

# Task Force Water Conservation Recommendations

January 12, 2007



# Cost Effectiveness

Compare City cost per gallon of peak day capacity to present day value cost of building new water plant capacity.

City water plant construction cost is \$3.40 per gallon (based on June 22, 2006 City Council Presentation).

IN ORDER OF PRESENTATION	Peak Day Savings (MGD)	FTEs	Average Year City Cost*	Total Cost per Gallon
<b>Mandatory Toilet Retrofit</b>	1.96	2	\$542,530	\$2.77
<b>Submetering</b>	0.62	0.75	\$30,000	\$0.48
<b>Plumbing Code Changes</b>	0.94	0.5	\$30,000	\$0.32
<b>Cooling Towers</b>	0.95	0.25	\$15,000	\$0.16
<b>Car Washes</b>	0.15	0.25	\$15,000	\$0.99
<b>Commercial Clothes Washers</b>	0.43	0.25	\$15,000	\$0.35
<b>Enhanced Water Use Management</b>	6.16	3	\$187,500	\$0.30
<b>Residential Irrigation Standards</b>	1.32	4	\$245,000	\$1.86
<b>Commercial Irrigation Standards</b>	0.74	2	\$120,000	\$1.62
<b>Residential Landscape Ordinance</b>	0.44	2	\$125,000	\$2.84
<b>WaterWise Landscape Option</b>	0.21	0.25	\$15,000	\$0.71
<b>Annual Irrigation System Analyses</b>	1.47	2	\$132,000	\$0.90
<b>Enhanced Irrigation Audit Program</b>	0.63	--	\$137,500	\$2.18
<b>Reducing Water Loss</b>	4.80	--	\$100,000	\$0.21
<b>Reclaimed Water Use</b>	5.95	--	\$1,250,000**	\$2.10
<b>Utility Water Rates</b>	5.00	--	\$0	\$0
<b>City Facility Conservation</b>	0.37	--	\$0	\$0
<b>Pressure Reduction Program</b>	0.29	--	\$30,000	\$1.07
<b>Winter Leak Detection Program</b>	0.31	--	\$0	\$0
<b>Enhanced Public Education</b>	n/a	--	\$725,000	--

\* Average cost per year for 10 year planning period

\*\* CIP costs of \$2,500,000 a year for five-year period

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Utility Water Rates	5.00	--	\$0	\$0
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<b>TOTALS</b>	<b>32.74</b>	<b>17.25</b>	<b>\$3,714,530*</b>	

\* Preliminary cost estimate

# Plumbing Fixture Performance

- Plumbing fixtures in MF and ICI properties must comply with current plumbing code standards by December 31, 2009
  - Multi-family deadline moved to December 31, 2014 (Staff & Austin Apartment Association)
    - Accommodates remodeling and tenant turn over
    - Allows properties to spread out the cost of installation
- Single family properties:
  - Option 1: Plumbing fixtures must comply with current plumbing code standards on transfer of title
  - Option 2: Plumbing fixtures must comply with current plumbing code standards by December 31, 2009 (Austin Board of Realtors)
    - City would enforce compliance on notification of property transfer

# Require Submeters for Water Billing

- Multifamily and mixed use properties built after 2003 must bill tenants for individual water use by Jan 1, 2009
  - Privately-owned meters or City individual meters with City master
- Tax Credit properties built between January 1, 2003 and January 1, 2008 have until December 31, 2016 to bill tenants for individual water use (Staff & Austin Apartment Association)
- Establish City of Austin equipment specification for submeter installations (Staff & Austin Apartment Association)

# 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 (§ 6-4-63)

- Limit commercial and multifamily to 2 watering days / week
- Prohibit automatic irrigation between 10am and 7pm
- **Require rain shut-offs on all existing systems (Leffingwell & Sierra Club)**
- Require rain shut-off devices on commercial systems
  - Must be operational at all times
  - Must turn off system after 1/8" of rainfall

## Water Conservation Stage One Regulations (§ 6-4-64)

- 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

# Residential Irrigation Standards & Permits

Require new irrigation systems to have:

- As-built design plan and water budget
- Hydrozoning and pressure regulation
- **Approved controllers with specific capabilities** (Task Force)
- Pop-up heads set at least 6" from impervious surfaces
- Master valve
- Rain shut-off device
- Minimum distribution uniformity of 0.6
- **Develop rebate program for submeters with readouts** (Task Force)

# Residential Irrigation Standards & Permits Cont.

Additionally:

- New systems must be designed for zero runoff
- The sprinkler arc may not pass across a paved area
- No spray in areas less than 6' wide (*medians, islands*)
- Irrigation systems subject to final City inspection
- **Remove design plan requirement, continue developing requirements for post-installation documentation (Staff & Irrigation Association, Austin Homebuilder Assoc.)**

# Expanded Commercial/MF Irrigation Standards

- New systems must be designed for zero runoff
- The sprinkler arc may not pass across a paved area
- No spray in areas less than 6' wide (*medians, islands*)
- Pop-up heads set at least 6" from impervious surfaces
- Must have master valve
- Must meet minimum distribution uniformity of 0.6
- Must have a City-approved weather-based controller
- Minimum depth of 8" of soil meeting City specifications
- Turfgrasses in landscape meet dormancy requirements
- Installers must develop an as-built design plan and water budget prior to final inspection

# Residential Landscape Ordinance

- 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. (Task Force)
- Require new turf installations to 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

# Routine 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

# Audits for High-Volume Residential Customers

- Require irrigation analysis once every three years according to a staggered schedule (Task Force)
- 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
- Analyses must be:
  - Performed by licensed irrigators and show the irrigator's license number on the report
  - Submitted to Austin Water Utility by May 1st of the year due
  - Signed by the property manager or owner

# Leak Detection Contract

- Continue annual funding for Leak Detection Contract
  - Approved by Council on October 19, 2006
  - Examines 600 linear miles of pipe
  - Initially focuses on cast iron pipe to find leaks not yet surfaced
- Support Utility's ongoing efforts to repair leaks in a shorter time frame

# CIP funding for reclaimed water projects

- Approve funding as part of Utility's Capital Improvement Plan for reclaimed water projects to be started in 2007 and completed by 2011
  - UT Transmission Main (4.0 MGD)
  - ABIA Transmission Main (0.6 MGD)
  - Smith Road Extension (0.5 MGD)
  - Main to the Roy G. Guerrero Colorado River Park (1.0 MGD)
  - 24" Rehabilitation (necessary for Guerrero Park/Smith Road)
  - 12" Rehabilitation (0.1 MGD)
  - 183 Rehabilitation (necessary for Smith Road extension)
- Require customers with access to reclaimed water to use it for irrigation, cooling and other non-potable uses (Task Force)

# Adjust Utility Water Rates

- Conduct cost of service study to evaluate strategies that will reduce demand by 5 MGD
  - Fifth tier for residential customers
  - Establish irrigation rates
  - Water budgeting rate for all customers
  - Conservation rate structures for wholesale customers
- Implement strategies feasible under the current billing system as soon as possible
- Implement strategies that are not feasible under the current system after the new billing system is adopted

# 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

# Explore Alternative Water Sources

- Water Conservation and Watershed Protection staff will meet to explore opportunities for stormwater reuse and other alternative water sources
- Staff will report back to Council

# 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

# Winter Leak Detection Program

- Establish a program to contact customers with high winter water use to alert them to the possibility of a leak

# Comprehensive Public Education Program

- Build Water Conservation “brand”
  - Gradual shift to uniform look and tone for all materials
- Implement extensive outreach for new policy changes
  - 5-month campaign May 1 through September 30
  - Radio, TV, Outdoor, Print, Web, E-mail
  - Alert public to new policies, penalties
  - Promote incentive programs and ways to cut water use
  - In-house creative direction, outsourced production as needed

