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
• 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
Infiltration Treatment Wetlands Feasibility Study
Project Location – 4G Ranch
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
Wetland Delineation:
1970s Historical Map
Groundwater Recharge Wetlands Layout
Cell 8 Design
Cell 8 Aerial During Construction
P3 Case Study: 4G Ranch Cell 7
Alternative Delivery Case Study: 4G Ranch Cell 7
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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

Phase 1  14,000 ac-ft
Phase 2  46,000 ac-ft
TOTAL    60,000 ac-ft

C-51 Reservoir Revised Project Phasing
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
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• 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