



Basin Study Update

Board of County Commissioners (BCC) Meeting
January 13, 2026

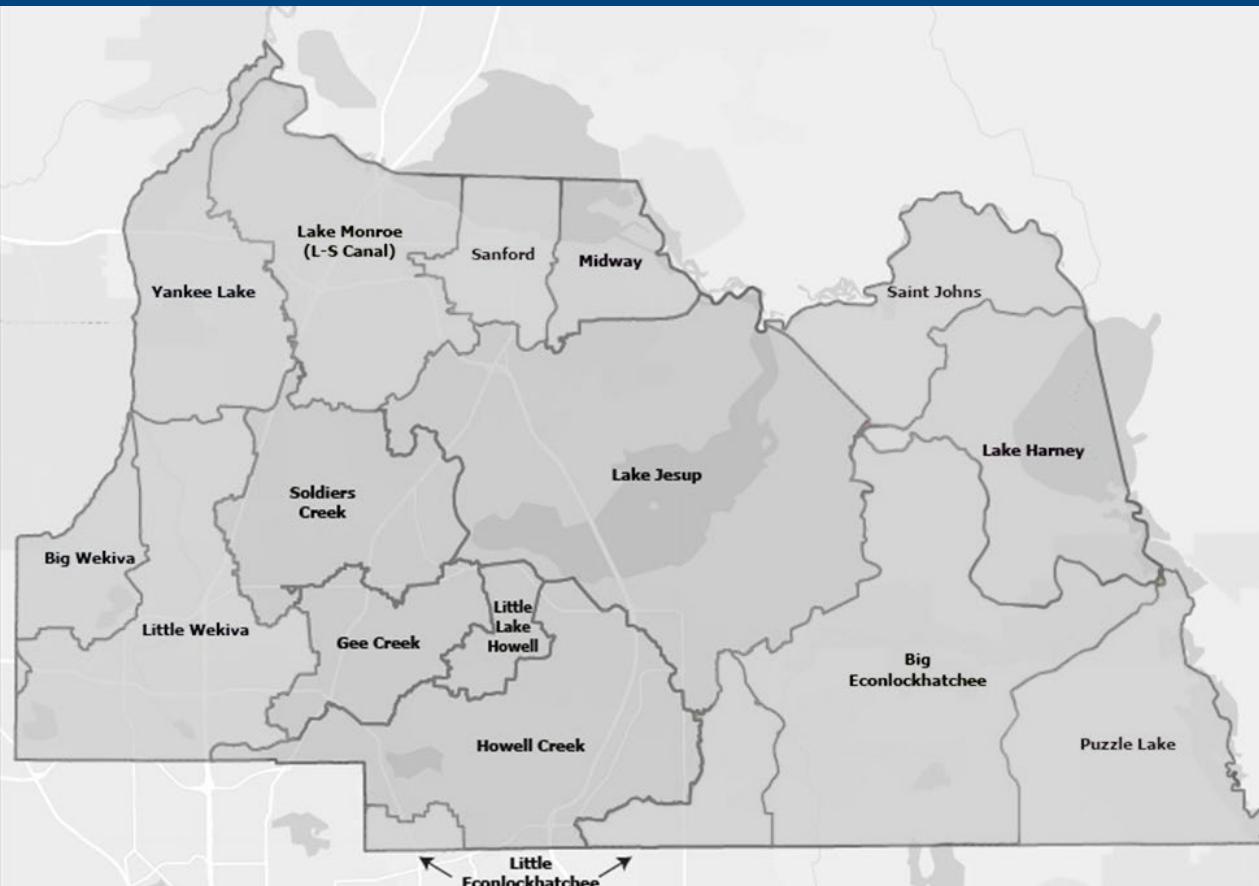
Purpose of Presentation

To present an update of the Lake Monroe (Lockhart-Smith Canal) Basin Study and the Big and Little Econlockhatchee Drainage Basins Study

Agenda

- Basin Studies Overview
- Basin Studies Timeline
- Lake Monroe (Lockhart-Smith Canal) Basin Study
- Big and Little Econlockhatchee Drainage Basins Study
- Next Steps
- Requested Action

Basin Studies Overview



- 16 Drainage Basins in Seminole County
- What is a Drainage Basin?
 - A drainage basin (also called a watershed) is an area of land where all the streams and rainfall drain into the same common body of water — such as a river, lake, or ocean.
 - It consists of surface water, lakes, streams, reservoirs, wetlands, and all underlying groundwater.
 - Basins are composed of smaller areas called Open Sub-Basins and Closed Sub-Basins
 - Open Sub-Basins connect to adjoining water bodies
 - Closed Sub-Basins have no connection to adjoining water bodies



Basin Studies Overview

- Why are Basins Studied?

- Studying a drainage basin provides essential insights for managing water resources. It helps ensure a reliable water supply, assess flood risks, develop effective flood control measures, and maintain water quality at safe and sustainable levels.

- How are Basins Studies Used?

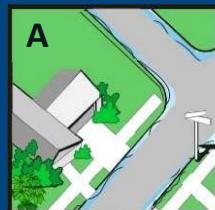




Basin Studies Overview

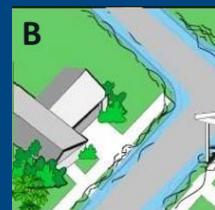
Key Terms

Level of Service (LOS)



“In the Gutter”

A – Flow contained within the storm drain systems or below edge of pavement (EOP)



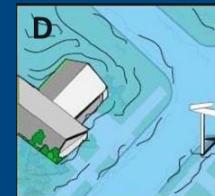
“In the Street”

B – Flow above road EOP and within right of way



“In Your Yard”

C – Flood above road EOP and/or outside of right of way



“In Your House”

D – Building structures flooding

Design Storm Events:

- 100-Year Storm: 1% chance of occurring in any given year
- 50-Year Storm: 2% chance of occurring in any given year
- 25-Year Storm: 4% chance of occurring in any given year
- 10-Year Storm: 10% chance of occurring in any given year

SM

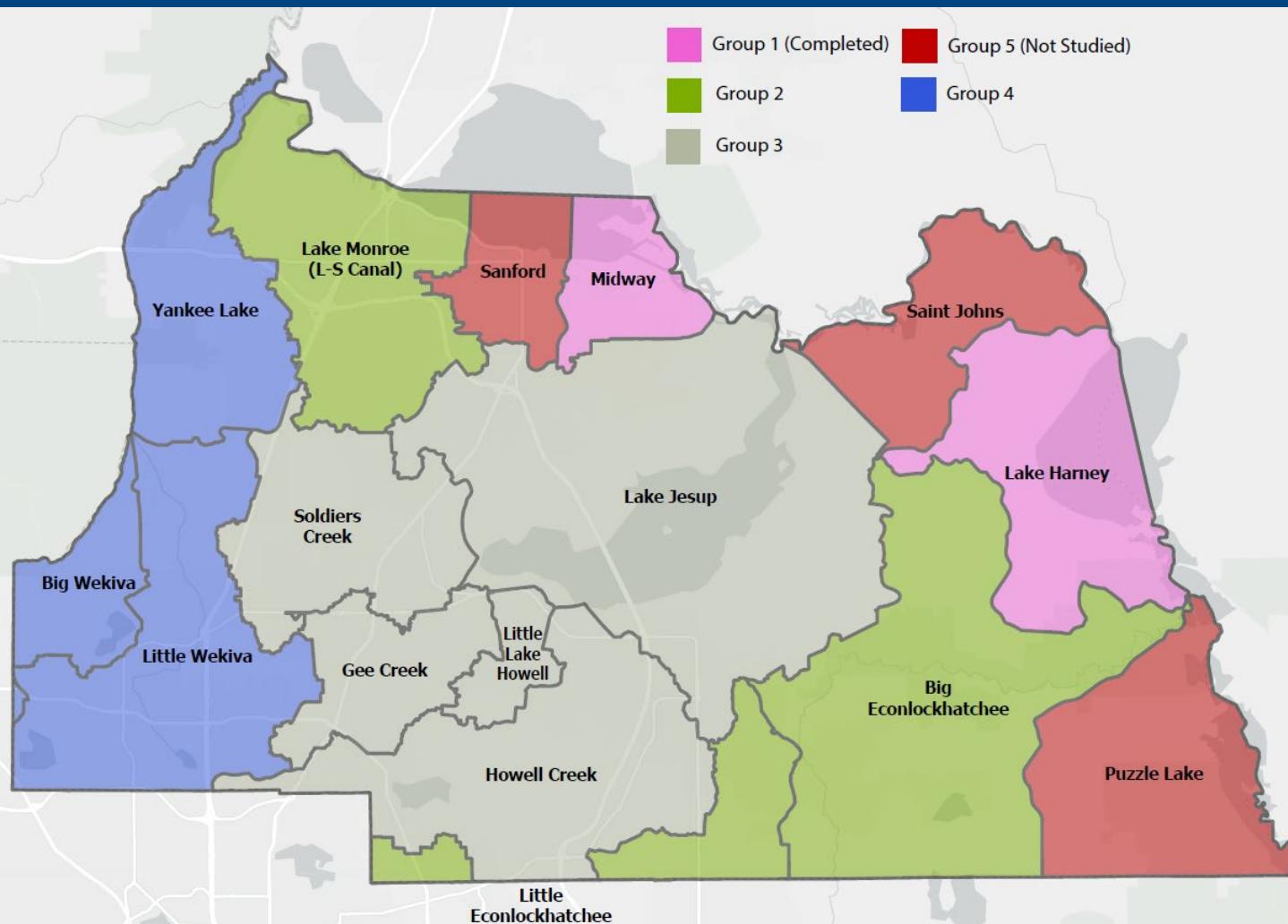


Basin Studies Overview

- **Project Ranking**
 - Projects ranked using County Stormwater Master Plan (SWMP) Evaluation criteria and scoring methodology

Seminole County SWMP Scoring Category	Weight Factor
(1) Flooding Protection	35%
(2) Water Quality	25%
(3) Operation and Maintenance (O&M)	5%
(4) Ease of Implementation	15%
(5) Alternative Funding Opportunity	10%
(6) Potential Benefits from Water Augmentation	5%
(7) Community Enhancement	5%
Total Score	100%

Basin Studies Overview



Approach

- 13 out of 16 basins are being studied
- Divided into five groups in a “Big Bang Approach” to update basin studies
- Began updating studies in 2019

Basin Studies Timeline

Dates	Activities
2019-2025	<ul style="list-style-type: none">• Update Basin Studies
2019-2025	<ul style="list-style-type: none">• Held Public Meetings• Incorporated Public Comments
2025-2026 Board Authorization	<ul style="list-style-type: none">• BCC Meeting – Dec. 09, 2025 (East County Basin Studies)• BCC Meeting – Jan. 13, 2026 (Lake Monroe / Big and Little Econlockhatchee)• BCC Meeting – Jan. 27, 2026 (Yankee Lake, Big Wekiva, Little Wekiva)



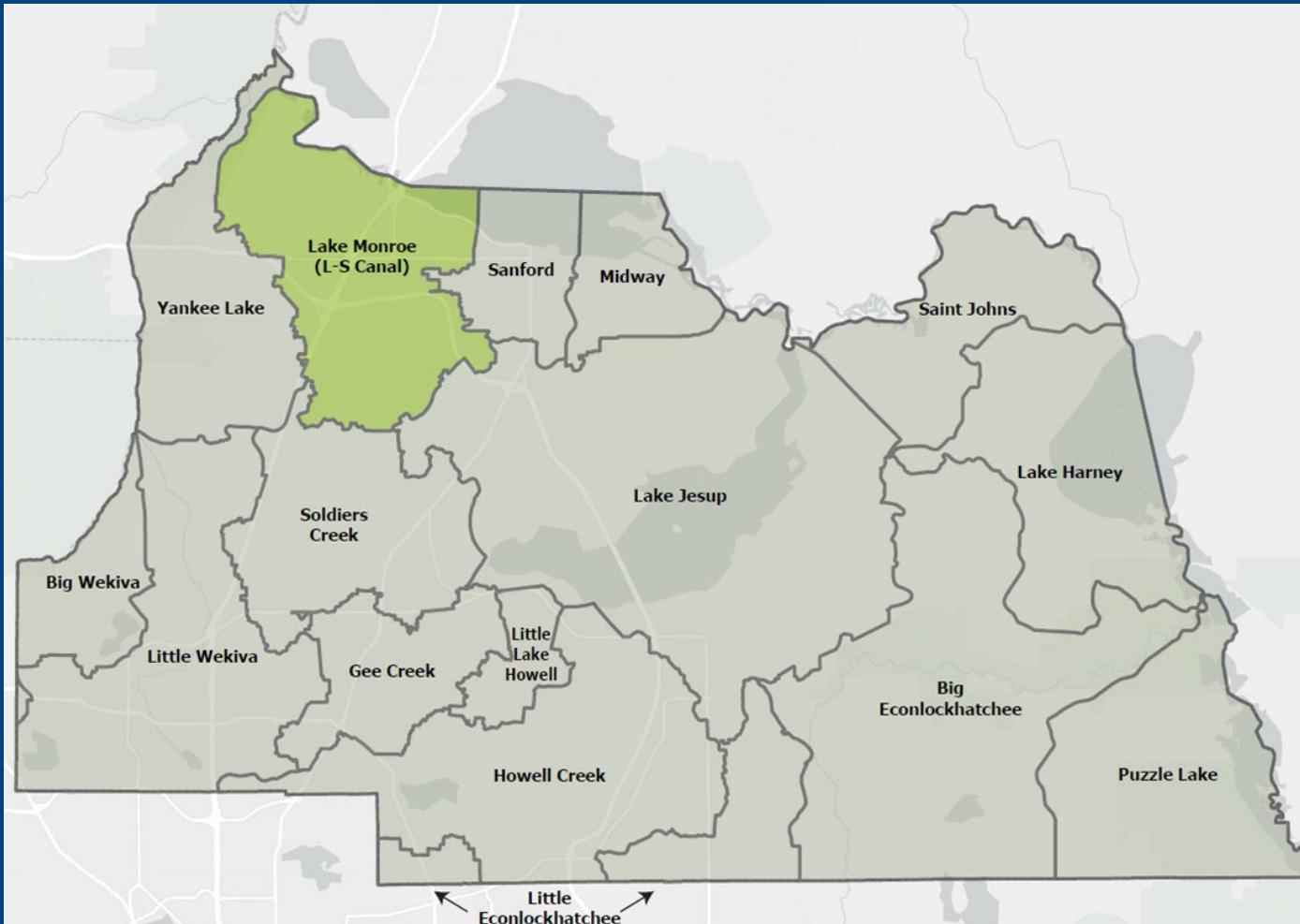
Lake Monroe (Lockhart-Smith Canal) Basin Study

January 13, 2026

SM



Lake Monroe Basin



Lake Monroe Basin:

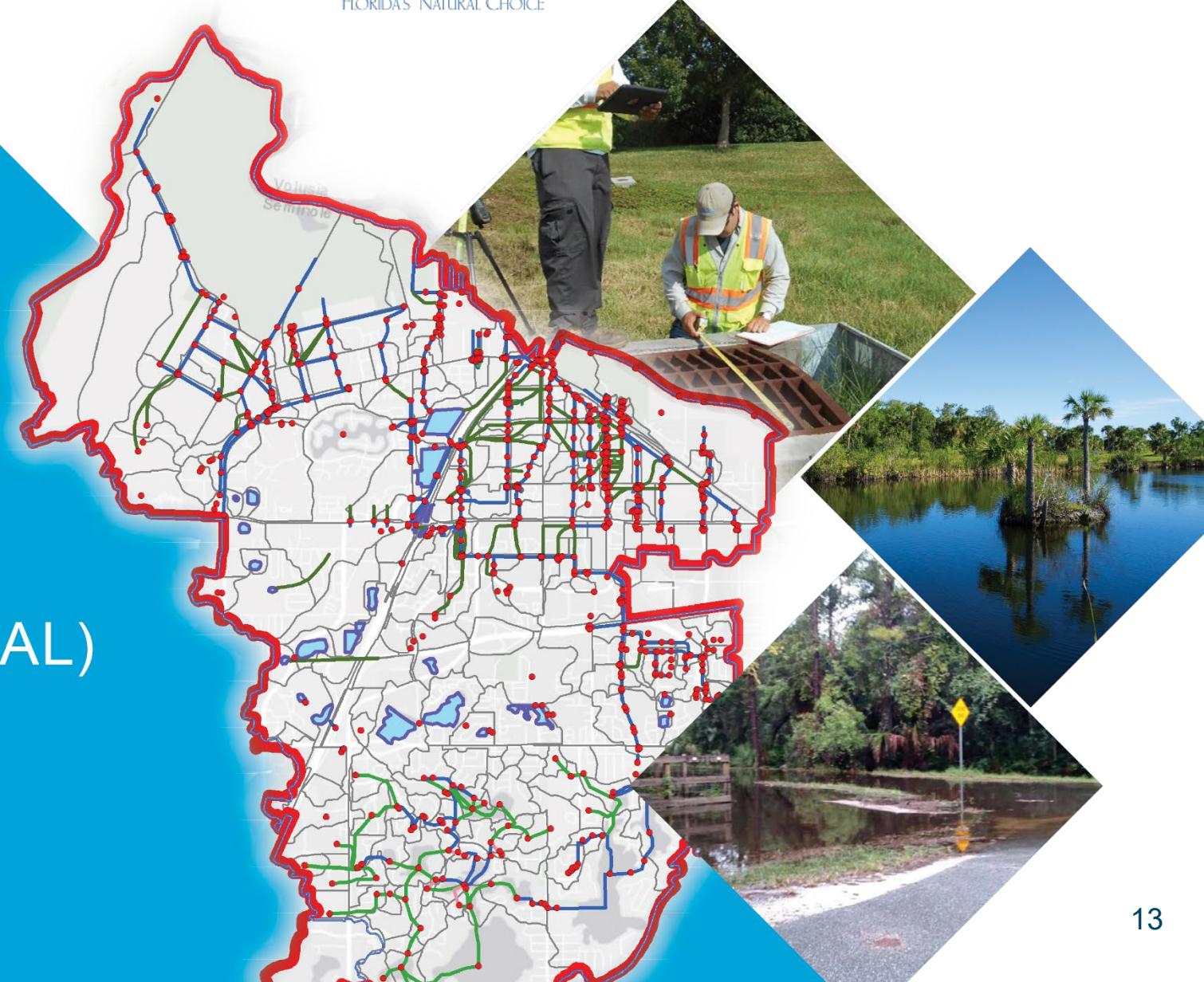
- 24.9 square miles
- Cities of Sanford and Lake Mary
- Basin Study 100% Complete
- Total of 15 Project Concepts
- Total 1,036 Sub-Basins
 - 136 Closed Sub-Basins

Lake Monroe Basin Project History

Dates	Activities
2021	<ul style="list-style-type: none"> • Basin Study Commenced • Public Meeting #1 • Basin Data Collection Complete
2022	<ul style="list-style-type: none"> • Basin Model Development Complete • Public Meeting #2
2023	<ul style="list-style-type: none"> • Initial BCC Meeting • Public Meeting #3 • LOS Alternative Analysis • Submitted Draft Basin Study and CIP Reports
2025	<ul style="list-style-type: none"> • Submitted Final Draft Reports
2026	<ul style="list-style-type: none"> • Final BCC Meeting – Jan. 13, 2026

Presentation for
**LAKE MONROE
(LOCKHART-SMITH CANAL)
BASIN STUDY**

Board of County Commissioners Work Session #2
January 13, 2026



Project Overview

Scope of Work

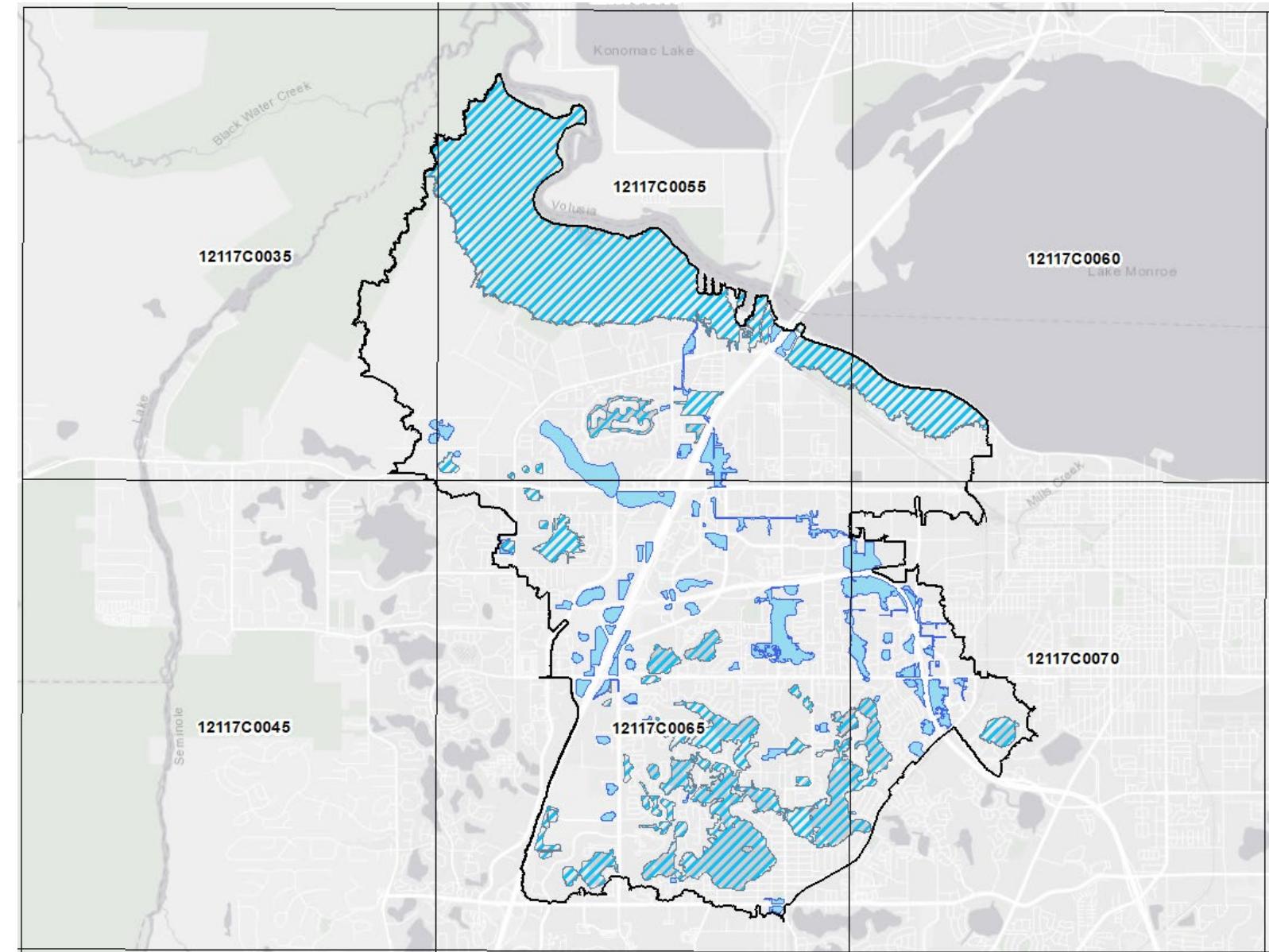
- Update the 2001 watershed model
- Create flood map and planning models
- Hold public meetings to involve stakeholders
- Identify and assess flooding problems
- Develop conceptual improvement projects to reduce flooding and improve water quality
- Deliverables:
 - Basin Study Report
 - Conceptual Improvement Project Analysis Report

Lake Monroe Watershed Results



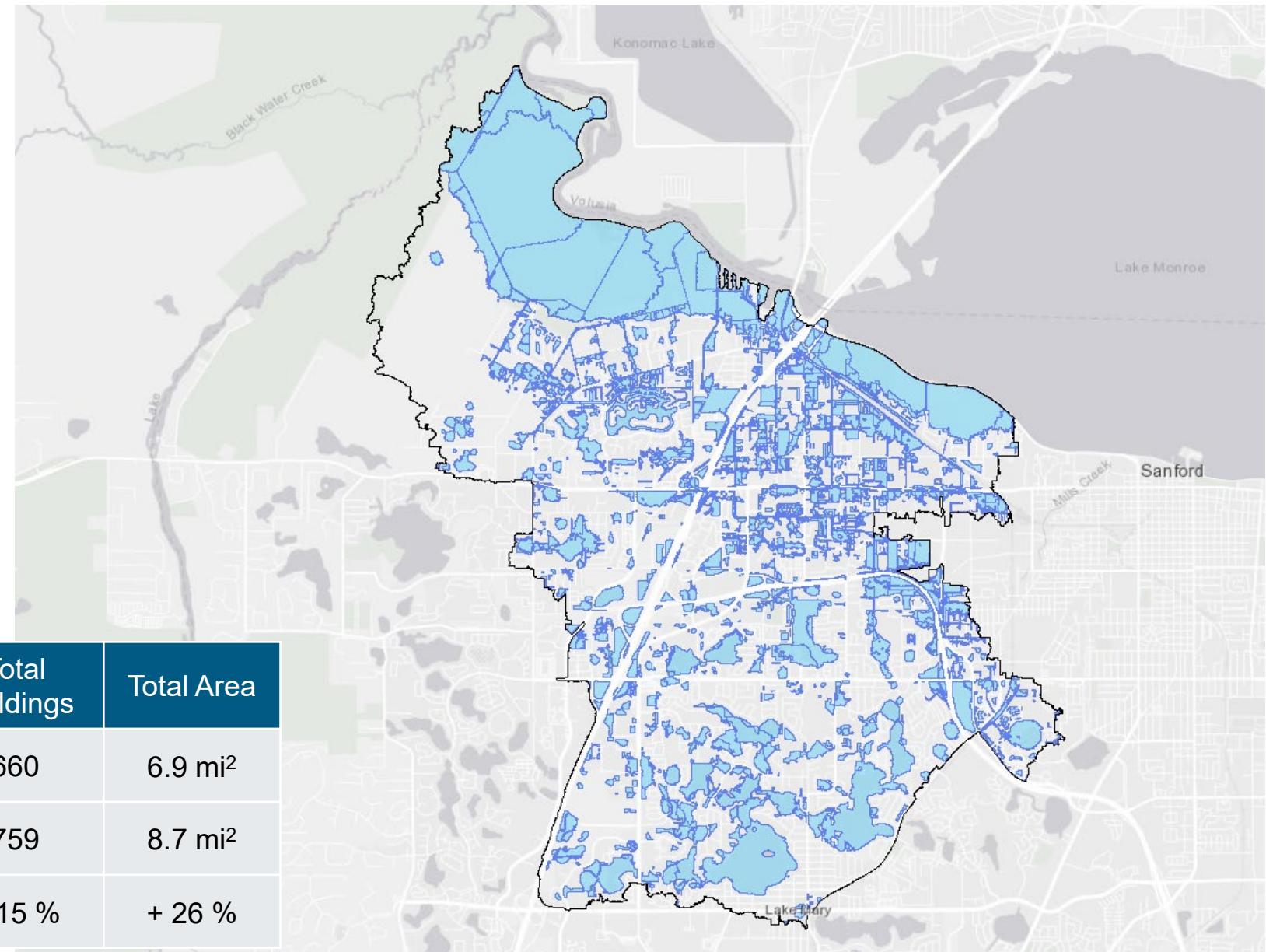
FEMA Effective 100-Year Flood Map

- 6.9 square-miles of floodplain
- Used for Flood Insurance
- Maps are dated 2007
- Based on 2001 model
- Many flood prone areas are not mapped



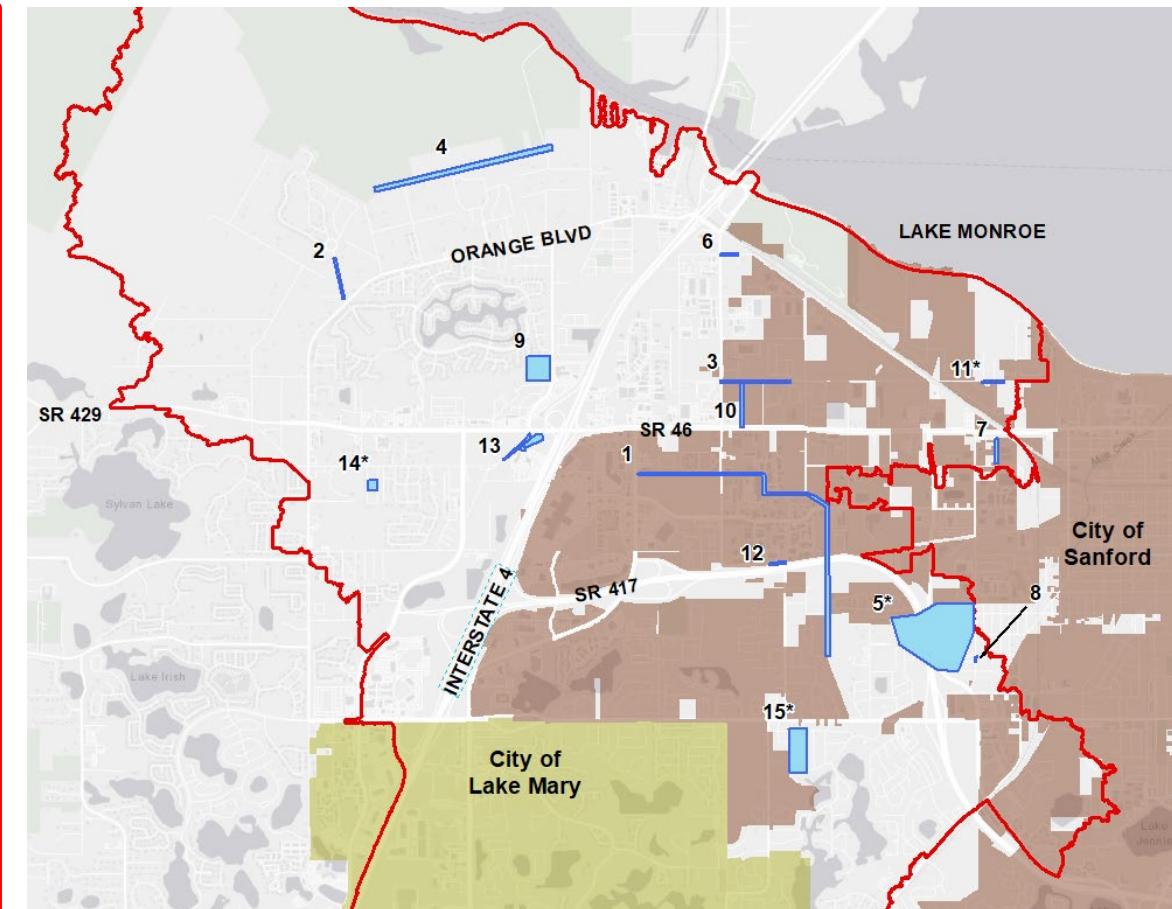
Project Delineated 100-year Flood Inundation Map

- 8.7 square-miles of floodplain
- Mapped using new model that included changes in the basin from 2001 to 2019
- Mapped floodplain area increased by 26%



Proposed Flood Improvement Projects

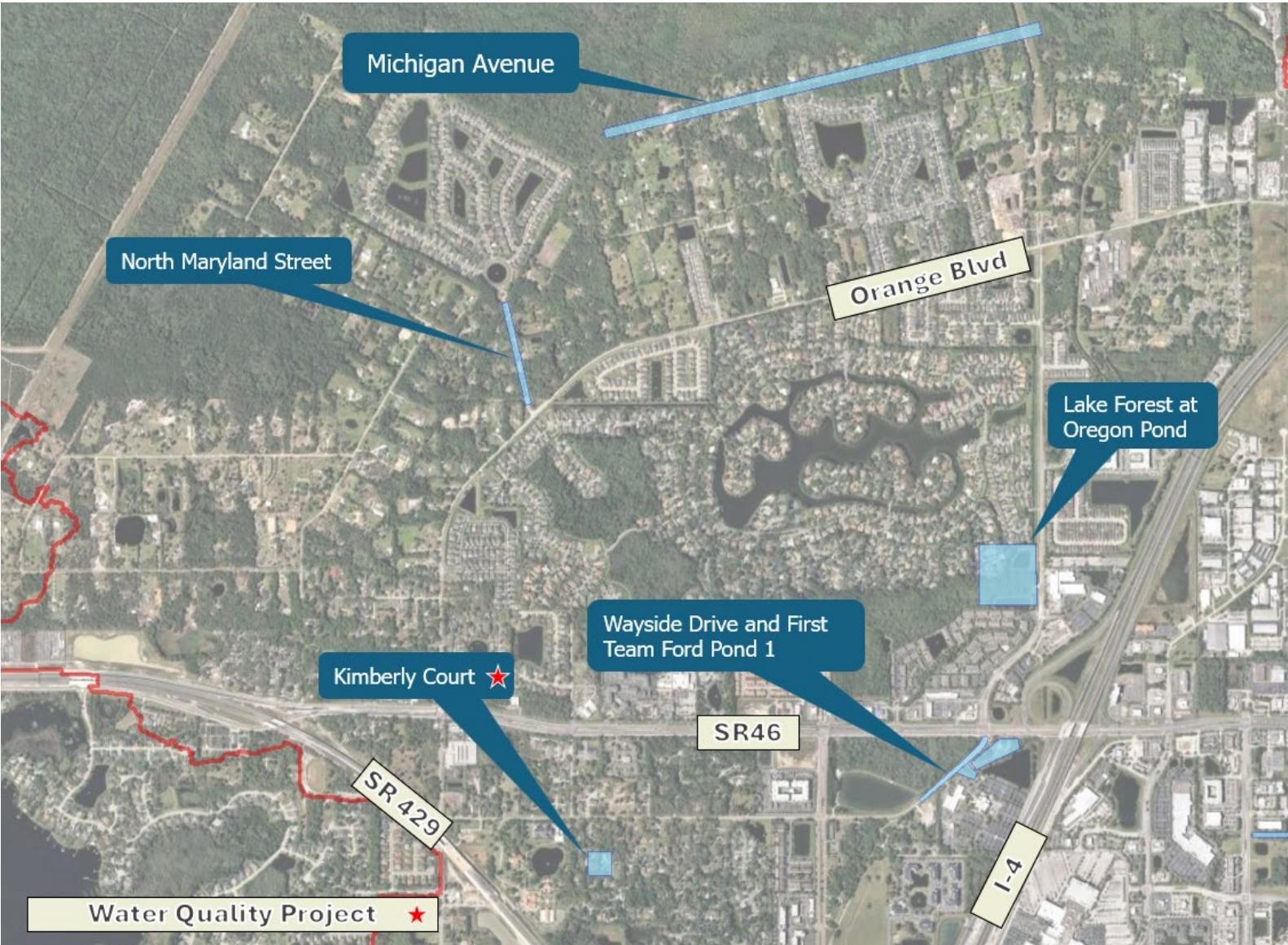
Map ID	Improvement Project Name	Priority
1	Lockhart-Smith Canal – Upstream of Rinehart Road	7
2	North Maryland Street	9
3	Narcissus Avenue – East of Monroe Road	3
4	Michigan Avenue (<i>Final Design about to be Initiated</i>)	8
5	Lincoln Heights and Ravenna Park Tributary Areas *	2
6	School Street	13
7	Brown Avenue	12
8	West Airport Boulevard	15
9	Lake Forest at Oregon Pond	10
10	Palm Terrace Ditch	11
11	Narcissus Avenue, Burton Lane, and Power Road *	5
12	Upsala Road	14
13	Wayside Drive and First Team Ford Pond 1	6
14	Kimberly Court *	1
15	Sunset Drive and Lake Boulevard *	4



15 Projects
4 Water Quality Projects*

Conceptual cost estimates were prepared and will be refined during design.

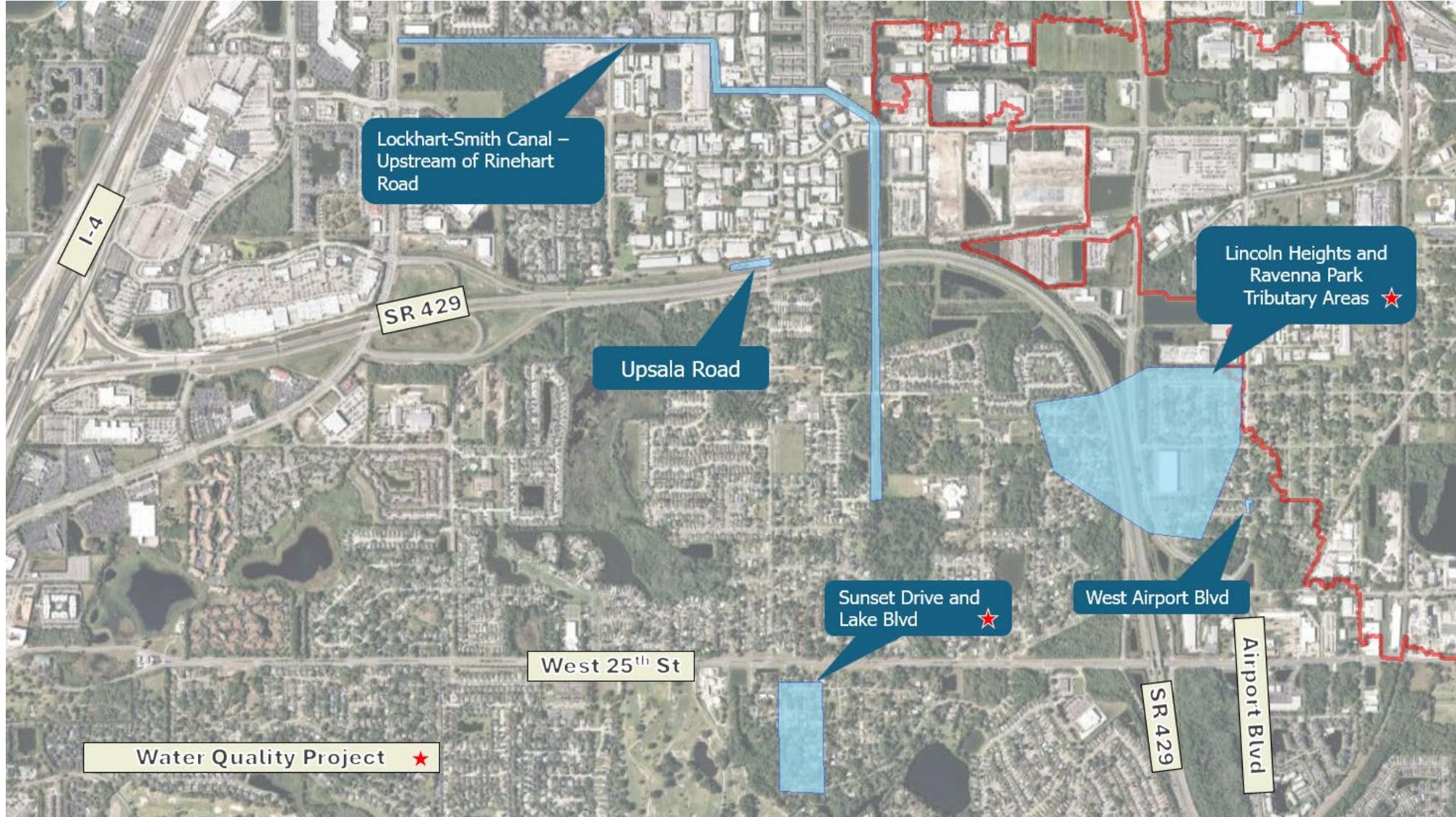
Proposed Improvement Projects – West of I-4



Proposed Improvement Projects – East of I-4



Proposed Improvement Projects – East of I-4 near SR429



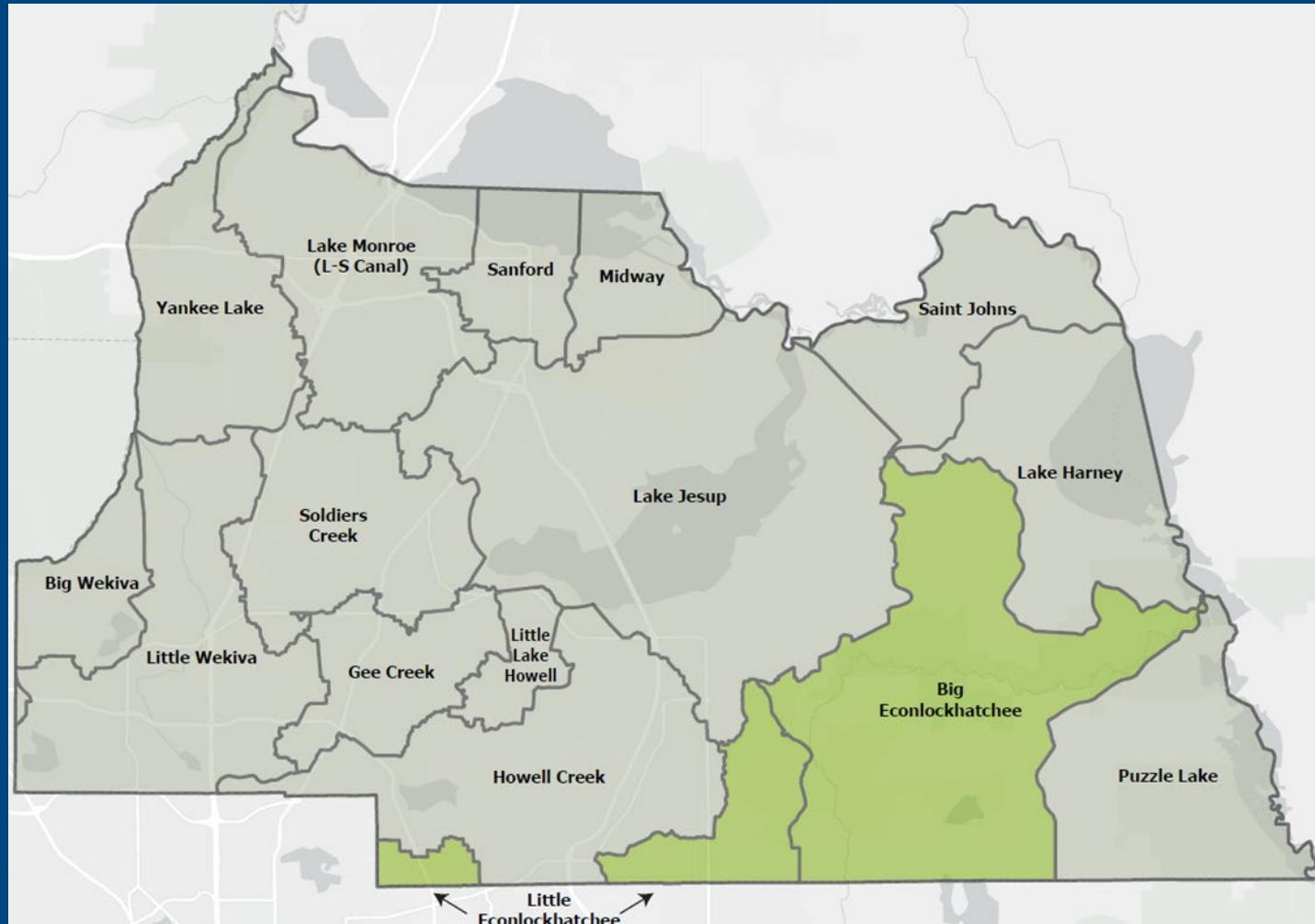


Big Econlockhatchee & Little Econlockhatchee Basins Study

January 13, 2026



Big & Little Econ Basins



Big & Little Econ Basins:

- Little Econ: 10.4 square miles in Seminole County
- Big Econ: 42.4 square miles in Seminole County
- Cities of Casselberry and Oviedo
- Basin Studies 100% Complete
- Total of 16 Project Concepts
- Total of 3,035 Sub-Basins
 - 25 Closed Sub-Basins

Big & Little Econ Basin Project History

Dates	Activities
2021	<ul style="list-style-type: none"> • Basin Study Commenced
2022	<ul style="list-style-type: none"> • Data Collection Completed. • Public Meeting #1
2023	<ul style="list-style-type: none"> • Public Meeting #2 • Model Development Complete
2024	<ul style="list-style-type: none"> • Stormwater Model Development & Level of Service (LOS) Analysis • Memorandum added • Floodplain Mapping
2025	<ul style="list-style-type: none"> • Final Draft Basin Study Report Completed
2026	<ul style="list-style-type: none"> • Final BCC Meeting – Jan. 13, 2026



Big Econlockhatchee and Little Econlockhatchee Drainage Basin Study

Board of County Commissioners Workshop Meeting

Date: January 13, 2026



In Association with:



Scope of Work

- Develop a Hydrologic & Hydraulic Model
- Flood Inundation Mapping
- Flooding Assessment
- Deficiency Identification
- Concept Projects Scoring and Recommendations
- Concept Projects Improvement Prioritization
- Evaluate Conceptual Improvement Projects that will Serve to Alleviate Flooding and Improve Water Quality

Big & Little Econlockhatchee Watershed Results

12117C0065F

12117C0070F

12117C0090F

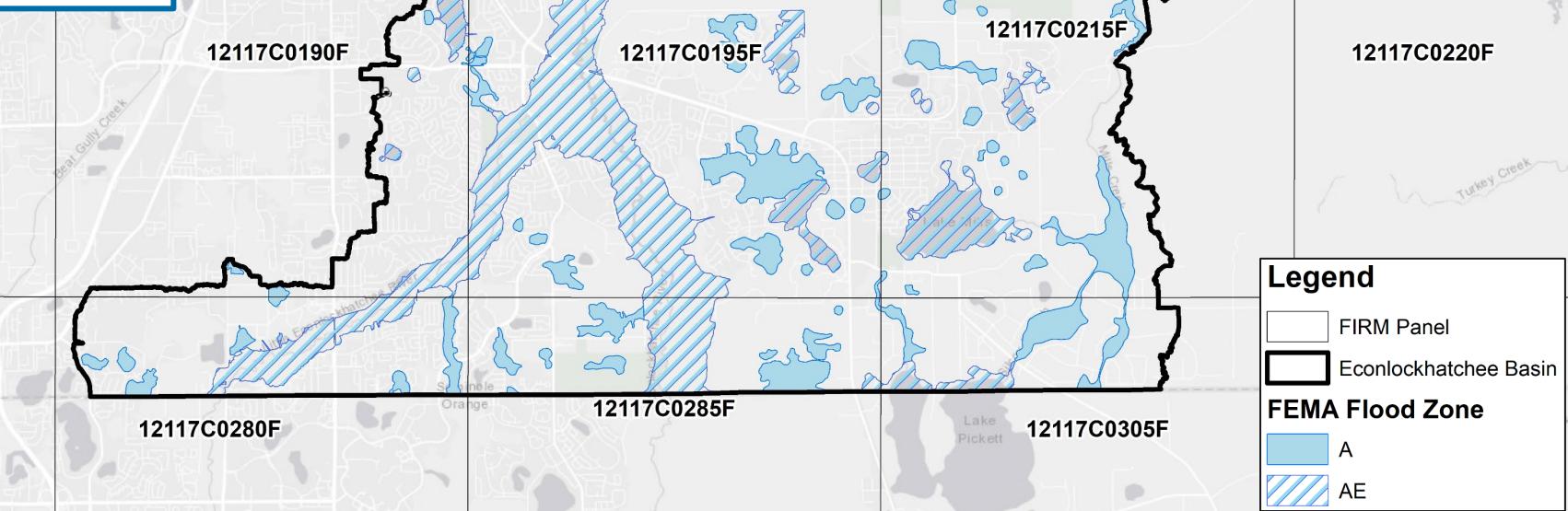
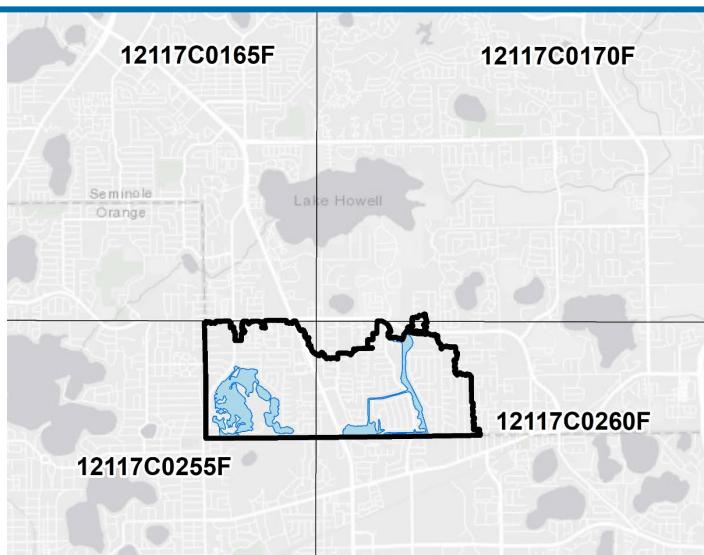
12117C0095F

12117C0115F

12117C0120F

FEMA Effective 100-Year Flood Map

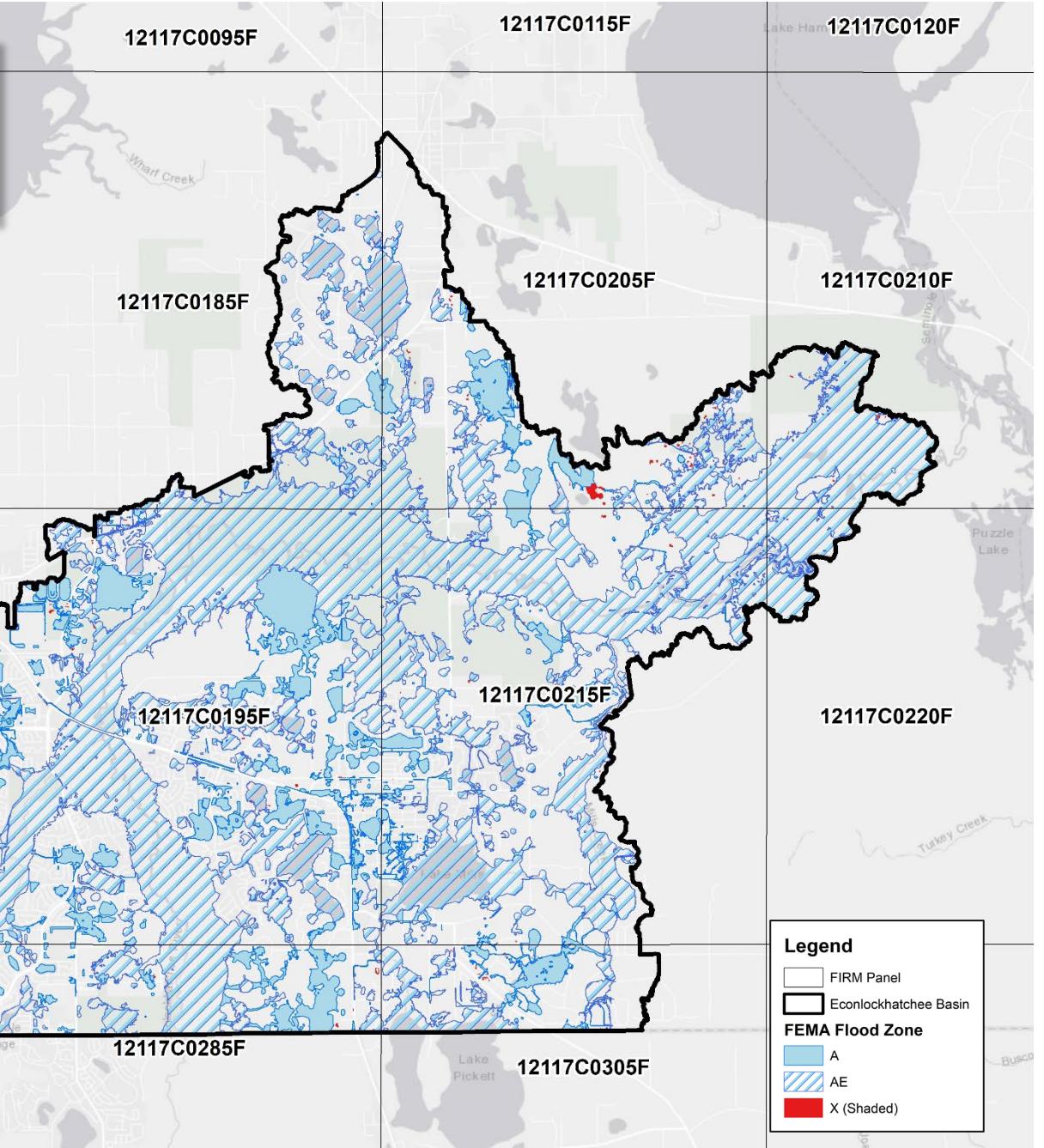
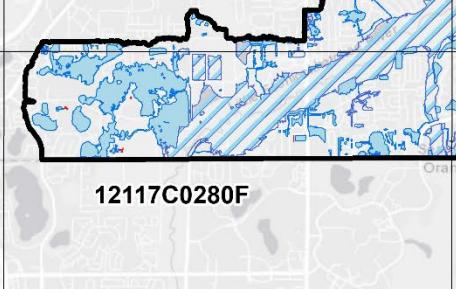
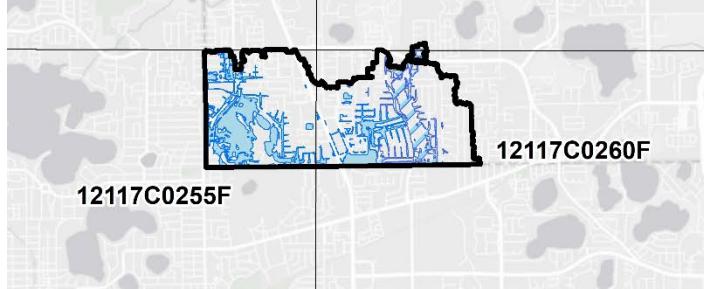
- 15.9 square-miles of floodplain
- Used for Flood Insurance
- Maps are dated 2007
- Based on multiple older models (1985, 1996, 2001)
- Many flood prone areas not currently mapped



Project Delineated 100-year Flood Inundation Map

- 23.3 square miles of floodplain
- Mapped using new model results representing changes up to 2021
- Mapped flood inundation areas increased by 47%

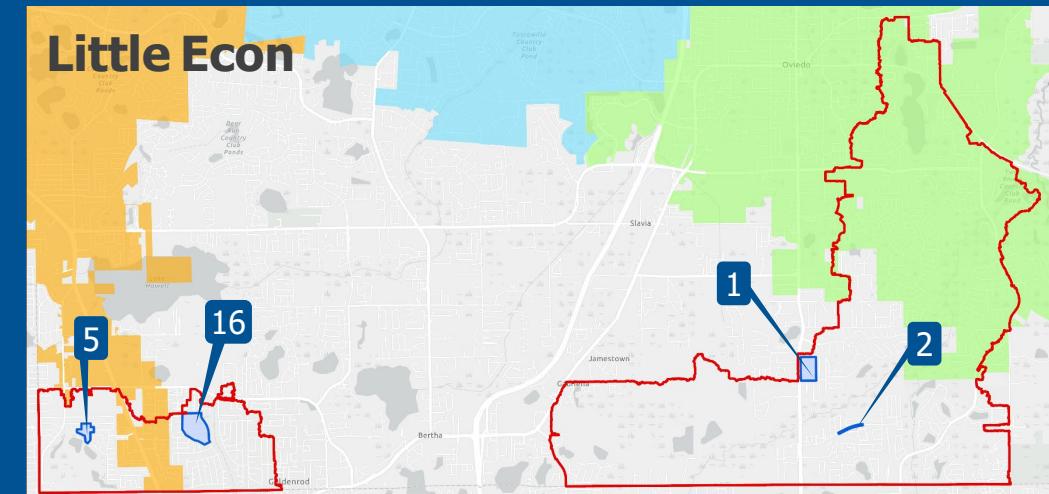
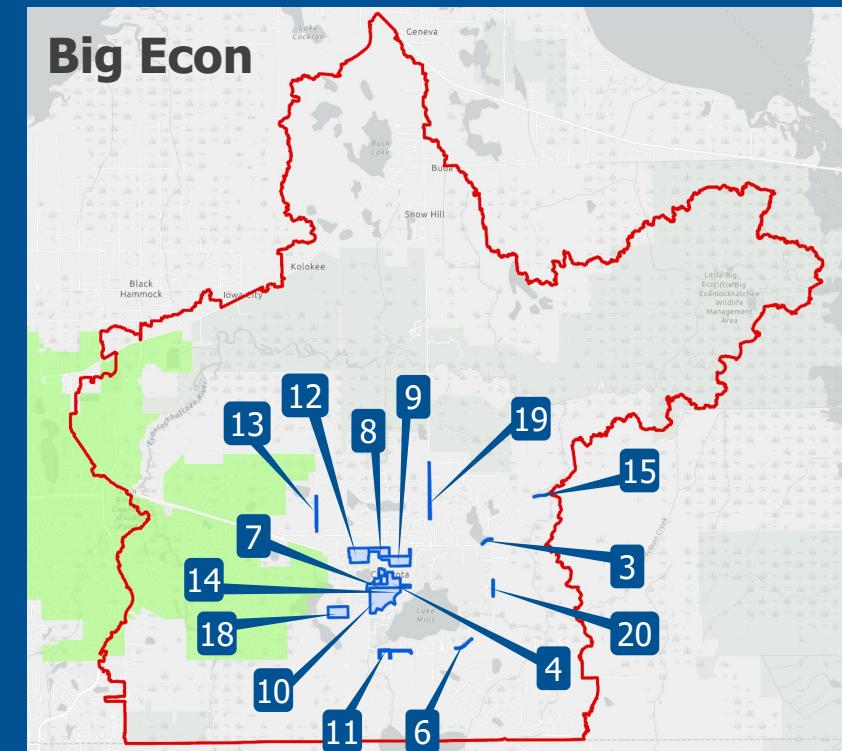
	Total Parcels	Total Buildings	Total Area (sq-mi)
Effective FEMA Flood Map	2,387	801	15.9
Proposed Delineated Flood Map	5,600	1,160	23.3
% Change	+135%	+45%	+47%



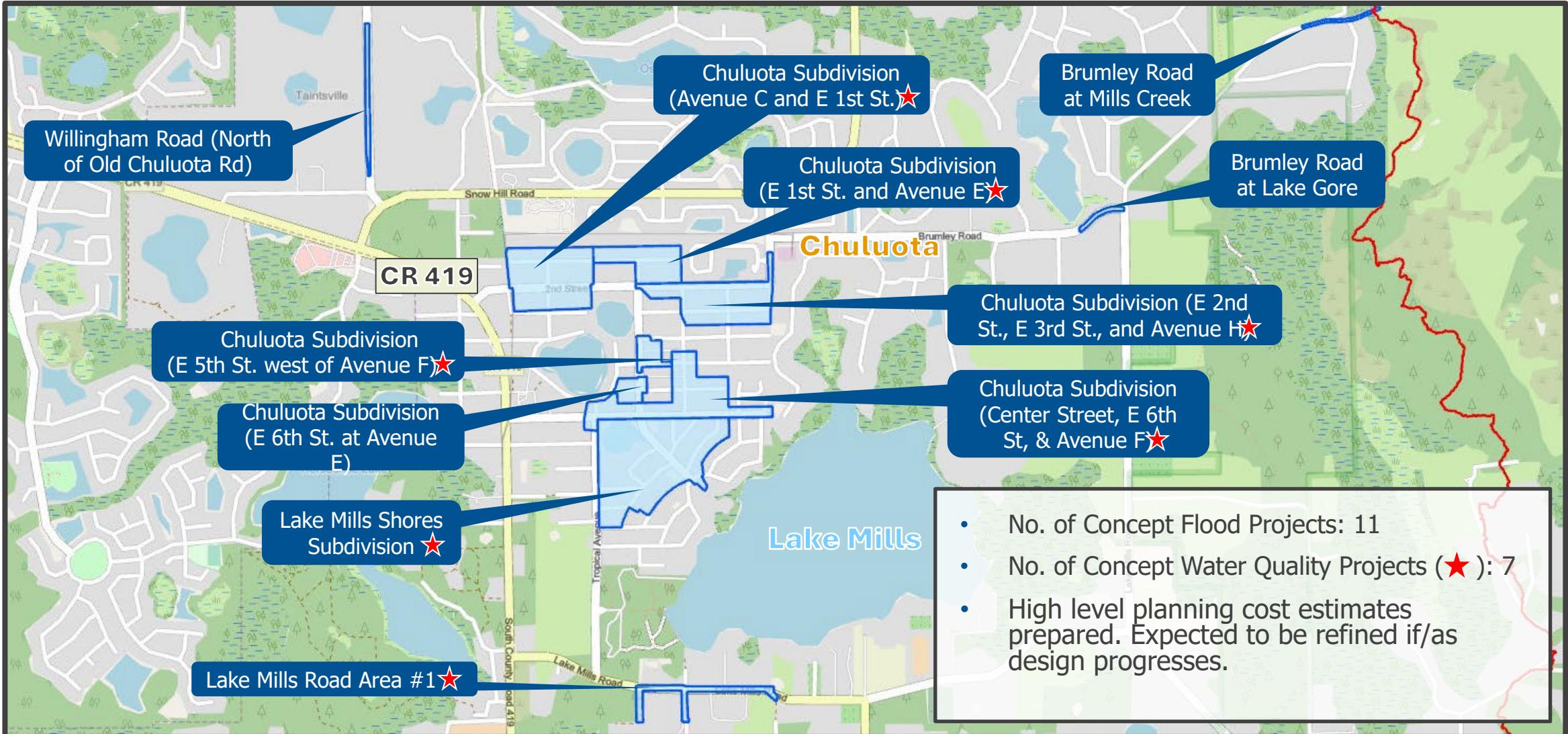
Proposed Flood Improvement Projects

Concept No.	Concept Name	Priority
1	Seminole Terrace Subdivision (Boland Drive)	5
2	Park Road	10
3	Brumley Road at Lake Gore	1
4	Chuluota Subdivision (Center Street, E 6 th St, & Avenue F)	8
5	Winter Woods Subdivision (Poinciana Road)	13
6	Chuluota Subdivision (E 5 th St. west of Avenue F)	7
7	Chuluota Subdivision (E 1 st St. and Avenue E)	3
8	Chuluota Subdivision (E 2 nd St., E 3 rd St., and Avenue H)	12
9	Lake Mills Shores Subdivision	14
10	Lake Mills Road Area #1	9
11	Chuluota Subdivision (Avenue C and E 1 st St.)	11
12	Willingham Road (North of Old Chuluota Road)	2
13	Chuluota Subdivision (E 6 th St. at Avenue E)	6
14	Brumley Road at Mills Creek	4
15	Eastbrook (Eastbrook Boulevard)	16
16	Aloma Bend Subdivision	15

Legend
 Jurisdiction
 Casselberry (Orange)
 Oviedo (Green)
 Winter Springs (Blue)

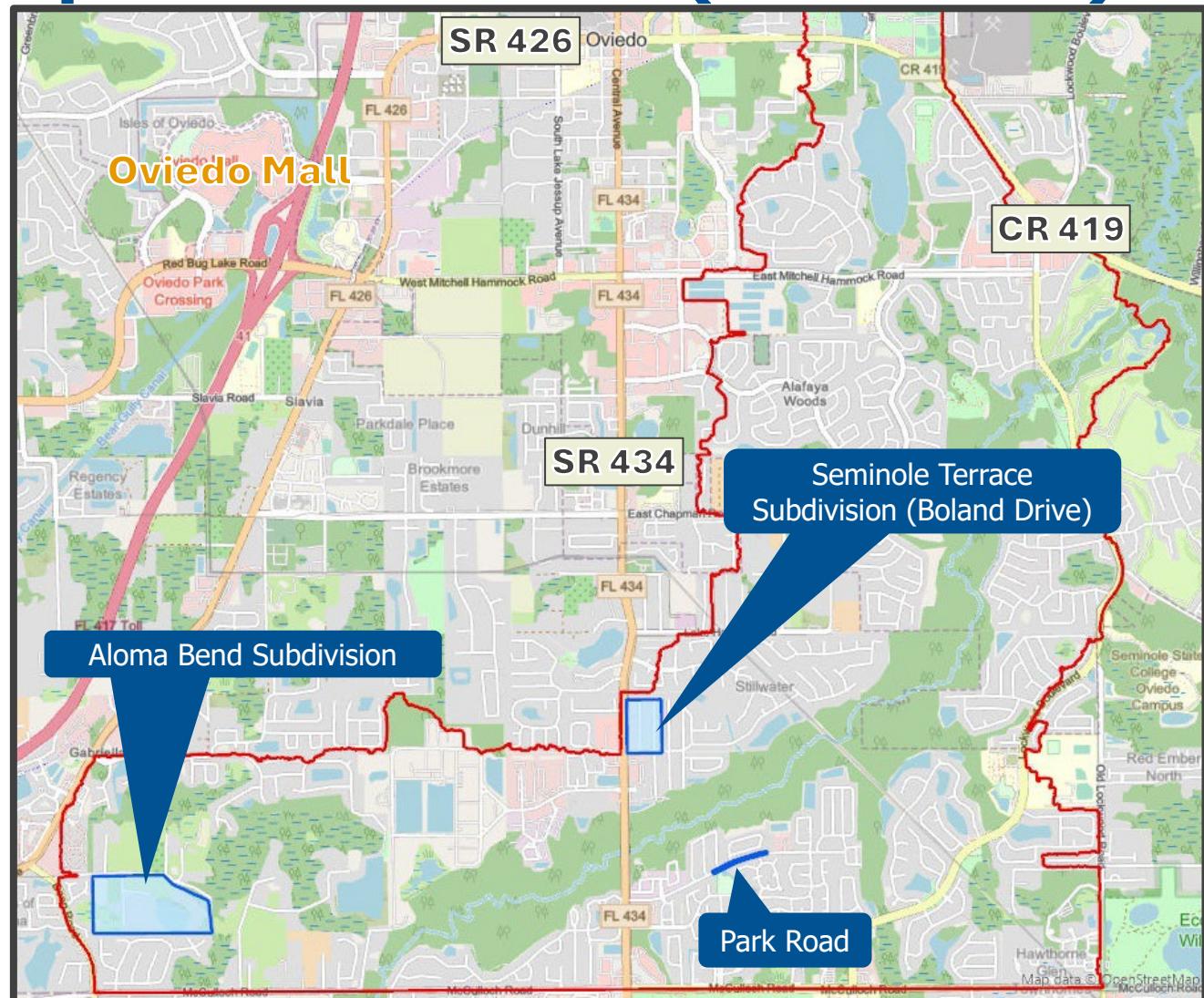
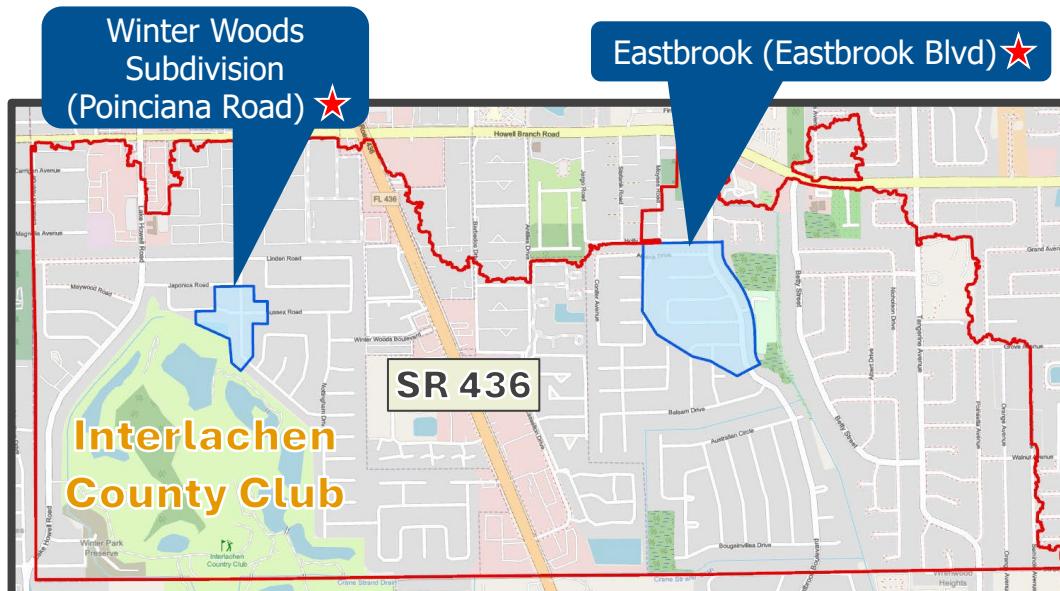


Location of Concept Flood Improvement Areas (Big Econ)



Location of Concept Flood Improvement Areas (Little Econ)

- No. of Concept Flood Projects: 5
- No. of Water Quality Concept Projects (★): 2
- High level planning cost estimates prepared. Expected to be refined as design progresses.



Next Steps

Lake Monroe and Big & Little Econ Basin studies:

- Provide models to Development Review for use as best available information
- Submit final approved studies for FEMA review

Next Steps

Overall Studies:

- **Lake Monroe / Big and Little Econlockhatchee –**
BCC Meeting January 13, 2026
- **Big and Little Wekiva, Yankee Lake Basins –**
BCC Meeting January 27, 2026
- Finalize County's Stormwater Masterplan



Requested Action

Board approval for acceptance into service of the Basin Studies for Lake Monroe (Lockhart Smith Canal) and Big and Little Econlockhatchee, as recommended by staff.

SM