The background of the slide is a blue-tinted image of a city skyline with several skyscrapers. The text is overlaid on this background.

City and Utility Water Conservation Recommendations

Water Conservation Task Force
December 15, 2006

Potential City and Utility Strategies

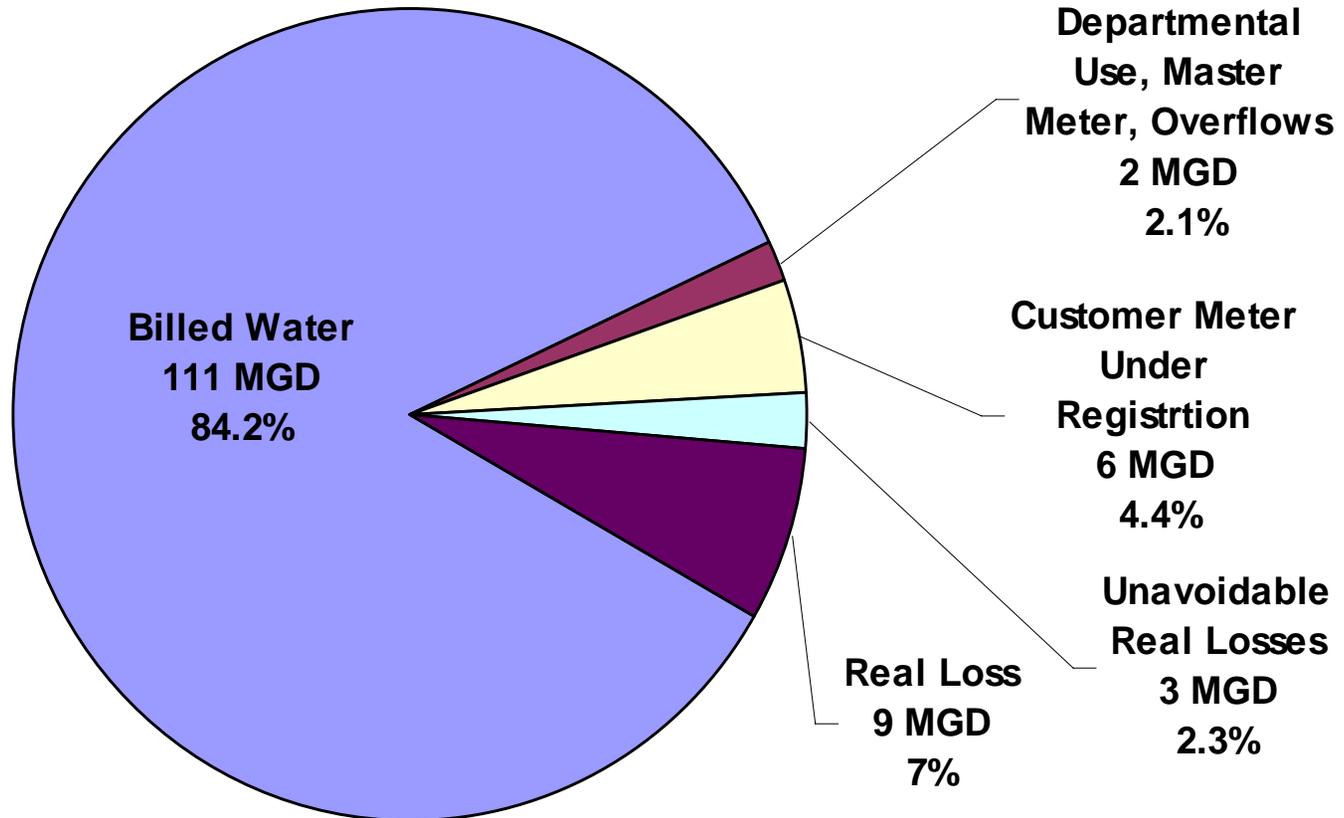
- Reducing water loss
- Reclaimed water opportunities
- Water rates changes to encourage conservation
- Wholesale customers
- Utility billing
- Wet ponds, ornamental ponds, and green roofs
- Alternative water sources
- Conservation in City facilities
- Pressure reduction
- Winter leak detection
- Enhanced public education program
- Commercial clothes washers

Reducing Utility Water Loss

Problem:

- Water loss could be improved with substantial system benefits
- Customers are frustrated about the length of time to repair priority 3 leaks when they are being asked to conserve water
- The Utility does not currently have a comprehensive leak detection program, so underground leaks that do not surface continue to contribute to overall water loss
- Current water meter testing program results in revenue losses and higher water use
- Lack of funding for priority one water main rehabilitation

AWU FY05 Water Audit Results (131 MGD)



Utility Strategies

Reducing Water Loss

Solution:

- Leak Detection Contract
 - Finding leaks that have not yet surfaced
 - 600 linear miles of pipe per year
- Current focus on repairing leaks in shorter time frame (priority 3 leaks)
 - Utility currently working to reduce the time to repair leaks to within 7 days
 - Service contract to provide back up support for Field Operations personnel during peak repair demand times out for bids
- Large Meter Testing & Repair Contract
 - Test approximately 500 meters per year (3" – 10")
 - Will focus on meters that have not been tested in the last 5 years
- Small Meter Replacement Contract
 - Replace small meters based on age or a maximum amount of usage

Utility Strategies

Reducing Water Loss

- Recommendation:
 - Annual contract for leak detection services
 - Annual contract for large meter testing and repair
 - Annual contract for small meter exchanges

Utility Strategies

Reducing Water Loss

- Projected water savings for the City:
 - Peak Day Water Savings: 4.8 MGD
- Estimated Cost:
 - Cost to the City per year: \$600,000
 - Cost per gallon saved: \$1.25
 - Costs for additional staff to accelerate repairs not included

Reclaimed Water Use Assured CIP Funding

Problem:

- Additional funding of the reclaimed water program in the Utility's Capital Improvement Plan (CIP) is competing with other capital needs.
- The reclaimed water program grows through the conversion of large volume potable water customers.
- Transmission main extensions are required to bring water to existing potable water customers

Reclaimed Water Use Assured CIP Funding

- Recommendation:
 - Include funding for the following reclaimed water projects in the Utility's Capital Improvement Plan starting in 2007 and to be completed by 2011

UT Transmission Main	4.0 MGD
ABIA Transmission Main	0.6 MGD
Smith Road Extension and 183 Rehabilitation	0.5 MGD
Colorado River Park Main and 24" Rehabilitation	1.0 MGD
12" Rehabilitation	0.1 MGD
Total	6.2 MGD

Reclaimed Water Use Assured CIP Funding

- Projected water savings for the City:
 - Peak Day Water Savings: 6.2 MGD
- Estimated Cost to the City:
 - CIP costs: \$12.5 million
 - Cost per gallon saved: \$2.02

Utility Water Rates

- (1) Residential Water Rates
- (2) Irrigation Water Rates
- (3) Commercial, Multi-family Water Rates
- (4) Wholesale Water Rates

Utility Water Rates

City of Austin

Single Family Rates	Cost per 1,000 gallons	Percent Change
0 - 2,000 gallons	\$0.88	
2,001 – 9,000 gallons	\$2.30	
9,001 – 15,000 gallons	\$3.88	69%
Over 15,001 gallons	\$6.91	78%

	Off Peak (cost per 1,000 gallons)	Peak Use July 1 through October 31 bills	Percent Change
Multi-family	\$2.90	\$3.19	10%
Commercial	\$3.49	\$3.84	10%
Industrial	\$3.21	\$3.53	10%



Internal Wholesale Rates

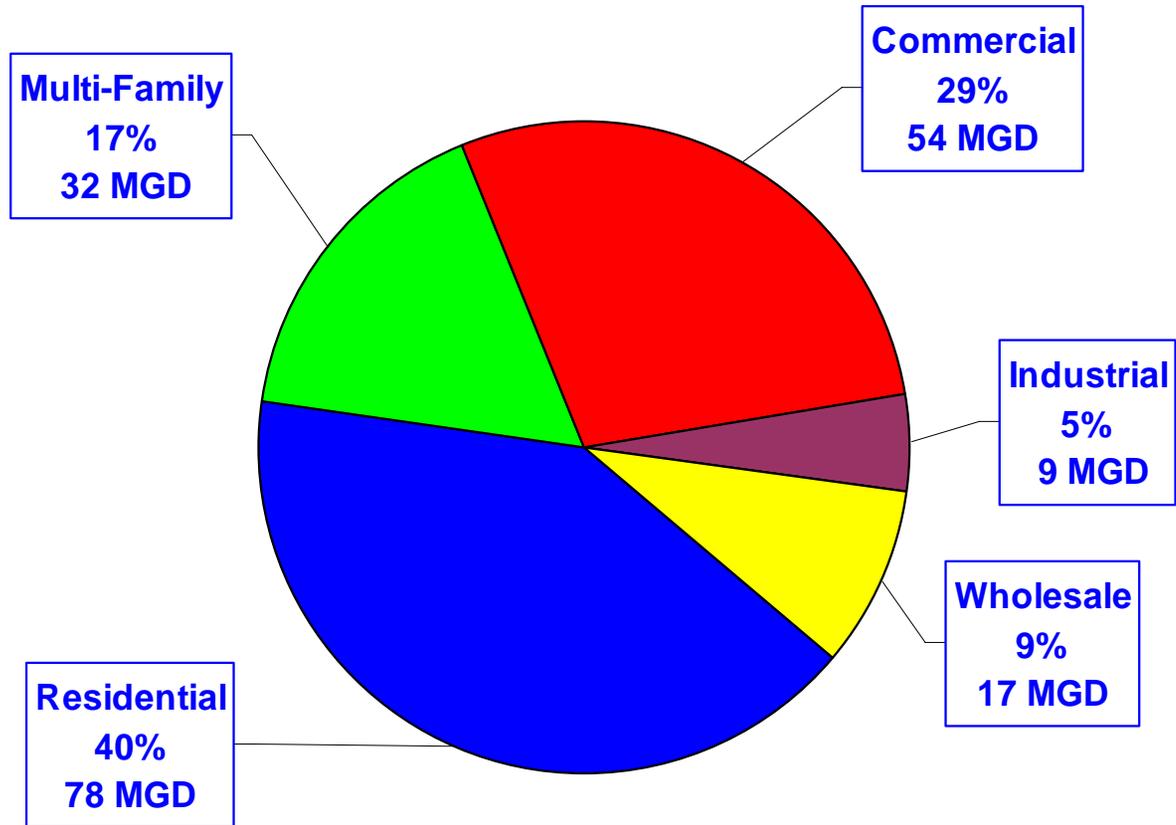
	Minimum Charge	Cost per 1,000 gallons	
Lost Creek	\$8.00	\$2.47	

Internal Wholesale Block Rates

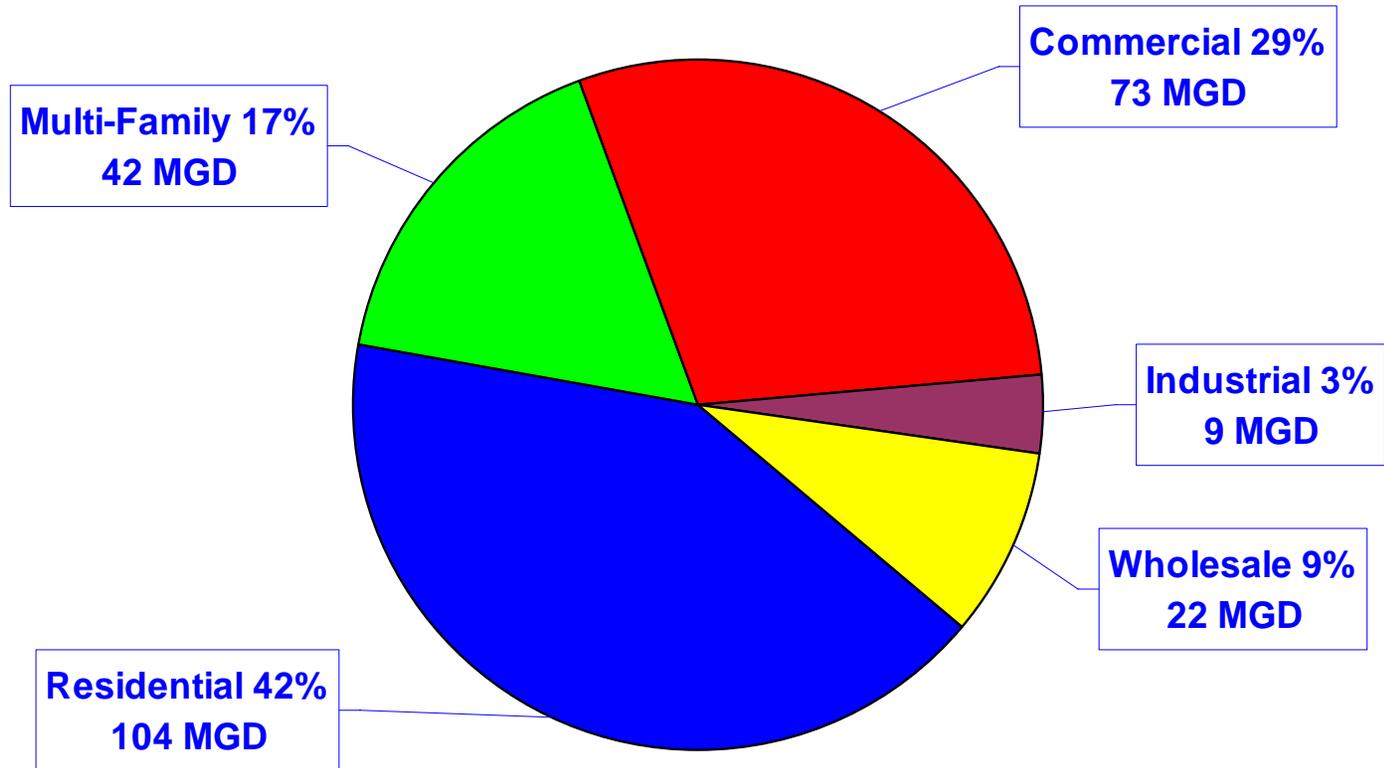
	Minimum Charge	0 to 6,000	6,001 to 12,000	12,001 to 18,000	Over 18,000	
Wells Branch	\$20.75	\$2.98	\$3.72	\$5.86	\$7.01	
	Minimum Charge	0 to 45,000	45,001 to 60,000	60,001 to 75,000	75,001 to 100,000	Over 100,000
WCID 10 (May 1 - Oct 1)	\$12.70	\$3.21	\$4.01	\$5.01	\$6.26	\$7.82
	Minimum Charge	0 to 20,000	20,001 to 50,000	Over 50,000		
Rollingwood	\$9.21	\$3.62	\$3.99	\$5.66		
	Minimum Charge	0 to 20,000	Over 20,000			
Rivercrest	\$42.28	\$3.69	\$4.91			

	Cost for 15,000 gallons	Cost for 25,000 gallons	Cost for 50,000 gallons
Lost Creek MUD	\$45	\$69	\$132
WCID 10 (summer rate)	\$61	\$93	\$177
Rollingwood	\$64	\$102	\$201
City of Austin	\$46	\$115	\$288
Rivercrest	\$98	\$141	\$263
Wells Branch	\$79	\$145	\$320

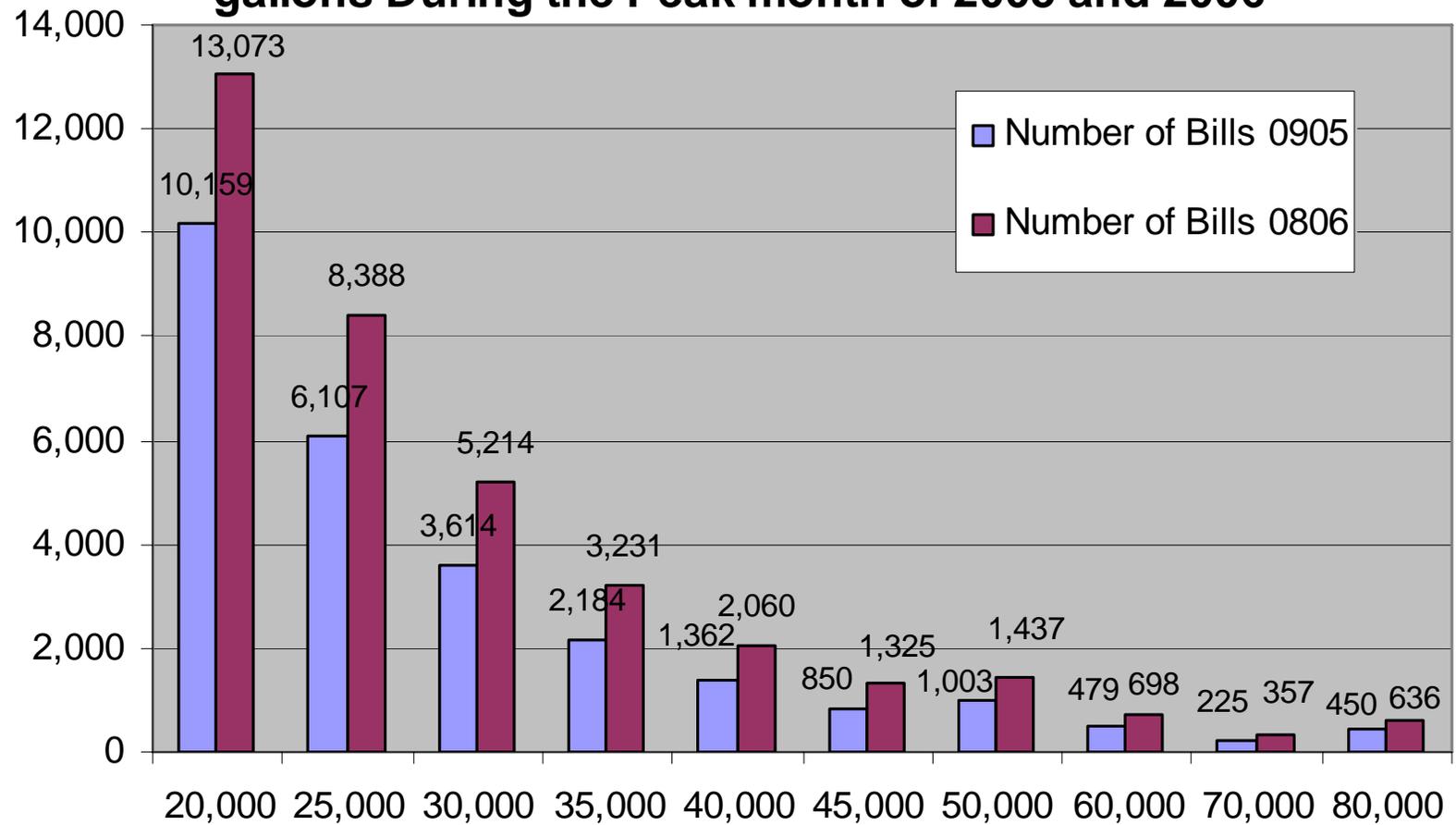
Peak Month Water Use - 190 MGD



Peak Day Water Use - 250 MGD



Austin Water Utility Accounts with Use Over 15,000 gallons During the Peak month of 2005 and 2006



Utility Water Rates

Problem:

- Current water rate structure does not provide adequate conservation price signals for high use residential customers, irrigation accounts, or commercial/multi-family customers
- Some large wholesale water customers have high peak day water use on a per capita basis

Utility Water Rates

Additional Information:

- A 1% increase in real water rates will cause a 0.17% decrease in water use
- Cost-of-service study and possible change in billing system in the next few years

Utility Water Rates

Solutions:

- Residential Customers:
 - Fifth Tier for Residential Customers exceeding 25,000 gallons per month (or other amount determined through the cost of service study)
 - Consider any impacts on large families
- Multi-family/Commercial Irrigation Use:
 - Implement an increasing block rate structure for irrigation water use (irrigation only meters), with the end point being the same as the highest residential block rate (or other amount determined through the cost of service study)

Utility Water Rates

- Multi-family, Commercial, and Residential Customers:
 - Implement a water budgets rate structure that will provide customers with monthly water budgets tailored to reflect their water needs. If a customer uses more water than their monthly water budget, they will pay a higher rate for the extra water. This rate structure would be designed to encourage water conservation while at the same time budgeting sufficient water for that specific customer's needs.
- Cost of service study should assess feasibility of implementing water conservation rate structures for wholesale customers

Utility Water Rates

Water Budget Information (all customers)

- Water budgeting for all customers (example)
 - The City of Boulder Utility mailed letters to all their water customers displaying their estimated monthly water budgets for 2007. The letters compare the customer's estimated monthly water budgets to their actual water use from the past 12 months.
 - In January of 2007, Boulder will implement a new rate structure that uses water budgets to calculate monthly water bills. With the new rate structure, each customer will get a monthly water budget that is tailored to reflect their water needs.
 - If a customer uses more water than their monthly water budget, they will pay a higher rate for the extra water. This rate structure is designed to encourage water conservation while at the same time, budgeting sufficient water for that specific customer's needs.
 - Allow sufficient lead time for extensive public education prior to implementation of higher excess use surcharges.
 - Other examples: Irvine Ranch, CA water budgets, Albuquerque, NM excess use surcharges



Address

585 JUNIPER AV

Account

0000071519

Total Area SqFt

11660

Irrigable Area SqFt

7884

Non-Irrigable Area SqFt

3776

Aerial Photo

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Utility Water Rates

Recommendation:

- Conduct a cost of service study
 - Identify effective conservation strategies that will reduce peak day demand by 5 MGD
 - Fifth tier for residential customers (consider large families)
 - Water budgeting rate for all customers
 - Conservation rate structures for wholesale customers
 - Establish irrigation rates (evaluate charging irrigation customers what residential customers pay for the highest residential block rate)
- Implement effective strategies that are feasible under the current billing system as soon as possible
- Implement effective strategies that are not feasible under the current system after the new billing system is adopted

Utility Water Rates

- Projected water savings:
 - Peak day water savings: 5 MGD
- Estimated costs:
 - Cost per gallon saved: \$0

Wholesale Customers

Problem:

- All customers who receive water generated by AWU not participating equally in conservation efforts

Recommendation:

- Follow-up on contracts that require water conservation measures to be implemented
- Request customers whose contracts don't require conservation to implement conservation measures
- Require any new, amended, or renewed contracts contain conservation measures comparable to what the City has in place

Utility Water Bills

Problem:

- Utility bills for the City of Austin lack specific information that could further conservation efforts
 - No historical consumption information
 - No comparisons to other users by neighborhood or citywide

Utility Water Bills

- Recommendation:
 - Add a graph to the water bill to show historical and current use if feasible with the current billing system
 - Require new billing system to have:
 - water budget capabilities and be able to include additional conservation information (per capita water use, graphic illustrations of water use, conservation tips, watering days)
 - Automatic system that alerts a customer through email if consumption increases by more than 100 percent (*currently, AE generates reports if bills are 4.5 times higher than normal consumption—meter is re-read*)

Wet Ponds, Ornamental Ponds and Green Roofs

Problem:

- Wet ponds can require millions of gallons of potable water to survive the summer months
- Commercial ornamental ponds can waste potable water just for aesthetic purposes
- Green roofs have the potential to be a sizable additional demand on the water system

Wet Ponds, Ornamental Ponds and Green Roofs

Recommendation:

- Prohibit the use of potable water to maintain new commercial ornamental ponds
- Require new wet ponds to have alternative sources of non-potable water to use during extended dry periods
- Require that green roofs capture rainwater from roofs to reuse for irrigation or use an alternative, non-potable water source

Wet Ponds, Ornamental Ponds and Green Roofs

- Projected water savings:
 - Peak day water use savings after ten years: 0.3 MGD
- Estimated costs:
 - Cost to the City: \$0
 - Cost per gallon saved: \$0

Alternative Water Sources

Rainwater and Stormwater

Problem:

- Stormwater regulations are not optimized for beneficial reuse of storm water for irrigation
 - Barton Springs Zone requires re-irrigation of stormwater within 72 hours
 - Landscape irrigation with stormwater requires longer-term storage
 - Most stormwater ponds not required to re-irrigate: water discharged directly to waterways
 - Some retention-irrigation systems discharge to unmaintained areas that don't require supplemental irrigation
- Conflict between state and local policies on use of reclaimed water in wet ponds

Alternative Water Sources

Rainwater and Stormwater

Solutions:

Existing Systems/Criteria

- Retention-Irrigation- *consider revision to require irrigation of maintained areas*
- Vegetative Filter Strips (VFS)
- Max. 15% managed turf in Barton Springs Zone

Proposed Additional Options

- Biofiltration
- Rainwater Harvesting
- Porous Pavement
- VFS Credits (Disconnected Impervious Cover)

Study option allowing reclaimed water to be used for wet pond make up water

Develop options to allow or require additional permanent storage for irrigation in water quality and/or stormwater ponds

Review Barton Springs 72 hour maximum detention period requirement

Alternative Water Sources

Rainwater and Stormwater

Recommendation:

- Water Conservation and Water Quality staff should meet together and present a joint recommendation on these issues

Alternative Water Sources

AC condensate

Problem:

- AC condensate is not always being captured and reused

Recommendation:

- Require air conditioning systems to drain AC condensate to a common drain in new commercial construction
 - Can be used in cooling towers or for irrigation

Projected Water Savings:

- Peak day water savings (after ten years): 1 MGD

Estimated Cost:

- Cost to the City: \$30,000 per year
- Cost per gallon saved: \$0.30

City Facility Conservation Requirements

Problem:

- Citizens look to the City to lead by example in conserving water
- There are opportunities for City facilities to take advantage of available conservation techniques
- Lack of accountability for water use by youth athletic associations
 - Lack of conservation
 - Water is currently paid for by the City

City Facility Conservation Requirements

Recommendations:

- Require water conservation elements as part of the LEEDs certification program for new City facilities
- Complete the retrofit of plumbing fixtures in City facilities
- Require all athletic fields to have to pay for water above a pre-determined water budget amount

City Facility Conservation Requirements

- Follow through with water efficiency recommendations from the current performance contract:
 - Improve cooling tower operations
 - Plumbing fixture retrofits
 - Install weather-based controllers under Parks Department management on athletic fields (39 athletic field properties)
 - Switch from potable water use to reclaimed water where available (South Austin Soccer Fields and Bartholomew Park baseball fields)

City Facility Conservation Requirements

- Projected water savings:
 - Peak day water use savings: 0.1 MGD
- Estimated costs to City:
 - Cost to the City: performance contract

Pressure Reduction Program

Problem:

- Large number of residential water meters with pressure over 65 psi in the service area
- High pressure leads to higher water use and faster deterioration of appliances and fixtures
- Plumbing Code requires a pressure reduction valve (PRV) if the pressure is over 80 psi

Pressure Reduction Program

Recommendation:

- Require pressure reduction valves (PRVs) on new residential properties with pressure above 65 psi
- Offer rebates for installing PRVs at existing residential properties with high pressure

Savings and Cost:

- Projected water savings:
 - Peak day water use savings: 0.13 MGD
- Estimated costs to City:
 - Cost per gallon saved: \$0



Winter Leak Detection Program

Problem:

- Customers not always aware of high consumption, often caused by leaks

Recommendation:

- Contact customers with high winter consumption and inform them of the possibility of a leak

Savings and Cost:

- Projected water savings:
 - Peak day savings: 0.3 MGD
- Estimated costs:
 - Cost to the City: \$15,000 per year
 - Cost per gallon saved: \$0.50



Outreach Programs

Problem:

- Despite extensive marketing efforts, many citizens are unaware of the City's water conservation programs

Future Marketing Plan

Recommendation:

- Program-Oriented Marketing
 - Increase cross-marketing to past participants
 - Explore target marketing by area, income
 - Expand successful current efforts
- Build Water Conservation "Brand"
 - Need to increase awareness of City's conservation efforts and programs
 - Gradual shift to coordinated look and feel for program materials

Future Marketing Plan

- Summer Watering Campaign
 - Comprehensive media coverage for 5 months
 - Publicize changes to watering restrictions
 - Cost: \$725,000

Commercial Clothes Washer Standards

Problem:

- There are no state or federal efficiency standards for hard-mount clothes washers

Recommendation:

- Amend the plumbing code to require a water efficiency factor of 8.0 for hard-mount single load and multi-load clothes washers
- Require all coin-op commercial laundry equipment to meet the plumbing code standard or federal standard by 2011

Savings and Cost:

- Peak Day Water Savings: 0.4 MGD
- Cost to the City: \$15,000



	Savings (MGD)	Average Year City Cost	FTEs	Total Cost per gallon saved
Reducing Water Loss	4.80	\$600,000	0	\$1.25
Reclaimed Water Use	6.20	\$2,500,000 ^(a)	0	\$2.02
Utility Water Rates	5.00	\$0	0	\$0
Wet & Ornamental Ponds, Green Roofs	0.30	\$0	0	\$0
Alternative Water Sources (AC condensate, stormwater reuse)	1.0	\$30,000	0.50	\$0.30
City Facility Conservation Requirements	0.10	tbd	0	tbd
Pressure Reduction Program	0.13	\$0	0	\$0
Winter Leak Detection Program	0.3	\$15,000	0.25	\$0.50
Enhanced Public Education	na	\$725,000	0	na
Commercial Clothes Washer Program	0.4	\$15,000	0.25	\$0.38
<i>Recommended City Utility Strategies</i>	18.23	\$1,385,000	1	
<i>Recommended Indoor Strategies</i>	4.40	\$632,530	3.5	
<i>Recommended Outdoor Strategies</i>	12.13	\$1,055,750	16.5	
Total	34.76	\$3,073,280 ^(b)	21	

(a) CIP for five years (b) Does not include CIP funding