

# UPPER OCKLAWAHA BASIN FLOOD CONTROL SCREENING ANALYSIS

PRESENTATION  
TO  
HARRIS CHAIN OF LAKES RESTORATION COUNCIL

OCTOBER 4, 2019



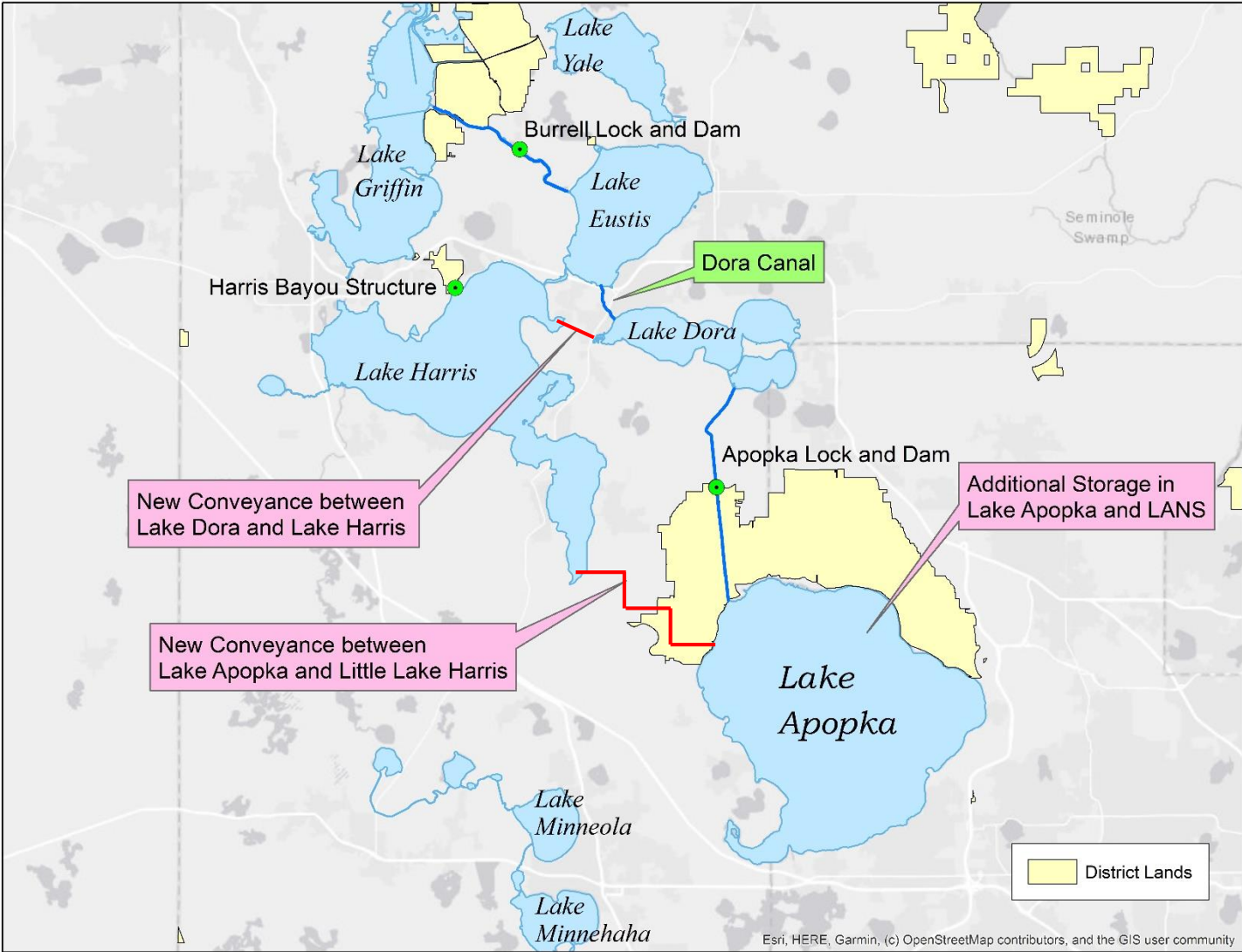
AMY P. WRIGHT, PE

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

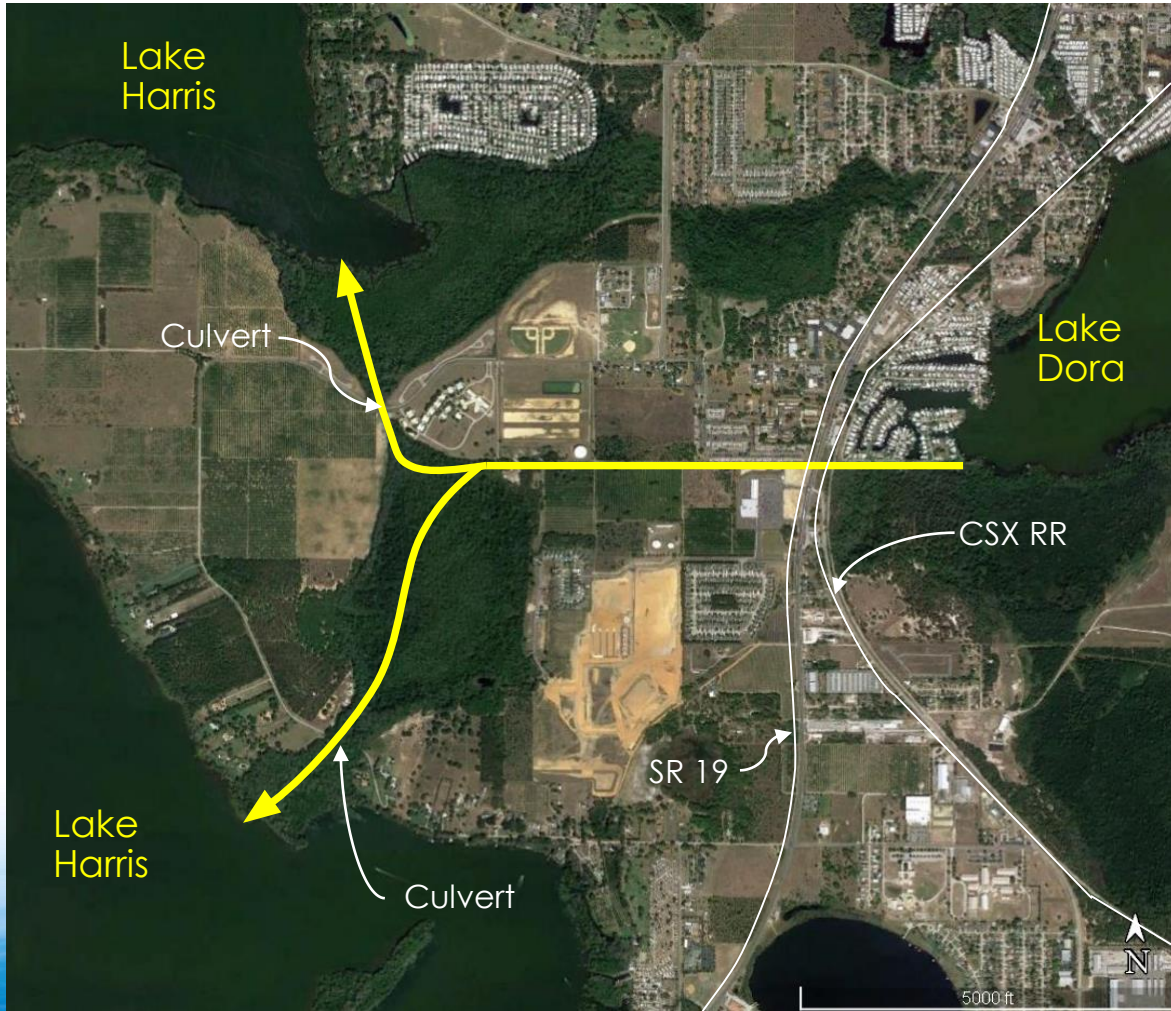
# BACKGROUND

- Existing conveyance systems UORB can accommodate a 10-year flood event
- The UORB system functions well under typical Florida rainfall events
- Hurricane Irma was between a 50-year and 100-year rainfall event
- Due to the amount of rain and wind, the Perimeter Lake Levee was compromised and the northeastern portion of the Lake Apopka North Shore (LANS) was flooded.
- Decision was made to investigate Flood Protection Level of Service

# BACKGROUND



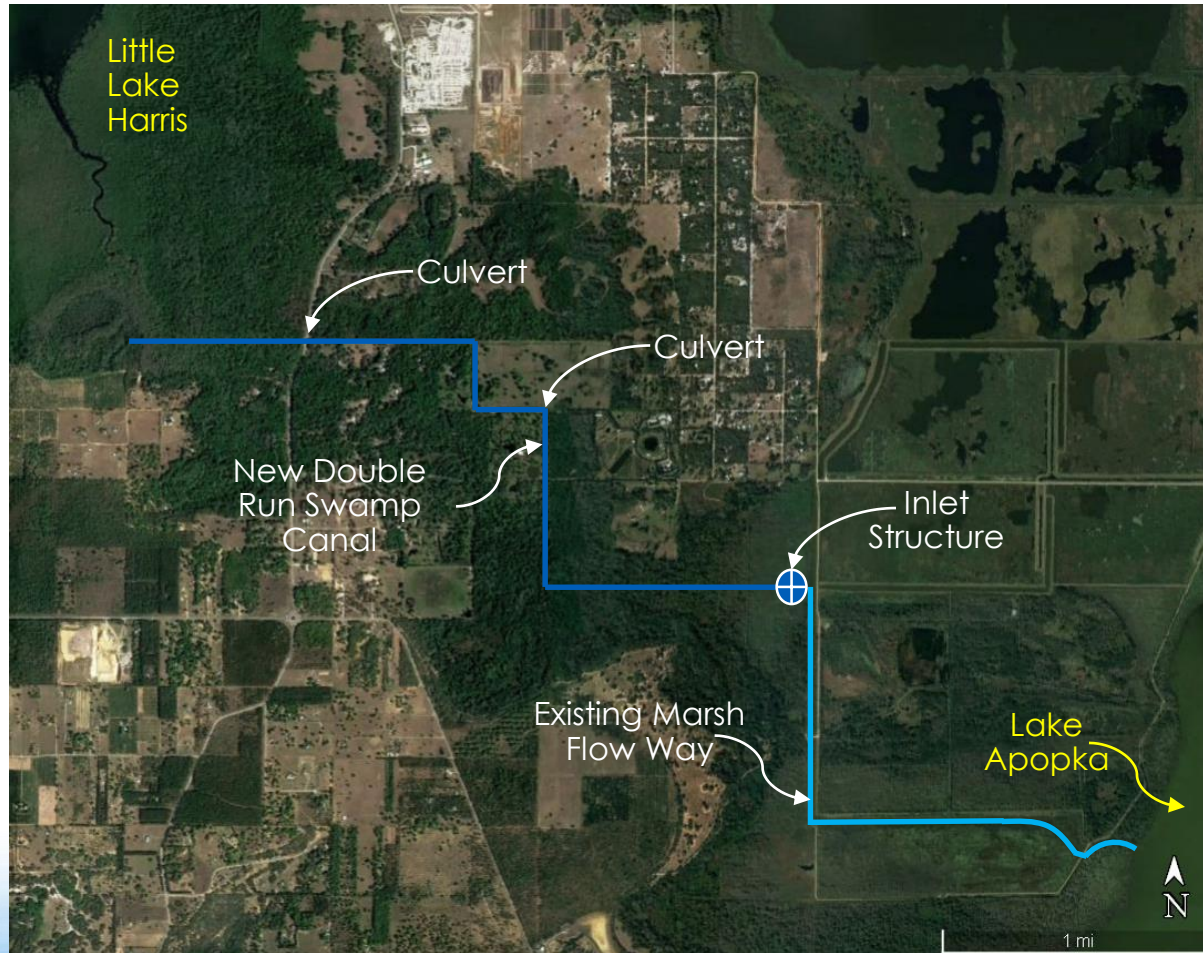
# LAKE DORA TO LAKE HARRIS



Determined not feasible for many reasons, some include:

- Large elevation change would large require pump station
- Would require crossing railroad tracks & SR 19
- Access issues for properties to be crossed
- Existing stormwater facilities, high value commercially zoned properties, existing dock/boardwalk at City of Tavares Nature Park

# LAKE APOPKA TO LITTLE LAKE HARRIS



- Use existing Marsh Flow Way + new canal
- 10-ft elevation difference; no pump station needed
- Flow path is possibly a historic drainage route from L. Apopka

## Potential issues:

- Construction of water quality treatment facility
- Two large box culverts needed
- Significant wetland impacts
- Real estate acquisition
- Local resident concerns

# LAKE APOPKA TO LITTLE LAKE HARRIS

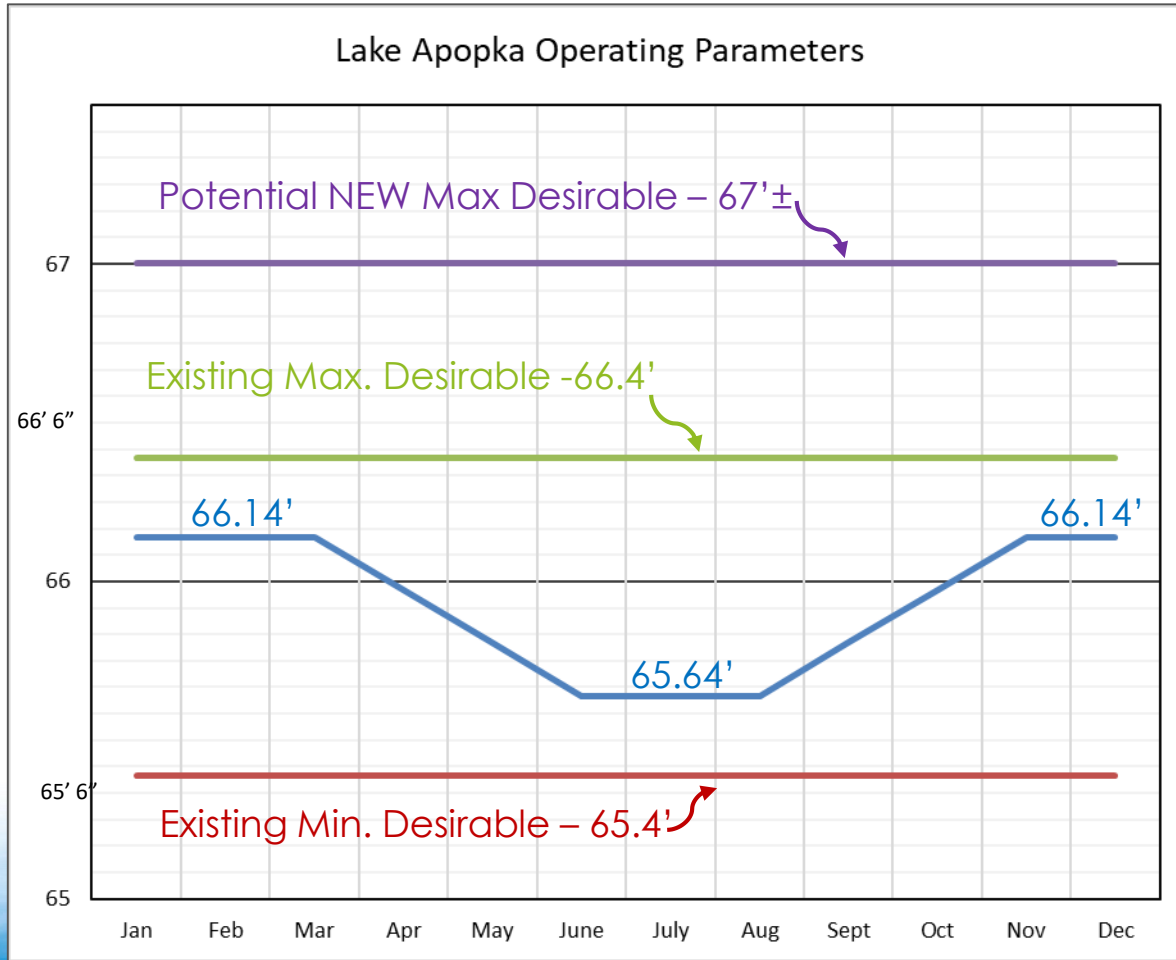
## COSTS (Based on 1,000 CFS)

- NOTE: This may not be the selected Level of Service / Design Storm
- Modeling – \$200,000
- Design – \$ 4,360,000 (based on 10% of construction cost)
- Construction – \$43,600,000
- Public Outreach – \$10,000
- Wetland Impacts – \$ 8,400,000
- Land Acquisition – \$ 230,000
- 30% Contingency - \$13,080,000 (on construction cost)

**TOTAL ESTIMATED COST - \$69,880,000**

(Would be additional costs for ongoing treatment - \$51/acre-ft or 0.00117 / ft<sup>3</sup>)

# STORAGE IN LAKE APOPKA / LANS

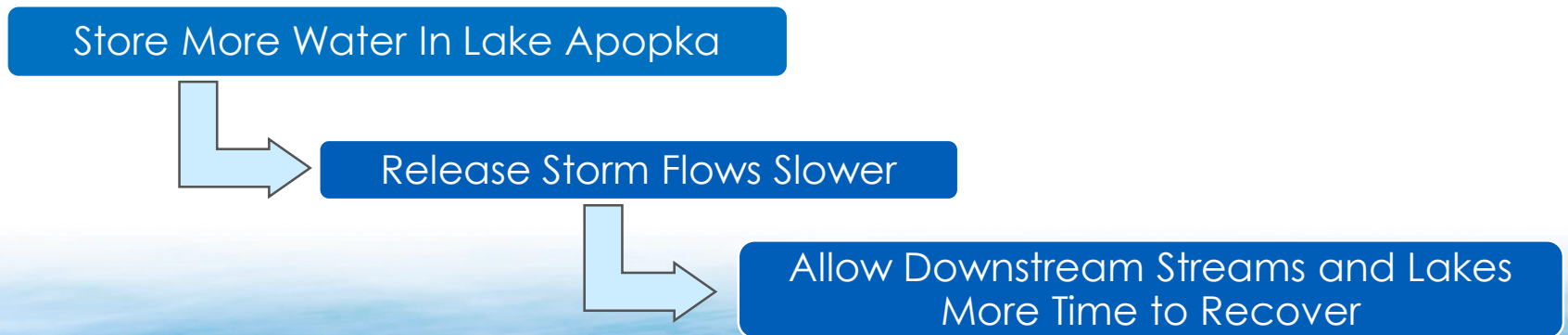


- During Hurricane Irma, L. Apopka reached Elev.  $\approx 67'$  apparently without flooding adjacent private properties
- Raising max desirable elev. to  $67'$  would add  $\approx 32,500$  ac-ft in storage to L. Apopka (not including LANS)
- All elevations in NAVD 88

# ANALYSIS OF STORAGE IN LAKE APOPKA / LANS

Advantages for Raising Max Desirable Elev. in L. Apopka:

- Flexibility in flood control operations
- Less flashy discharges benefits NuRF operation
- Environmental benefits (i.e. water quality)
- Low cost





# ANALYSIS OF STORAGE IN LAKE APOPKA / LANS

Within LANS...

- Maximum of 8,500 ac-ft of available storage in a wet year, equivalent to 3-inches of elevation on Lake Apopka
- Ten existing inlet structures currently
- We expect to use LANS for additional storage only in emergencies

# ANALYSIS OF STORAGE IN LAKE APOPKA / LANS

## COSTS

For Raising Max Desirable Elevation in L. Apopka:

- Modeling Costs
- Public Outreach

For Storing Floodwater on LANS

- Costs associated with pumping water off the North Shore

# SUMMARY

The District is interested in exploring **Increasing the Maximum Desirable Elevation in Lake Apopka.**

**We would be pleased to have your support for this endeavor.**