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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

North Palm Beach County – Part 1 CERP

Palm Beach County Board of County Commissioners Workshop
March 16, 2010

Kenneth G. Ammon, P.E.
Deputy Executive Director
Everglades Restoration and Capital Projects

Project Planning Objectives

- Reduce or reverse saltwater intrusion and subsequent environmental impacts to NW Fork Loxahatchee River ecological communities
- Improve environmental and public water supply by utilizing freshwater sources currently lost to tide
- Restore wetland hydroperiods within watershed
- Restore hydrologic and spatial connectivity of natural areas
- Reduce adverse impacts of accumulated sediment and reduce sediment loading to Lake Worth Lagoon (LWL) from C-51
- Maintain or improve current level of flood protection in the L-8 basin

Completed Project Activities

Completed Watershed Assessment and Existing Conditions	2004
Feasibility Scoping Meeting	2005
Identified Future Conditions	2006
Finalized Problems, Opportunities, Constraints, Performance Measures and Targets	2007
Impact Evaluation for Grassy Waters Preserve	2007
Identification and refinement of management measures and alternatives	Ongoing
LECsR Alternatives modeling completed	2009
Flow-way 3 modeling completed	2010

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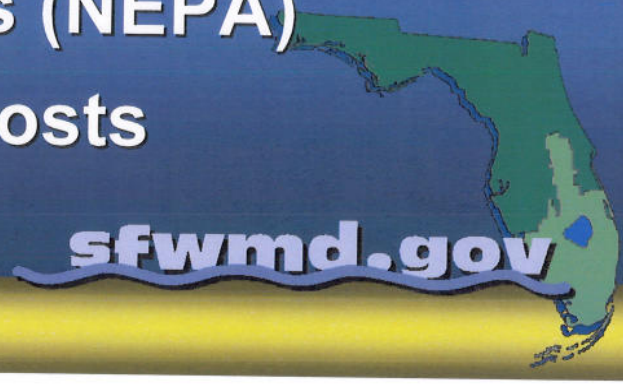
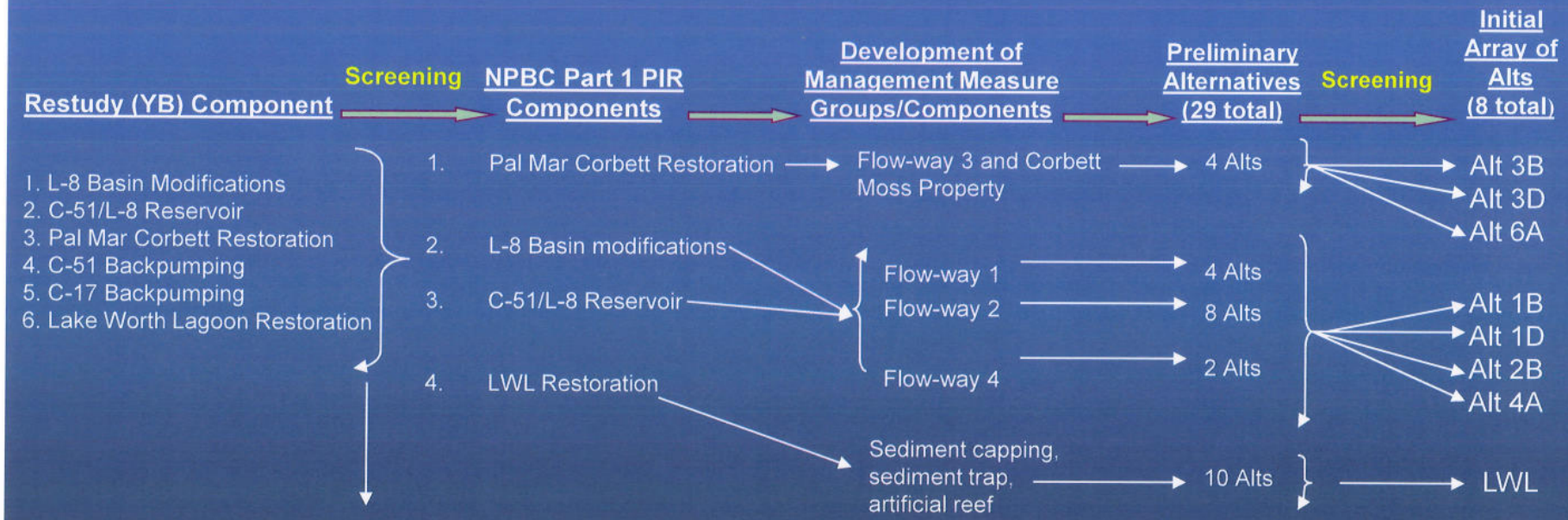
Recent Project Activities

- Finalized Alternatives for Analysis
- Continued development of management measures associated with each alternative
- Conducted revised Flow-way 3 and Grassy Water Preserve model runs
- Completed Draft Habitat Unit (HU) Calculations
- Began evaluation of impacts (NEPA)
- Generated Planning Level Costs



Planning Flow Chart



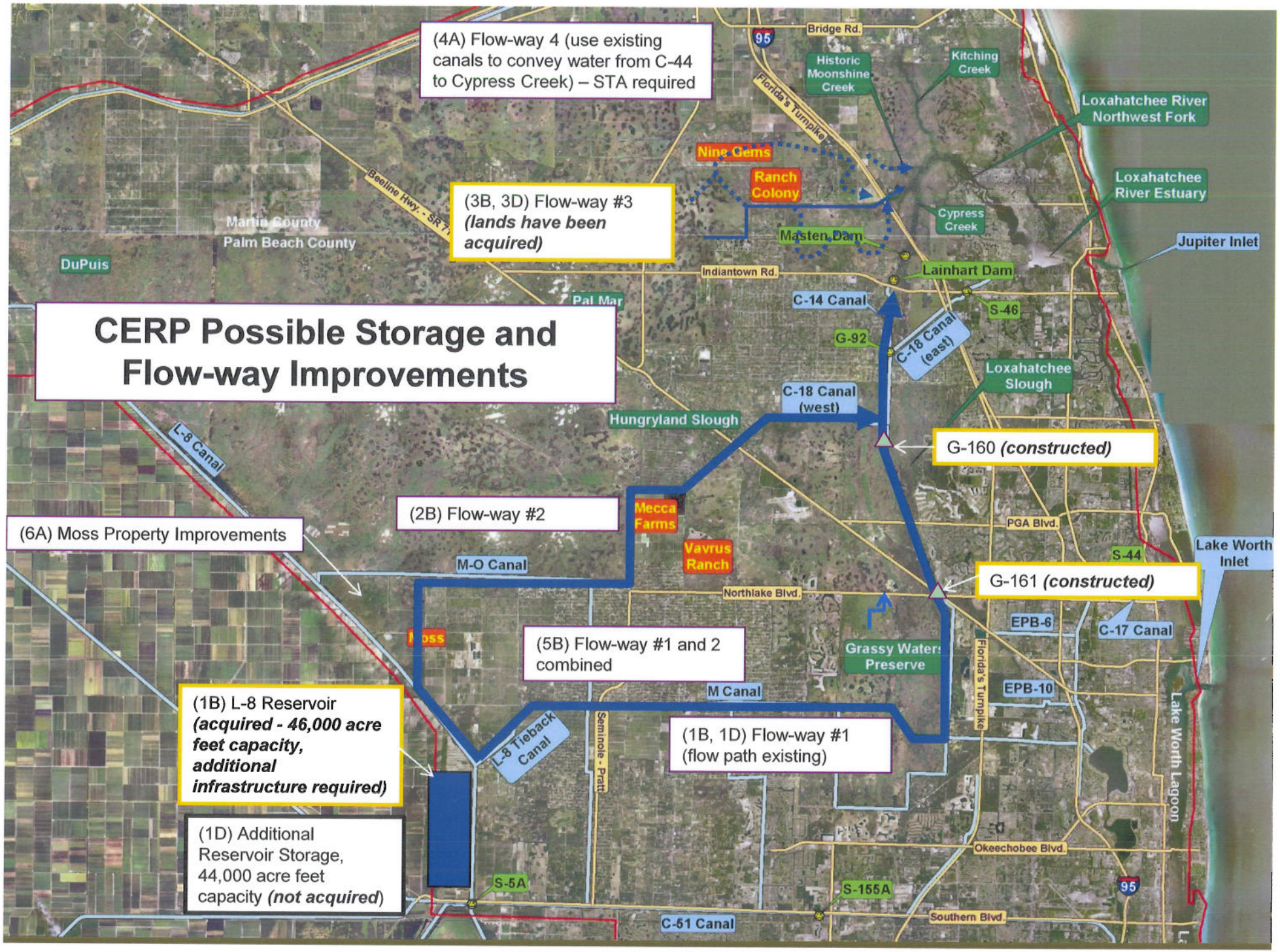
Screening Criteria:
- Practical
- Effective
- Efficient
- Stakeholder Input
- BPJ

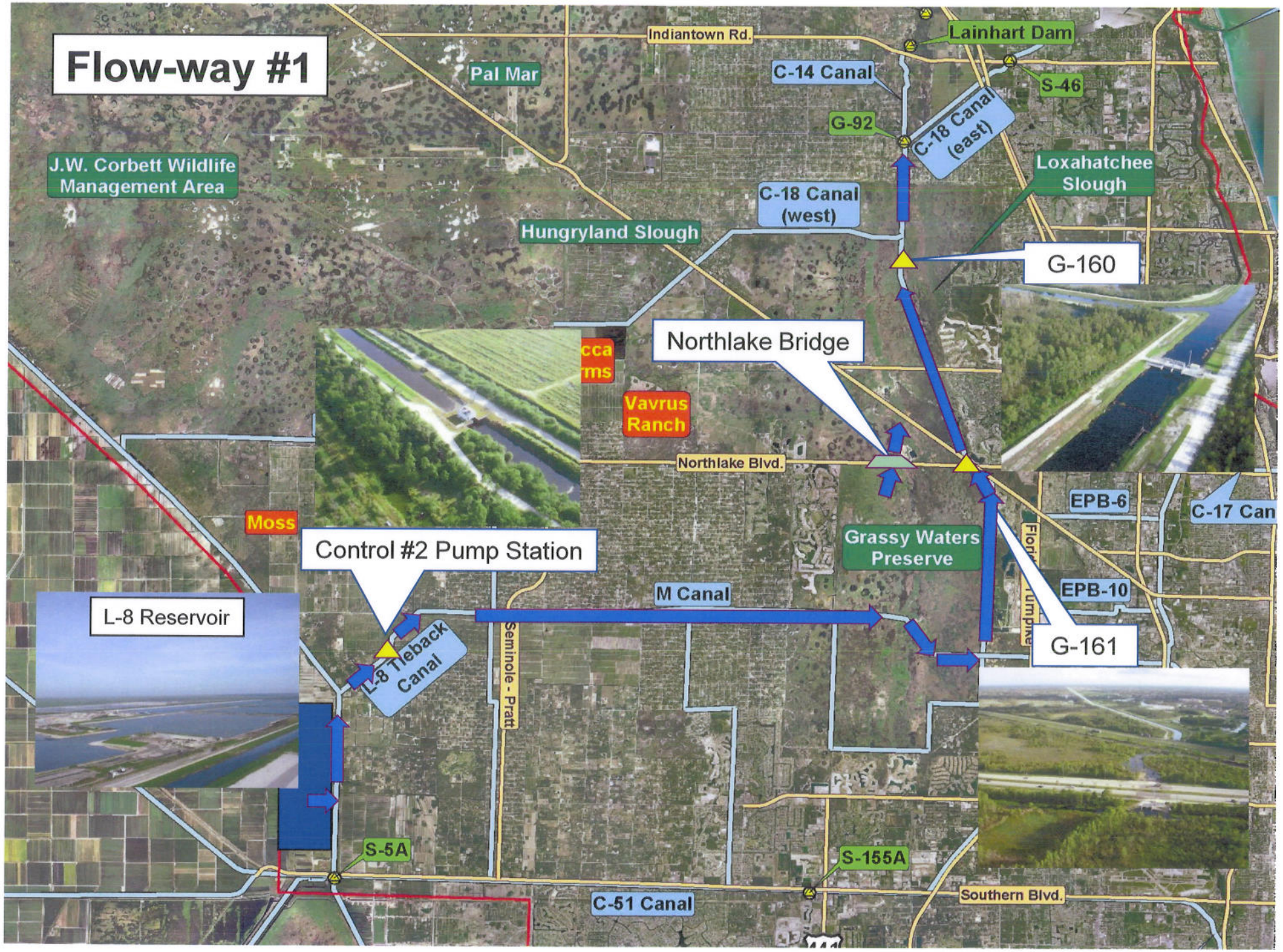
Screening Criteria:
- Practical
- Effective
- Efficient
- Stakeholder Input
- BPJ
- Iterative modeling
- Evaluation

Constraints

Final Array of Alternatives and Key Components

- Eight alternatives under consideration
- Range of alternative components
  - Four alternatives which use 3 different flow-ways with storage reservoirs ranging from 2,800 to 90,000 acre foot storage
  - One alternative which uses natural flow connectivity (no reservoirs or STAs)
  - One alternative which uses tributary flow from C-44
  - Moss property restoration
  - Lake Worth Lagoon sediment reduction and management
  - Best alternatives will be combined to meet project objectives
- Draft planning level costs range from $44M-$851M


CERP Possible Storage and Flow-way Improvements
(4A) Flow-way 4 (use existing canals to convey water from C-44 to Cypress Creek) – STA required
(3B, 3D) Flow-way #3 (lands have been acquired)
(2B) Flow-way #2
(6A) Moss Property Improvements
(5B) Flow-way #1 and 2 combined
(1B, 1D) Flow-way #1 (flow path existing)
(1B) L-8 Reservoir (acquired - 46,000 acre feet capacity, additional infrastructure required)
(1D) Additional Reservoir Storage, 44,000 acre feet capacity (not acquired)
G-160 (constructed)
G-161 (constructed)
Martin County
Palm Beach County
DuPuis
Pal Mar
Nine Gems
Ranch Colony
Historic Moonshine Creek
Kitching Creek
Loxahatchee River Northwest Fork
Loxahatchee River Estuary
Jupiter Inlet
Cypress Creek
Masten Dam
Lainhart Dam
Indiantown Rd.
Bridge Rd.
Florida's Turnpike
Beeline Hwy. - SR 7
C-14 Canal
S-46
G-92
C-18 Canal (east)
Loxahatchee Slough
C-18 Canal (west)
Hungryland Slough
L-8 Canal
Mecca Farms
Vavrus Ranch
M-O Canal
Northlake Blvd.
PGA Blvd.
S-44
Lake Worth Inlet
EPB-6
C-17 Canal
Grassy Waters Preserve
EPB-10
M Canal
L-8 Tieback Canal
Seminole - Pratt
Lake Worth Lagoon
Okeechobee Blvd.
S-5A
S-155A
C-51 Canal
Southern Blvd.
95


Flow-way #1
Indiantown Rd.
Lainhart Dam
Pal Mar
C-14 Canal
S-46
G-92
C-18 Canal (east)
J.W. Corbett Wildlife Management Area
Loxahatchee Slough
C-18 Canal (west)
Hungryland Slough
G-160
Northlake Bridge
Vavrus Ranch
Northlake Blvd.
EPB-6
C-17 Can
Moss
Control #2 Pump Station
Grassy Waters Preserve
EPB-10
M Canal
L-8 Reservoir
L-8 Tieback Canal
Seminole - Pratt
G-161
S-5A
S-155A
C-51 Canal
Southern Blvd.

L-8 Reservoir

- Land acquired
- Additional infrastructure needed to realize project benefits
  - High head pump station (outflow)
  - Inflow structure
  - Embankment modifications for erosion and wave run-up

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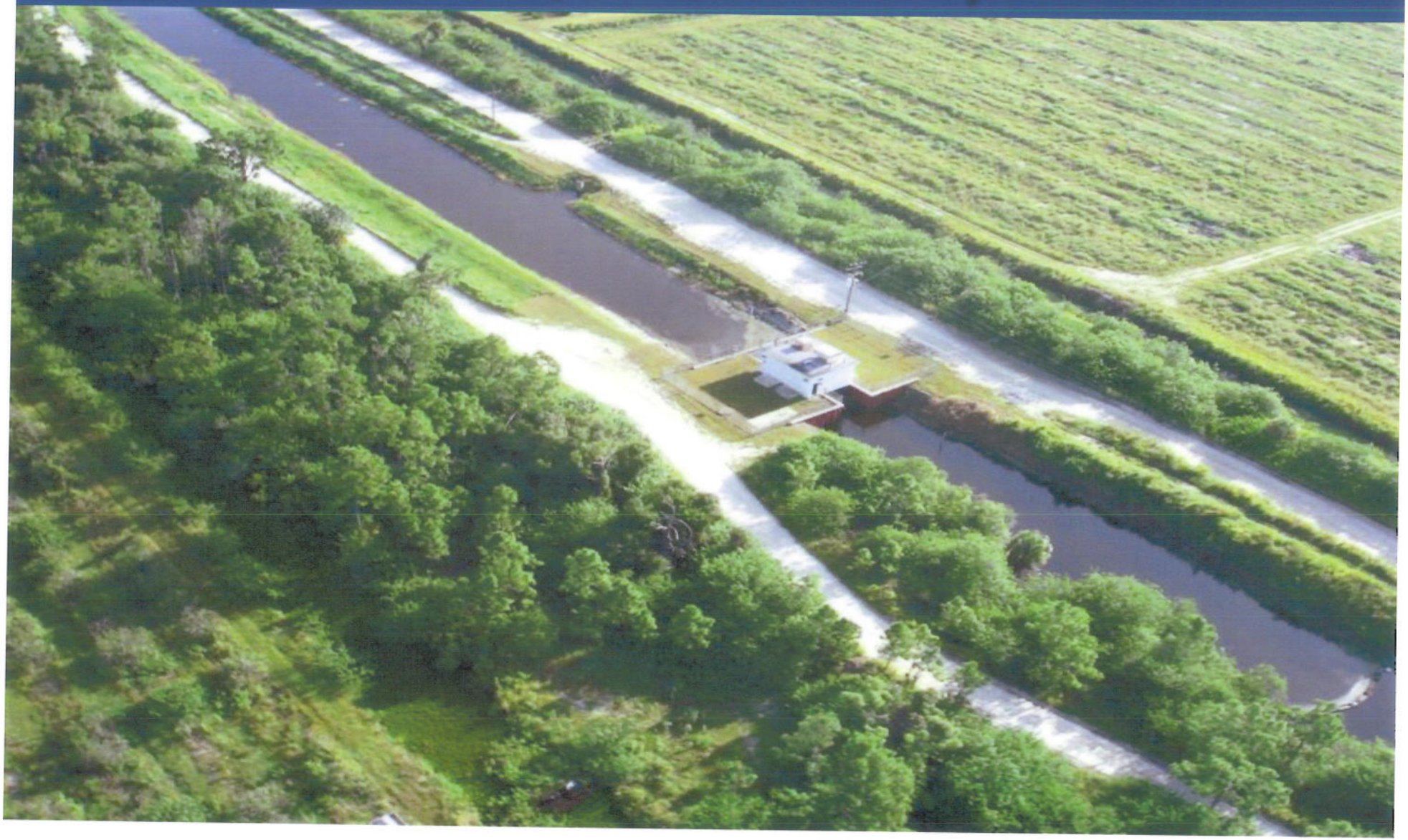
Control #2 Pump Station
(will require modification)



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G-161 Northlake Boulevard Structure (constructed)

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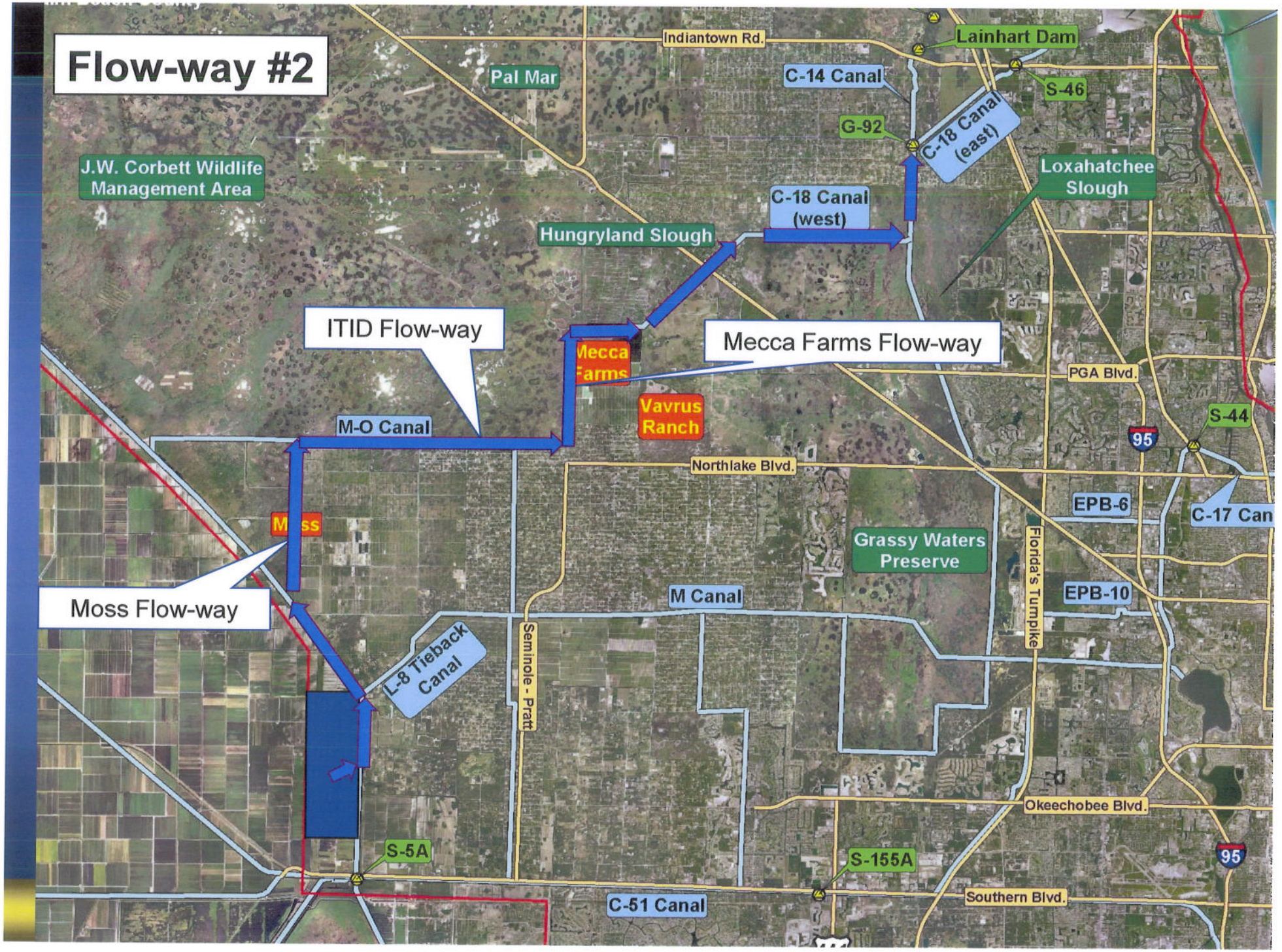
G-160 Loxahatchee Slough Structure (constructed)


Flow-way #2
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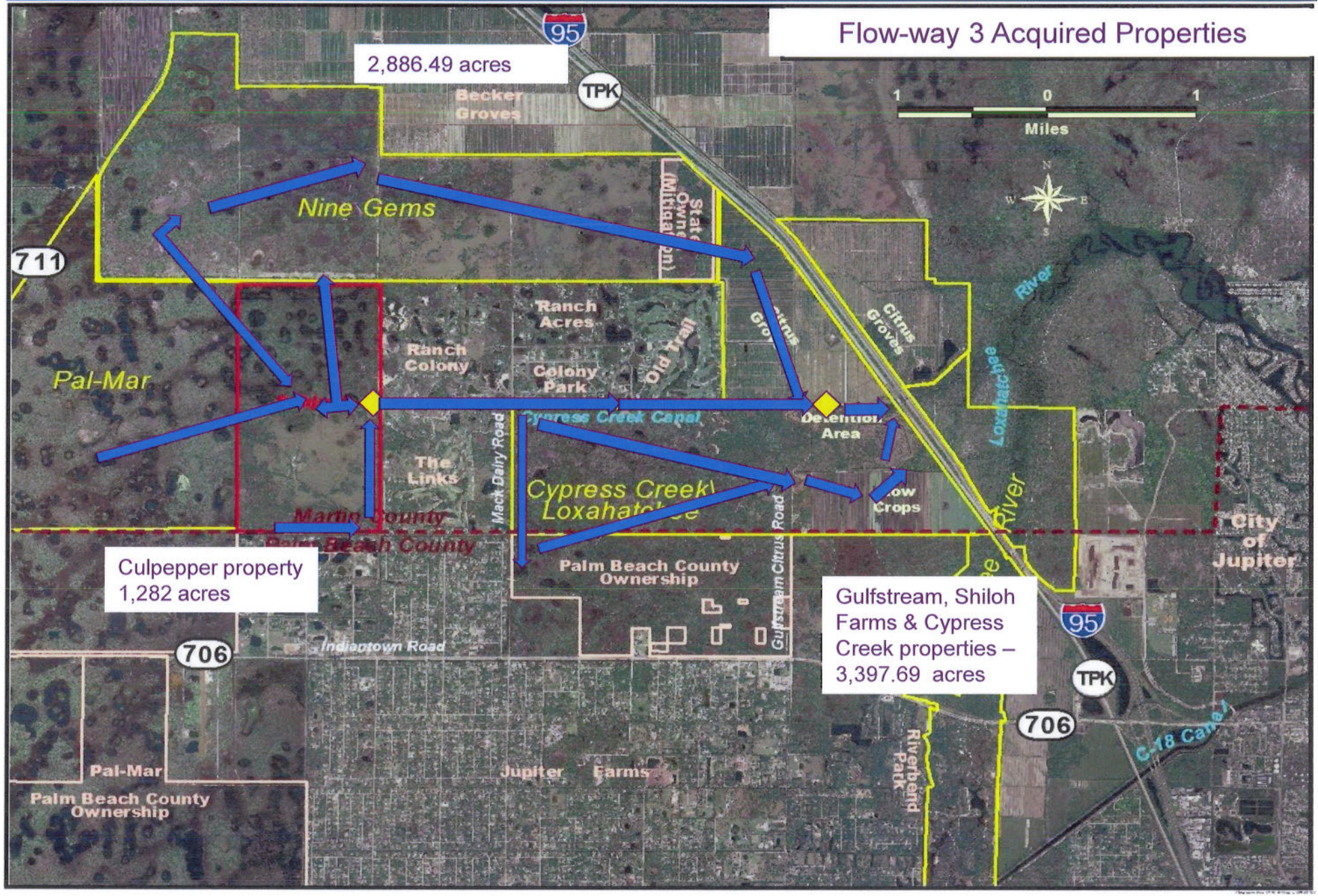

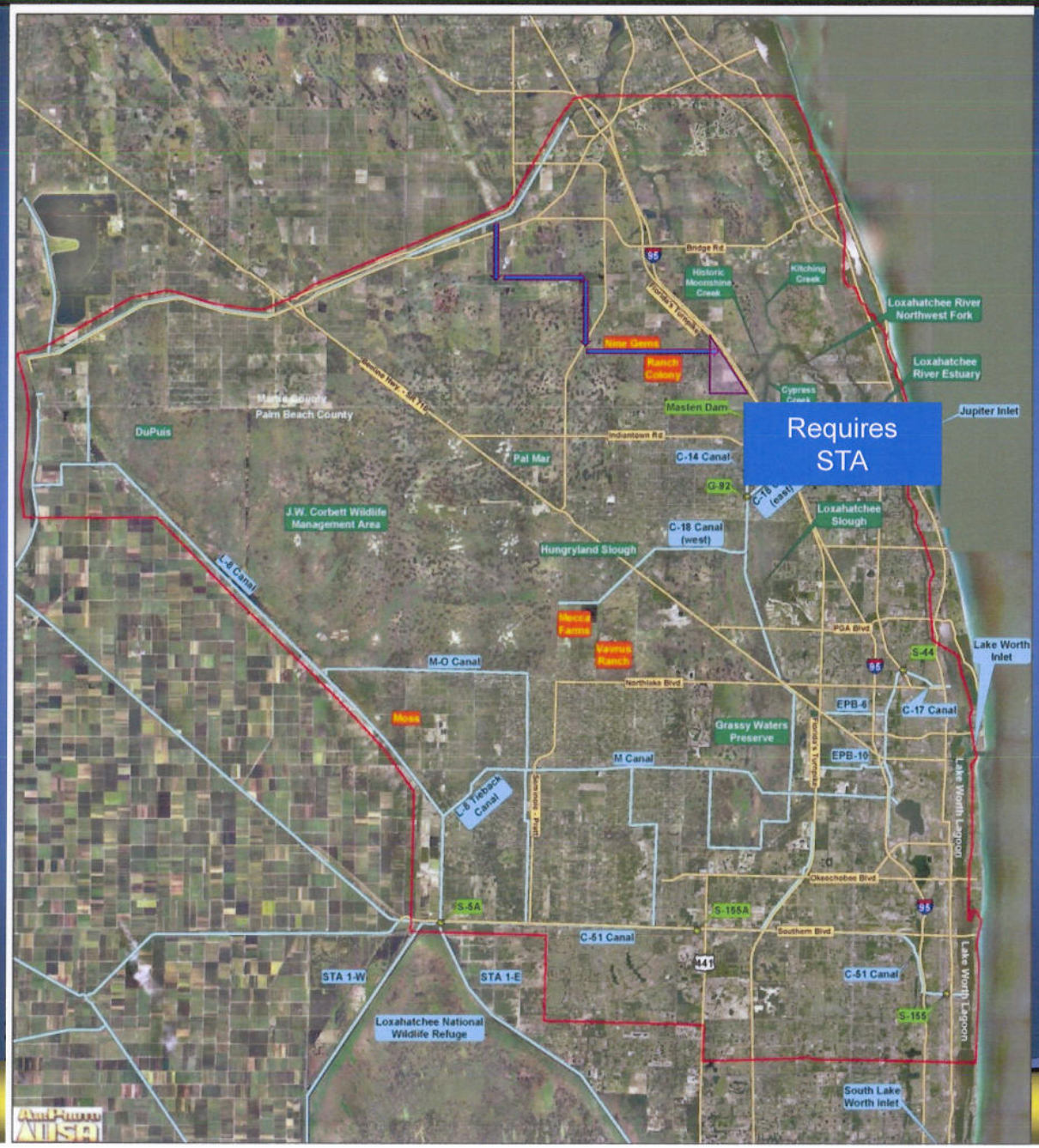

Flow-way 4: Initial Alt 4A

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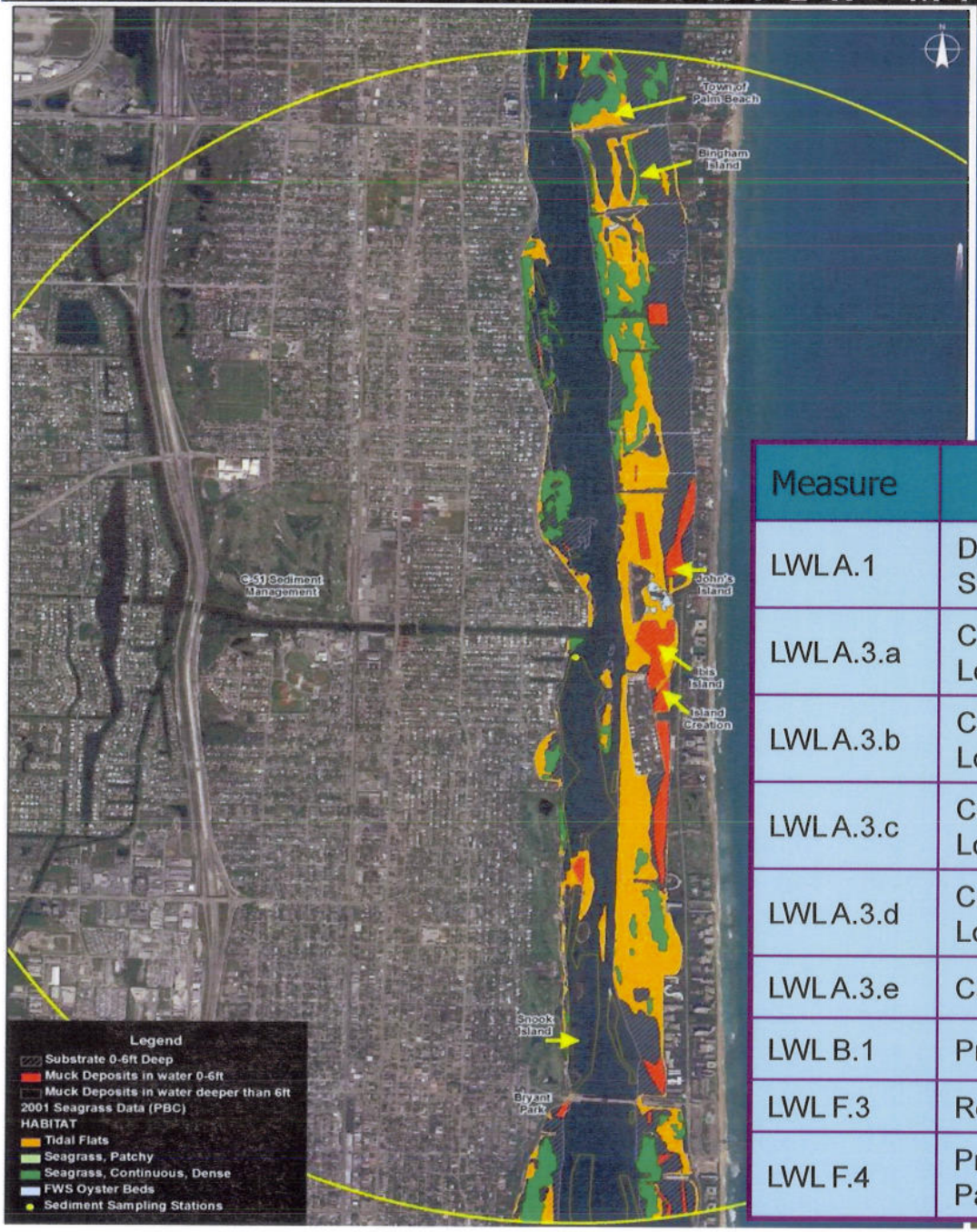
Lake Worth Lagoon Alternative



Measure	Description
LWL A.1	Dredge C-51 Canal Upstream of S-155 and Incorporate Sediment Trap
LWL A.3.a	Cap Sediment and Restore Habitat at Bingham Island Location
LWL A.3.b	Cap Sediment and Restore Habitat at Town of Palm Beach Location
LWL A.3.c	Cap Sediment and Restore Habitat at Shallow Island Location
LWL A.3.d	Cap Sediment and Restore Habitat at New Snook Island Location
LWL A.3.e	Cap Sediment and Restore Habitat at Ibis Isle Location
LWL B.1	Provide Sediment Trap Upstream of S-155 Structure
LWL F.3	Restore Oyster Habitat at Johns Island Site
LWL F.4	Provide Educational / Recreational Measures at Bryant Park/Snook Island

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Constructed Project Facilities, Land Acquired and Costs

L-8 Reservoir*	$220,279,535
G-160 Water Control Structure	$2,123,615
G-161 Water Control Structure	$2,085,084
Flow-way 3 Lands (Nine-Gems, Cypress Creek, Gulfstream and Shiloh Farms, Culpepper Ranch)	$113,578,235
Flow-way 1 Lands (Loxahatchee Slough properties) *	$38,540,000
Lake Worth Lagoon	$4,100,000
Total	**$380,706,469**

*additional infrastructure required

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Benefit Analyses

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Wetland / Upland Benefits

- WRAP / Hydrology Analysis
- Loxahatchee River Floodplain
- Hydrologic and Spatial Connectivity

Estuarine Benefits

- Substrate Improvement
- Suspended Sediment Removal

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Draft Habitat Units/Ecological Lift Acres and Preliminary Cost by Alternative

	Acres	Cost/H.U.
FWO*	-	-
1B	11,136	($41,000)
1D	11,367	($75,000)
2B	5,975	($75,000)
3B	8,751	($ 30,000)
3D	9,687	($ 25,000)
4A	174	($695,000)
6A	2,549	($ 18,000)
LWL**	641	($ 69,000)

*Future Without Project Condition
**Lake Worth Lagoon

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Benefit Analysis and Performance Measures
NW Fork Loxahatchee River Goals

Alternative	Percentage of Time Wet Season Target Met	Percentage of Time Dry Season Target Met	Percentage of Time Transition Month (June & November) Target Met	Number of Times MFL Exceeded
2050B (FWO)	67%	49%	72%	34
1B	83%	89%	86%	2
1D	83%	92%	88%	0
2B	92%	94%	100%	1
5B	97%	95%	95%	2

Pending Unresolved Issues

- Pump Sizing Contingent upon selected alternative and associated flow regimes
- Risk and uncertainty regarding water quality limitations to Grassy Waters Preserve and Loxahatchee Slough
- Water Resource Development Act as it affects cost share credit for previous and future construction

Next Steps

- Finalize
  - Gross (order of magnitude) land costs
  - Alternative costs and benefits
  - Evaluation of alternatives against performance measures and targets
  - Evaluation of impacts
- Select Tentatively Selected Plan with PDT
- Finalize Alternative Formulation Briefing Document
- Package modeling products for Independent Technical Review
- Conduct Technical Review Briefing of AFB Document

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Schedule

Select Tentatively Selected Plan with PDT	30-Mar-2010
Alternative Analysis and Draft AFB Document	1-May-2010
Submit Final AFB Document to COE for Review (incorporate PDT, RECOVER, SAJ Comments)	20-May-2010
Technical Review Briefing (TRB) and Agency Technical Review (ATR) -	17-Jun- 2010
Receive ATR Certification –	23- Sep-2010
Submit AFB Package to SAD –	10-Dec-2010
AFB Meeting –	25-Jan-2011
Receive Final AFB Guidance Memorandum –	28-Jan 2011
Draft PIR* –	20-Oct-2011
Final PIR* -	11-Apr-2012

*standard COE time frame post AFB

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QUESTIONS?