

# CFWI Public Water Supply Water Conservation

A Historical Perspective

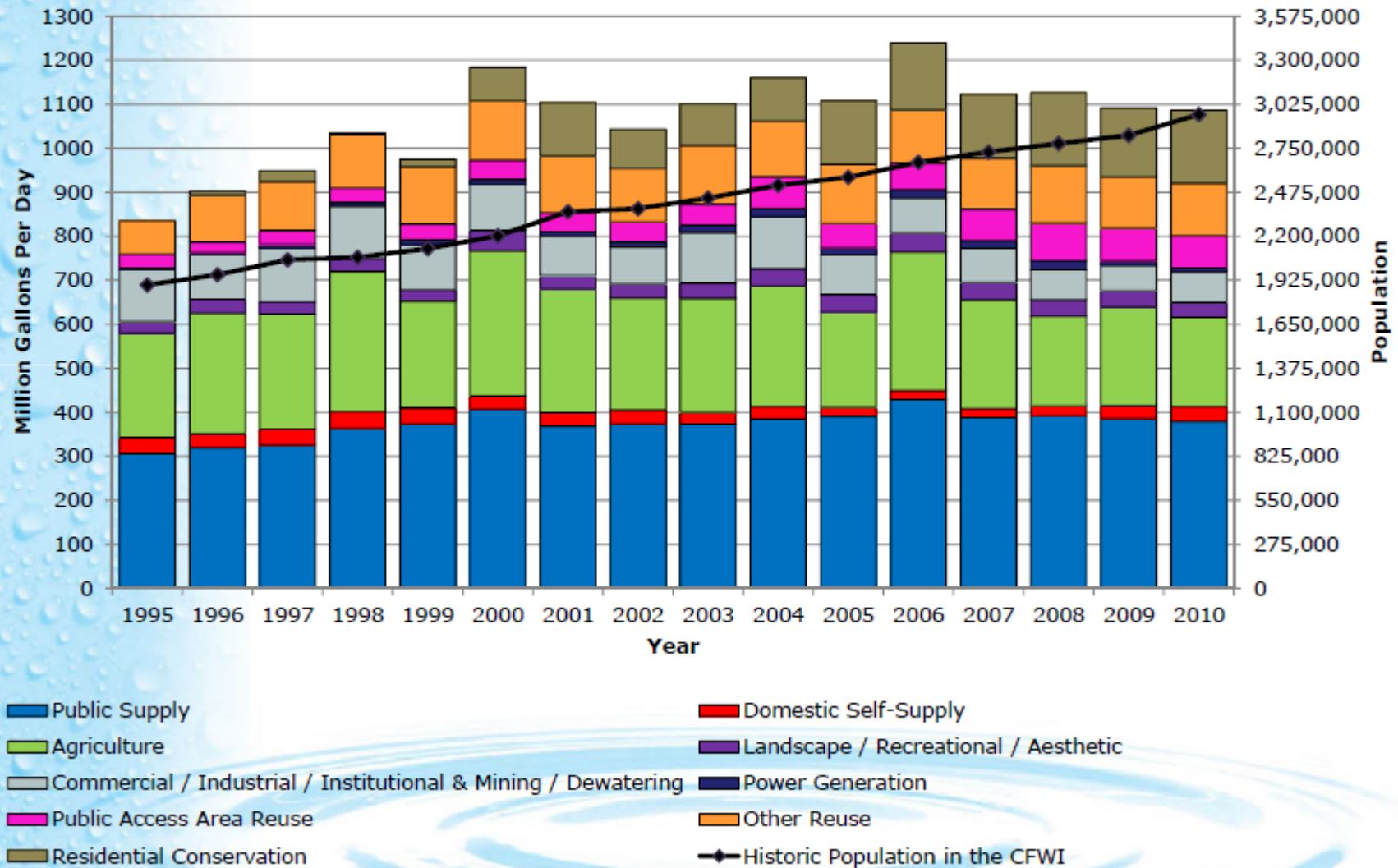
September 26, 2014

# Outline

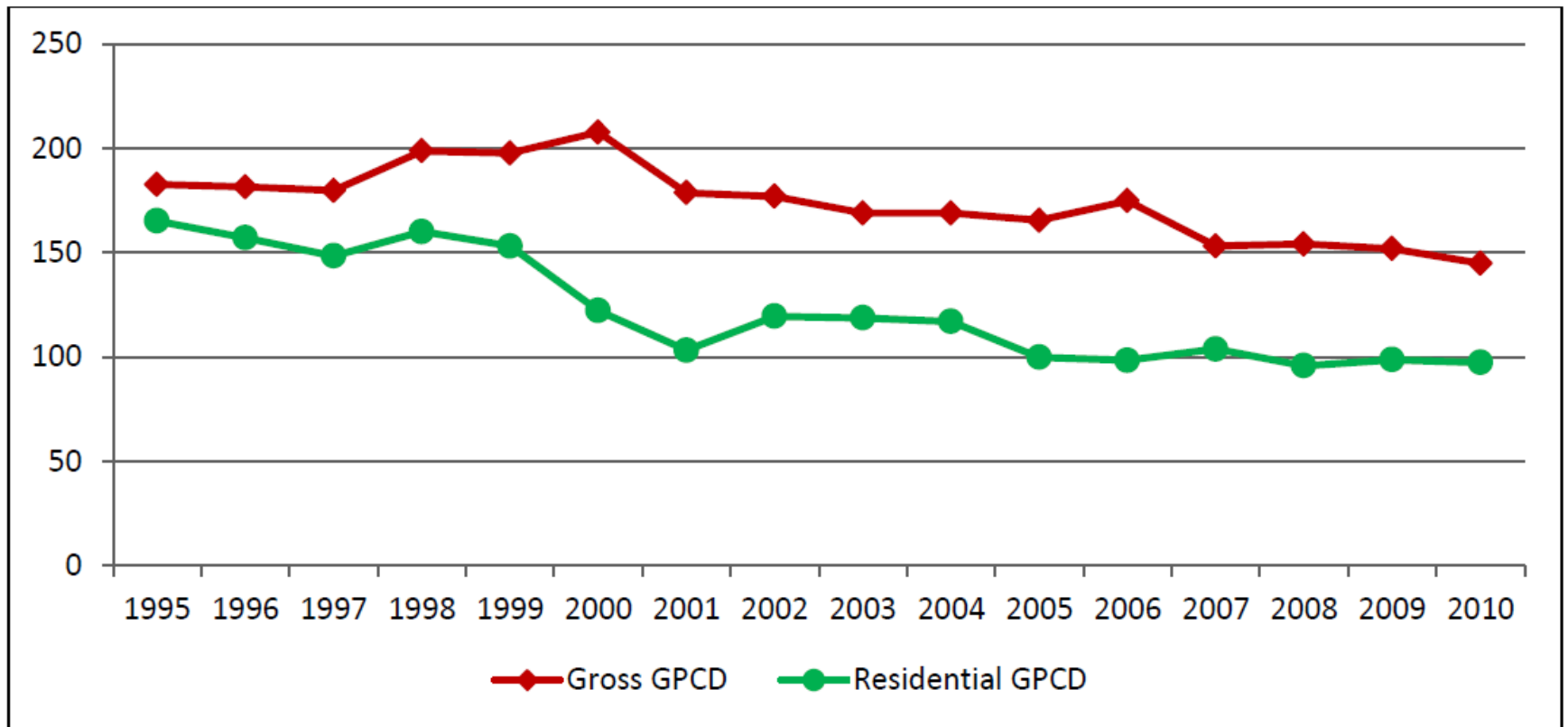
- Historical Public Supply Water Use
- Conservation Program Approaches
- New Program Initiatives
- Challenges
- Conclusions

# Central Florida Water Initiative

## Historic Water Use, Public Access Area and Other Reuse and Conservation -vs- Population in the CFWI



# CFWI Per Capita Water Use has declined over the last 15 years



From CFWI RWSP Figure 11

# CFWI Public Water Suppliers

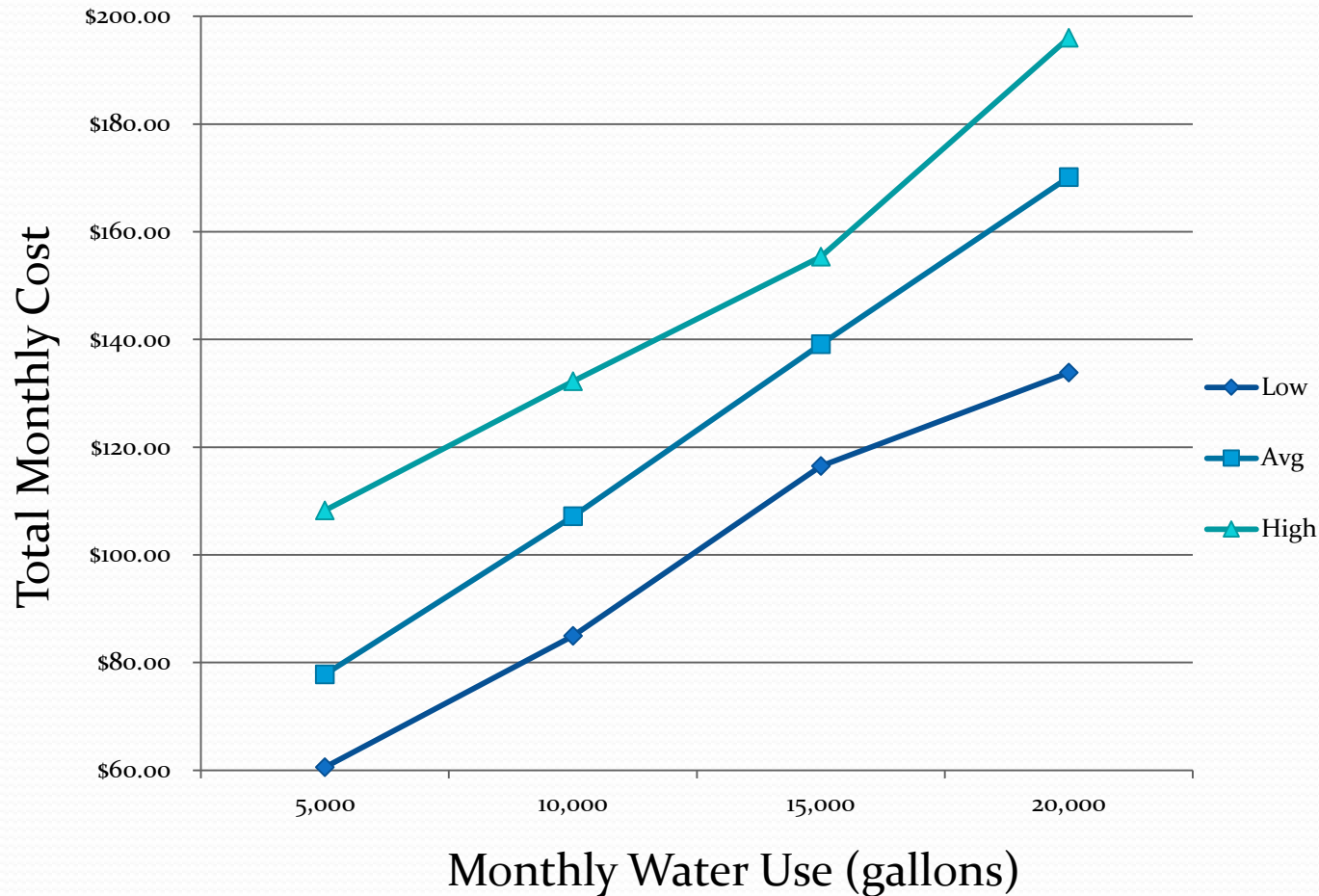
Early and on-going water conservation measures

- Widened Public Education and Outreach
- Implemented more aggressive rate structures
- Began reclaimed water programs in the 1980's
- Added dual piping in advance of future reclaimed water services
- Upgraded plants to meet reuse standards
- Participated in FDEP and WMD initiatives

# Categorical Approaches that are Impacting Usage

1. Inclining Rate Structure
2. Reclaim Water System Offsets
3. Various Conservation Programs
  - Education and Outreach
  - Irrigation restrictions and enforcement
  - Promotion and Incentives
  - Technology

# CFWI - Typical Monthly Residential Customer Bill



*Includes Water, Sewage, and Irrigation charges*

# Reclaimed Water Offsets from CFWI Area (2010)\*

Reuse Types	Reuse Type Flows (mgd)	Estimated Potable Quality Water Offset (mgd)
Public Access Irrigation	67.63	40.58
Agricultural Irrigation	15.3	11.48
Groundwater Recharge	45.32	0
Industrial	21.24	21.24
Wetlands	26.52	0
Other	2.04	0
<b>Totals</b>	<b>178.05</b>	<b>73.29</b>
Supplemental	3.94	

\*from Table E-2, Draft CFWI RWSP



# Program Approaches

- Advanced Irrigation Technologies
- Automated Metering Infrastructure (AMI)
- Irrigation Restrictions Monitoring and Enforcement
- Free Evaluations of Indoor and Outdoor Usage (triggered by violation or on request)
- Sprinklers, Shower-heads, Aerators, and Flapper valves-promotional giveaways
- Annual Water Loss Reduction Reporting (leak detection, water main repair and replacement)
- Pre-rinse nozzles
- Employee awareness programs
- Leadership in Energy and Environmental Design (LEED) Certification
- Florida Green Lodging
- Mobile irrigation labs
- Florida Water Star
- Rebate Programs



# Rebate Programs Offered

- Ultra Low Flow Toilets (1.6 gpf or less)
- Florida Water Star
- Water Efficient Urinals
- Energy Star Clothes Washing Machines
- Air-cooled ice machines
- Florida Friendly Landscaping and Irrigation
- Water Cisterns



Is your toilet a dinosaur?  
*(Well, knock some EPA WaterSense into it)*

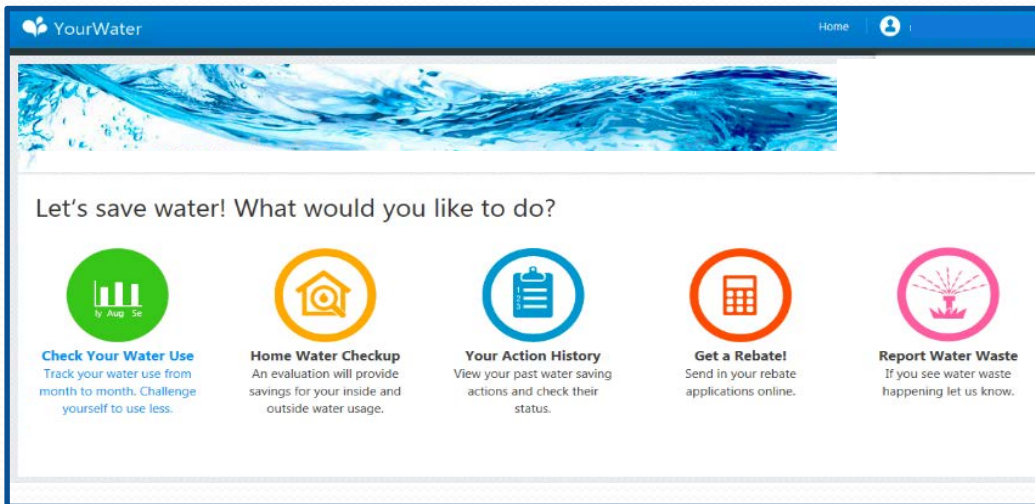


# Customer Education & Outreach

- Participation in Community Events
- Classroom Visits
- Online Conservation Tips
- YouTube™ and DVD videos
- Bill Inserts
- Free Irrigation Workshops
- Annual Drop Savers Coloring Contest
- Fix A Leak Week
- Water Conservation Month – April
- TV, Radio, Print Advertising, Online Advertising,
- Social Media (Facebook & Twitter)
- Direct Mail
- Energy & Water Conservation Kits
- Informative giveaways
- Water Star certifications
- Informative Billing
- EPA WaterSense Partnerships

# Emerging Programs

- Expanded use of AMI for monitoring water restrictions
- Advanced leak detection technology
- Water Budget Rates
- Green Cities™ Program
- Adjusting System Pressure
- Piloting soil moisture sensors and ET controllers
- Smart Irrigation Studies
- New land development regulations
- Recognition Program for water savers
- Water Smart™ – an online educational tool



# Economic Comparison of Alternatives

- Conservation
  - Initially most cost effective but subject to diminishing returns (exponentially)
  - (\$1 - \$5/gal up to and exceeding the cost of AWS\*) water conservation depending on what stage is implemented
  - An ongoing process
  - Limited by customer acceptance and action
  - Incentives to customers include rebates, slower cost increases
  - Disincentives – enforcement resolutions / ordinances
  - Prescriptive- i.e. land development regulations (requires political will)

*\* Figures from the St. Johns River Water Management District Draft District Water Supply Plan Appendix G—Options for Alternative Water Supply Development Projects*

# Economic Comparison of Alternatives, cont'd

- Reclaimed
  - Highly treated wastewater
  - Most cost-effective alternative source for non-potable water applications (\$3 - \$8/gal\*)
  - Limited by location, amount and cost
- New sources (AWS)
  - Most costly alternatives (\$9 - \$15+/gal\*)
  - Limited by location and economies of scale, high capital and operating costs

# Why Public Participation is Limited?

- Perceived Abundance of Water in Florida
- Value of Water
- Social norms – “follow the crowd”
- People tend to underestimate their consumption by half\*



*\*Shahzeen Attari, “Perceptions of Water Use” Proceedings of the National Academy of Sciences, 2014*

# Challenges

- Rate balancing – lower sales needs to be offset by rate adjustments to cover fixed costs
- Higher rates will drive some customers to private wells
- Sustaining conservation requires permanent change in customer behavior
- There is a strong economic incentive to pursue conservation due to the high cost of AWS
  - At some point the cost of conservation can exceed the cost of AWS
  - A great amount of conservation can be achieved before that point



# CFWI Public Water Supply Conservation

- Public suppliers are committed to conservation
- Potable water usage is decreasing on a per capita basis (conservation including reclaimed water)
- Continue to manage demand and implement additional conservation to offset growth demands

