

UF Water Institute

2020 Symposium – February 25, 2020
Innovative Water Resource Projects
Through Alternative Delivery Methods



Innovative Water Resource Projects Through Alternative Delivery Methods

- Panelists

- Ernie Cox, Family Lands Remembered LLC, Jupiter, Florida
- Anne Cox, PhD, Ecolo-G Inc., Stuart, Florida
- Tom Willson, Phillips & Jordan, Zephyr Hills, Florida





P&J WATER RESOURCES

Dams • Levees • Reservoirs • Waterways • Restoration

- Completed numerous projects involving construction of reservoirs, dams, impoundments, canals, restoration and conveyance structures throughout United States.
- Experience includes rehabilitation of aging facilities, dam stability improvement projects, major levee improvement, water storage, aquifer recharge and other projects.
- Ability to work under varying contract types: competitive bid, design-build, early contractor involvement, construction manager at risk, and public-private partnerships.



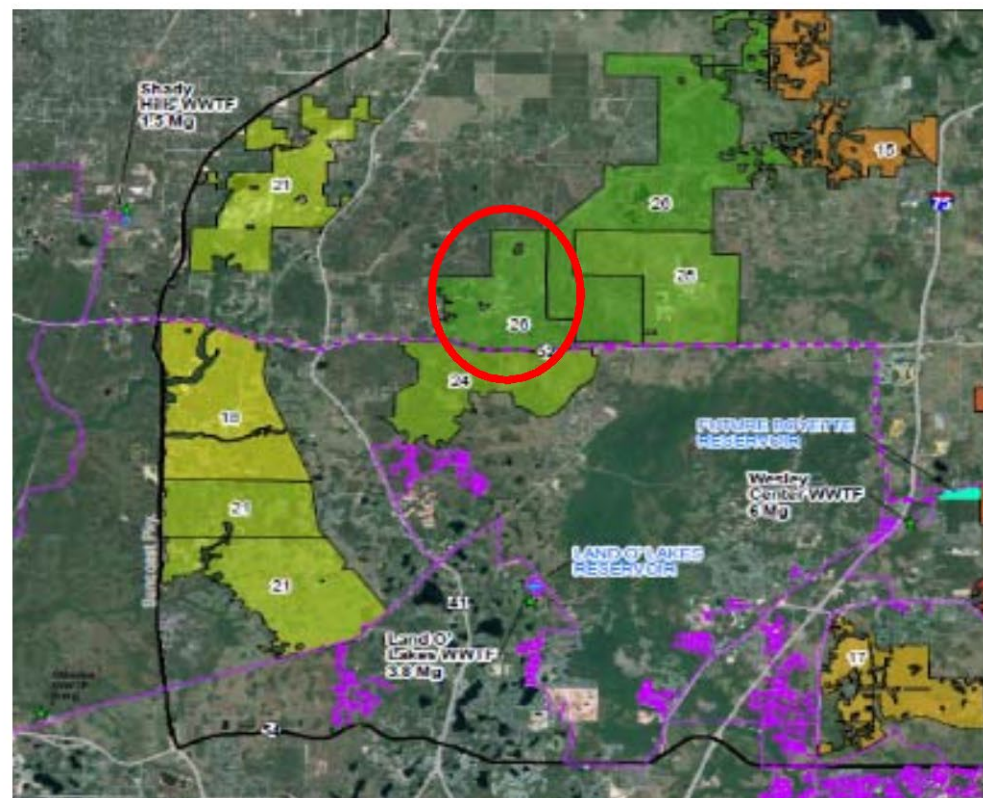
4G Wetland Beneficial Reuse Project

Partnership Approach to Integrated Water Resources





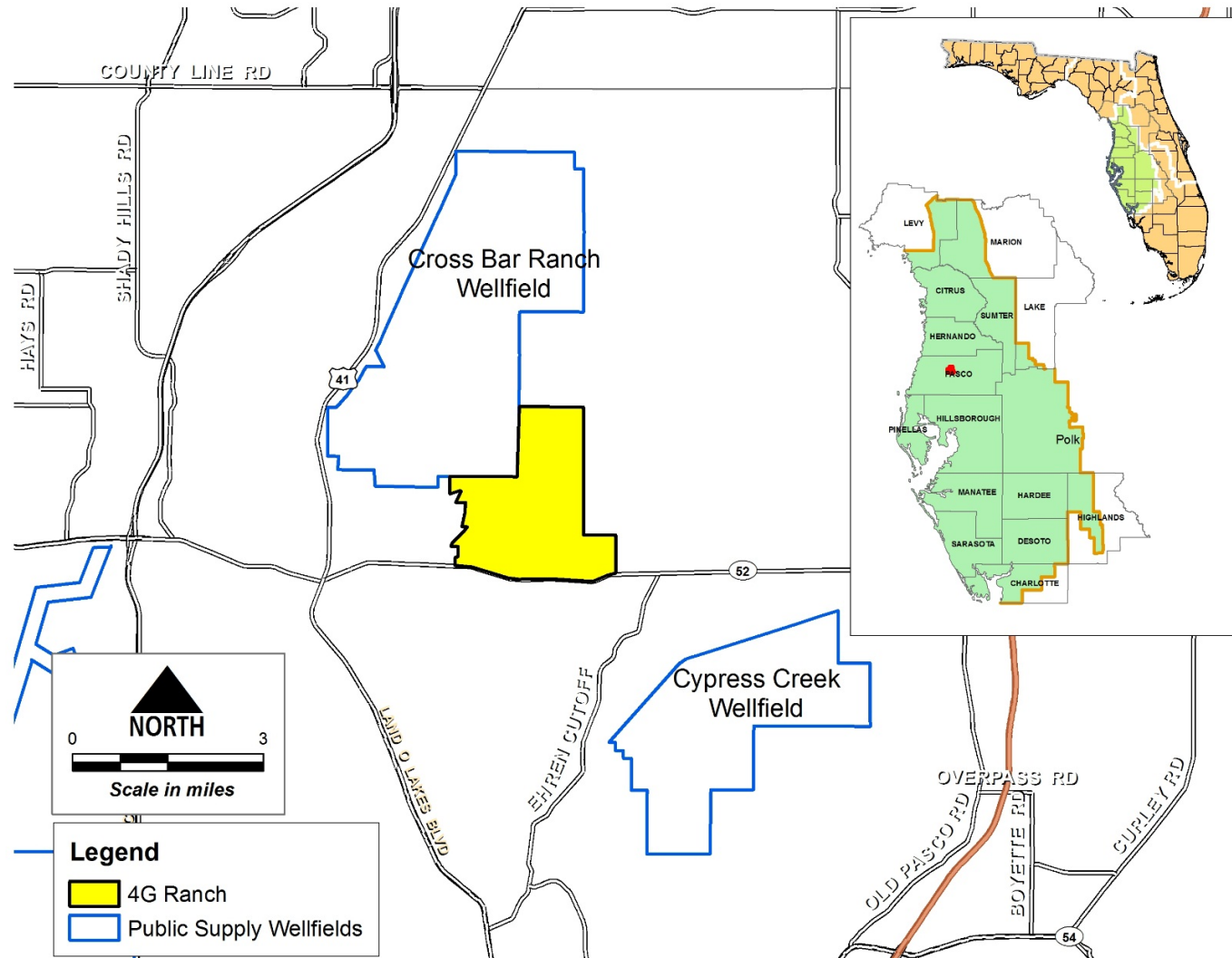
Project Background Feasibility Study, 2010



Infiltration Treatment Wetlands Feasibility Study



Project Location – 4G Ranch





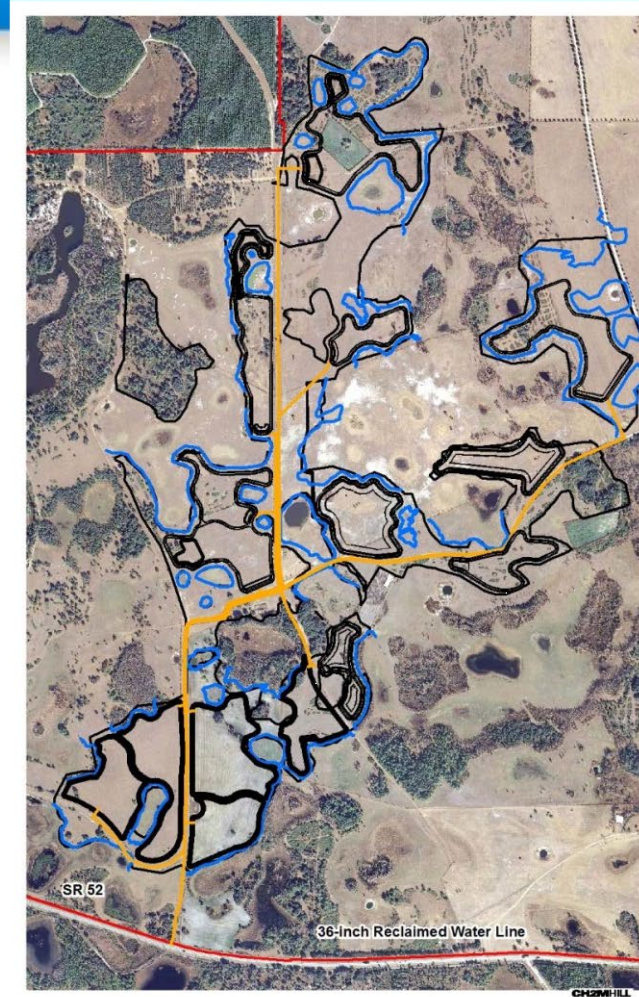
Project Background Project Site

- Located on the **4G Ranch** (3,000 acres)
 - Highly managed pasture with cattle
 - Hydrologically-altered lakes and wetlands
- Constructed groundwater recharge treatment wetlands
 - 176 acres total
 - 15 cells from 5 to 15 acres each.
 - Design flow of 5 MGD
- Restore wetlands and lake hydrology
- Recharge Upper Floridan Aquifer
- Increase County water reuse capacity





Wetland Delineation: Recent Aerial Photography

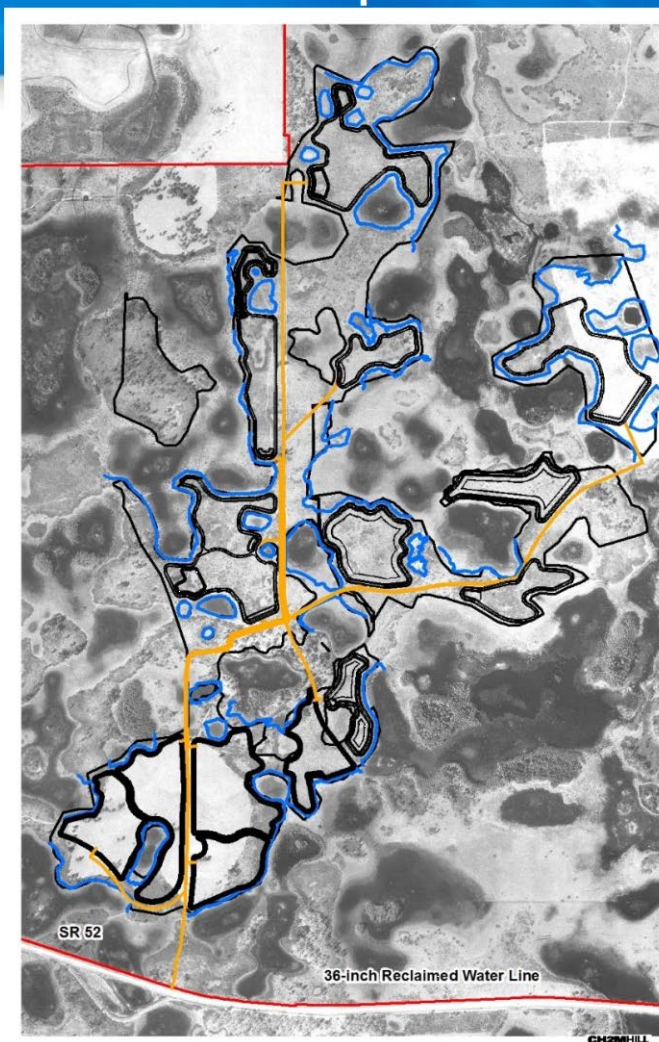


OHMILL





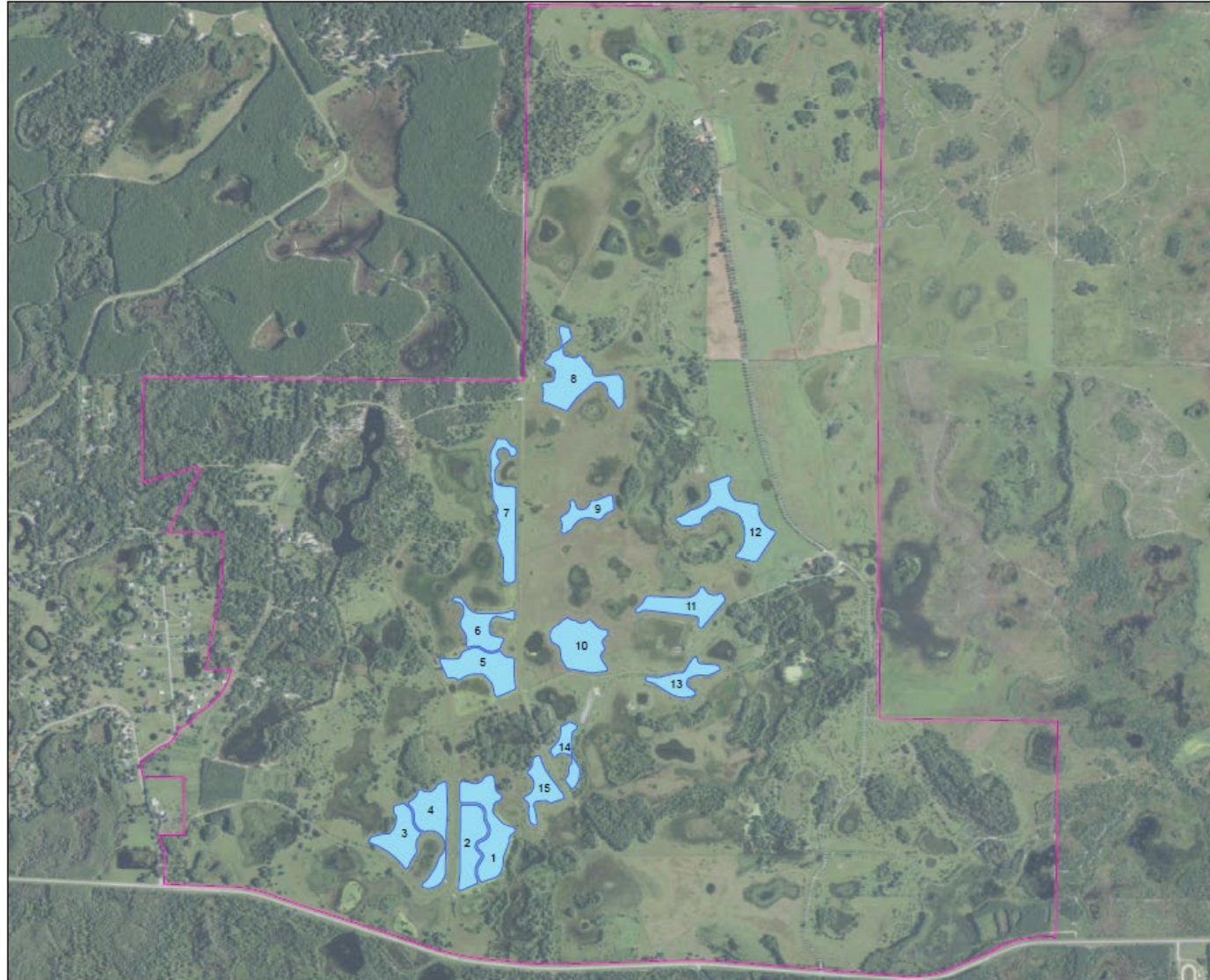
Wetland Delineation: 1970s Historical Map



CH2MHILL



Groundwater Recharge Wetlands Layout



Cell 8 Location Aerial



Cell 8 Aerial During Construction



4G Ranch Cell 8 After Construction



P3 Case Study: 4G Ranch Cell 7



Alternative Delivery Case Study: 4G Ranch Cell 7



Alternative Delivery Case Study: 4G Ranch Cell 7



Alternative Delivery Case Study: 4G Ranch

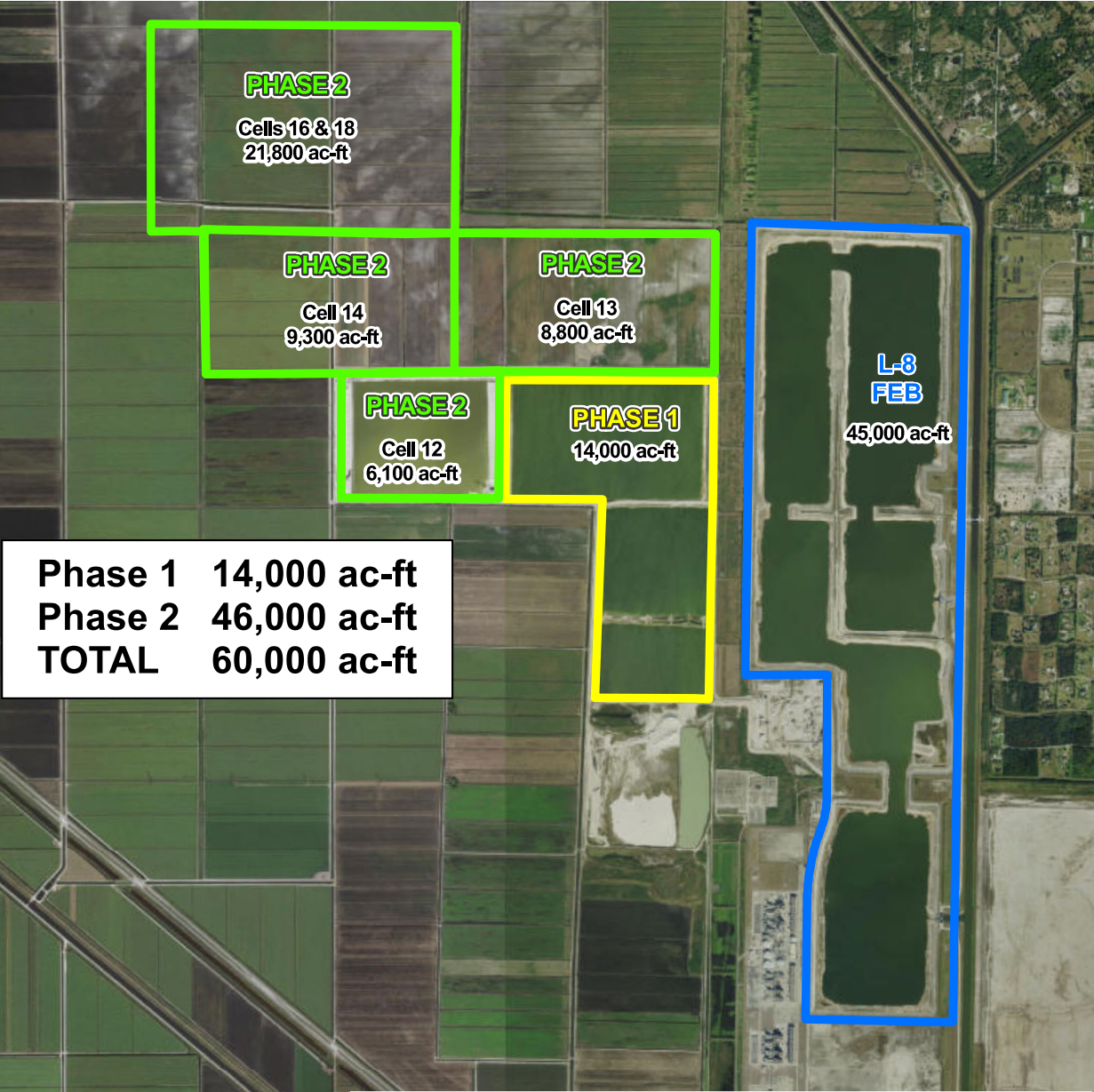


4G Ranch Key Project Components

- Multi-Use Project: Aquifer Recharge, Wetlands, Habitat, Recreation
- Partnerships: County; SWFWMD; Owner; Contractor; Consultants
- Early and Often Communication and Coordination on Everything
 - Transaction Structure, Modeling, Project Design, Constructability, Permitting, Cost Estimates, Third-Party Reviews, Gator Football, etc.
 - Weekly Project Calls, lots of meetings
- Structure - 25 Year Lease Agreement with three 10-year options
- Introductory Meeting to Construction in two years
- Construction completion in one year
- Fully operational in three years



Alternative Delivery Case Study: C51 Reservoir



C-51 Reservoir Revised Project Phasing

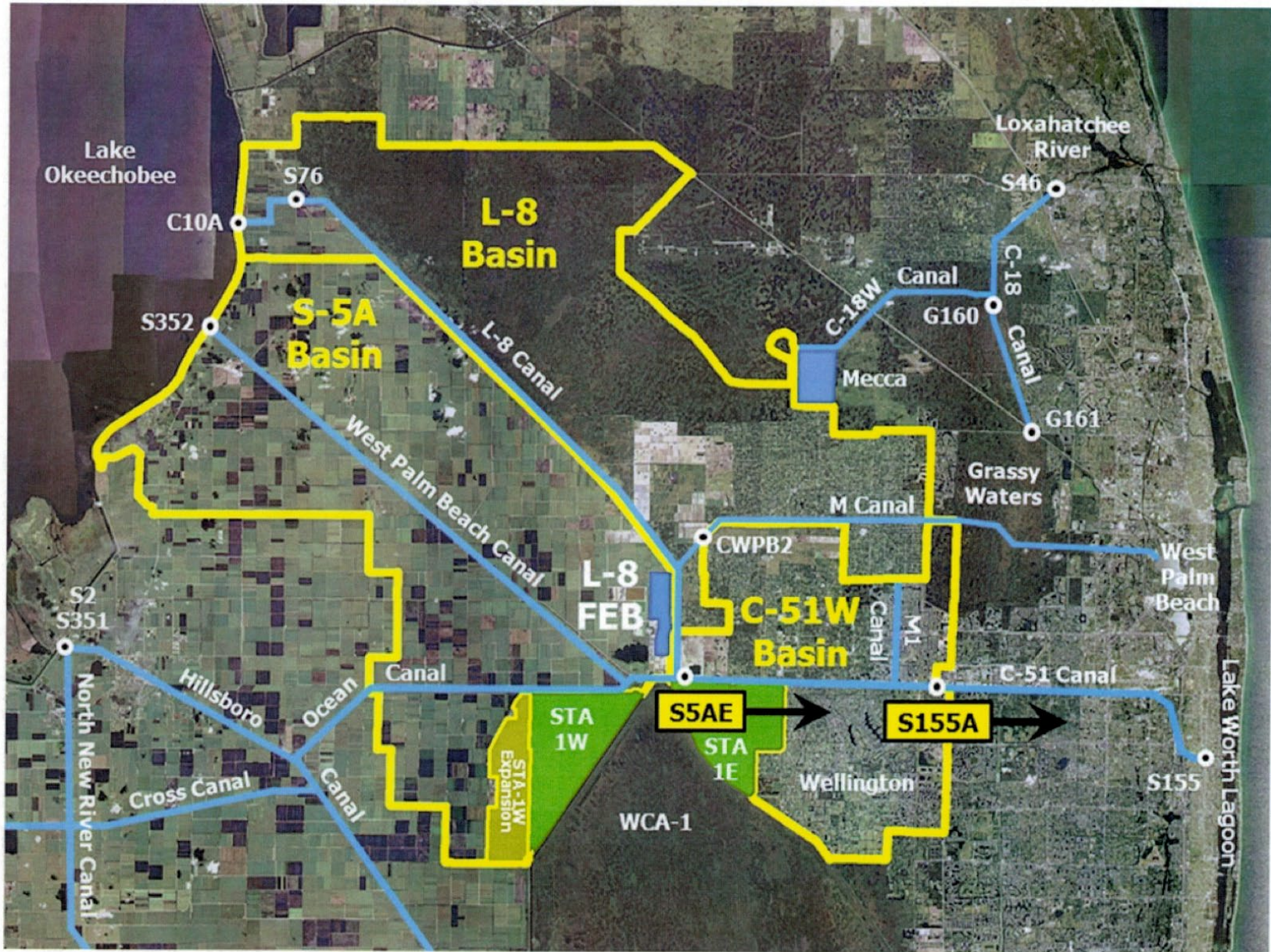


Alternative Delivery Case Study: C51 Reservoir

- **Capture excess fresh water** currently being sent to tide through the Lake Worth Lagoon from the C-51 Canal and reducing harmful discharges
- **Storage for public drinking water supply** and significant environmental benefits
- Convey excess fresh water to reservoir, then use stored water to **recharge public drinking water surficial aquifer** well fields in Palm Beach, Broward and Miami-Dade through existing canals
- Allow for **reliable and cost-effective drinking water** through alternative water supply source to compliment and supplement current and future drinking water needs

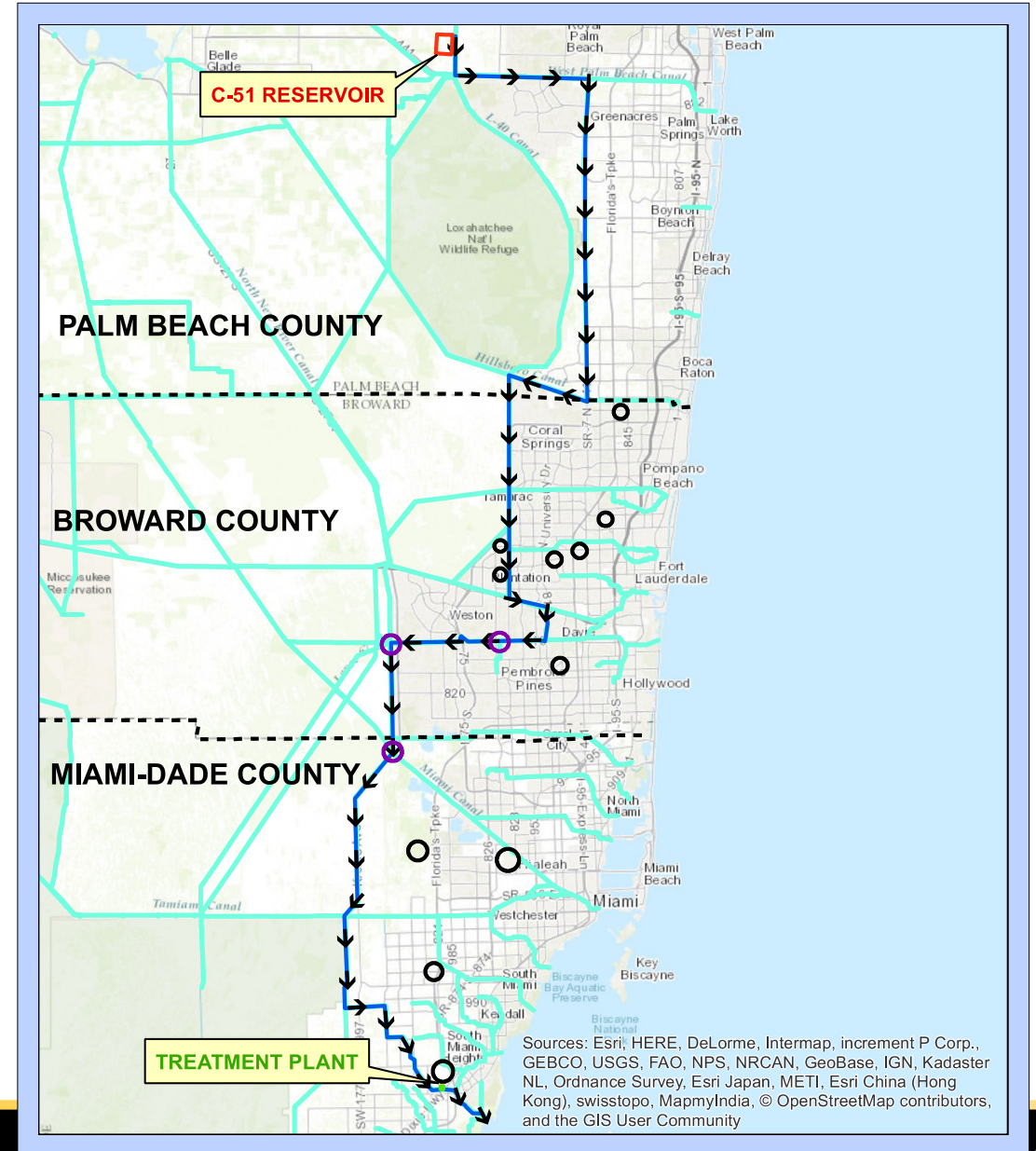


Alternative Delivery Case Study: C51 Reservoir



Alternative Delivery Case Study: C51 Reservoir

- Creative utilization of existing canal system
- Canals that drained lands also recharge Biscayne Aquifer
- Operating Plan follows same approach as existing water supply deliveries to recharge well fields through canals
- 35 MGD is small amount of water compared to capacity of canals and existing 850 MGD of Lower East Coast permitted water supply



C-51 Reservoir – Alternative Delivery Structure

- Regional Collaboration to Address Multiple Challenges
- Interlocal Agreements, Feasibility Studies, Cost Estimates
- Task Forces and Working Groups
- Project Protocol Memorandum of Understanding
- Local Government Resolutions
- Conveyance System Agreements
- Capacity Allocation Agreements
- Operation and Maintenance Agreements
- 501c3 Entity After Completion controlled by Local Governments
- Transfer Agreements Upon Completion to 501c3 Entity



Alternative Delivery Methods

Key Attributes

- Different approach - human resistance to different
- Design, Bid, Build is standard approach
- Opportunity to tailor to each circumstance
- Need transparency, cost comparisons, patience
- Should be faster, more coordinated
- Turnover a challenge – elected officials and staff
- The more parties, the more complications
- Communication is the key, early and often

