

When It Rains, Grab a Bucket

Dan Strub

City of Austin Water Conservation



Gathering Clouds

- Water Utility proposed construction of new water treatment plant
- City Council directed Utility to close an old, outmoded water treatment plant and allow the land to be redeveloped
- Additional, smaller new treatment plant proposed, withdrawn
- Where is conservation?

Grab a Bucket

June 22, 2006

- City Council Resolution to reduce projected peak day demand

August 24, 2006

- Council Approved Water Conservation Task Force

September 15, 2006

- First Water Conservation Task Force Meeting



Task Force Goals

- Find means to reduce the growth in peak day demand by 1% per year for 10 years beginning in 2007
 - ~25 MGD
 - Approximately triple the current savings rate
- Produce a policy document for Council consideration and formal adoption
- Policy document will outline strategies to be adopted, implementation details, budgetary considerations, and serve as guideline for drafting necessary amendments to the city code and technical manuals

Process

- Task Force made up of 3 City Council members, 4 members of City Boards and Commissions
- Task Force held 8 meetings in 120 days
- Staff made recommendations after meetings with stakeholders
- Final recommendations made on January 12
- Staff presented recommendations to Boards and Commissions

Opportunities for Water Efficiency

- Irrigation and landscape practices
- Efficiency issues for plumbing fixtures, appliances and equipment
- City regulations and codes affecting efficiency
- Reducing utility water loss
- Alternative water sources
- Increasing knowledge about conservation techniques and practices

Plumbing Fixture Retrofit

- Plumbing fixtures in MF and ICI properties must comply with current plumbing code standards by December 31, 2011, or upon sale of property, whichever is earlier
- Plumbing fixtures in single family properties must comply with current plumbing code standards by December 31, 2009
 - City would enforce compliance on notification of property transfer

Require Water Billing of Tenants

- All new apartment, mixed use and multiple use properties must bill tenants for individual water use
 - Installation of privately-owned meters or individual City meters already required

Plumbing Code Changes

- Prohibit liquid ring surgical/dental vacuum pumps
- Require conductivity controllers for steam boilers
- Set maximum flush volume of 0.5 gpf for urinals
- Limit commercial dishwashers to 0.9 gal/rack or 180 gal/hr
- Prohibit garbage grinders in restaurants and cafeterias

Cooling Tower Efficiency Requirements

- Cooling towers permitted after effective date must have:
 - a) makeup and blowdown meters,
 - b) conductivity controllers,
 - c) overflow alarms,
 - d) drift eliminators, and
 - e) a minimum of 5 cycles of concentration.
- Existing cooling towers must install above by 12/31/2010
- Continue rebates to encourage irrigation reuse
- Require reuse of A/C condensate in new large commercial properties

Car Wash Efficiency Standards

- Limit conveyor washes to 40 gallons/car or less
- Limit in-bay washes to 55 gallons/car or less
- Limit large vehicle (bus or large truck) washes to 75 gallons/vehicle or less
- Limit hand wand nozzles to 3 gpm or less

Commercial Clothes Washer Standards

- Set max. water factor of 8.0 for new clothes washers
 - Does not include single-load soft mount machines (residential)
- Existing coin-op equipment must comply by 2011

Expand Water Use Management Ordinance

Permanent Water Use Restrictions

- Limit commercial and multifamily to 2 watering days / week
- Prohibit automatic irrigation between 10am and 7pm
- Require rain shut-offs on all existing systems

Water Conservation Stage One Regulations

- Limit residential automatic irrigation to 2 days / week
- Prohibit outdoor watering between 10am and 7pm
 - Except with a hand-held hose or hand-held bucket

New Landscape and Irrigation Standards

Residential:

- New irrigation systems must meet design requirements, be subject to final City inspection
- Installers must develop an as-built design plan and water budget prior to final inspection
- Soil depth for new homes
 - Require minimum 6" soil depth for new homes with shallow soil profiles. A site with 6" of existing soil does not need to add soil.
- Require new turf installations to meet dormancy requirements

New Landscape and Irrigation Standards

Commercial and Multifamily:

- New irrigation systems must meet design requirements, be subject to final City inspection
- Installers must develop an as-built design plan and water budget prior to final inspection
- Minimum depth of 8" of soil meeting City specifications
- Turfgrasses in landscape meet dormancy requirements

WaterWise Landscape Option

- Require homebuilders to offer a WaterWise landscape option in any series of landscape options offered to prospective home buyers
 - Only plants from CoA preferred list or with similar drought-tolerant characteristics
 - Turfgrass covers no more than 50% of landscape area
 - Turfgrass meets dormancy requirements

Irrigation System Analyses

- Commercial, multi-family and municipal properties over 1 acre with automatic irrigation systems must submit an irrigation analysis to Austin Water Utility once every three years according to a staggered schedule
- High-volume residential customers:
 - Require irrigation analysis once every three years
 - Applies to residential properties that:
 - Exceed 35,000 per month at least once in each of two consecutive calendar years
 - Are under same ownership for that period

CIP Funding for Reclaimed Water Projects

- Accelerate funding for planned reclaimed water projects and include them in the current 5 year CIP budget plan
 - 7 projects to use 5.95 MGD
- Require customers with access to reclaimed water to use it for irrigation, cooling and other non-potable uses
 - Exceptions for health, safety, and availability

Adjust Utility Water Rates

- Establish a fifth tier for residential customers using more than 25,000 gallons
- Conduct cost of service study to evaluate strategies that will reduce demand by 5 MGD
 - Set rate for fifth tier for residential customers
 - Establish irrigation rates
 - Water budgeting rate for non-residential customers
 - Conservation rate structures for wholesale customers

Modify Utility Bills

- Add graphs of historical and current water use to customer bills
- Require new billing system to:
 - Have water budget capabilities
 - Be able to include additional conservation information
 - Have ability to notify customers when consumption increases dramatically

Wholesale Customers

- 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 to contain conservation measures comparable to what the City has in place

Increase Water Efficiency in City Facilities

- Require water conservation elements as part of LEEDs certification for new City facilities
- Require all athletic fields to pay for water above a pre-determined water budget
- Follow through with water efficiency recommendations from the current performance contract, including:
 - Improving cooling tower operations
 - Completing the retrofit of plumbing fixtures
 - Installing weather-based controllers under Parks Department management on 39 athletic fields



Reduce Excessive Water Use Due to High Pressure

- Change plumbing code to require pressure reduction valves (PRVs) on new residential properties with pressure above 65 psi
- Offer \$100 rebate for installing PRVs on existing residential properties with pressure over 80 psi

Customer Outreach

- **Winter Leak Detection Program**
 - Establish a program to contact customers with high winter water use to alert them to possible leaks
- **Comprehensive Public Education Program**
 - Build Water Conservation “brand”
 - Implement extensive outreach for new policy changes



IN ORDER OF SAVINGS	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	1.96	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 Towers	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	2	\$137,500	\$2.18
Tenant Water Metering and Billing	0.62	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	32.74	19.00	\$3,714,530*	

* Preliminary cost estimate

What Next?

- Staff will bring policy document with Task Force recommendations to Council in April
- Ordinances and rules being written and moved through adoption process
- Developing metrics to track savings