C-51 Reservoir Project
Potential Opportunities

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Today’s Discussion

- Background
- Description and Purpose
- Where is the project today?
- Potential Benefits
C-51 Reservoir Timeline

- **1999:** Central and Southern Florida Project Comprehensive Review Study (“Yellow Book”) recommends 170 mgd of Aquifer Storage & Recovery (ASR) wells along the C-51 canal to capture and store excess runoff for later beneficial use.

- **2006:** Seven South Florida utilities (Sunrise, Ft. Lauderdale, Plantation, Hollywood, Pompano, Broward County, Palm Beach County) begin investigating the feasibility of a collaborative regional approach to develop alternative water supply.

- **2009:** Conceptual Report concludes that there are environmental and water supply benefits associated with storing wet season water from C-51 (Hazen and Sawyer and MacVicar, Federico and Lamb, 2009).
C-51 Reservoir Timeline

- **2010**: Conceptual Design Report Phase II A provides additional support for C-51 reservoir project benefits (*Hazen and Sawyer and MacVicar, Federico and Lamb*)

- **2010**: Conceptual design features developed (*Powell Kugler, Inc.*)

- **October 2010**: SFWMD Governing Board discusses benefits of C-51 reservoir to Everglades restoration and water supply

- **October 2010**: C-51 MOU drafting group (Palm Beach County utilities, Fort Lauderdale utilities, Lake Worth Drainage District, SFWMD) begins meeting to discuss drafting and executing MOU
C-51 Reservoir Timeline

- **March 2011**: C-51 Steering Group formed and begins meeting monthly at Lake Worth Drainage District (LWDD)
- **Fall 2011**: District holds series of meetings with utilities, LWDD, financial consultants, and others to gather information on governance, financing, operations and maintenance options
- **November 2011**: C-51 MOU executed
- **July 2012**: Final Draft of the Preliminary Design and Cost Report released; costs included were developed by private entity for full project (Lake Worth Drainage District, Palm Beach County, Broward County, SFWMD)
- **Summer 2012**: District participated in numerous stakeholder meetings to determine feasibility of phasing, governance options and partnering opportunities
Existing Northwestern Palm Beach County

- Former 950-acre rock mine
- 46,000 ac/ft of storage
- Benefit South Florida’s ecosystem
- Essential Feature in the District’s Restoration Strategies for WQ in the Everglades
- Assist in sustaining regional water supplies
C-51 Reservoir

- Proposed
- Located in western Palm Beach County
- 75,000 ac/ft of storage
- Capture and store excess surface water from C-51 basin
- Increased water storage and delivery to help benefit South Florida’s regional water supplies
- Reduce harmful discharges to the Lake Worth Lagoon
C-51 Reservoir Project Summary

- Existing rock mine just north of West Pam Beach canal and adjacent to L-8 Reservoir
  - Same favorable geology
- Capture excess flows in L-8 and C-51 basins during wet times
- Release stored water to maintain flows in the canal systems during dry times
  - Increase regional availability of water along Lower East Coast
  - Recharge wellfields
  - Create freshwater head to maintain fresh/saltwater interface
- Utilizes existing infrastructure for conveyance with some improvements
C-51 Reservoir
Future Water Supplies

- Lower East Coast Water Supply Plan under way
  - Targeted for completion Spring 2013

- Sources capped
  - Regional Water Availability Rule approved 2007

- Feasibility Study Focus
  - Modeling of storage capability
  - Quantity of water lost to tide
  - Ability to move water through canal system to create head
Handful of utilities that have immediate needs

Some utilities have stranded infrastructure capacity

Current limitations on increased withdrawals that affect the Everglades & regional system could be offset by new source of water

Utilities seeking sustainable and reasonably priced alternatives for future water supply
C-51 Reservoir
C-51 Discharges to Lake Worth Lagoon
C-51 Reservoir
C-51 Canal Conveyance Capacity

- Challenges for western PBC communities

Legend:
- Local Drainage Districts (298)
- SFWMD Temporary Pumps
- Diversion Culverts

Tropical Storm Isaac
Western Palm Beach County (C-51 Basin)
SFWMD Temporary Pumps and Diversion
C-51 Reservoir
Source of Water
C-51 Reservoir
Sub-Regional Geology
Reports have shown that it is feasible to use a combination of District and Lake Worth Drainage District facilities.
C-51 Reservoir
Saltwater Intrusion
Multiple benefits and reasons for pushing forward

Challenges

- Timing
- Financial
- Governance/Control

Revised Project
C-51 Reservoir Project Phases

- **Phase I**
  - 14,000 Acre Feet Storage
  - Control elevation 16.5 NAVD
  - 2.5 years to construct
  - 35 mgd for water supply
  - Majority of excavation complete

- **Phase II**
  - +32,000 Acre Feet Storage
  - Control elevation 25 NAVD
  - 120 mgd for water supply
  - 2.5 years to construct

- **Phase III**
  - +29,000 Acre Feet Storage
  - Control elevation 25 NAVD
  - 185 mgd for water supply
  - 2 years to construct

- Phases can be constructed as needed
C-51 Reservoir Considerations

- Construction: cost, schedule, performance, technology, completion and delivery
- Operations and Maintenance: cost and performance
- Renewal, replacement and life cycle costs
- Supply of water
- Contracts for water storage/market alternatives
- Financing/Credit Rating
- Regulatory
C-51 Reservoir
SFWMD Considerations

- Construction: cost, schedule, performance, technology, completion and delivery
- Operations and Maintenance: cost and performance (fee)
- Renewal, replacement and life cycle costs
- Supply of water
- Contracts for water storage/market alternatives
- Financing/Credit Rating
- Regulatory
C-51 Reservoir
Summary of Benefits

- Regionally significant project with multiple public purposes
  - Beneficial use of water lost to tide
    - Decrease in harmful fresh water releases to Lake Worth Lagoon
    - Long-term & cost-effective Alternative Water Supply
  - Potential flood relief for western Palm Beach County
  - Sea level rise & saltwater intrusion benefits

- Location and geology
  - Cross roads
  - Extensive canal infrastructure & conveyance capabilities

- Stakeholder interest and support
Discussion