

# Loxahatchee River Restoration Local Initiative and Mecca Site Evaluation



Water Resources Task Force Meeting – July 25, 2019



# Agenda

- Progress Since April 18, 2019 Water Resources Task Force (WRTF) Meeting
- Overview of Loxahatchee River Restoration Local Initiative and Mecca Site Evaluation
- Loxahatchee River Watershed Restoration Project
- Overview of Local Initiative Elements
- Potential Concepts/Features to Be Considered for Further Evaluation

# Progress Since April 18, 2019 WRTF Meeting

- April 30, 2019 – County staff briefed the Board of County Commissioners (BCC) and requested direction; BCC approved the following motion:
  - Continue to support state and federal efforts to restore the Loxahatchee River Watershed
  - Communicate key concerns with the proposed project
  - Express interest in collaborating with the U.S. Army Corps of Engineers (USACE) and the South Florida Water Management District (SFWMD) to reconsider the Mecca Reservoir to be more compatible with adjacent lands
- May 6, 2019 – County submitted comments to USACE on the Loxahatchee River Watershed Restoration Project Draft Report
- May 20, 2019 – County staff met with SFWMD
- June 7, 2019 – County staff met with USACE
- July 2, 2019 – BCC approved a Consultant Services Agreement with Kimley-Horn
- July 9, 2019 – Notice to Proceed issued to Kimley-Horn

# Overview of Loxahatchee River Restoration Local Initiative and Mecca Site Evaluation

- Objectives:
  - provide technical information necessary to enable continued collaboration with USACE and SFWMD
  - optimize or improve the Loxahatchee Project by assessing additional alternatives and local initiative elements
  - provide tools that can be used for future County water resources planning and management.
  
- Major Tasks
  - Alternative Development and Screening (max. of 8 alternatives)
  - Alternative Simulation and Evaluation (max. of 3 alternatives)
  
- Completion Date
  - October 7, 2019

# Loxahatchee River Watershed Restoration Project

## OVERVIEW

- **Project Purpose/Goals:**
  - Improve flows to the Northwest Fork of the Loxahatchee River
  - Restore wetlands that form the historic headwaters of the river
- **Key Features of Proposed Project:**
  - Above-ground reservoir on Mecca site
  - Four (4) Aquifer Storage and Recovery (ASR) wells
  - 27,000 acres of restored wetlands
- **Benefits:**
  - River restoration flows expected to be achieved 91 – 98% of the time
  - Improved habitat for fish and wildlife
  - Improved habitat for T&E species
- **Cost Estimate:**
  - \$473 million
- **Design/Construction Duration:**
  - 9-15 years



# Loxahatchee River Watershed Restoration Project

## EXPECTED FUTURE ACTIVITIES AND TIMELINE

- July 2019 – USACE Agency Decision Briefing
- October 2019 – SFWMD Governing Board to consider sending letter of support to USACE
- November 2019 – USACE Internal Review of Final Report
- December 2019 – USACE Senior Leaders Panel Briefing
- January – February 2020 – Public and Agency Review of Final Report
- March 2020 – Chief’s Report (aka USACE Headquarters approval)





# Loxahatchee River Watershed Restoration Project

## SUMMARY OF MAJOR FEATURES OF THE TSP

- Martin County Features (#1-5)
- Mecca (C-18W) Reservoir (#6)
  - C-18 West Canal inflow pump/outflow structure; inflow pump station/canal from ITID/Corbett, reservoir seepage management
- Four (4) Aquifer Storage and Recovery (ASR) wells (#6)
  - Temporarily store excess surface water underground
- G-160 Structure (#7)
  - Improve Loxahatchee Slough hydroperiod; control flows to Loxahatchee River
- G-161 Structure (#8)
  - Control flows from Grassy Waters to Loxahatchee Slough
- Grassy Waters Preserve Triangle (#9)
  - Improve hydroperiod
- M-1 Pump Station (#10)
  - ITID water to M-Canal



# Loxahatchee River Watershed Restoration Project

## KEY COUNTY AND STAKEHOLDER CONCERNS

### ■ Summary of Key County Concerns:

- Height of Mecca Reservoir embankment (~20 feet)
- ASR well recovery efficiency appears optimistic
- Poorly documented or unjustified assumptions
- Limited technical modeling information
- Water availability may be over estimated
- Plan formulation resulted in limited ability to detect benefits of individual project elements
- Detailed flood modeling results not available
- Uncertain water quality treatment requirements for ASR wells
- No benefits to the Lake Worth Lagoon

### ■ Summary of Other Stakeholder Concerns:

- Benefits to the river are many years away; expedite project if possible
- Mecca Reservoir will never be approved/constructed due to excessive cost, safety concerns, aesthetics, permit challenges
- Natural (shallow) storage is less expensive, provides habitat and water quality benefits and is more compatible with adjacent lands
- Flooding concerns in Pal-Mar, South Indian River Water Control District, Jupiter Farms

# Overview of Local Initiative Elements

Local Initiative Element	Modeled by USACE/SFWMD?	Include in Local Initiative?
Eliminate flow from Lake Okeechobee to Grassy Waters/C-51 Reservoir (except during emergencies or drought)	Yes	Yes
Use C-51 Reservoir for flood control	Yes	Yes
Send C-51 Reservoir water south to Lake Worth Drainage District	No	No
Connect ITID Reservoir to Moss Property; new discharge structure from Moss Property to L-8 Canal	No	No
GL Reservoir/Flow-way to capture excess ITID water and convey north to M-O Canal	Yes	Yes
Pump station/conveyance improvements to recharge Jupiter/Seacoast wellfields	No	No
Relocate C-18 Weir or add structure south of SR-710 and FEC railroad	?	?
Clean out ditch northeast of train trestle on SR-710 (Beeline Hwy)	?	?
Fill Pratt-Whitney canal	Yes	Yes

# Potential Concepts/Features to be Considered for Further Evaluation

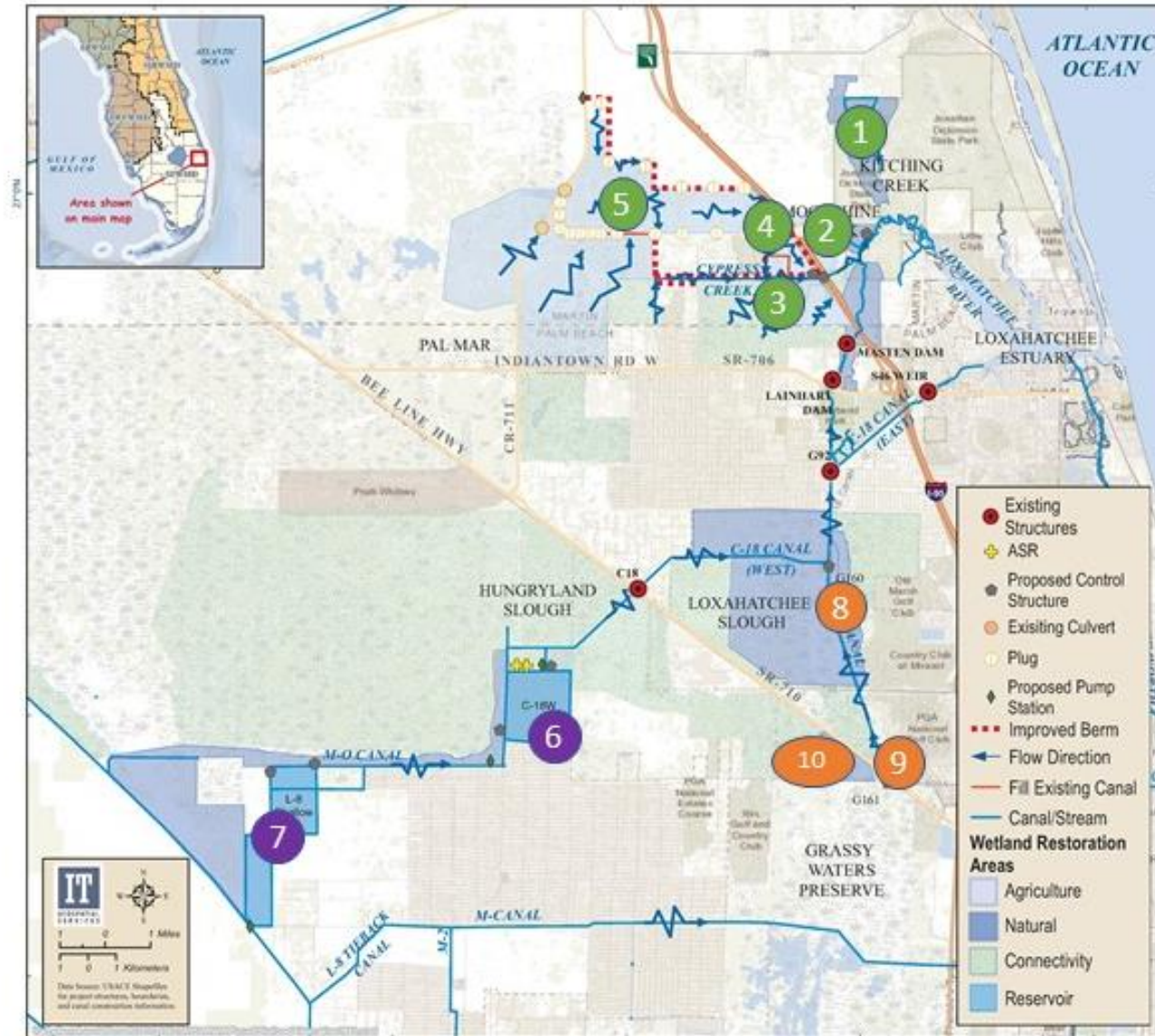
- Capture excess L-8 Basin stormwater runoff that would otherwise be sent to C-51 Canal/Lake Worth Lagoon
- Re-evaluate C-51 Reservoir in increments (< 44,000 acre-feet evaluated in Alt. 10)
- Alt. 12 (C-51 Reservoir, L-8 Shallow Reservoir, Mecca/Avenir natural storage) + G-160/G-161
- Mecca as a shallow impoundment (2.5 – 4 feet max water depth)
- Mecca Reservoir (excavated to lower embankment heights)
- Additional ASR wells (at other locations?)
- ASR wells with reduced recovery efficiencies (and/or No ASR wells)
- Additional pump stations to capture/convey water from ITID to Mecca/Avenir/Loxahatchee River
- GL Reservoir integrated with ITID reservoir(s)

# Discussion / Public Comments



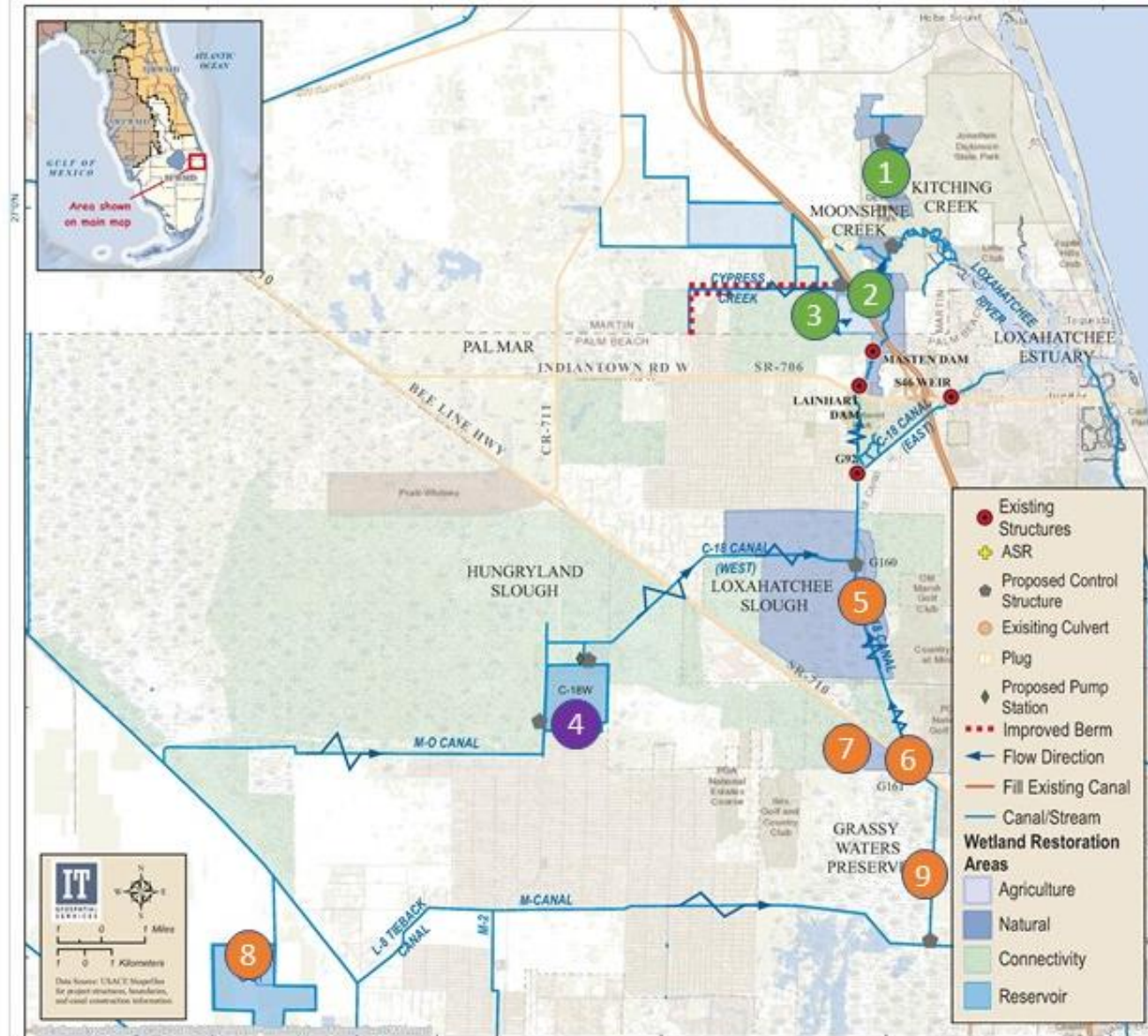
# Alternative 2

- Kitching Creek (Restoration/hydration):** (Spreader canal; weir/plug (Jenkins Ditch))
- Moonshine Creek (MC) & Gulfstream East (GE) Restoration:** Connect HSLCD ditch to MC; clear MC vegetation; weir in Hobe Grove Ditch; grade area to historic topography
- Cypress Creek Canal (CCC)(Reduce over-drainage):** Replace CCC weir to raise control elevation, raise berm at Ranch Colony, automate twin 84" culverts
- Gulfstream West (GW)(Restoration & reduce over-drainage):** Partial backfile & relocate southern end of HSLCD canal; small pump, construct flow through marsh to attenuate flows
- Pal-Mar East (Restoration & Connectivity):** Plug ditches; remove pipes; improve northern berm; construct western berm improve eastern berm; pumps at Thomas Farm to redirect drainage to GW flow- redirect drainage to GW flow-through marsh via north Nine-Gems Canal
- .C-18W Reservoir (7,200 ac-ft. & 2 ASR wells):** Above ground reservoir; inflow pump, discharge structure; seepage control; M-O canal connector and pump
- L-8 Basin Shallow Storage (4,300 ac-ft., includes pumps and channels)**
- G-160 Structure (Reduce over-drainage):** Improve hydroperiod in Loxahatchee Slough
- G-161 Structure (Connectivity):** GWP water to Loxahatchee Slough
- GWP Triangle (Connectivity):** Grade and reconnect



# Alternative 10

1. **Kitching Creek (Restoration/hydration):** (Spreader canal; weir/plug (Jenkins Ditch)
2. **Moonshine Creek (MC) & Gulfstream East (GE) Restoration:** Connect HSLCD ditch to MC; clear MC vegetation; weir in Hobe Grove Ditch; grade area to historic topography
3. **Cypress Creek Canal (CCC)(Reduce over-drainage):** Replace CCC weir to raise control elevation, raise berm at Ranch Colony, automate twin 84" culverts
4. **C-18W Reservoir (7,200 ac-ft.):** Above ground reservoir; inflow pump, discharge structure; seepage control; M-O canal connector and pump
5. **G-160 Structure (Reduce over-drainage):** Improve hydroperiod in Loxahatchee Slough
6. **G-161 Structure (Connectivity):** GWP water to Loxahatchee Slough
7. **GWP Triangle (Connectivity):** Grade and reconnect
8. **C-51 Deep Reservoir (Storage):** 44,000 ac-ft., includes pump and channels
9. **Force Main (conveyance):** Pump and pipeline through GWP to connect M-Canal to G-161



# Alternative 13

1. **Kitching Creek (Restoration/hydration):** (Spreader canal; weir/plug (Jenkins Ditch))
2. **Moonshine Creek (MC) & Gulfstream East (GE) Restoration:** Connect HSLCD ditch to MC; clear MC vegetation; weir in Hobe Grove Ditch; grade area to historic topography
3. **Cypress Creek Canal (CCC)(Reduce over-drainage):** Replace CCC weir to raise control elevation, raise berm at Ranch Colony, automate twin 84" culverts; pump and spreader swale; regrade CC southern forks
4. **Gulfstream West (GW)(Restoration & reduce over-drainage):** Partial backfill & relocate southern end of HSLCD canal; small pump, construct flow through marsh to attenuate flow
5. **Pal-Mar East (Restoration & Connectivity):** Plug ditches; remove pipes; improve northern berm; construct western berm improve eastern berm; pumps at Thomas Farm to redirect drainage to GW flow- redirect drainage to GW flow-through marsh via north Nine-Gems Canal
6. **Natural storage @ C-8 W (Basin Restoration)** Restore natural topography; seepage barriers; culverts for Beeline Hwy; backfill interior canals south of C-18W canal; pump station at Mecca; flow-paths through Mecca & Avenir; M-O Canal connector & pump discharge structure; seepage control; M-O canal connector and pump
7. **L-8 Basin Shallow Storage (6,500 ac-ft. & 4 ASR wells):** includes pumps and channels
8. **G-160 Structure (Reduce over-drainage):** Improve hydroperiod in Loxahatchee Slough
9. **G-161 Structure (Connectivity):** GWP water to Loxahatchee Slough
10. **GWP Triangle (Connectivity):** Grade and reconnect

