

Austin Water Utility
City Council Briefing
Water Conservation
Strategies

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Director



Austin Water Utility Conservation Strategies

- Current Programs & Results
- Austin in Comparison to Other Cities
- Expanding Conservation Programs



Current Programs & Results

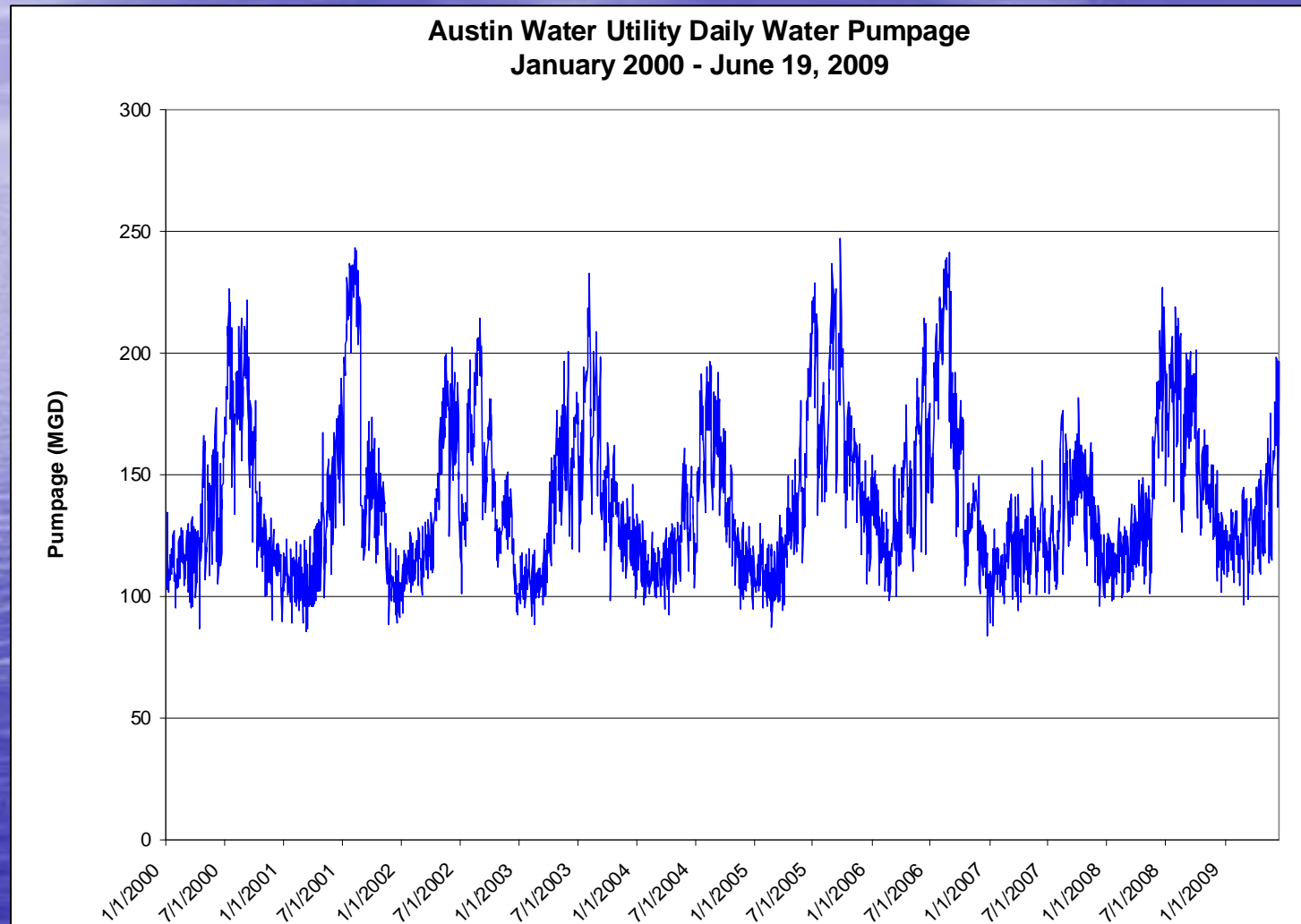


Why Is Conservation Important?

- Community value
- Growing needs and population, finite resource
- Extend water supplies & postpone additional payments to LCRA
- Lower bills for customers
- Reduced environmental impacts from pumping and treatment (green house gas reductions)
- Better manage infrastructure investment demands



Daily Water Pumping 2000 – 6/2009



Current Conservation Programs

- 2006 Alan Plummer study examined 161 conservation strategies
- 2006 City Council Empanelled the Water Conservation Task Force (WCTF)
 - Membership: Mayor Wynn, CM Leffingwell (Chair); CM Cole, CM Riley (then Planning Commission member); 3 others
 - 8 meetings over 4 months
 - Input from variety of stakeholders, subject matter experts, staff & public.
- 2007 Council Adoption of WCTF Recommendations
 - “Road Map” for conservation efforts
 - Stated Goal: Reduce peak day demand by 1% per year (25 MGD)
 - Creation of Citizens Water Conservation Implementation Task Force as an advisory group
 - Recommended budget and staffing increases for Water Conservation Division



Water Conservation

Listed in order of Peak Day Savings Amounts	Peak Day Savings (MGD)	FTEs	Average Year City Cost**	Total Cost per Gallon***
Enhanced Water Use Management	6.16	3	\$187,500	\$0.30
Reclaimed Water Use	5.95	--	\$1,250,000	\$2.10
Utility Water Rates	5.00	--	\$0	\$0
Reducing Water Loss	4.80	--	\$100,000	\$0.21
Mandatory Toilet Retrofit	2.10	2	\$542,530	\$2.77
Annual Irrigation System Analyses	1.47	2	\$132,000	\$0.90
Residential Irrigation Standards	1.32	4	\$245,000	\$1.86
Cooling Tower Management	0.95	0.25	\$15,000	\$0.16
Plumbing Code Changes	0.94	0.50	\$30,000	\$0.32
Commercial Irrigation Standards	0.74	2	\$120,000	\$1.62
Enhanced Irrigation Audit Program	0.63	0	\$137,500	\$2.18
Tenant Water Metering and Billing	0.40	0.50	\$30,000	\$0.48
Residential Landscape Ordinance	0.44	2	\$125,000	\$2.84
Commercial Clothes Washers	0.43	0.25	\$15,000	\$0.35
City Facility Conservation	0.37	--	\$0	\$0
Winter Leak Detection Program	0.31	--	\$0	\$0
Pressure Reduction Program	0.29	--	\$30,000	\$1.07
WaterWise Landscape Option	0.21	0.25	\$15,000	\$0.71
Car Washes	0.15	0.25	\$15,000	\$0.99
Enhanced Public Education	n/a	--	\$725,000	--
TOTALS	32.65	17.00	\$3,714,530*	

* Preliminary cost estimate

** Average cost per year for 10 year planning period

*** Cumulative cost over 10-year period

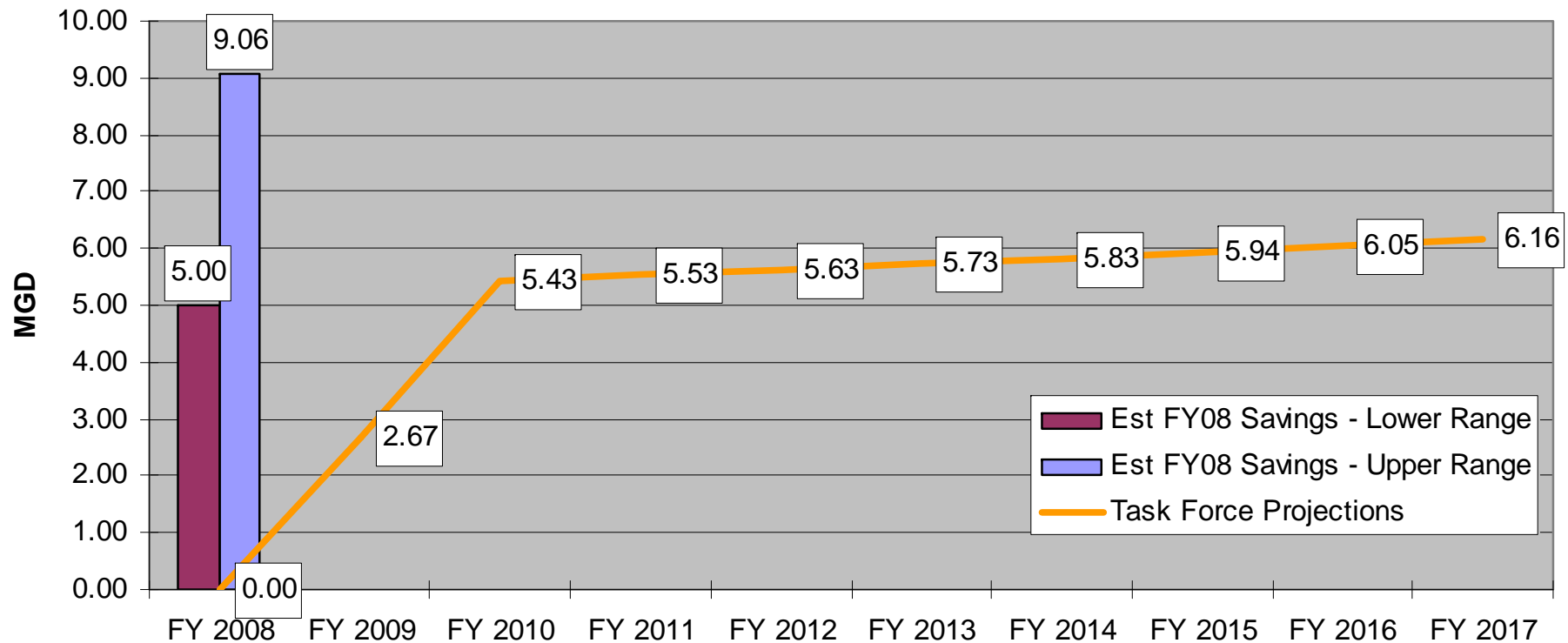
New Watering Restrictions

- Permanent Year-round Restrictions
 - Limit commercial, multifamily to Tuesdays & Fridays
 - Prohibit automatic irrigation between 10am and 7pm
- Seasonal Residential Restrictions
 - May 1 – September 30
 - Single family homes have 2 watering days a week
 - Odd addresses: Wednesdays and Saturdays
 - Even addresses: Thursdays and Sundays
 - Only hand watering allowed between 10am and 7pm



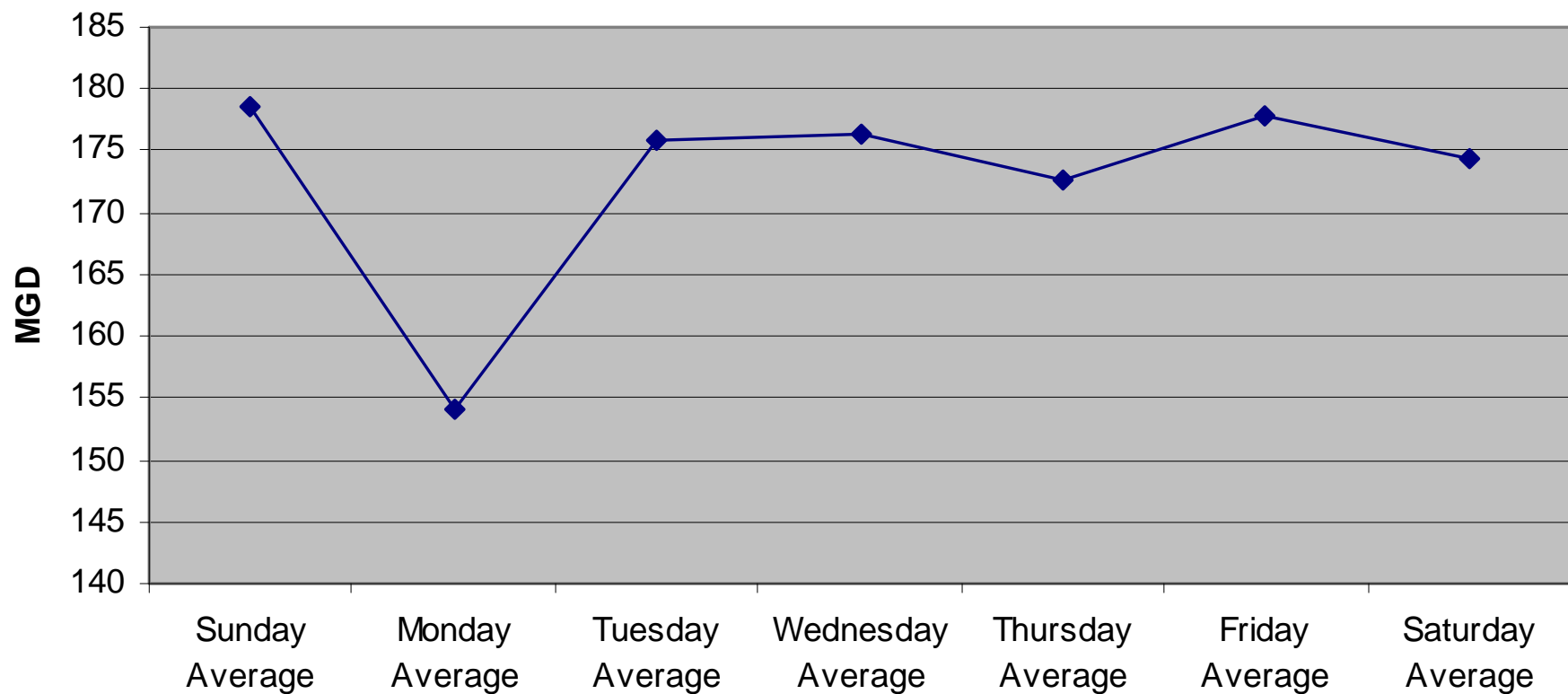
Implementation Success

Savings from Summer Watering Schedule



Implementation Success

Average Water Use by Weekday, Summer 2008

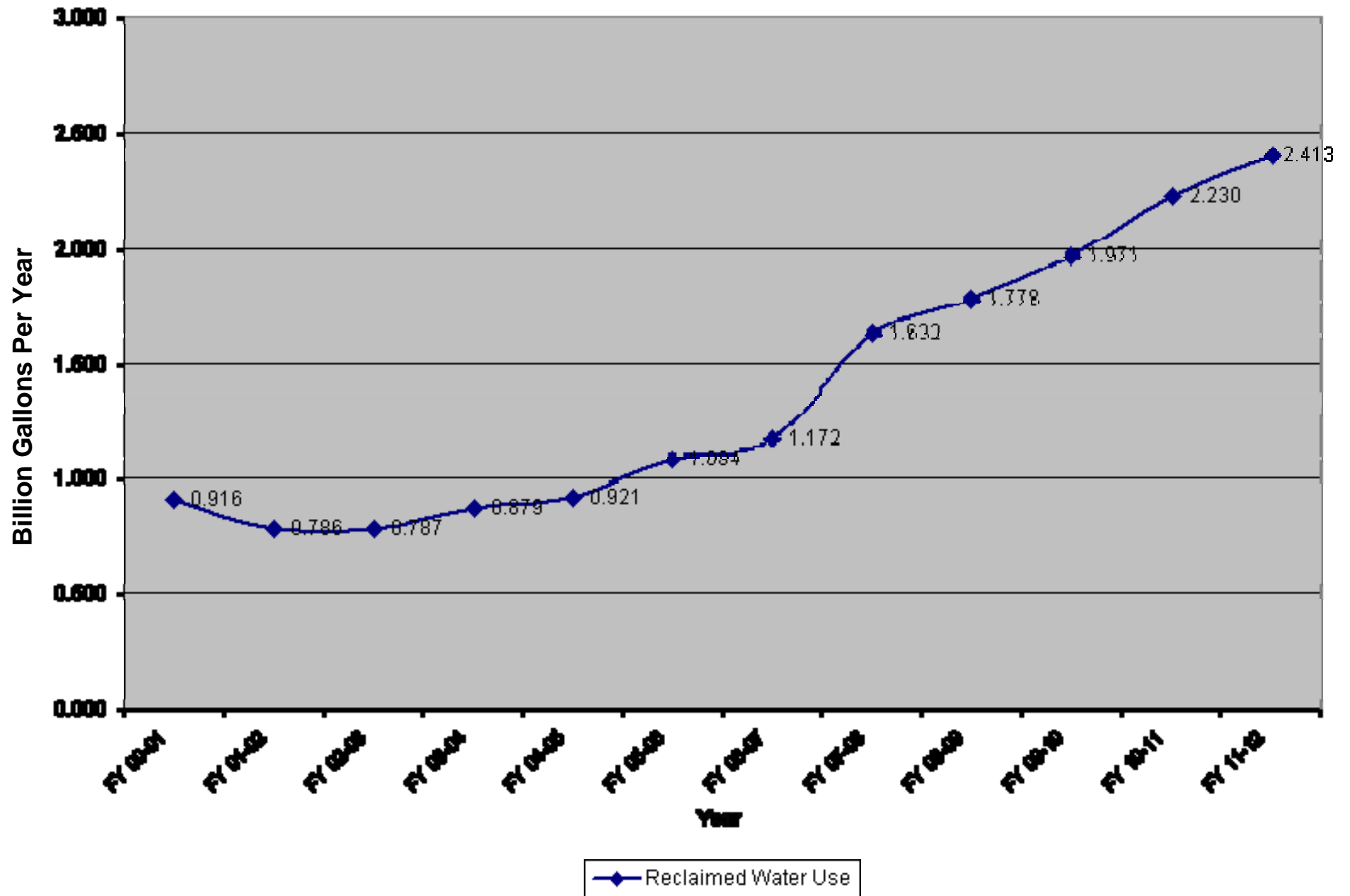


Water Reclamation Initiative

- Direct reuse system - “third utility”
- Annual use - 1.6 billion gallons
- Targeting expansion of the system in high use areas (University of Texas for example).
- Long-range system plan over 130 miles of pipe, 7 tanks and 5.5 billion gallons of annual use.

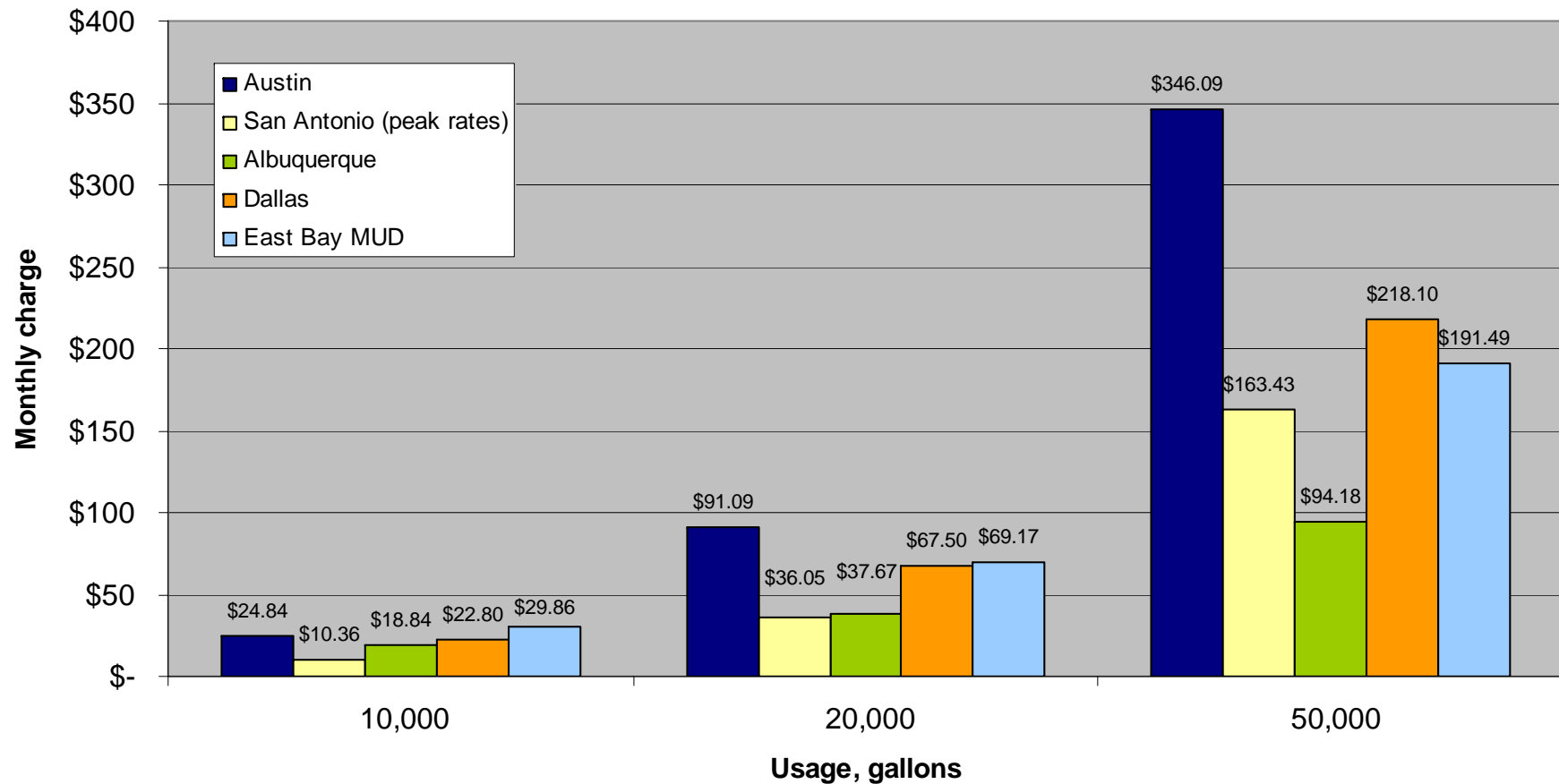


Reclaimed Water Use By Fiscal Year



Water Conservation & Rates

Monthly Variable Water Charges

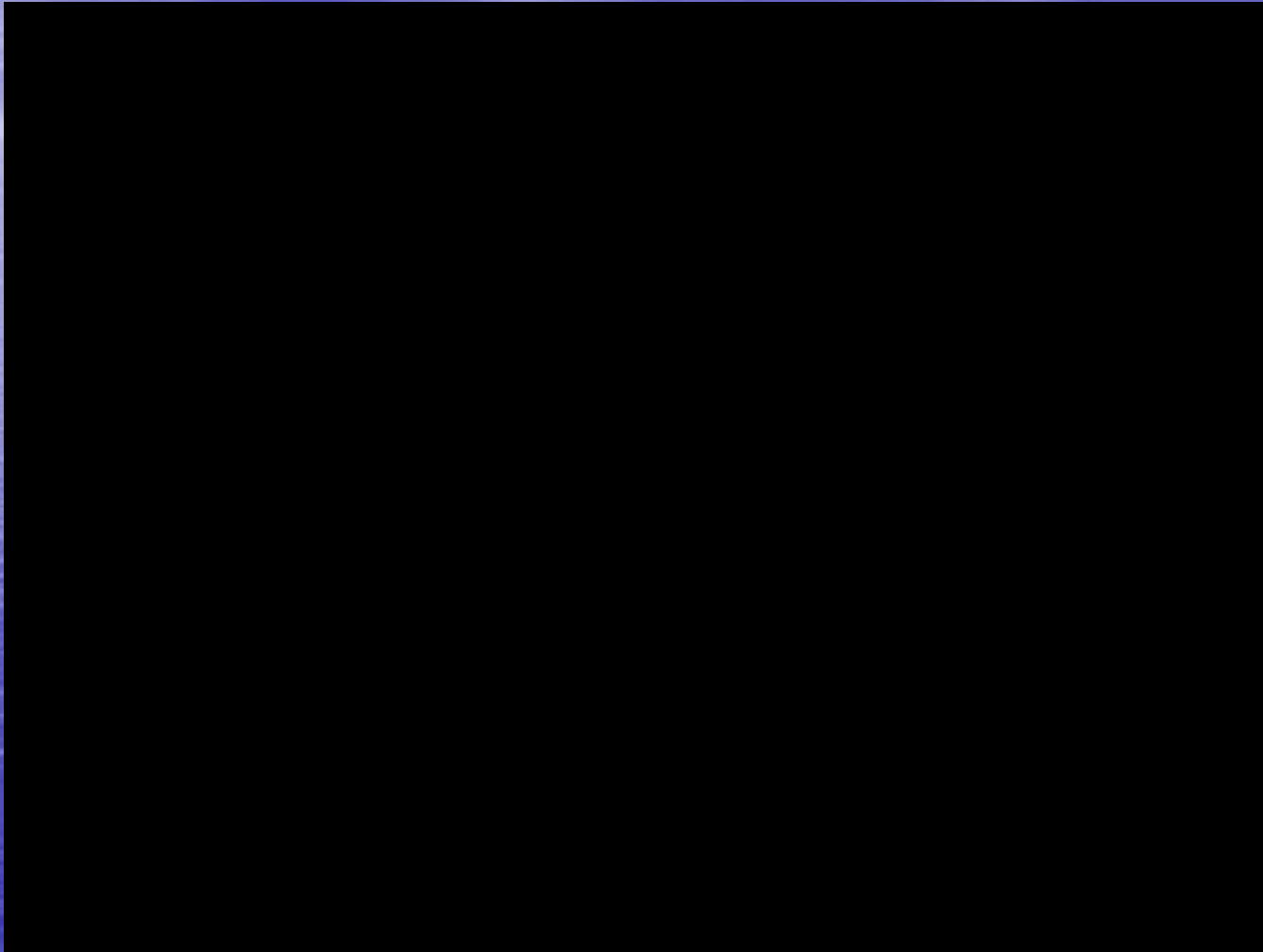


Increased Water Conservation Program Participation

	October 2007- March 2008	October 2008- March 2009
Residential irrigation audits	87	275
Commercial irrigation audits	8	43
Free toilets	1,559	5,458
All toilets	2,293	9,181



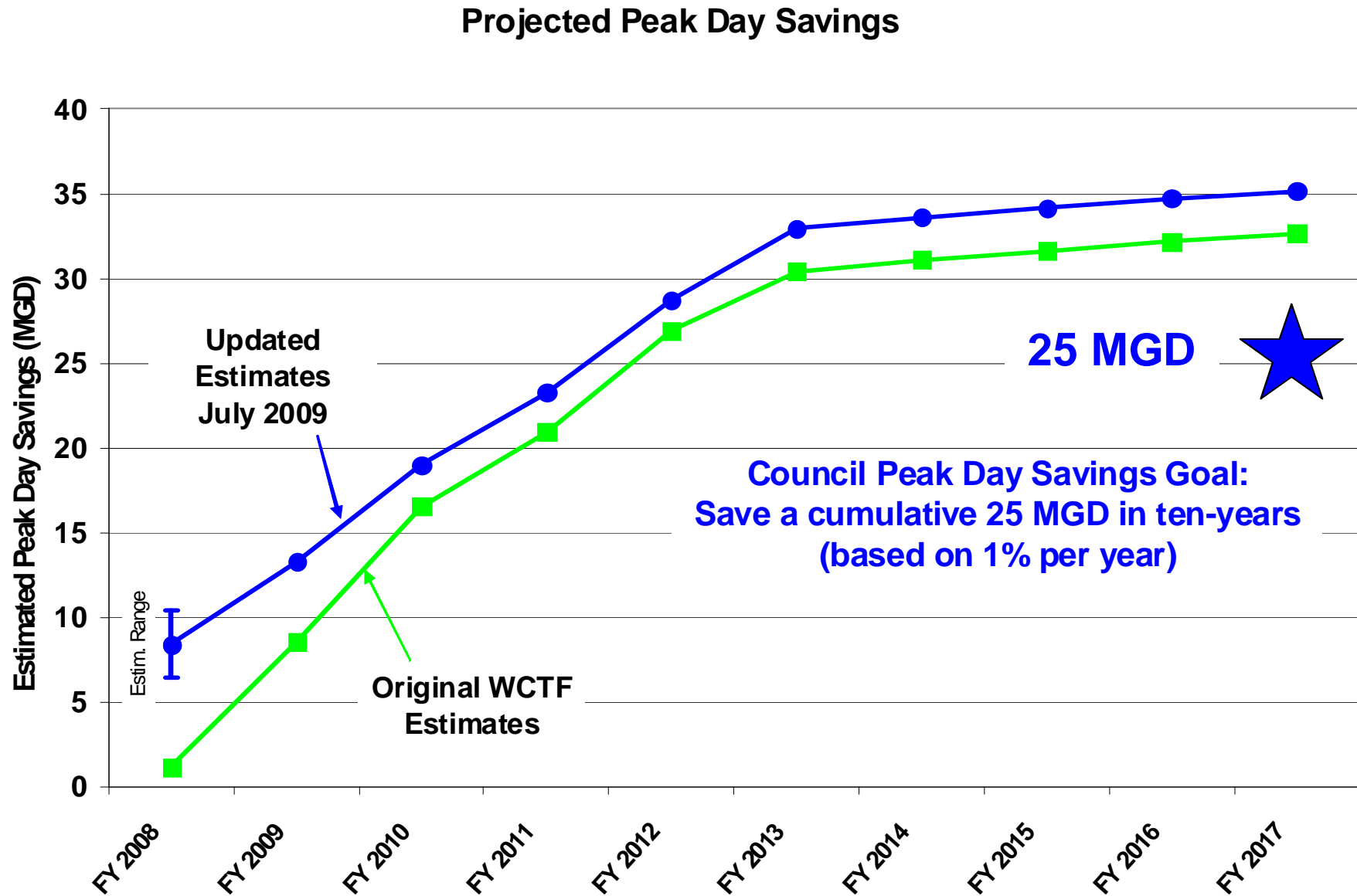
Conservation Jingle



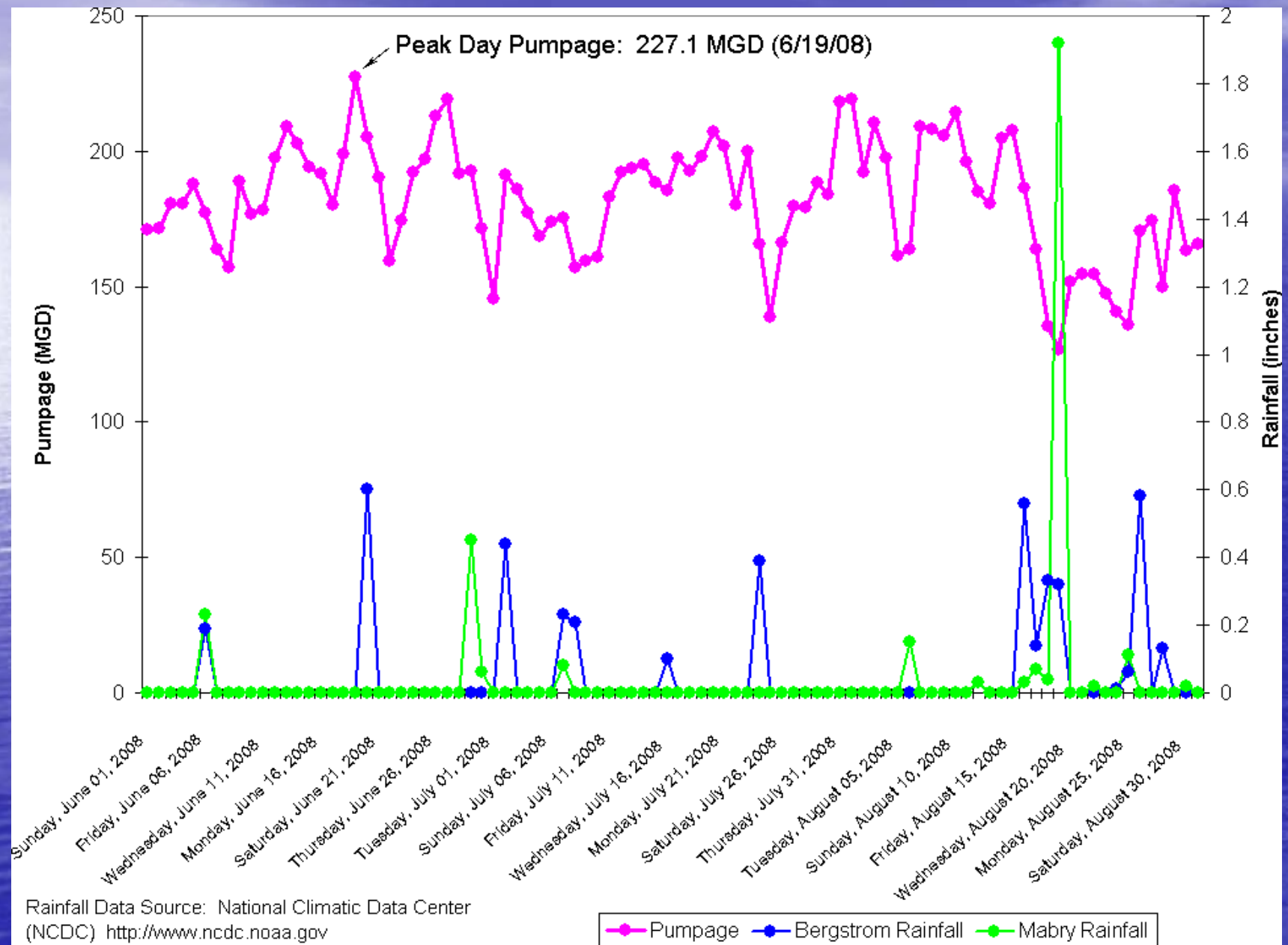
Implementation Success

Listed in order of Peak Day Savings Amounts	Ten Year Estimated Peak Day Savings	WCTF FY 2008 Projected	FY 08 Actual
Watering Restrictions	6.16	0.00	5.0 to 9.0 ^a
Reclaimed Water Use	5.95	0.00	0.00 ^b
Utility Water Rates	5.00	0.00	0.00
Reducing Water Loss	4.80	0.00	1.31
Mandatory Toilet Retrofit	2.10	0.29	0.00
Annual Irrigation System Audits	1.47	0.45	0.00 ^d
Residential Irrigation Standards	1.32	0.13	0.07 ^e
Commercial Irrigation Standards	0.74	0.07	0.00 ^e
Enhanced Irrigation Audit Program	0.63	0.21	0.04
Pressure Reduction Program	0.29	0.03	0.001 ^f
Car Washes	0.15	0.00	0.00 ^e
TOTALS (MGD)	32.65	1.18	6.4 to 10.4

Peak Day Water Conservation



Summer 2008 Pumpage and Rainfall

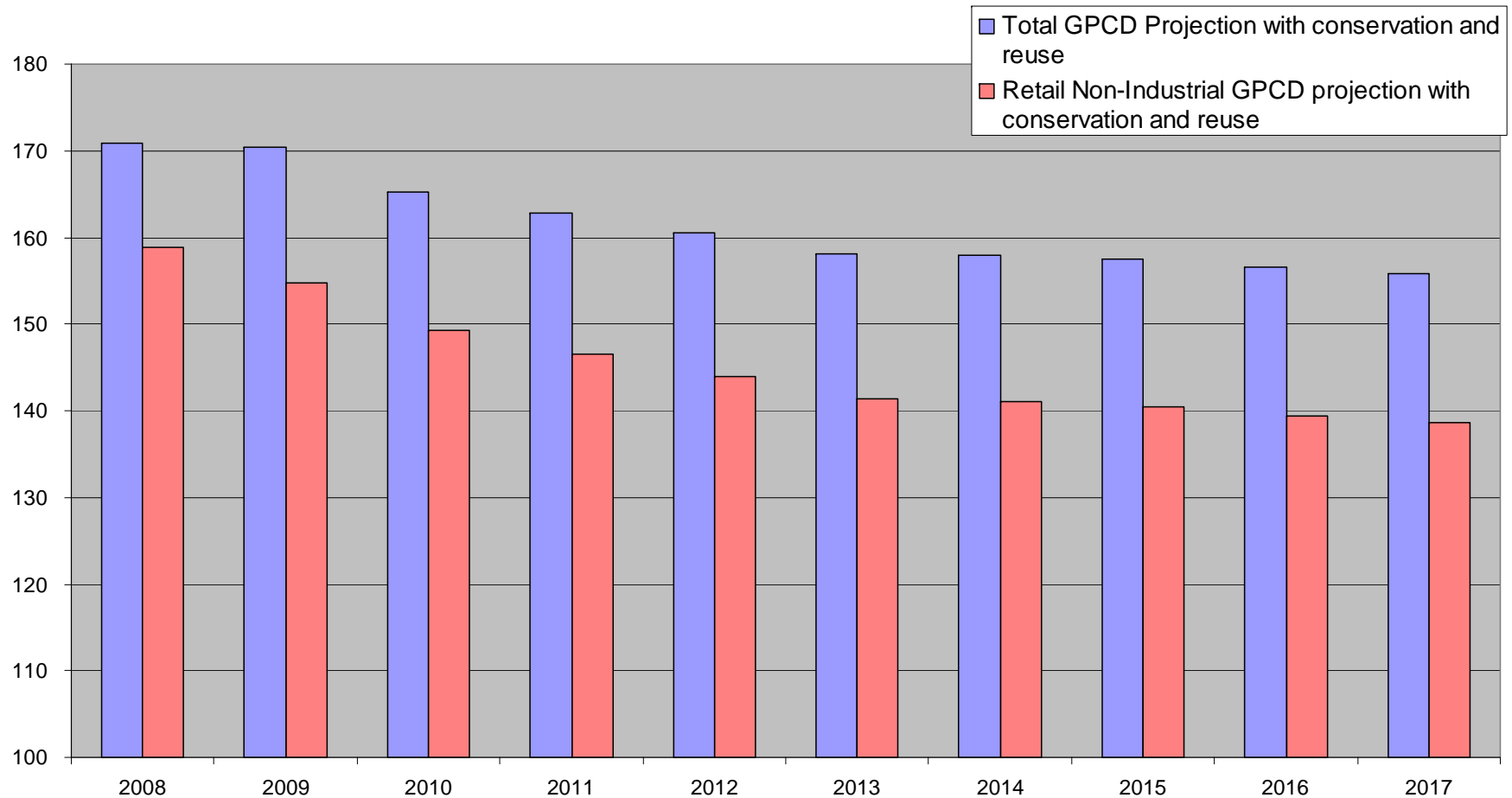


Austin Comparisons to Other Cities



Water Use Projections

Austin GPCD Projections



Challenges in Comparing Cities

- Gallons per Capita per Day (GPCD) is a good internal measure but not recommended for city-to-city comparisons
- Example: San Antonio
 - Different source of water (Edwards Aquifer vs surface water)
 - Aquifer Stage 1: Watering allowed only once per week; No outdoor fountains or waterfalls.
 - Aquifer State 2: Further restrictions on time of watering.
 - Different firm water rights
 - Different customer mix (Austin: chip makers, large multi-family base)
 - Different standard of living (Austin median income 25% higher)
 - Calculation formulaic differences



Comparison of Programs

	Adult Education	Secondary Education	Elementary Education	Reclaimed Water Program	Conservation Rates	Commercial Audits	Watering Restrictions	Rainwater Incentives	Landscape Design Restrictions	Landscape Conversion	Irrigation Audits	Washer Rebates	Plumbing Repair	Free Toilets	Toilet Rebate
Austin Water Utility	↗	✗	↗	↗	↗	↗	↗	↗	↗	⊘	↗	↗	①	↗	↗
SAWS	↗	↗	↗	↗	↗	↗	↗	✗	↗	↗	↗	↗	↗	↗	✗
El Paso Water Utility	↗	↗	↗	↗	↗	✗	↗	✗	✗	✗	✗	⊘	✗	✗	✗
Dallas Water	↗	✗	↗	❓	↗	✗	↗	✗	❓	✗	↗	✗	↗	↗	↗
SNWA	↗	↗	↗	↗	↗	✗	↗	✗	↗	↗	✗	✗	✗	✗	↗
Albuquerque	↗	↗	↗	❓	✗	✗	↗	↗	✗	↗	↗	↗	✗	✗	↗
City of Santa Fe	↗	↗	↗	✗	✗	✗	↗	⊘	↗	✗	✗	↗	✗	↗	✗
EBMUD	↗	↗	↗	↗	↗	↗	↗	✗	❓	↗	↗	↗	✗	✗	↗
in planning ① discontinued ⊘ program in place ↗ no program in place ✗															

Austin Comparison to Other Cities

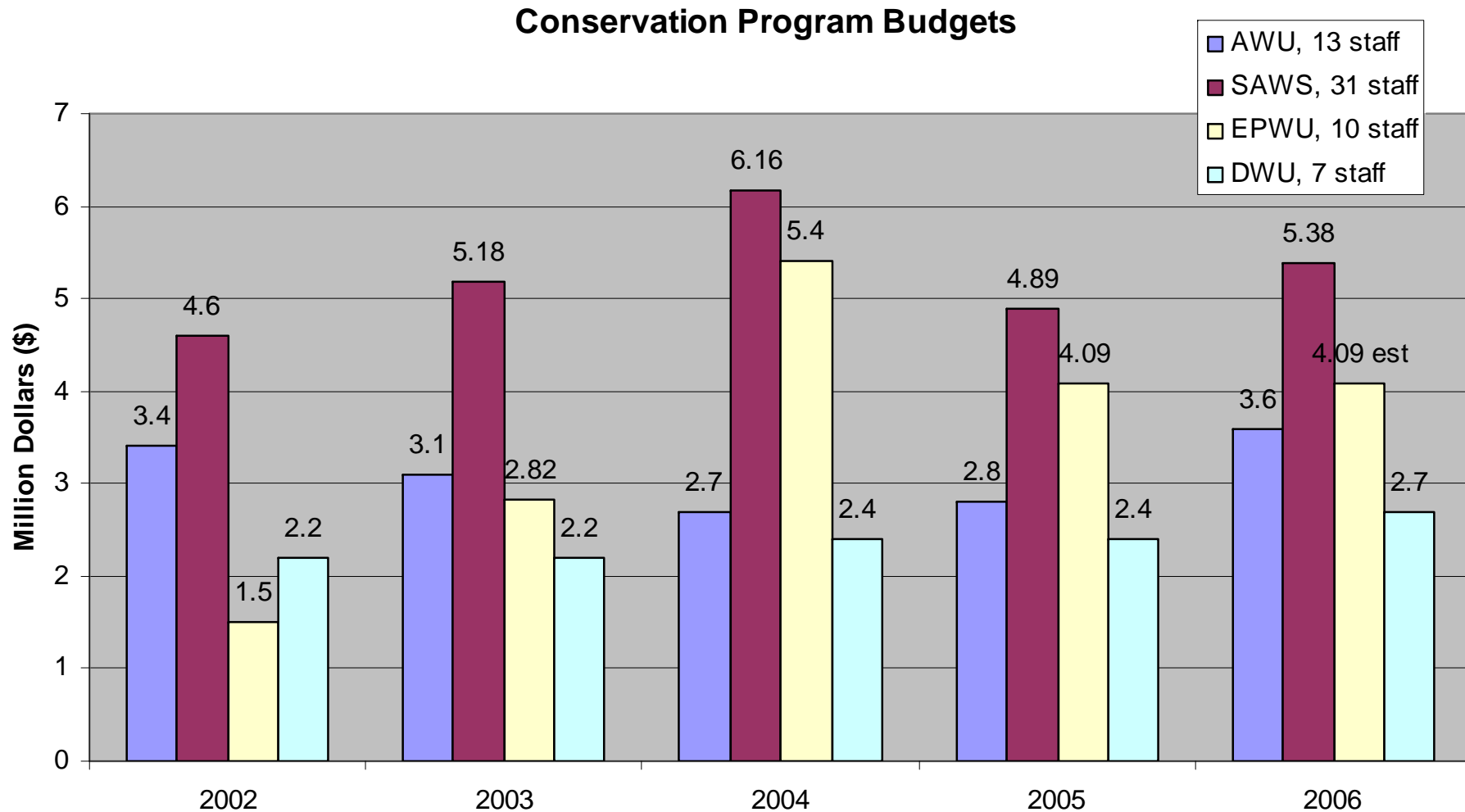
- 2006 Alan Plummer Study finding that our water conservation programs were comprehensive when compared to other cities
- Updated staff comparison shows Austin continues to offer a comprehensive package of programs (see table in report).
- Research indicates that western desert cities have the most aggressive water conservation programs
 - Tucson; Southern Nevada Water Authority; Santa Fe; Albuquerque
 - Austin's mandatory watering restrictions more restrictive than many desert/dry land cities.
 - Desert cities doing more in the area of landscaping
 - Limits on amount of turf grass on lawns; Paying residents to remove turf grass
 - Raw water economies; Rainfall patterns and other considerations may make it more difficult for community to accept and achieve desert city landscaping programs



TWDB Municipal Conservation Best Management Practices (BMPs)			
2.1	System Water Audit and Water Loss	Yes	Annual vs 5-year recommendation
2.2	Water Conservation Pricing	Yes	Aggressive pricing structure
2.3	Watering Restrictions	Yes	In some form since 1983
2.4	Showerhead, Toilet Flapper Retrofit	Yes	Discontinued
2.5	Residential Toilet Replacements	Yes	Free and rebate options
2.6	Clothes Washer Incentive Program	Yes	In partnership with AE and Texas Gas
2.7	School Education	Yes	2 curriculum programs
2.8	Water Survey	Yes	Free irrigation audits, online tool in development
2.9	Landscape Irrigation Conservation	Yes	Free audits, design restrictions
2.10	Water Wise Landscape Design	Yes	Conversion incentive discontinued 2006
2.11	Athletic Field Conservation	Yes	Subject to commercial watering schedule
2.12	Golf Course Conservation	Yes	Reclaimed water service
2.13	Metering of All Connections	Yes	
2.14	Wholesale Agency Assistance	Yes	
2.15	Conservation Coordinator	Yes	
2.16	Water Reuse	Yes	
2.17	Public Information	Yes	
2.18	Rainwater and Condensate Reuse	Yes	
2.19	New Construction Graywater	No	
2.20	Park Conservation	Some	Working with PARD
2.21	Industrial-Commercial Programs	Yes	Up to \$100K rebates
2.22	Cost- Effectiveness Analysis	Yes	Analyzing current and future programs

2006 Alan Plummer Study

Conservation Program Budget Comparisons



Conservation Program Budget

	Actual 2005-06	Actual 2006-07	Actual 2007-08	Estimated 2008-09	Proposed 2009-10
Water Conservation Division	\$ 2,585,462	\$ 3,150,668	5,080,392	6,223,718	6,679,999
Reuse	82,133	85,007	87,983	91,062	91,062
Total	2,667,595	3,235,675	5,168,375	6,314,780	6,771,061
Total Operating and Other Requirements	\$ 133,959,464	\$ 137,848,713	\$ 151,374,528	\$ 169,802,278	\$ 175,554,442
Conservation as % of Total Operating & Other Requirements	1.99%	2.35%	3.41%	3.72%	3.86%
Total Water Service Revenue	\$ 163,934,088	\$ 136,423,073	\$ 178,265,788	\$ 195,497,547	\$ 206,124,796
Conservation as % of total Water Service Revenues	1.63%	2.37%	2.90%	3.23%	3.28%

Expanding Programs



Expanding Programs beyond WCTF Recommendations

- HELP - Home Efficiency Leak repair Program
 - Modeled after AE's free winterization program and SAWs Plumbers to People initiative, HELP will provide free water-saving plumbing repairs for low-income AWU customers
 - Besides water conservation benefits, program will reduce water bills for low-income residents
- Multifamily Direct Install Toilet Program
 - Program designed to remove barriers to toilet replacement programs by direct installing, at no cost, high efficiency toilets in qualifying multi-family properties.
 - AWU applied for stimulus funding grant but program launch not dependent on receiving funding
- Online Water Audit Tool to Help Customers Analyze Water Use



Expanding Programs beyond WCTF Recommendations

- Enhanced Efforts to Reduce Distribution System Water Loss
 - Increased water theft prevention efforts
 - Increased resources to respond to leaks and breaks
 - Conduct annual lost water audits instead of every 5 years
 - Increased funding for water main replacement projects
 - Approximately 10% of our distribution system (about 250 miles) accounts for over 80% of our leaks and breaks



Areas for Exploration

- Graywater (shower/bath, laundry and bathroom sink) Reuse Program
- Automated Meter Reading (AMR) and Advanced Meter Information (AMI) Technologies
 - AWU preparing RFO for feasibility study
 - Significant funding requirement (\$35M to \$50M) for full AMR conversion
- Improved Use of SCADA Technologies to Monitor and Manipulate Distribution System Pressures.



Conservation Leadership Pathway

- Successfully Implement WCTF Recommendations
 - Complete high priority reclaimed projects (UT, ABIA)
 - Add 5th Block Water Rate Structure
 - Plumbing Code Changes
- Expand Programs Beyond WCTF Recommendations
 - Plan new programs to reach underserved populations
 - Increase use of technology to support conservation
 - Improve distribution system performance
 - Explore: Graywater; AMR
- Continued community engagement
- Learn from others



Questions?

