

# CITY OF OVIEDO

## Utility Sustainability Initiative

March 2023



West Mitchell Hammock  
Water Treatment Facility



Oviedo Water Reclamation Facility

## Oviedo ARPA Breakdown By Department/Divison



# CITY UTILITY GOALS

- **WATER SUPPLY** – HOW DO WE ACHIEVE A PERMANENT POTABLE WATER SUPPLY SUFFICIENT TO MEET FUTURE CAPACITY NEEDS?
- **WASTEWATER EFFLUENT DISPOSAL** – HOW DO WE PERMANENTLY SOLVE EFFLUENT DISPOSAL FOR BOTH WET WEATHER AND SUBSTANDARD RECLAIMED WATER?

# GOAL STRATEGIES

## WATER SUPPLY

- Step 1 - System Optimization
- Step 2 - Alternate Water Supply
- Step 3 - Advanced Water Treatment

## WASTEWATER

- Dedicated Infrastructure for disposal:
  - Wet Weather
  - Substandard Effluent (Reject)

# **WATER SUPPLY**

# Background - Existing Water Supply

## Consumptive Use Permit (CUP)

- Approved in 2008
- Expires in 2028
- Permits withdrawals from the Upper Floridan Aquifer (UFA)  $\leq$  400ft
- Capped at 4.674 MGD annual average withdrawal
- Based on an original population estimate of 38,000 in 2028

# Background - Existing Water Supply

## Current Treatment System

- Ten (10) existing raw water wells
- West Mitchell Hammock Water Treatment Facility rated at 10MGD
- Treatment is forced draft aeration combined with disinfection
- Chloramine disinfection is utilized due to naturally occurring organics in the water
- Chloramines are formed when ammonia is added to chlorine for disinfection

# Background - Existing Water Supply

## Conservation

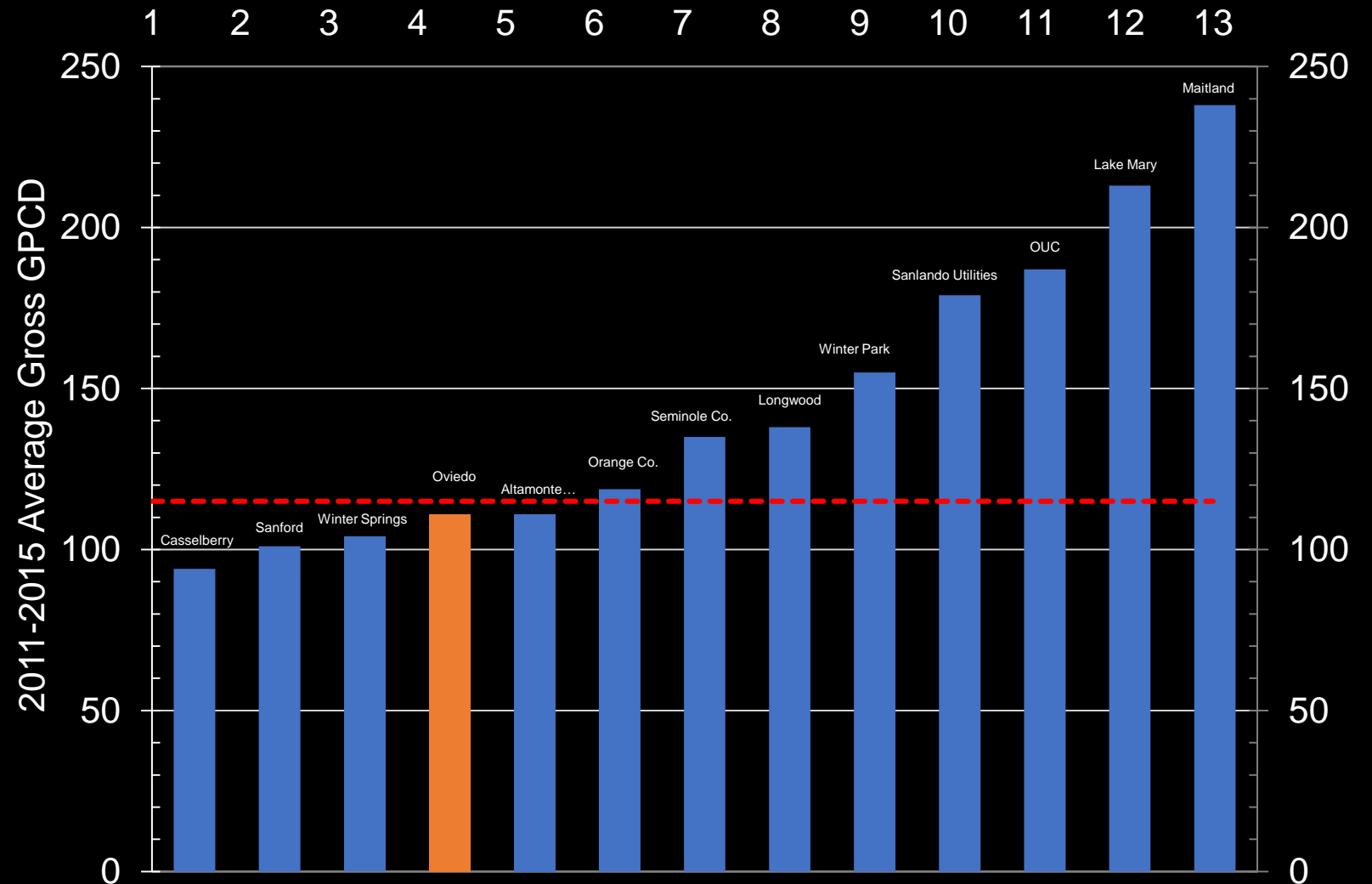
- Reclaimed irrigation and conservation practices already enacted to conserve potable water
- 3,252 current reclaimed water customers (77% of available)
- 1,050 HOA and private well irrigation connections
- City employs a full time water conservation coordinator
- Education and outreach programs already in place
- Current potable usage per capita = 111 gpd



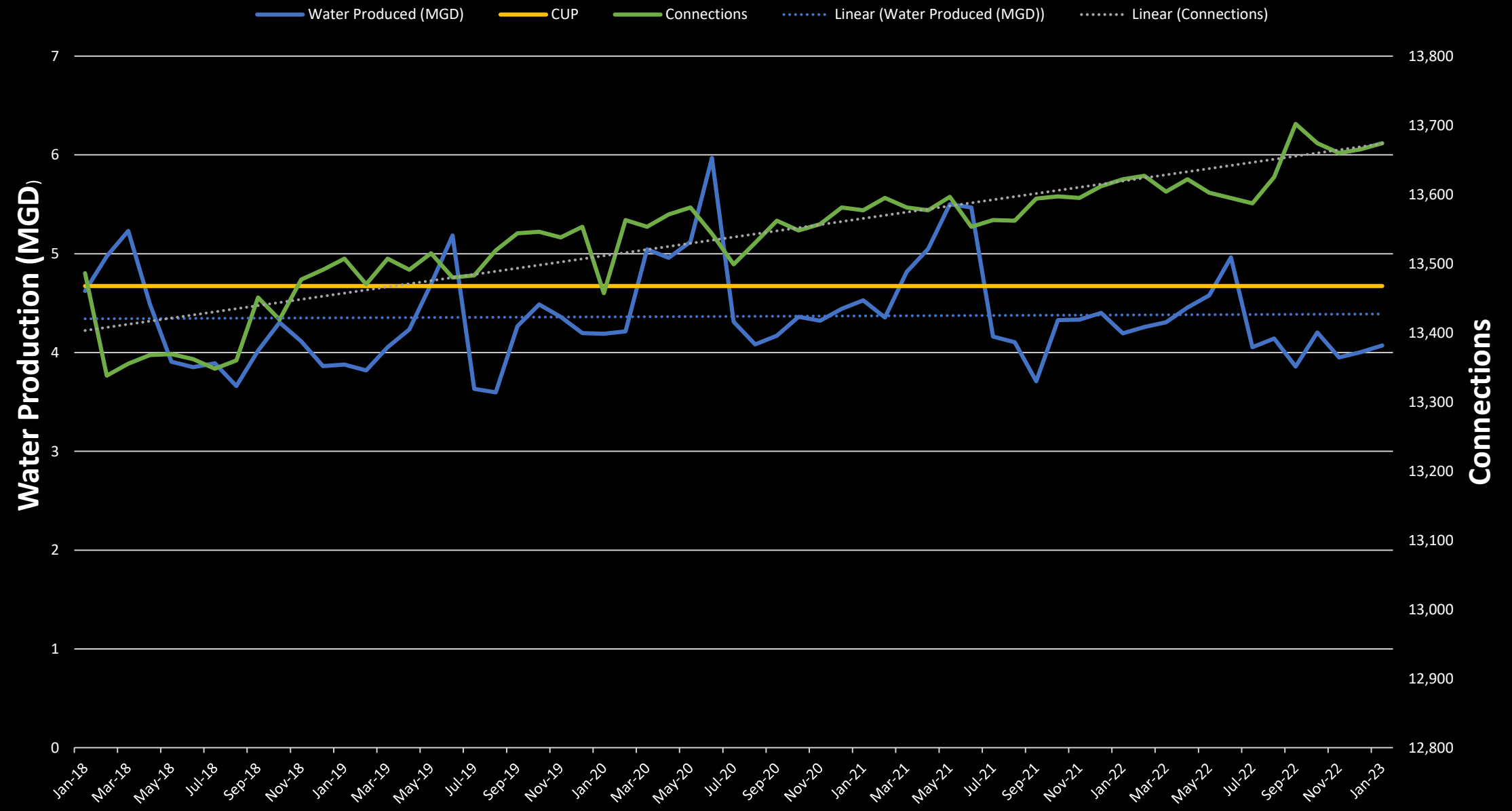
# Potable Water Per Capita Comparison

## Gallons Per Capita Per Day (GPCD)

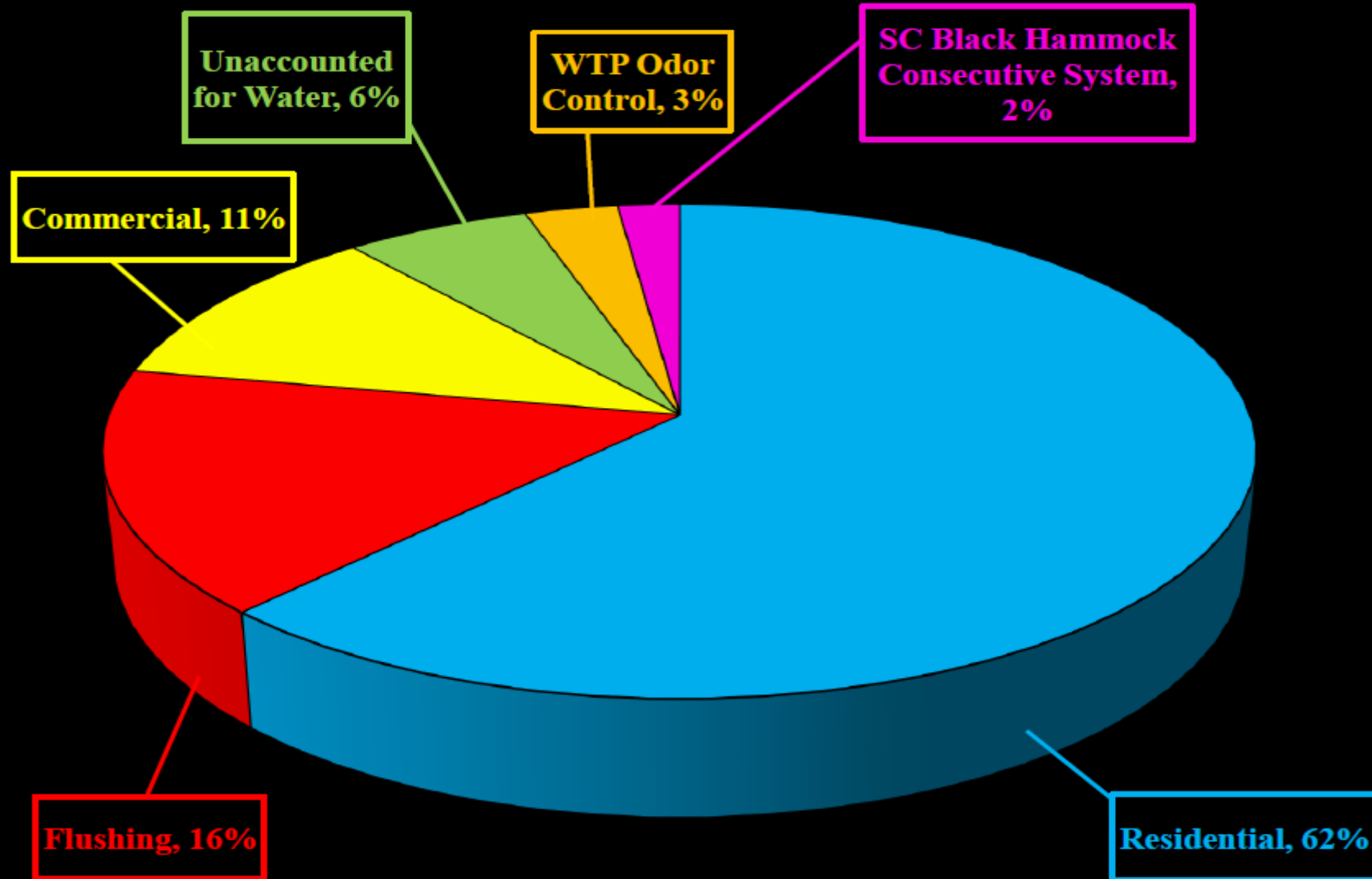
Casselberry = 94  
Sanford = 101  
Winter Springs = 104  
**Oviedo = 111**  
Altamonte = 111  
Orange Co. = 119  
Seminole Co. = 135  
Longwood = 138  
Winter Park = 155  
Sanlando Util. = 179  
OUC = 187  
Lake Mary = 213  
Maitland = 238



# 2018-2023 Water Production and Population



# WATER USE BY TYPE



# WHY DO WE FLUSH POTABLE WATER?

- Maintain disinfection/chloramine residual in the distribution system
- Areas of low flow and dead ends tend to experience longer water age and subsequent chloramine residual reduction
- Flushing prevents excessive water age and helps to discourage nitrification which can affect Chlorine residual
- Primary flushing to date has been by use of auto flushers
- City does implement manual (fire hydrant) free chlorine flushing for 21 days, once annually for system maintenance – FDEP recommended maintenance

**HOW DO WE REDUCE FLUSHING?**

# STEP 1 – SYSTEM OPTIMIZATION

## Initiatives to reduce flushing:

- Review current treatment operation and flushing practice through system modeling to determine recommendations
- Model water system to determine water quality vs. age
- Change flushing and operational practices to recapture capacity from existing allocation
- Improvements anticipated within calendar year 2023

**HOW DO WE GET MORE WATER SUPPLY?**

# STEP 2 – Alternate Water Supply

## Background

- Planning based on Water Facility Supply Work Plan (WFSWP) completed in 2023
  - Required per SJRWMD 2020 Central Florida Water Initiative Regional Water Supply Plan
- Identified between 1.6 and 2.0 MGD additional potable water capacity needed
- Based on estimated population of 54,000 in 2040
- **WFSWP recommends:**
  - Existing CUP modification
  - Enhance treatment to reduce flushing
  - Use reclaimed water where feasible
  - Lower Floridan Aquifer (LFA) Wells for additional groundwater supply

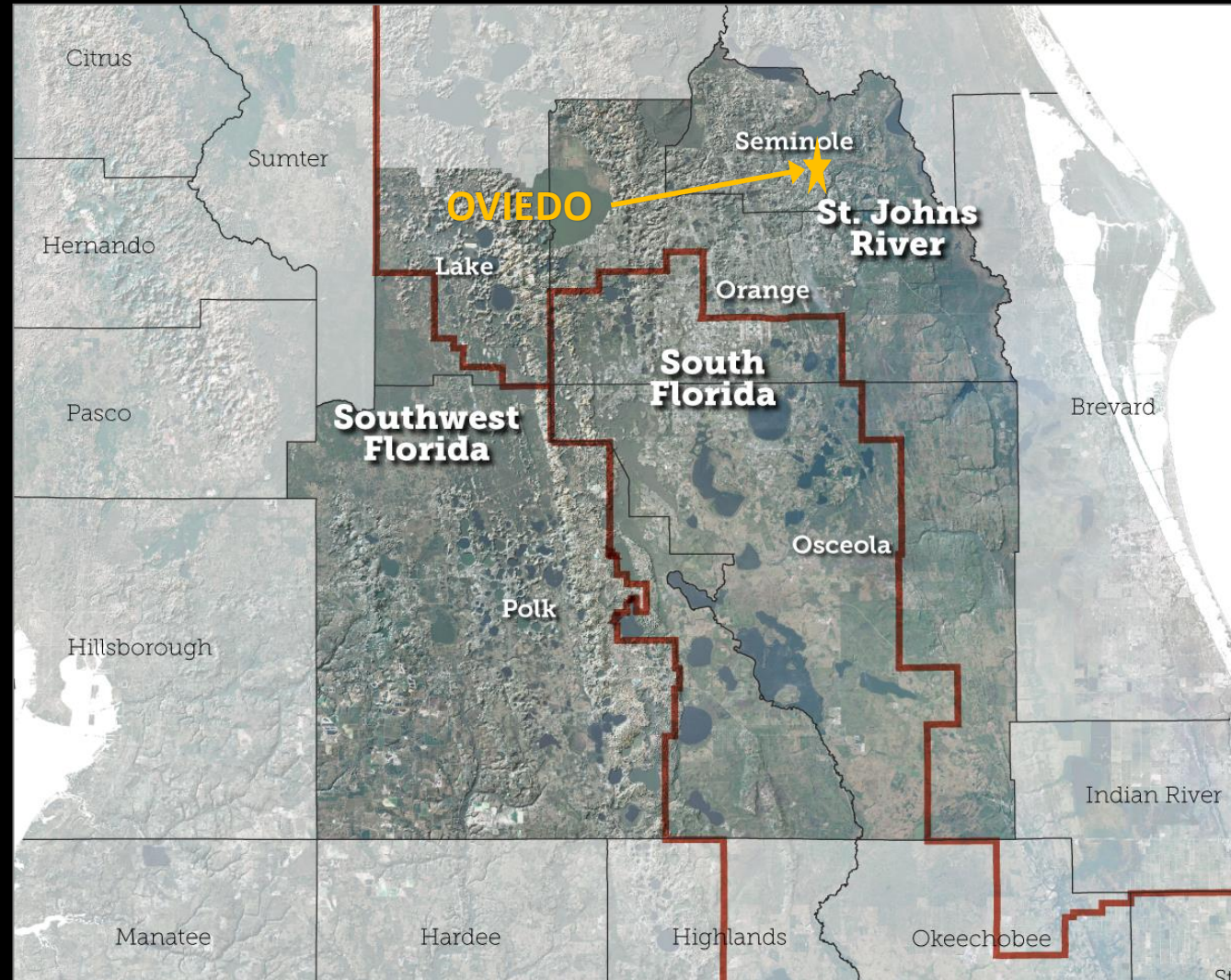


# STEP 2 – Alternate Water Supply

## Challenges

- Oviedo is within the Central Florida Water Initiative (CFWI) Planning Area
- CFWI 2021 Rule restricts Upper Floridan Aquifer (UFA) withdrawals to 2025 levels and sets 115 GPCD usage goal
- Utilities required to develop non-traditional, alternative water supplies such as:
  - Reclaimed water
  - Brackish groundwater
  - Surface water
  - Seawater

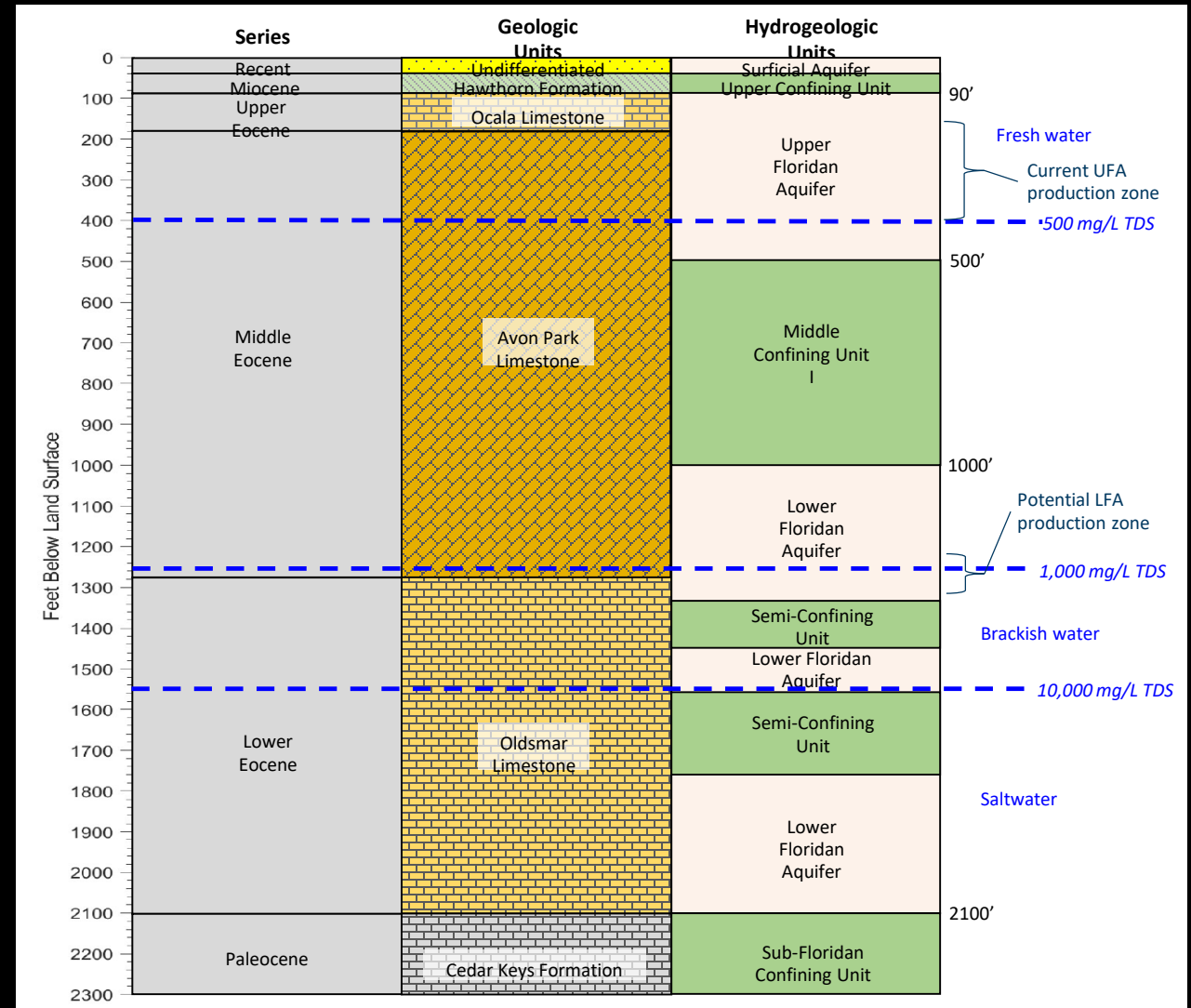
# CENTRAL FLORIDA WATER INITIATIVE (CFWI) PLANNING AREA



# WHERE DO WE GET MORE WATER SUPPLY?

## Lower Floridan Aquifer (LFA) :

- Brackish groundwater
- Approximately 1,300 feet deep
- Identified as the next most feasible alternative water supply



# Lower Floridan Aquifer Wells

## **BENEFITS:**

- SJRWMD permittable capacity (CUP modification)
- Available supply
- City-controlled source
- Can be blended with UFA water for treatment

# Lower Floridan Aquifer Wells

## CHALLENGES:

- Brackish groundwater source
- Requires Advanced Water Treatment (AWT) to reach potable quality
- Creates brine concentrate as part of treatment that has to be disposed via wastewater system (Iron Bridge)

# Lower Floridan Aquifer Wells

## IMPLEMENTATION:

- Two (2) wells ultimately recommended
  - One (1) for supply and one (1) for redundancy
- Current estimate at \$3M per well
- One (1) LFA well proposed with current goal initiative
- ARPA Funding for first well
- Design to be initiated in 2023
- Construction anticipated for 2024

# STEP – 3 ADVANCED WATER TREATMENT (AWT)

- AWT proposed to remove all organics and solids from LFA source
- Chloramine Disinfection anticipated to be replaced with Free Chlorine
- Membranes, Granular Activated Carbon (GAC), Ion Exchange potential treatment options
- Anticipated Future State Revolving Fund or other alternative funding source required
- Construction anticipated within 5-year horizon

# **WASTEWATER EFFLUENT DISPOSAL**



# WASTEWATER CURRENT EFFLUENT DISPOSAL – PERCOLATION PONDS



# Current Effluent Disposal

- 60 acre site
- Percolation Pond lease runs through 2034
- Current property taxes = \$87,724/year
- Existing effluent line unreliable and has had multiple failures since City purchase of Alafaya Utilities
- Receives substandard effluent and reclaimed quality effluent only



# WASTEWATER EFFLUENT DISPOSAL PROPOSED FORCE MAIN ROUTE



# Proposed Effluent Disposal

- Reliable discharge force main line (9,100 LF)
- Permanent solution for substandard effluent and wet weather disposal
- Will require additional wastewater capacity purchase through Seminole County (Amend Utility Agreements)
- Construction Estimate at \$5.5M
- Funded through existing ARPA budget
- Design to begin in 2023
- Construction anticipated in 2024

# PROJECTS SUMMARY

## TECHNICAL DESIGN

- \$1,000,000

## WATER TREATMENT IMPROVEMENTS

- \$3,000,000

## WASTEWATER TREATMENT IMPROVEMENTS

- \$5,500,000

**TOTAL COST = \$9,500,000**

**AVAILABLE ARPA FUNDING = \$9,566,680**

**QUESTIONS?**