



# *Addressing Water Supply Challenges in Southeast Florida*

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# Utility Background



- Florida's 3<sup>rd</sup> largest water and wastewater utility
- 500,000 residents served
- 598 employees
- \$115 million annual operating budget
- \$1.6 billion in assets
- Recognized as an industry leader in water and wastewater





# Major Facilities

- 5 Water Treatment Plants with total capacity of 113 mgd
- Over 100 surficial wells, 8 Floridan wells
- 2 Wastewater Treatment Plants with total capacity of 59 mgd
- 22 mgd Reclaimed Water Facility
- 4 mgd Wetland Treatment capacity
- 869 WW Pump Stations





# Pipeline Operations

- ❖ 2,126 miles water mains
- ❖ 518 miles force mains
- ❖ 1,145 miles gravity sewer
- ❖ 33 miles reclaimed water
- ❖ 17 miles raw water mains
- ❖ 4.5 miles concentrate line
- ❖ 16,066 fire hydrants
- ❖ 33,403 valves
- ❖ 29,037 manholes
- ❖ 767 lift stations



**WUD currently maintains > 3,800 miles of pipelines system-wide  
(spans distance from Miami to Seattle)**



# Anticipated Climate Change Impacts

- Sea Level Rise
  - Salt Intrusion - Domino Effect from Easterly Utilities
  - Flooding
- Tropical Storm Activity
  - Increased Storm Frequency
  - Increased Storm Intensity
- Changing Precipitation Patterns
  - Rainfall return periods decreasing, extended dry periods
  - Inflow & Infiltration
- Future Demand Forecast
  - Water demands increase f(temp)
  - Population Growth/Environmental Migration



# Options for Adaptation

- Diversification of Water Resources
- Climate Resilience / Infrastructure Reinforcement
- Salt Water Intrusion/Inland Supply
- Reducing Infiltration/Inflow
- Targeted Asset Management and Strategic Planning



# Diversify Water Resources

- ASR (Aquifer Storage and Recovery)
- Multi-Regional Projects
  - C-51 Reservoir (surface water storage)
- Increased and Innovative Conservation Measures
  - Real time data and use comparisons
  - Targeted audits and internal/external measures
- Wastewater Reuse (supplement local groundwater, multiple use water)
- Desalination
- Role of Everglades Restoration?



# Climate Resilience

- Hardening of Facilities
- Ensure Continued Operations
- Post Disaster Recovery



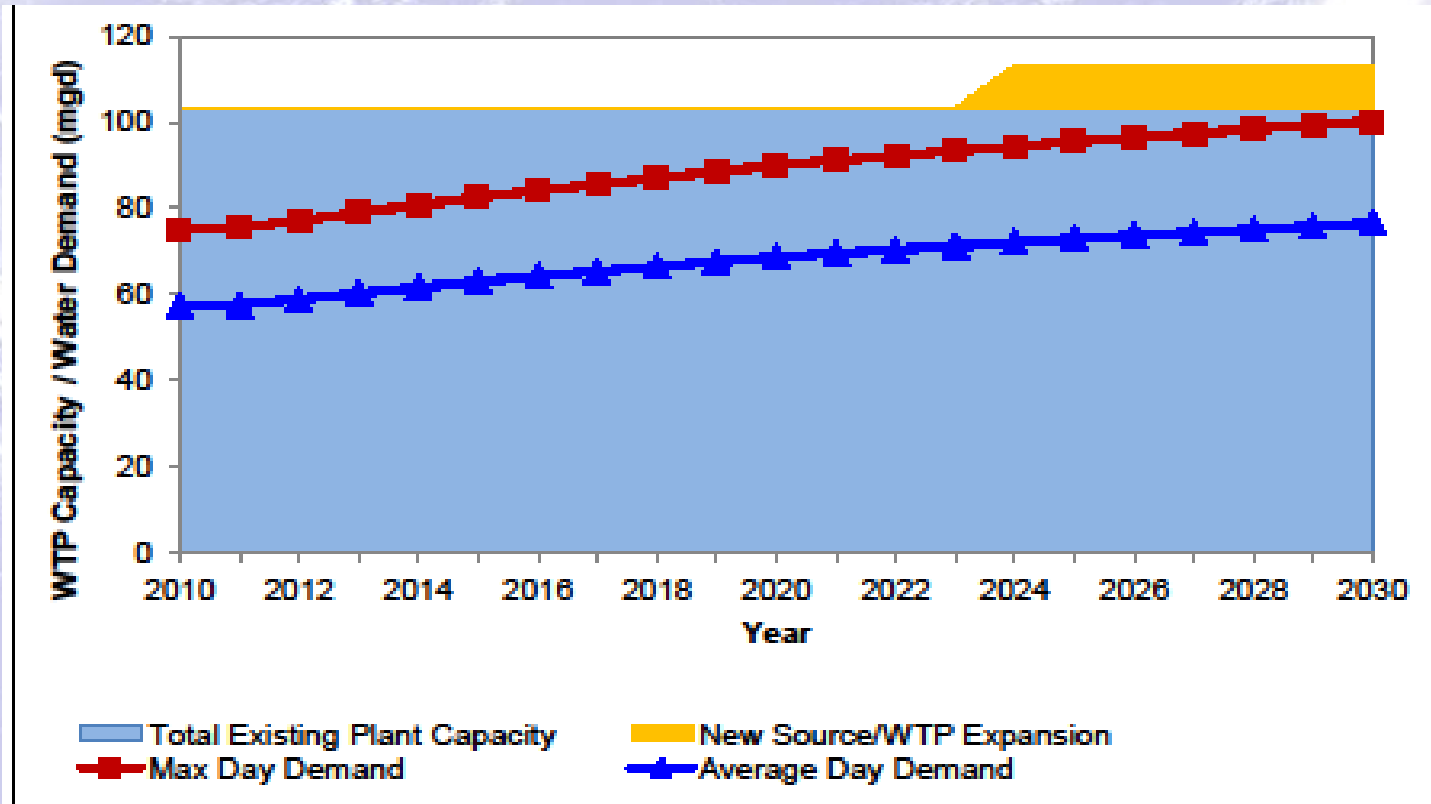


# Salt Water Intrusion/Inland Supply

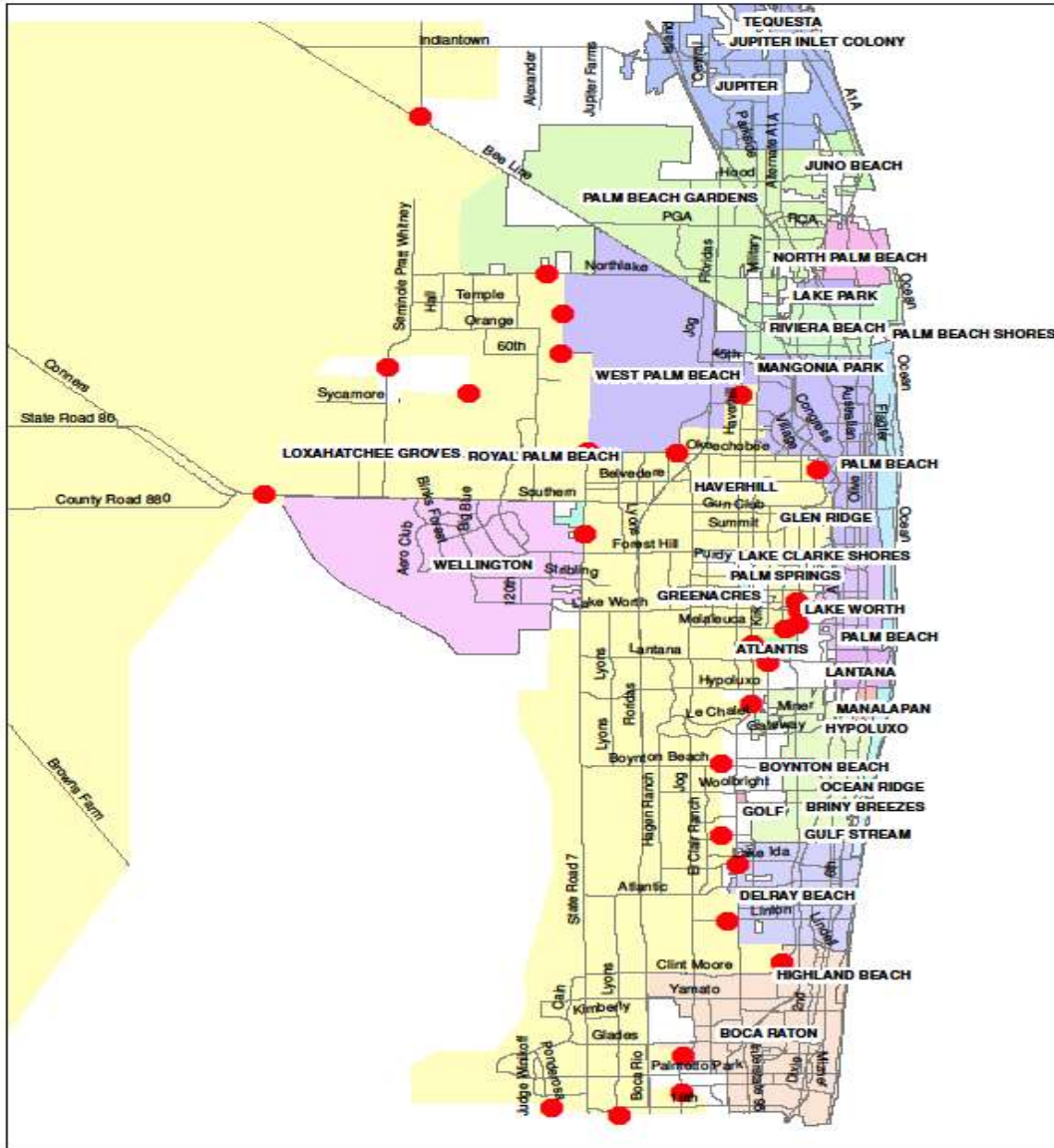
- Salt water intrusion will limit water supplies for the coastal utilities.
- Maintain excess water treatment capacity to allow supply of coastal communities with potable water.



# Excess WTP Capacity

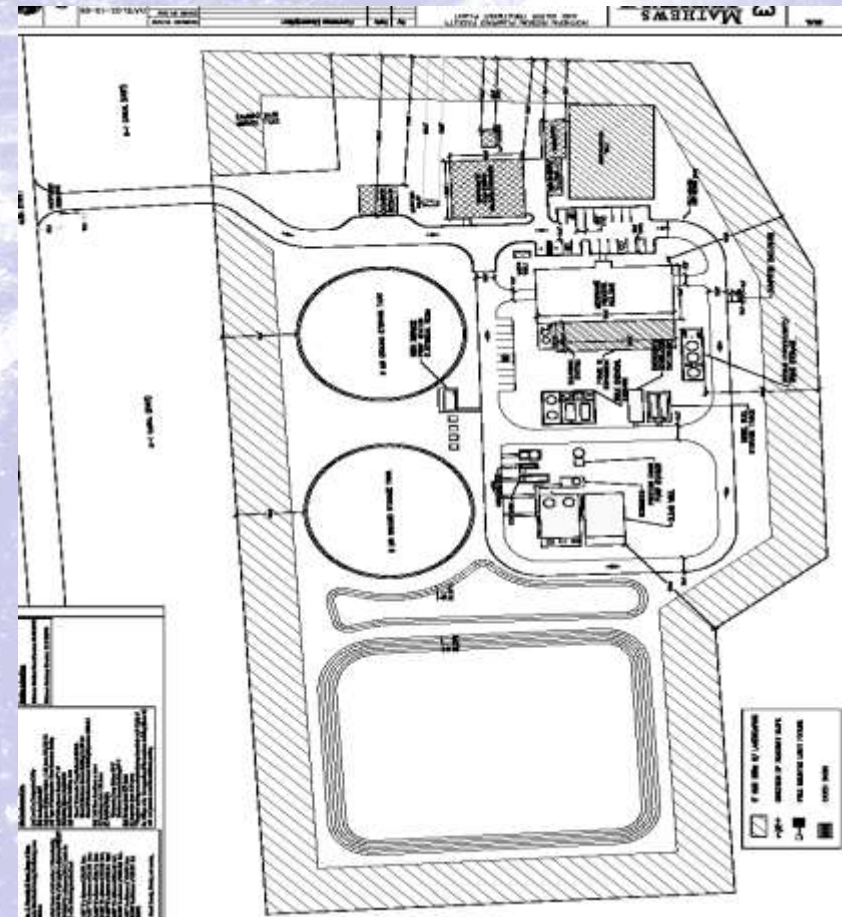


# Water Interconnects



# Asset Management and Strategic Planning

- Address rapid increase in population.
  - *Future Northern Region WTP, site plan approved.*
- Address replacement of aging infrastructure
- Integrate new technologies
- Address energy efficiency and the water/energy nexus



# Continuing Challenges

- Including climate impacts into CIP planning
- Complexity of understanding climate models
- Access to downscaled climate data
- Funding of climate resiliency projects
- Political will and commitment



# Ongoing PBCWUD Projects



# Broward/Palm Beach County Reclaimed Water Partnership

## Broward County:

- Legislative requirement to implement reuse by 2018 and eliminate Ocean Outfall by 2025
- Limited reclaimed water demand

## Palm Beach County:

- Heavy demand for reclaimed water in south PBC
- No reclaimed water currently available south of Clint Moore Rd.



# Reclaimed Water Project Area



Project will Eliminate Over 20 MGD of groundwater irrigation

7.3 Billion gallons per year





# C-51 Reservoir Project

- Multi-faceted Regional Water Project
  - Provision of Cost Effective Future Water Supply
  - Reduction in Stormwater Runoff Impact to Lake Worth Lagoon
  - Possible Utilization in Everglades Restoration

## C-51 RESERVOIR – PRELIMINARY DESIGN AND COST ESTIMATE – FINAL REPORT



Prepared By:  
Lake Worth Drainage District  
Palm Beach County  
Broward County  
South Florida Water Management District  
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# C-51 Reservoir Project



Coordinated effort between several local and county governments in Southeast Florida in cooperation with Palm Beach Aggregates

Total Project Size of 75,000 acre ft.

Phased Construction

Delivery Provided by Mostly Existing Infrastructure

Finance and Governance Committee Currently Meeting

Photo of Phase I Excavation - courtesy of Ernie Cox and Palm Beach Aggregates





# Questions



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