JEA Conservation Efforts

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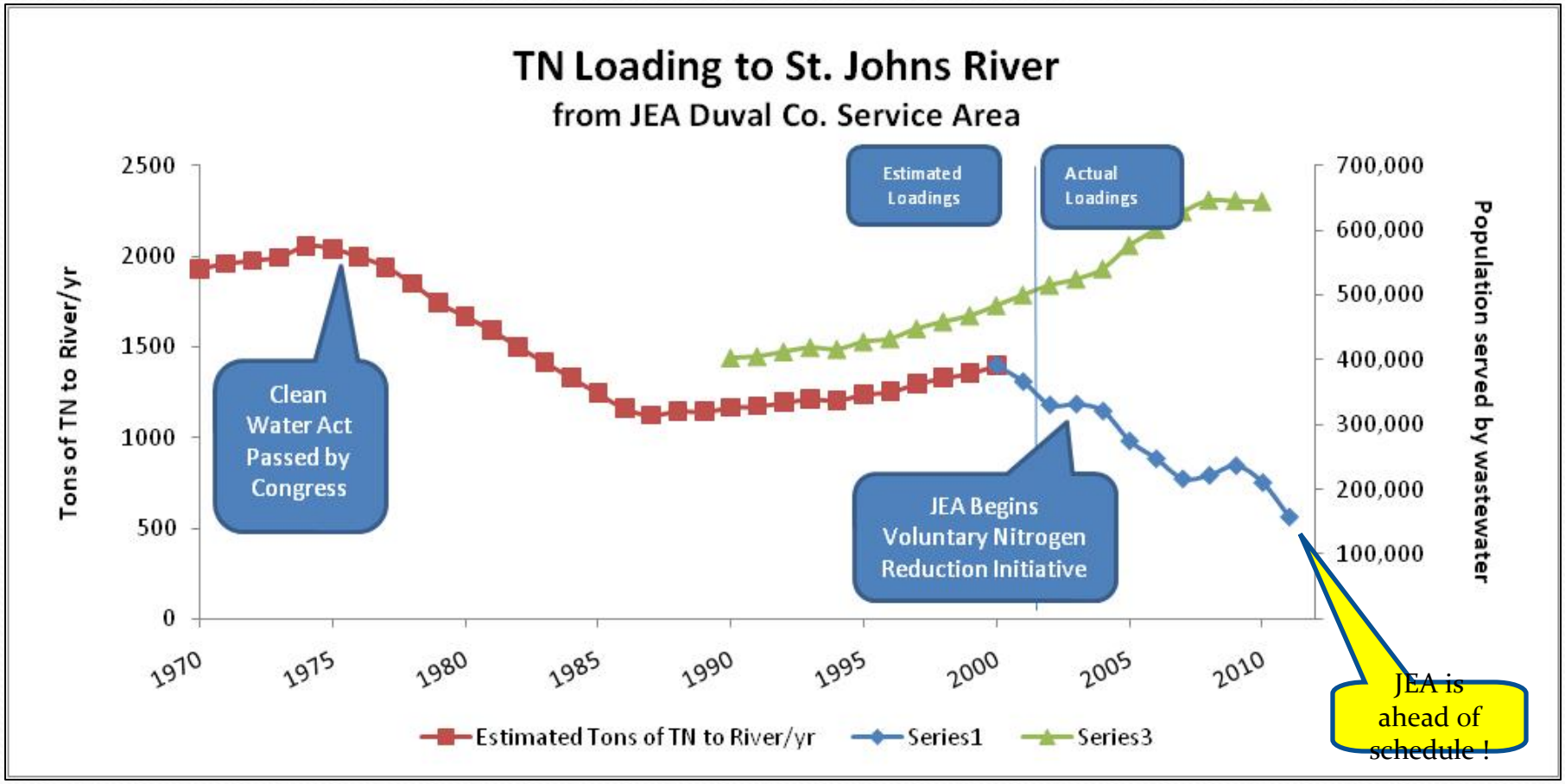
Building a Greener Quality Of Life for Jacksonville
2011 Environmental Symposium
UNF

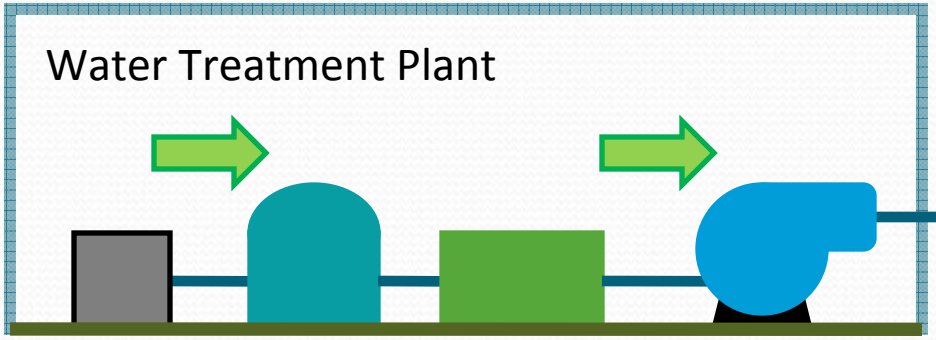
JEA Sustainability Initiatives

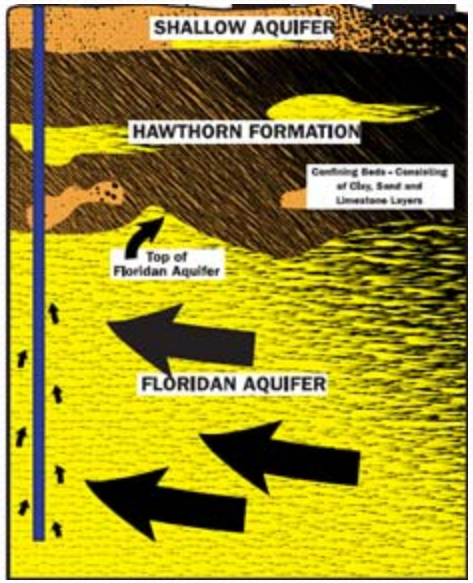
- **Water Supply** – Protecting the Floridan Aquifer
- **Nutrient Reduction** - Protecting the St Johns River

Nutrient Reduction - Protecting the St Johns River



Current Drinking Water Supply





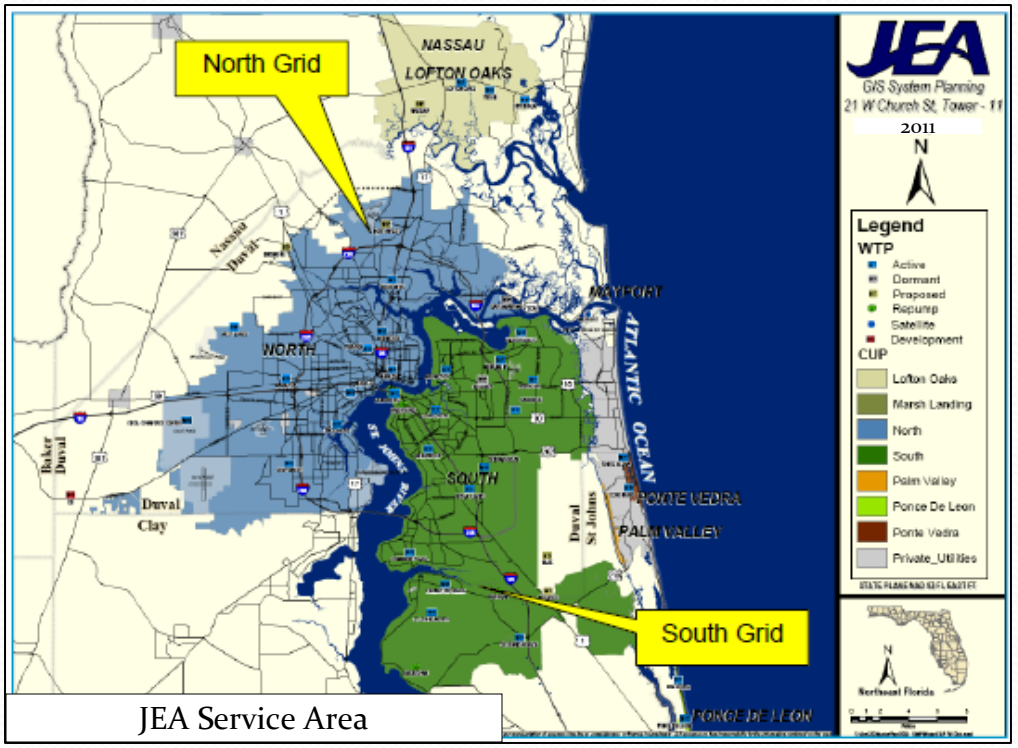
Wellfields

Transmission And Distribution

Customers

JEA Water Service Area

- Over 300,000 Customers
- 4 Counties
- 36 Water Treatment Plants
- 136 Active Wells
- 2 Major Grids (with 1 River Crossing interconnection)
- 123 MGD
- 4,000 miles pipe



JEA Service Area

Why Conservation?

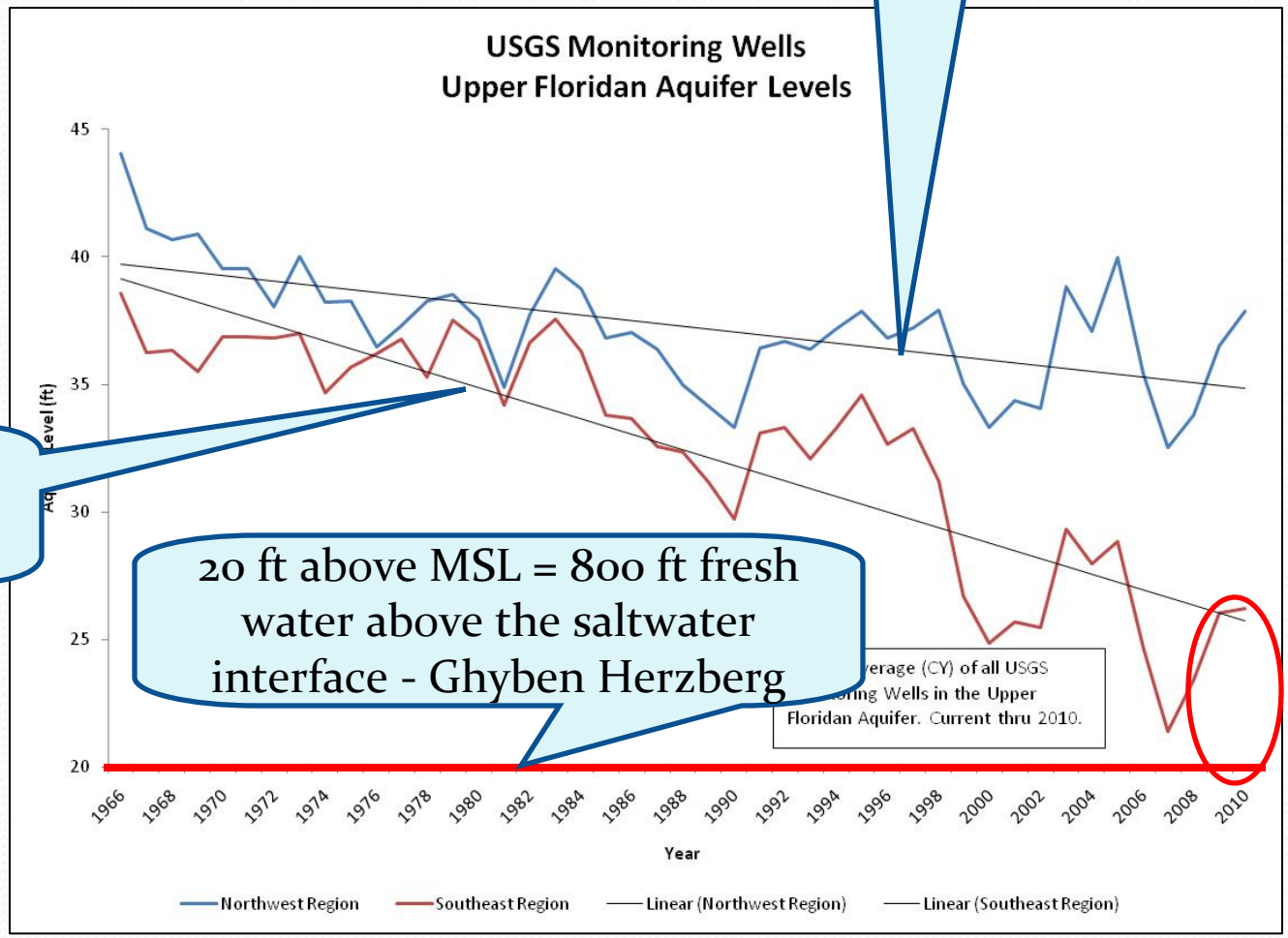
1. **Helps to protect the Aquifer**
   - Over use may cause negative regional environmental impacts (Lakes, springs, wetlands) caused by a drop in the potentiometric surface
   - Over use will increase the likelihood of salt water intrusion east of the St Johns River (local impact)

Why Conservation?

West of the St Johns River

East of the St Johns River

20 ft above MSL = 800 ft fresh water above the saltwater interface - Ghyben Herzberg



Why Conservation?

2. **Costs less for JEA**
   - JEA's Total Water Management Plan Identifies Conservation and Reclaimed Water as less expensive than building Alternative Water Supply (AWS) - ex. Ocean Desalination
3. **Costs less for JEA customers**
   - If you use less it costs less (Conservation isn't free though)
   - JEA is not-for-profit, so cost of AWS would be borne by customers
   - Increased cost to customers for AWS might in itself cause customers to conserve…….triggering higher rates?

More about AWS later…..

What Are We Doing for Conservation?

Conservation:

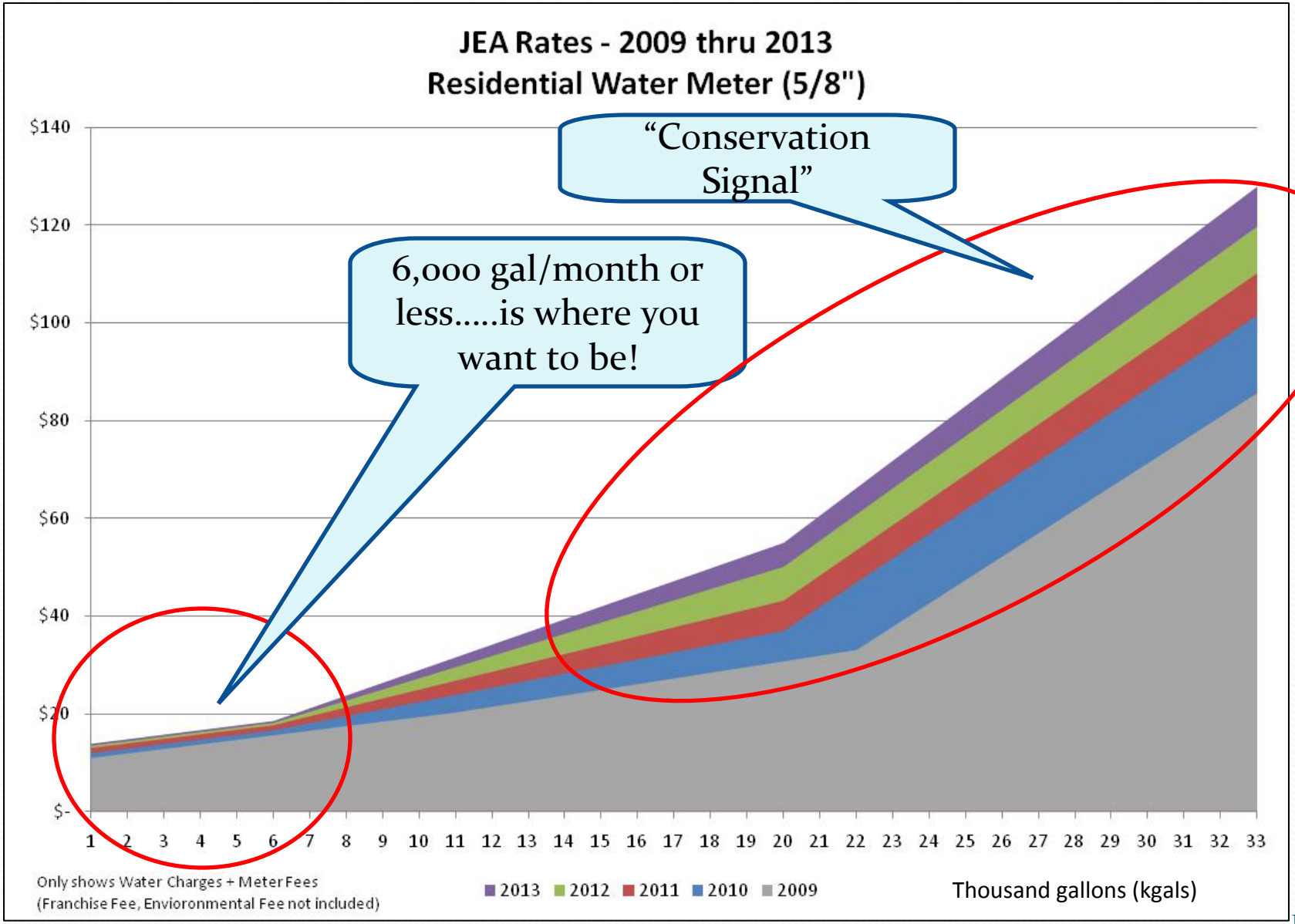
- Tiered Rates
- Irrigation Rule & Ordinance
- JEA Programs

Can be adjusted to increase Conservation if needed….

Challenges:

- Can be a tough sell….
- Ensuring rates cover reduced revenue
- Sustainability

JEA Conservation Efforts - Rates



JEA Conservation Efforts – Town Hall Messaging

What Can I Do to Control Costs?

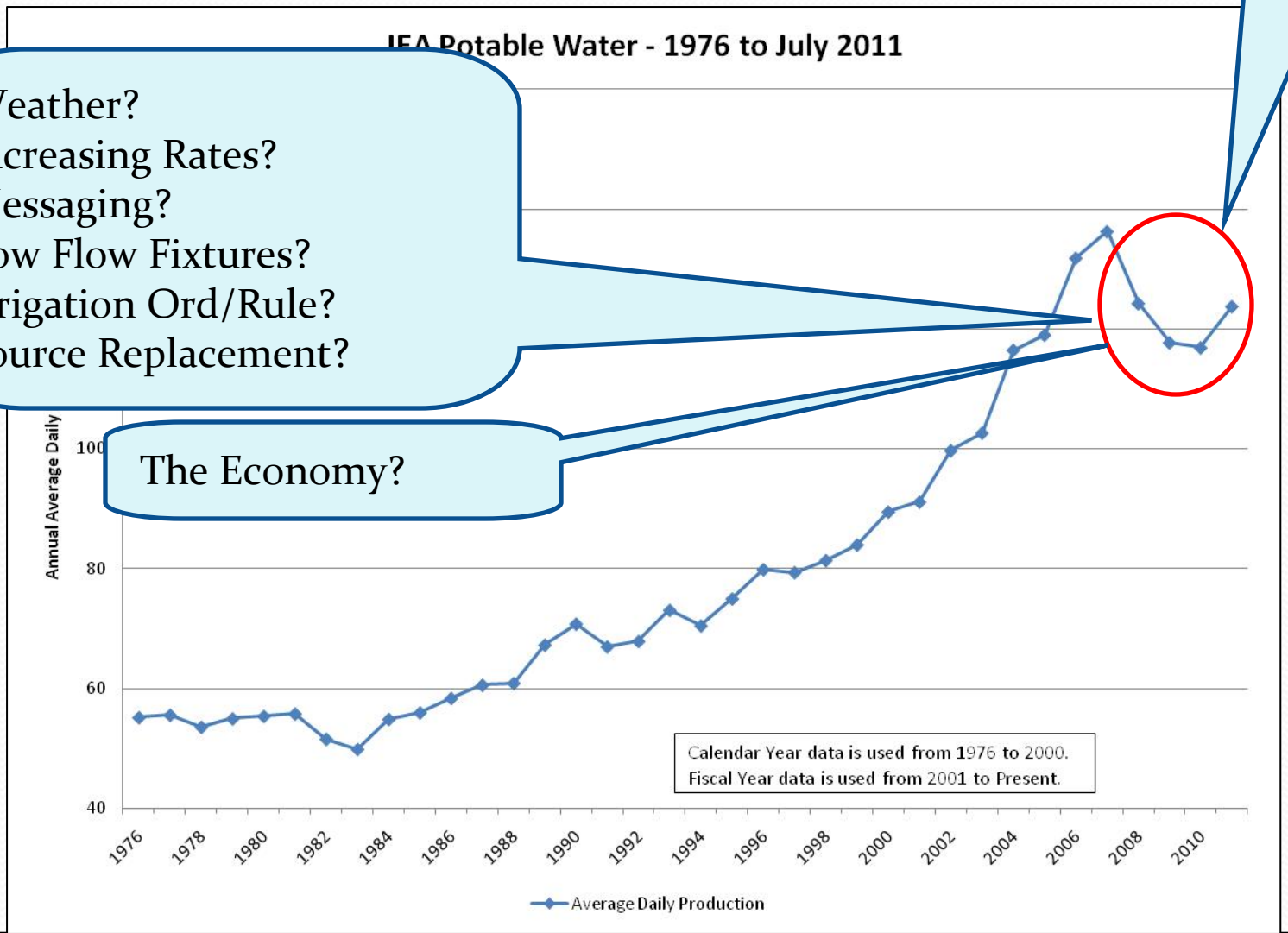
- Check and replace leaky toilet flapper valves
- In homes built before 1990, install high-efficiency shower heads and faucet aerators
- Consider replacing toilets manufactured prior to 1994 with WaterSense certified toilets
- Irrigate only to supplement rainfall—if grass does not spring back when stepped on
- If you have an irrigation system, be sure your rain sensor is working properly

JEA Conservation Efforts

- Provide landscape irrigation audits (LawnSmart)
- Implementation of a water conservation promoting rate structure
- Neighborhood Efficiency Program – indoor retrofit for low-income and high use residents
- Informative billing
- Consumer Confidence Report sent to all water customers include tips on water conservation
- Factsheets on water conservation developed and on-line at JEA.com
- Construct, maintain, and publicized water efficient landscape demonstration projects (3)

So how are we doing so far?

Water Production

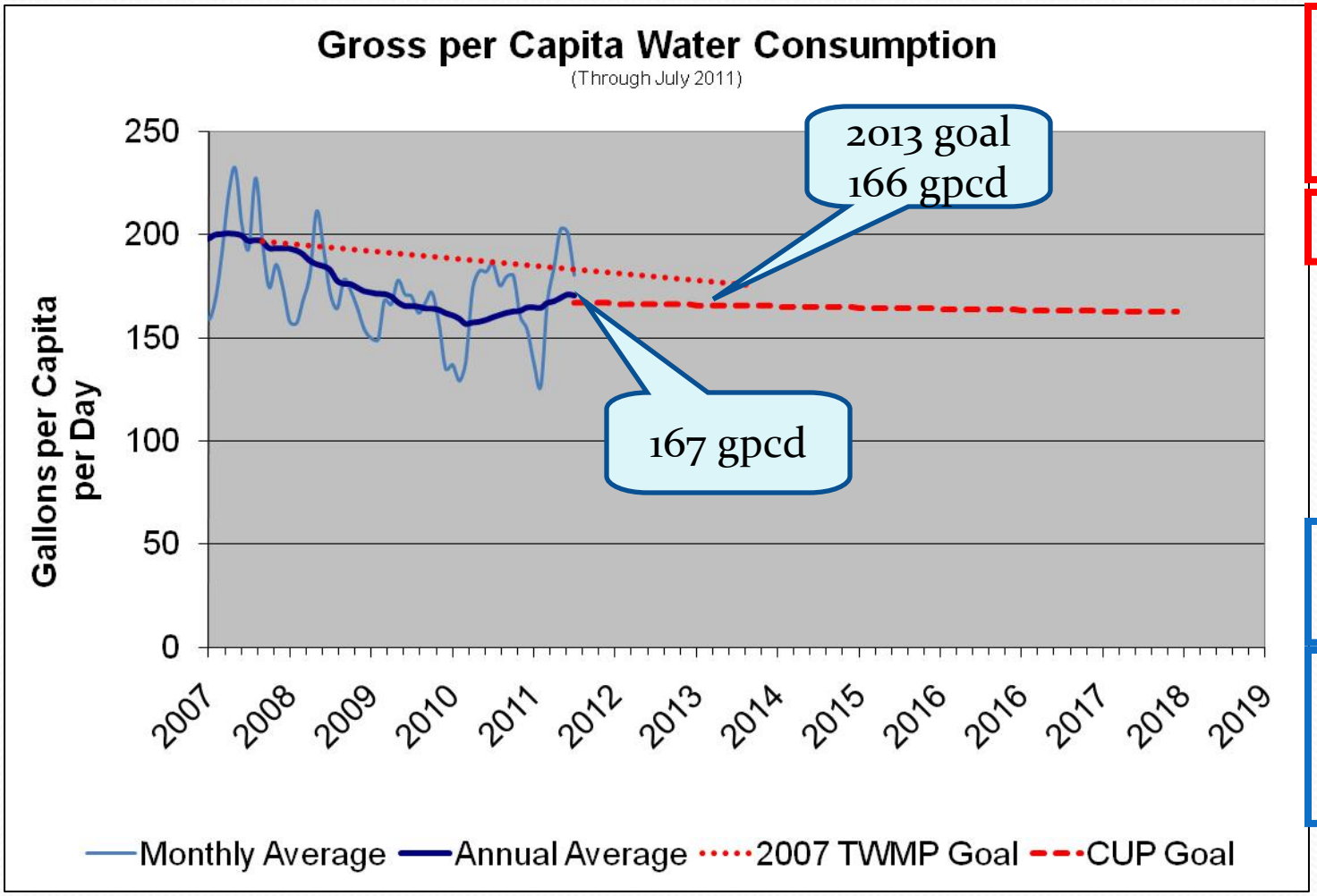


2008-2011
Conservation?

Weather?
Increasing Rates?
Messaging?
Low Flow Fixtures?
Irrigation Ord/Rule?
Source Replacement?

The Economy?

Conservation Efforts

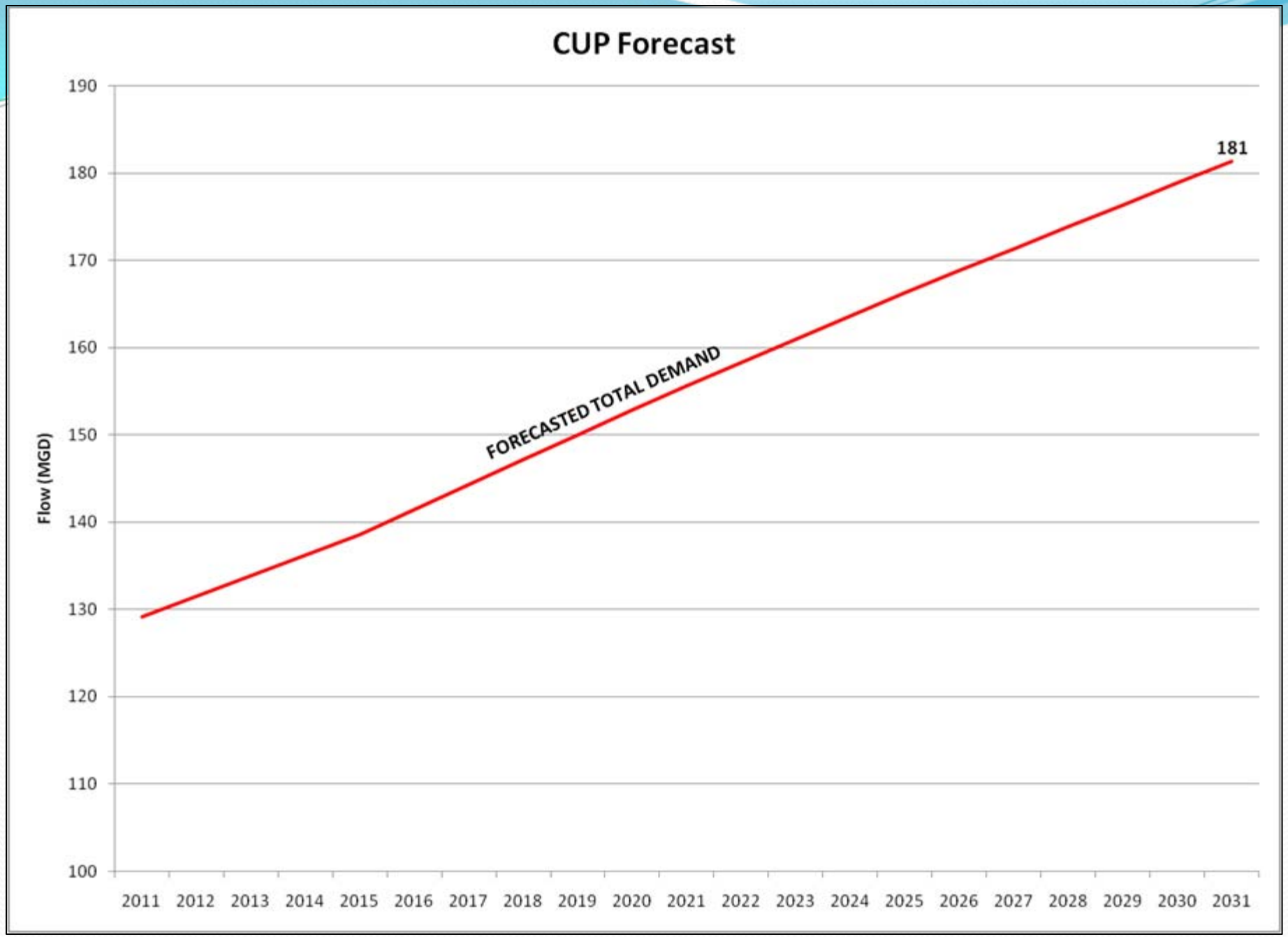


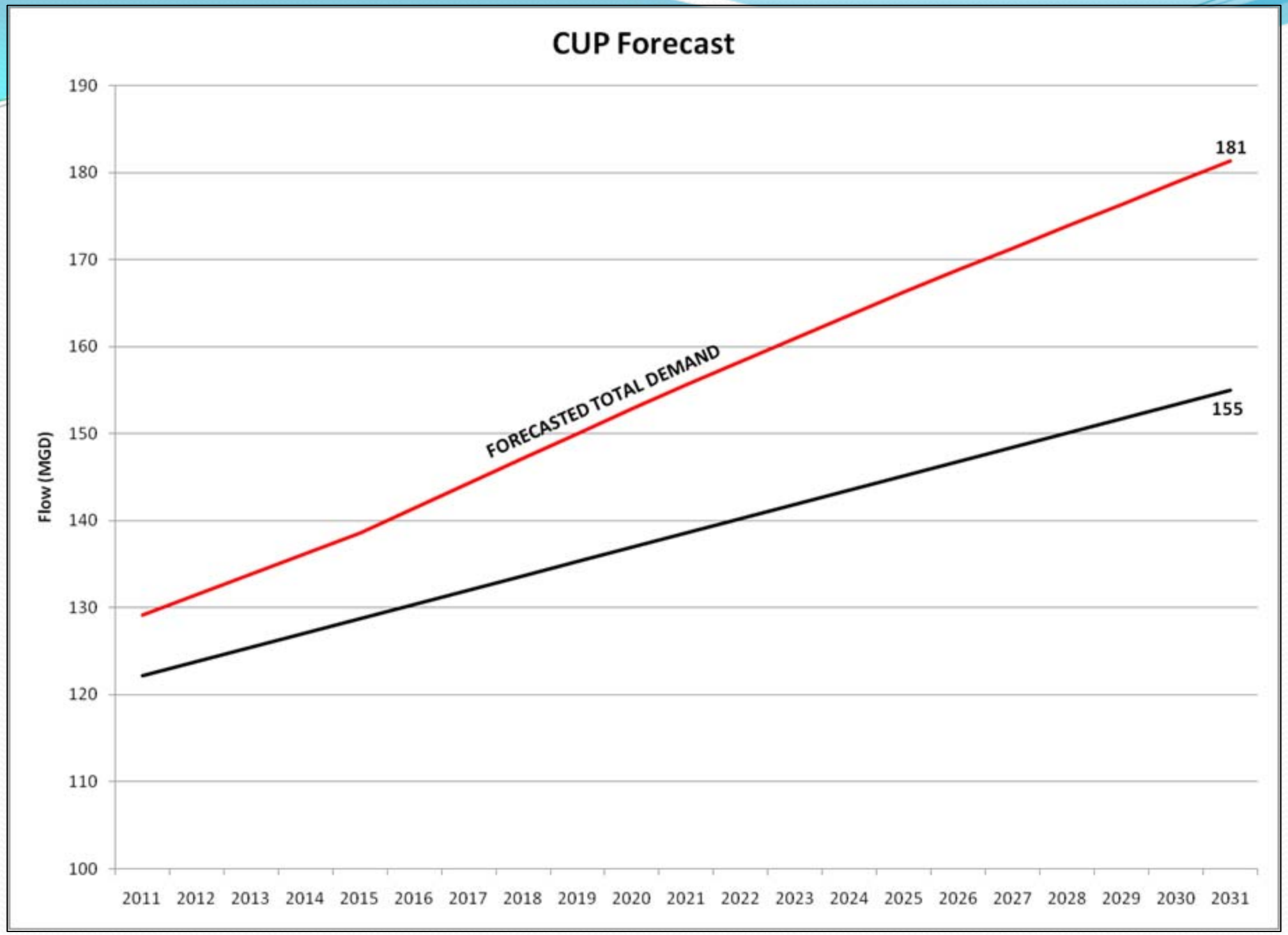
What is the residential per capita demand?

99 gpcd

What is your gpcd?

4,000 gal/month
3 people = 45 gpcd


CUP Forecast
Flow (MGD)
190
180
170
160
150
140
130
120
110
100
FORECASTED TOTAL DEMAND
181
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031


CUP Forecast
190
180
170
160
150
140
130
120
110
100
Flow (MGD)
181
155
FORECASTED TOTAL DEMAND
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
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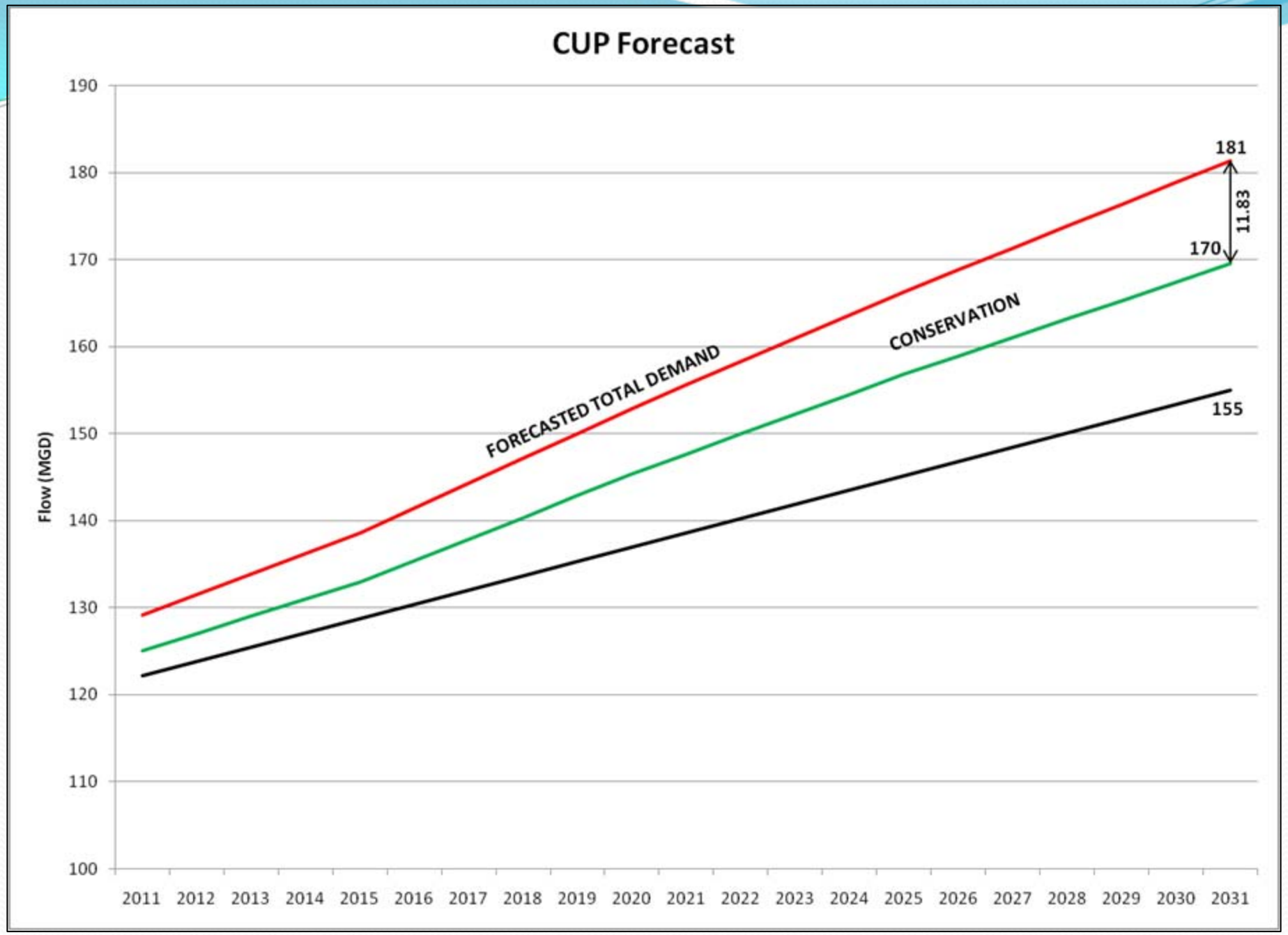
2031


CUP Forecast
Flow (MGD)
190
180
170
160
150
140
130
120
110
100
2011
2012
2013
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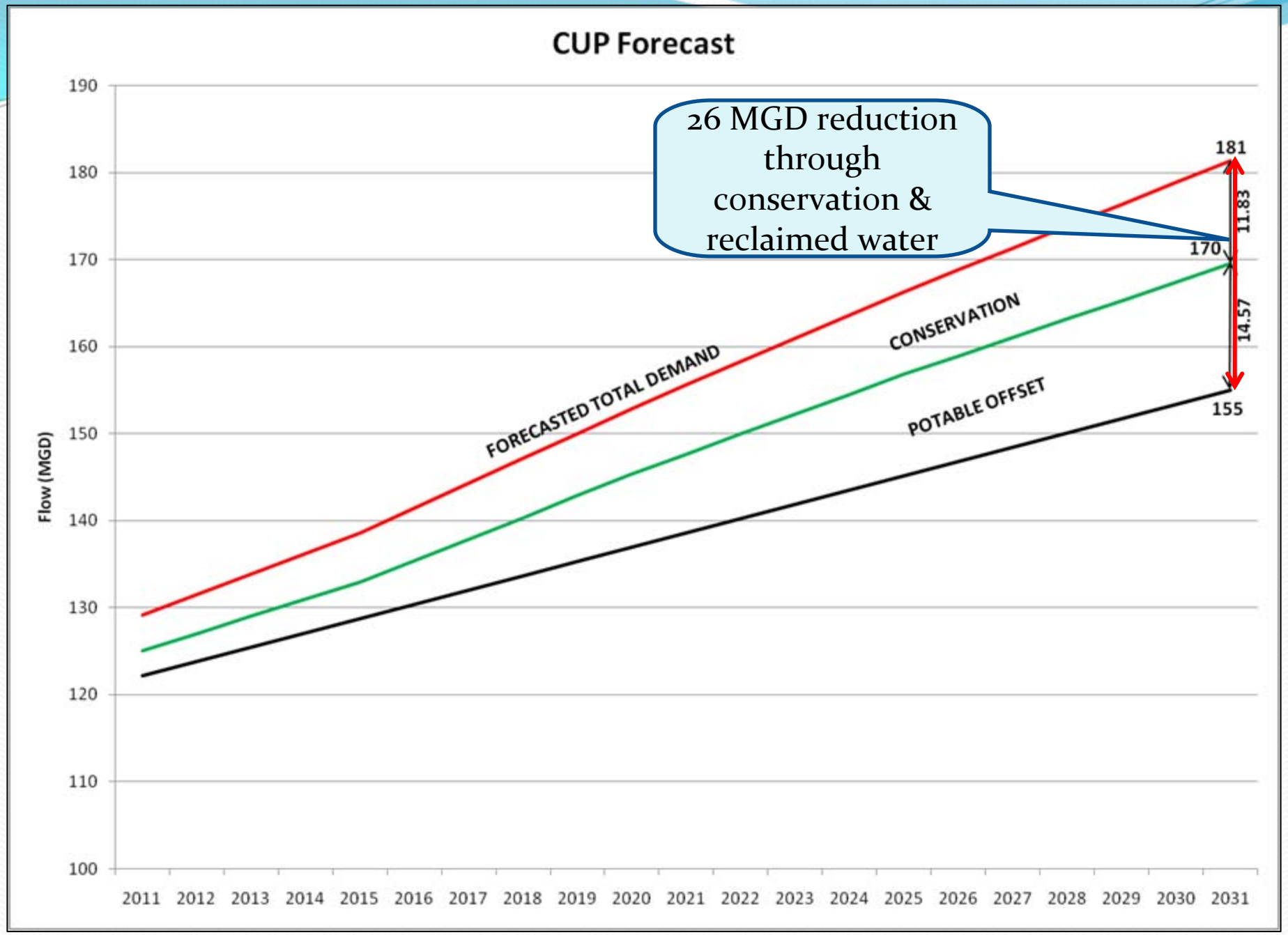
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
181
11.83
170
155
FORECASTED TOTAL DEMAND
CONSERVATION


CUP Forecast
26 MGD reduction through conservation & reclaimed water
181
170
155
11.83
14.57
FORECASTED TOTAL DEMAND
CONSERVATION
POTABLE OFFSET
Flow (MGD)
190
180
170
160
150
140
130
120
110
100
2011
2012
2013
2014
2015
2016
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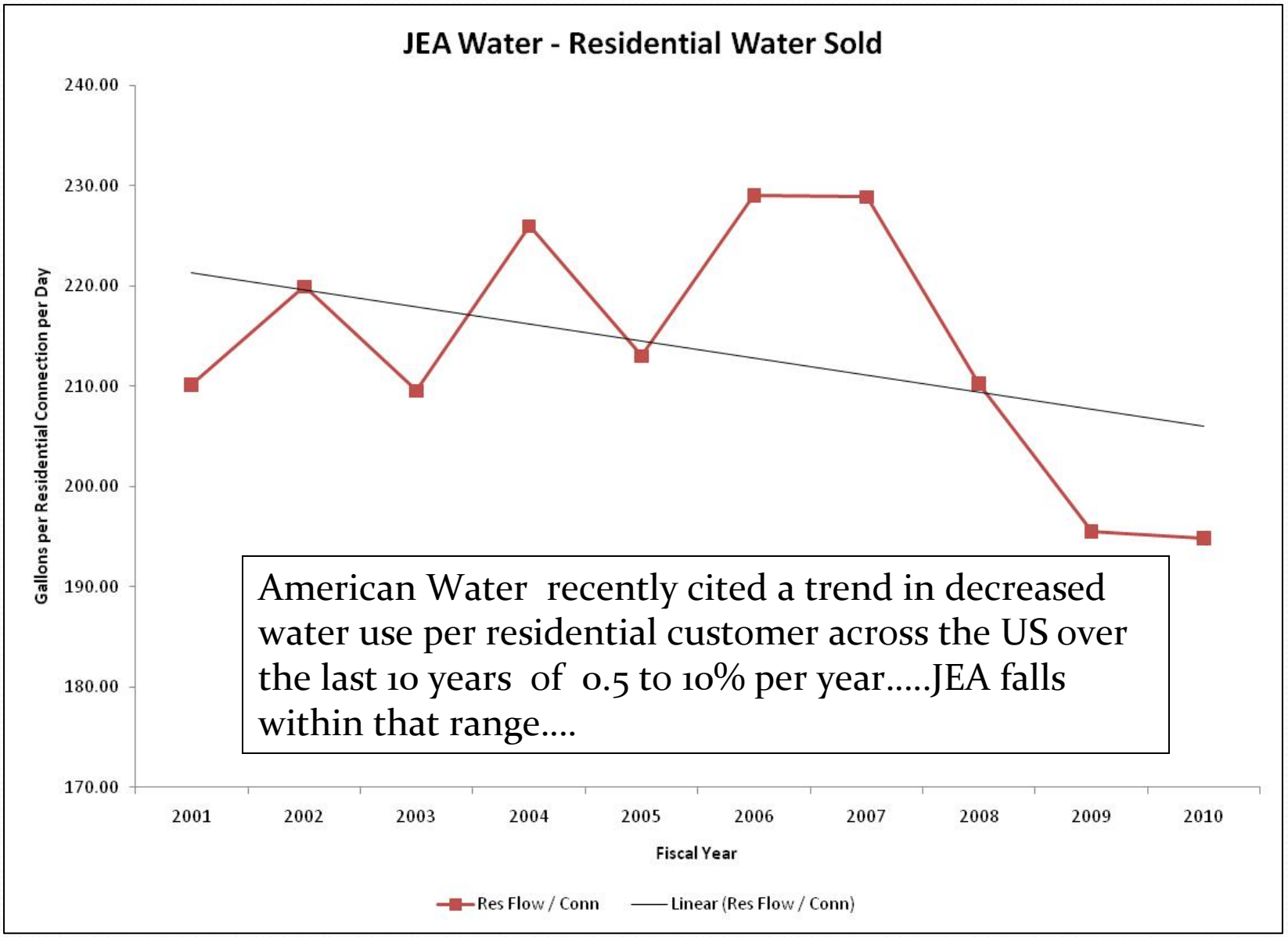
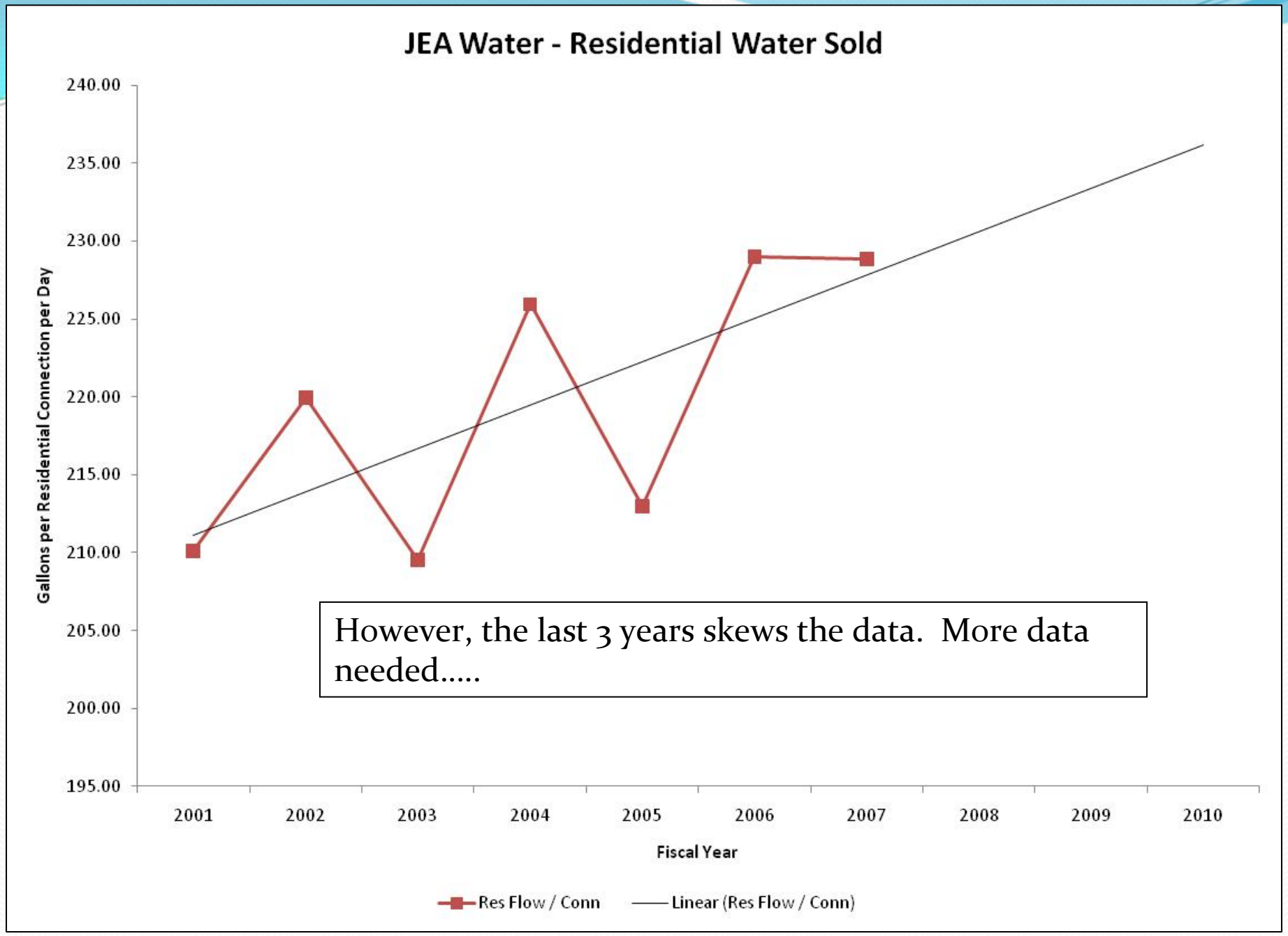
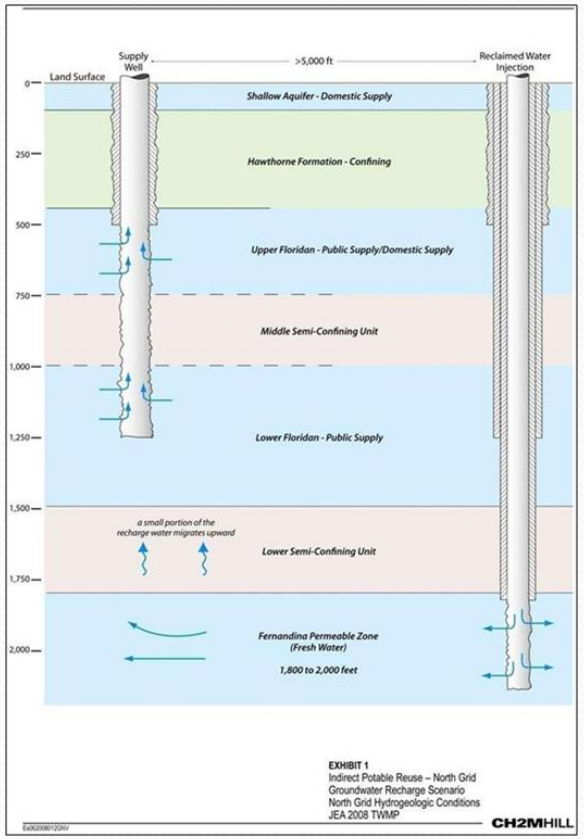

JEA Water - Residential Water Sold
240.00
230.00
220.00
210.00
200.00
190.00
180.00
170.00
Gallons per Residential Connection per Day
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Fiscal Year
Res Flow / Conn
Linear (Res Flow / Conn)
American Water recently cited a trend in decreased water use per residential customer across the US over the last 10 years of 0.5 to 10% per year…..JEA falls within that range….


JEA Water - Residential Water Sold
240.00
235.00
230.00
225.00
220.00
215.00
210.00
205.00
200.00
195.00
Gallons per Residential Connection per Day
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Fiscal Year
Res Flow / Conn
Linear (Res Flow / Conn)
However, the last 3 years skews the data. More data needed.....

Water Supply Alternatives

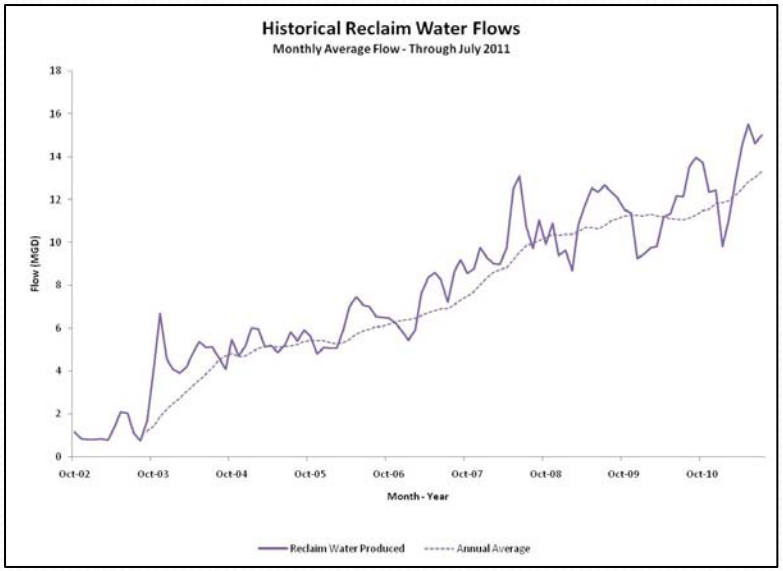
If Conservation and Reclaimed Water is not enough…..

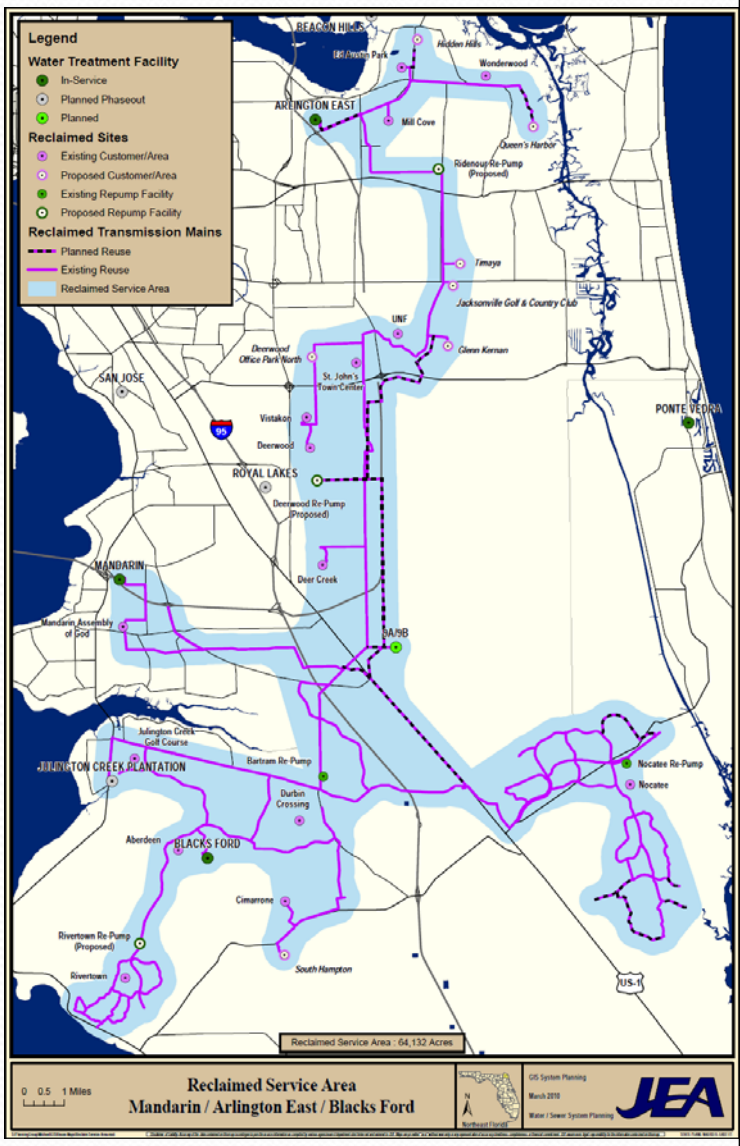
- Ocean Desalination
- Aquifer Recharge (Indirect Potable Reuse)
  - Direct Injection - Floridan vs. Fernandina
  - Pipe to RIBs in Recharge Area
  - Pipe to Lakes in Recharge Area
- St Johns River
- Brackish Groundwater
- Intermediate Aquifer (Hawthorn)
- Stormwater Runoff
- Rainwater Capture
- Non-Floridan Irrigation
- Direct Potable Reuse



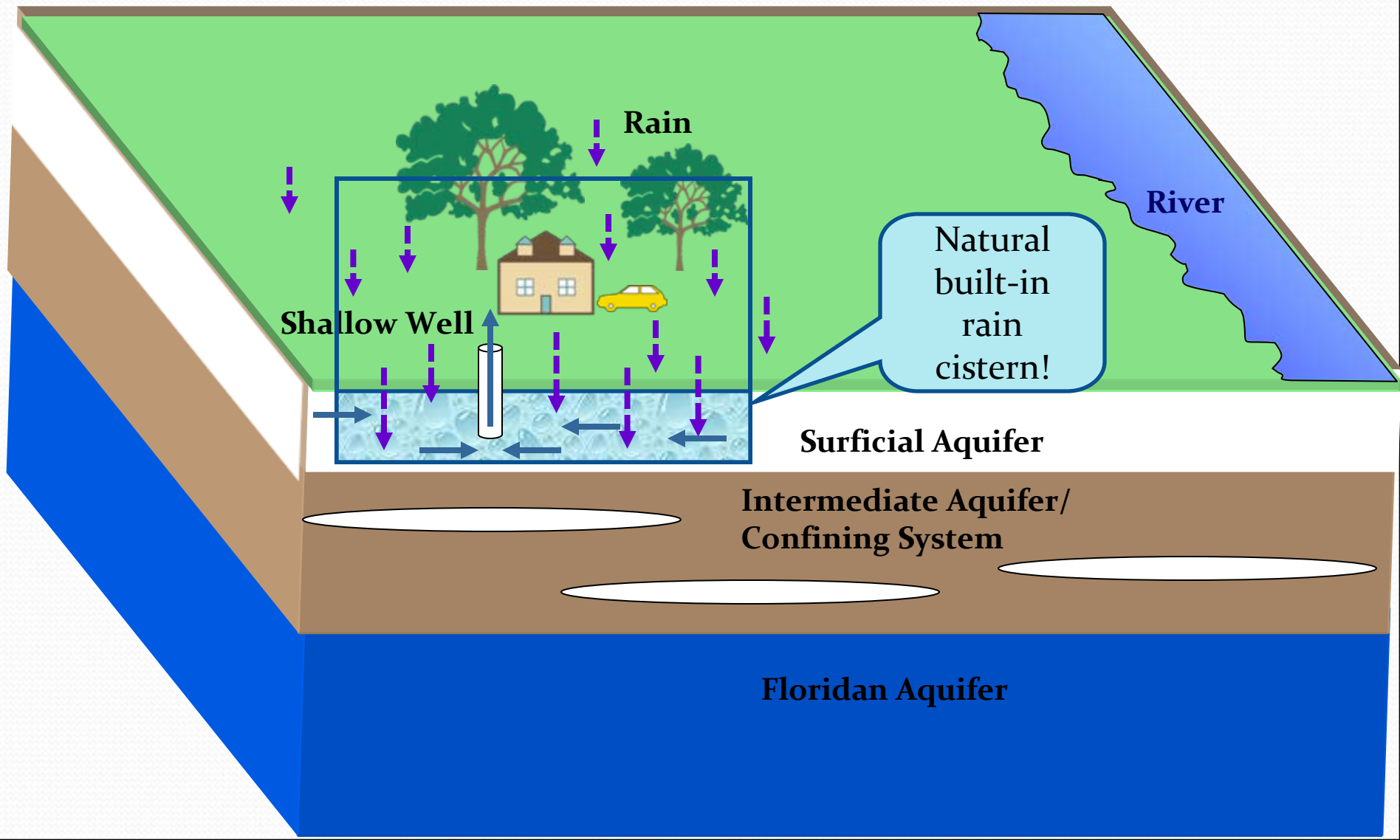
Source Replacement -Reclaimed Water

- 11 Reclaimed Water Production Facilities
- 28 MGD Capacity
- 13 MGD ADF (2.3 MGD Potable Offset)
- 1200 customers
- Reclaimed Water helps protect the River and the Aquifer
- $116M spent to date





Source Replacement – Shallow Wells



Conservation Going Forward

- Aggressive residential per capita goal (88 gpcd)
- Continue to evaluate a number of Conservation Strategies
- Demand Side Management (DSM) activity engaged
- Balance conservation with revenues required to sustain the utility

Summary

- Conservation continues to be a low cost alternative to AWS
- Conservation has limits that if reached may still require AWS
- JEA continues to promote Conservation and will adjust strategy to meet goals (Aquifer Limits)

JEA Conservation Efforts

Questions?

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