



Symposium on Flooding Adaptation

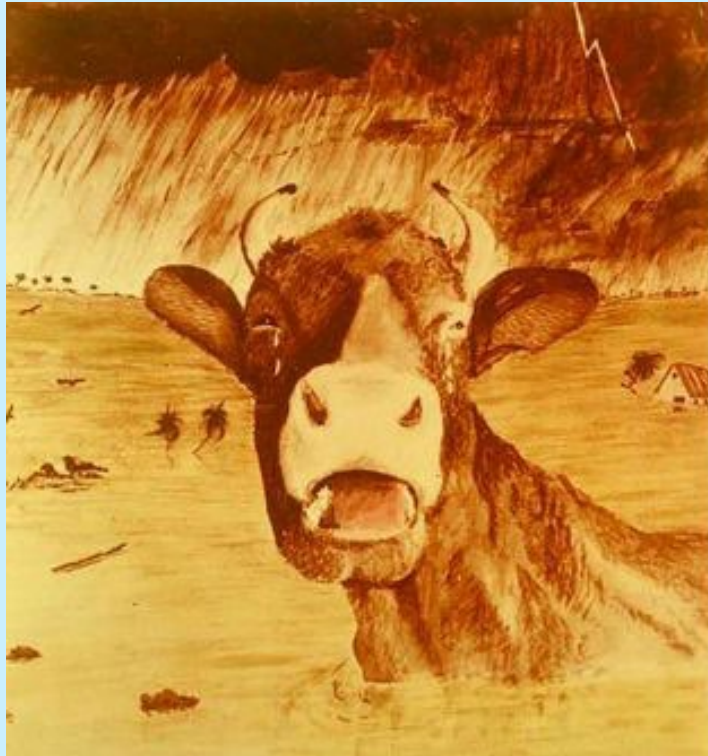
Wetland Evaluation Tool (WET) Driving Better Water Management in the Central Florida Water Initiative Area

Presented by Danielle Ivey and Paul Gray PhD

What caused the Crying Cow?

Florida has a long history of drainage that has made modern Florida possible.

Drainage also created undesirable results.



TENTATIVE
REPORT
OF
FLOOD
DAMAGE

FLORIDA
EVERGLADES
DRAINAGE
DISTRICT

1947

Historically we drained our way into solutions

Undesirable results of drainage include:

- Downstream flooding
- Loss of recharge
- Water shortages
- Nutrient amplification
- Habitat loss
- Ecosystem services loss (e.g., climate moderation, fragmentation)



More rain than normal

City of Lakeland

Rainfall Total in Inches

Source	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24
Hollingsworth					
Rain	11.7	10.6	16.85	12.2	11.3
Gauge					
COL					
Northside					
WW	14.06	9.36	10.4	6.47	13.14
Plat					
NWS	10.63	5.74	10.73	12.54	18.56
Monthly Normal Average					
(U.S. Climate Data)	7.01	7.52	7.32	6.34	2.28



Wetlands are the original water storage solution

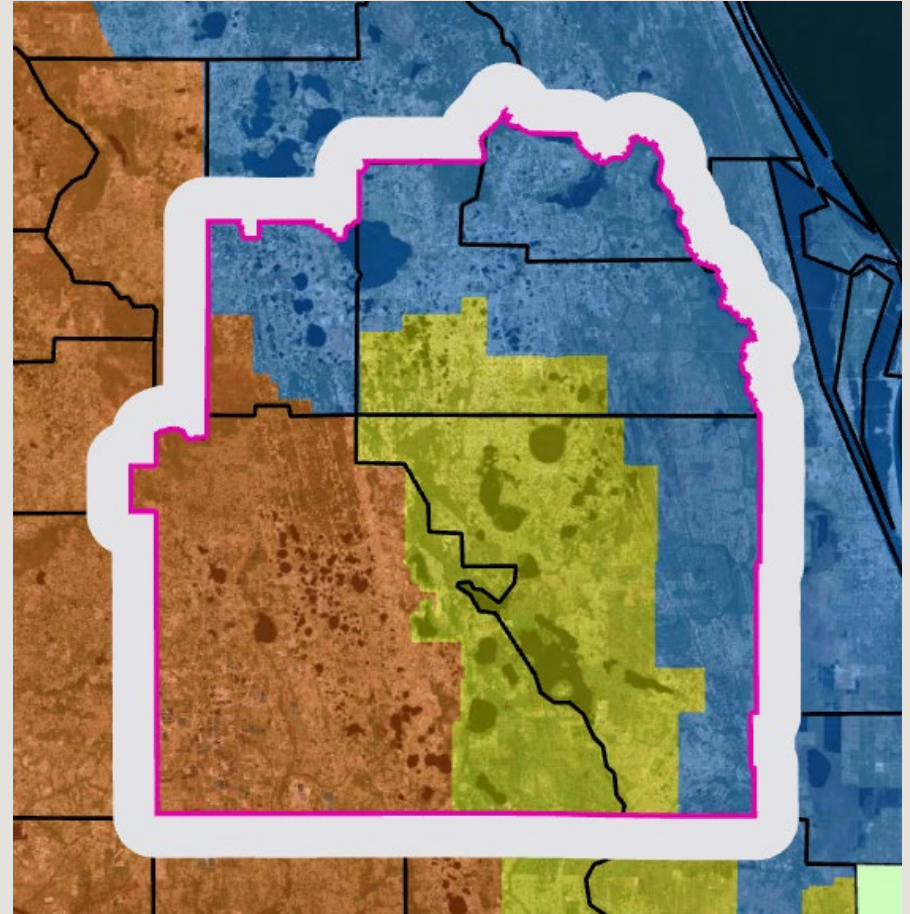
In the face of growth, where do we find stormwater solutions?

Audubon is addressing this with a GIS tool We are calling our **Wetland Evaluation Tool (WET)** that identifies suitable areas for stormwater storage, usually in historically drained wetlands, and identifying priority recharge areas.



This is where WET started

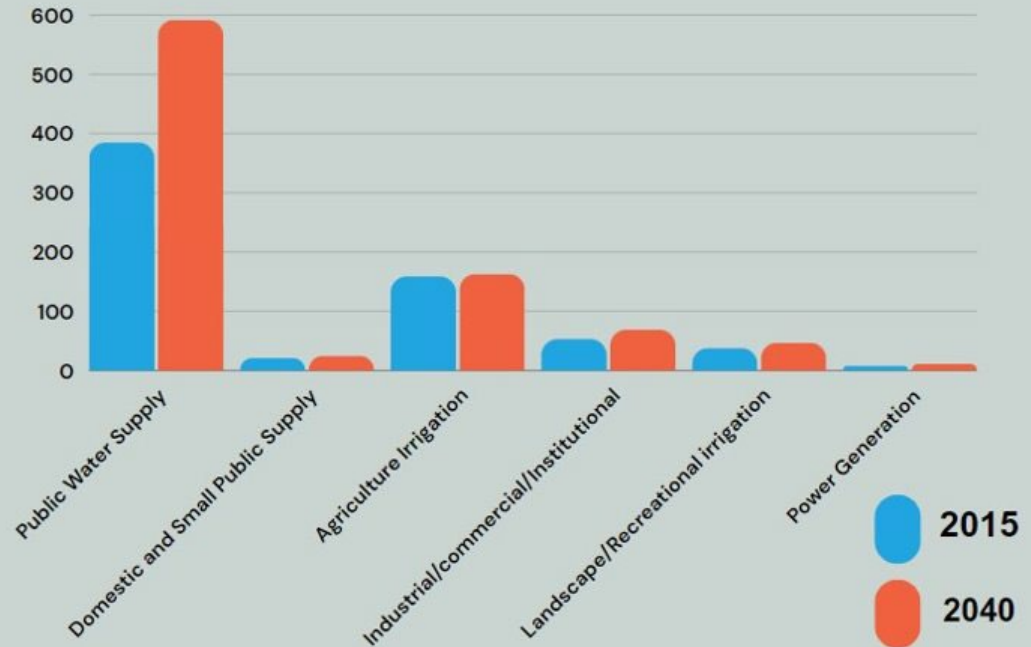
- Central Florida Water Initiative (CFWI)
- Collaborative water supply plan process with FDEP, SJRWMD, SFWMD, SWFWMD, FDACS, regional public water supply utilities, and other stakeholders.
- CFWI Planning Area includes Orange, Osceola, Polk, Seminole and southern Lake counties.



We're still growing

A report by the state Demographic Estimating Conference estimating between April 1, 2024 to April 2028, approximately 874 people a day will be moving to Florida.

PUBLIC WATER SUPPLY DEMANDS



Two Goals

Assist in finding areas that can be used for dispersed water management (DWM) and/or groundwater recharge.

- Using the tool to assist in finding green and flexible solutions for flooding stormwater issues in suitable areas.
- Working with partners to find funding and supporting the progression of projects.





How do you find surface storage?

Our consultant use the suitability modeler in Arc Pro to find areas 400 acres or greater. The 4 main datasets used are:

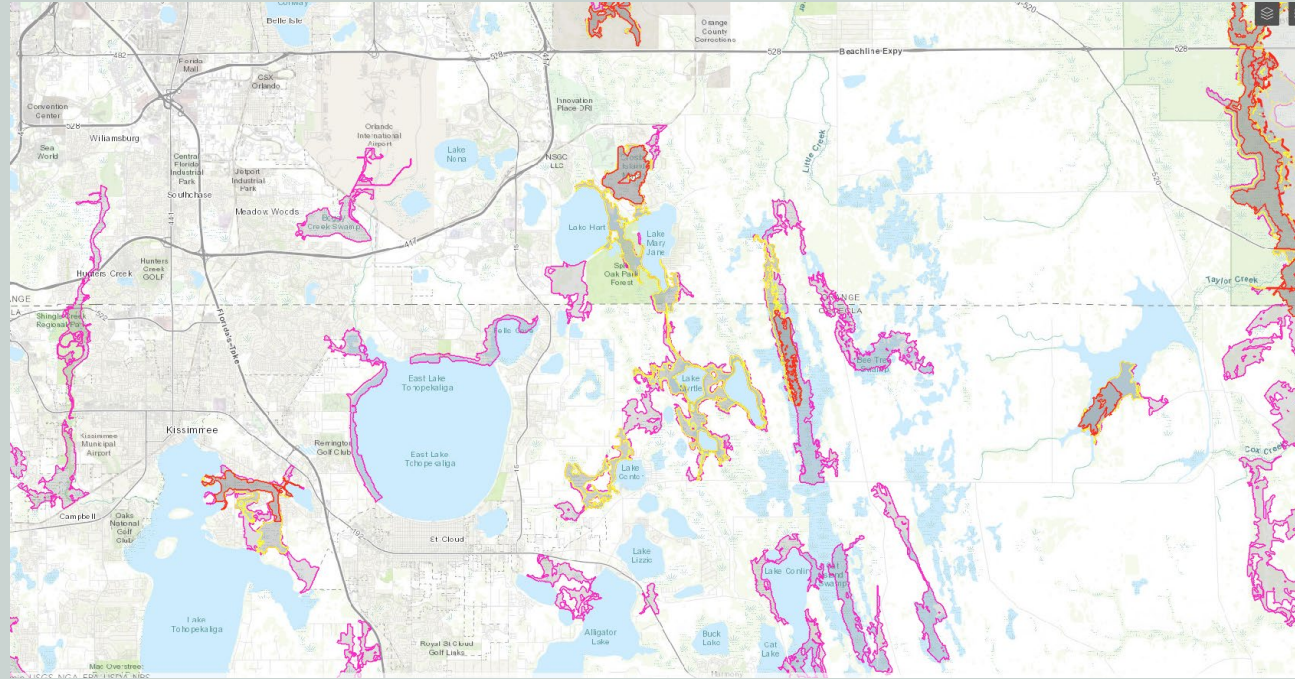
- ❖ **Land Use**
- ❖ **Soils**
- ❖ **Hydrography**
- ❖ **Topography**

Each site was scored based on suitability scores then placed into 3 categories (max 60 points):

Red Polygons	Priority 1	Scored 59-60
Yellow Polygons	Priority 2	Scored 55-60
Pink polygons	Priority 3	Scored 53-60

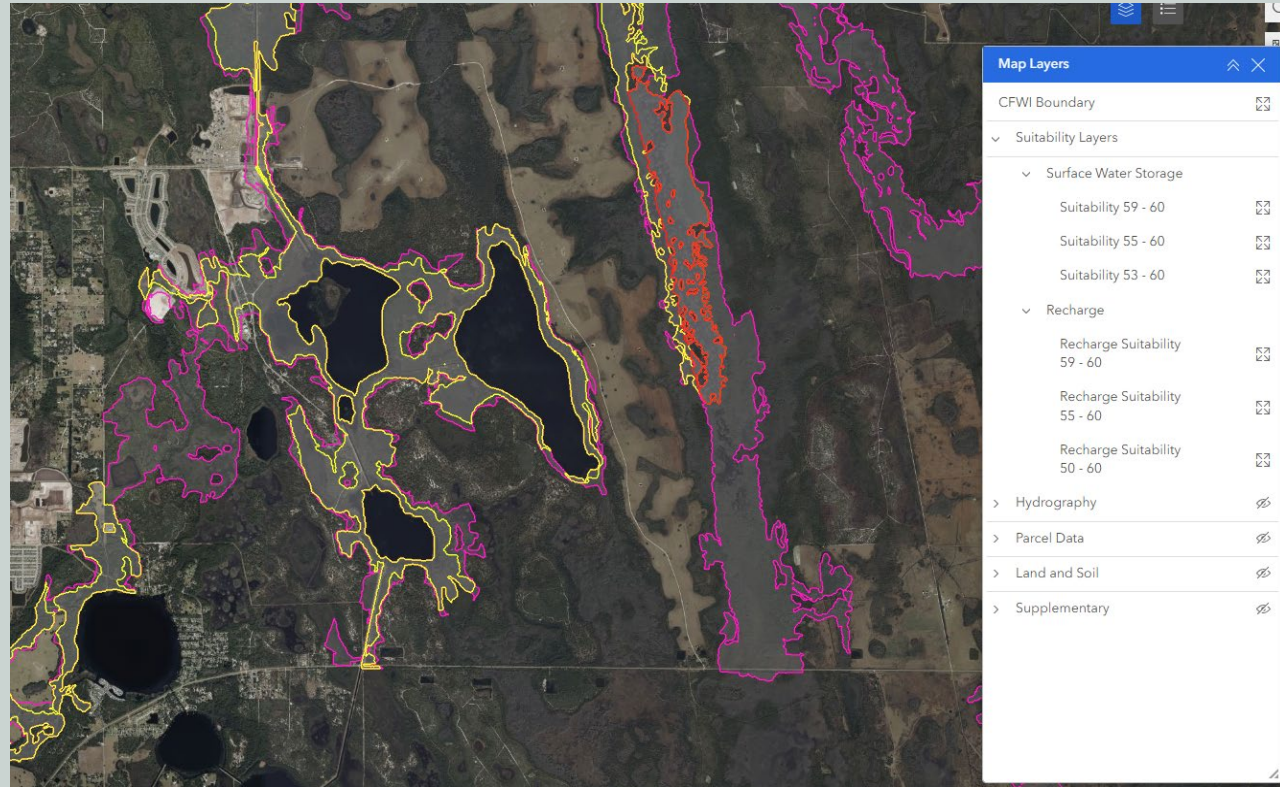
Interface

Designed to be user friendly and intuitive.

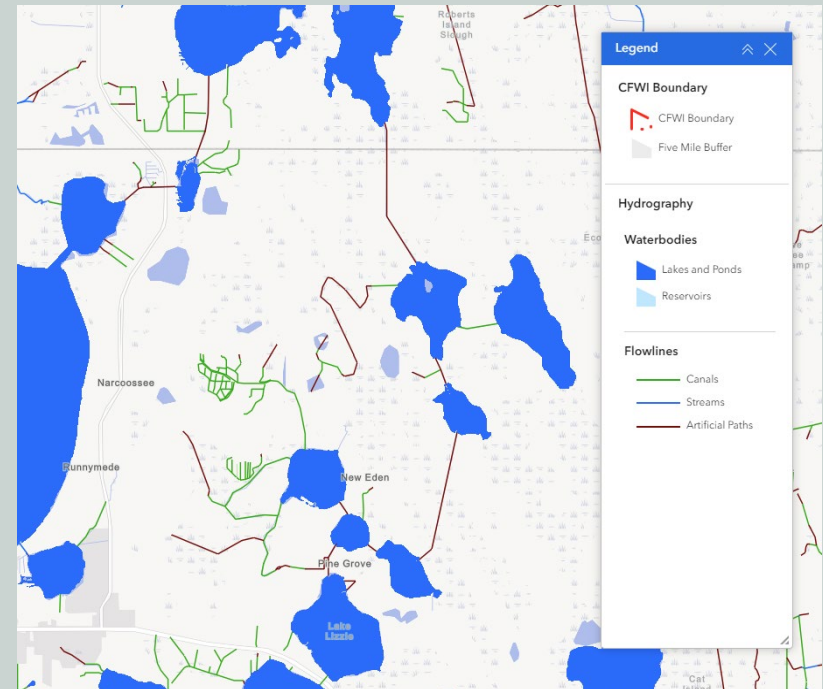
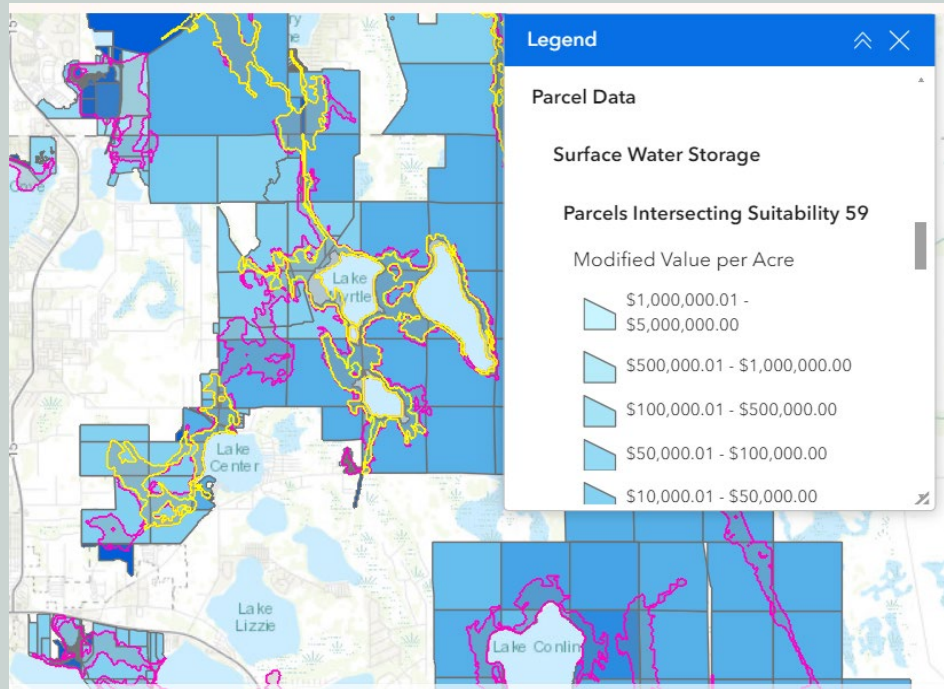


Information Layer

- Many of the polygons are nested within one another.
- The user can turn on layers as needed.
- Supplementary layer which allows for additional information: FWC priority layer, easements, Agency properties etc.

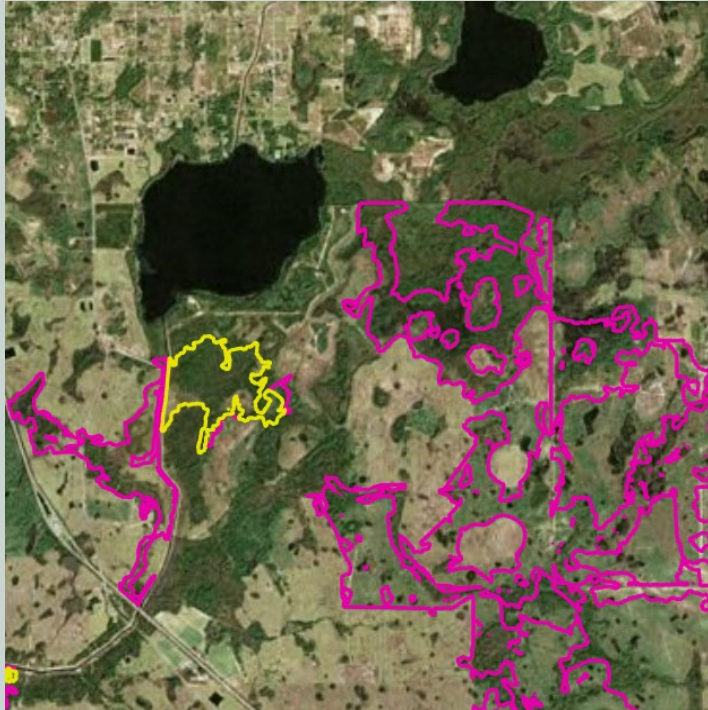


Parcels and Flowlines layers

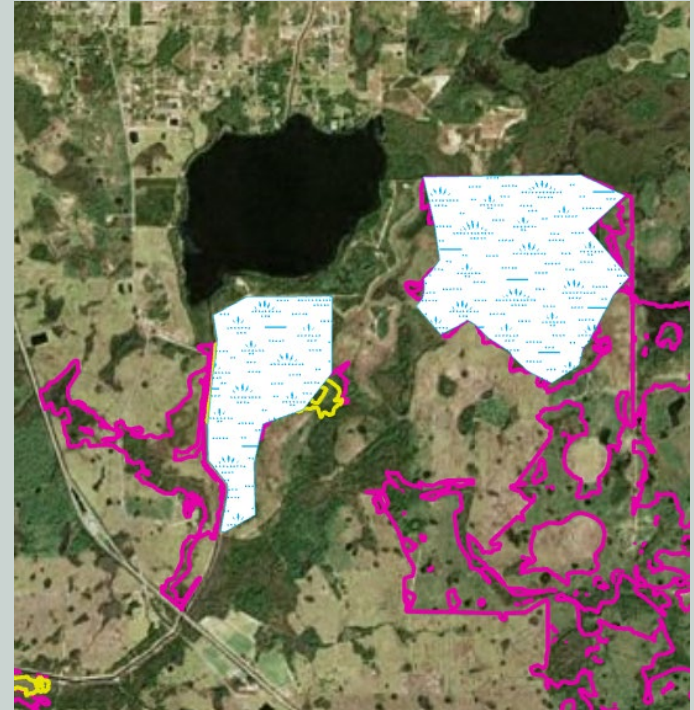


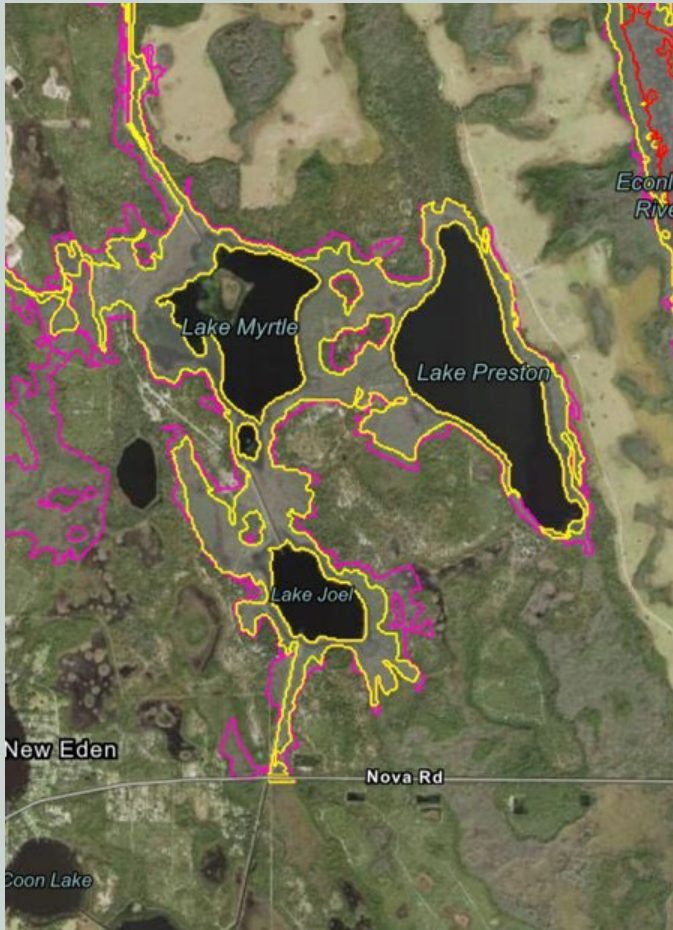
Proof Of Concept

WET Polygons within Doc Partin Ranch



Dispersed Water Project on Doc Partin Ranch through SFWMDs Payment for Environmental Services Program (PES) .

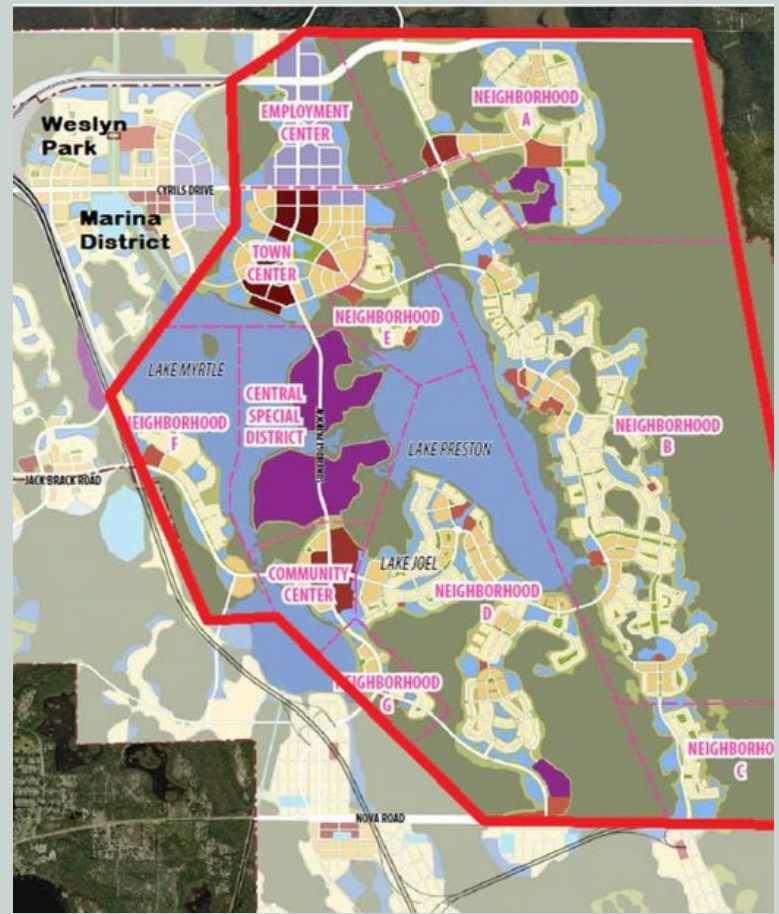


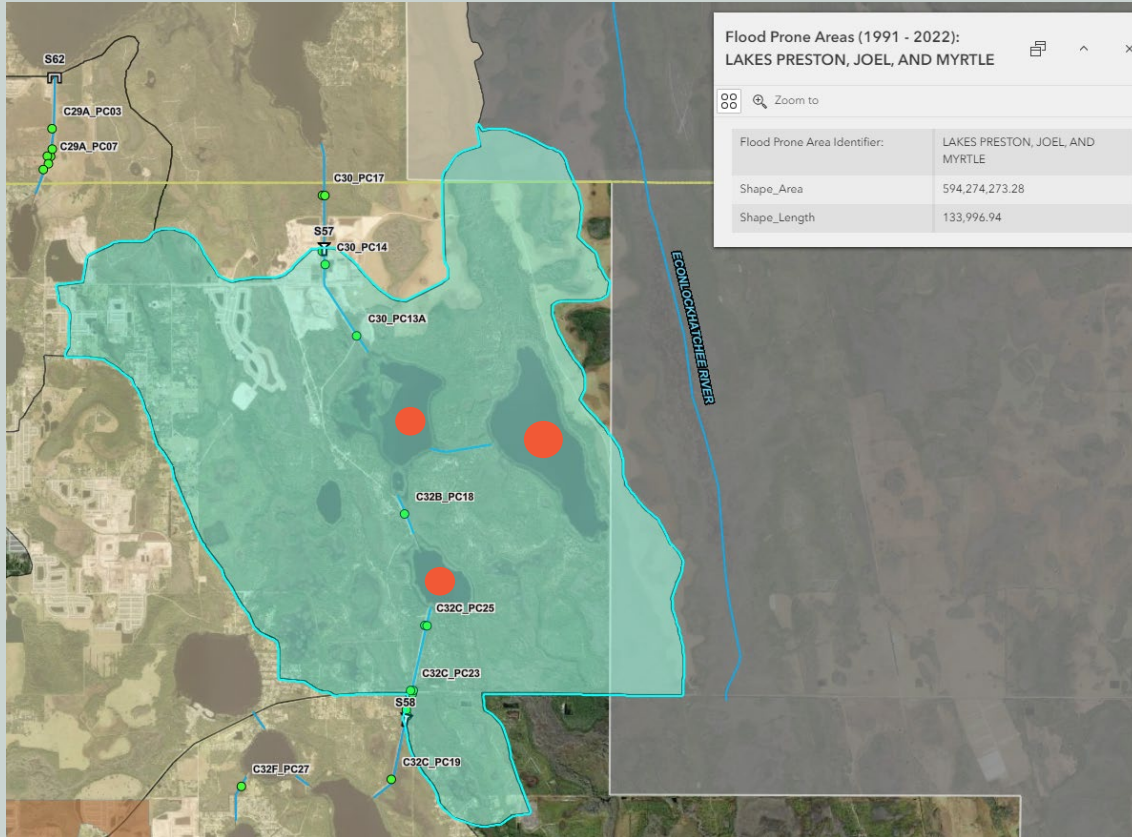


Where we build

Our tool picked up polygons in this areas where a housing development is permitted and being built.

This puts home in flood-prone areas and precludes future storage options.





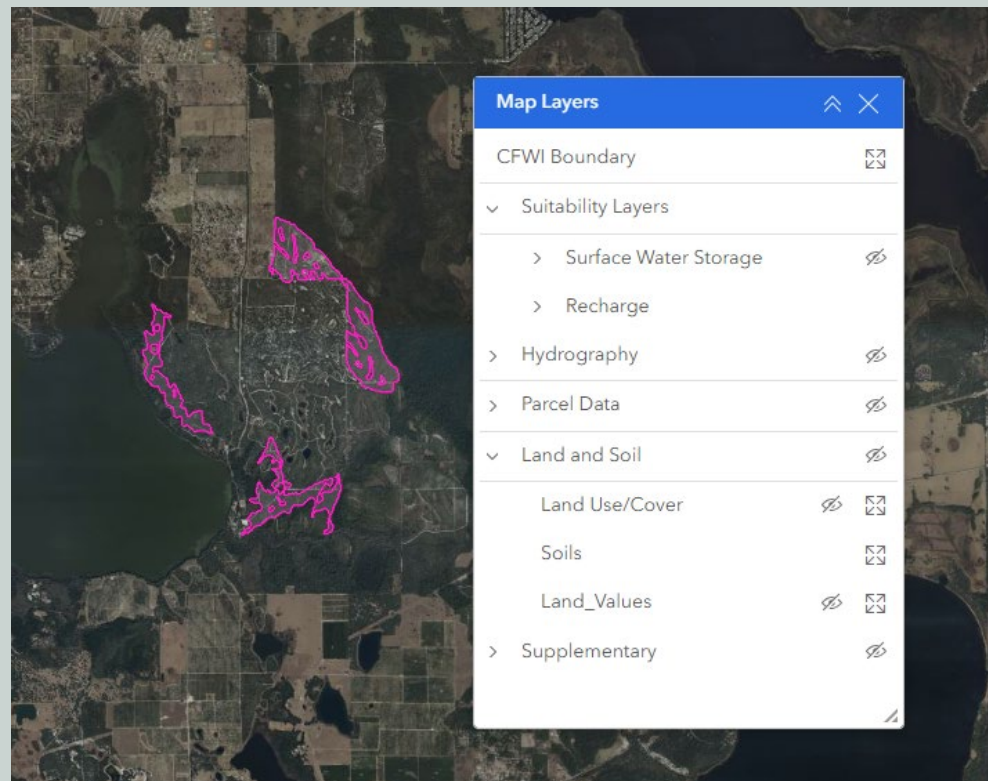
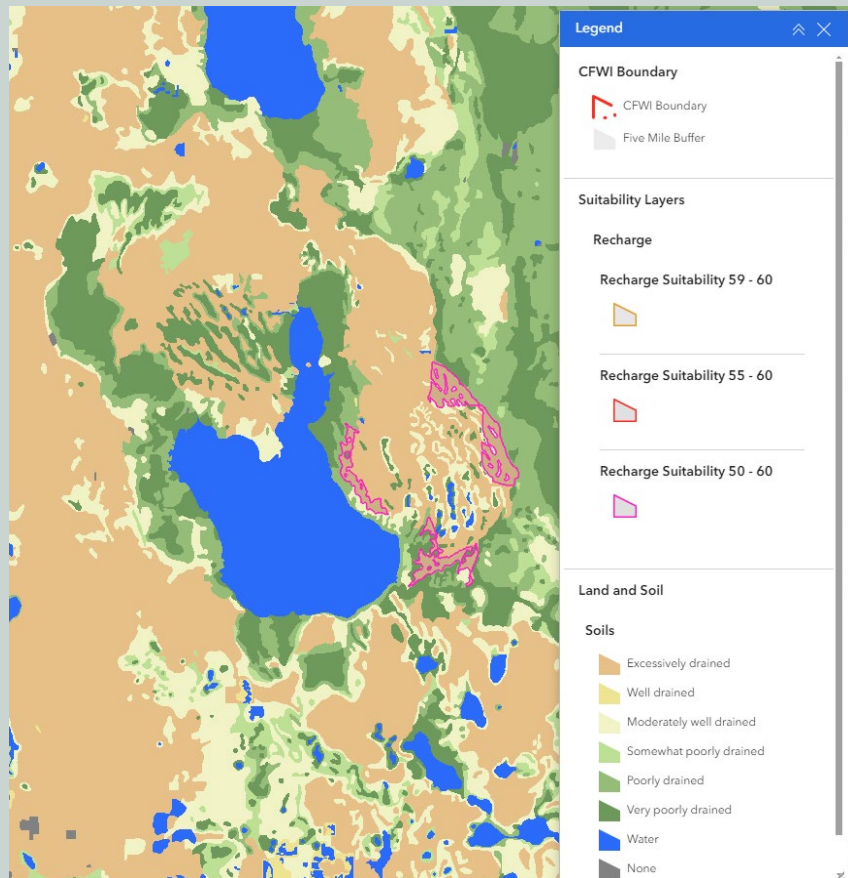
This is an area already known to flood. This is a clip from the SFWMD Flood Resiliency map.

There is a better way to minimize flooding when building.

Recharge

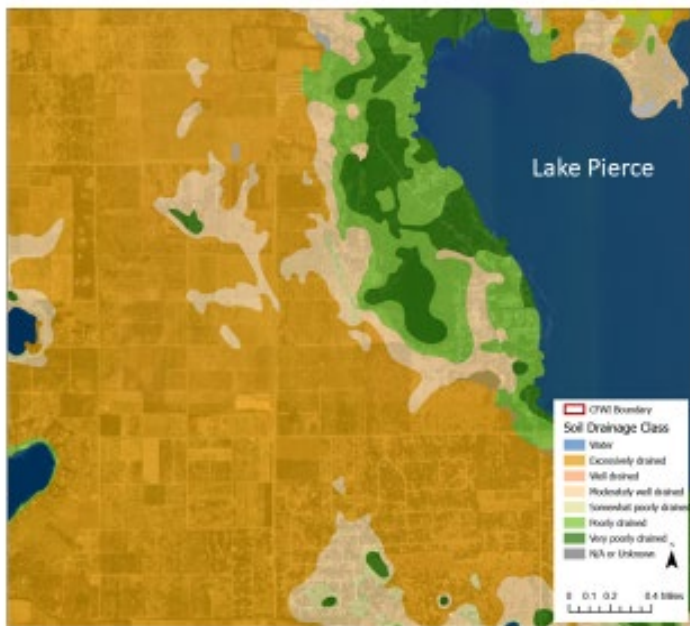
Our tool also picks up recharge areas that are 200 acres or larger. This area is the Yankee Lake water treatment plant in Seminole County. They have a Rapid Infiltration Basin (RIBS).



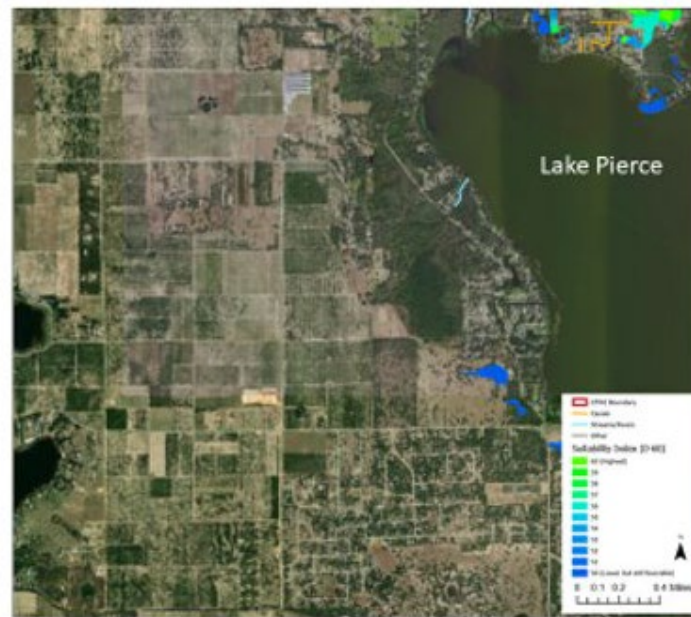


Aquifer Recharge

Recharge Suitability Near Lake Pierce



Recharge Suitability Near Lake Pierce

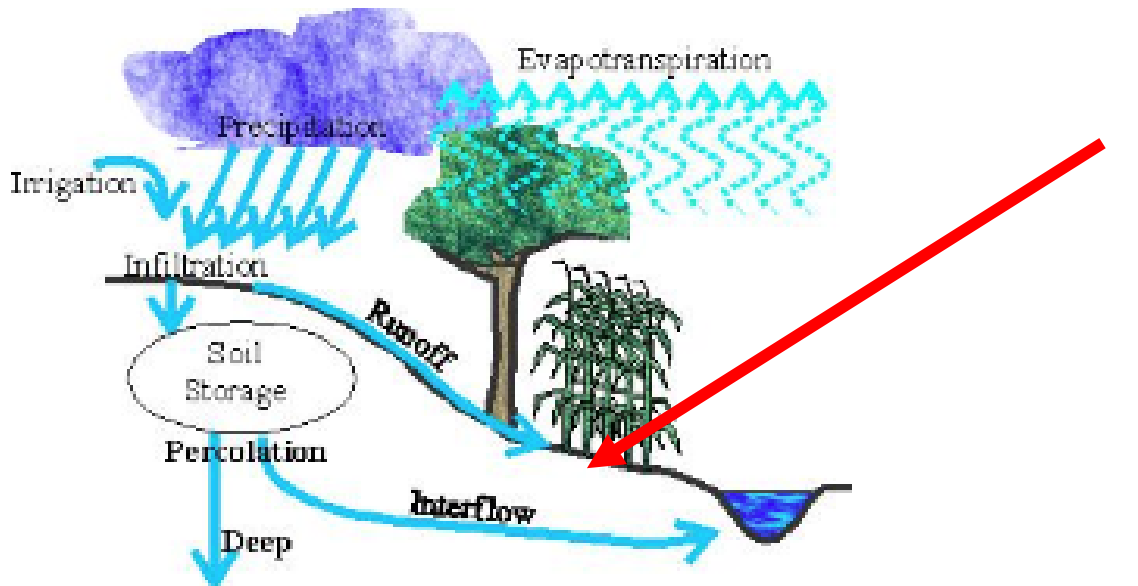


Stormwater design

Typical storm sewer systems can shunt water to the Lake where it will be lost to surface drainage and fail to recharge the aquifer



Recharge instead of loss



This is where swales could catch water to allow recharge into the aquifer.

Benefits:

- Recharge, not lost to lateral flow.
- Reduces runoff and improves water quality.

image source:

<http://www.css.cornell.edu/faculty/hmv1/watrshed/budget.htm>



Who are our partners?

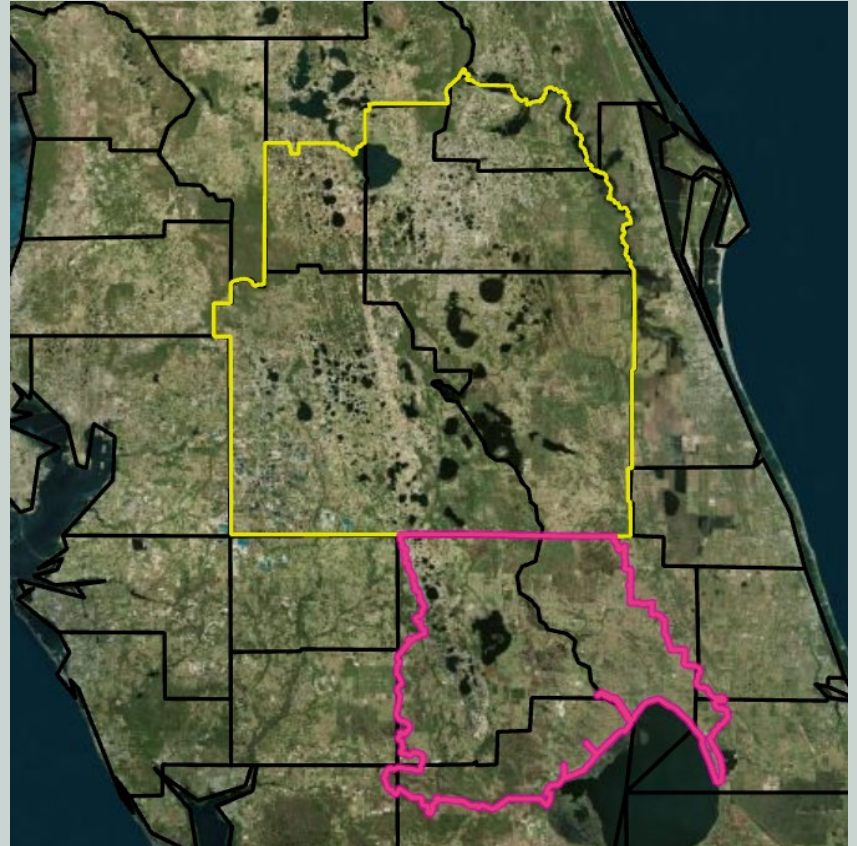
- **Private landowners**
- **Government agencies**
- **NGOs**
- **Public and private funders**
- **Cows and birds**

Next steps

Tool refinement underway:

- **Smaller polygons.**
- **Entire Okeechobee watershed**
- **Updated layers**

**More funding
opportunities and
partnerships.**





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Thank you!

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