



**FLORIDA KEYS NATIONAL MARINE SANCUARY**  
*Water Quality Protection Program Steering Committee Meeting*  
**March 7, 2024**

**Integrated Water Resource Management**, also known as One Water, is an approach to managing water that looks holistically at the planning and management of water supply, wastewater, and stormwater systems.



Potable Reuse in Florida

# Topic Overview

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- One Water – Integrated Water Management
- Potable Reuse

2

- Professional Associations supporting the PR movement
- Steps to develop a framework and rules to implement PR in Florida

3

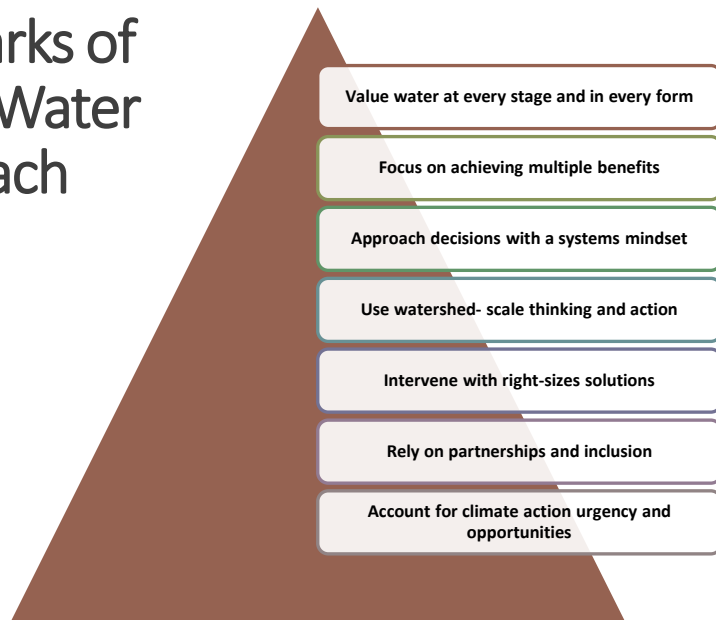
- Drivers for integrated water management and alternative water supply
- PR Projects around the state

# Integrated Water Resource Management – One Water Approach

**Integrated Water Resource Management**, also known as One Water, is an approach to managing water that looks holistically at the planning and management of water supply, wastewater, and stormwater systems.

**One Water** is a transformative way of viewing, valuing, and managing water. The One Water approach manages all water—whether from the tap, a stream, a storm, an aquifer, or a sewer—in a **collaborative, integrated, inclusive, and holistic** manner. One Water can change and regenerate the way we live, the opportunities we have, our environment, and our society.

## Hallmarks of a One Water Approach



## Water Environment Federation - WHAT IS 'CIRCULAR WATER ECONOMY?'

*A circular water economy (CWE) recycles and recovers resources within the water use and treatment cycle to maximize value for people, nature, and businesses.*

*The circular water economy exists when the public and private sectors optimize and recover valuable resources from water and wastewater in ways that fight climate change, support equitable economic development, and ensure water services for all. Circular water economy practices keep products and materials in use, regenerate natural systems, and design out waste and pollution. This model helps build a just and sustainable society and ensures it for the future.*

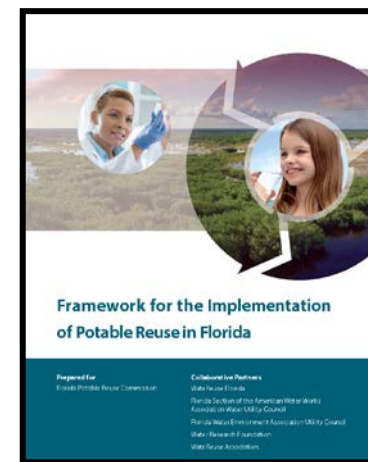
# Florida's Campaign for Potable Reuse and One Water

2018: Florida Potable Reuse Commission is formed

- 11-member consensus group – 6 utilities, 5 VIPs (Ag, DOH, Env, Ind, Public Health)

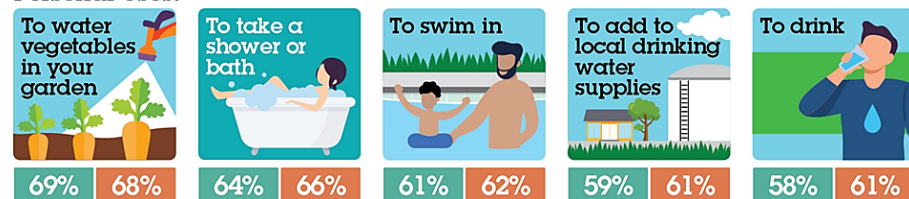
2019: Executive Order 19-12 signed by Gov. Ron DeSantis

- FDEP receives a \$250,000 legislative appropriation for PR public education campaign



## One Water Florida

### Personal Uses:



### Environmental Uses:



2020: FL SB 712 – Clean Water Act – Required FDEP to initiate rule making for PR based on PRC Framework recommendations (rules currently in draft)

- Added potable reuse as a source water in Florida
- 2020: Florida Potable Reuse Commission – Publication of The Framework for the Implementation for Potable Reuse in Florida (Statewide Potable Reuse Survey conducted March 2020, 1,980 respondents)
- Gather a statewide baseline of citizen attitudes and perceptions about recycled water

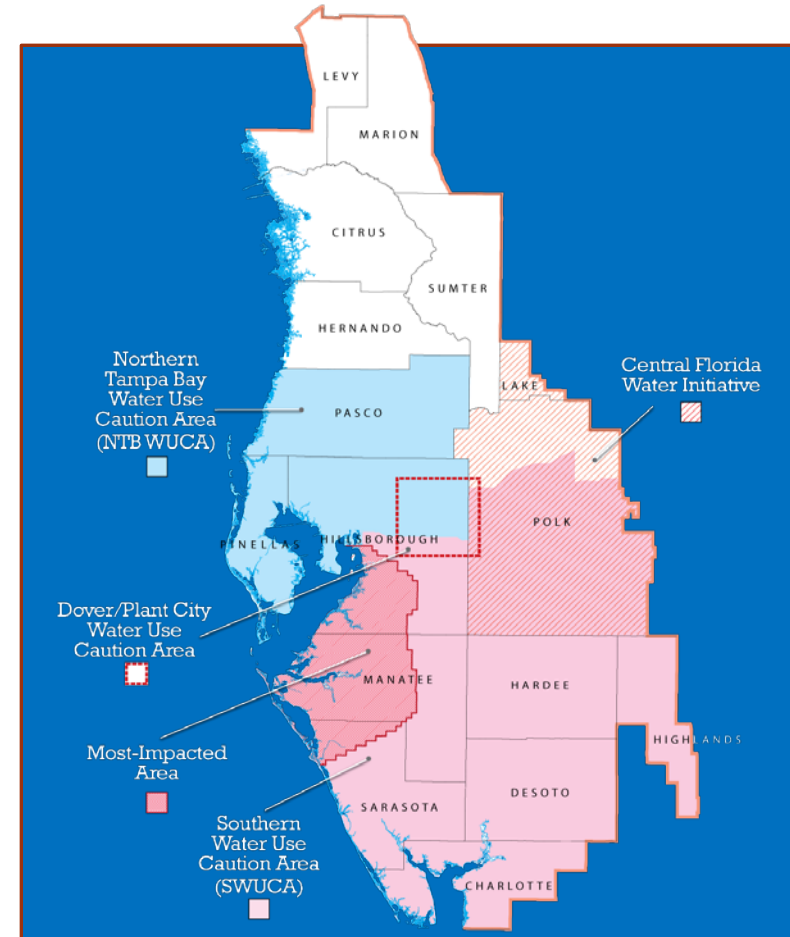
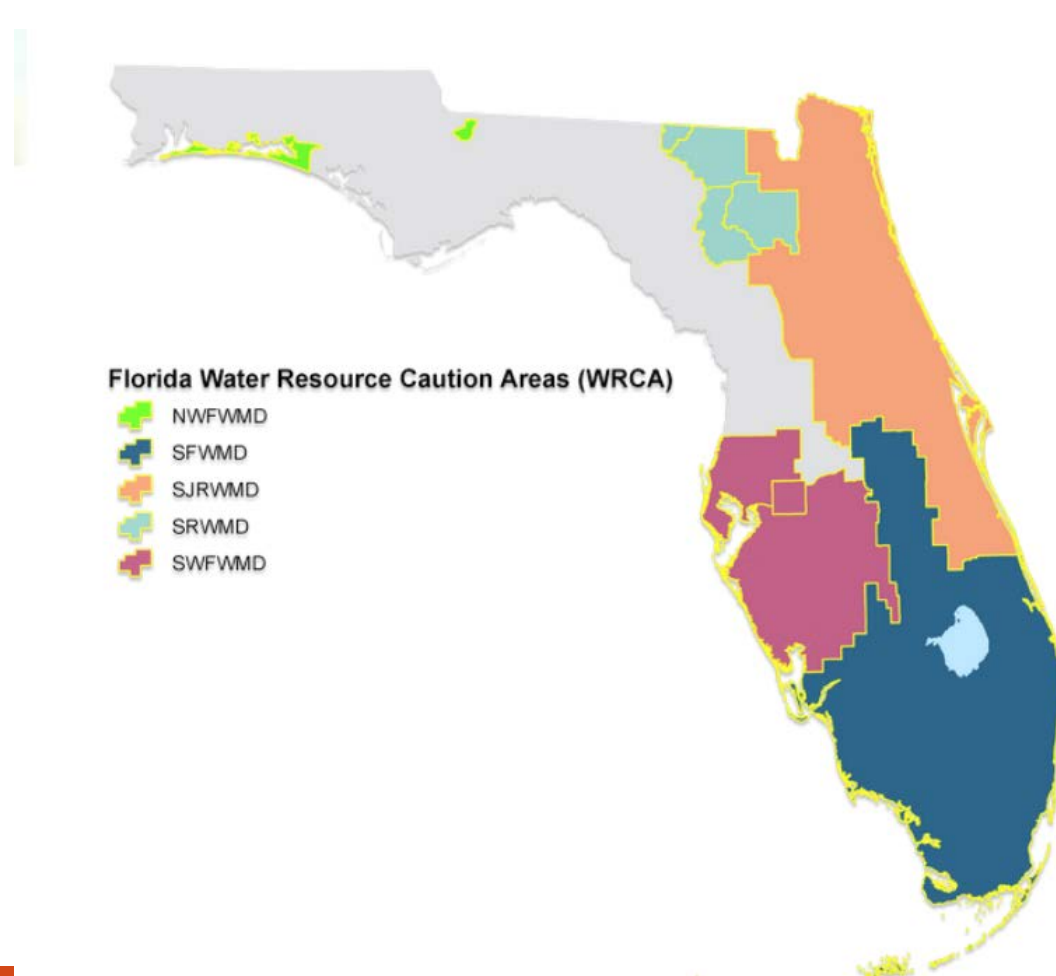
2021: Florida SB 64 – An Act Related to Reclaimed Water

- Elimination of non-beneficial surface water discharges, encourages potable reuse
- Required municipalities with SWD to submit a Plan by Nov. 2021 to eliminate SWD by 2032

<https://watereuse.org/sections/watereuse-florida/>

# Drivers for Potable Reuse

Florida Water Resource Caution Areas – over 65% of SWFWMD is a WRCA – and ALL of SWFWMD area considered a WRCA under Rule 62-40.520(2)



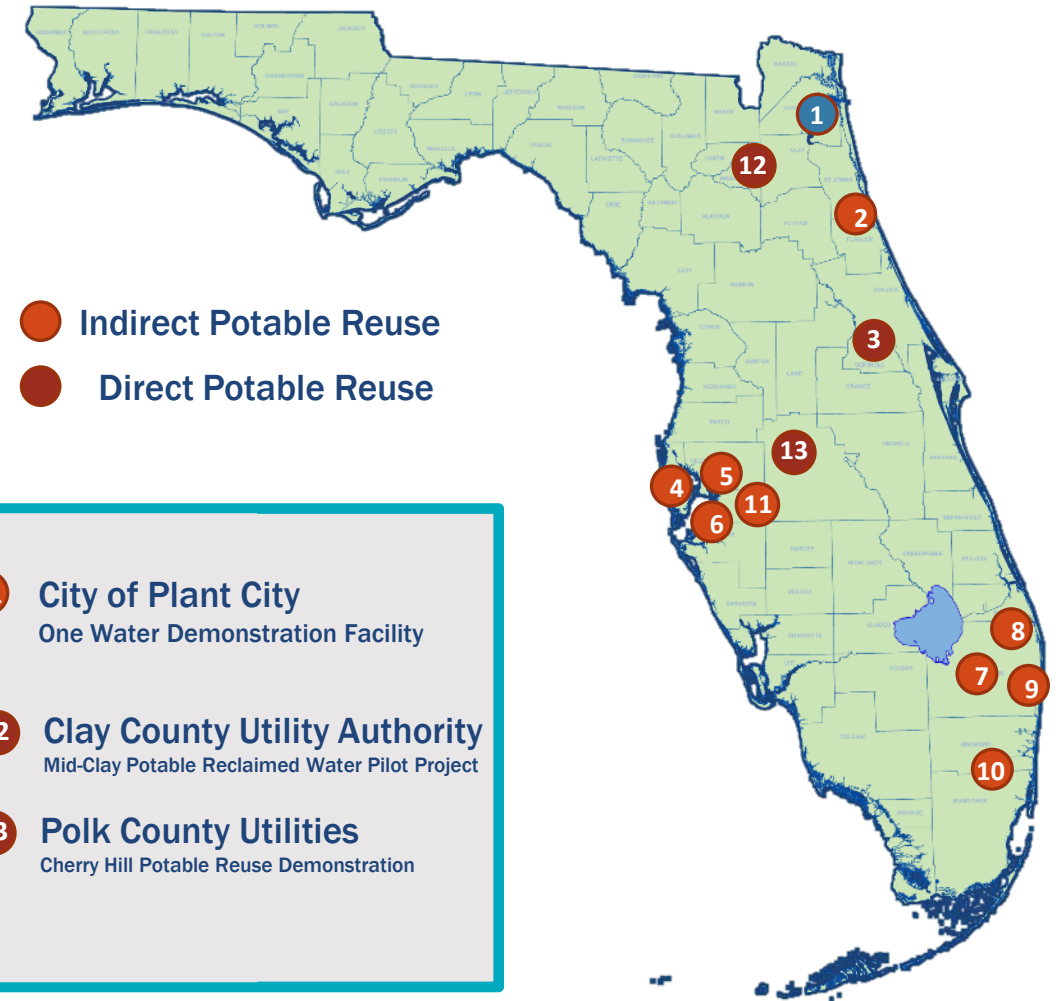
# Trends In Reuse - SWFWMD

- Decline in Ag industries
- Flatline of golf course development
- Shift away from reliance on public access distribution
- Shift away from coal power plant reuse utilization
- Increased interest in economics of reuse and rates
- Increased interest in natural systems, wetlands and MFL projects
- Increased interest in potable reuse – surface water discharge for WWTPs (SB64)

# POTABLE WATER REUSE Pilots in FLORIDA

## Pilot Testing Reuse Systems

- |                                                                                                          |                                                                                                                            |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> <b>JEA</b><br>Water Purification Treatment Evaluation and Pilot Testing                         | <b>6</b> <b>HILLSBOROUGH COUNTY</b><br>Indirect Potable Reuse Project (SHARP)                                              |
| <b>2</b> <b>CITY OF DAYTONA BEACH</b><br>Potable Water Supplementation Program Demonstration Test System | <b>7</b> <b>CITY OF HOLLYWOOD</b><br>Effluent Recharge Treatment Pilot Study                                               |
| <b>3</b> <b>CITY OF ALTAMONTE SPRINGS</b><br>pureALTA                                                    | <b>8</b> <b>WEST PALM BEACH</b><br>Green Cay Phase II                                                                      |
| <b>4</b> <b>CITY OF CLEARWATER</b><br>Groundwater Replenishment                                          | <b>9</b> <b>TOWN OF DAVIE</b><br>Advanced Wastewater Treatment for Aquifer Recharge and Indirect Potable Reuse Pilot Study |
| <b>5</b> <b>CITY OF TAMPA</b><br>Purify Usable Resources for the Environment (PURE)                      | <b>10</b> <b>MIAMI-DADE COUNTY</b><br>Coastal Wetlands Rehydration Demonstration Pilot Project                             |



- |                                                                                                  |
|--------------------------------------------------------------------------------------------------|
| <b>11</b> <b>City of Plant City</b><br>One Water Demonstration Facility                          |
| <b>12</b> <b>Clay County Utility Authority</b><br>Mid-Clay Potable Reclaimed Water Pilot Project |
| <b>13</b> <b>Polk County Utilities</b><br>Cherry Hill Potable Reuse Demonstration                |

# Potable Reuse Pilot Projects

## Polk Co. NW DPR Feasibility Study and Pilot

- Source water characterization
- Treatment technology investigation
- 14,400 gpd DPR pilot facility
- Cost estimates for full-scale implementation
- Educational program
- \$2.6 million total cost
- \$795,000 District

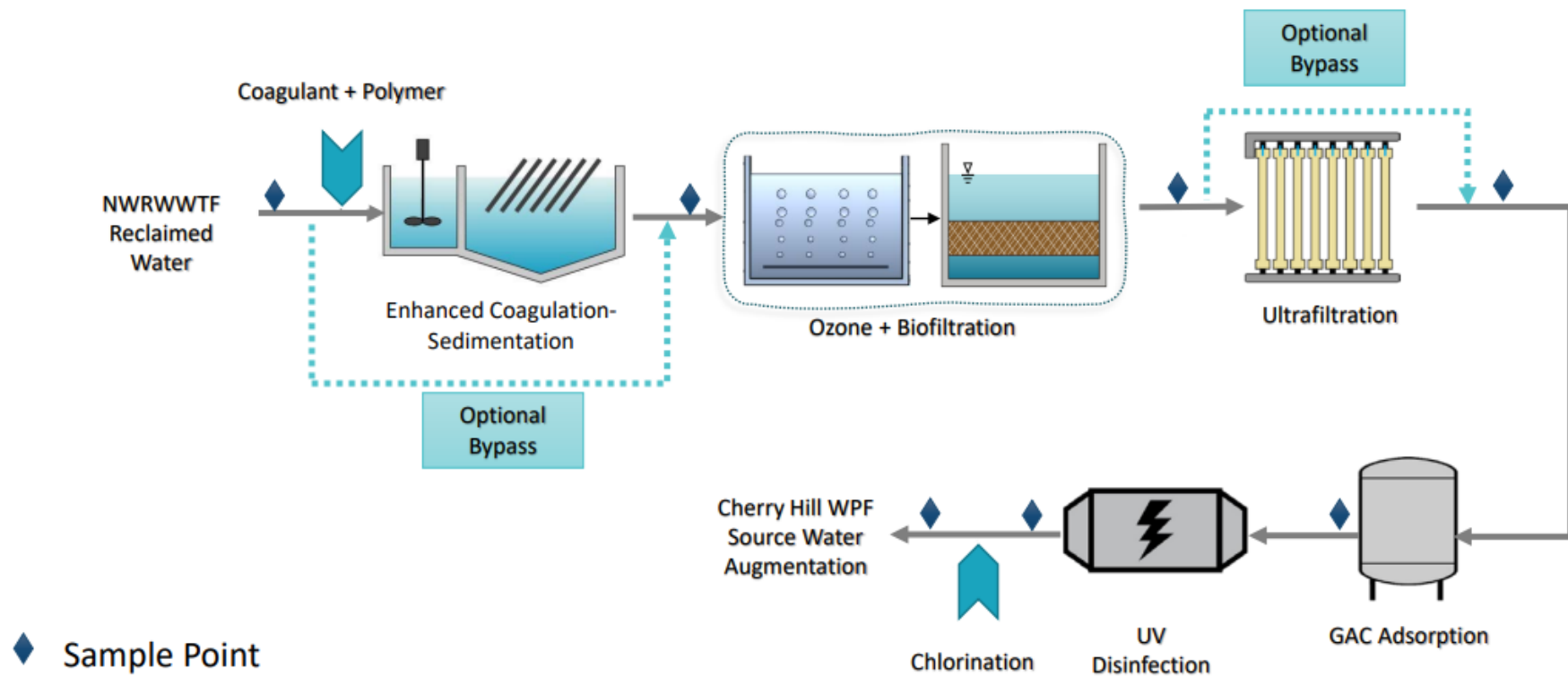




# Polk County PR Demonstration Facility



## Process Flow Diagram



# Polk County PR Demonstration Facility



## DIRECT POTABLE REUSE PILOT PROJECT

COOPERATIVE FUNDING AGREEMENT WITH  
SOUTHWEST FLORIDA WATER  
MANAGEMENT DISTRICT JUNE 2021

- PILOT STUDY TO SELECT TECHNOLOGY AND PROCESS
- NEW CHERRY HILL WTP
  - PROXIMITY TO NW WWTF
  - HIGHLY TREATED EFFLUENT FOR ASR WELL
  - AVAILABLE REUSE BALANCES POTABLE DEFICIT
- AMPLE SPACE FOR VISITORS

## North Port DPR Feasibility Study

- Source water characterization
- Treatment technology investigation for “*Coastal DPR*” system
- Preliminary cost estimates for full-scale implementation
- \$250,000 total cost
- \$125,000 District



# Introduction and Background



## *The City of Plant City, FL*

Located ~ 50 miles inland of Florida's west coast

Known for agriculture and annual Strawberry Festival

The City owns and operates:

- (1) 10MGD WRF (AWT Facility)
- (4) WTPs, 5<sup>th</sup> in construction



# Introduction and Background (cont.)



## Plant City's Predicament

### Projected Population

Expected to grow to a total population of over 110,000 by 2050

### Water Demand

Demand is projected to surpass permitted supply

### Groundwater Water Use Caution Area

Like much of Florida, Plant City is in a Water Use Caution Area (now recovered)

### Florida Regulation

Senate Bill 64 calls for the elimination of nonbeneficial surface water discharge

Sept 2023:

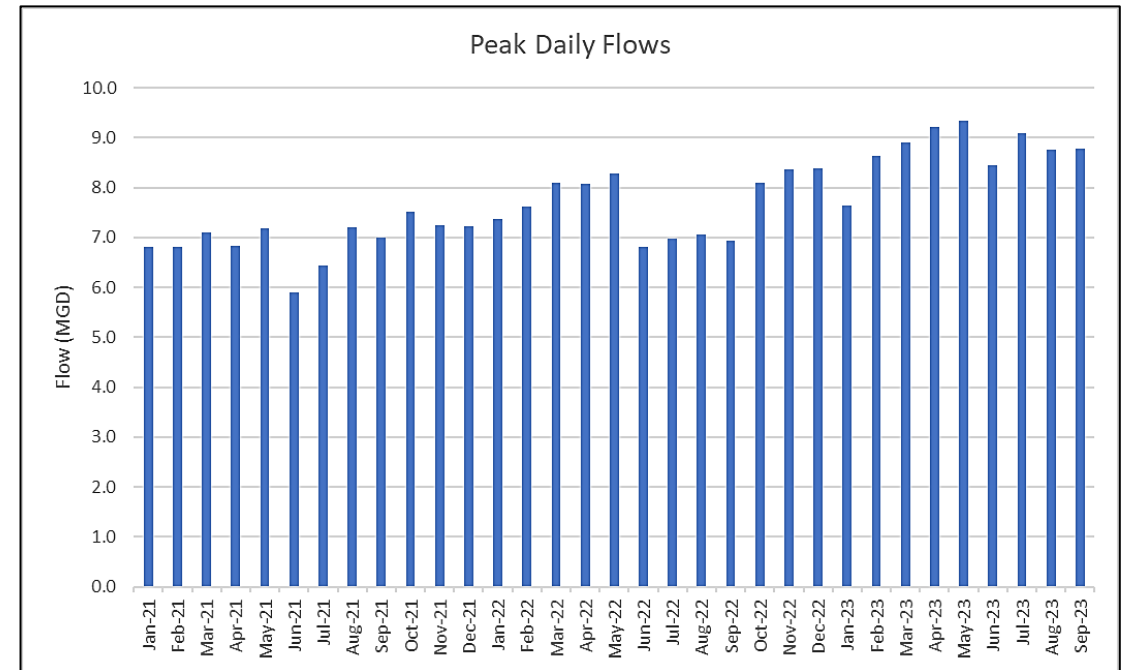
Peak Day was **8.789 MGD** water pumped in Sept 23.

Daily Average usage for September was 7.885 MGD

Annual Average is 7.516 MGD for Water Use Permit

**SWFWMD Permitted Annual Average is 7.389 MGD**

WTP 5 (in construction) will take SWFWMD Permitted Annual Average to 9.852 MGD



# McIntosh Preserve Integrated Water Management Plan includes Wetlands Hydration and Potable Reuse

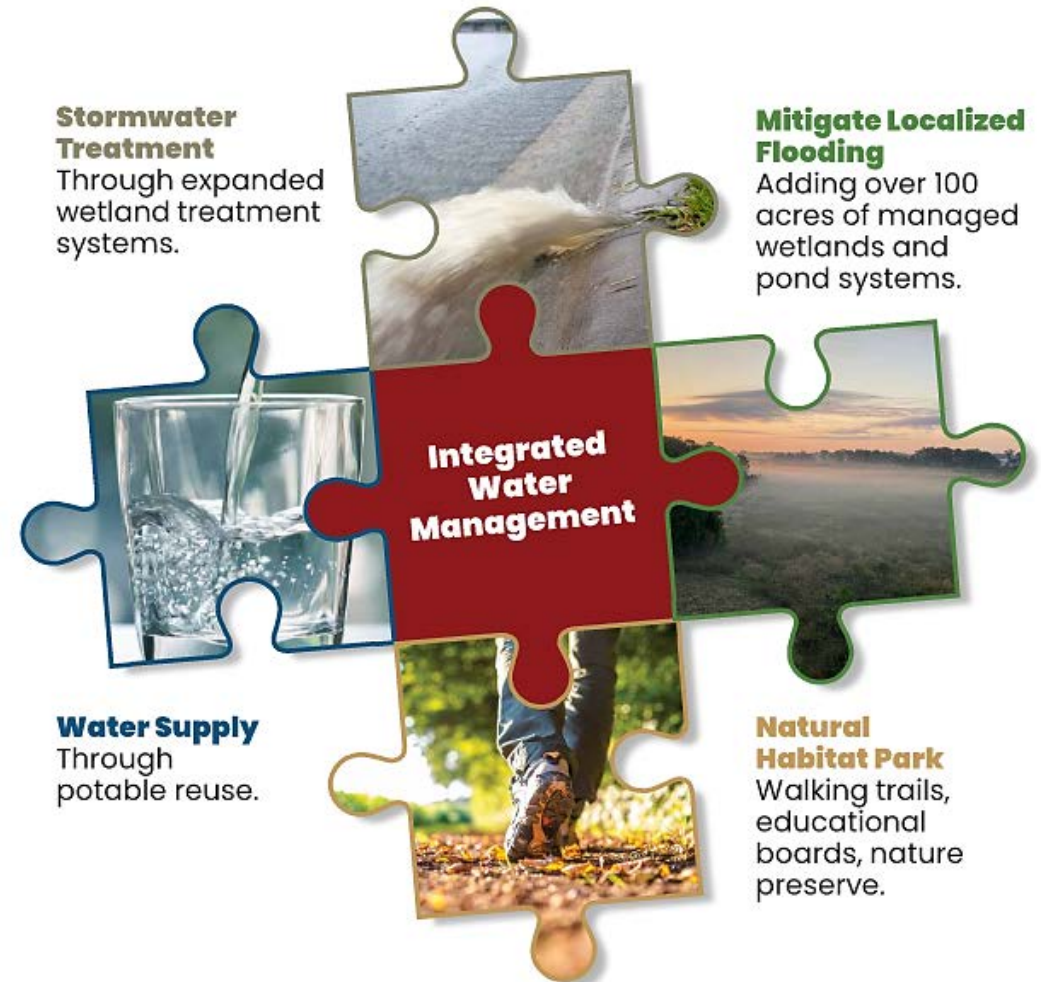


## McIntosh Preserve Wetland Expansion

- Flood Mitigation
- Stormwater Treatment
- Wetland hydration
- Included in SWFWMD Cooperative Funding Program

## Potable Reuse Study & Pilot

- Alternative Water Supply for potable use
- Groundwater modeling to locate to determine regional benefit
- Included in SWFWMD Cooperative Funding program



# Pilot Plan Goals and Objectives



Plant City  
Pilot



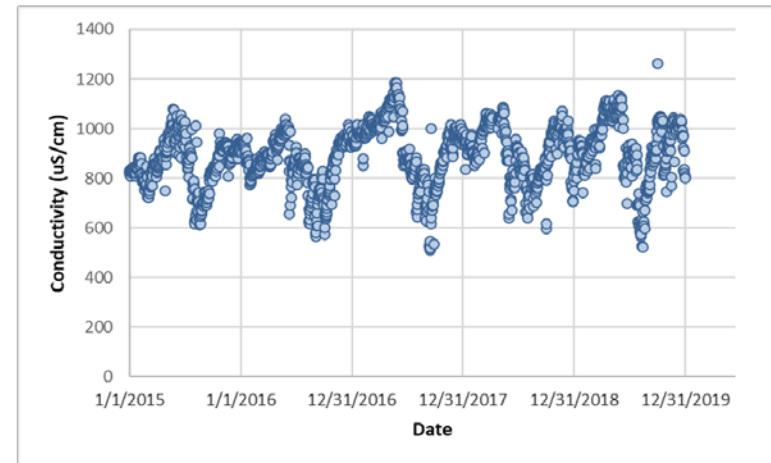
# Selection of a Potable Reuse Train

- Both non-reverse osmosis (RO) and RO-based potable reuse treatment were considered



- Treatment selection was ultimately driven by:
  1. FL TDS Removal Requirement
  2. Industrial Discharges
  3. Draft Potable Reuse Regulations in FL

*RO-based treatment was selected*





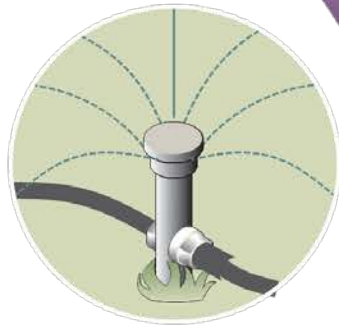
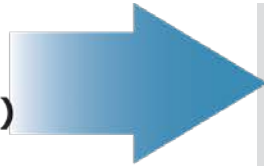
# Plant City Water Cycle



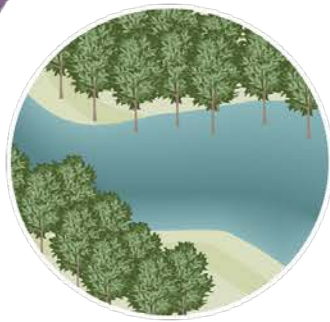
*Plant City's Water Reclamation Facility (WRF) removes harmful organisms and other contaminants from wastewater so it can be released to the environment or reused for beneficial purposes.*



**Water Reclamation Facility (WRF)**

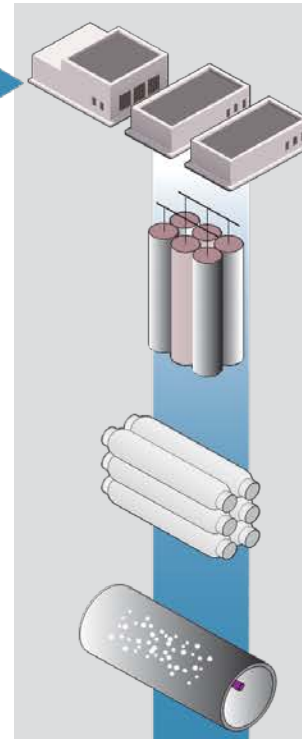


**Reclaimed Water** for landscape irrigation



**Reclaimed Water** to supplement wetlands and McIntosh Preserve and mitigate localized flooding

**Underway**



**Water Purification Facility (WPF)**

Membrane Filtration

Reverse Osmosis

Ultraviolet Disinfection and Advanced Oxidation



*We are testing water purification technology for a potential full-scale project to create a new local drinking water supply.*



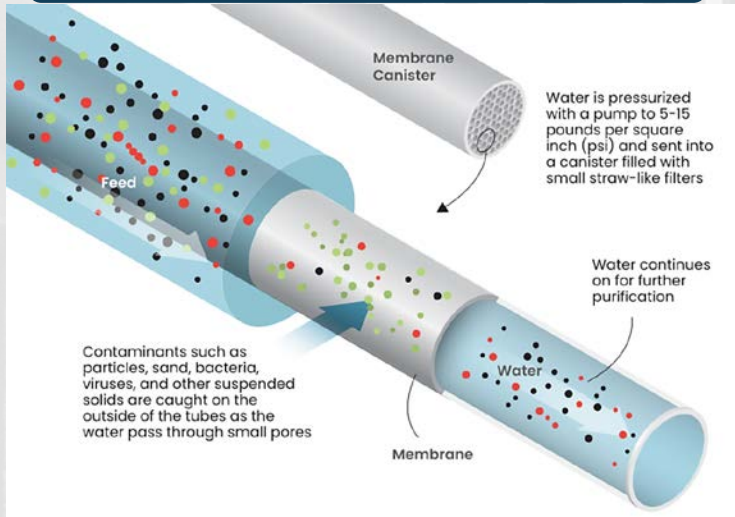
**Safe Drinking Water** to augment existing potable water supply

**Potential**

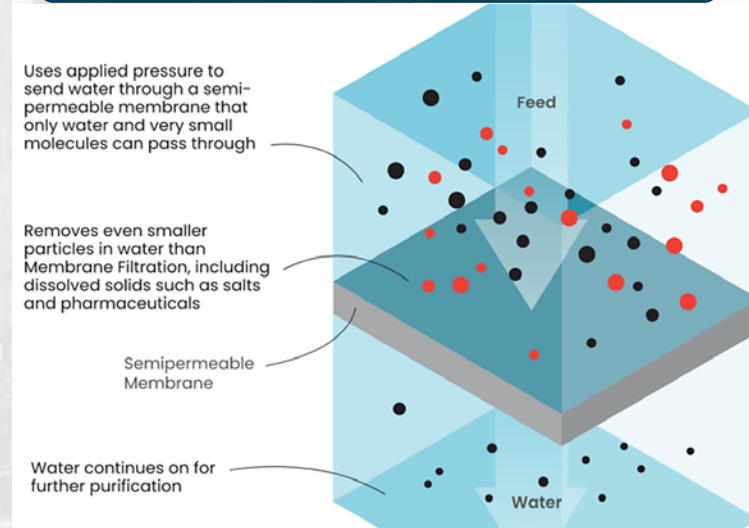
# Plant City Potable Reuse Pilot Program One Water Demonstration Facility



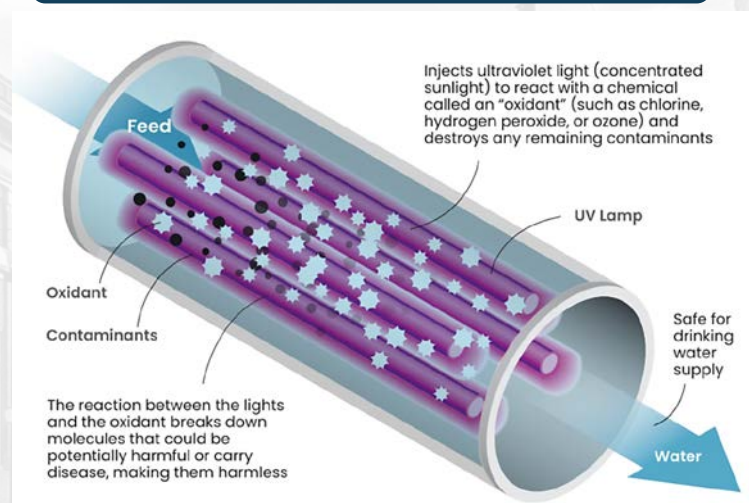
## Step 1 Membrane Filtration



## Step 2 Reverse Osmosis



## Step 3 UV Disinfection



# Plant City Potable Reuse Pilot Program One Water Demonstration Facility



# Pilot Program Public Engagement Program – start at the TOP



# Pilot Program Public Engagement Program



## Welcome to the PLANT CITY ONE WATER DEMONSTRATION FACILITY

PART OF MCINTOSH SUITE OF INTEGRATED PROJECTS



Reliable



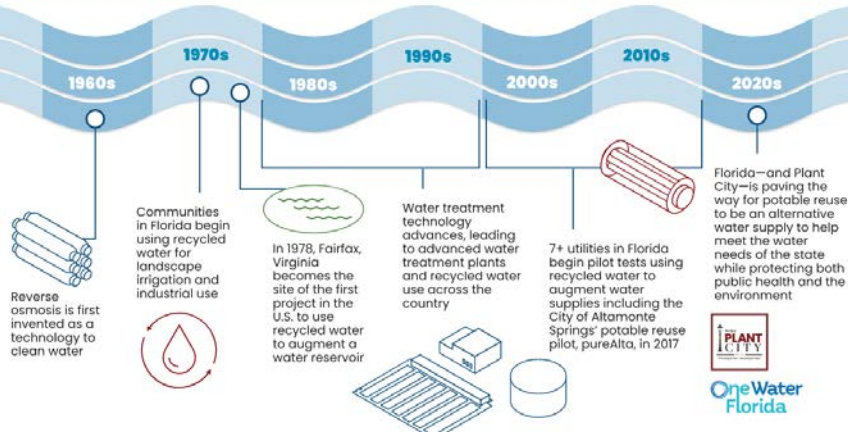
Sustainable



Locally-Controlled



## The History of Potable Reuse



## The Result: Safe Drinking Water



**Safety:** Meets all federal and state drinking water standards



**Sustainability:** Will benefit Plant City by supplementing our existing potable water supply and offsetting over pumping of our Florida aquifer



Learn More

QR Code



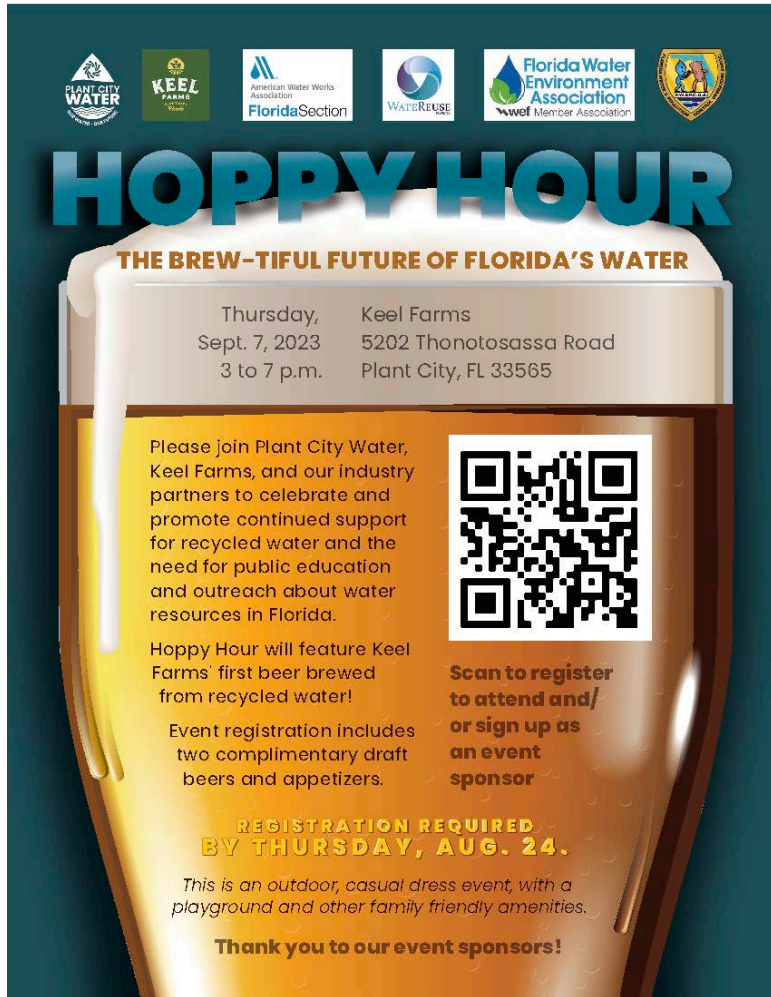
# Pilot Program Public Engagement Program



# Pilot Program Public Engagement Program – make it matter big!



# Pilot Program Public Engagement – BEER!!!!!!!




**PLANT CITY WATER**  
**KEEL FARM**  
**American Water Works Association Florida Section**  
**WaterReuse**  
**Florida Water Environment Association wwf Member Association**

## HOPPY HOUR

**THE BREW-TIFUL FUTURE OF FLORIDA'S WATER**

Thursday, Sept. 7, 2023 3 to 7 p.m.  
Keel Farms  
5202 Thonotosassa Road  
Plant City, FL 33565

Please join Plant City Water, Keel Farms, and our industry partners to celebrate and promote continued support for recycled water and the need for public education and outreach about water resources in Florida.



Scan to register to attend and/or sign up as an event sponsor

Hoppy Hour will feature Keel Farms' first beer brewed from recycled water!

Event registration includes two complimentary draft beers and appetizers.

**REGISTRATION REQUIRED BY THURSDAY, AUG. 24.**

*This is an outdoor, casual dress event, with a playground and other family friendly amenities.*

**Thank you to our event sponsors!**





# Questions?

