



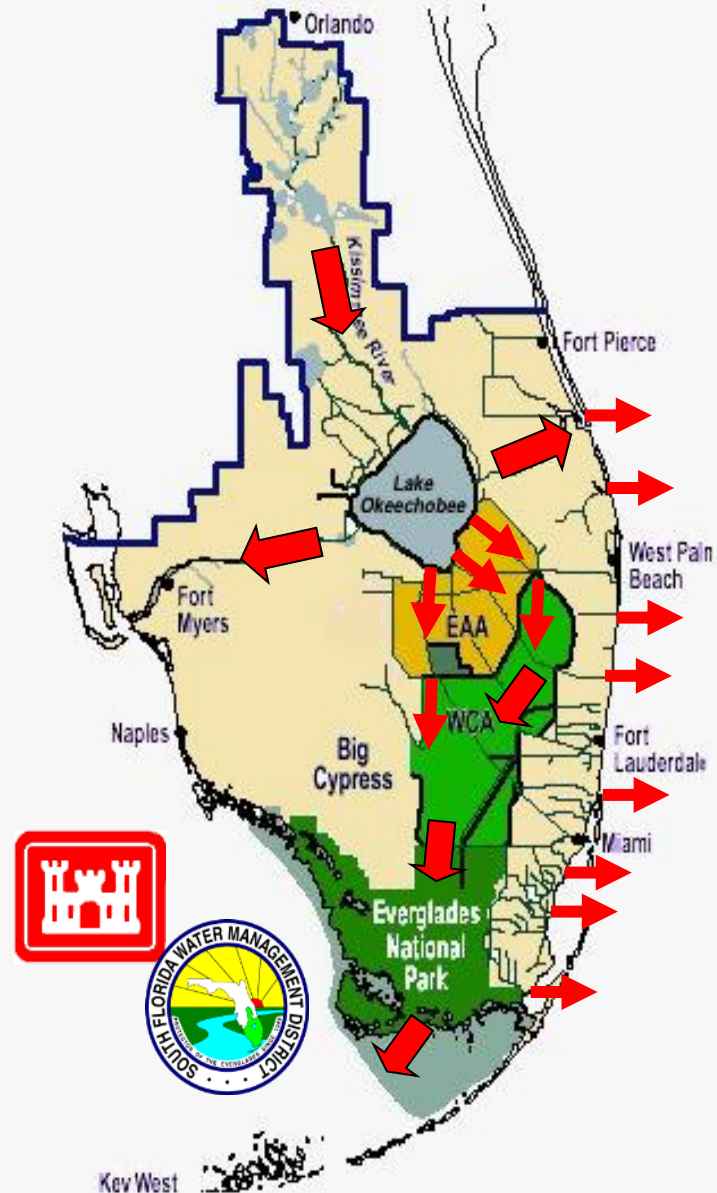
# **C-111 West Spreader Canal: An Everglades Restoration Success Story**

National Ecosystem Restoration Conference: July 30, 2013

Tom Teets, Federal Policy Chief, South Florida Water Management District

# The Central and South Florida Project

- *“One of the world’s largest and most complex water resource management systems”*
- Upper Chain of Lakes / Kissimmee River
- Lake Okeechobee
- Caloosahatchee River
- St. Lucie Canal
- Water Conservation Areas
- Everglades National Park / Florida Bay



# Project Purpose

- Flood Control
- Water Supply
  - Agriculture
  - Urban
  - Everglades National Park
  - Saltwater Intrusion
- Navigation
- Protection of fish and wildlife

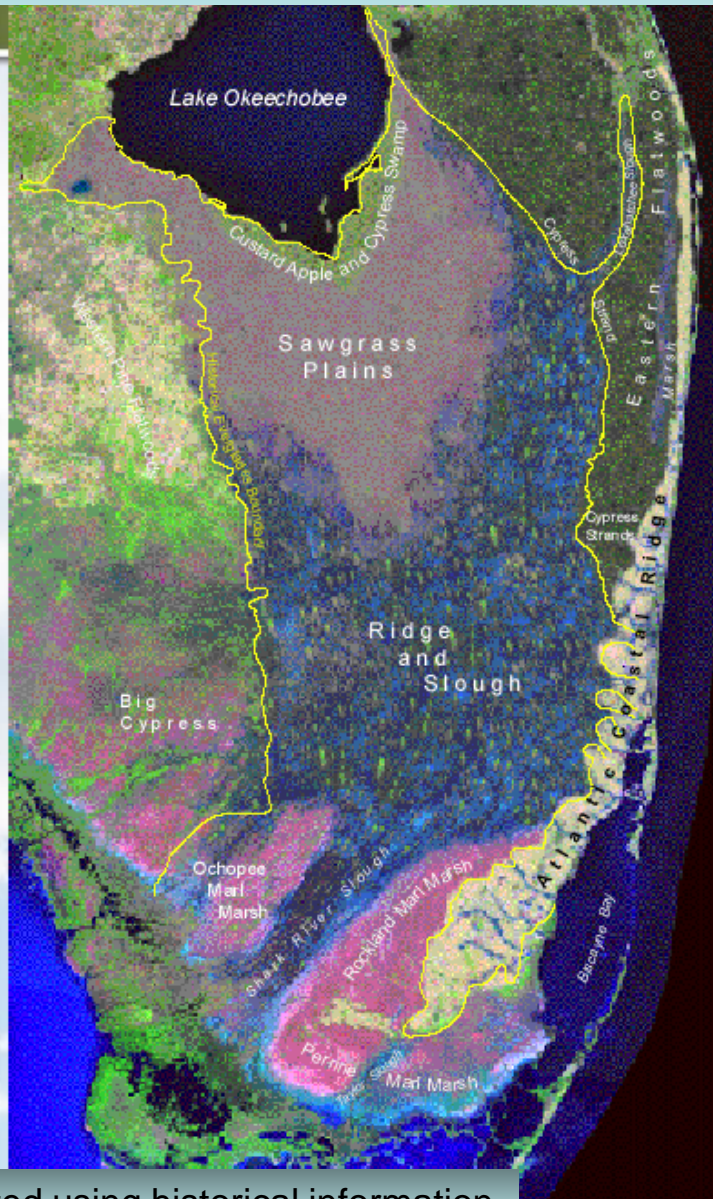


# Water Management System Components

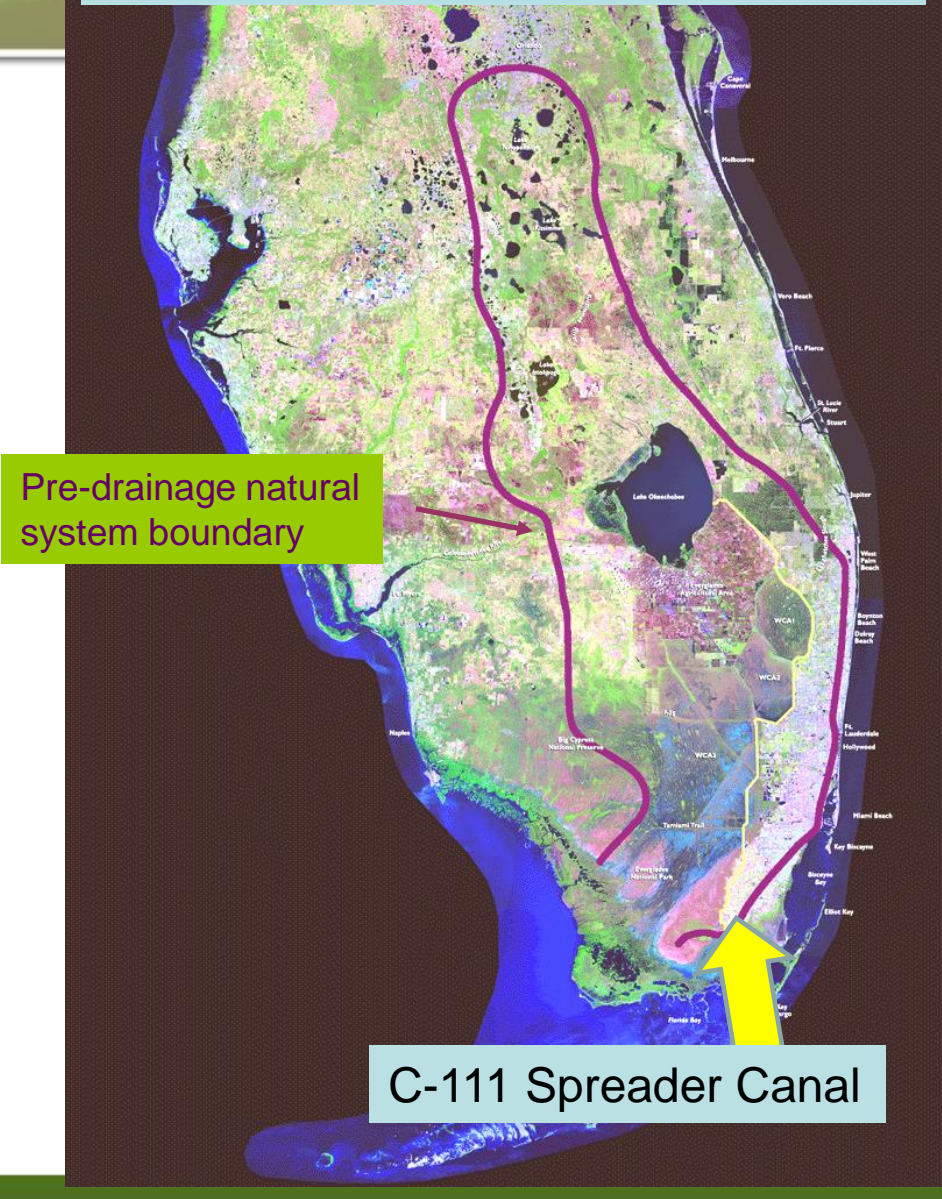
- The system moves more than 20 million acre-feet (5.5 trillion gallons) of water annually:
  - ~2,000 miles of canals
  - ~2,800 miles of levees
  - More than 650 water control structures and 700 project culverts
  - Nearly 70 pump stations



# Natural System

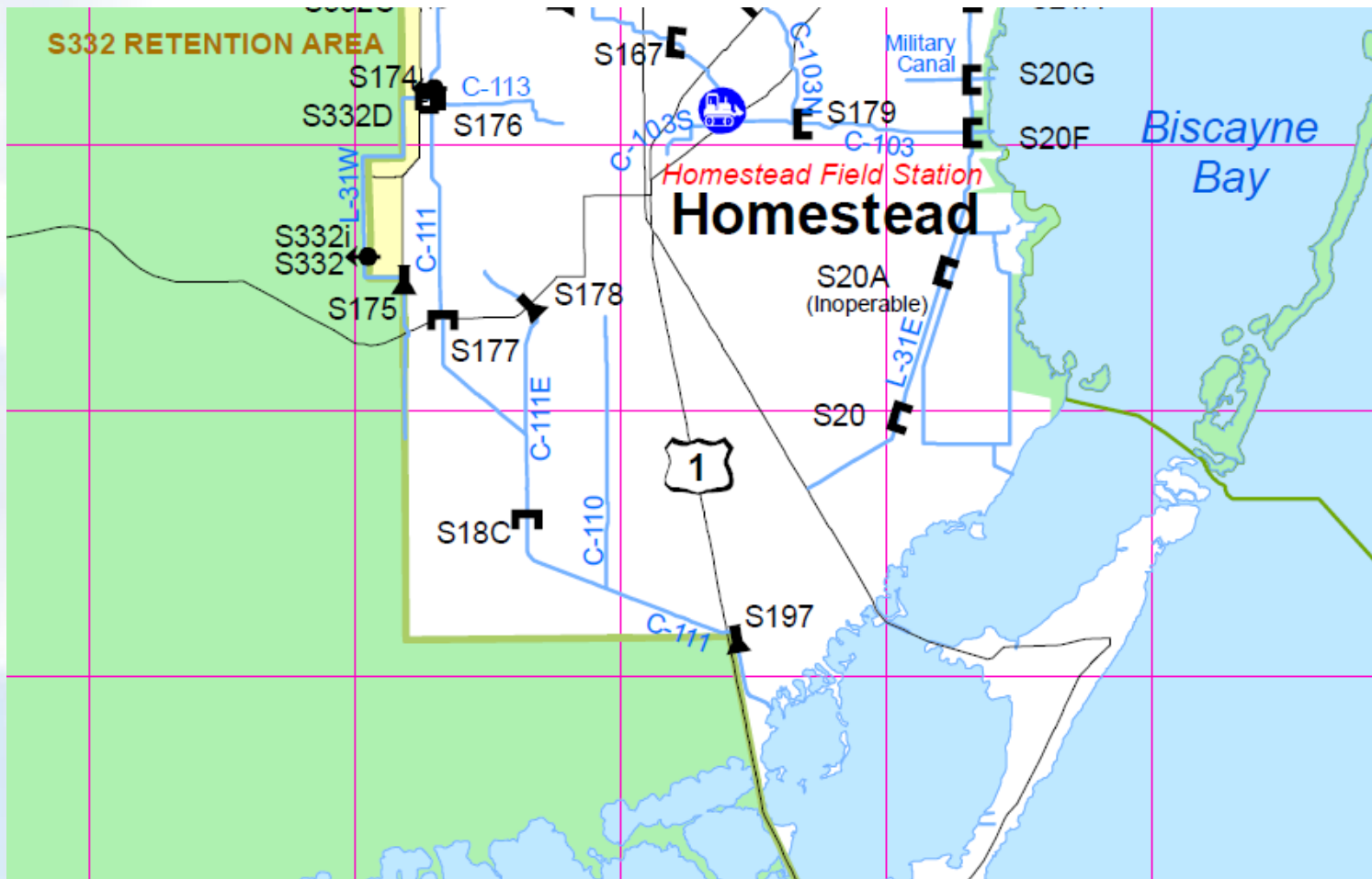


# Managed System

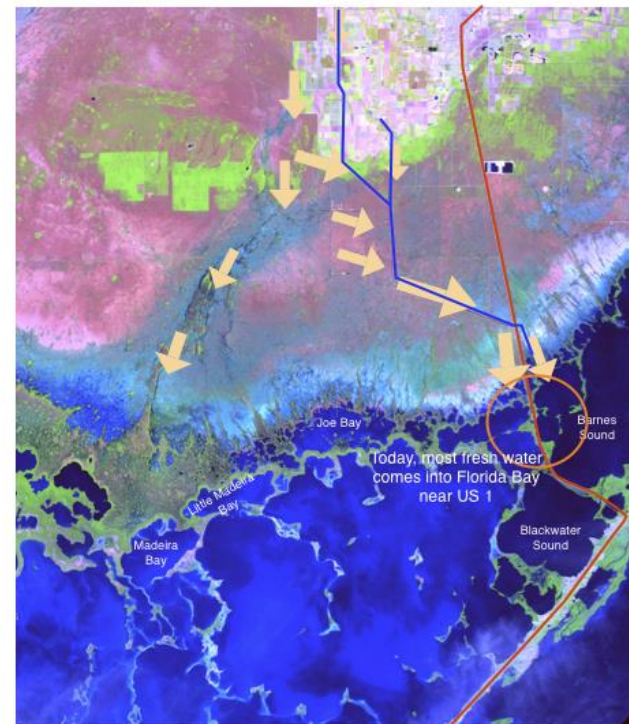
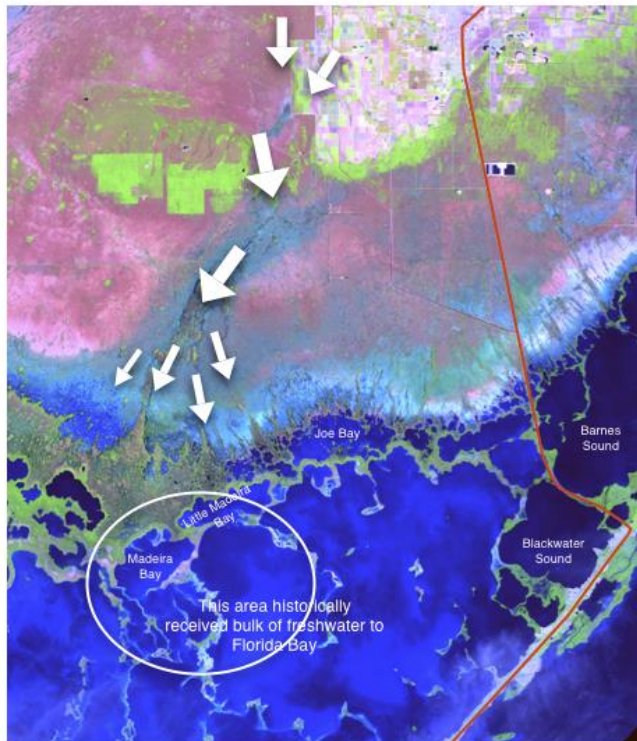


\* created using historical information

# C&SF Project Southern Miami- Dade County



# ENP - Taylor Slough Flows Pre and Post Development



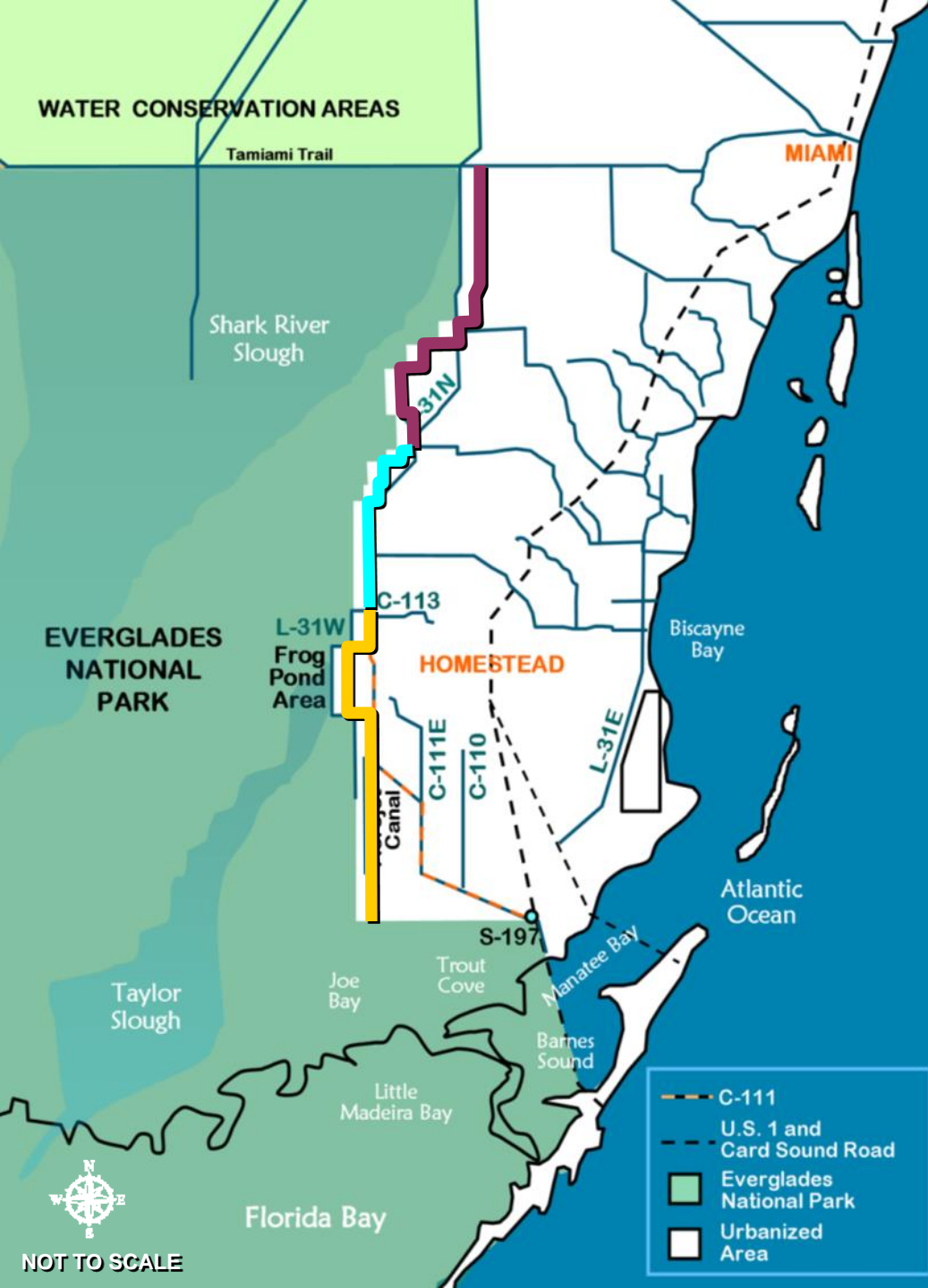
- C-111 and other canals have redistributed inflows to Florida Bay
- C-111N Spreader Project is best opportunity to improve Florida Bay.




# C-111 Canal Background

- Authorized by the 1962 Flood Control Act to extend flood protection while improving conservation and distribution of available water
- Completed construction altered the ecosystem, including conditions within Everglades National Park
- Corps completed the C-111 General Reevaluation Report (GRR) in 1994; to provide environmental restoration in the study area



# ENP Seepage Reduction Strategy



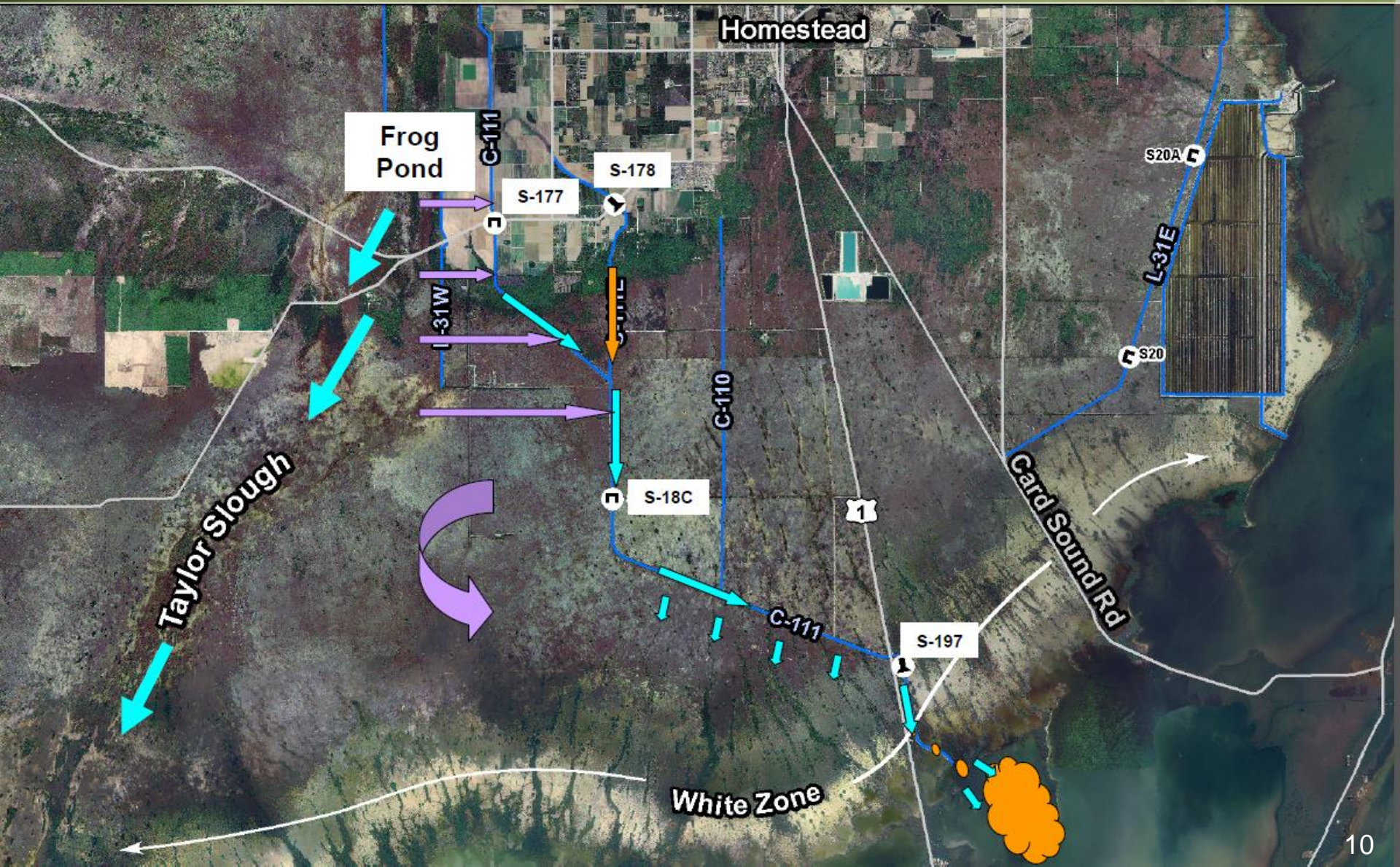
-  **Modified Water Deliveries Project (non-CERP)**
-  **C-111 South Dade Project (non-CERP)**
-  **C-111 Spreader Canal Western Project (CERP)**

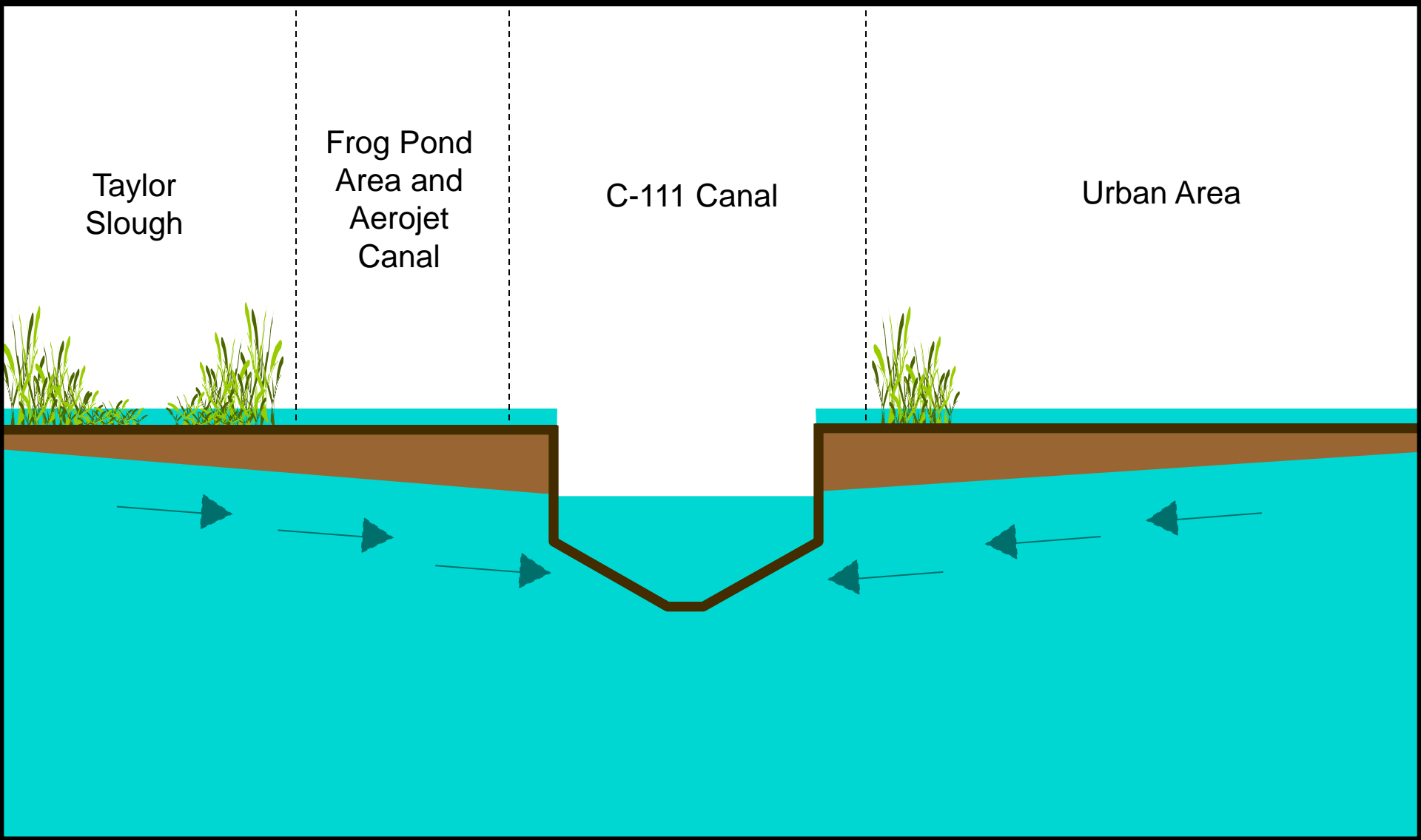
- C-111 Spreader Canal Western Project forms the southernmost increment for strategy to keep water in ENP



NOT TO SCALE

# Existing System





- Water seeps out of Taylor Slough into the C-111 Canal

# “Yellow Book” Alternative



# Expediting the Project - Challenges

- SFWMD initiated a program to construct projects ahead of schedule
  - Before authorization or cost share agreement
- Provides opportunity for early restoration benefits
- Parallel processes
  - NEPA(PIR) - COE/SFWMD
  - Preliminary Design - SFWMD
- SFWMD constructs project at risk of not receiving credit in CERP 50/50 cost share

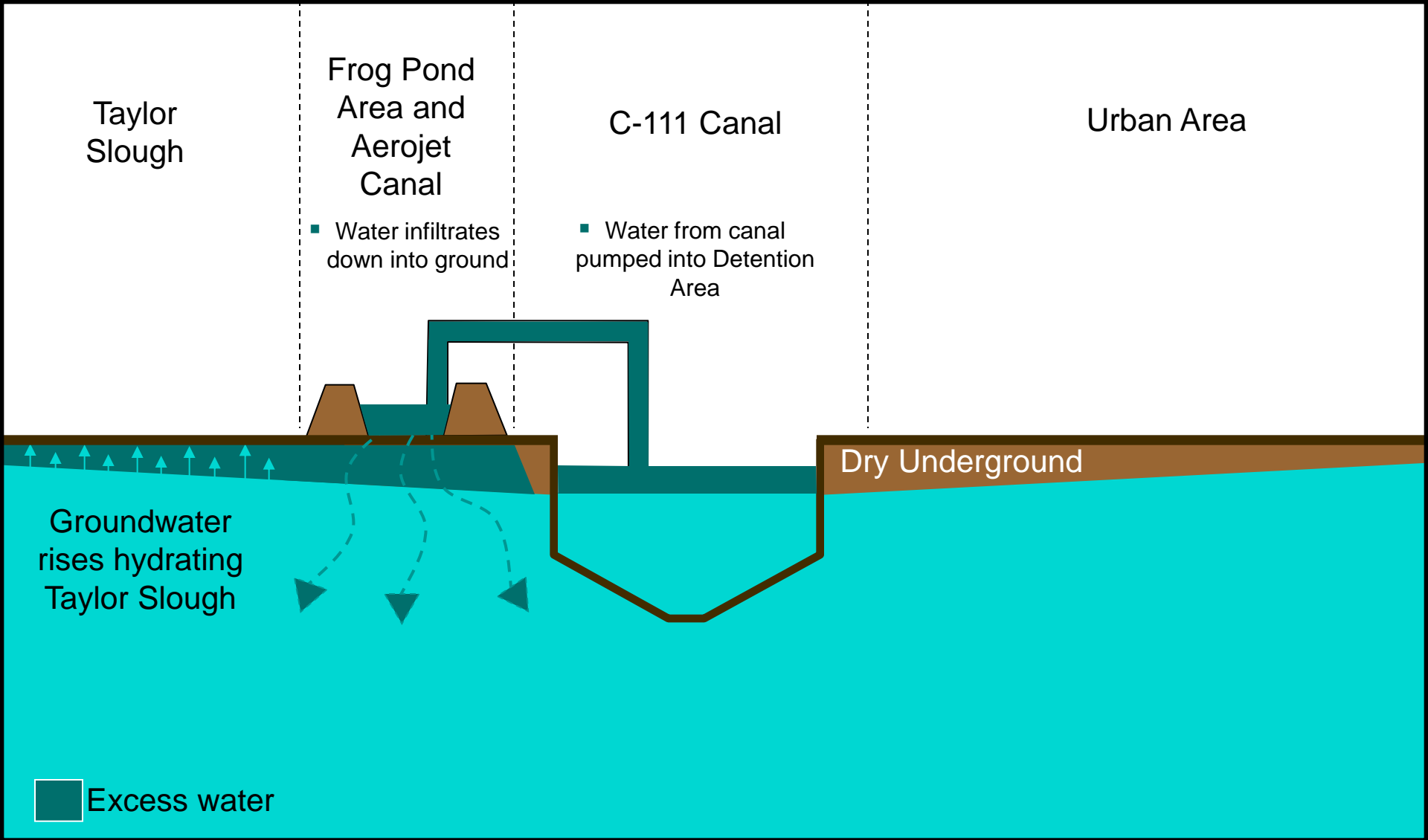
# Interactive Public Workshops



- Opportunity for stakeholders and formulators to directly interact
- Provided new perspectives since the Yellow Book
- Shifted the focus of initial project features
- Resulted in splitting the project into two phases in the CERP process

# Shifting the Project Focus - Why? Stakeholder Perspectives

- Farming interest concerned that increased water level controls will cause flooding
  - Allow lower canal stages upstream (S-177) to provide more water for Taylor Slough and provide some flood control benefit
  - Lower canal stages upstream could introduce water quality problems
- Environmental community supports higher water level controls to increase Taylor Slough flow and restore Florida Bay
  - Concerns regarding incremental implementation
- Purpose of PIR-1 should be to determine flows required to restore Taylor Slough
- S-332D seepage return should be addressed if possible to improve Taylor Slough water delivery
- Existing South Dade system has diminished flood control protection



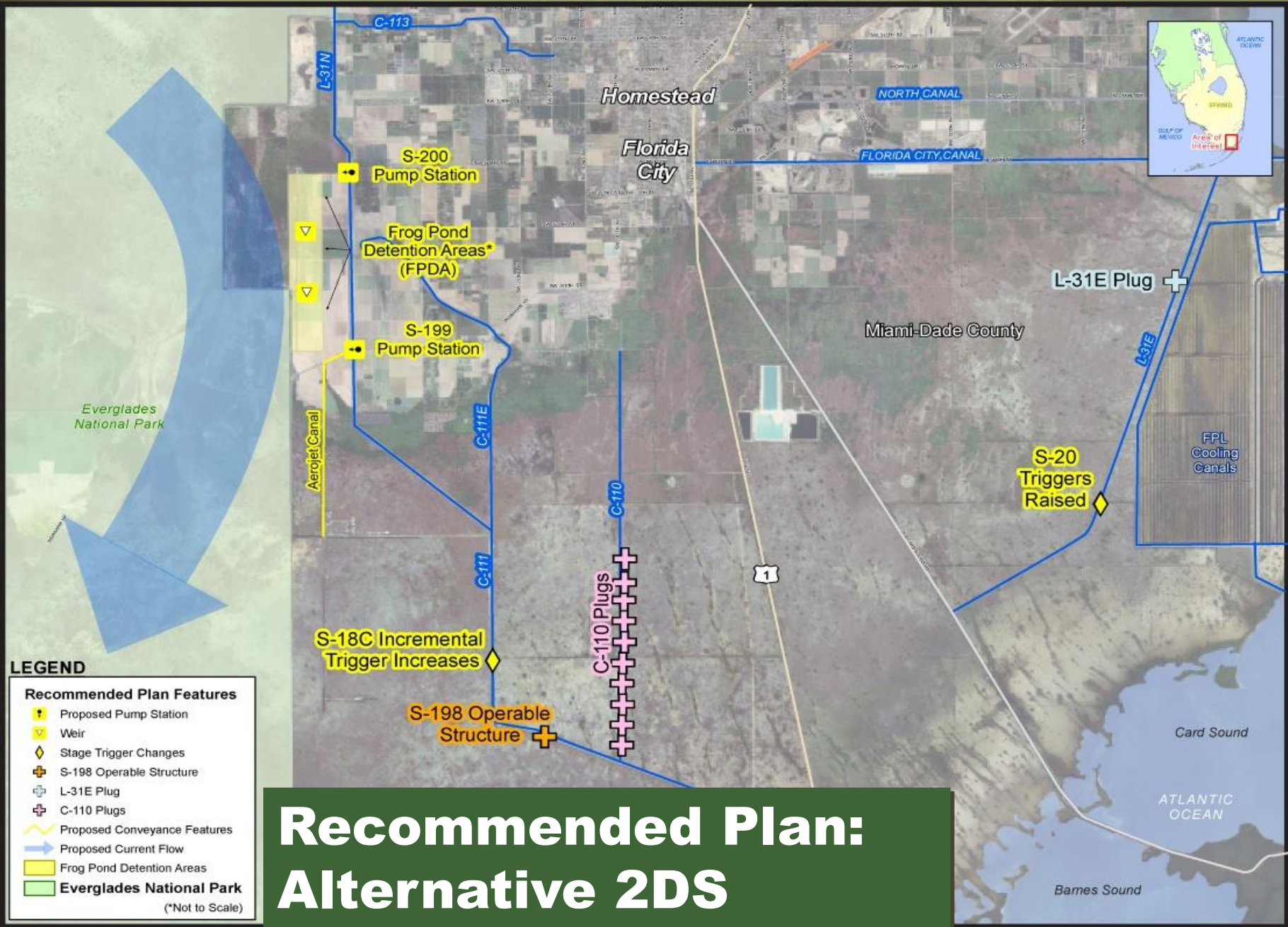
## Hydraulic Ridge Concept

- Detention area used to infiltrate water into ground and artificially raise groundwater table



# Plan Optimization - CERP Process

- Over 20 alternatives were initially formulated before project was split into two PIR
- Alternatives were re-formulated and an initial plan (Alternative 2D) was selected for recommendation
- Further analysis revealed more restoration may be accomplished through better water distribution



**LEGEND**

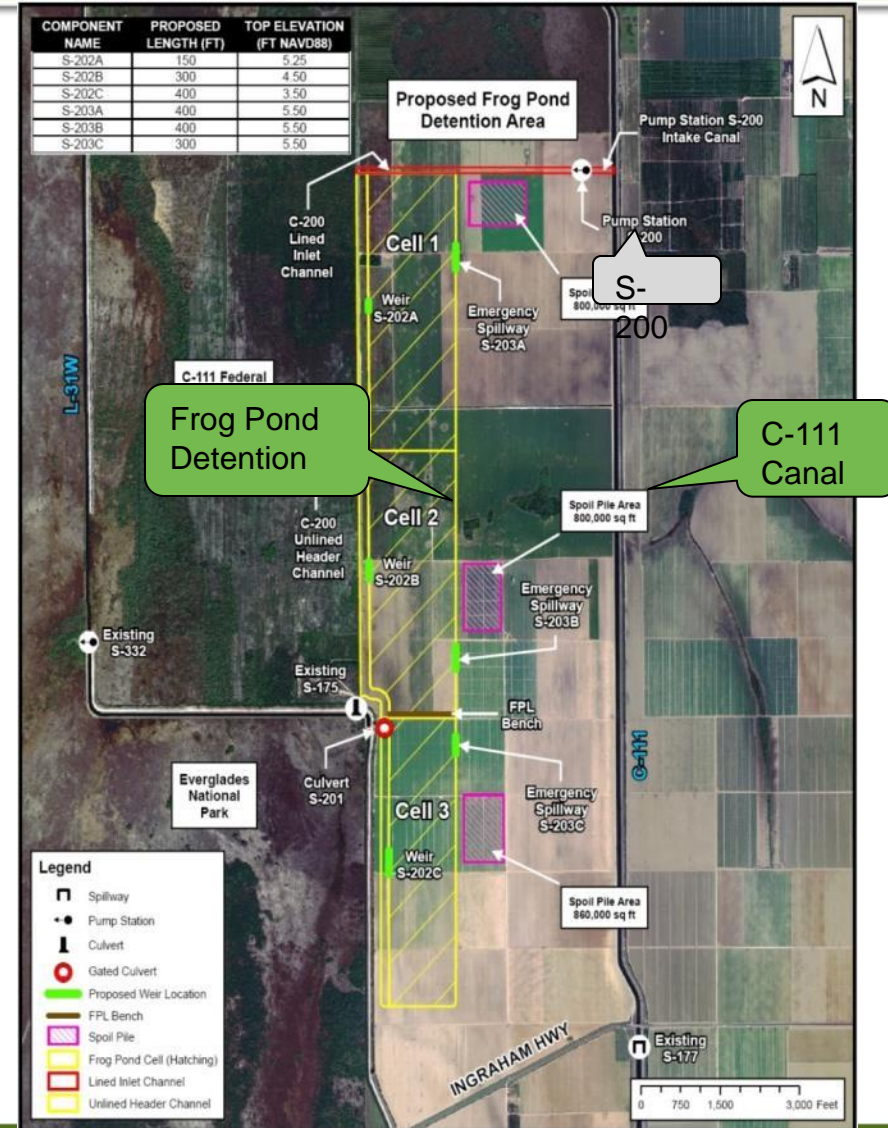
- Recommended Plan Features**
- Proposed Pump Station
  - Weir
  - Stage Trigger Changes
  - S-198 Operable Structure
  - L-31E Plug
  - C-110 Plugs
  - Proposed Conveyance Features
  - Proposed Current Flow
  - Frog Pond Detention Areas
  - Everglades National Park
- (\*Not to Scale)

# Recommended Plan: Alternative 2DS

# Summary of Project Components

## Frog Pond Detention:

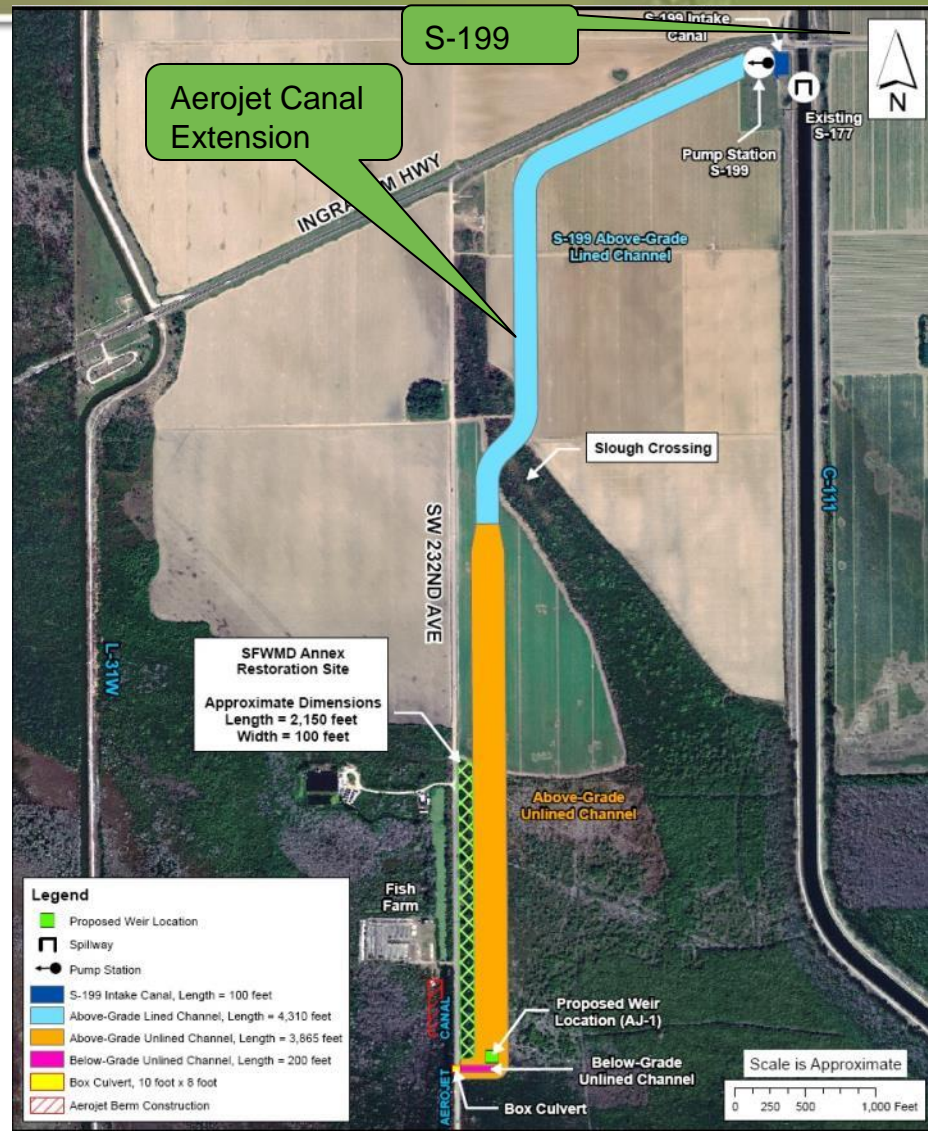
- Pump Station S-200
  - 225 cfs (3-75 cfs electric pumps)
- Frog Pond Inlet Channel
  - Concrete lined (4,300' x 25')
- Frog Pond Header Channel (15,000' x 100' to 150)
- Frog Pond Detention Area
  - 590 acres scraped in three cells, three cell weirs, and three emergency spillways



# Summary of Project Components (cont'd)

## Aerojet Canal:

- Pump Station S-199
  - 225 cfs (3-75 cfs electric pumps)
- Aerojet Extension Channel
  - Concrete lined (4,000' x 25')
- Above Grade Unlined Channel (3,700' x 100')
- AJ-1 Weir and Aerojet Road
  - Culvert Crossing

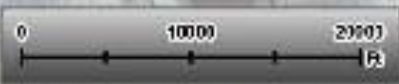




Everglades National Park

**Freshwater Rehydrated Acres**

- > 120 days better
- 90 – 120 days better
- 60 - 90 days better
- 31 - 60 days better



# Benefits to System



# The Constructed Project

## Frog Pond Detention Area:

- Pump Station S-200 (225 cfs )
- Concrete Lined Inlet Channel (4,625 linear feet)
- Earthen Header Channel (18,200 linear feet)
- Detention Area Impoundment (590 acres)



## Construction Cost Comparison:

- Cost Estimate from Project Implementation Report = \$46 million
- SFWMD Actual Construction Cost = \$16 million

# The Constructed Project

## Aerojet Canal Extension:

- Pump Station S-199 (225 cfs)
- Concrete Lined Inlet Channel (4,750 linear feet)
- Earthen Channel (2,125 linear feet)

## Construction Cost Comparison:

- Cost Estimate from the Project Implementation Report = \$16.7 million
- SFWMD Actual Construction Cost = \$12.3 million





**Questions?**