

# S T D & Diversity

South Florida Water Management District  
WRAC Workshop – Lower West Coast Water Supply Plan  
Friday, May 21, 2010



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# Source Diversity Treatment Diversity Distribution Diversity

Water  
Wastewater  
& Irrigation Quality Water Services



# System Statistics — Water

- **Provides Potable Water Service to 55,000 Service Connections**
  - **Over 160,000 Permanent Residents**
  - **Over 200,000 Residents, Adjusted Seasonally**
- **240 square mile Service Area**
- **900 miles Water Main**
- **8.303 BG Distribution System Demand**
- **22.687 MG Average Day Demand**
- **33.34 MG Maximum Day Demand**
- **66.2 MGD Peak Hourly Flow**

# System Statistics — Wastewater

- **Provides Wastewater Service to 58,000 Service Connections**
  - **Over 160,000 Permanent Residents**
  - **Over 200,000 Residents, Adjusted Seasonally**
- **220 square mile Service Area**
- **1080 miles Force Mains and Gravity Lines**
- **5.041 BG Wastewater Treated**
- **13.808 MG Average Day Treated**
- **754 County-owned Lift Stations**
- **>5.0 BG Irrigation Quality Water Distributed**

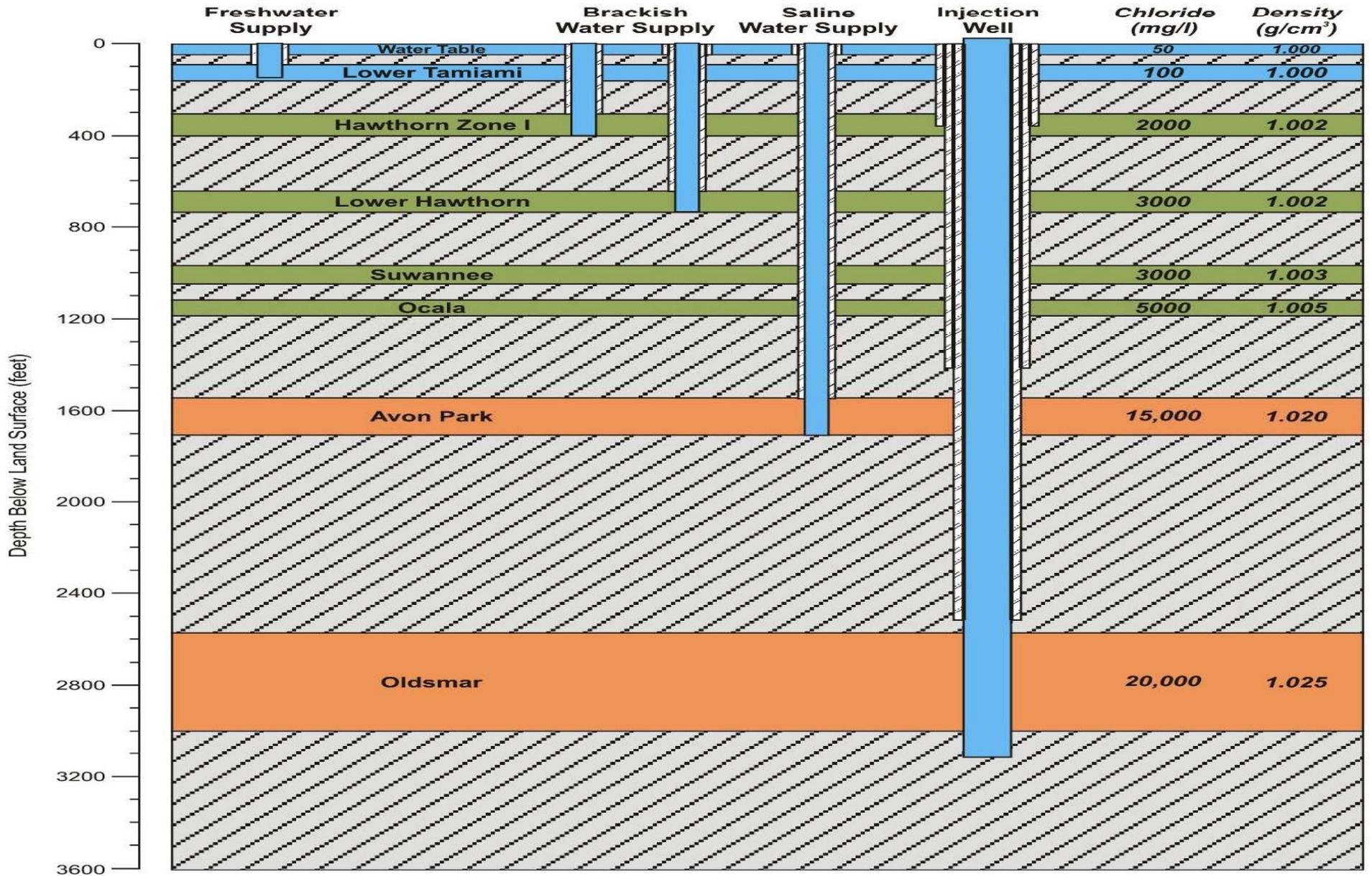
# Source Diversity

## Groundwater Sources

- Fresh
- Brackish

Irrigation Quality Water

# Collier County Hydrogeology



- Confining Beds
- Freshwater Aquifer
- Brackish Water Aquifer
- Saline Water Aquifer

# Average Day Water Demand

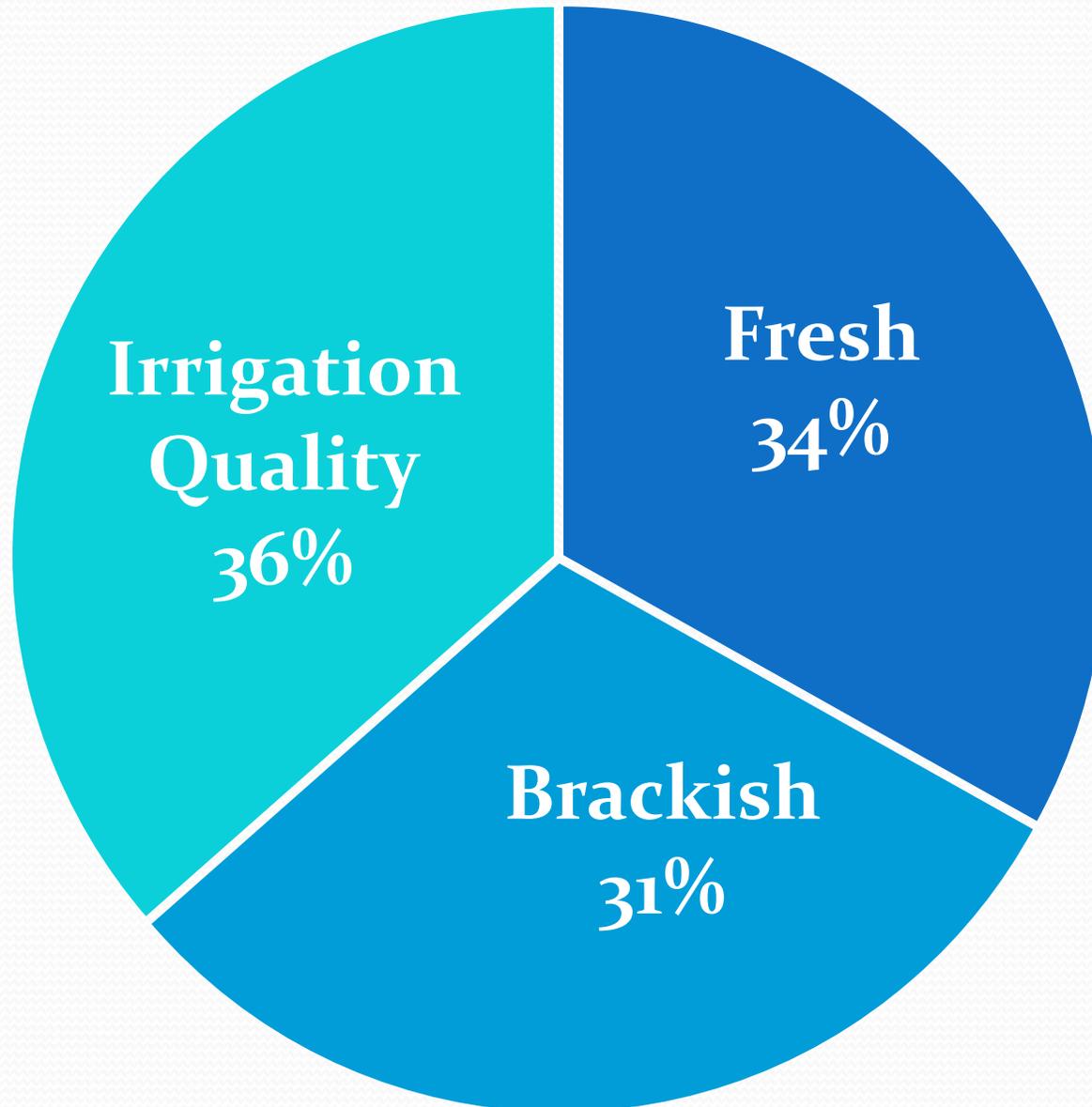
**Total** **35.7 MGD**

**Fresh** **11.8 MGD**

**Brackish** **10.9 MGD**

**Irrigation Quality** **13.0 MGD**

# Average Day Water Demand



# Reclaimed Water Use

- **>95 percent of wastewater is reused**
- **Approximately 13 MGD of Reclaimed Water is used for irrigation**
  - **Reduction of demand that would be placed on the potable water supply**
  - **Wise use of resources**
- **Irrigation Quality Water – “IQ Water”**
  - **Supplemented with Surficial Aquifer source**

# Treatment Diversity

2 Regional Potable Water Treatment Plants

- Lime Softening
- Nanofiltration
- Reverse Osmosis

2 Regional Water Reclamation Facilities

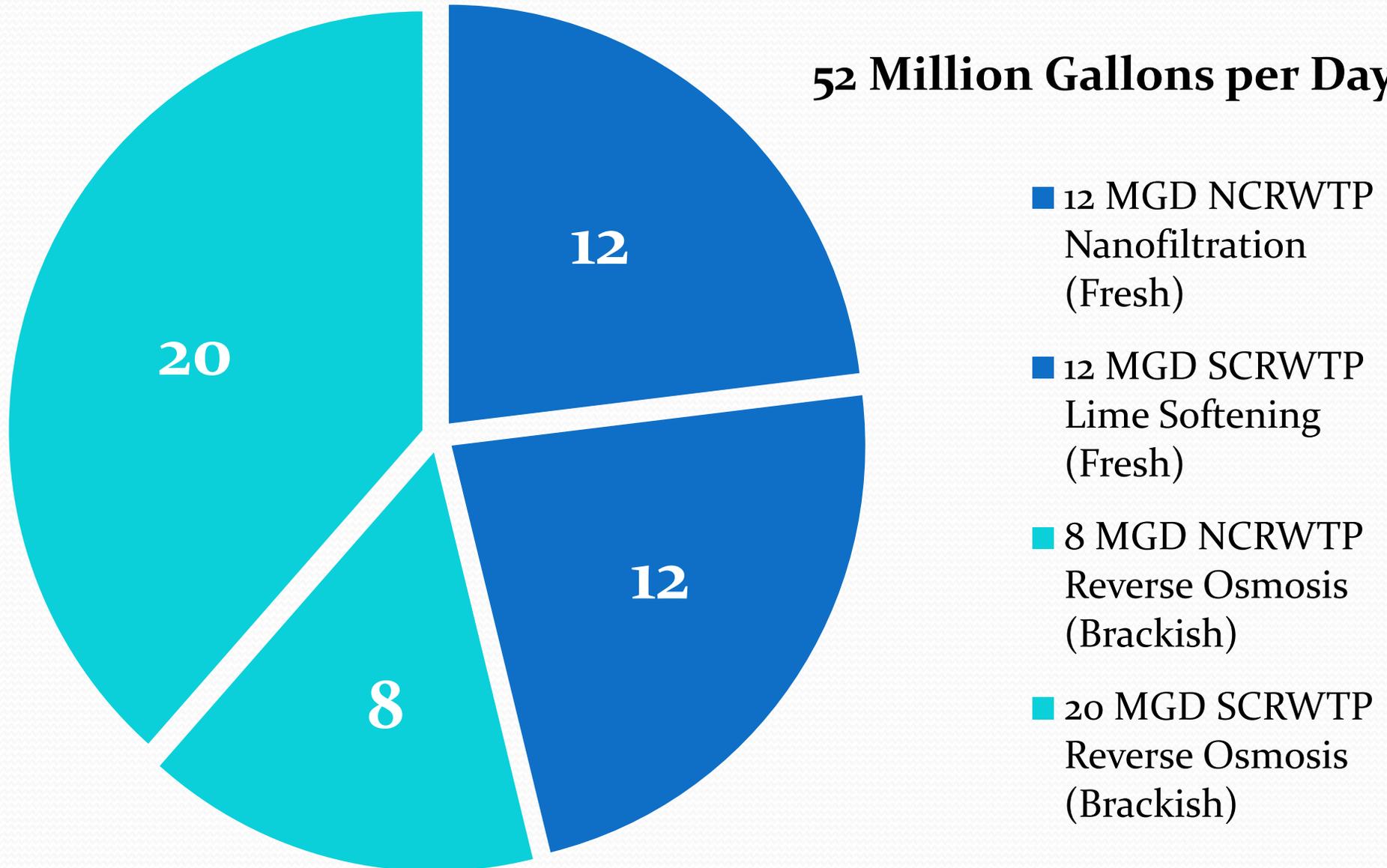
- Advanced Wastewater Treatment

# Constructed Potable Water Capacity

<b>Year</b>	<b>MGD</b>	<b>Process</b>	<b>Plant</b>	<b>Source</b>
<b>1984</b>	<b>4</b>	<b>LS</b>	<b>SCRWTP</b>	<b>Fresh</b>
<b>1988</b>	<b>8</b>	<b>LS</b>	<b>SCRWTP</b>	<b>Fresh</b>
<b>1992</b>	<b>12</b>	<b>NF</b>	<b>NCRWTP</b>	<b>Fresh</b>
<b>1999</b>	<b>8</b>	<b>RO</b>	<b>NCRWTP</b>	<b>Brackish</b>
<b>2005</b>	<b>8</b>	<b>RO</b>	<b>SCRWTP</b>	<b>Brackish</b>
<b>2007</b>	<b>6</b>	<b>RO</b>	<b>SCRWTP</b>	<b>Brackish</b>
<b>2008</b>	<b>6</b>	<b>RO</b>	<b>SCRWTP</b>	<b>Brackish</b>
<b>2012</b>	<b>2</b>	<b>HPRO</b>	<b>NCRWTP</b>	<b>High TDS</b>

# Constructed Potable Water Capacity

**52 Million Gallons per Day**



# Distribution Diversity

Potable Water Distribution

Irrigation Quality Water Distribution

# IQ Water Distribution

- 131 miles of Distribution System
- 23 Bulk Water Customers
- 3800 Pressurized Customers
  - 20 Golf Courses
  - 6 County Parks and Playgrounds
  - 50+ miles of Roadway Medians

# Water Rates & Conservation

Rate History

Rate Benchmarking

Conservation Rates

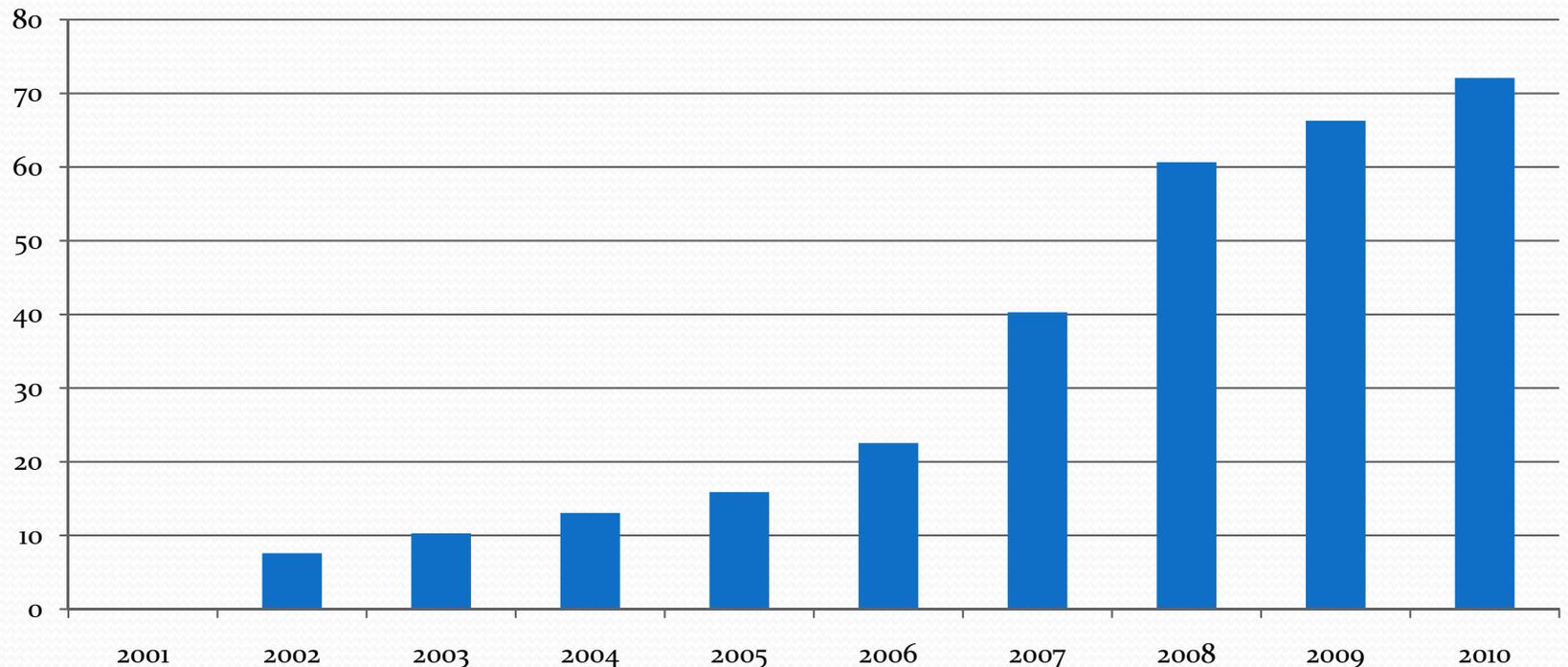
Irrigation Ordinance

Conservation Program

Per Capita Consumption

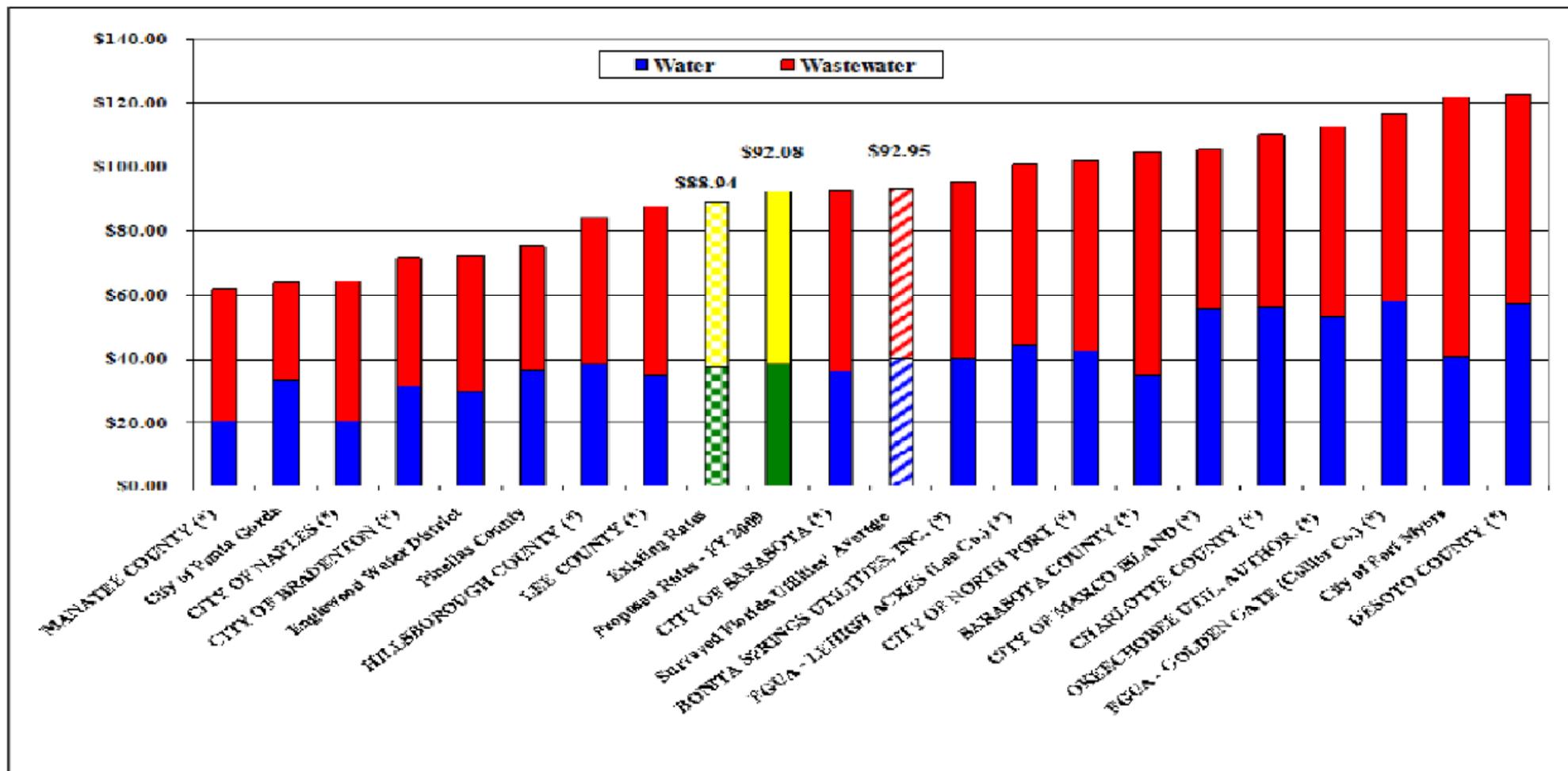
# 10 Year Rate History

Rate Adjustments										
Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Adjustment	0	7.6	2.5	2.5	2.5	5.75	14.5	14.5	3.5	3.5
Cumulative	0	7.6	10.3	13.0	15.9	22.5	40.3	60.6	66.3	72.1



# Comparison of Monthly Charges For Combined Water and Wastewater Service at Single Family Residential Class Average Usage

Average Monthly Usage = 8,000 Gallons Per Month



(\*) CAPITALIZED utilities: i) are involved in rate study; ii) are planning to conduct rate study; or iii) will implement rate revision within twelve months  
as of 30-Sep-2009

# Conservation Water Rates

- **Inverted Block Rate Structure**
  - **Promotes Water Conservation – Use More/Pay More**
  - **Water Shortage Surcharge**

Typical 5/8" or 3/4" Residential Meter					
Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
5000	10000	20000	30000	50000	>50000
\$2.36	\$3.54	\$4.71	\$5.89	\$7.06	\$9.42

Water Shortage Surcharge – Usage > 10000 gallons/month	
Phase II – Severe	15%
Phase III – Extreme	30%
Phase IV – Critical	40%

# Year-Round Irrigation Ordinance

- **Irrigation Ordinance – April 2002**
  - **Year-round Restrictions**
  - **3 Days per Week**
    - **Day of Week/Hours of Day**
      - **Odd/Even Address**
      - **12:01 AM to 8:00 AM**
      - **“Fridays Are Dry Days”**
  - **Rain Sensor Switch Retrofit**

# Conservation Program

- **Land Development Code**
  - **Requires construction of dual distribution system (Potable and Irrigation Quality Water)**
  - **Conservation Requirements**
    - **Low-flow Plumbing Fixtures**
    - **Xeriscape Landscaping**
- **Leak Detection & Meter Replacement Program**
  - **~6 percent Unaccounted-for Water**
  - **Industry benchmark is 12 to 15 percent**

# Conservation Program

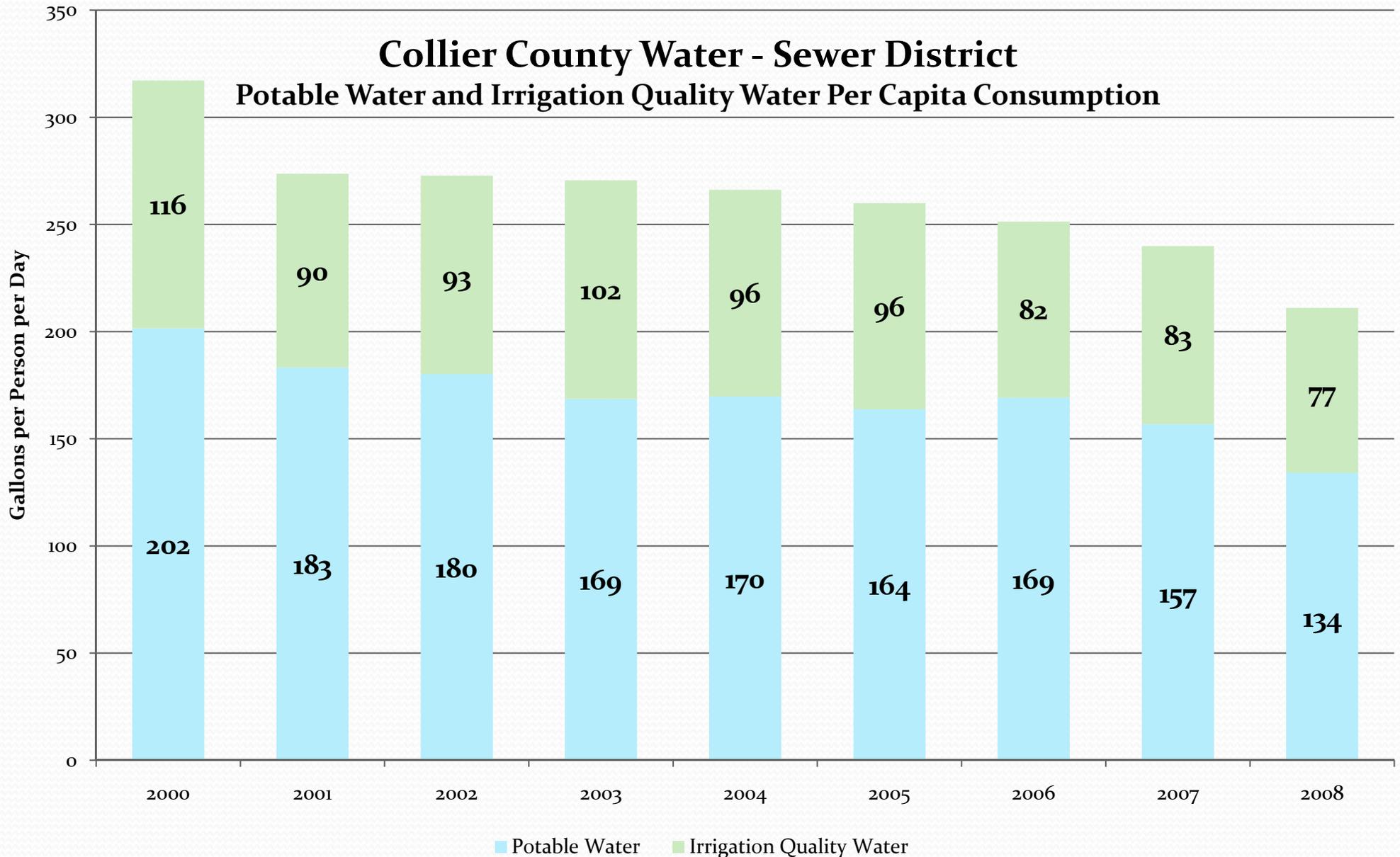
- **Comprehensive Education Program**
  - **Radio, Television, Newspaper**
  - **Utility Bill Inserts**
  - **Printed Notices on Utility Bills**
  - **Public Outreach**
    - **School Programs**
    - **Government Day**
    - **Senior Expo**
    - **Programs/Tours**

# Potable Water Per Capita Consumption

- **Downward trend – conservation is working**

<b>Year</b>	<b>gpcd</b>	<b>3-Year Average</b>
<b>2000</b>	<b>202</b>	<b>---</b>
<b>2001</b>	<b>183</b>	<b>---</b>
<b>2002</b>	<b>180</b>	<b>188</b>
<b>2003</b>	<b>169</b>	<b>177</b>
<b>2004</b>	<b>170</b>	<b>173</b>
<b>2005</b>	<b>164</b>	<b>168</b>
<b>2006</b>	<b>169</b>	<b>168</b>
<b>2007</b>	<b>157</b>	<b>163</b>
<b>2008</b>	<b>134</b>	<b>153</b>

# Per Capita Consumption



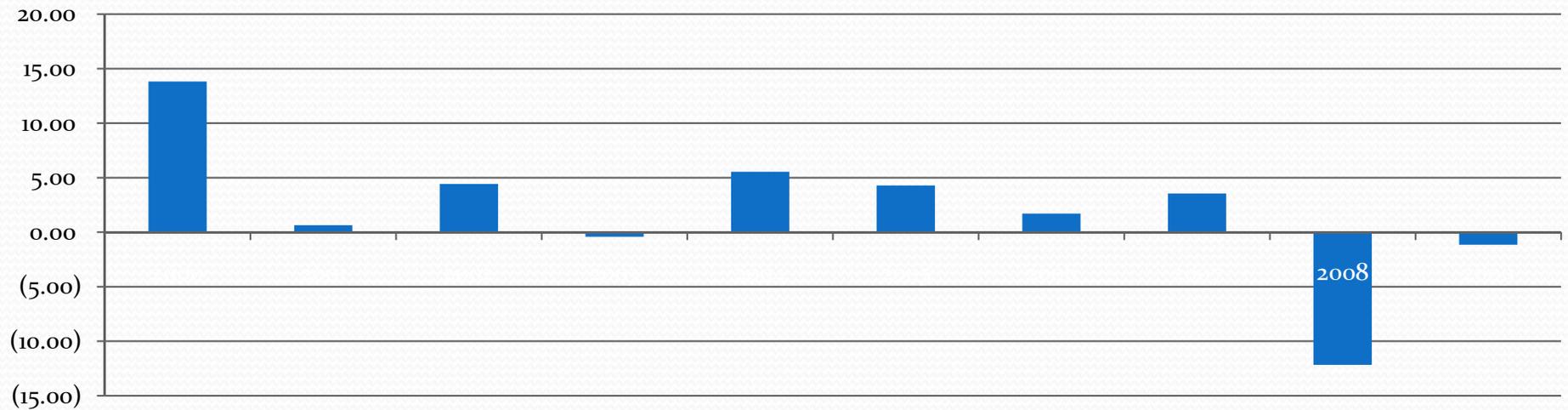
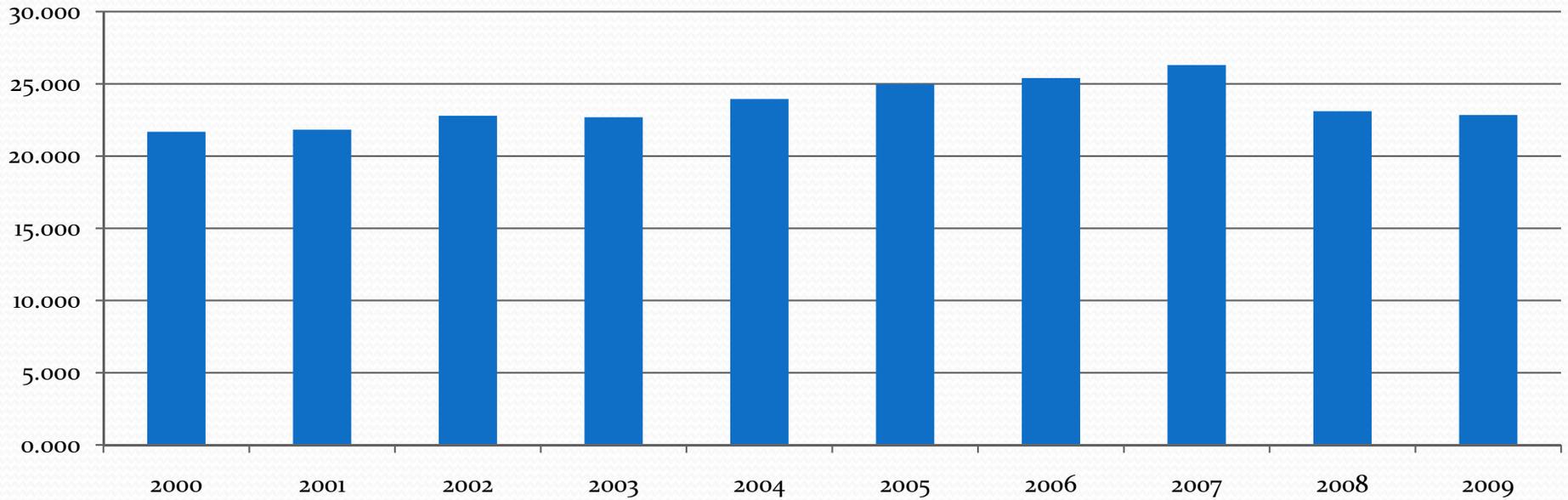
# Master Plans – W & WW

- **2001 Comprehensive**
- **2003 Comprehensive (approved in 2004)**
- **2003 Supplement (approved in 2005)**
- **2005 Comprehensive (approved in 2006)**
- **2008 Comprehensive (approved in 2008)**
- **2010 – 2011 Planned**

# Other Planning Exercises

- **Water Use Permitting**
- **Regional Water Supply Plans**
- **Water Supply Facility Work Plans**
- **Annual Budget Process**
- **Annual Update and Inventory Report**

# Water Demand



# Utility Response

- **Revenue-centric and Cost-contained Operations, Maintenance, and Capital Programs**
  - **Asset Management**
  - **Productivity Initiatives**
  - **Efficiency Initiatives**

# Revenue-centric/Cost-contained

- **Adjustments to Personnel**
  - **Early Retirements and Attrition**
- **Adjustments to Operations**
  - **Processes, Efficiencies, Procedures, Levels of Service**
- **Adjustments to Maintenance**
  - **Risk Assessments and Deferrals**
- **Adjustments to Capital Programs**
  - **Demand Projections, Risk Assessments, and Deferrals**

# Fiscal Year 2009 Cost Containment

WATER DEPARTMENT				
	Budget	Target	Forecast	Actual
Personnel	\$8,602,938	\$301,800	\$231,400	\$676,500
Operating Expenses	\$13,430,642	\$28,300	\$682,600	\$2,325,700
Small Capital	\$169,000	\$19,800	\$40,500	\$74,400
Total	\$22,202,580	\$349,900	\$954,500	\$3,076,600

# Fiscal Year 2009 Revenue Picture

## Water-Sewer District

Budget	Actual	Difference
\$92,083,000	\$95,262,500	\$3,178,500

Positive Difference between  
Budgeted Revenue and Actual Revenue  
used to “buy back” Managed Risk Deferrals  
of Maintenance and Capital

Questions ... ?