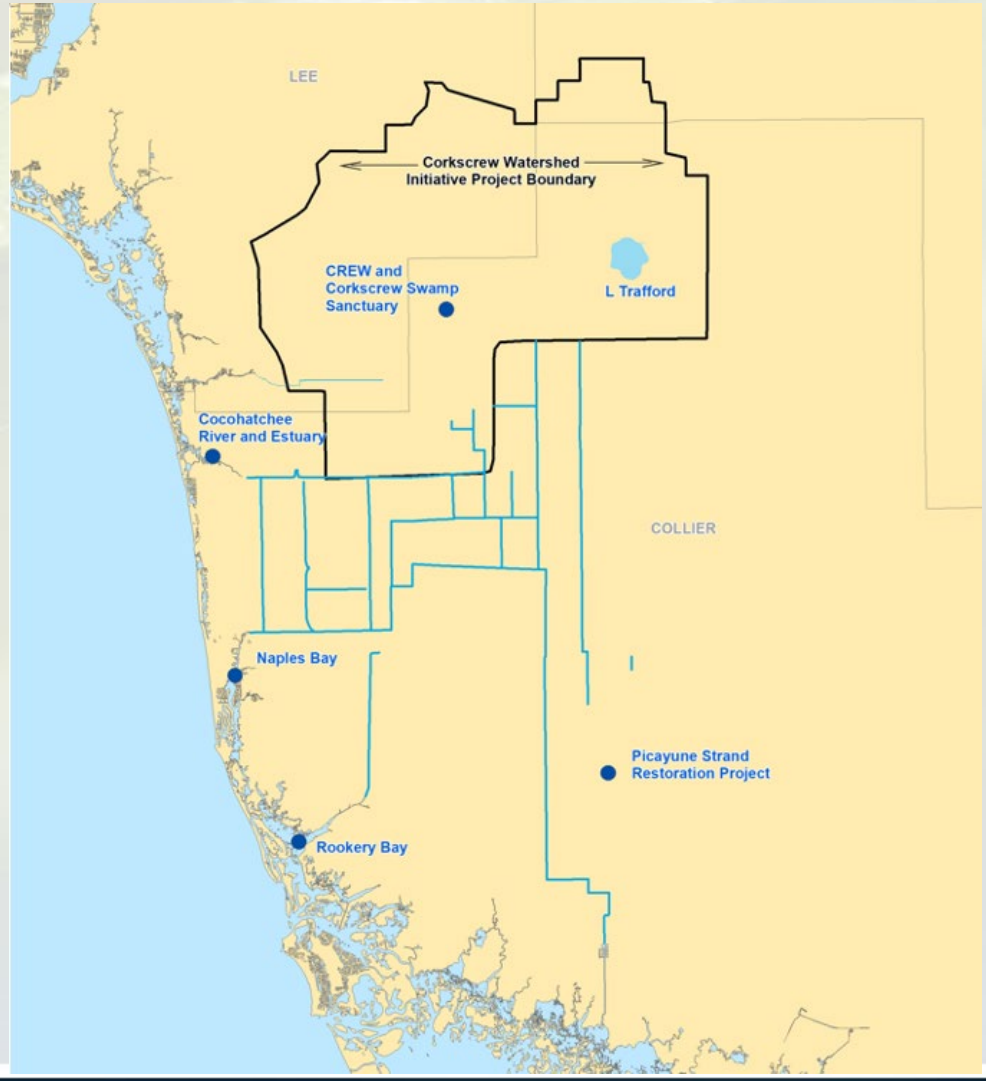
- Historically CSS wood stork population was the largest in the United States
  - Wood storks are a threatened species
- Population of nesting pairs in CSS has dramatically declined
- Hydrological changes affect fish populations, which limits food availability for wading birds

Additional Impacts

- Altered succession of plant communities and habitats
- Increased fire risk
- Reduced freshwater storage
- Changed timing and quantity of freshwater to estuaries

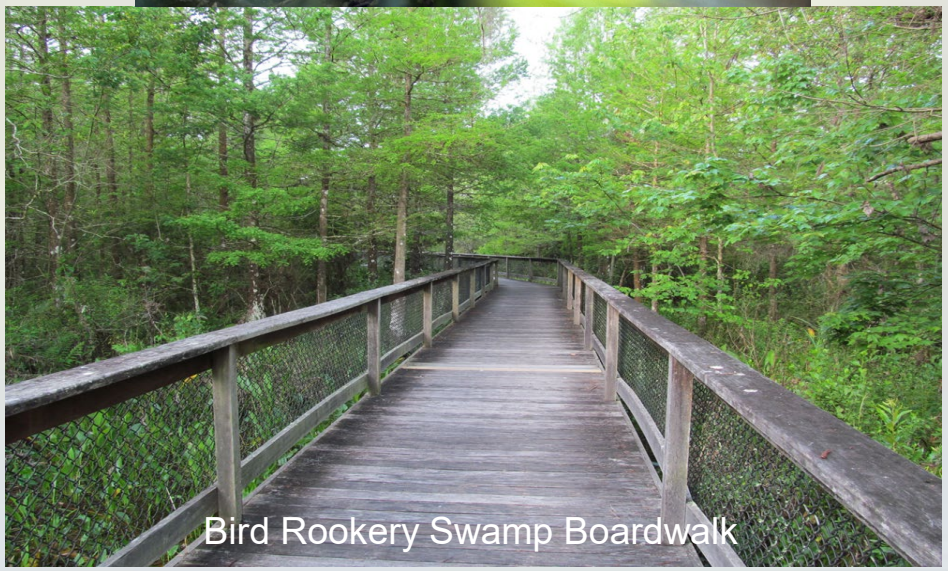
Corkscrew Watershed Initiative (CWI) Objectives

- Comprehensive strategy to achieve ecological restoration of the Corkscrew system; emphasis on hydrology
- Reduce flood risk
- Maintain water supply
- Engage partners, stakeholders, and the public in planning
- Identify viable short and long-term strategies and features for ecological restoration



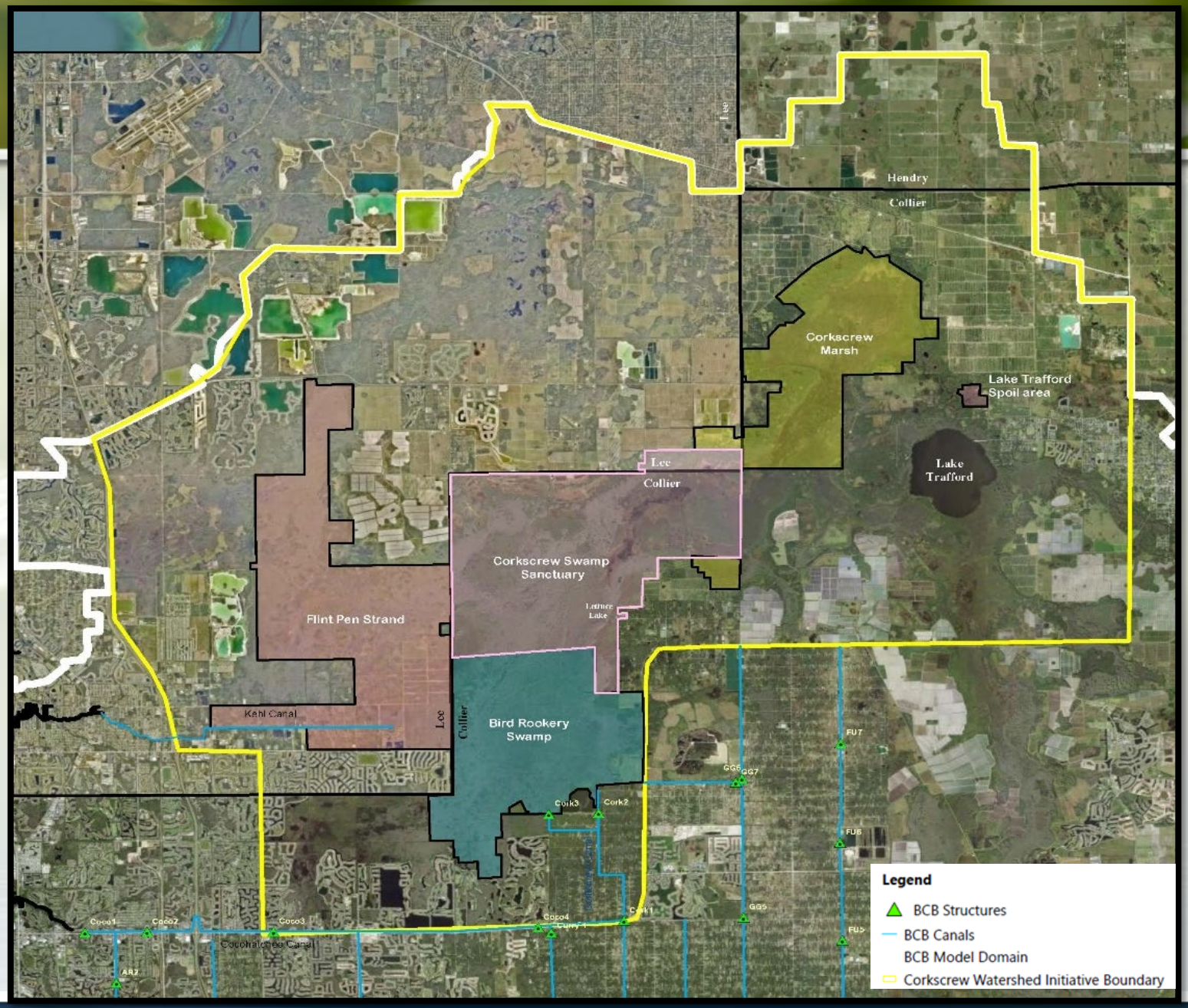
Corkscrew Watershed Initiative Overview

- CWI is a 3-year public planning project (2024–2027)
- Study will identify project(s) to be implemented by various agencies
- Builds upon previous Big Cypress Basin (BCB) efforts in and around the CSS
- Identify projects that can be implemented quickly
- Planning project complete in 2027; obtain funding and proceed to final design, permitting and construction for selected alternatives



Bird Rookery Swamp Boardwalk

Project Area

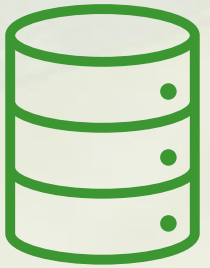


Technical Working Group (TWG)

- Corkscrew Swamp Sanctuary (CSS)
- Corkscrew Regional Ecosystem Watershed (CREW) Land & Water Trust
- Collier County
- Lee County
- Village of Estero
- City of Bonita Springs
- SFWMD

Scope of Work

- **Completed Tasks:**
  - Gather data, develop work plan
  - Refine BCB Watershed Model for CWI project area
  - Develop goals, performance metrics and measures
  - Identify early implementation projects
- **In Progress:**
  - Coordinating with Technical Working Group (TWG), stakeholders and the public to identify potential project alternatives
  - Existing conditions model simulation
- **Upcoming Tasks:**
  - Future baseline conditions modeling and future alternatives analysis & modeling
  - Identify final alternative(s) that meet CWI objectives (including conceptual plans, funding sources, and cost estimates for construction, operation and maintenance)



Project Schedule

Official Kick-off with TWG: March 1, 2024

2024: Final Work Plan, Data Collection, Performance Measures for Project Goals, Draft BCB Model Refinement for CWI Project Area

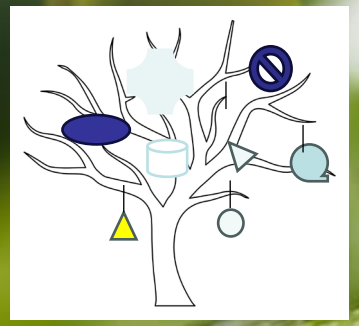
2025: Final BCB Model Refinement, Modeling of Existing and Future Baseline Conditions, Initial Restoration Project List and Matrix

2026: Modeling of Restoration Projects, Identify final Projects that meet CWI objectives, Final Report and Conceptual Plans

2027: Final Public Meeting and BCB Board presentation

Corkscrew Watershed Initiative Structure

Candidates for Accelerated Schedule (Early Implementation)



CWI

Project Team

Technical Working Group

Public

Recent Successful Implementation

Flood Studies

Water Supply Studies

Environmental Studies

Potential Projects

CWI Alternatives w/Multiple Projects

Alt - 1

Alt - 2

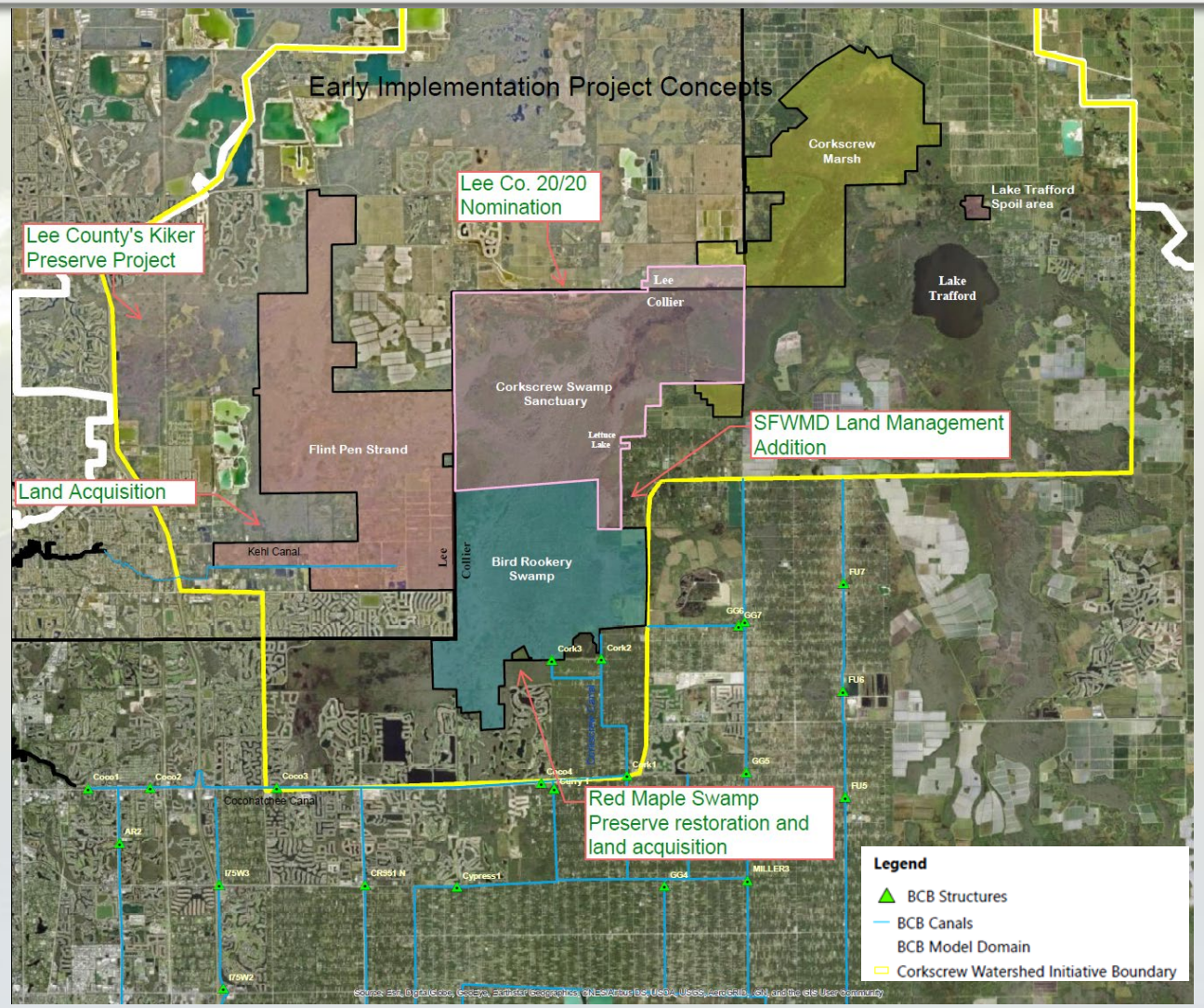
Alt - 3

CWI Model Analysis

Selected Alternative(s)

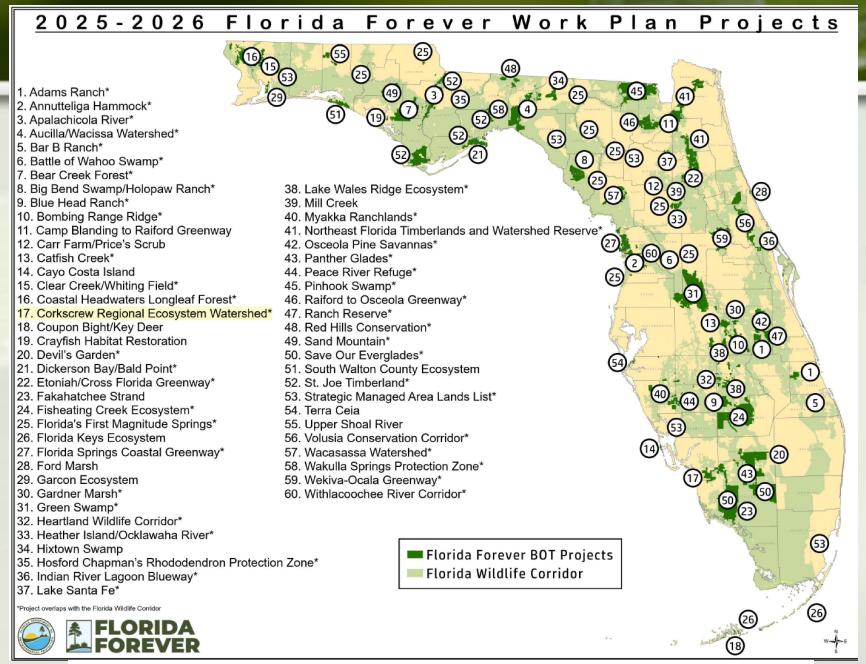
CWI Early Implementation Projects

- SFWMD land management addition ("School Board" parcel); long-term lease amendment with Florida Department of Environmental Protection (FDEP) completed
- Lee County Kiker Preserve Project and Conservation 20/20 nomination
- Restoration and land acquisition within Conservation Collier's Red Maple Swamp Preserve
- Coordination on land acquisition within CWI project area



Land Acquisition and Landowner Coordination

- Technical Working Group coordination to reach out to landowners in the vicinity of CWI
- Initial outreach completed and meetings with landowners ongoing
- Raise awareness about CWI, discuss conservation strategies and land management coordination
- Coordinating on access to SFWMD and CSS lands, where current access is limited
- CREW remains a priority land acquisition effort under the Florida Forever Plan (approximately 30,000 acres remain to be acquired)



2025 Florida Forever Priority List || BOT Approved

Rank	Project	County[1]	Remaining Acres	Cumulative Acres[2]	Work Plan Priority[3]
28	Perdido Pitcher Plant Prairie	Escambia	2,220	693,012	Low
29	Southeastern Bat Maternity Caves	Alachua, Citrus, Jackson, Marion, Sumter	578	693,591	Low
30	Shoal River Buffer	Okaloosa	882	694,473	Low
31	Ichetucknee Trace	Columbia	1,707	696,180	Low
32	Hixtown Swamp	Madison	21,966	718,146	Low
33	Bar-B Ranch	Martin	1,910	720,056	Low

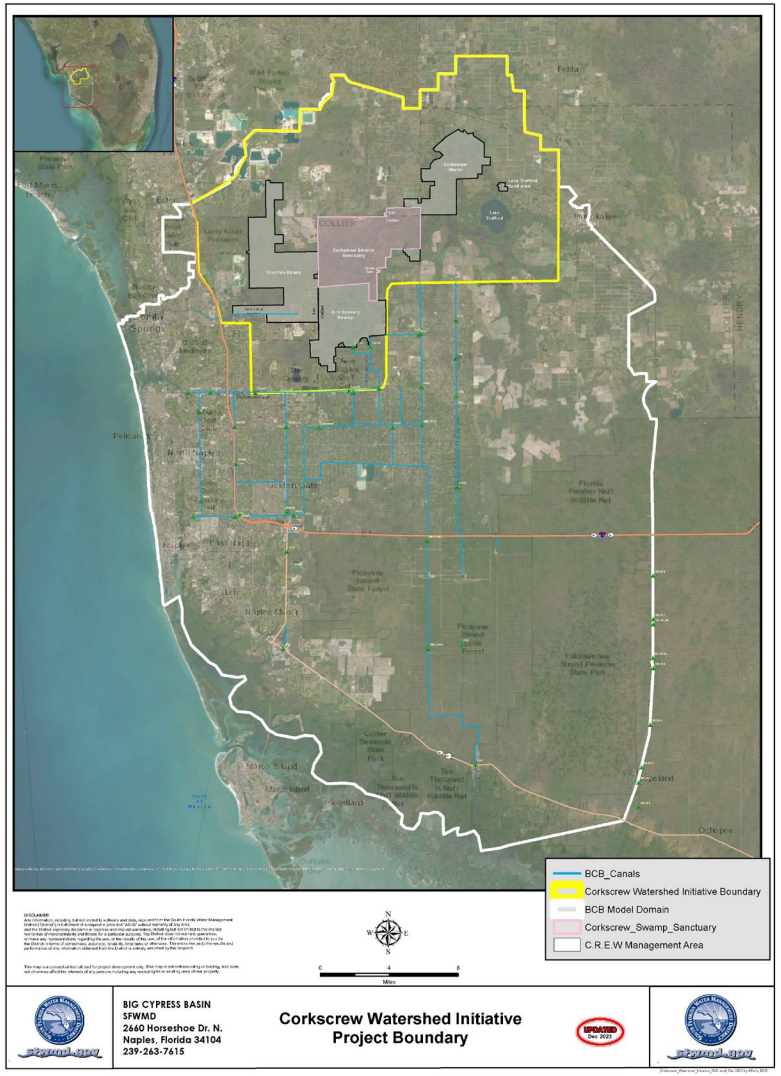
Partnerships & Regional Incentives

Rank	Project	County[1]	Remaining Acres	Cumulative Acres[2]	Work Plan Priority[3]
1	Florida's First Magnitude Springs	Bay, Citrus, Columbia, Gilchrist, Hernando, Jackson, Lafayette, Lake, Leon, Levy, Madison, Marion, Suwannee, Wakulla, Washington	6,771	6,771	High
2	Northeast Florida Timberlands and Watershed Reserve	Clay, Duval, Nassau	68,538	75,309	High
3	Wakulla Springs Protection Zone	Leon, Wakulla	3,296	78,605	High
4	Corkscrew Regional Ecosystem Watershed	Collier, Lee	30,606	109,211	High

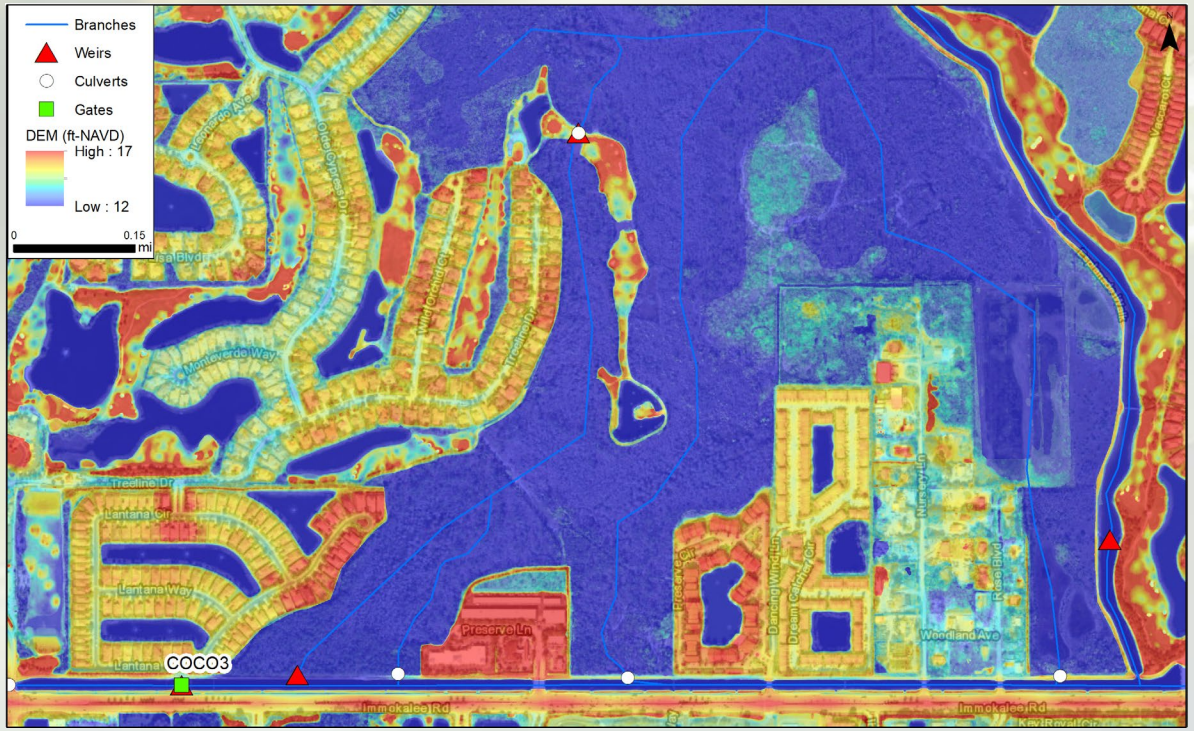
Modeling and Performance Measures

BCB Watershed Model Refinement

- BCB regional groundwater/surface water model (MIKE SHE/MIKE HYDRO); model domain 1,060 square miles
- CWI Model Refinement completed by J-Tech team, Collective Water Resources, LLC
- Purpose was to improve prediction of performance measures for proposed project alternatives:
  - Hydroperiods and depth targets – duration at given depths in wetlands
  - Dry season groundwater levels – distributed in space and time
  - Wetland flow across barriers
  - Flood risk measures – stages/flows in the primary system; flood depths
  - Outflows from system – dry season groundwater levels in key areas and flows at key outfall structures, no salinity impacts downstream
  - Predict effects to potential changes in water supply



Summary of BCB Model Refinements



- Modification of the model topography based on survey data
- Conceptualization of 1D model flow ways
- Addition of hydraulic connections to the primary drainage system
- Primary system operations and structures, optimization of flow and head losses
- Agriculture and urban basin drainage revisions
- Optimization of basin flows and groundwater levels
- Addition of a wetland layer in the groundwater component

Performance Measures and Metrics

Goals	Performance Measures	Metrics	Evaluation Method
Hydrologic Restoration of Wetlands	Saltwater Intrusion	No significant potential for adverse impacts in key areas	Monitoring
	Sheet Flow	Remove man-made features	Modeling
	Water Depth Targets	Establish more historic water depths	Modeling
	Dry Season Water Level	Improve dry season water levels	Modeling
	Hydroperiods	Establish more historic hydroperiods	Modeling
Habitat Restoration	Vegetative Community	More appropriate mix of desirable vegetation	Monitoring
	Wildlife Use	Key representative species	Monitoring
	Threatened and Endangered Species	Protected species	Monitoring
	Connectivity	Develop wildlife and hydrologic corridors	Monitoring
Flood Protection	Flood Reduction - Future Conditions	Level of flood reduction with future conditions	Modeling
Water Supply	Water Supply/Aquifer Recharge	Maintain water supply	Modeling
Implementation	Cost Effective	Cost-benefit analysis	Matrix
	Operation and Maintenance Costs	Evaluation of operation and maintenance needs	Matrix
	Grant Funding Available	Total grant funding	Matrix
	Short- Versus Long-Term Implementation	Implementation timeframe	Matrix
	Stakeholder Support	Level of support	Meetings/Comments
	Ease of Implementation	Level of effort	Matrix

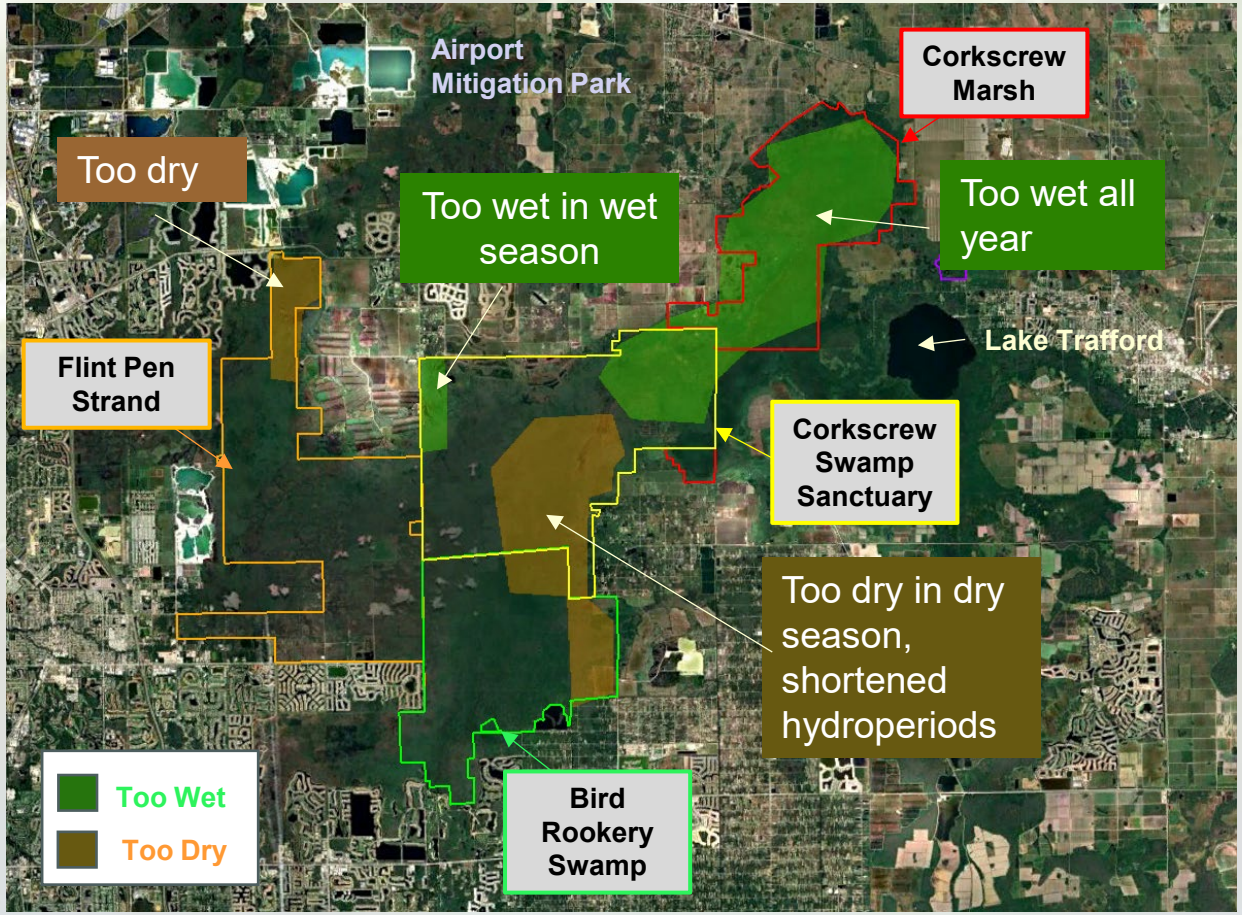
Proposed Restoration Projects

CWI Project Alternatives – Scope

- Develop Initial List of Potential Ecologic and Hydrologic Restoration Projects:
  - Work with Technical Working Group and stakeholders to develop an initial list
  - Alternatives limited to 5 short-term and 5 long-term projects
  - Alternatives may include multiple components that work in concert with each other
  - Use existing plans and studies, knowledge of restoration strategies and best practices, feasibility, regulatory considerations, etc.
  - Restoration Project Tech Memo and Initial Project Matrix (Summer 2025)
  - Public input

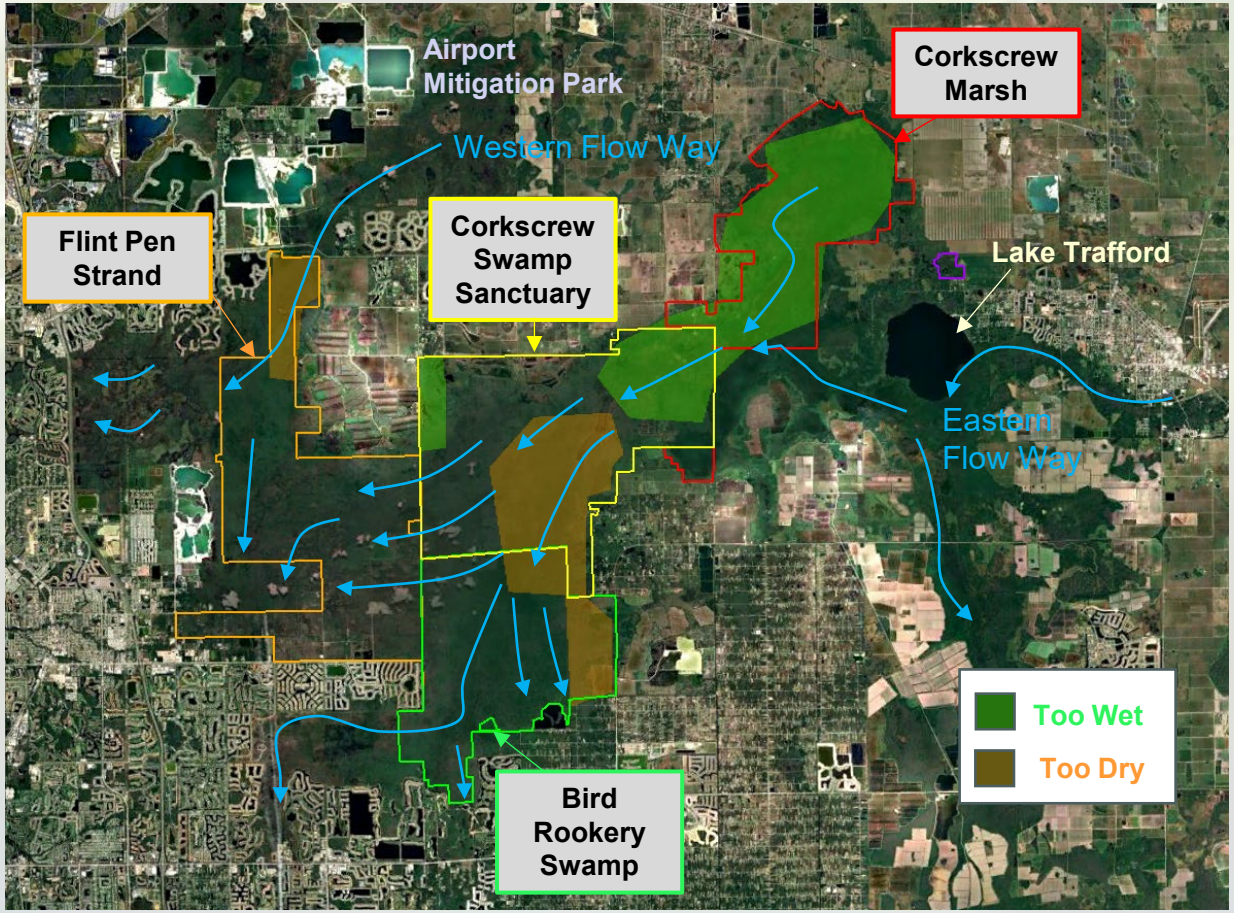
Project Area – Complex Hydrology

- Different hydrologic conditions throughout CREW
  - Various habitats with different hydrologic regimes
  - The system receives less water than it has historically, with altered timing and of a "flashier" nature
  - Some areas are “too wet,” other areas are “too dry”
  - Balance needs of entire ecosystem



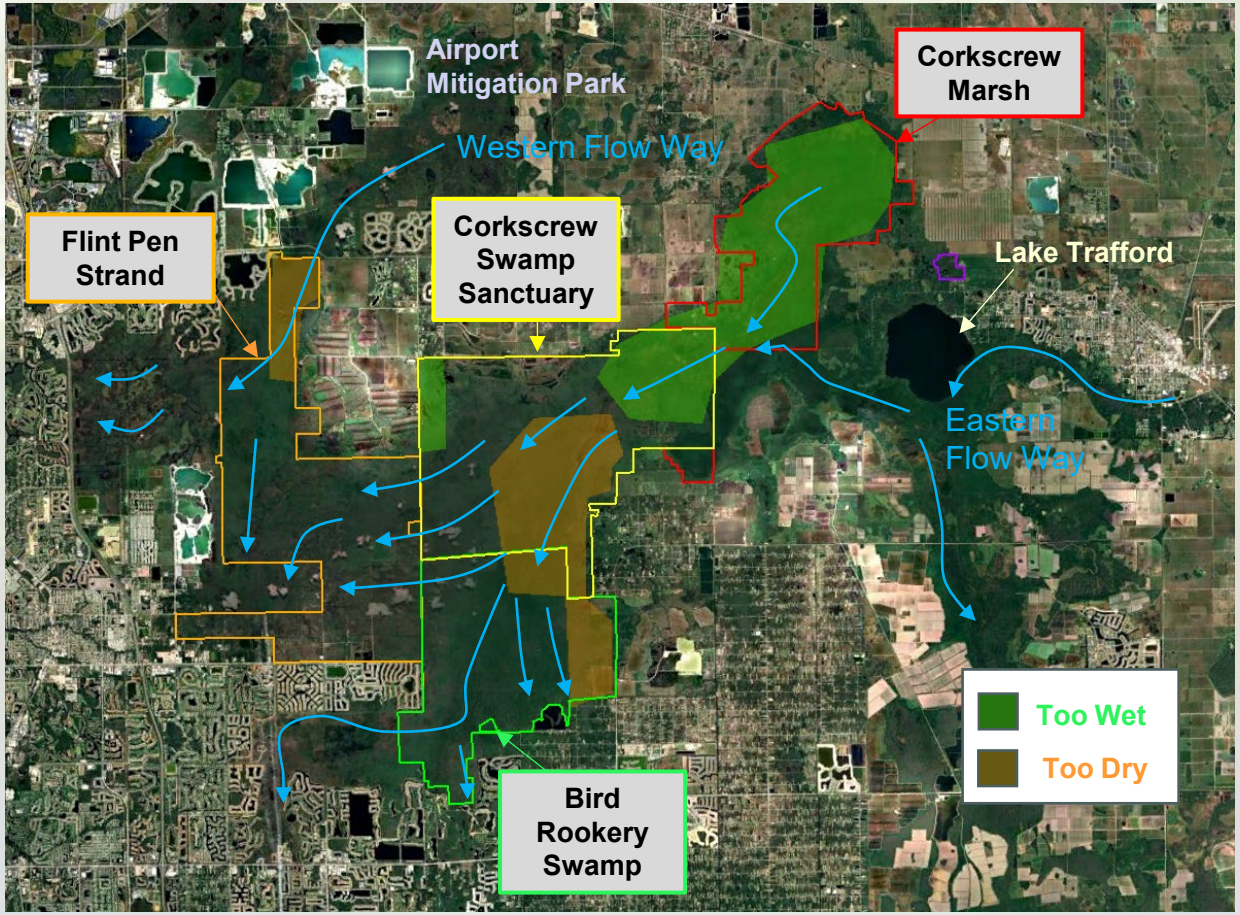
Project Area – Overview

- Two primary flow ways
  - Western flow way originates in the Airport Mitigation Park
  - Eastern flow way originates from Corkscrew Marsh and the area around Lake Trafford
  - Both are rainfall driven with some inflow from adjacent agricultural and mine sites
  - There appears to be impediments to flow



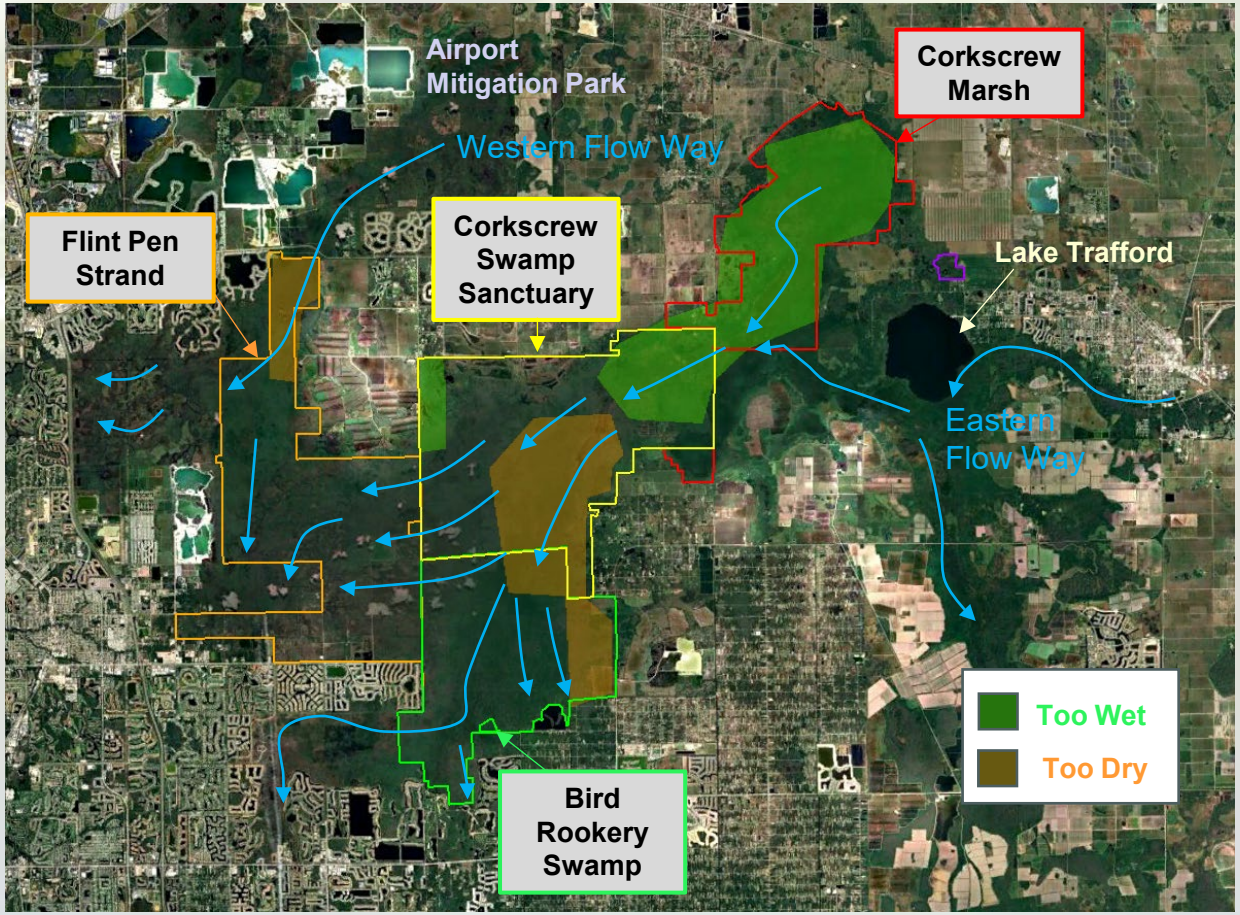
Restoration Project Concepts – Objectives

- Improve wetland hydrology
  - Extend wetland hydroperiods
  - Improve internal flow and distribution
  - Decrease over-drainage
  - Increase stages where needed in wet season versus dry season
  - Move more water from north, hold more water back from south, or both
- Maintain if not reduce flood risk
- Maintain water supply



Restoration Project Concepts – Challenges

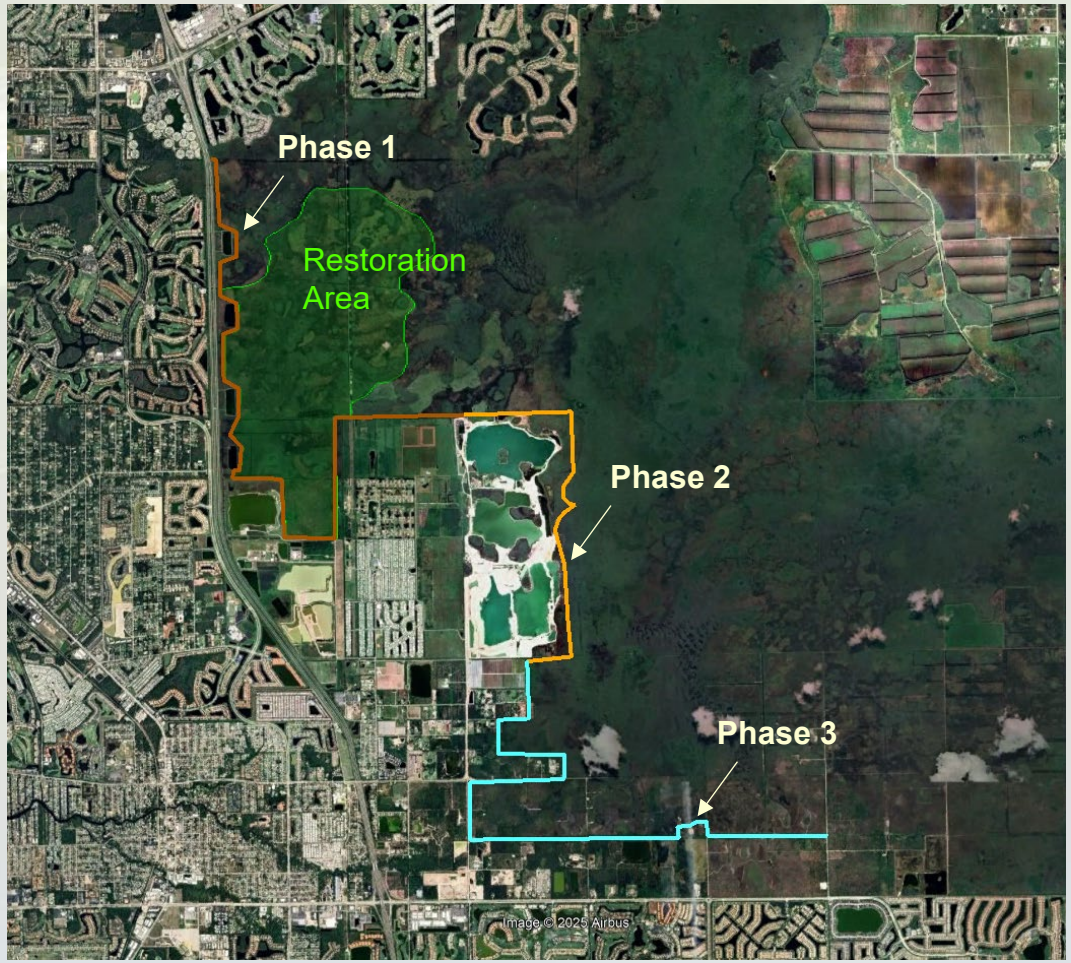
- Avoiding offsite impacts
- Seasonality of hydrologic issues
- Implementable solutions
  - Long-term operation and maintenance (active versus passive structures)
  - Land acquisition/easements
  - Funding
- Balancing objectives



Related Projects

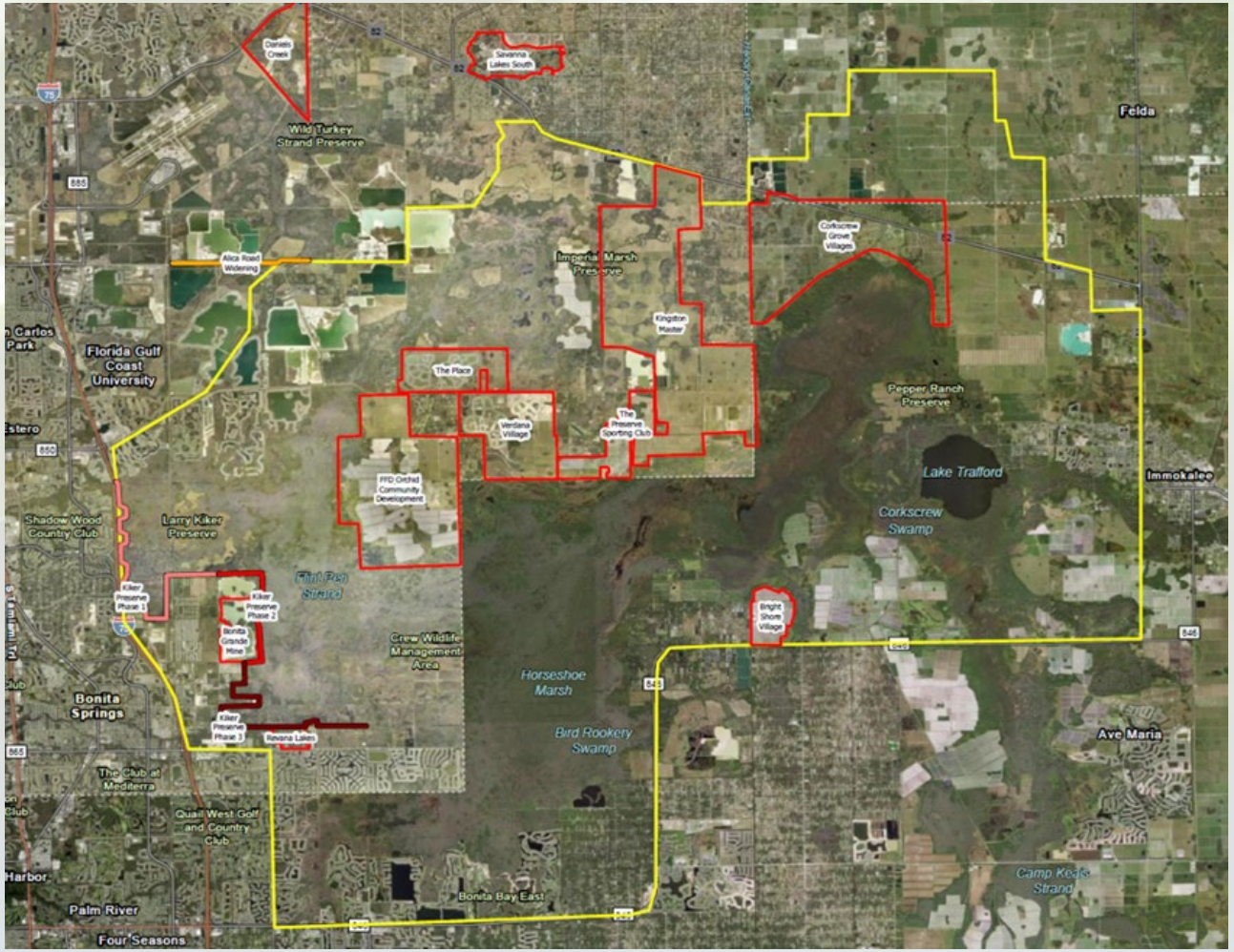
Kiker Preserve Project

- Lee County project occurring separately but parallel with CWI
- Over 16 miles of berm planned in three phases
- Provide flood protection along with hydrologic restoration for wetland/upland and groundwater enhancement
- Phase 1 and Phase 2 are in design
- Phase 3 is not currently being advanced



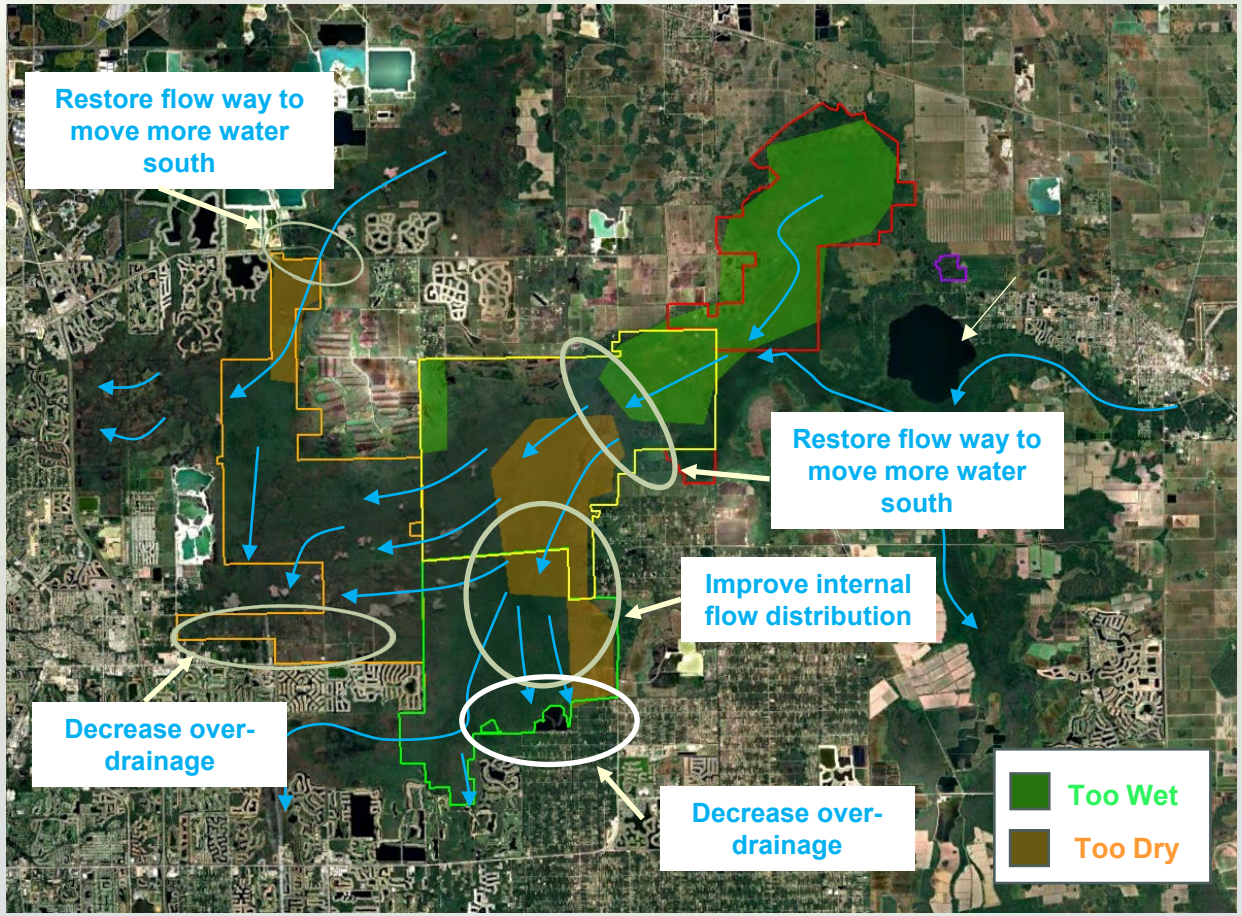
Rapidly Changing Watershed

- Dynamic watershed
  - Much of the land north of the project area is undergoing rapid change
  - Agricultural and mining lands being developed for residential and mixed use
  - Project Team continues to meet with nearby landowners and developers



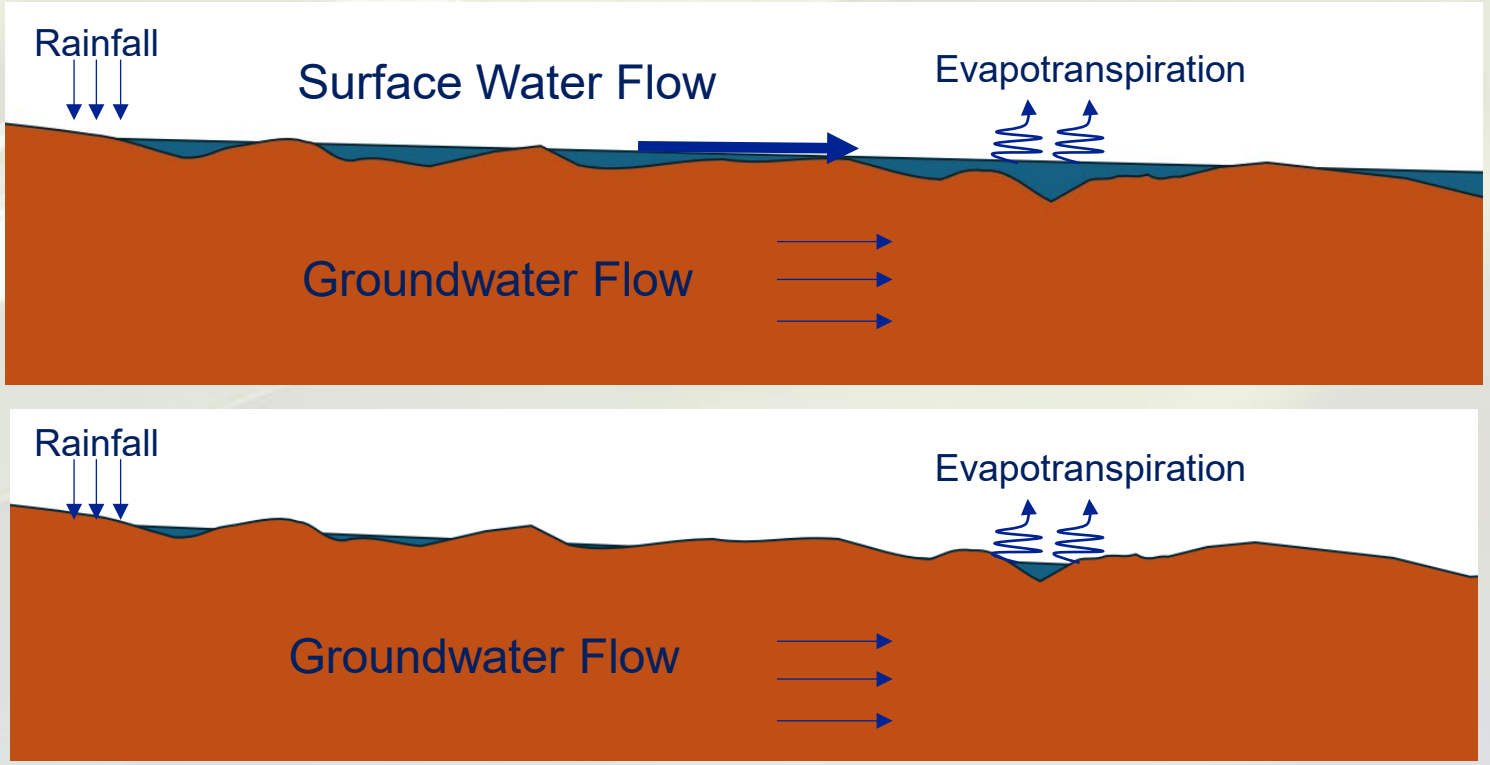
Restoration Project Concepts

- Project developed to focus on four major areas to achieve project objectives:
  - **Restoration of Northeast-Southwest Flow Way:** Remove the suspected impediment to surface water flow from Corkscrew Marsh to Corkscrew Swamp
  - **Bird Rookery Swamp Hydrologic Improvements:** Provide a more natural surface and groundwater flow distribution and increase hydroperiods within CSS and Bird Rookery Swamp
  - **Hydrologic Improvements along Shady Hollow Boulevard**: Reduce over-drainage to the south and focus on the area of Shady Hollow Boulevard
  - **Western Flow Way Improvements:** Augment the effectiveness of the Kiker Preserve project



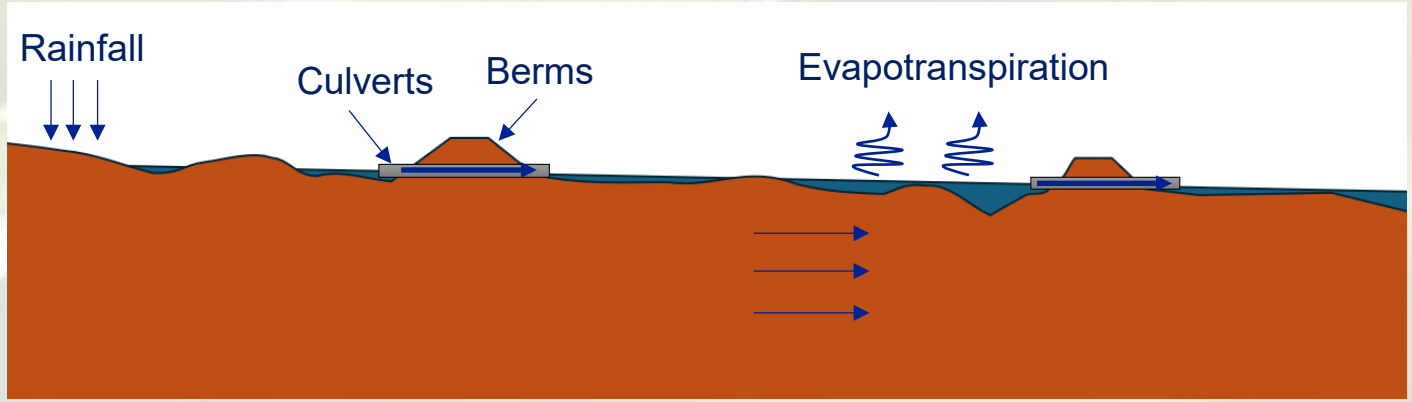
Engineering Approaches to Hydrologic Restoration

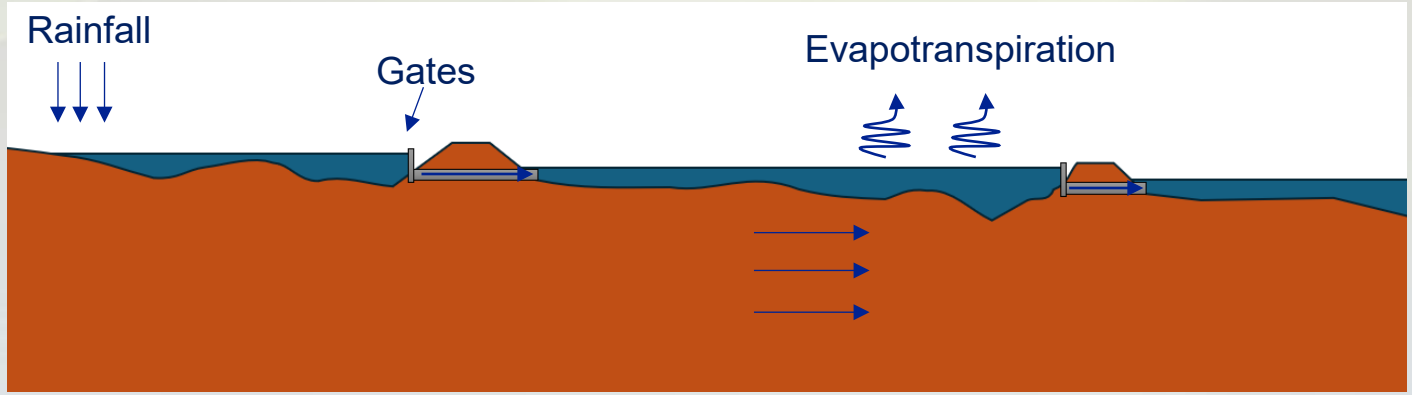
- Flow through system consists of two components:
  - Surface water flow – Relatively fast, subject to flash storm events
  - Groundwater flow – Slow and steady
- The proportion of water moving through groundwater versus surface water depends on the soil properties
- For systems receiving too little water the groundwater flow component becomes more important



Engineering Approaches to Hydrologic Restoration

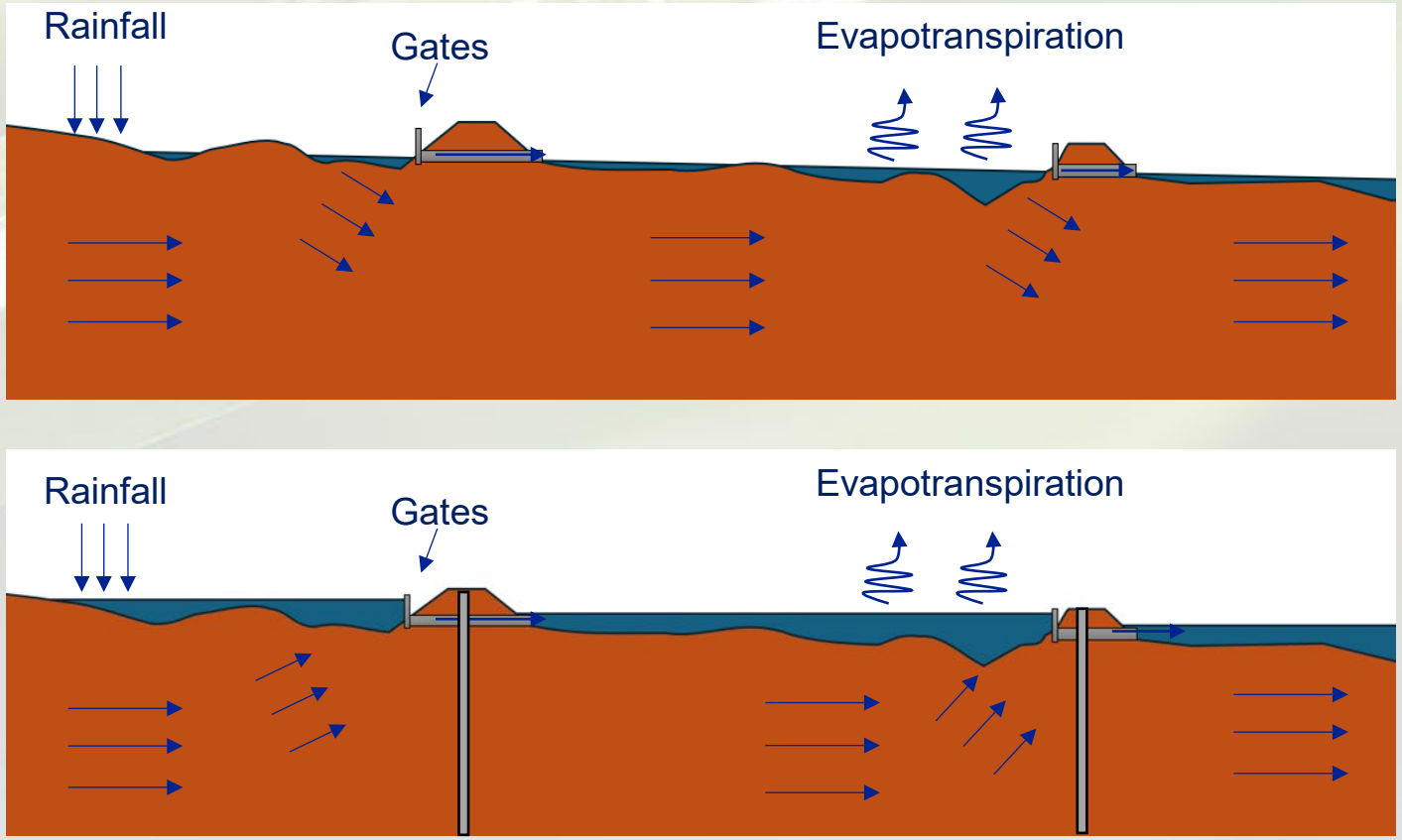
- Surface water controls allow for:
  - Higher water levels
  - Increased hydroperiods
  - Greater storage that can be released over the dry season
- Earthen berms – Shallow, only a few feet high
- Culverts – Allow for some water to pass beneath berms but not managed
- Gates – Provide greater control of the amount of surface water flow
- Together berms and gates can be used to create a series of shallow pools to extend hydroperiods





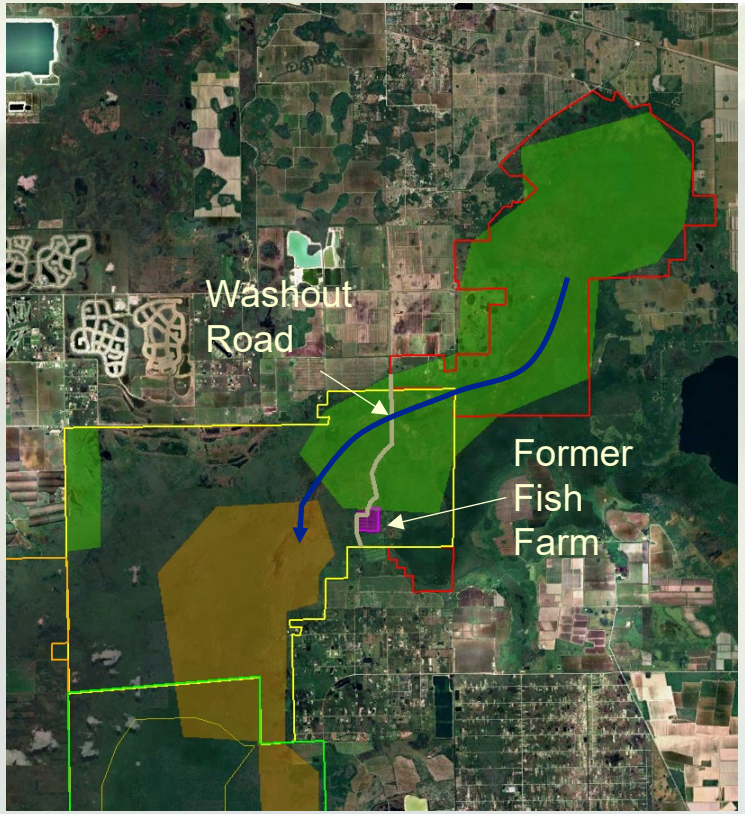
Engineering Approaches to Hydrologic Restoration

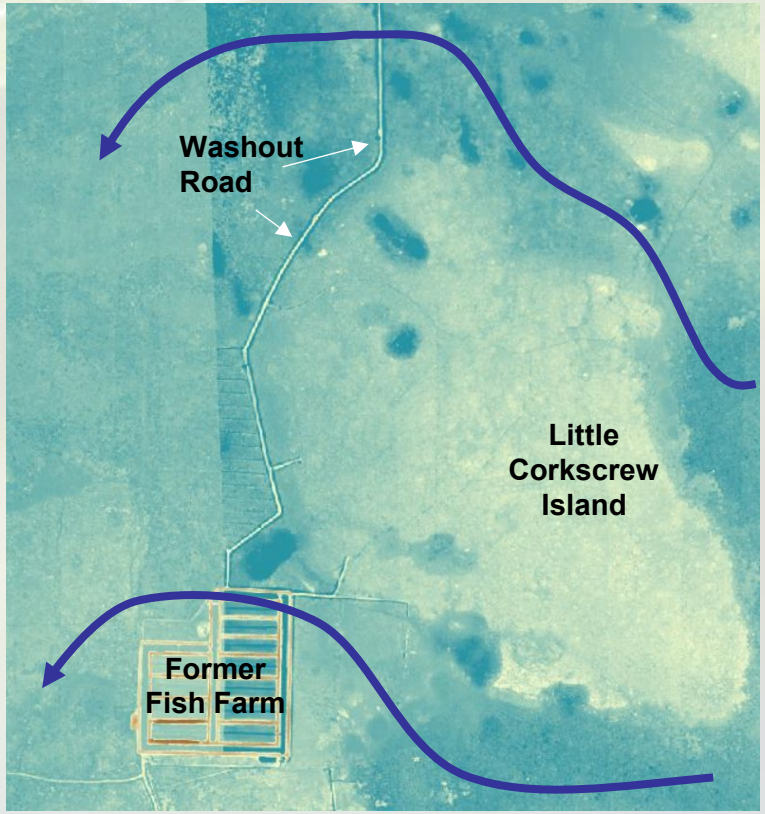
- Surface water controls may not be sufficient to create the shallow ponds in the presence of a highly transmissive groundwater
- In this case, use of limited subsurface barriers could be examined



Restoration of Northeast-Southwest Flow Ways

- **Overview:** Enhance flow from northeast to southwest by restoring natural flow-ways restricted by Washout Road and former fish farm and improve the function and accessibility of Washout Road
  - Culverts under Washout Road are in poor condition and road is prone to flooding
  - Berms remain at the former fish farm

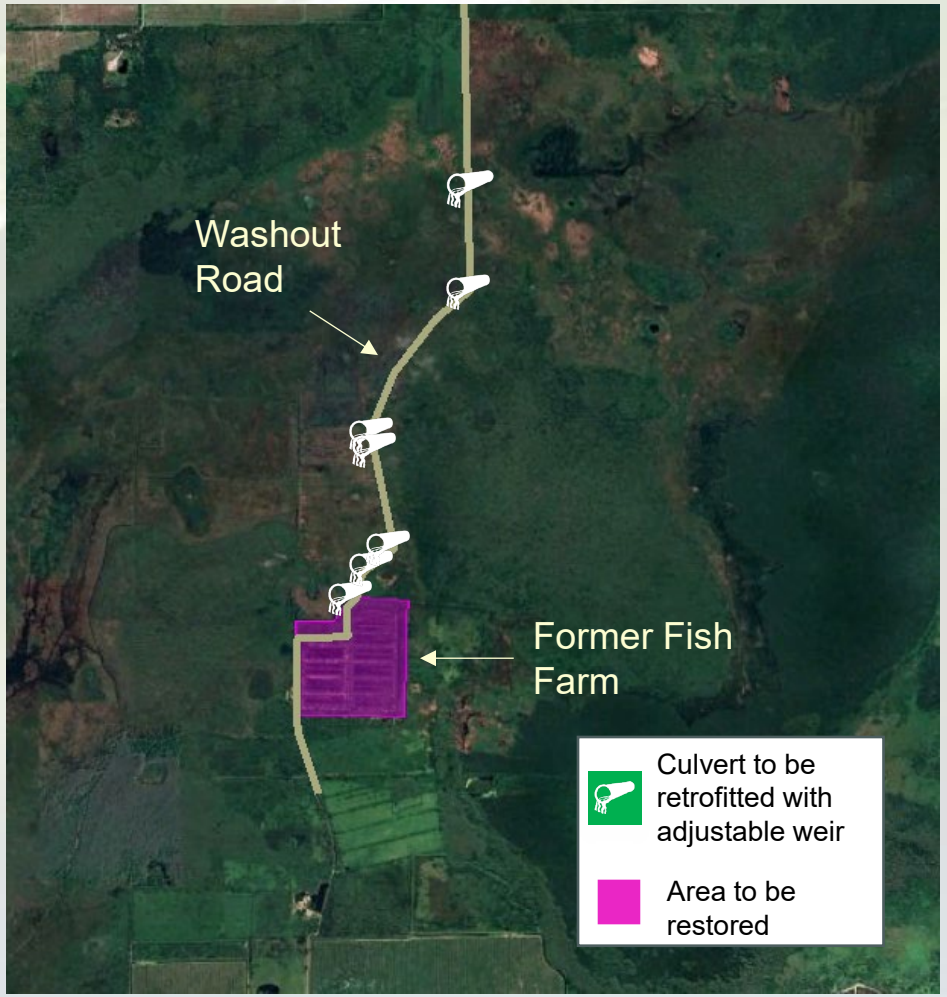




Restoration of Northeast-Southwest Flow Ways Project Elements

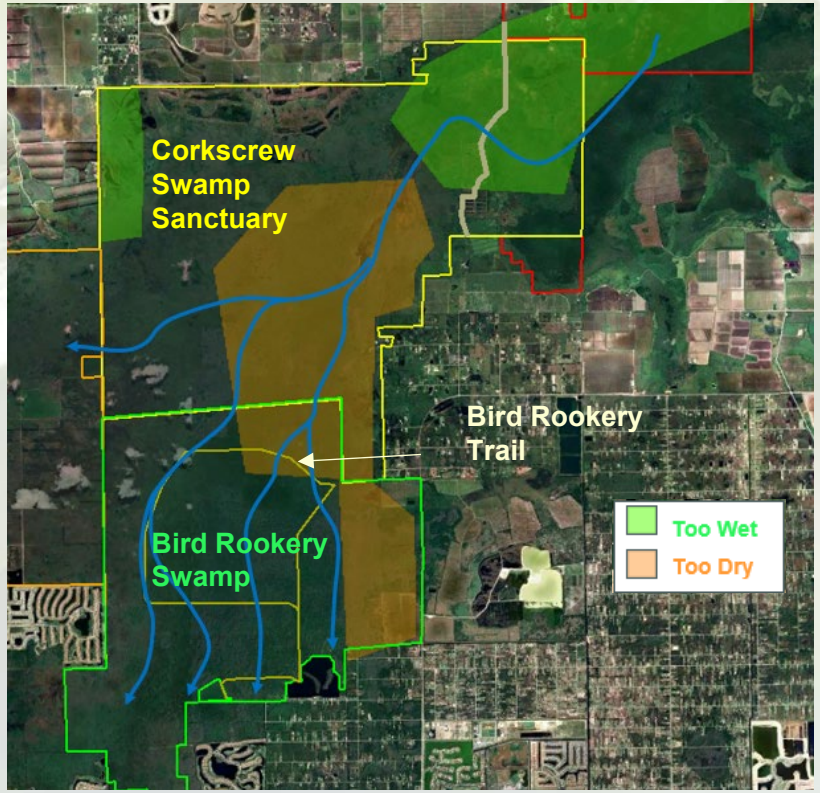
- **Project 1:** Washout Road Culvert Improvements
  - Replace culverts with adjustable weir structures to provide the ability to manage flow and upstream stages

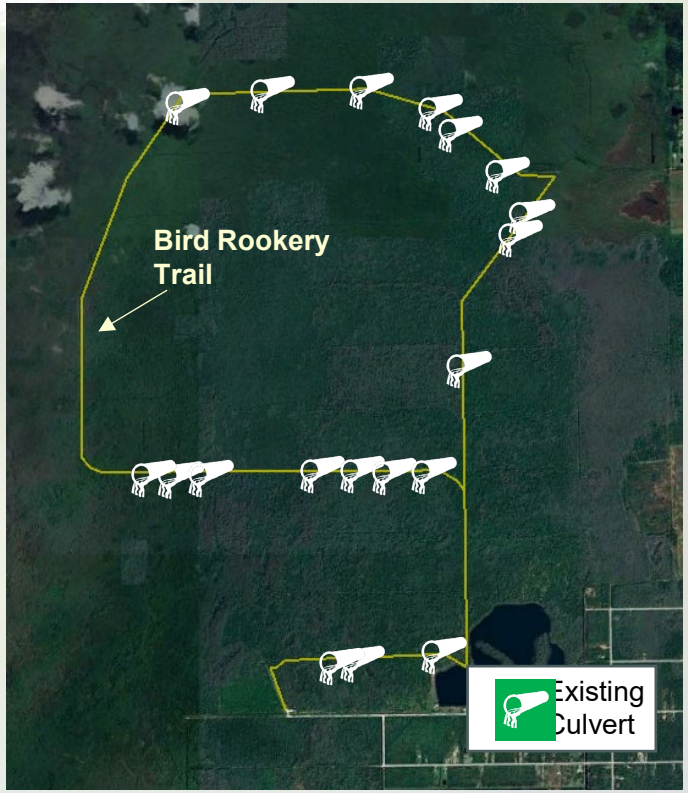
- **Project 2:** Restoration of Former Fish Farm
  - Degrade berms, plug channels and install culverts equipped with adjustable weirs



Bird Rookery Swamp Hydrologic Improvement

- **Overview:** Enhance internal surface flow and water level management to slow the movement of water through Bird Rookery Swamp to increase hydroperiods
- **Project 3:** Culvert Improvements Along Bird Rookery Trail
  - Culverts beneath existing trail may be retrofitted with adjustable weirs to provide ability to manage flow and upstream stages
  - Produce a “terraced” effect of shallow surface water
  - Examine benefits of subsurface barriers

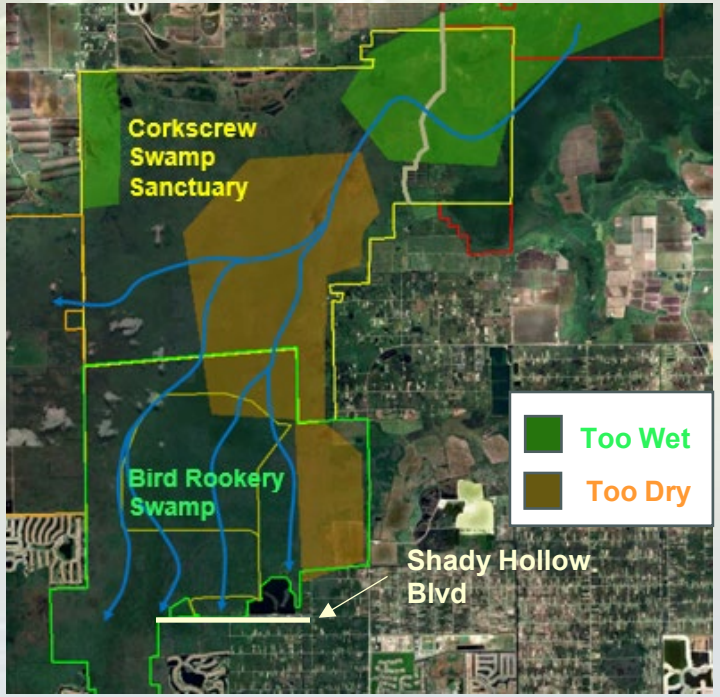


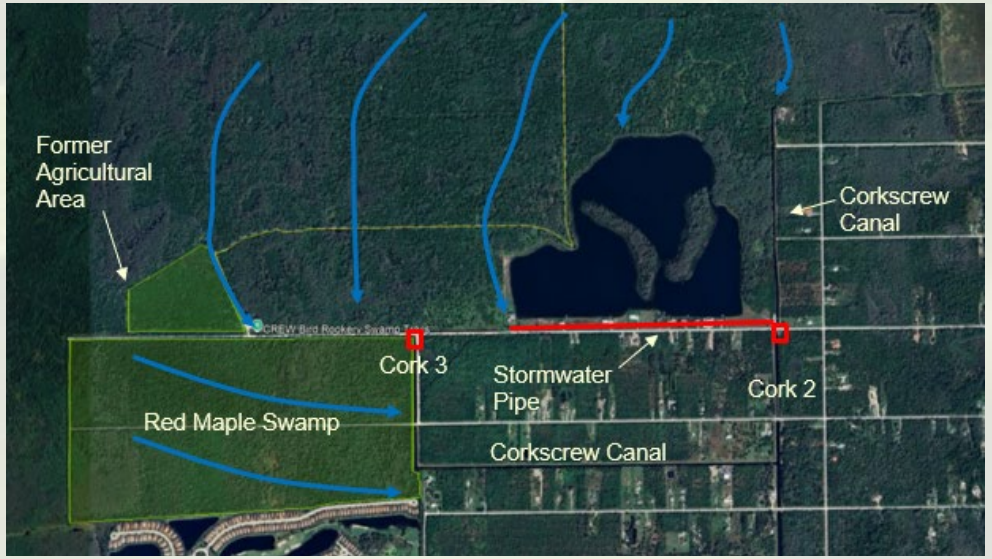


Hydrologic Improvements Along Shady Hollow Boulevard

- **Overview:** Reduce over-drainage to the south at Shady Hollow Boulevard by repairing berm breaches, replacing culverts and extending berm

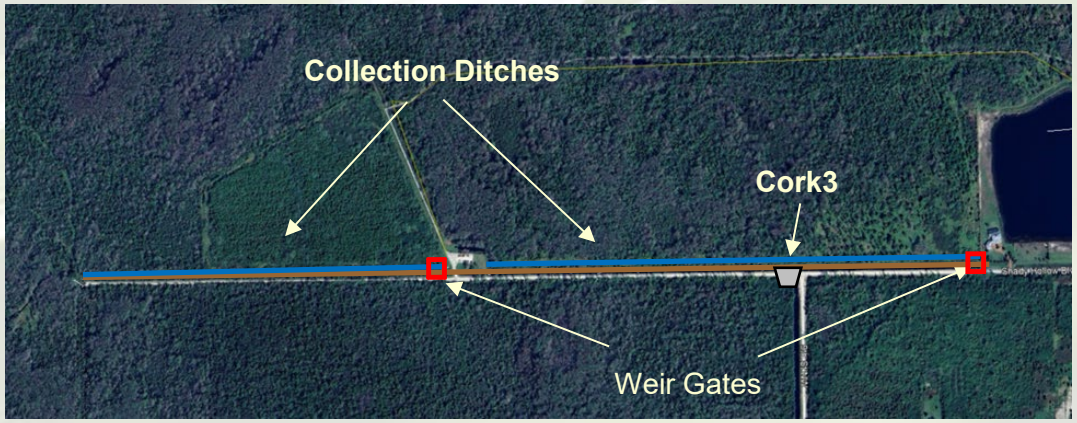
  - Berm on north side of Shady Hollow Boulevard is in poor condition with several low spots and gaps
  - Open discharge north of Cork2
  - Two areas of restoration

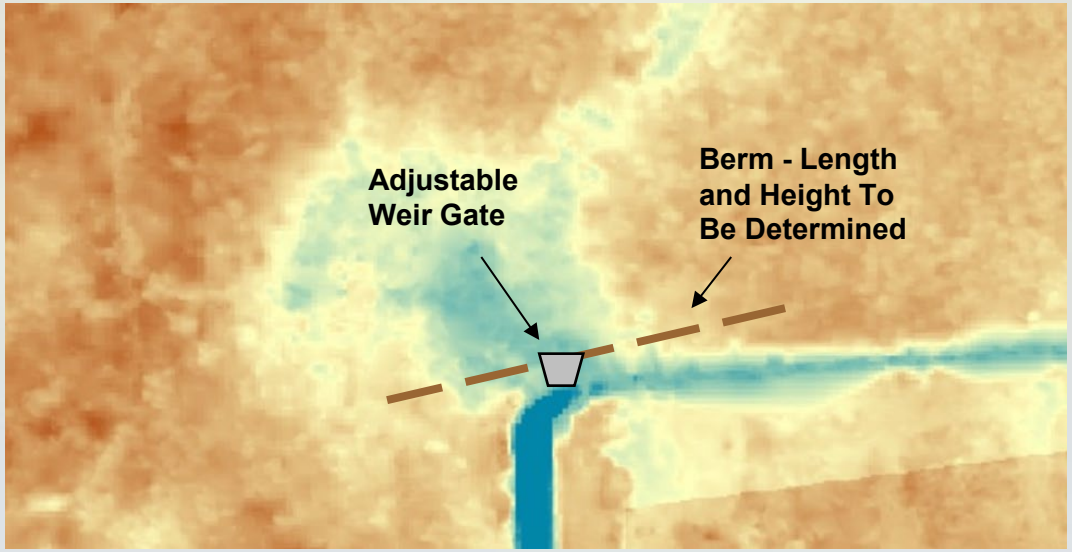




Hydrologic Improvements Along Shady Hollow Boulevard Project Elements

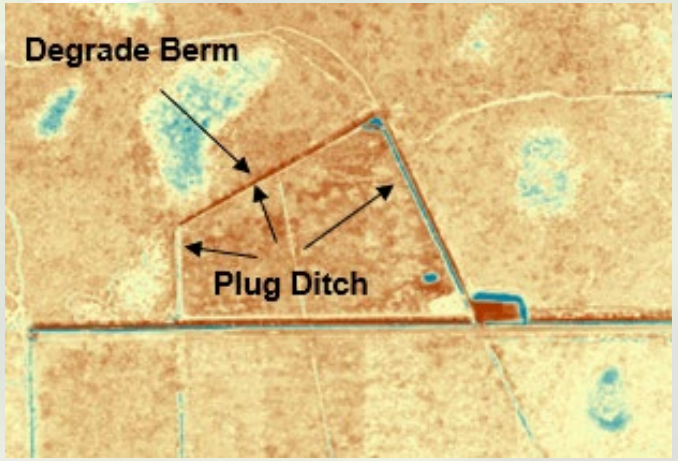
- **Project 4**: Shady Hollow Boulevard Berm Repair and Gate Installation
  - Repair berm, install collection ditches to promote uniform collection of sheet flow, install variable weir structures for management of flow and stages
  - CWI will help inform the design and replacement of the Cork3 water control structure; replace Cork3 concurrent with Shady Hollow Berm improvements
  - Maintain flows to Red Maple Swamp Preserve to the south
- **Project 5:** Corkscrew Canal Gate and Berm
  - Install berm (length and height to be determined) and variable weir north of Cork2 structure

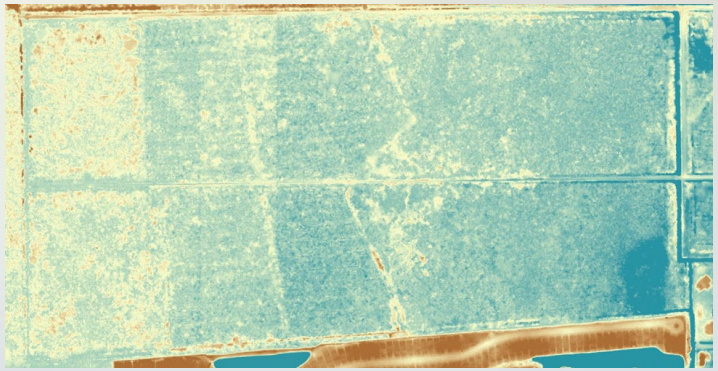




Hydrologic Improvements Along Shady Hollow Boulevard Project Elements, continued

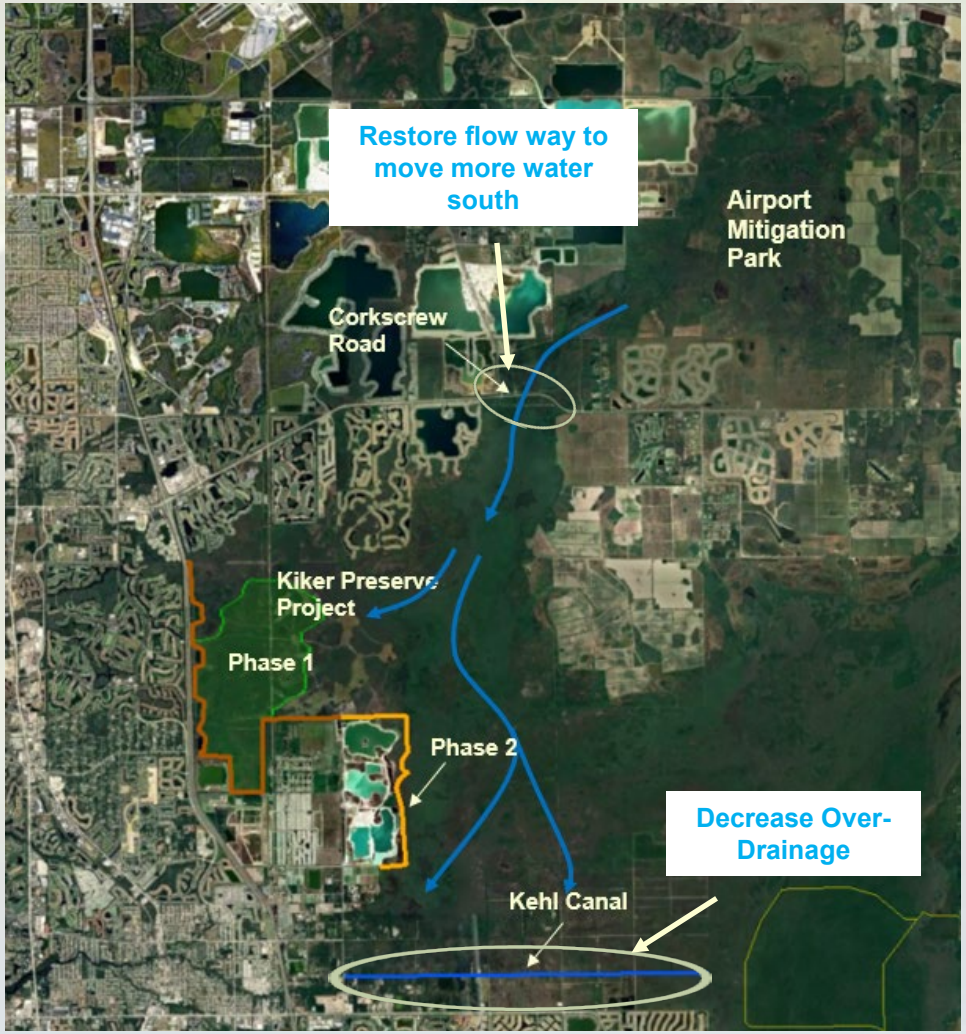
- **Project 6:** Former Agricultural Area Restoration
  - Degrade berms, plug ditches, remove invasive and nuisance vegetation, and accommodate expanded visitor center
  - Examine enhancements to Red Maple Swamp Preserve





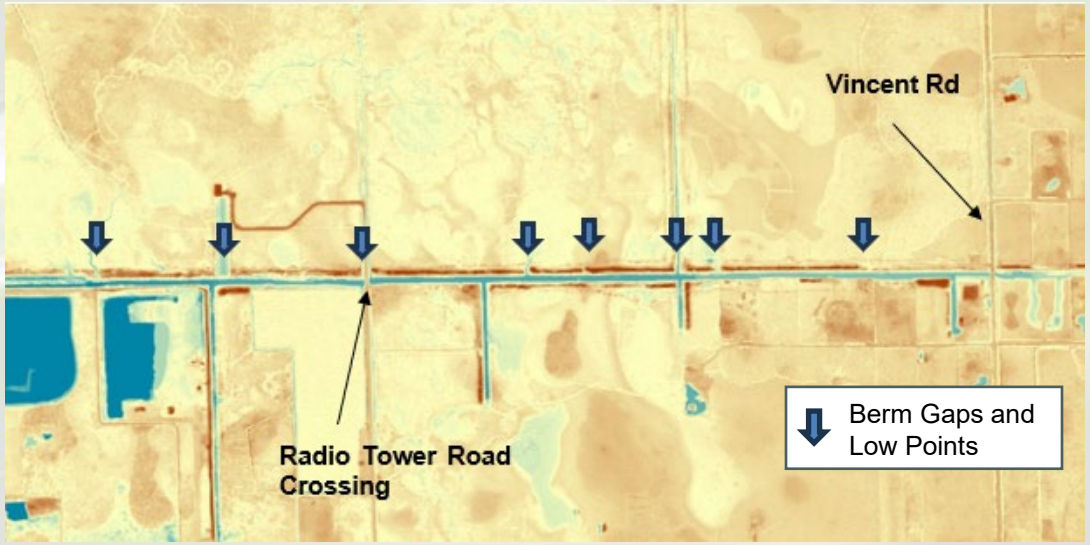
Western Flow Way Improvements

- **Overview:** Augment effectiveness of Kiker Preserve Project by reducing over-drainage at Kehl Canal and improving flow under Corkscrew Road



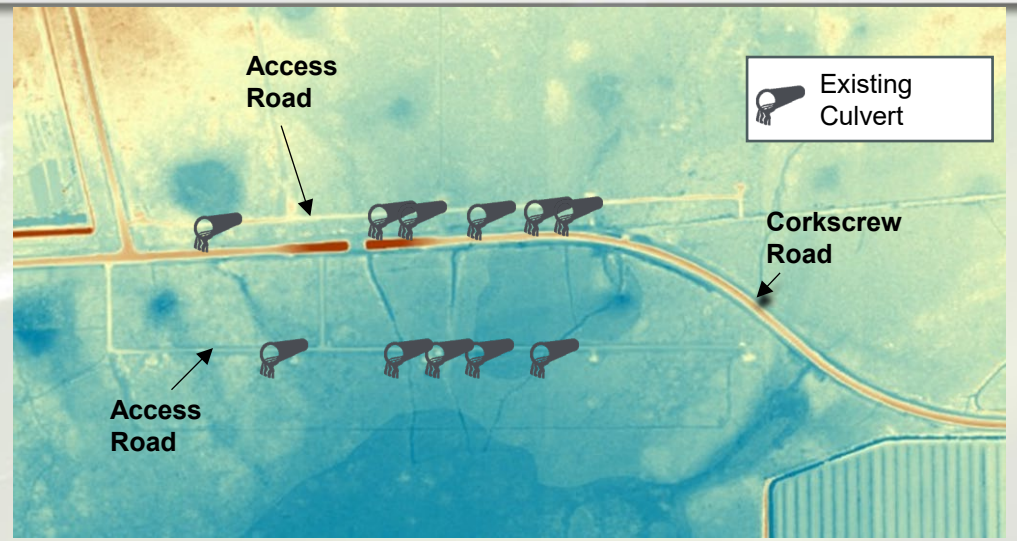
Western Flow Way Improvements Project Elements

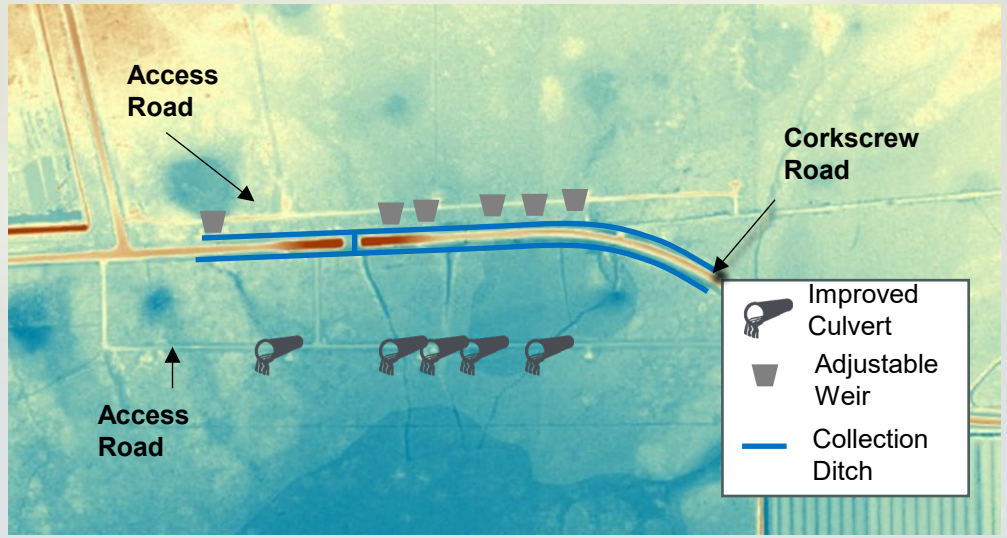
- **Project 7:** Kehl Canal Berm Repair
  - Repair berm
  - Install a series of collection ditches and variable weir structures to manage stages and flows
  - Improve culvert at Radio Tower Road crossing



Western Flow Way Improvements Project Elements, continued

- **Project 8:** Corkscrew Road Culvert Improvements
  - Replace culverts under adjacent access roads
  - Install adjustable weirs on culverts along north access road
  - Install collection and distribution ditches and connection beneath Corkscrew Road

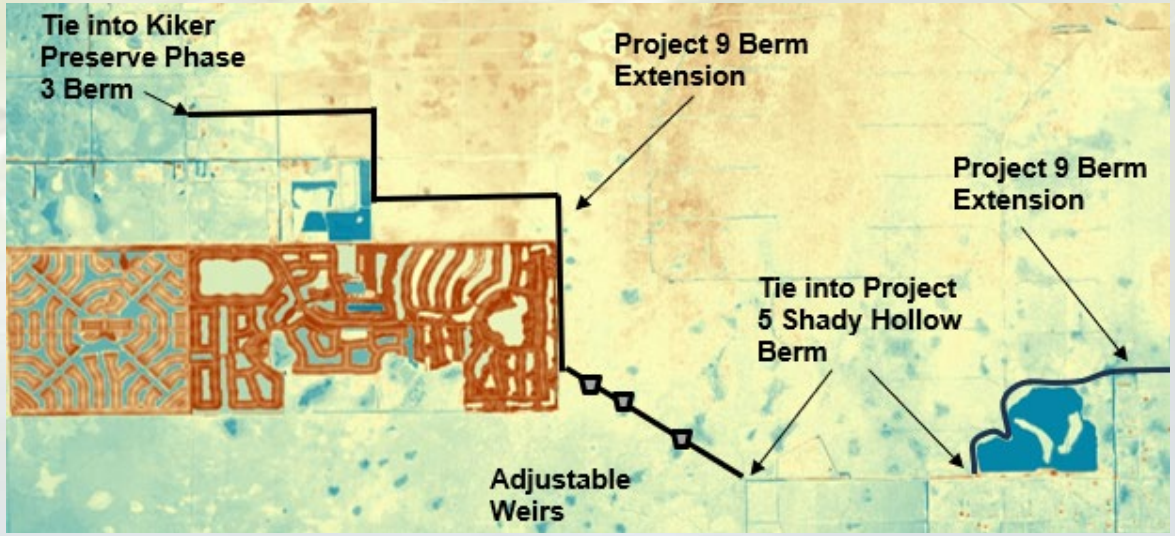




Corkscrew System-Wide Projects

- **Overview:** Enhance water level management and higher stages in Corkscrew with a continuous berm along west and south sides

- **Project 9:** Kiker Preserve Berm Extension
  - Construct 8.9 miles of new berm
  - Install 3 adjustable weir structures



Next Steps and Public Comment

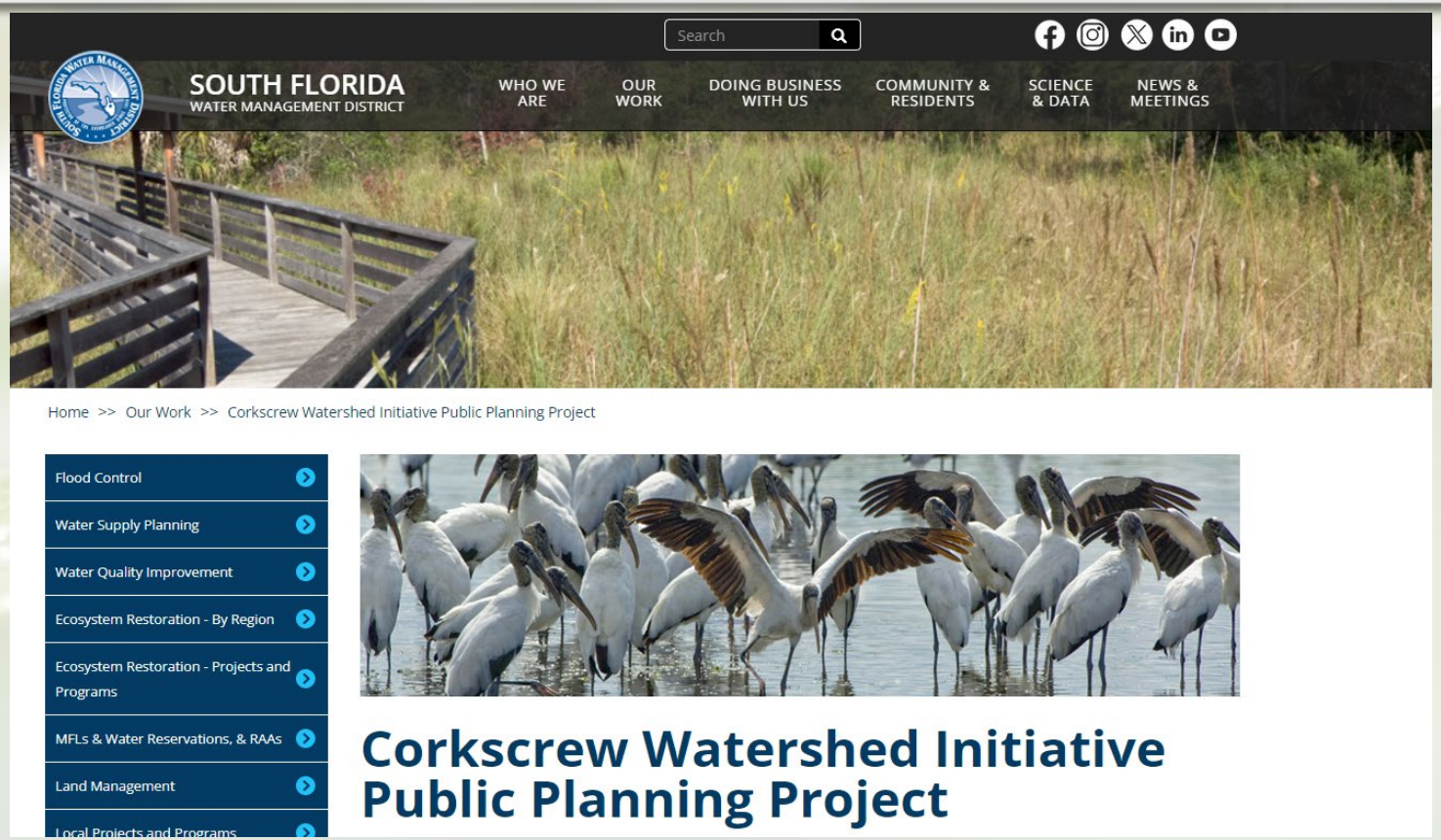
Next Steps

- Complete CWI existing conditions model simulation
- Further develop/evaluate potential project alternatives
- Future conditions models (baseline and alternatives analysis)
- Final report and conceptual plans

Upcoming Public Meetings

- Fall 2026 to introduce planning report/analysis of potential restoration projects
- Winter 2027 to present final findings and proposed restoration projects that meet CWI objectives

Public Website, Email Address



Website: SFWMD.gov/Corkscrew

Email: CorkscrewWatershedInitiative@sfwmd.gov

Questions?

Zoom Instructions:

- Use Raise Hand Feature and we will call on you

Phone Instructions:

- Use Star 9 (*9) to raise your hand
- Use Star 6 (*6) to unmute

Public Comment

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