

# Utilities Master Plan Work Session

Board of County Commissioners Meeting  
January 28, 2025

# Presenters

- Johnny Edwards, PE, Interim Utilities Director
  - Opening and Closing Comments
- Steve Riley, PE, Jacobs Engineering
  - Details of Treatment Plants and Collection/Distribution Systems

# BCC Comments From Prior Work Sessions

- Written responses provided
- Water Conservation – Environmental Services
- Coordination with Public Works - Dig Once
- Yankee Lake Surface Water Treatment

# Utilities Master Plan Update Workshop No. 3 – Treatment & Transmission

Seminole County Board of County Commissioners  
January 28, 2025



**Jacobs**

Challenging today.  
Reinventing tomorrow.

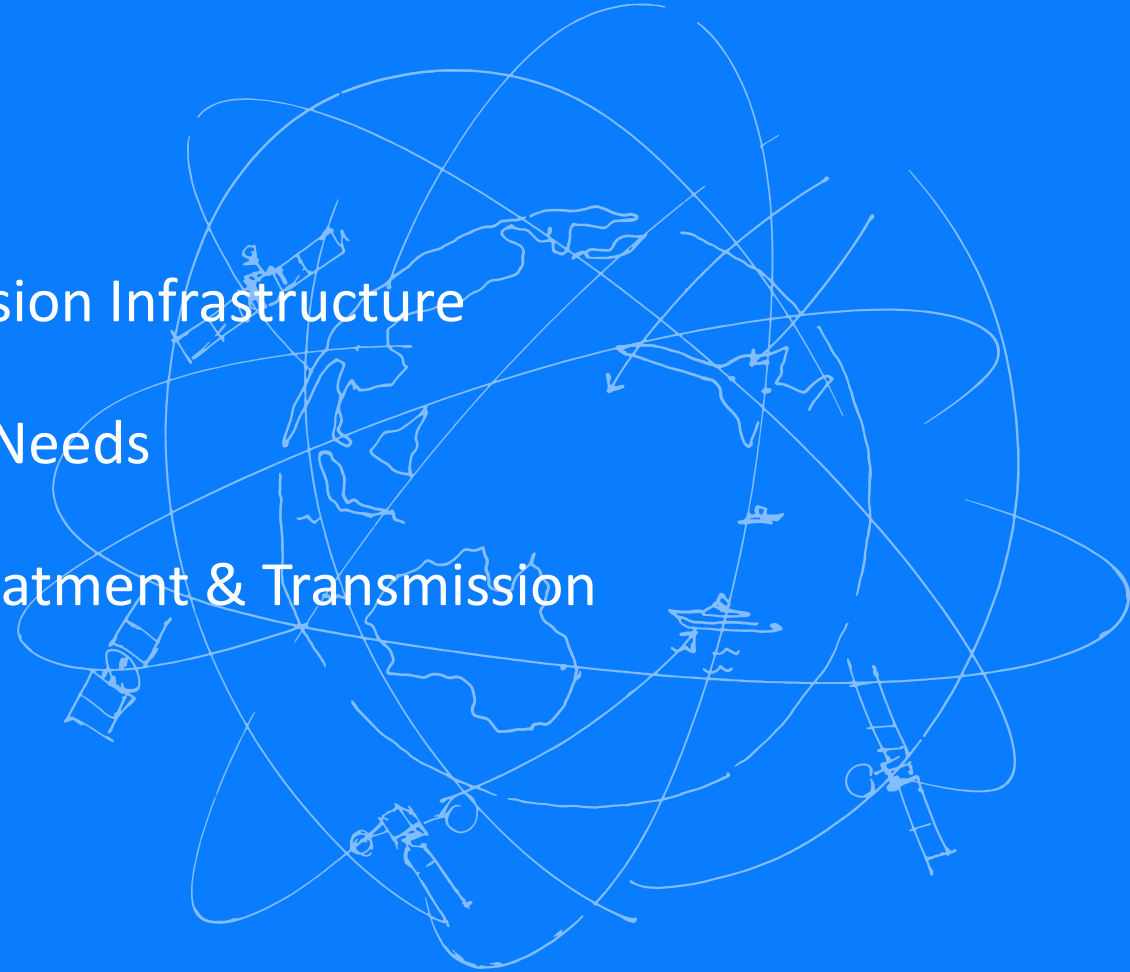
# Agenda

Current State of County's Treatment & Transmission Infrastructure

Capacity, Process, and Renewal & Replacement Needs

Proposed Master Plan Framework for Future Treatment & Transmission

Input from BCC on Proposed Framework



# Treatment & Transmission – *The Holistic View*

1. County's Water Utility System is Entering its Mature Phase.
2. System is Aging and Renewal & Replacement Needs are Forefront.
3. Demands on Capacity are Secondary.
4. Additional Emphasis on Operations and Maintenance is Required.



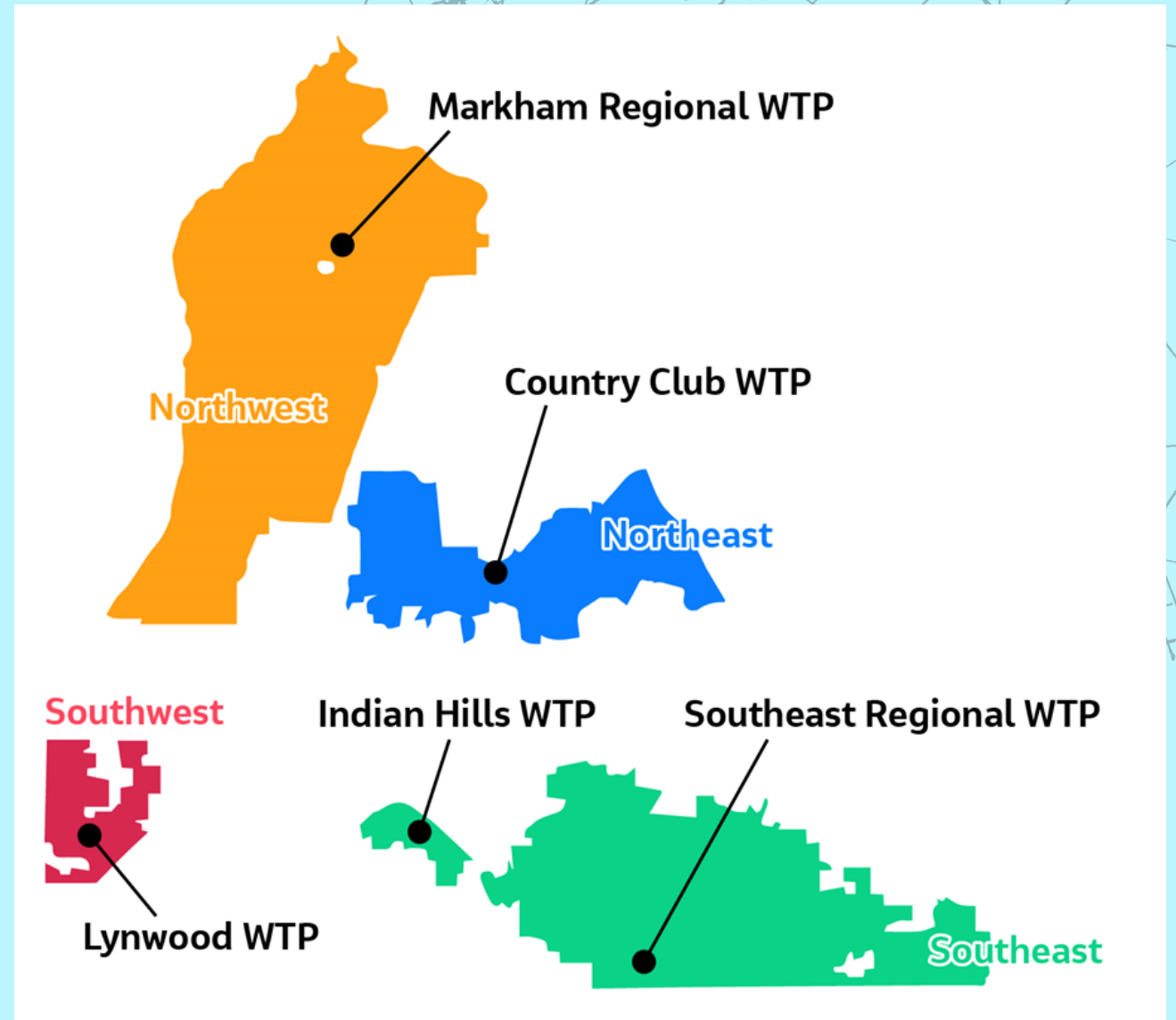
# Treatment

- Water & Wastewater Treatment Plants
- Capacity Needs
- Process Needs
- Renewal & Replacement (R&R) Needs



# Water Treatment Plants (WTP)

- Markham Regional WTP
- Country Club WTP
- Southeast Regional and Indian Hills WTPs
- Lynwood WTP





# WTP Capacity – Current & Projected 2045

WTP	Capacity (MGD*)	2024 Demand (MGD)	2045 Demand	
			With Conservation & Reclaimed Expansion	No Conservation, No Reclaimed Expansion
			Expansion Needed?	Expansion Needed?
Markham Regional	10.4	8.1	No	No
Country Club	6.7	4.4	No	No
Southeast Regional	16.3	13.5	No	Yes (early 2040s)
Indian Hills	3.2		No	No
Lynwood	3.7	2.2	No	No
* MGD, Million Gallons per Day				

# WTP Process Needs

- Emerging Contaminants –
- PFAS\* - Pilot Testing Underway for PFAS Removal, Compliance by 2029

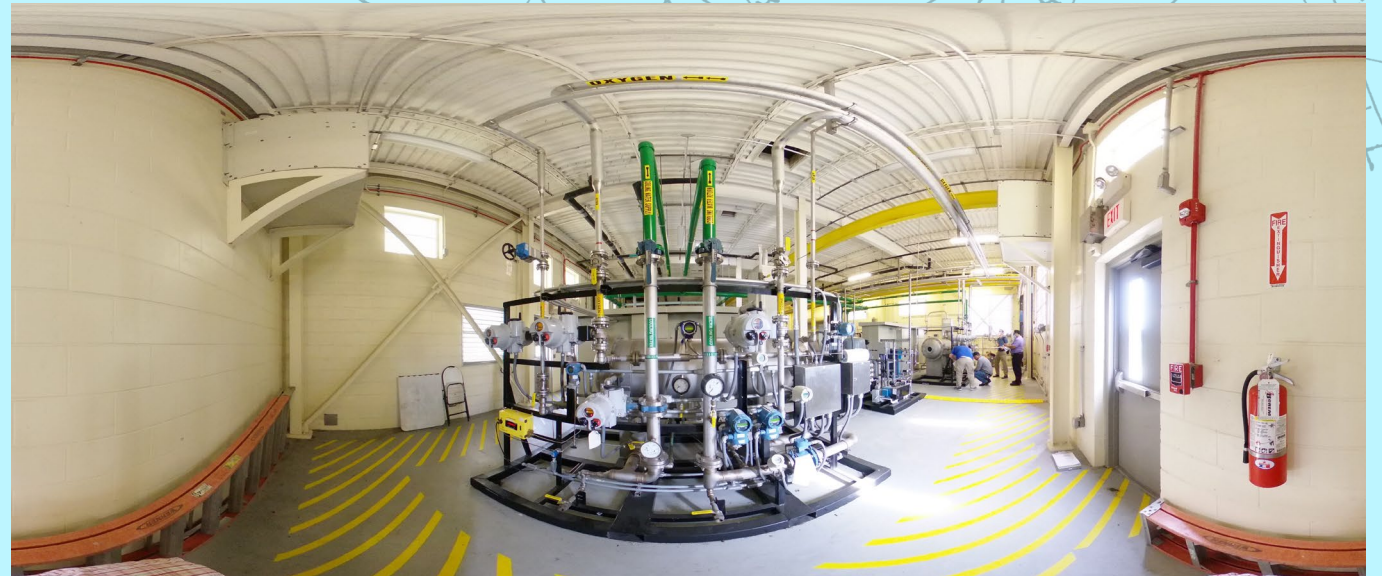


\* Polyfluoroalkyl Substances

# R&R Needs - WTPs

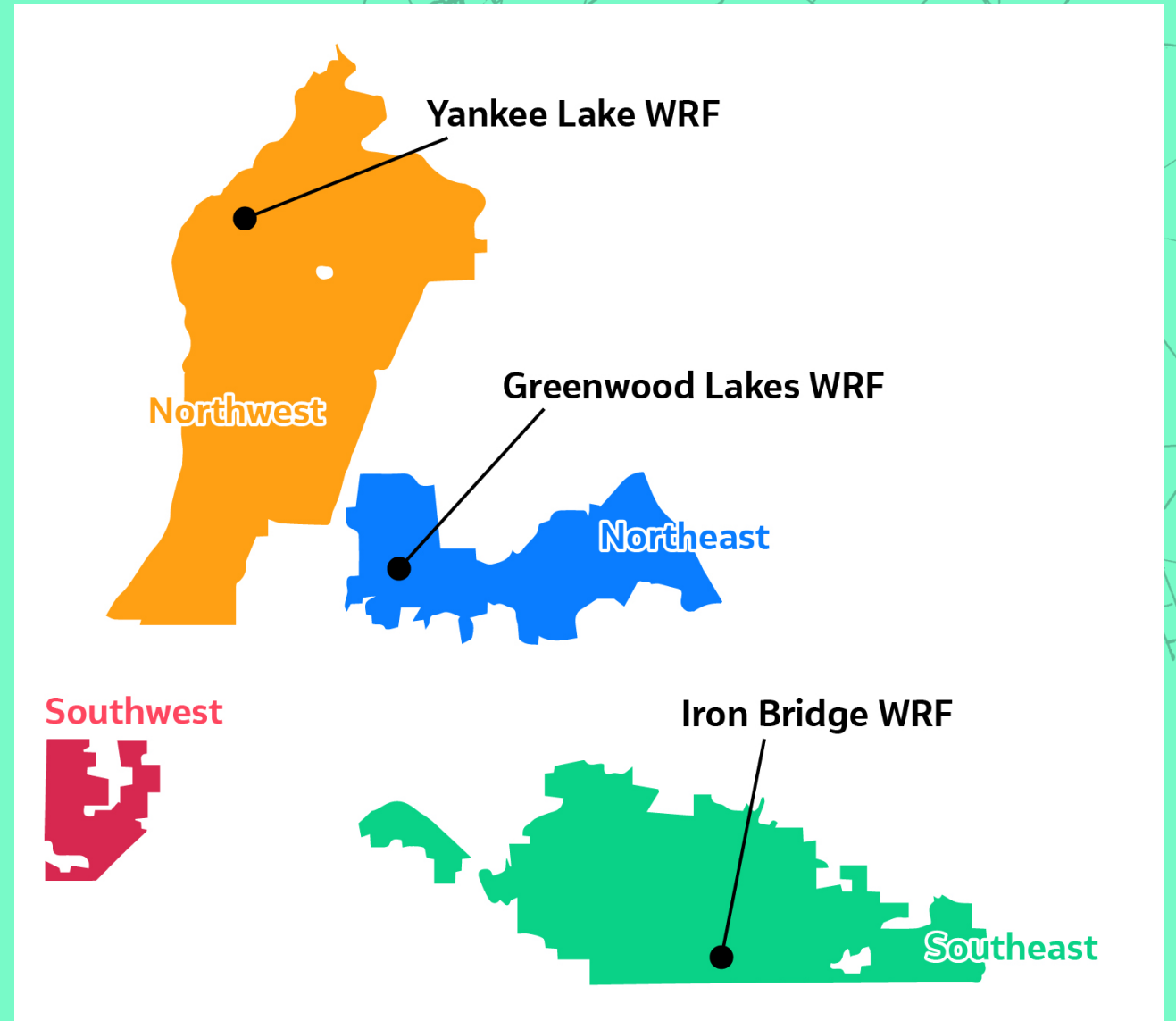
- Markham Regional WTP – Ozone Equipment, SCADA\*
- Country Club WTP - Ozone Equipment, SCADA
- Southeast Regional/Indian Hills WTPs - Ozone Equipment, SCADA
- Lynwood WTP – SCADA

*\*Supervisory Control &  
Data Acquisition (SCADA) Equipment*



# Wastewater Reclamation Facilities (WRFs)

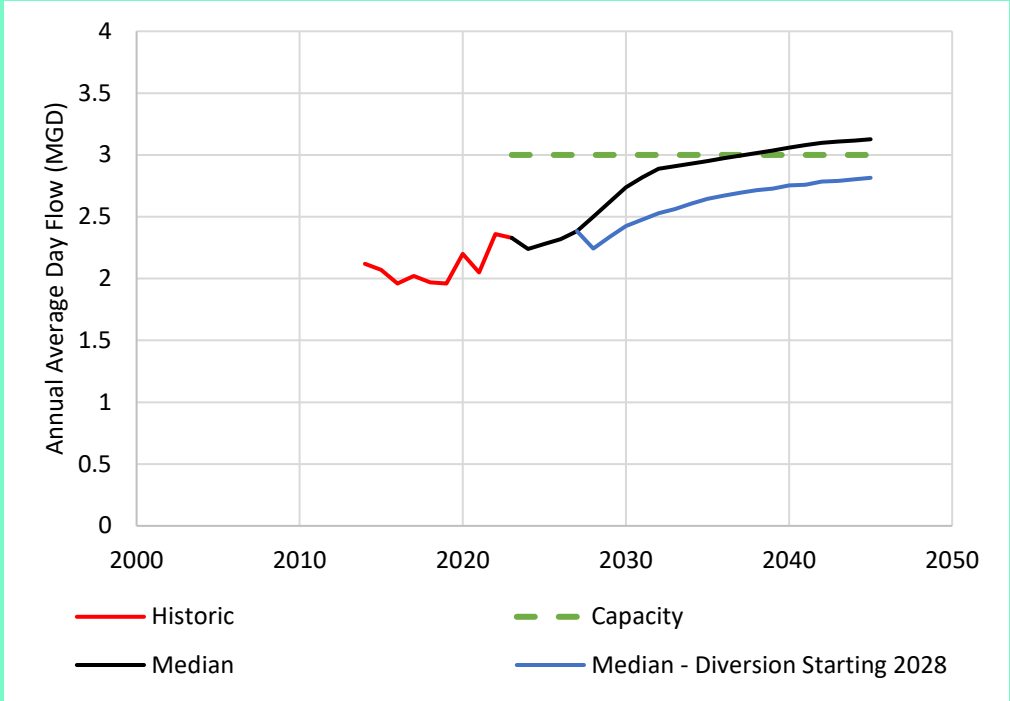
- Yankee Lake WRF
- Greenwood Lakes WRF
- Iron Bridge WRF (City of Orlando Regional Facility)
- Southwest (Wholesale Service from Altamonte Springs & Sunshine Water, Inc.)



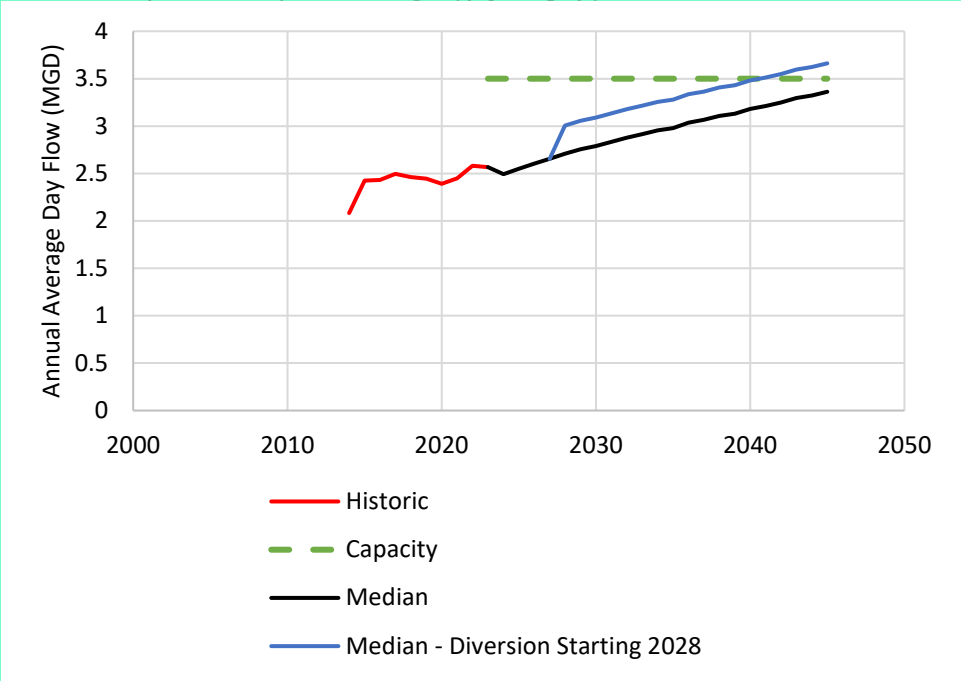
# WRF Capacity Needs

WRF	Capacity (MGD)	2024 Flow	2045 Flow	
			Without Flow Diversion	With Flow Diversion
			Expansion Needed?	Expansion Needed?
Yankee Lake WRF	3.5	2.6	Yes, Late 2040s	Yes, Late 2030s
Greenwood Lakes WRF	3	2.4	Yes, Late 2030s	No
Iron Bridge WRF	8.5	5.1	No	NA

# WW Flow Diversion – Northeast to Northwest



Greenwood Lakes WRF



Yankee Lake WRF



# WRF Process Needs

- Greenwood Lakes WRF – Reliability Improvements, Easing Space Constraints (Relocate Some Equipment to Off Site), Options under evaluation
- Yankee Lake WRF – Expansion to 5 MGD



# Surface WTP

- Capacity – 5.5 MGD
- R&R – Extensive Needs
- Equipment, Operations, & Treatment Assessment is Underway





# TRANSMISSION – POTABLE WATER

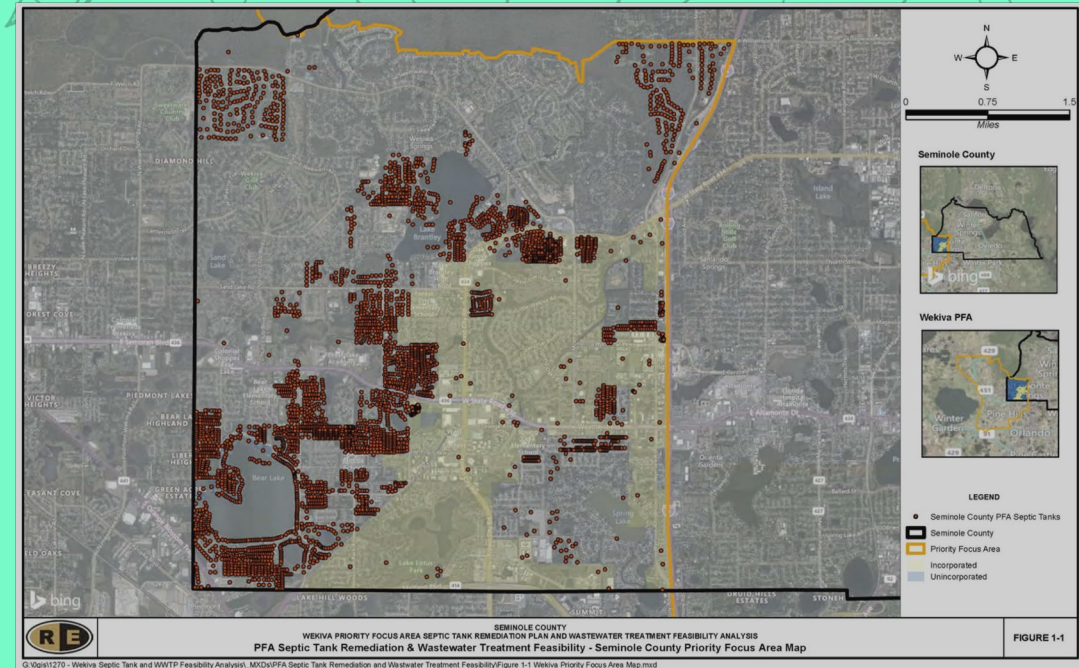
- New Infrastructure to Provide the Following:
  - Upgrade Transmission to Serve New Development in Southeast and Northeast
  - County-Wide – Service to Centers and Corridors Overlay Areas



# TRANSMISSION - WASTEWATER

## New Infrastructure to Provide the Following:

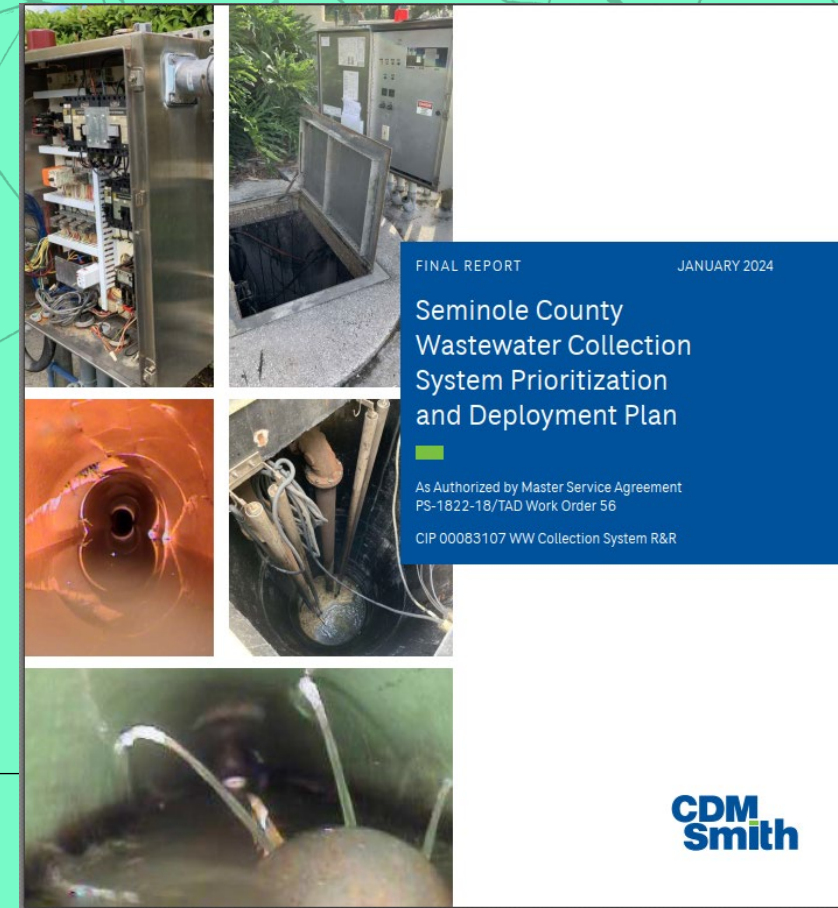
- Upgrade Transmission - Serve New Development in Southeast and Northeast
- Southeast – SSNOCWTA\* Improvements – Updating Master Plan
- Northeast – Flow Diversion to Yankee Lake
- Southwest – Septic-to-Sewer Areas
- County-Wide – Service to Centers and Corridors Overlay Areas
- *South Seminole North Orange County Wastewater Transmission Authority*



# TRANSMISSION - WASTEWATER

Clean Waterways Act (Florida Senate Bill 712), Rule 62-600.710 F.A.C.

- Requires Owners of Large Collection System to prepare:
  - Emergency Preparedness/Response Plan
  - Disaster-specific Preparedness/Response/Recovery Plan
  - Annual Reporting on Prevention of Overflows, Leakages, and Inflow and Infiltration
  - Power Outage Contingency Plan
  - Pipe Assessment, Repair and Replacement Plan
  - Maintenance and Repair Plan
  - Flood Mitigation and Stormwater Control Actions





# Gravity Mains

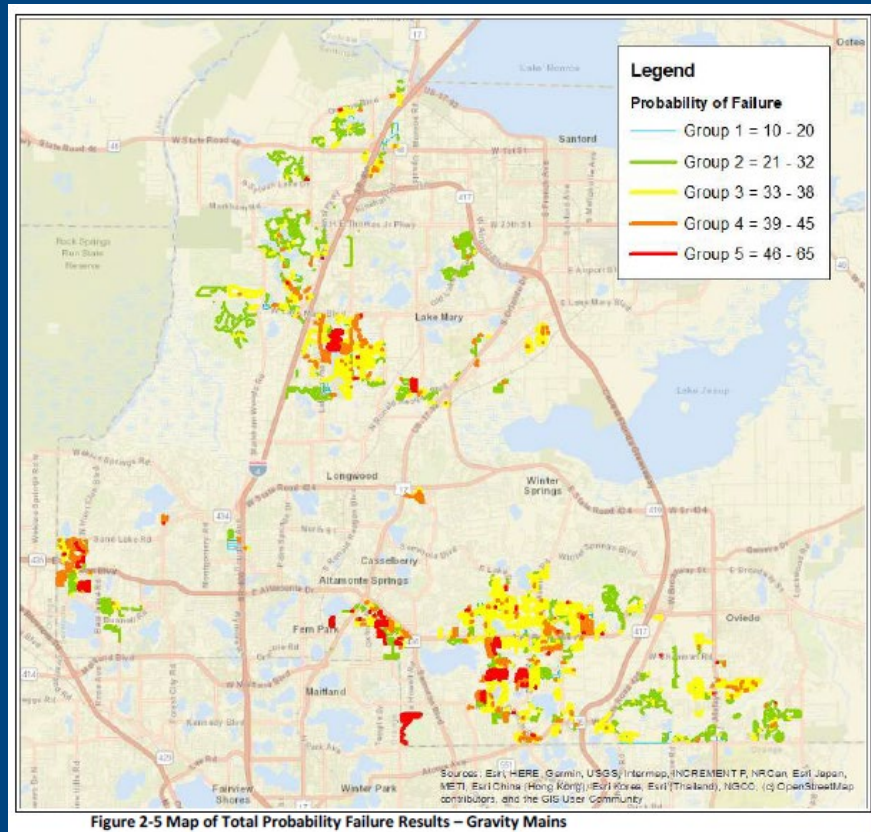


Figure 2-5 Map of Total Probability Failure Results – Gravity Mains

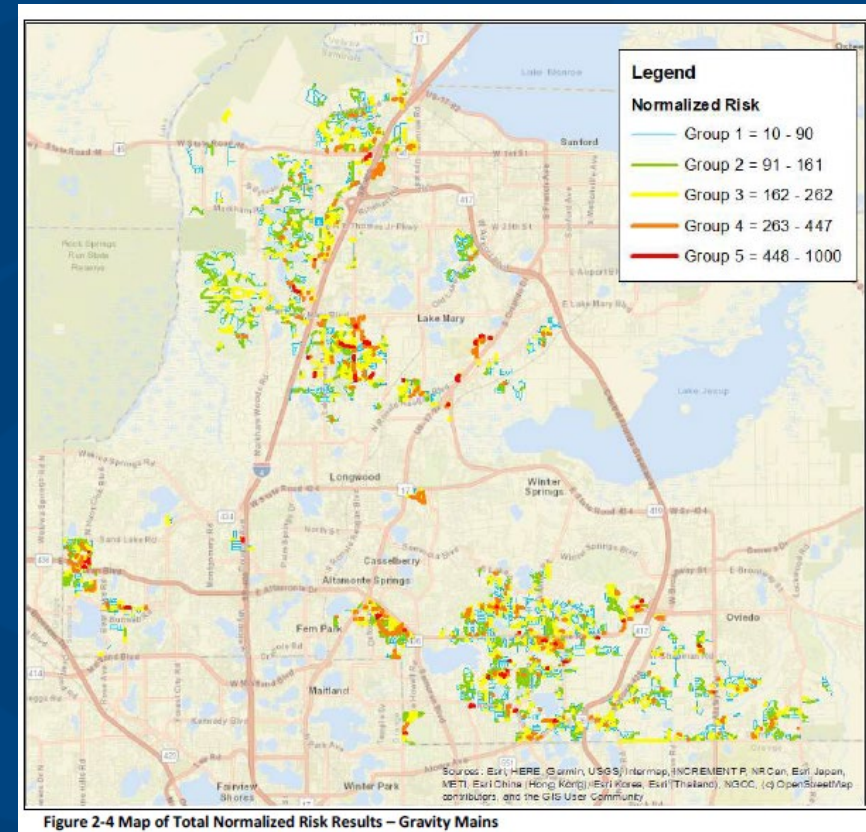
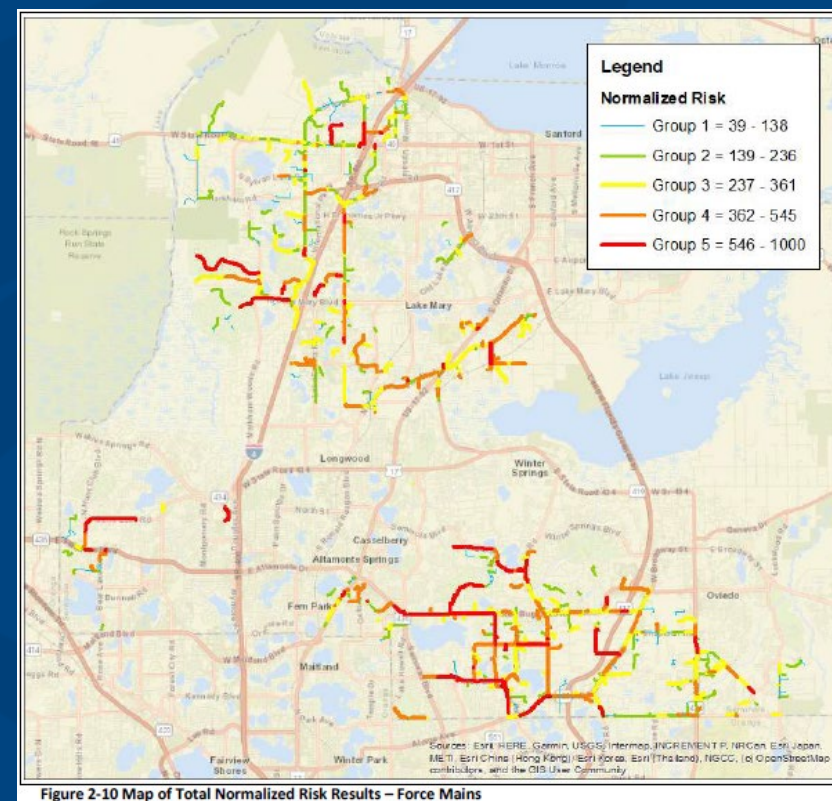
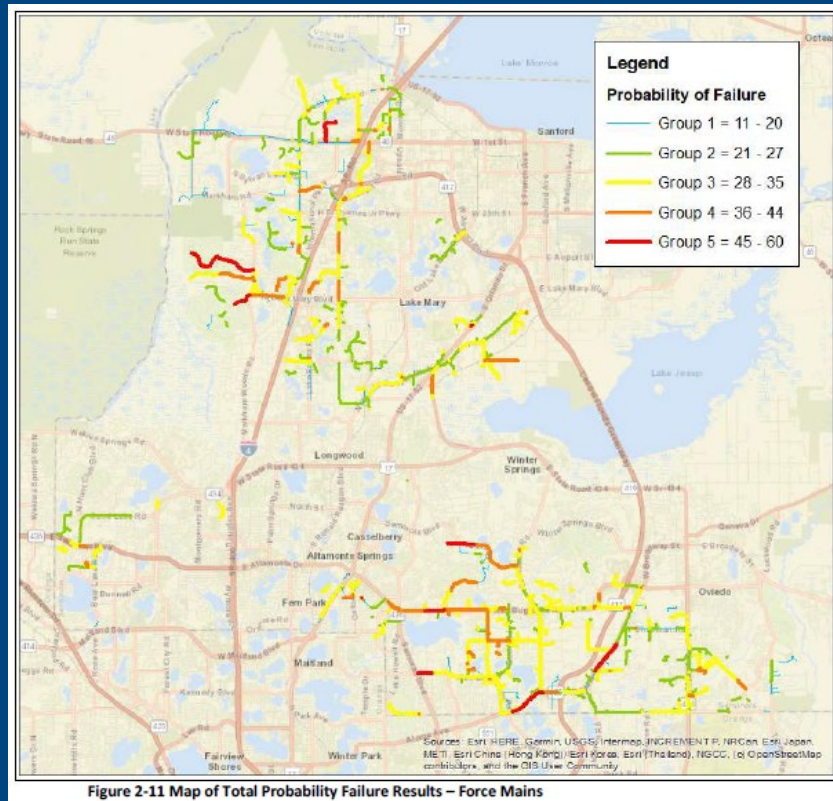


Figure 2-4 Map of Total Normalized Risk Results – Gravity Mains

# Force Mains (Wastewater)

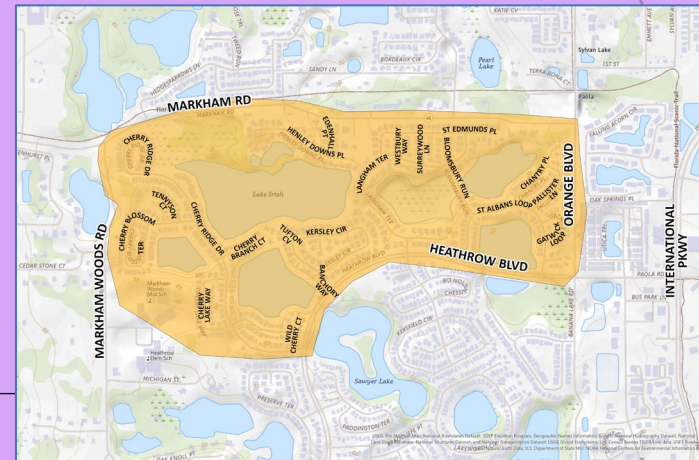
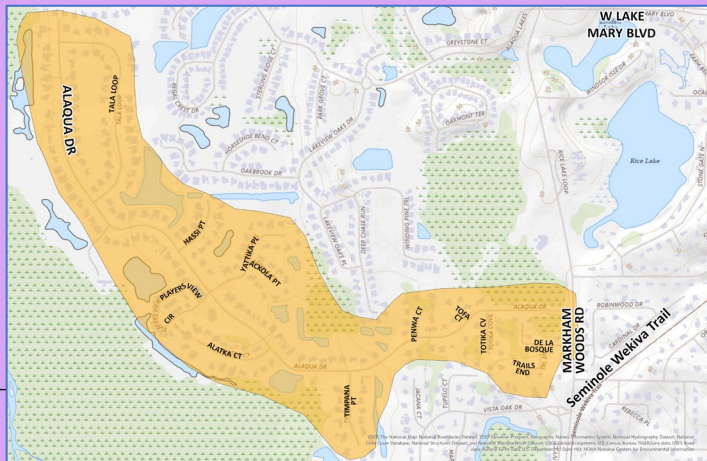




# RECLAIMED WATER TRANSMISSION

## Expand System -

- Northwest – Construct Phases 3 and 5 Retrofit Projects (~1 MGD Capacity)
- Southeast – Expand to High Water Use Areas and Dig Once Zones – Pipe Replacement Areas/Public Works Right-of-Way Work Areas
- Southwest – Dig Once – Septic-to-Sewer Conversion Areas



# PIPE REPLACEMENT

- Replace Aging Pipes –
  - When Breakage Rates Warrant
  - When Risk Assessment Warrants
- Prioritization Plan Recommends Inspecting:
  - 3 Miles of Gravity Sewer over 50 years old
  - 23 Miles of Force Mains
- Dig Once – Coordinate with Public Works Dept., FDOT, and SSNOCWTA Projects



# Ongoing Testing and Assessments

- Plant Condition Assessment – Potable and Surface Water
- WTP Pilot Testing
- Surface Water Treatment Processes
- Greenwood Lakes WRF Options
- Septic to Sewer
- Wastewater Collection System - Smoke Testing, Closed Circuit TV Inspections, Infiltration and Inflow (I&I) Testing, Risk Prioritization



# Proposed Utilities Master Plan Framework – Future Treatment

## ■ Water Treatment –

- One Water Plant May Need Expansion (Southeast Regional)
- Testing Will Determine if Existing Plants Can Meet New Drinking Water Standards
- R&R – Ozone Equipment Replacement, SCADA Upgrades

## ■ Wastewater Treatment –

- One Wastewater Plant May Need Expansion (Yankee Lake)
- R&R – SCADA Upgrades

## ■ Surface Water Treatment

- Potential Process Improvements & R&R



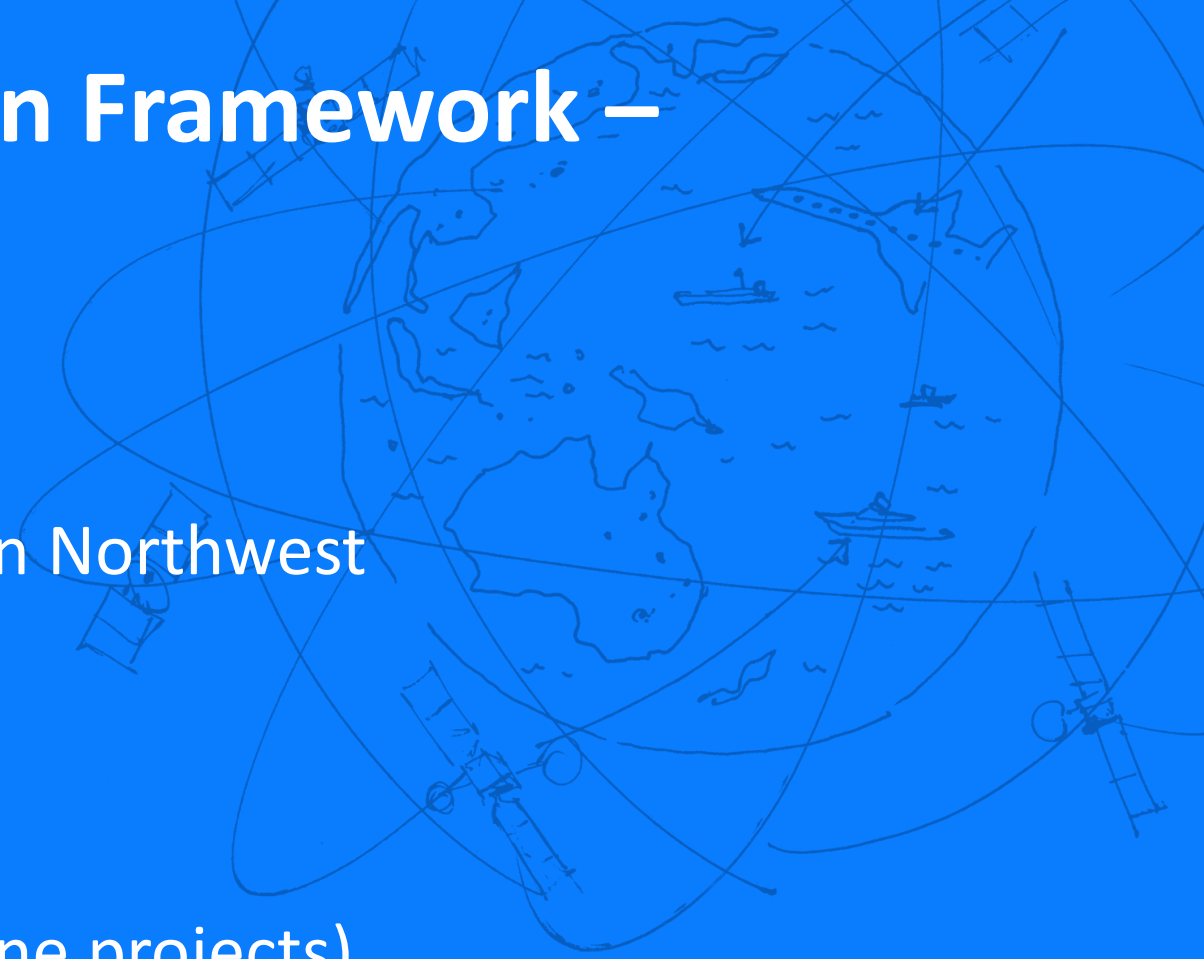
# Proposed Utilities Master Plan Framework – Future Transmission

- Water Transmission –
  - Expand Service to Major New Developments
- Wastewater Transmission –
  - Expand Service to Major New Developments
  - Divert Wastewater to Yankee Lake WRF
  - Improve Reliability of System to Reduce Risk of Sewage Releases
  - Incorporate Septic-to-Sewer Projects



# Proposed Utilities Master Plan Framework – Future Transmission

- Reclaimed Water Transmission –
  - Construct Reclaimed Retrofit Projects in Northwest
  - Evaluate Expansion in the Southeast
- All Transmission Main Projects –
  - Implement “Dig Once” Policy (all pipeline projects)
  - Replace Aging Pipes When Warranted



# Work Session Schedule

- ~~September 2024 – Kickoff, Utility Demand Projections – COMPLETE~~
- ~~November 2024 – Water Supply and Conservation – COMPLETE~~
- January 2025 – Treatment and Transmission Mains
- April 2025 – Capital Improvements Plan (CIP)
- September 2025 – Final Master Plan Report

# Input from BCC on Proposed Utilities Master Plan Framework - Treatment & Transmission



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Reinventing tomorrow.



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# Utilities Master Plan Update

Seminole County Board of County Commissioners

January 28, 2025



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