

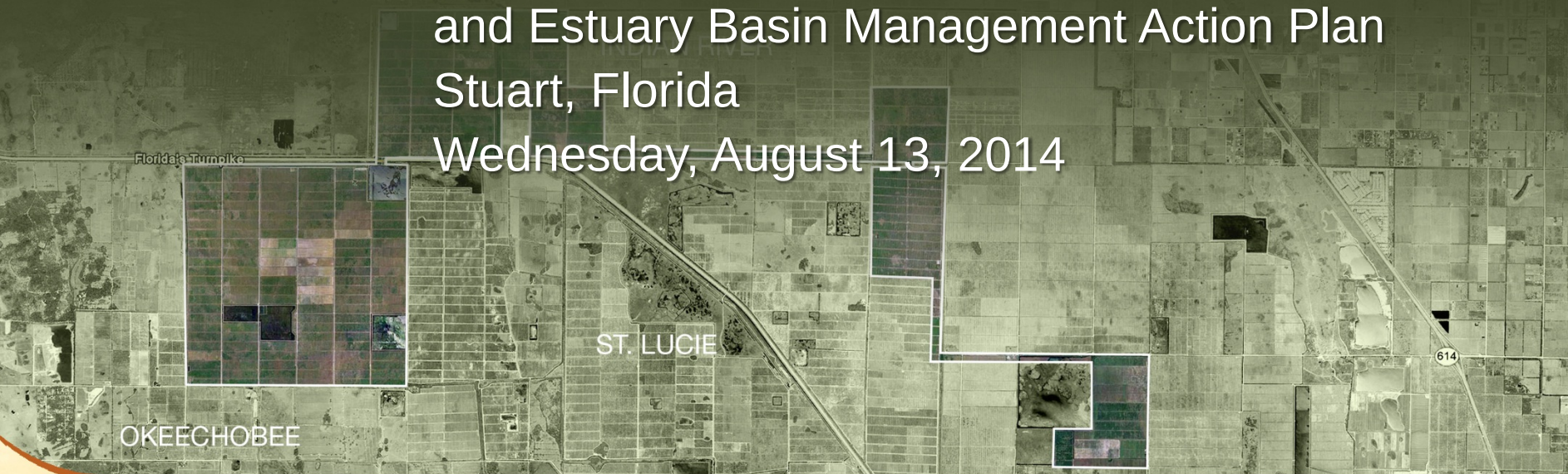


GROVE LAND UTILITIES, LLC

Benefits of Grove Land Reservoir and Stormwater Treatment Area to St. Lucie River and Estuary BMAP Stakeholders

Presentation at Annual Meeting of St. Lucie River and Estuary Basin Management Action Plan
Stuart, Florida

Wednesday, August 13, 2014



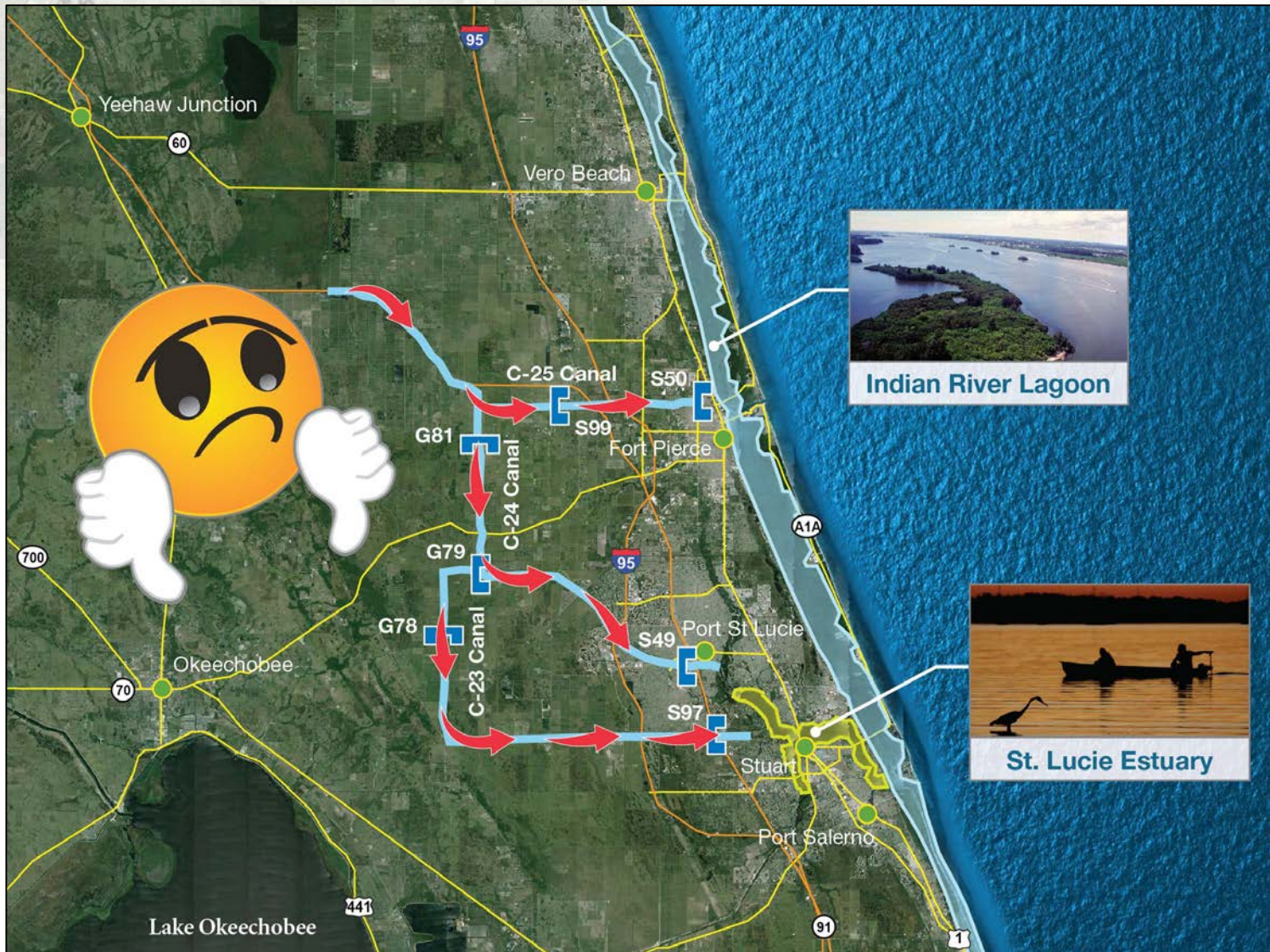
Presentation outline

- 
- 1. Grove Land Reservoir and STA Project Summary and Overall Benefits**
 - 2. Financial and Economic Feasibility of Project**
 - 3. Potential Benefits of Grove Land Project to St. Lucie River and Estuary BMAP Stakeholders**

1. Grove Land Reservoir and STA Project Summary and Overall Benefits



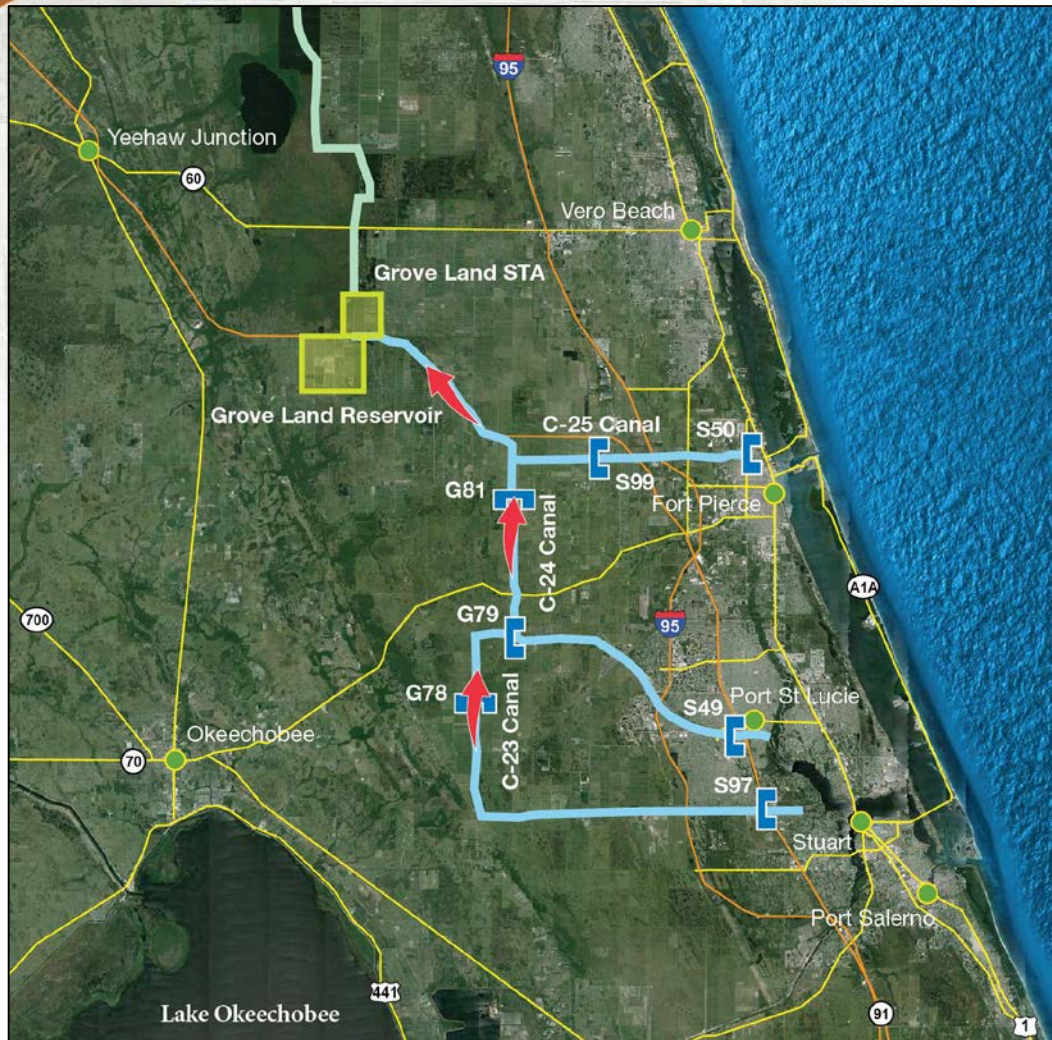
Excessive discharges to estuaries causing ecosystem havoc, lost well-being and income



Annual value of IRL to residents and visitors in St. Lucie & Martin Counties

Indian River Lagoon-Related	2013 Value
Recreational Expenditures (daily and boat-related)	\$334,070,000
Recreational Use Value	\$256,360,000
Non-Use Value of Lagoon	\$898,000
Real Estate Value (annual)	\$436,772,000
Income from daily recreation expenditures	\$49,208,000
Total Annual Value	\$1,077,308,000
Economic Contribution of the Daily Recreation Expenditures :	
Output (value of production and services)	\$107,454,000
Resident Income	\$49,208,000
Employment, full- and part-time jobs	1,409
Tax revenue	\$7,170,000
Number of Recreation Person-days	2,722,000

Grove Land Project would store water flowing through SFWMD's C-23, C-24 and C-25 Canals

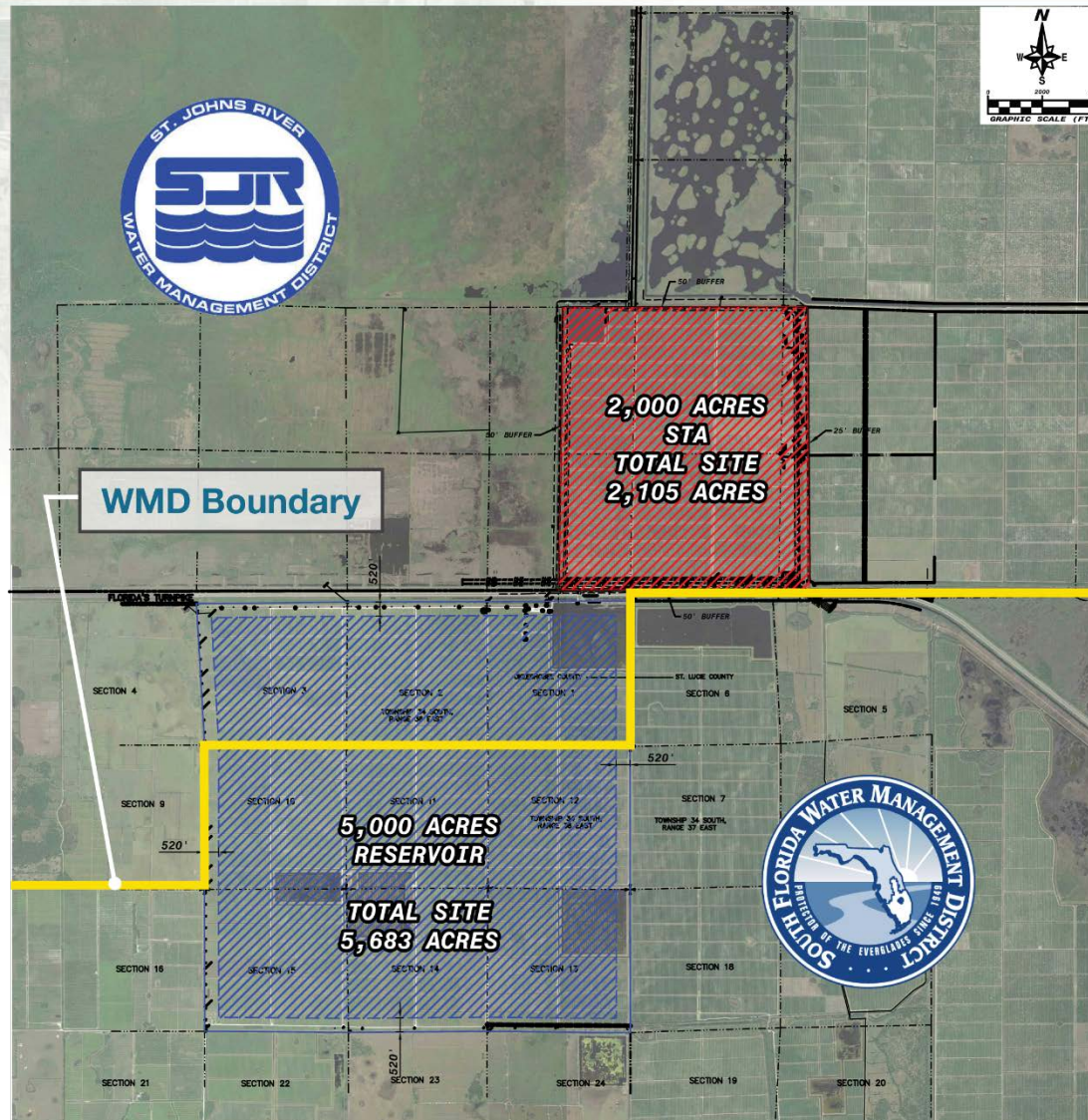


Water Flows out of STA
136 mgd (210 cfs)

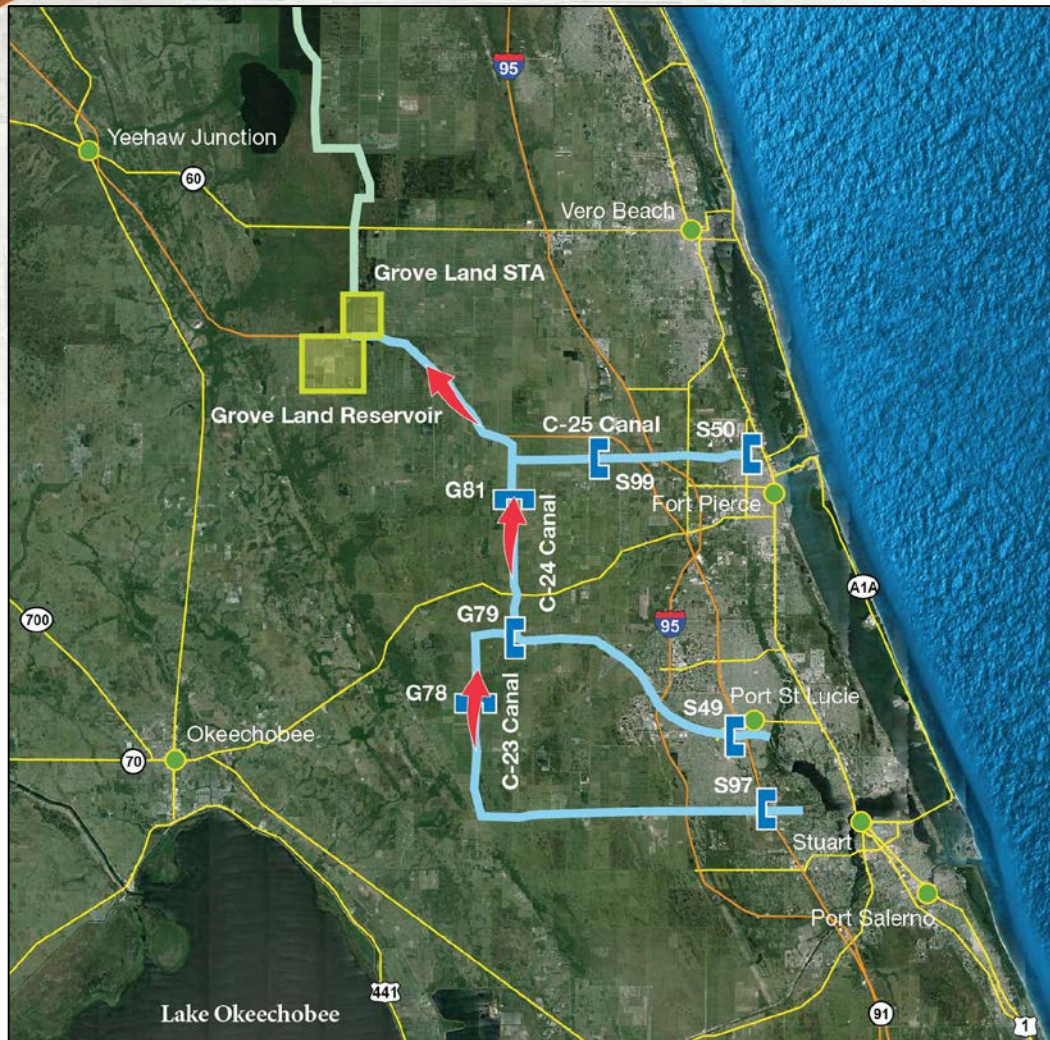
Options for “using” the water

1. Discharge treated surface water to St. Johns River for water supply, environment
2. Send water to utilities and other large water users
3. Store in aquifer for later use
4. Send water with lower nutrient concentrations back to estuaries during dry season

Regional benefit potential as Grove Land Reservoir in SFWMD linked to STA in SJRWMD



Grove Land Project offers great problem solving potential



- St. Lucie Estuary and Indian River Lagoon
 - Divert stormwater away from coastal estuaries
 - Reduce TP and TN loads
- Connect WMDs to improve flood control and ecosystem protection
- Protect natural resources by augmenting water supply and serving environmental needs
- Put in operation faster than CERP Reservoirs and STAs

Stormwater diversion from estuaries provided by Grove Land Project



Reduction in Stormwater Discharges to:	Acre-Feet of Reduction Per Year	Percent of Average Total Annual Discharges
Indian River Lagoon from C-25 Canal through S-99	80,500	55%
St. Lucie Estuary from C-24 Canal through S-49	50,500	36%
St. Lucie Estuary from C-23 Canal through S-97	24,100	18%
Total	155,100	37%

STA's front-end is floating aquatic vegetative tilling with traditional SAV at back-end

Simulated Outflow Total Phosphorus From the Grove Land STA (ppb)										
MGD of Water Treated	Inflow Parts per Billion of Total Phosphorus (TP) (ppb)									
	150	175	200	225	245	275	300	325	350	375
	Outflow Parts per Billion of TP (ppb) (a)									
50	11	13	14	16	17	19	21	22	24	26
74	19	22	25	28	30	34	38	41	45	49
100	27	32	37	42	46	52	58	64	70	76
130	37	43	50	57	63	72	80	89	97	106
136	39	45	53	60	66	76	84	93	102	112
150	43	50	58	67	74	85	94	104	114	125
170	48	57	66	76	84	96	107	118	129	141
180	51	60	70	80	88	101	113	124	137	149
194	54	64	75	86	95	109	121	133	146	159
200	56	66	77	88	97	111	124	137	150	163

(a) The red highlighted cells indicate the outflow TP concentrations that are greater than 80 ppb which is the St. Johns River WMD criteria for discharges to the Lower St. Johns River Basin watershed. The TMDL for the St. Lucie River and Estuary is 81 ppb of TP and 72 ppm of TN.

Range of Total Phosphorus and Total Nitrogen annual reductions to estuaries due to Project

Reduction in Nutrients to:	100% of Flow Returns to Estuaries in Dry Season		No Return Flow to Estuaries	
	Metric tons / Pounds			
	TP	TN	TP	TN
Indian River Lagoon from C-25 Canal through S-99 / S-50	17 / 37,500	34 / 75,000	24 / 52,900	152 / 335,160
St. Lucie Estuary from C-24 Canal through S-49	14 / 30,900	22 / 48,500	21 / 46,300	103 / 227,100
St. Lucie Estuary from C-23 Canal through S-97	7 / 15,500	11 / 24,300	10 / 22,000	48 / 105,800
Total	38 / 83,900	67 / 147,800	55 / 121,200	303 / 668,060

2. Financial and Economic Feasibility of Grove Land Project



Main objectives of this study included:

- Identifying project benefits and beneficiaries
- Conceptualizing infrastructure
- Estimating dollar value of benefits
- Estimating costs
- Calculating Project's Net Present Value for financial forecast scenarios
- Project cost-sharing among multiple beneficiaries results in economically feasible Project



Financial feasibility depends on values to utilities, WMDs, landowners, governments relative to costs

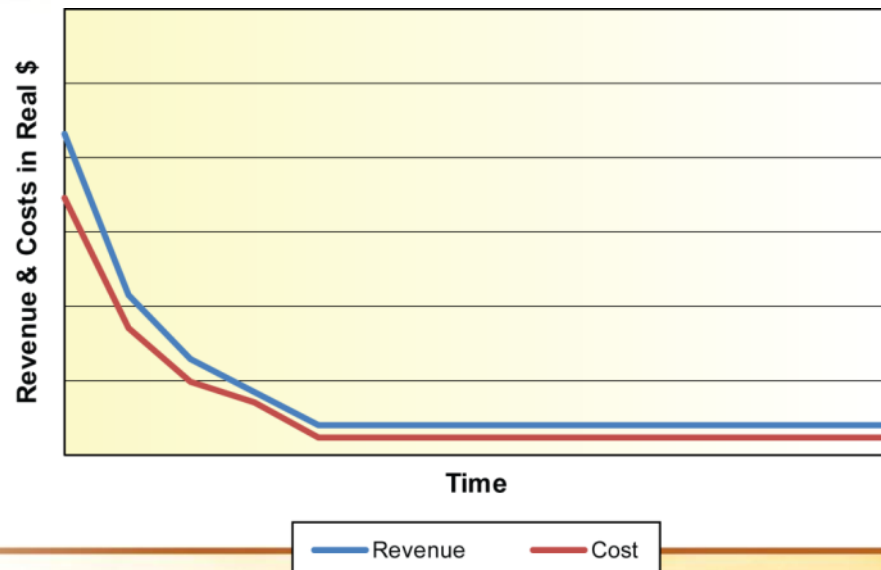
Project is economically feasible if:

**Present Value
of Benefits
to Customer**

$\geq$

**Present Value
of Costs to
Customer**

**Project is financially
feasible if revenue is
greater than cost:**



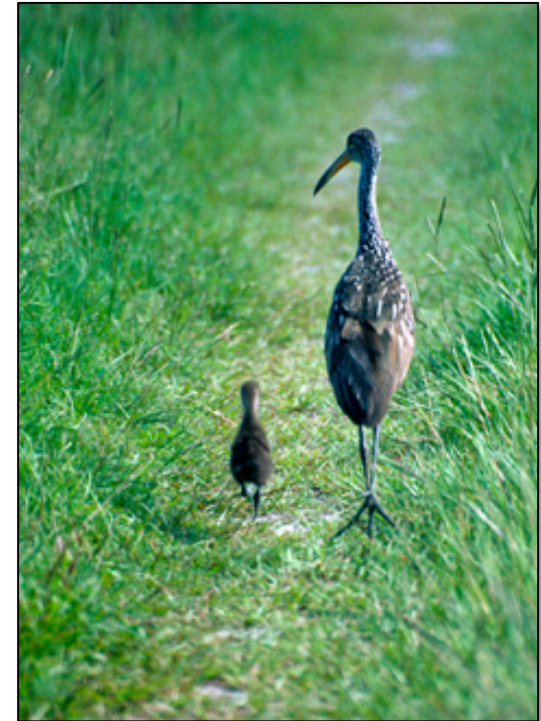
Two study phases provided feasibility results in cost-effective manner

Phase 1 (completed in October 2013) :

- High level, “desktop” evaluation.
- No fatal flaws found.
- Project has potential to be financially and economically feasible.

Phase 2 (draft report in review):

- More detailed conceptual analysis.
- Draft results – Project very likely to be economically and financially feasible.
- Project being evaluated by CFWI as potential AWS.
- Results subject to certain regulatory and permitting issues that need to be addressed in future studies.



3. Potential Benefits of Grove Land Project to St. Lucie River and Estuary BMAP Stakeholders



Lifecycle costs of conceptual Project estimated to assess financial feasibility

Estimated Cost of the Grove Land Reservoir and Stormwater Treatment Area, 2013 Dollars

Item	Capital, Finance and Risk Cost	Annual O&M Cost
Reservoir	\$320,750,000	\$865,000
Stormwater Treatment Area	\$68,228,000	\$671,000
Other Improvements:		
Increase Intake Water Source Capacity	\$29,110,000	\$128,000
Improvements at Upper St. Johns River Basin	\$10,385,000	\$230,000
Financing Cost	\$120,052,000	\$0
Contingency / Project Risk	\$128,542,000	\$0
Renewal and Replacement	\$0	\$3,129,000
Project Administration	\$0	\$744,000
Total Cost	\$677,067,000	\$5,767,000

Using total Project cost, nutrient reduction cost estimated at \$71 to \$242 per lb of TP or TN

Range of Estimated Project Cost per Pound of TP and TN Removed

Row No.	Item	Low End of Range	High End of Range
(1)	Total Annualized Project Cost (a)	\$56 million	\$56 million
(2)	Pounds of TP removed	121,200	83,900
(3)	Pounds of TN removed	668,060	147,800
(4)	Total pounds of TP and TN removed	789,400	231,525
(5) = (1) / (4)	Cost per pound of TP or TN Removed	\$71	\$242

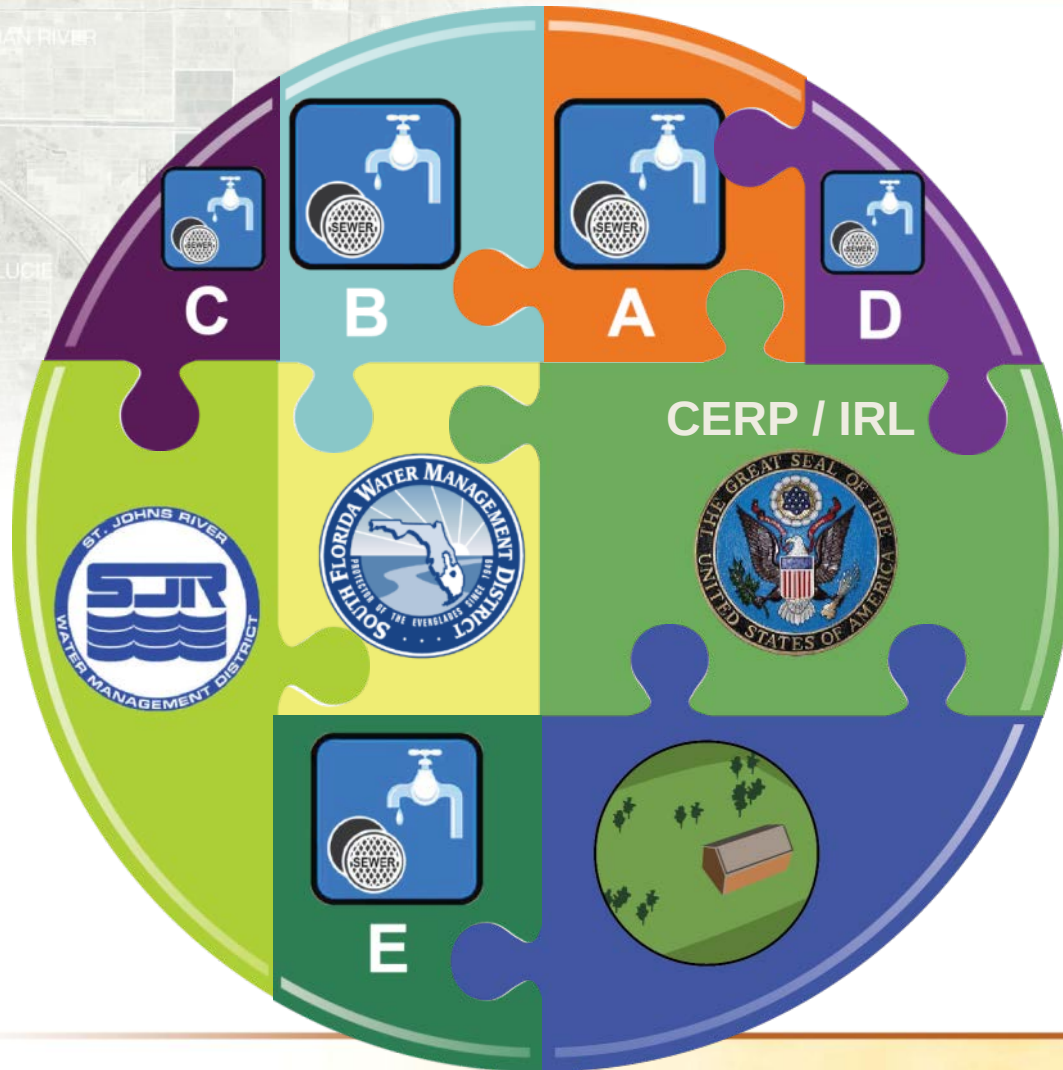
(a) Total annualized project cost includes capital, finance and risk costs amortized over 50 years at 7.18% annual discount rate, annual O&M cost and annual administration cost.

Local TP and TN reduction costs vary – median cost is \$240 per pound of TP or TN removed

Project Type (number of projects in St. Lucie and Martin counties)	Cost per Pound of TP or TN removed (a)	
	Low	High
Water Control Structures (3)	\$4	\$188
Wet detention (16)	\$21	\$3,148
Wetlands, chemical treatment (1)	\$34	
Stormwater retention (2)	\$48	\$68
Catch basin cleaning (1)	\$98	
Exfiltration trenches and swales (2)	\$145	\$560
Wet detention with alum injection (3)	\$126	\$862
Median cost of all 28 projects	\$240	

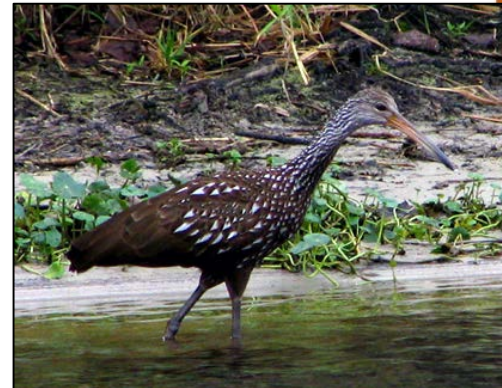
(a) The total annualized cost of each project was divided by the sum of the pounds of TP and TN removed. The annualized cost includes the initial cost annualized over 20 years at 3.75% annual real discount rate. The annual O&M costs were included where provided.

With cost-sharing, price of TP and TN removal will likely be significantly lower than \$240



Benefits of Grove Land Project to St. Lucie River and Estuary BMAP stakeholders

- In St. Lucie Estuary, Project would reduce:
 - TP loads by 46,000 to 68,000 pounds per year,
 - TN loads by 73,000 to 333,000 pounds per year.
 - Ranges depend on amount of Project water that returns to SLE during dry season.
 - Redistribution of water inflow from the 3 canals could change TP and TN reductions.
- Potential for achieving greatest reduction depends on final Project design and contracted customers.
- Project is cost-effective means to achieve water quality targets in St. Lucie River and Estuary.

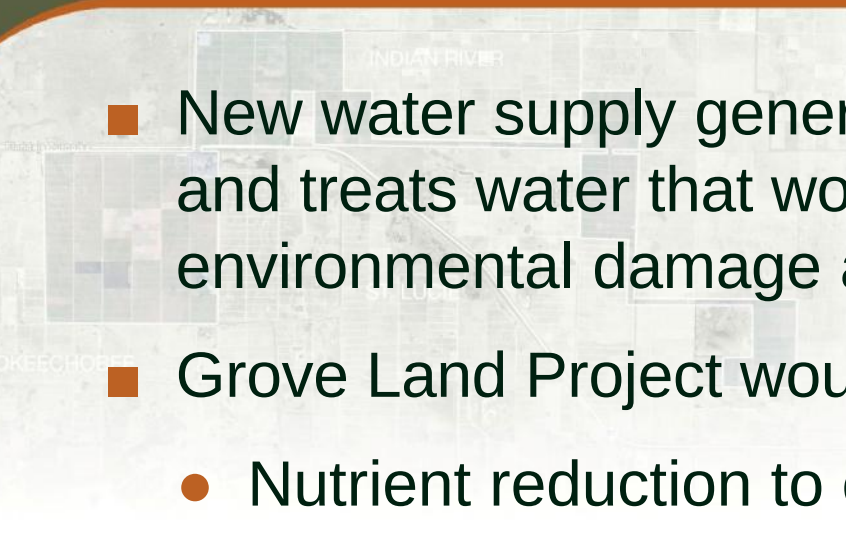


Stakeholders might reduce nutrient reduction costs by water quality trading with Project

- Water quality credit trading addressed in s. 403.067, F.S.
- FDEP may authorize credit trading for adopted BMAPs.
- Participation is voluntary.
- Process initiated with signed affidavit from buyer to FDEP.
- FDEP provides credit permit to buyer.
- FDEP may not participate in establishing credit prices.
- Payment for credit may be annual or lump sum.
- Sellers are responsible for achieving required load reductions.



In summary, Project's multiple benefits could provide cost-effective water resource solutions

- 
- New water supply generated as Grove Land Project stores and treats water that would otherwise flow to tide causing environmental damage and economic losses.
 - Grove Land Project would provide:
 - Nutrient reduction to estuaries;
 - Reduction in destructive stormwater discharges.
 - Conceptual Grove Land Project found to be economically and financially feasible.
 - Study identified issues to be further addressed as Project evaluation proceeds.