

# **Orlo Vista Integrated Water Resources Project**

**Presented By:**

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Orange County Utilities**



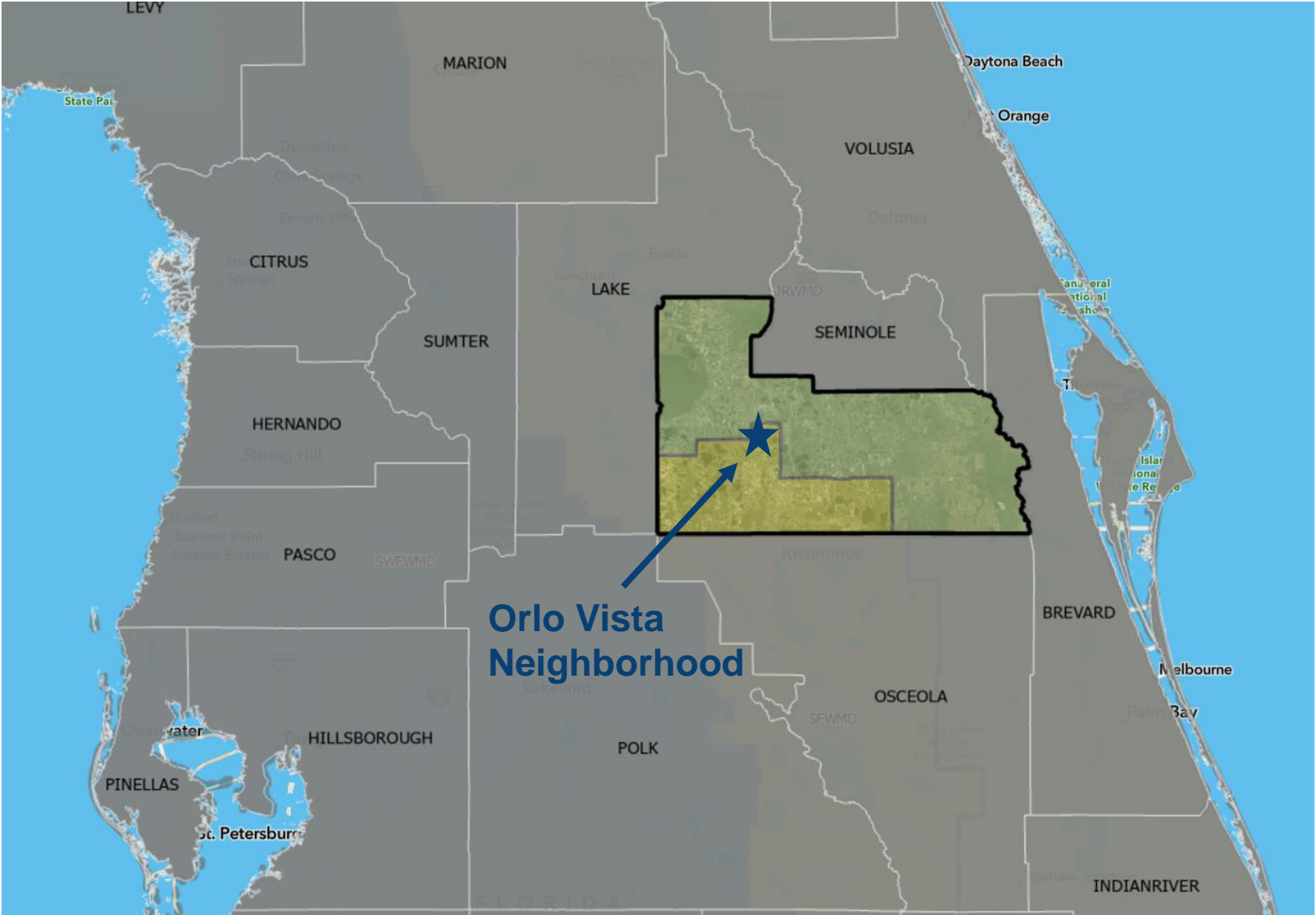
**ORANGE  
COUNTY  
UTILITIES**

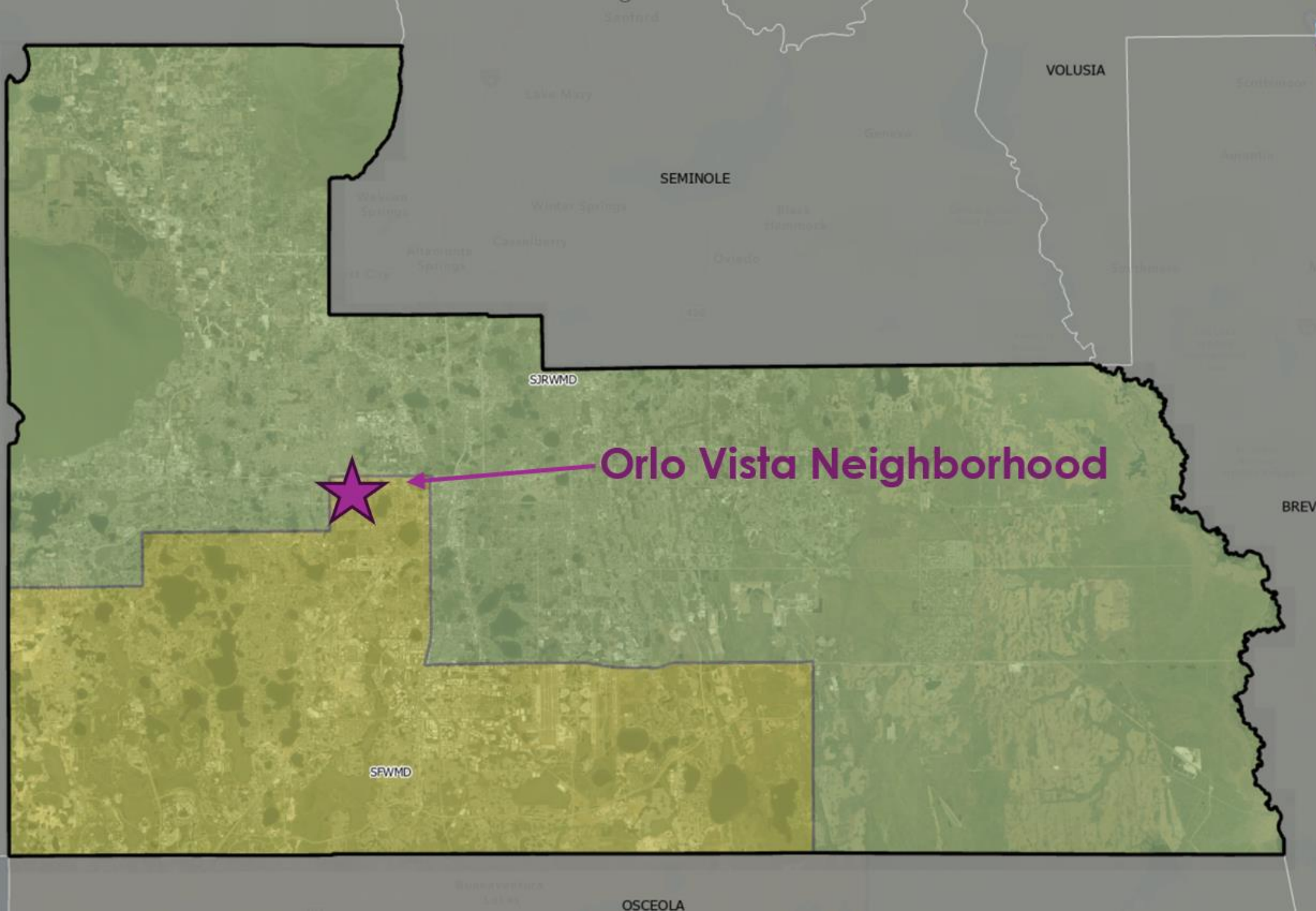
# Presentation Outline

- ❖ Project Background and Neighborhood
- ❖ Public Works Project
- ❖ Integrated Water Resource Project
- ❖ Permitting, Funding, and Next Steps



# Project Location







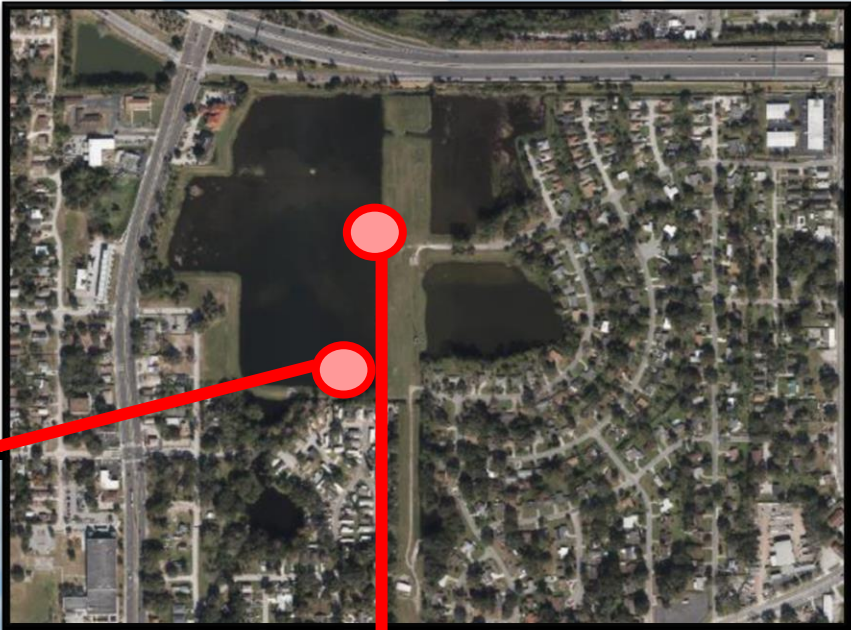
# Orlo Vista: Existing Neighborhood and The Public Works Project Component

- Orlo Vista Neighborhood Statistics
  - Population of approximately 6,800 (2020 Census)
  - Per US Housing and Urban Development (HUD), approximately 66% of households are in the Low/Mod income category
- Hurricane Irma (Sep. 2017)
  - Produced 9.1 inches of rain within 28 hours, causing massive flooding
- Hurricane Ian (Sep. 2022)
  - Produced 13.2 inches of rain within 40 hours, causing massive flooding
  - Estimated 148 structure finished floors impacted
- Orange County Public Works Project scope
  - Increase Orlo Vista pond depth by 12 feet
  - Triplex pump station (3 pumps at 13,000+ GPM)
  - 48" force main discharge into Shingle Creek
  - Mitigates structure flooding through 100 year storm (Ian was approximately 200 year storm)



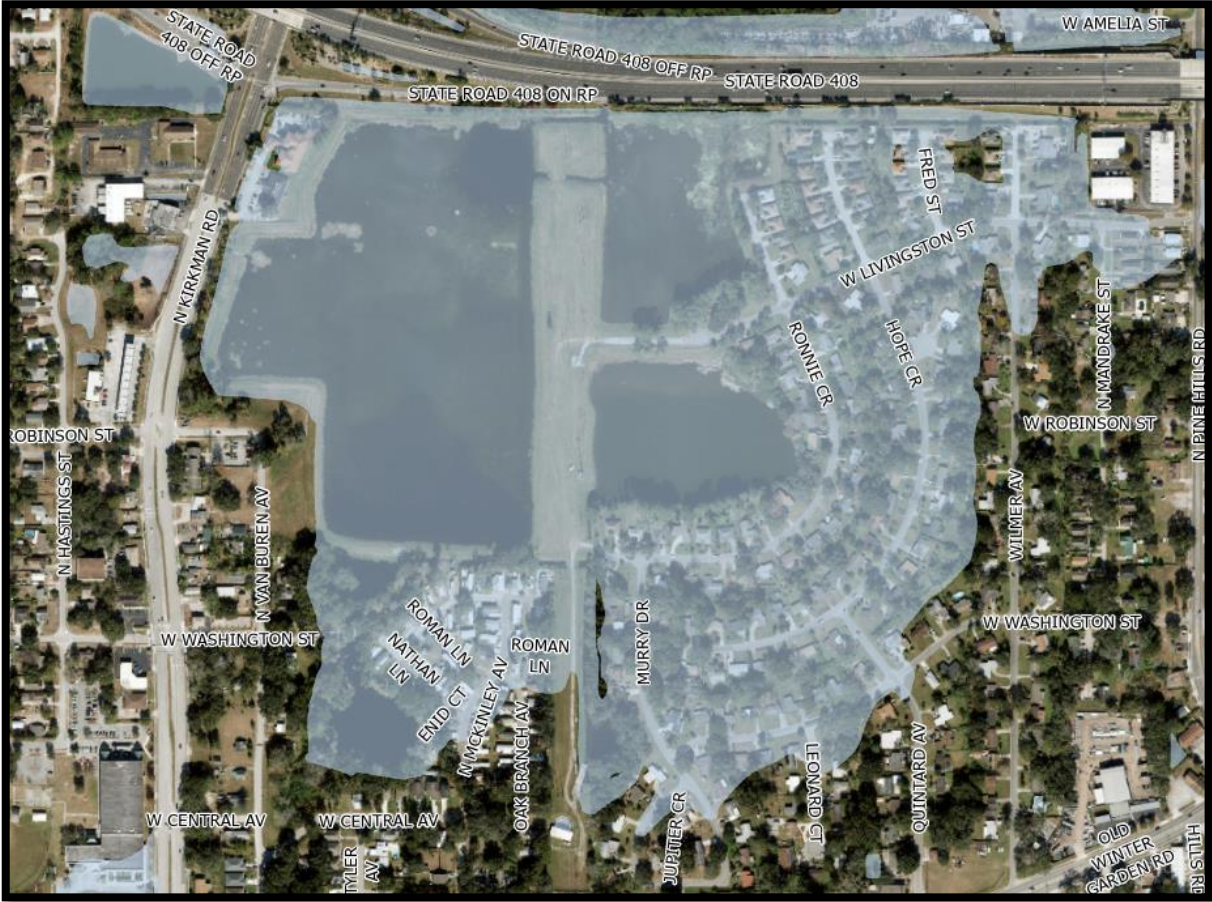


# Orlo Vista: The Public Works Project Component





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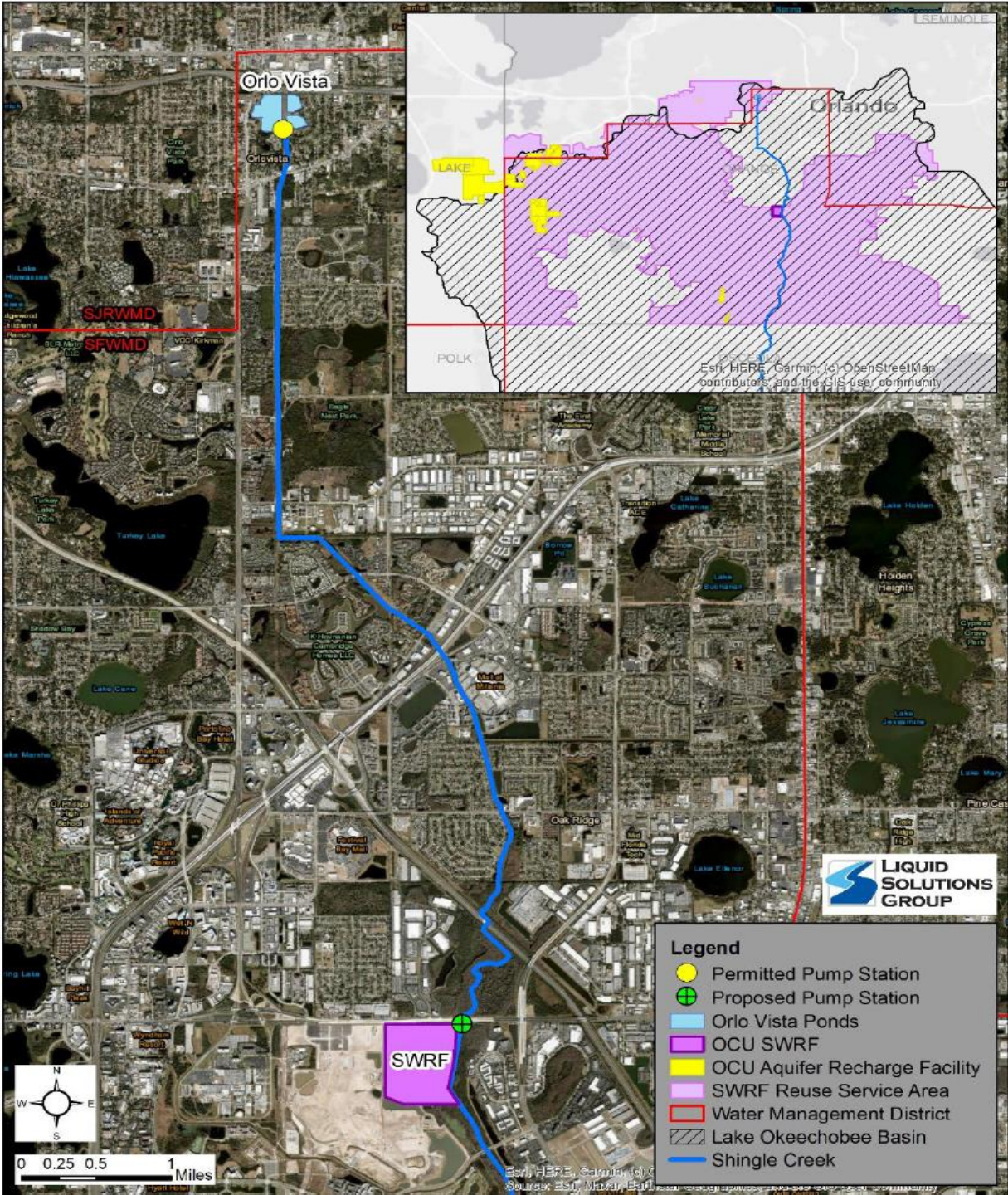
Prior to Construction



After Construction



# Shingle Creek Route





# From Innovative Ideas to Projects:

## Orlo Vista Integrated Water Resource Project (IWRP)

- Lowering normal water level in ponds by pumping a baseflow throughout the year
  - Addition of 2.5 MGD utility pump at Orlo Vista
- Provides additional pond flood attenuation volume
- Pumped baseflow is discharged to Shingle Creek
- Flows are recovered 7 miles downstream at the South Water Reclamation Facility (SWRF)
  - SWRF capacity permitted at 56 MGD
- Treated at SWRF to meet reclaimed water standards and used for irrigation and aquifer recharge
- Project Benefits include:
  - Augment Orange County's reclaimed water supply to meet increasing demand for reclaimed water
  - Creates more storage in Orlo Vista lake system to help mitigate flooding
  - Flows are recovered prior to reaching Osceola County, mitigating downstream flood concerns
  - Reduction in nutrient load to enhance water quality within Shingle Creek

OrloVista

SWRF



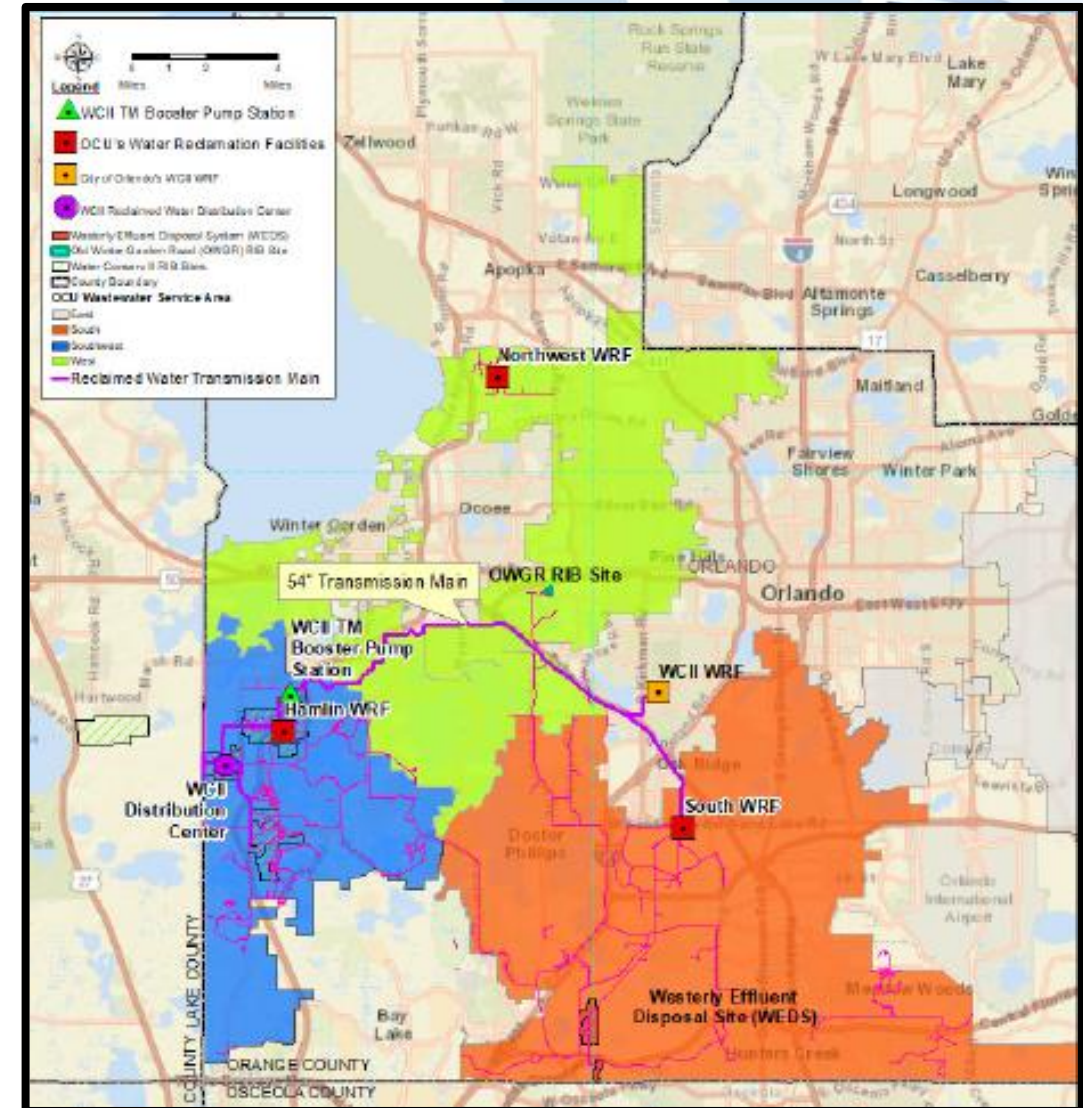


# SWRF Effluent

- Discharge of reclaimed water from SWRF is permitted for reuse, aquifer recharge, and wet weather disposal through several methods
- Water Conserv II is a regional reuse system, jointly owned by OCU and City of Orlando.
  - Approx 24 MGD sent to WCII
  - Can be modified based on need and demand in the system
  - Once agricultural and other customer needs are met, any excess reuse is sent to Rapid Infiltration Basins (RIBs) for aquifer recharge

Table 5.4 Projected SWRF Wastewater Flow and Reclaimed Demands

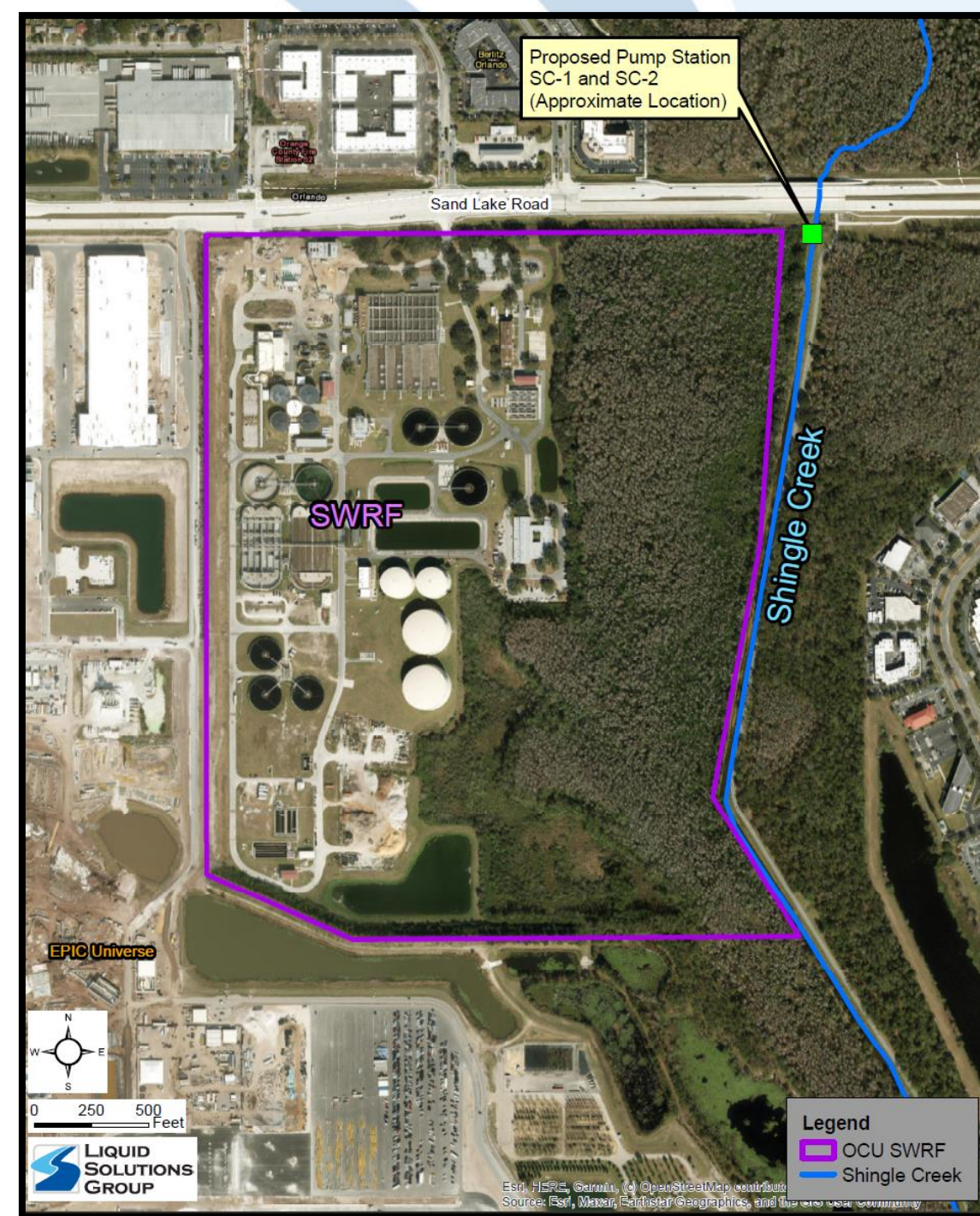
	2020	2025	2030	2035	2040	2045	2050
Wastewater Flow to SWRF (mgd AADF)	37.9	42.3	46.7	51.1	55.5	59.9	64.3
Reclaimed Water for In-Plant Process Use (mgd)	2.65	2.96	3.27	3.58	3.89	4.19	4.50
Reclaimed Water Losses Due to Residual Drying/Other (mgd)	2.65	2.96	3.27	3.58	3.89	4.19	4.50
Net Reclaimed Water Available (mgd AADF)	32.59	36.38	40.16	43.95	47.73	51.51	55.30
SSA Irrigation Demand (mgd AADF)	10.0	11.9	13.1	14.2	15.2	16.3	17.4
Reclaimed Water Supply to WCII (mgd AADF)	22.29	24.18	26.76	29.45	32.23	34.91	37.60



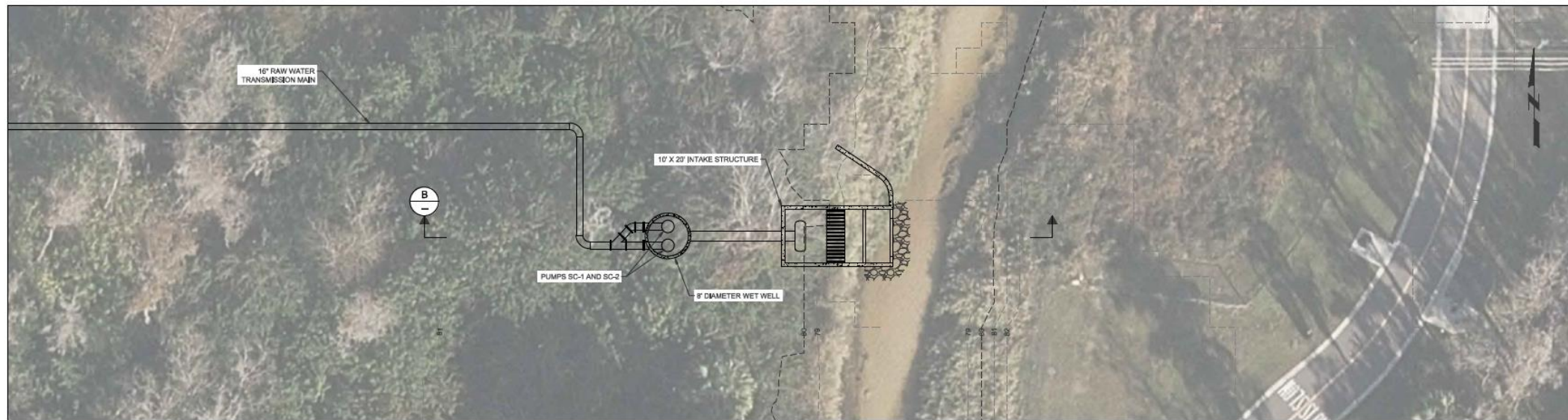


# Conceptual Layout and Cost

- Carollo: Technical Memo-January 2023
- Conceptual Level OPCC: \$10.5M for 2 MGD
- Major Components:
  - Intake Structure with bar screens
  - Easement or purchase of land for the intake system
  - Access road and utility corridor from SWRF to the intake
  - Raw water transmission piping from the intake to SWRF
  - Finished water piping from treatment to the SWRF reclaimed water system.
  - Backwash piping from the treatment system to the in-plant drain/recycle system.
  - Includes potential improvements needed at SWRF, i.e., clarification, disk filters, disinfection.
  - Mitigation for wetland impacts, as needed
    - Compensation of lost acreage, function, and value from a converted wetland through preservation, enhancement, or creation of a new wetlands at another location.



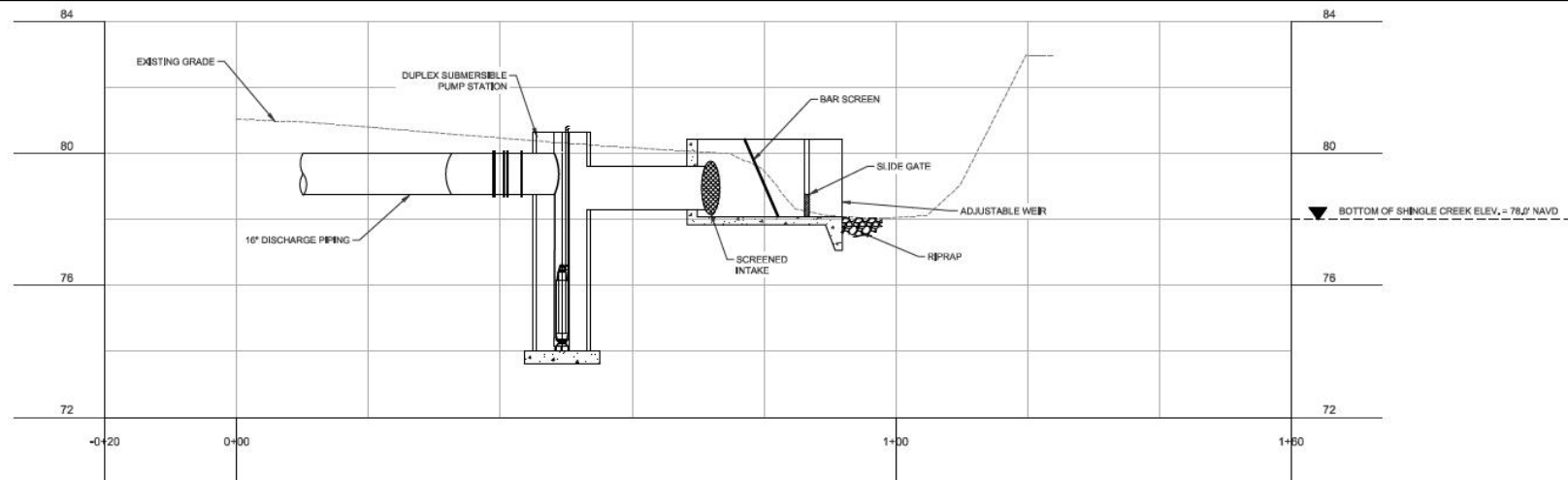




**A SHINGLE CREEK INTAKE PLAN**  
 SCALE: 1" = 10'  
 FILE: Ono Vista Integrated Resource Project Exhibit.dwg

**GENERAL NOTES:**

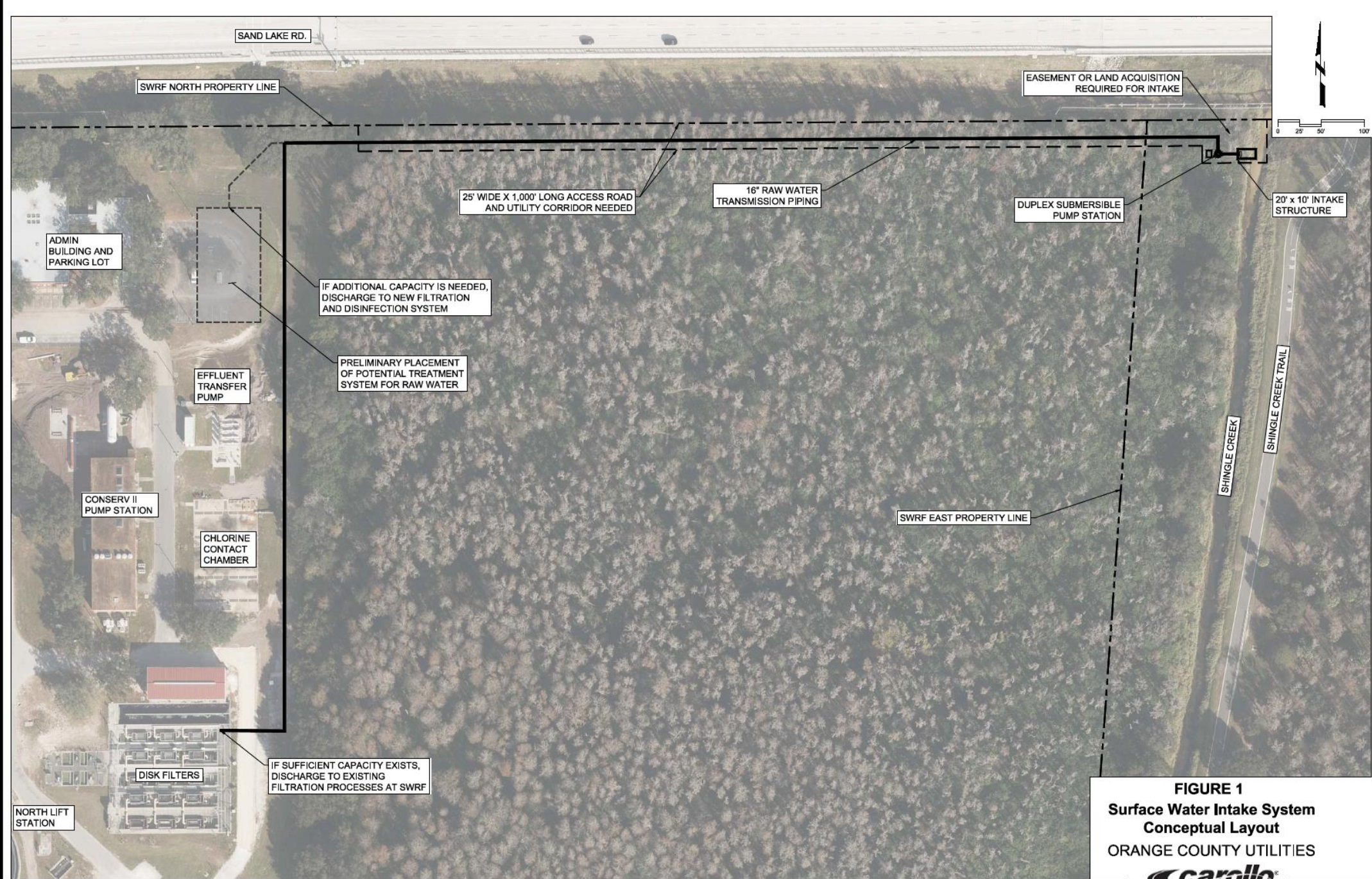
1. DRAWING IS CONCEPTUAL AND NOT INTENDED FOR CONSTRUCTION.
2. ALL STRUCTURES, PUMPS, AND PIPING SHOWN IN APPROXIMATE LOCATIONS. FINAL LOCATIONS TO BE DETERMINED DURING DESIGN.
3. ELEVATION DATA RETRIEVED FROM 2008 ORANGE COUNTY DIGITAL ELEVATION MODEL. SURVEY IS NEEDED TO CONFIRM ELEVATIONS.



**B SHINGLE CREEK INTAKE PROFILE**  
 SCALE: HORIZONTAL: 1" = 10' VERTICAL: 1" = 2'  
 FILE: Ono Vista Integrated Resource Project Exhibit.dwg

**FIGURE 2**  
**Surface Water Intake System**  
**Conceptual Layout**  
 ORANGE COUNTY UTILITIES



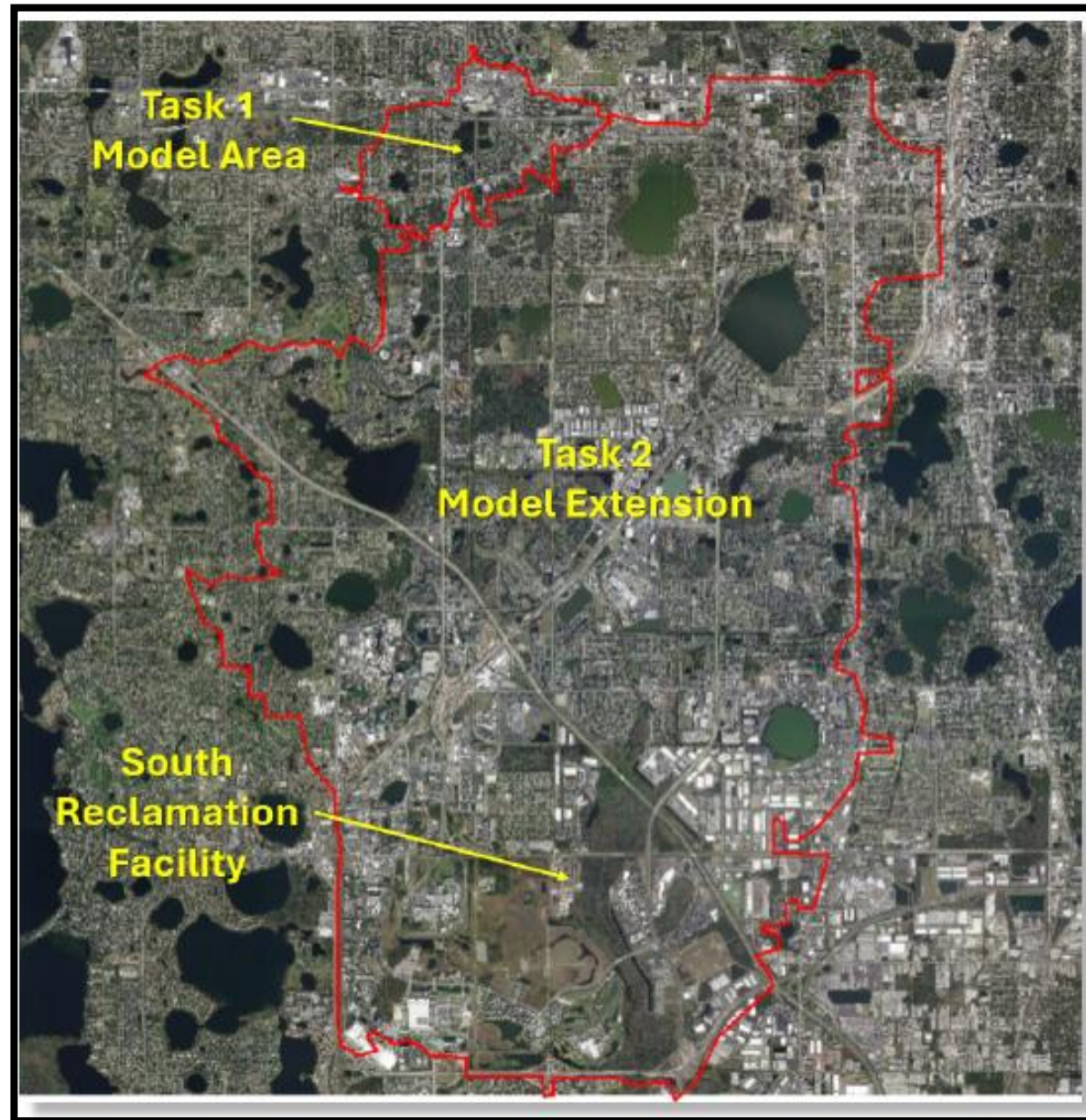


**FIGURE 1**  
**Surface Water Intake System**  
**Conceptual Layout**  
ORANGE COUNTY UTILITIES  
**carollo**





# Yield Analysis - Task 1

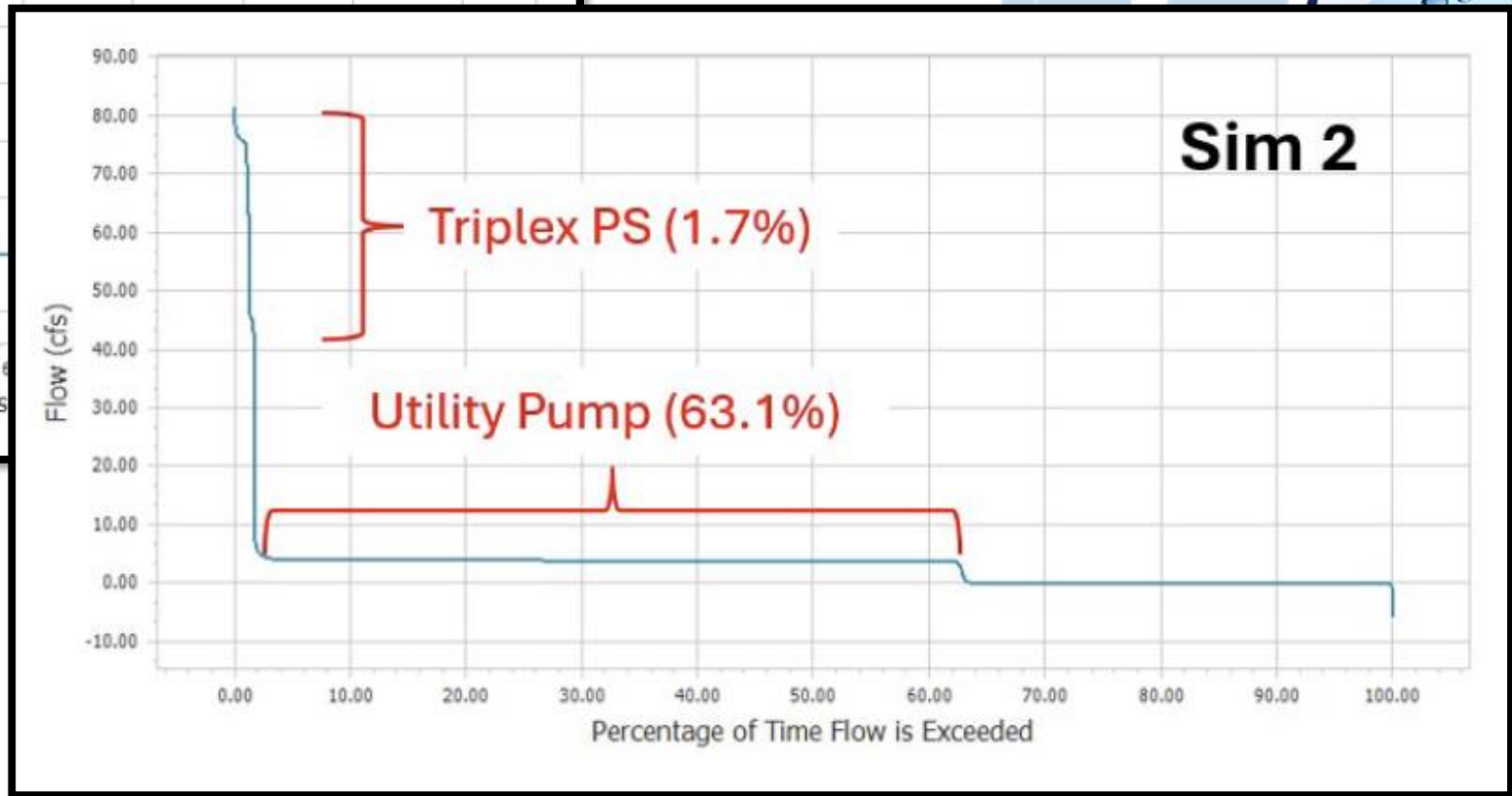
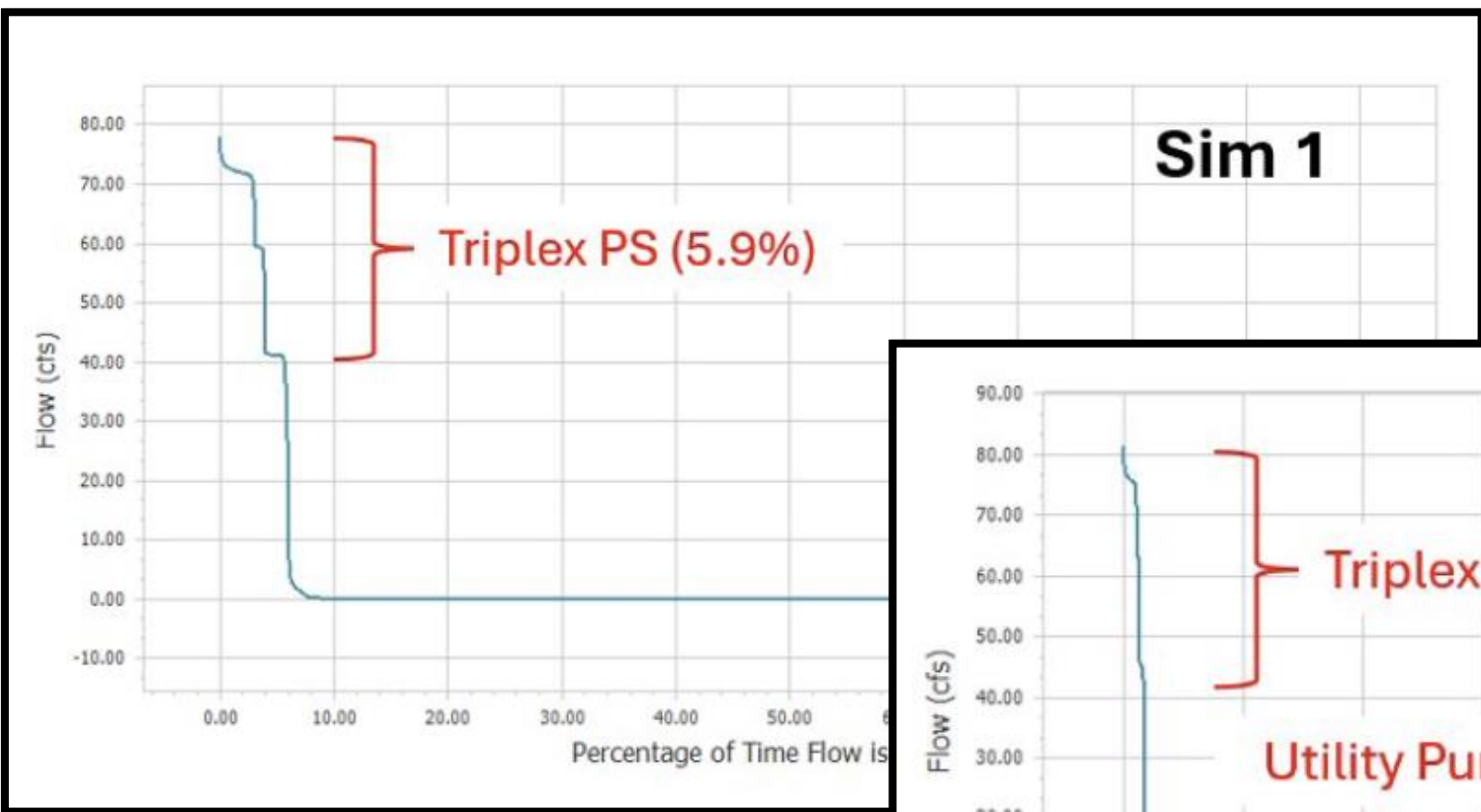


Exceedance Probability →	10%	25%	50%	75%	90%
<b>Low Control @ 74.4' (NAVD)</b>					
Average Annual Flows	2.92	2.56	2.51	2.21	1.77
Average Wet Season Flows	4.88	4.06	3.68	3.51	2.72
Average Dry Season Flows	2.14	1.96	1.51	1.00	0.75
<b>Low Control @ 73.0' (NAVD)</b>					
Average Annual Flows	2.95	2.56	2.49	2.20	1.75
Average Wet Season Flows	5.03	4.15	3.66	3.54	2.74
Average Dry Season Flows	2.11	1.93	1.47	0.99	0.73
<b>Low Control @ 72.0' (NAVD)</b>					
Average Annual Flows	2.94	2.55	2.48	2.20	1.76
Average Wet Season Flows	4.96	4.19	3.62	3.50	2.82
Average Dry Season Flows	2.08	1.89	1.52	1.02	0.72
<b>Low Control @ 71.0' (NAVD)</b>					
Average Annual Flows	2.93	2.54	2.48	2.20	1.76
Average Wet Season Flows	4.94	4.10	3.60	3.49	2.90
Average Dry Season Flows	2.07	1.88	1.45	1.03	0.70

Table 1. Average flows (mgd) to Shingle Creek based on the proposed pump/storage configuration.

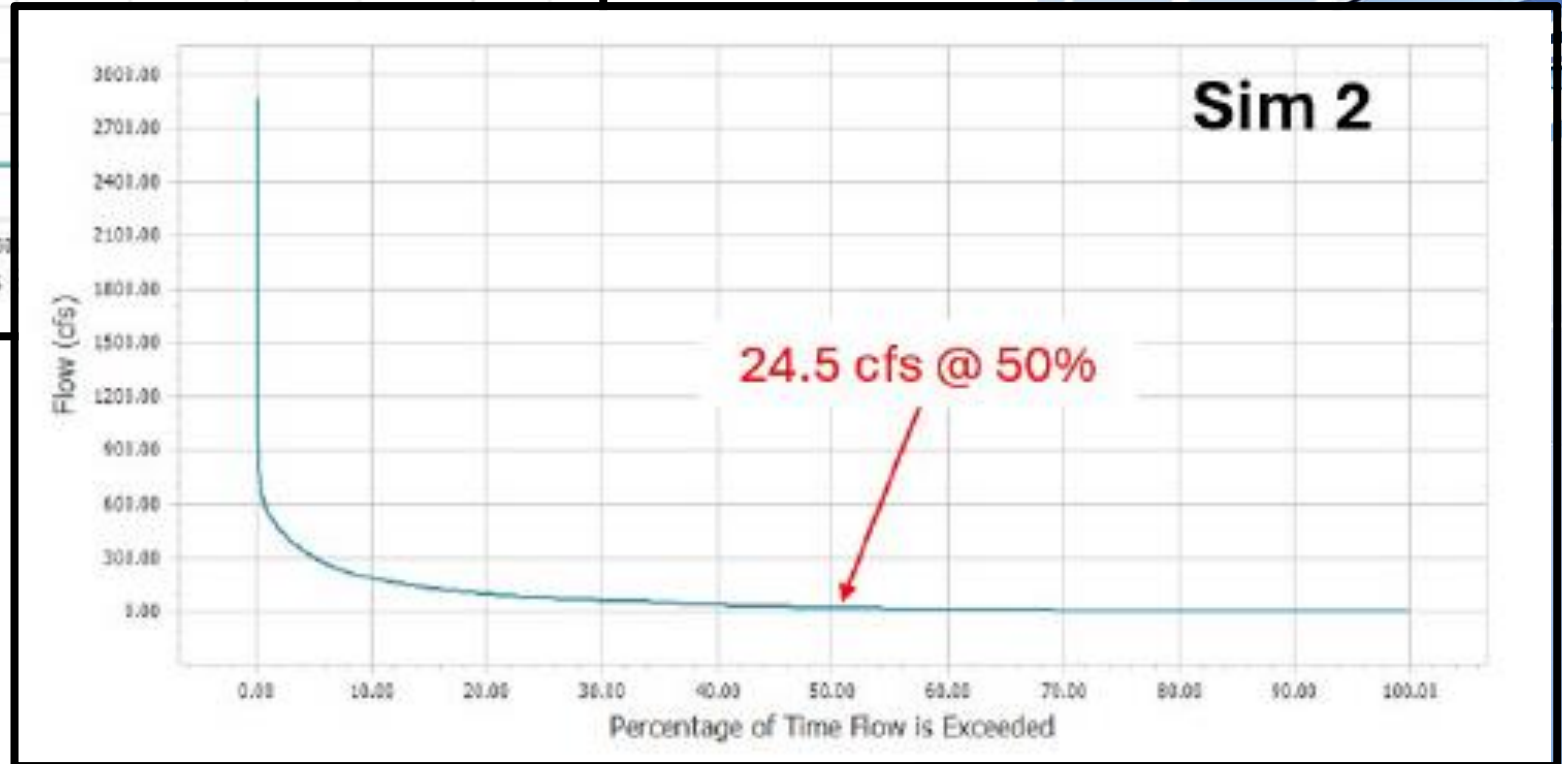
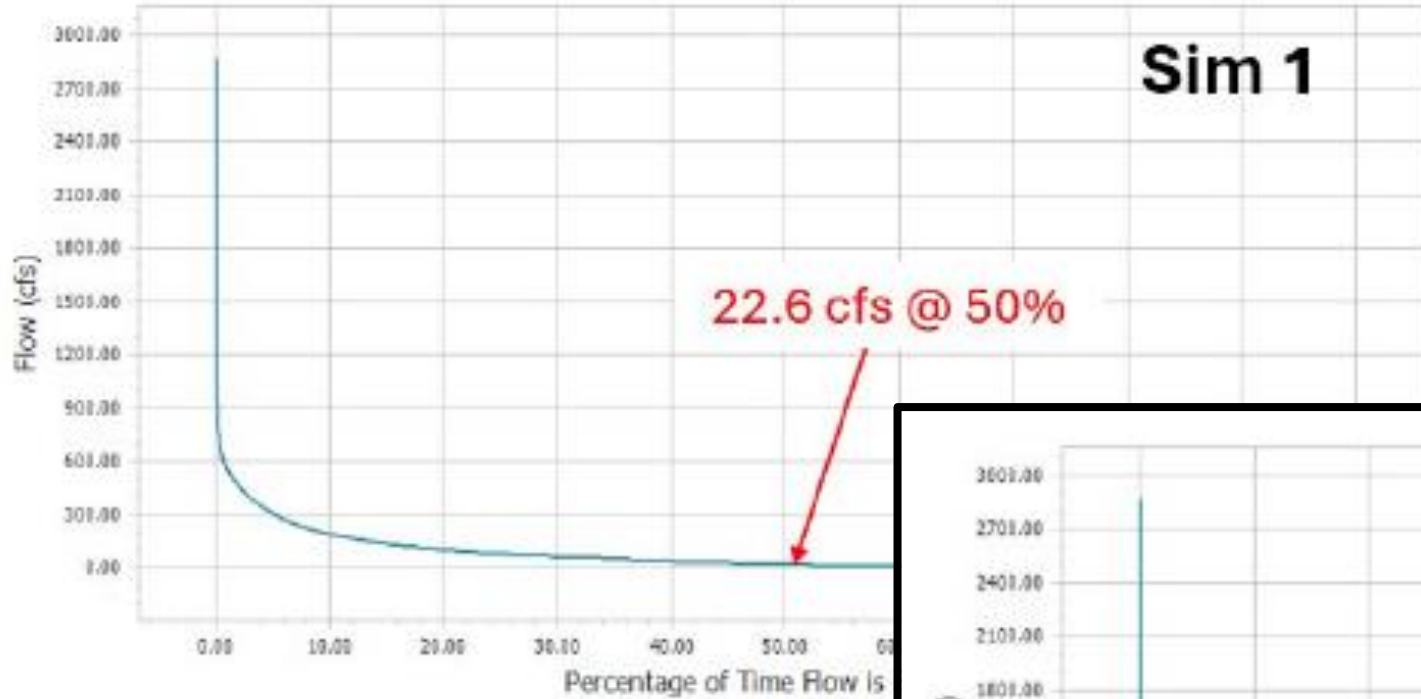


# Yield Analysis - Task 2





# Yield Analysis - Task 2



# Water Quality Sampling

- In-House Water Quality Sampling at Shingle Creek: grab samples

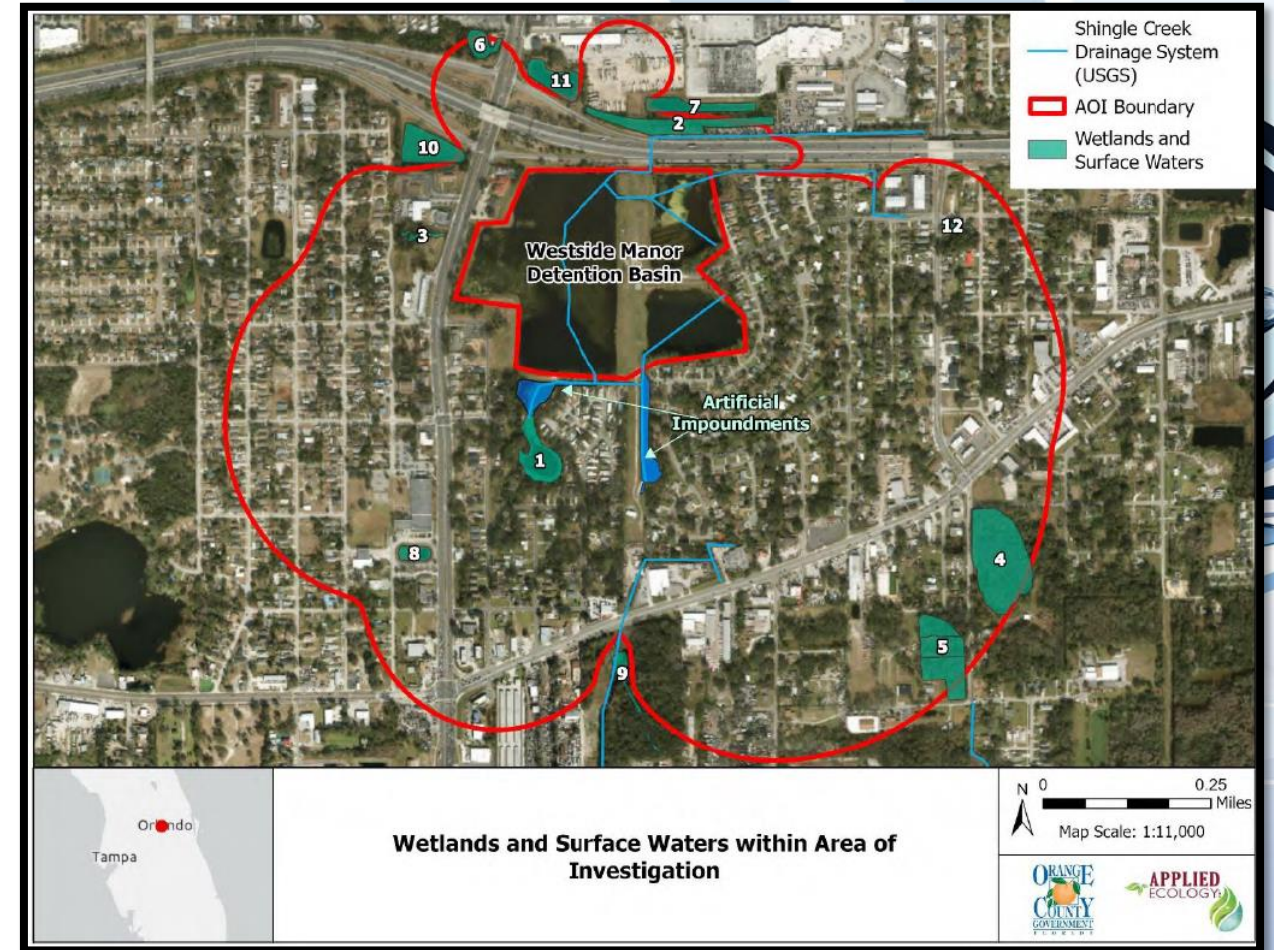
	Date	TN mg/L	TP mg/L	TSS mg/L	Rain inches
Dry Weather Sampling Event	6/2/2024	0.73	0.087	2	0.00
	6/3/2024	0.76	0.076	2	0.00
	6/4/2024	0.71	0.083	1	0.00
	6/5/2024	0.84	0.084	2	0.00
	6/6/2024	0.77	0.085	<1	0.55
July	7/1/2024	0.85	0.1	11	0.00
August	8/20/2024	0.6	0.044	1	0.07
September	9/2/2024	0.81	0.077	4	0.18
Wet Weather Sampling Event	9/8/2024	ERR	0.077	3	1.00
	9/9/2024	0.77	0.086	16	1.32
	9/10/2024	0.82	0.091	2	1.19
	9/11/2024	0.83	0.061	2	0.03
	9/12/2024	0.9	0.071	1	0.02





# Permitting

- Water Use Permit (WUP): Carollo
  - Pre-application meeting
  - Yield Analysis
  - Justification for Proposed Water Use Permit
  - Operational Plan
  - Conceptual System Design
- Environmental Resource Permit (ERP) Modification: Geosyntec
  - Pre-application meeting
  - Groundwater modeling
  - Wetland and Surface Water Impacts





# Funding Opportunities & Next Steps

- Funding and Grant Opportunities
  - FDEP Water Quality Improvement Grant
  - CDBG-DR Grant
  - FDEP Alternative Water Supply Grant
  - FDEP Resilient Florida-Implementation Grant
- Next Steps
  - Complete permitting efforts
  - Secure grants
  - Proceed to design





# Project Timeline

## January 2023

- Carollo TM: Conceptual Layout and Cost

## May 2023

- Orlo Vista Idea presented at BCC

## June 2024- July 2025

- WUP and ERP Permitting

## 2027 Construction

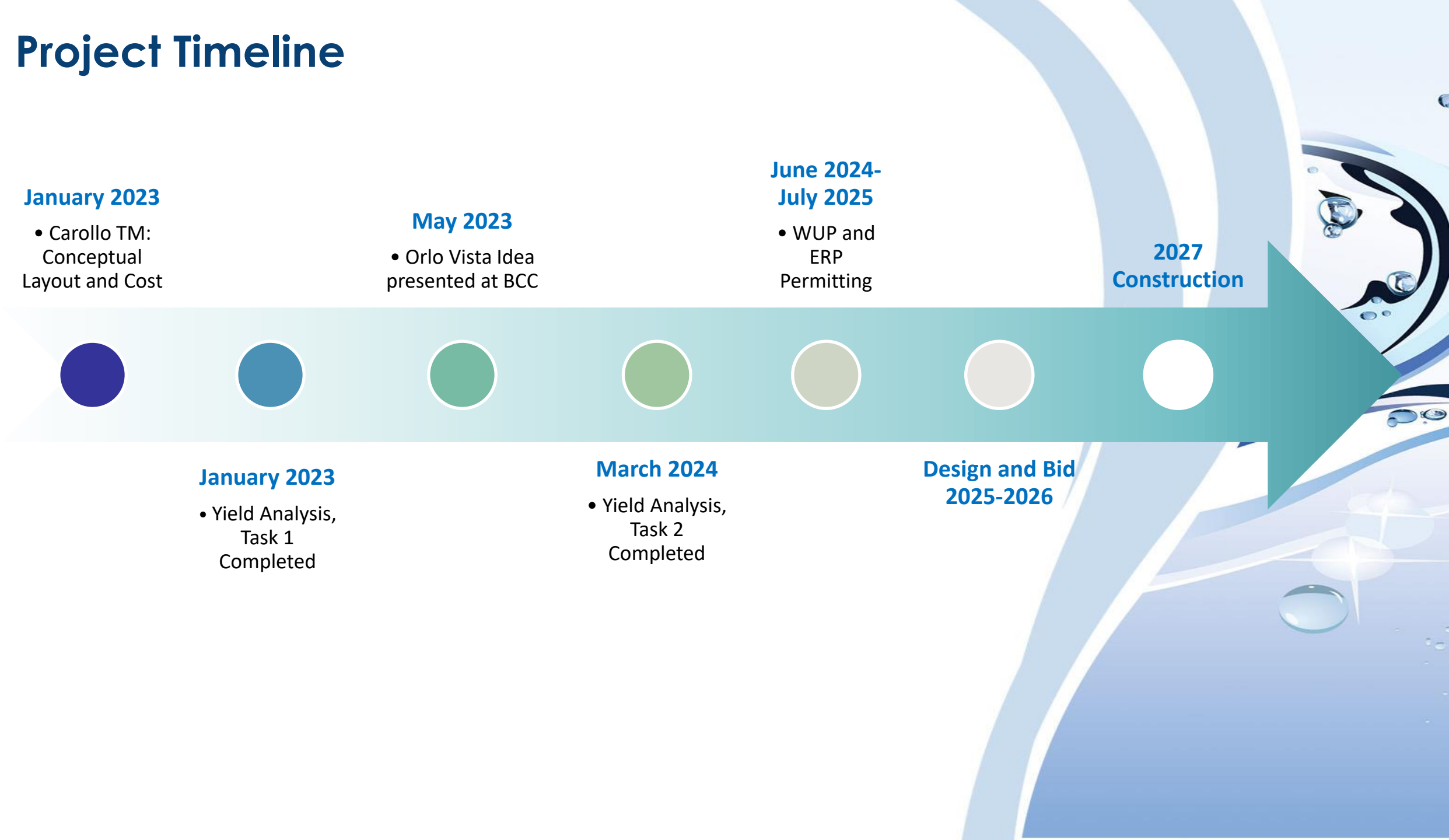
## January 2023

- Yield Analysis, Task 1 Completed

## March 2024

- Yield Analysis, Task 2 Completed

## Design and Bid 2025-2026



# Questions?

## ❖ Contact Information:

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