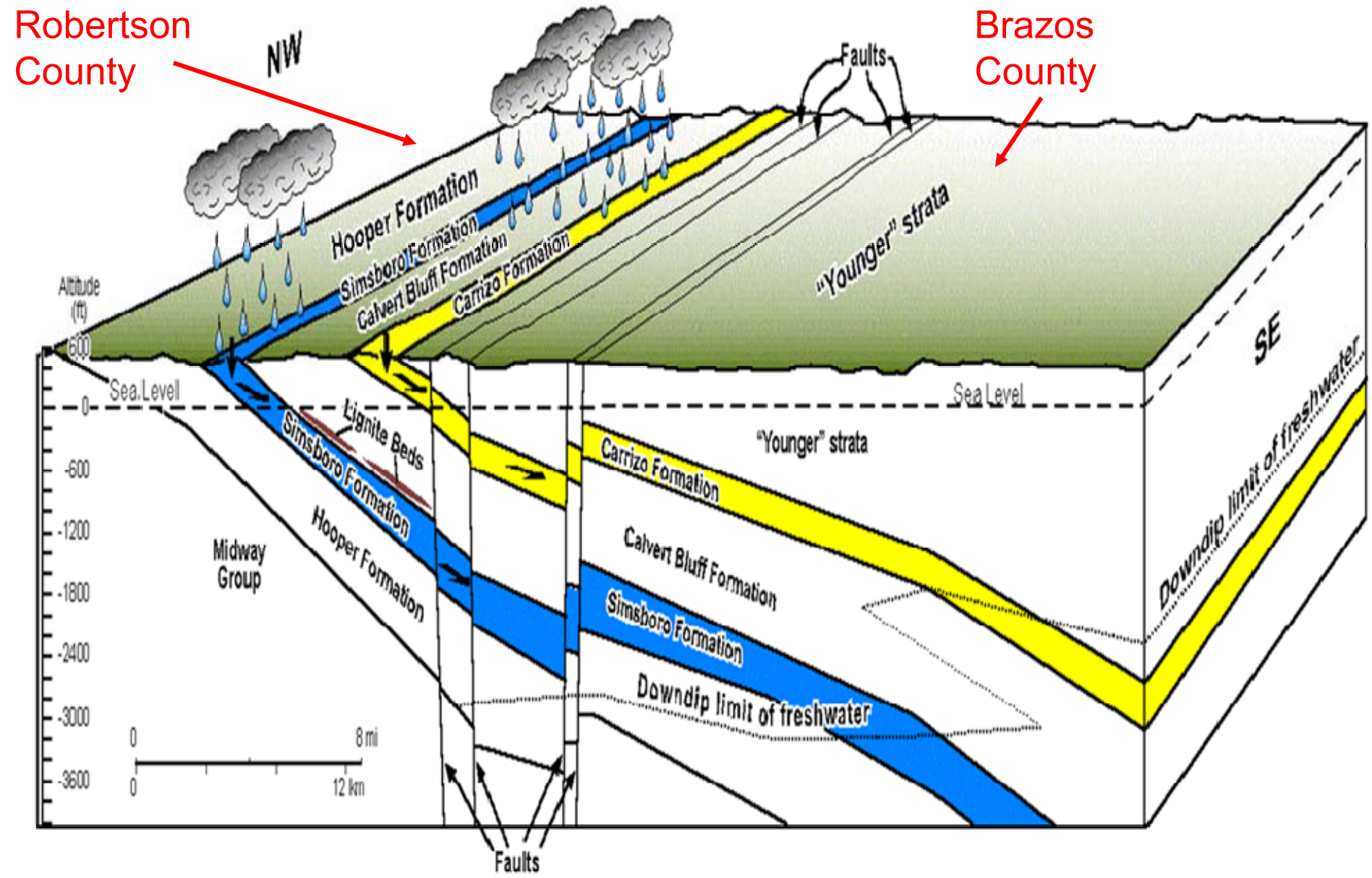
Water Conservation Options for College Station

"From Policy to Reality: Advanced Urban Water Conservation in Texas"

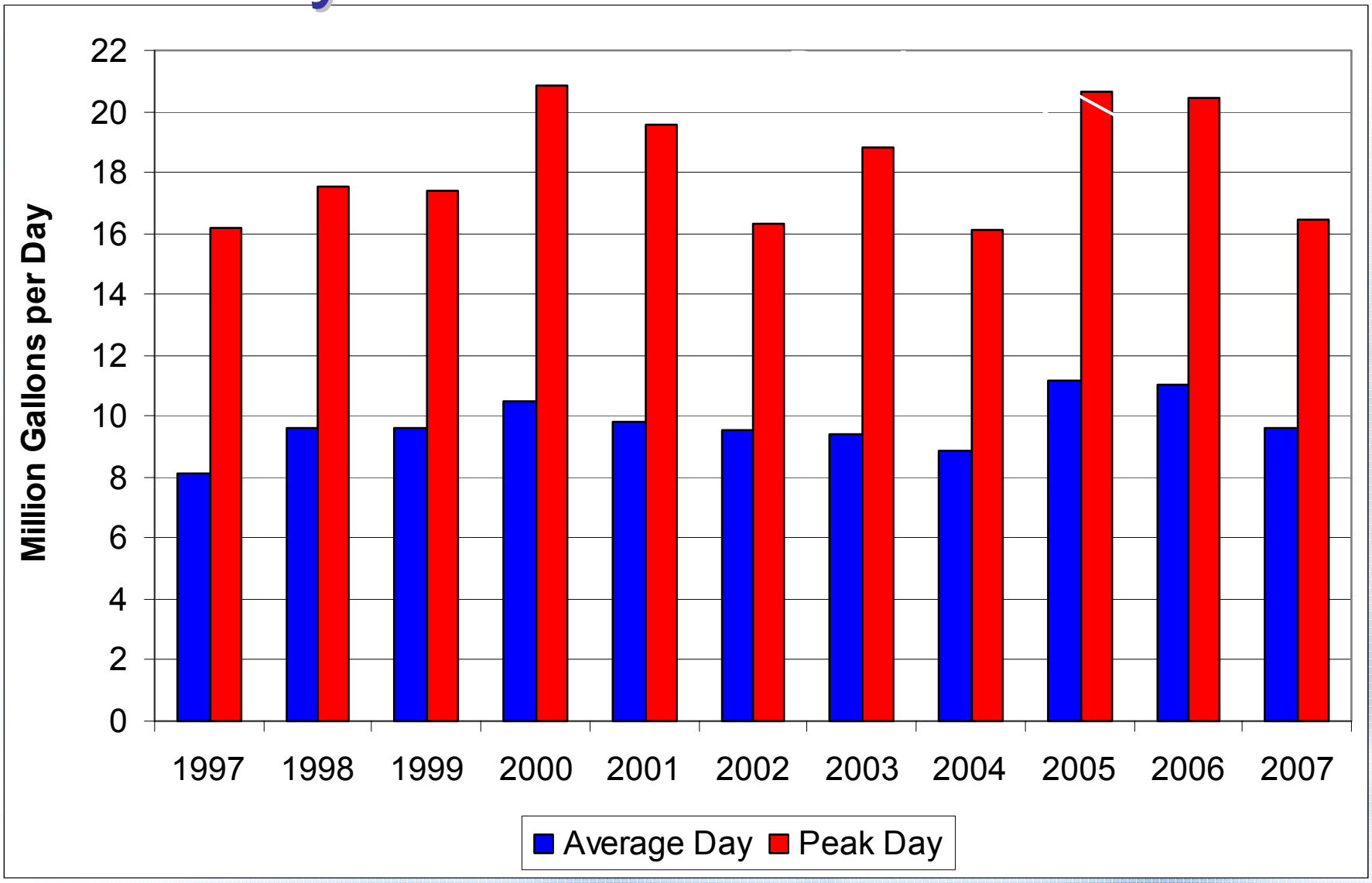
April 18, 2008


Water Services Department
Water Production
Distribution & Collection
Wastewater Treatment
Environmental Services
Public Education

Where Does College Station's Water Come From?



College Station Average vs. Peak Day Demand 1997 - 2006



Why Is Water Conservation Essential?

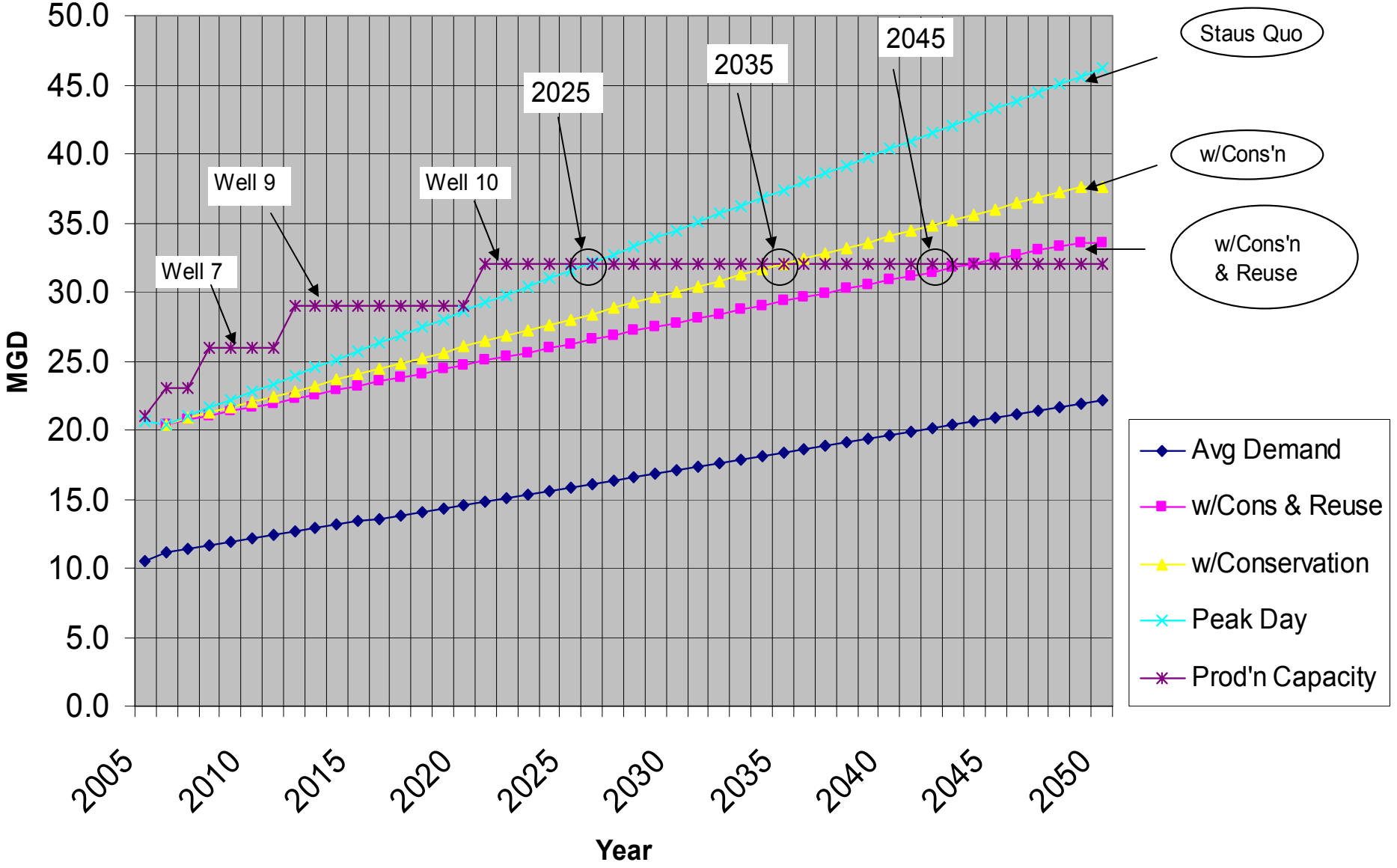
- Groundwater District rules
  - Aquifer is a limited resource
  - Water conservation measures part of new well application
- Impact of Regional Water Plan
- Rapid growth continues
- Expensive new water sources
- System designed for Peak Demand
  - Reducing peak demand defers or eliminates Capital costs

Future Concerns

- No immediate shortage, but…
- Conservation and water reuse are recommended Water Management Strategies in Region G Water Plan
- Groundwater Conservation District will eventually need to limit groundwater pumping
- Limit of 90,000 acre-feet/year available from Simsboro aquifer in Robertson/Brazos Counties
  - 75,000 af/yr is already permitted
  - 15,000 af/yr remaining to be permitted
  - This will allow 3 new full production wells (3,000 gpm each)
  - These numbers could change, based on Desired Future Conditions

CS Water Demand through Dec 2007

Circles show when peak demands hit production capacity, in 3 scenarios.



Current Status of Water Conservation

- Some programs already in place
  - Education-based
  - Drought Contingency Plan in place since Jan. 2000
- Water Conservation Plan
  - Adopted by Council October 2006
  - Ultimate goal: Average water use at or below 140 gallons per capita per day (gpcd)
  - 2016 goal: Peak water use reduced from the 2006 level of 197 gpcd to 180 gpcd.
- Through combination of programs, could save up to 10-20 gallons per person/day

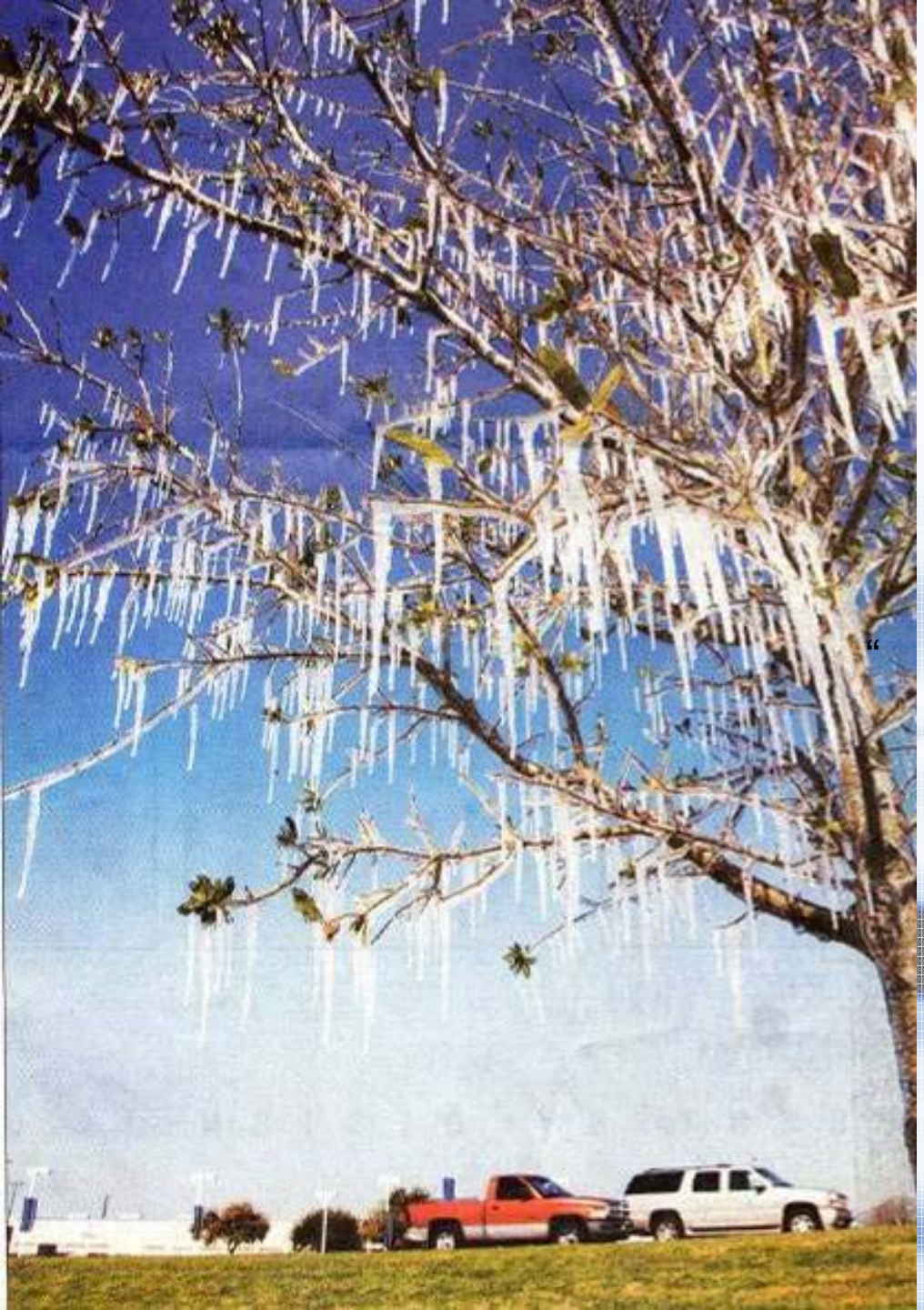
Conservation Best Management Practices

Title	In Place	By 2010	By 2015
System Water Audits / Water Loss	Y		
School Education / Public Information	Y		
All Water Connections Metered	Y		
Conservation Coordinator	Y		
Reuse of Treated Effluent	Y		
Conservation Pricing		Y	
Water Waste Prohibition		Y	
Water Use Survey For SF & MF Customers		Y	
Landscape Irrigation Conservation / Conversion		Y	
Athletic Field / Park / Golf Course Conservation		Y	
Rainwater Harvesting/Condensate Reuse			Y
Industrial / Commercial / Institutional Conservation			Y
Clothes Washer Incentives			Y
Plumbing Fixture Rebate / Retrofit			Y

** Water Conservation BMP Guide, TWDB Water Conservation Task Force, Nov. 04*

Focus on Landscape Irrigation first

- EPA estimates up to 50% of outdoor irrigation water is wasted
- Many CS neighborhoods have irrigation water running down the gutters
- Water Reuse for irrigation: 67 million gallons/year initially; potential for more



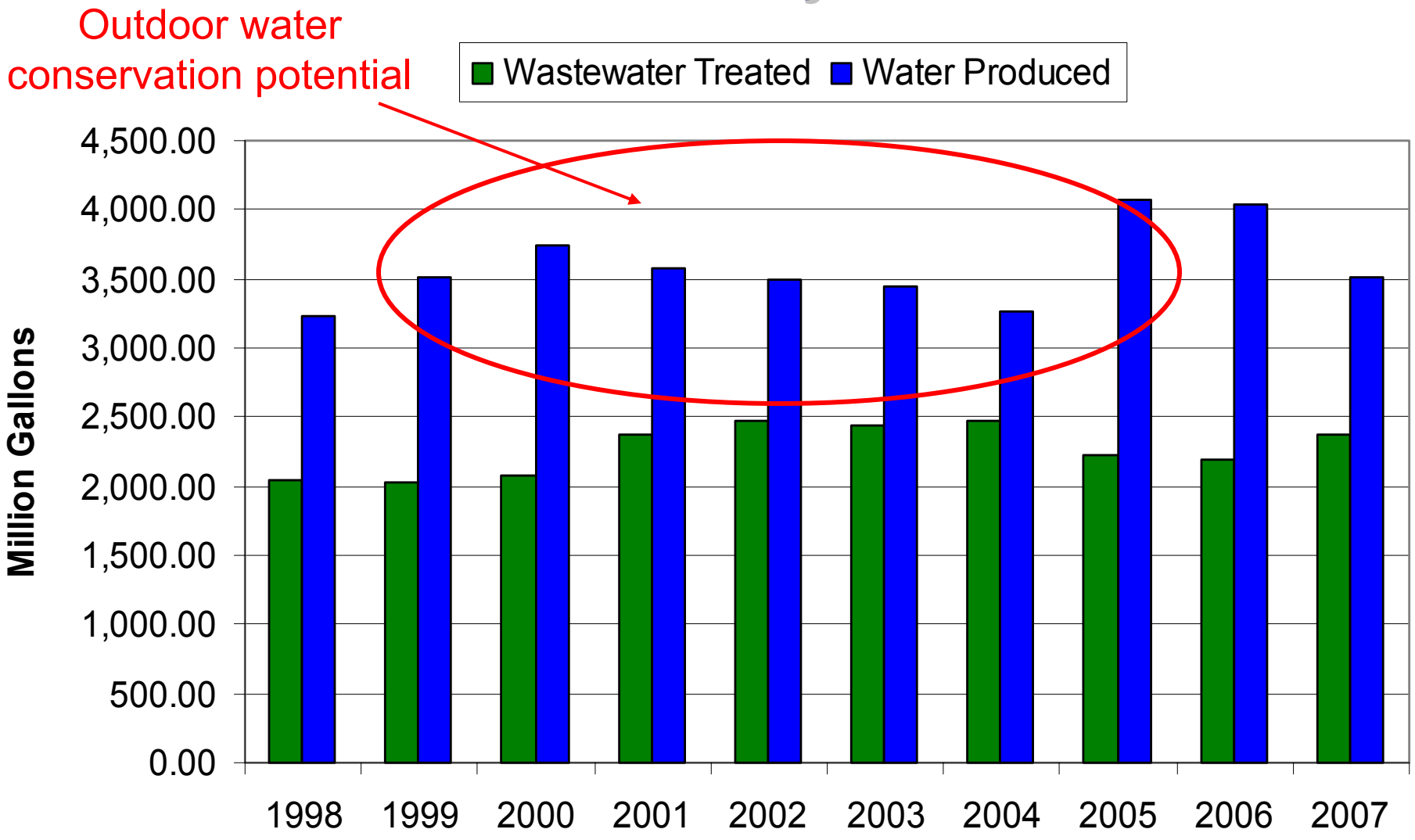
"A Touch of the Unexpected"

"The sprinkler system at [a business on Southwest Parkway] helped create icicles covering the trees Friday morning."

– *Bryan/College Station Eagle Feb. 17, 2007 Butch Ireland, photographer*


Date of picture: March 29th, 2007

How Much Could We Save Annually?



Recommended Programs

1. Water Re-use: Pipe effluent from treatment plant to parks for irrigation

2. Conservation water rates: Encourage reduced irrigation usage and properly allocate costs to irrigation users who create the high peak demand

3. Water Loss Control: System monitoring to reduce losses from leaks, etc.

4. Landscape Water Management: on-site water audits, education to change habits, promote water-saving plants.

5. Public Education: Promote Water Conservation

1. Water Re-Use

- Veteran's Park is estimated to use 750,000 gallons per day to irrigate playing fields when fully built-out

- CIP project planned for FY-09 will cost $2.3 million
  - Have issued RFQ to select design firm
  - Looking for best easement route from CCWWTP to VPAC
  - Expect to start construction Winter 2009
  - Hope to be complete for 2009 irrigation season

- Parks Department is actively supportive
- Request Council support this CIP project

- Future CIP for Re-use water to City Center area (incl. Central Park and Cemetery) est. cost $1.0 million and will save 325,000 gallons per day.

2. Conservation Water Rates

- For Residential: Increase in price per unit of water as consumption increases
- Shifts cost of service burden to customers putting burden on water system
  - When a water rate increase is required, recommend it be implemented by keeping our Residential base rate unchanged, as a “sustenance rate”
  - Those residential customers creating the high peak demand would then pay more for usage above the sustenance rate
- Next slide shows samples of Residential conservation rates

- Commercial rates remain flat (not graduated based on usage), but would have a separate rate for irrigation
- Most businesses have irrigation meters already

2. Residential Conservation Rate Examples

City	# of Rate Blocks	Cost / 1,000 gallons over base
Allen	4	$2.36 - $4.13
Austin	4	$0.86 - $6.42
Bastrop	6	$1.54 - $2.09
Carrollton	4	$2.57 - $3.77
College Station	1	$2.22
Dallas	4	$1.16 - $3.40
Flower Mound	5	$2.10 - $3.57
Fort Worth	3	$1.77 - $2.90
Frisco	3	$2.28 - $2.98
Garden Ridge	7	$1.75 - $6.75
Georgetown	4	$2.25 - $6.00

City	# of Rate Blocks	Cost / 1,000 gallons over base
Grand Prairie	3	$2.33 - $3.50
Houston	8	$3.05 - $4.65
Killeen	3	$2.59 - $3.09
Pflugerville	8	$4.51 - $5.14
Richardson	6	$2.55 - $3.51
Rosenberg	4	$2.50 - $2.72
San Antonio	4	$0.878 - $4.11
San Marcos	4	$4.05 - $5.62
Victoria	7	$1.52 - $2.55
Waco	4	$2.42 - $3.64
Wickson S.U.D	3	$2.13 - $4.00
Wellborn S.U.D.	4	$2.65 - $4.30

Percent Increase, Low to High: Min = 9% Max = 647% **Avg = 121%**

2. Residential Conservation Rate Examples

City	# of Rate Blocks	Cost / 1,000 gallons over base
Allen	4	$2.36 - $4.13
Austin	4	$0.86 - $6.42
Bastrop	6	$1.54 - $2.09
Brenham	4	$3.53 - $5.52
Carrollton	4	$2.57 - $3.77
College Station	*1*	*$2.22*
Dallas	4	$1.16 - $3.40
Flower Mound	5	$2.10 - $3.57
Frisco	3	$2.28 - $2.98
Garden Ridge	7	$1.75 - $6.75
Georgetown	4	$2.25 - $6.00

City	# of Rate Blocks	Cost / 1,000 gallons over base
Grand Prairie	3	$2.33 - $3.50
Kerrville	5	$2.21 - $4.88
Killeen	3	$2.59 - $3.09
Pflugerville	8	$4.51 - $5.14
Richardson	6	$2.55 - $3.51
Rosenberg	4	$2.50 - $2.72
San Antonio	4	$0.878 - $4.11
San Marcos	4	$4.45 - $6.18
Waco	4	$2.54 - $3.82
Wickson S.U.D	3	$2.13 - $4.00
Wellborn S.U.D.	4	$2.65 - $4.30

Percent Increase, Low to High: Min = 9% Max = 647% **Avg = 121%**

3. Water Loss Control

- System-wide water utility audits required by Texas Water Development Board every five years
- Effective tool in reducing unbilled or non-revenue water
- Provides information on improving utility efficiency
- Water Utility is already implementing this

4. Landscape Water Management

- No more “set it and forget it” for irrigation systems
- Involve local landscape industry, Extension service in customer outreach
- On-site audits and watering schedules can greatly reduce waste without impacting landscapes

5. Public Education

- Currently reaching 7,000 customers/year through direct contact
- Combining with recognizable programs such as Water IQ and Learning to be Water Wise increases impact
- Increase in funding needed to reach wider customer base
- Excellent support from City Public Communications Department

Recommendations

- Fund the Water Re-use CIP project for FY-09
- Residential conservation-oriented water rates
  - Base rate: $2.22 / 1,000 gallons 0 - 10,000 gallons
  - Middle tiers: $3.54 - $4.20 / 1,000 gallons
  - Top tier: $4.86 / 1,000 gallons 25,001 gallons and up
- Irrigation water rate: $3.54 per thousand gallons
- Implement Water Loss Control (no additional cost)
- Improve public outreach and education on water issues
- Implement Landscape Water Management
- Review Ordinances to ensure they are consistent with Conservation

Green College Station

- "College Station is committed to being a leader in resource conservation and protection of our environment. GREEN COLLEGE STATION will express the City's commitment to achieve resource conservation and sustainability over the long-term."

- January 24, 2008 College Station City Council meeting

Gap Analysis: Findings

- What can we do to make existing programs better?
- Need green energy component
- Need better defined goals for conservation programs
- Need more aggressive public education program
- Building codes that don't impede conservation

Municipal Leadership

- Energy conservation in City facilities
- New and remodeled City facilities built to LEED standards
- Hybrid vehicles in City fleet
- Water conservation in City facilities

Plan of Action

- Promote Green College Station through:
  - Aggressive public education programs
  - Changes to ordinances
  - Incentive programs
  - Conservation rate structures
  - Alternative waste reduction strategies
  - Focus Comp Plan update around promoting open space

Green College Station

- Energy efficiency and renewable energy
- Air quality / reduction HCF footprint
- ***Water conservation***
- Protection of open space and green areas
- Green building
- GHG emission reduction

For More Information

Contact…

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Questions???