


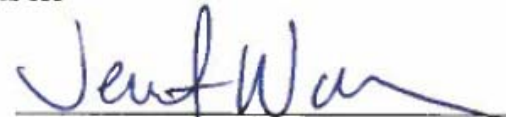
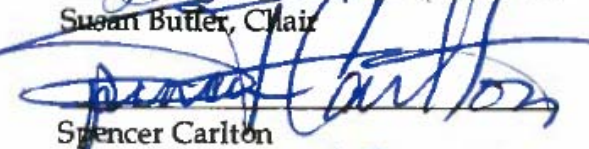
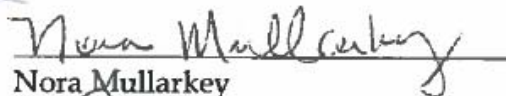

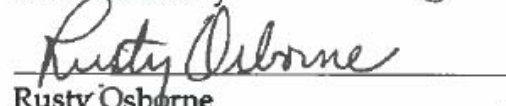
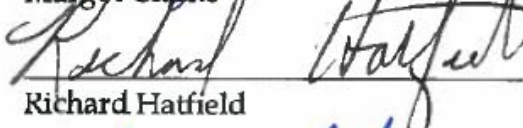
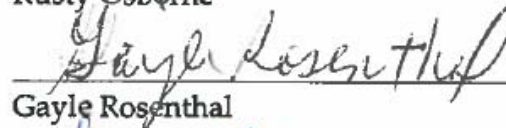

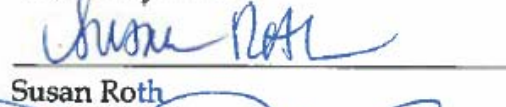
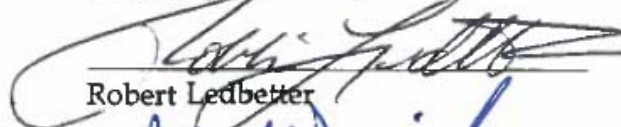
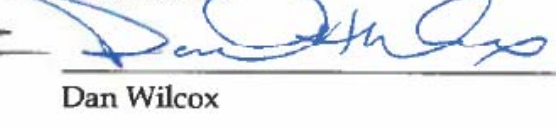
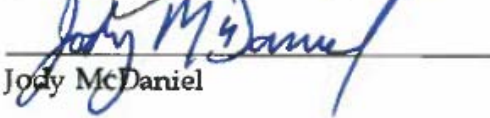
Citizens Water Conservation Implementation Task Force Report to City Council

Water Conservation 2020: Strategic Recommendations


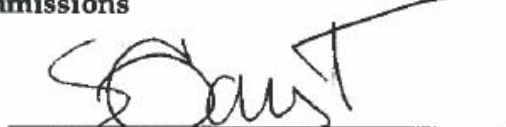
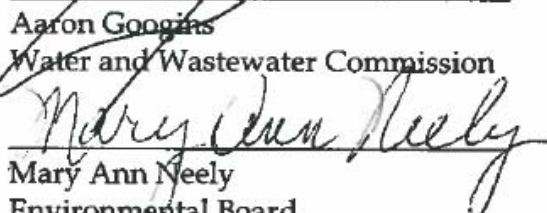
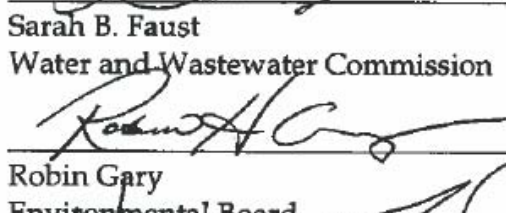
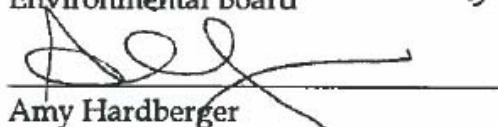
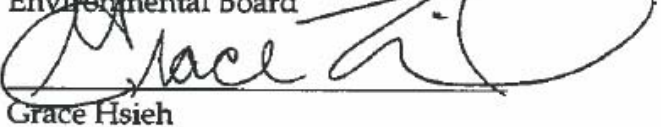
March 2010



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We gratefully acknowledge the hard work and efforts of the Austin Water Utility staff who supported this work. In particular we thank Daryl Slusher, Drema Gross, Robert Stefani, Dan Pederson, and Abigail Webster.

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Executive Summary

Charge and Process

On August 5, 2009, the City Council charged the Citizens Water Conservation Implementation Task Force (CWCITF or “Citizens Task Force”) to produce a policy document recommending conservation measures to reduce water use within the City beyond the savings expected from a set of recommendations adopted in 2007. The Council resolution also directed the Citizens Task Force to work with city staff, the Resource Management Commission, Environmental Board, and Water and Wastewater Commission. Members of these bodies participated with the Citizens Task Force in development of this document. The draft of this document was distributed to the other bodies for comment. Additionally, drafts were available to the public during January, February and March, prior to its finalization.

This document differs from the 2007 Conservation Strategies Policy Document (“2007 Recommendations”) developed by the Water Conservation Task Force created by City Council in 2006. The 2007 Recommendations included 23 strategies designed to meet a Council-adopted quantitative savings goal to reduce peak water use by 1 percent per year through 2017. The measures of that previous effort were preceded and greatly informed by a consultant study¹ that detailed a large suite of potential strategies, as well as their potential savings and implementation costs. Thus, the water-saving strategies of the 2007

Recommendations were rigorously analyzed and characterized with a set of quantitative criteria to develop a priority set for implementation. Subsequently, the 2007 Recommendations were adopted by City Council, and staff was charged with implementing those recommended measures.

The approach taken to meet the 2009 charge differs, most markedly, in the level of quantitative rigor that the Citizens Task Force was able to apply within the confines of the new charge. This document includes some strategies that we believe can be implemented to achieve savings today, but also takes a longer-term view regarding water conservation strategies. Furthermore, the Citizens Task Force addressed concepts that explore rethinking how water is used inside and outside the home, site design strategies, impediments to conservation, and

The Water Conservation 2020 Report differs from the 2007 Task Force Recommendations.

In the Water Conservation 2020 Report, we address near and long-term strategies and recommend that staff conduct benefit-cost analyses and include favorable strategies in a 10-year business plan to meet the 2020 water savings goals.

¹ Alan Plummer Associates, Inc., “Evaluation of Peak-Day Water conservation Strategies for the City of Austin: 2007 – 2015.”

financial issues. To work well, many of these concepts will require involvement of various city departments, stakeholders, and possibly other partners in addition to Austin Water Utility (AWU). For this reason, many of the strategies presented in this document, although grounded in the experience of other utilities and other communities, need further analysis to ensure they are cost-effective, don't result in unintended consequences, and actually will work as envisioned.

The Case for Conservation

The intense drought of 2008-2009 was a stark reminder for the Austin community about the value of water. As lake levels in the region's water supply reservoirs dropped, the possibility of severe curtailments for the first time became a real possibility for water suppliers and members of the public. With the region's population expected to grow, demands on stored water in the Highland Lakes system will only increase in the future, resulting in more frequent fluctuation of the lake levels and potential deficits. Long-term investment in conservation makes sense for many reasons including:

Why Focus on Conservation?

Conservation is important to meet long-term water needs and makes good business sense for the utility and its customers. Programs need to be based on rigorous data and financial analysis.

- Water conservation is a source of water supply. By reducing demand, water available in storage can be stretched to meet needs over a longer term;
 - Conservation works – significant savings have been achieved through Austin's conservation efforts;
 - Reducing water use has near-term financial benefits of reduced annual costs for both water and wastewater facilities;
 - Reduced electricity use associated with water conservation saves money, and reduces greenhouse gas emissions (to the extent that its generation is fossil-fuel based);
- In the long-term, conserving water may also defer costly infrastructure expansion and purchase of additional water rights, and reduce annual costs for water;
 - Water efficiency can save homeowners and businesses money on their water bill;
 - Water is a shared resource. Conservation leaves more water in our waterways for recreation, downstream users, environmental needs of the Colorado River and Matagorda Bay and can meet the needs of a growing population;
 - Integrating water conservation and stormwater management strategies can increase water efficiency while meeting other goals of reducing run-off and improving water quality.

Key Findings and Conclusions

Through the latter portion of 2009 and into early 2010, the Citizens Task Force and liaisons spent numerous hours examining conservation measures implemented by other communities and deliberating about ways to reduce water use in Austin. During our deliberations, we concluded that water conservation is a critical component of our long-term water supply. Five major conclusions that we wish to emphasize include:

Continue and Expand Current Conservation Strategies

The Citizens Task Force acknowledges Austin Water Utility's success in reducing water use since the 1980s, and meeting or exceeding water conservation goals established by City Council.

We encourage continued and accelerated efforts to reduce water demand, and believe strategies presented in this report provide a sound basis for additional water conservation in our community.

1. Education, education, education: water supply awareness and water conservation literacy are critical to the success of Austin's conservation program.
2. Water conservation is a long-term investment that requires a long-term, certain funding source.
3. Water rates should reflect the real cost of water; however, rate structures should ensure that all citizens can afford to meet basic water needs.
4. Conservation programs should include incentives for everyone to reduce water use – large users, industries, residents, and businesses.
5. Conservation measures should make good business sense.

Next Steps

Conservation is a long-term investment. Like other investments, some actions can be taken right away and others require additional deliberation and analysis. This document is a framework for achieving our vision that Austin will become a leader in sustainable water management practices that conserve water, not a prescriptive list of strategies to be implemented. The Citizens Task Force anticipates that these identified and prioritized strategies will be further analyzed by staff from throughout the City and used as a basis for an action plan with a strong technical and business focus.

Recommended next steps include:

- AWU and other city departments should consider these recommendations during fiscal year 2010-2011 and request funding, if needed, for those cost-effective and affordable strategies that can be implemented right away.
- AWU should increase its focus on data collection and analysis.

- AWU should continue to analyze the quantifiable strategies as soon as practical and engage other city departments as necessary.
- Staff should develop a 10-year action plan (business plan) that identifies strategies and measures planned for implementation. The plan should include an implementation schedule, identify the City department(s) responsible for implementation, and provide estimated water savings (near and long-term) and estimated costs.
- The 10-year action plan should be recognized as a living document that will change as the population and customer profile changes, technology changes, and as program results are analyzed.
- The proposed staff action plan should be presented to and reviewed by the Citizens Task Force during the latter part of 2010.
- The goals and strategies in the 10-year action plan should be periodically assessed and modified.

Water Conservation 2020: Prioritized Recommendations

The Citizens Task Force drafted a vision for water conservation in Austin and a set of guiding principles intended to guide decisions and program development over time. These are presented in Section 3.

Recommended Goals

As noted, in 2006 the City Council established a goal for water conservation in Austin, per Resolution Number 20060824-061. The existing goal, focusing on peak-day demand, is to reduce peak water use by 1 percent per year over a 10-year period (reduction of 25 mgd from peak use by 2017).

The Citizens Task Force supports the peak-reduction goal, and recommends additional goals that focus on reducing overall water use in order to conserve a limited natural resource, as well as to defer long-term infrastructure requirements.

Recommended Conservation Goals

1. Reduce total per capita potable water production to at least 140 gallons per capita per day by 2020²
2. Austin customers understand their water use and actively find ways to use it more efficiently

It is important to use a quantitative method for determining our progress towards increased water use efficiency over time. We believe that the standard metric of total per capita water use can be used – specifically, we suggest total water diverted from the source divided by the total population served.² This is important not for comparison among cities, but as a measure of our progress and to support long-term water planning. The per capita metric is not intended to replace, but rather to

² This goal should be periodically re-evaluated to reflect changing conditions such as new industries locating in Austin, revised population data based on the 2010 census or other factors that could affect daily per capita water use calculations.

complement the measurement of the reduction of peak use.

The Citizens Task Force recommends a long-term goal of reducing total per capita potable water production to 140 gallons per person (capita) per day (gpcd) by 2020 as measured by water diverted from the source prior to treatment divided by the total population served. This goal is consistent with recommendations of the statewide 2004 Texas Water Conservation Implementation Task Force³. We feel that this long-term goal is achievable based on the experience of other Texas cities with a programmatic structure and fiscal support for water conservation initiatives. This goal should be periodically re-evaluated to reflect changing conditions such as new industries locating in Austin, revised population data based on the 2010 census or other factors that could affect daily per capita water use calculations.

Further, the Citizens Task Force believes that water conservation is a partnership among the utility, community groups, the business community, and individual water users in all sectors of the city. Creating a community-wide conservation ethic is a fundamental element that will lead to attitude and behavior changes and an increased likelihood of consumer investments in water-saving practices. Knowledge of our water resources, awareness of individual water use levels and waste, and practical tips on how to save water are keys to effective water conservation. Therefore, we propose an additional goal related to customer awareness of water and water conservation, namely that Austin water customers will know about their water use, understand its implications, and will use water more efficiently.

Analyze and Implement Cost-Effective Conservation Strategies that Meet Saving Goals

The Citizens Task Force identified strategies designed to meet proposed conservation goals. Some of the strategies will have a high benefit-cost ratio and/or probability of effectiveness and should be pursued; others may not be of economic value or may not save water after analysis and should not be included in the Action Plan.

Staff must have the flexibility and resources to implement a mix of cost-effective conservation strategies and to change the plan over time to meet changing conditions and meet savings goals.

The recommended goals presented in this section address the conservation program as a whole. We are also recommending qualitative objectives for various elements of the conservation program. These objectives are included in Appendix One.

Quantifiable Strategies for Further Analysis

Austin Water Utility and other City departments are positioned to implement additional water conservation measures provided they are given the flexibility and resources to do so. Over time, we anticipate that the customer base, technology and other elements of an effective conservation program will change. Therefore, Austin Water Utility must have the adaptability to implement a variety of conservation strategies, including the conservation measures recommended by this

³ See Texas Water Conservation Implementation Task Force Report to 79th Legislature (November 2004) available at: <http://www.twdb.state.tx.us/assistance/conservation/taskforce.asp>

Citizens Task Force that have a high benefit-cost ratio.

More than one hundred water conservation strategies were identified by the Citizens Task Force and liaisons from the other Board and Commissions. Based on our knowledge of successful conservation programs across the country, data from current literature, and other sources, we believe that these are sound strategies that would reduce water use and all may be considered for implementation over time. We recommend that staff analyze these strategies and project both savings and costs to the utility and to end-users to determine priority implementation in a 10-year action, or business, plan (“action plan”). During this process, staff initiated preliminary analysis on some of the prioritized recommendations included in Tables 1 and 2. The results are included in Appendix Four. It is likely that some of the strategies identified in this report, once analyzed, will not have a high benefit-cost ratio and thus will not be included in the action plan. It is also possible that some of the strategies cannot be assigned a verifiable benefit-cost ratio, especially considering limited resources for the analysis; this is why the water conservation programs require flexibility, so that AWU can test their effectiveness and adjust programs accordingly. Appendix One provides the complete list of objectives and strategies identified, but the Citizens Task Force felt it would be useful to prioritize the strategies to facilitate further analysis and possible inclusion in an action plan. The strategies were screened using a slight modification of a process recommended by the American Water Works Association that entailed a mix of qualitative technical and public-acceptability criteria including:

- Cost-Effectiveness
- Technology/Market Maturity
- Certainty of Water Savings
- Potential Magnitude of Water Savings
- Service Area Match
- End-user/Public Acceptability
- Customer ability to implement

The screening method assigned the highest priority to the strategies in Table 1. Additionally, second-tier priority strategies are identified in Section Three and, as noted previously, the full suite of identified strategies are included in Appendix One. Quantifiable strategies recommended for analysis in Table 1 include the following categories:

- Outdoor Use for Existing Customers (O-EC)
- Outdoor Use for New Construction (O-NC)
- Industrial, Commercial and Institutional (ICI)
- Indoor Residential Water Use (IR)
- Infrastructure and Facilities Management Strategies (IFM)
- Reclaimed Water Use (RU)

Tables 1 and 2 reflect the results of the prioritization within categories; however, the categories themselves were not prioritized.

TABLE 1
Quantifiable Strategies Prioritized for Analysis

Strategy Identification Code	Strategy Description
Outdoor – Existing Construction (O-EC)	
1	Extend the “no more than twice a week” watering schedule year round (i.e. the schedule would not be a drought-response restriction).
2	Improve follow-up to irrigation audits, including equipment/system and landscape retrofits.
3	Simplify and restructure existing rebate programs including: 1) rainwater harvesting/rain barrel; 2) combine various equipment rebates for commercial customers; 3) restructure the irrigation rebates.
4	Include pool inspections as part of irrigation audits.
5	Improve enforcement of water-waste violations.
6	Encourage use of reclaimed water for irrigation on residential lots and commercial properties where reclaimed water is reasonably accessible.
Outdoor – New Construction (O-NC)	
1	Amend plumbing code to allow beneficial use of air conditioning condensate for residential and commercial properties.
2	Utility service extension requests should trigger assessment of opportunities for on-site water reuse and other methods to reduce water demand.
3	Develop water-efficiency criteria and certification for new construction as either a part of Green Building or a stand-alone program.
4	Site plans should include on-site water management strategies, and sufficient training should be provided for plan reviewers and inspectors.
5	Require limitations on irrigated areas for new residential construction.
Industrial, Commercial & Institutional (ICI)	
1	Provide and strategically market comprehensive retrofit packages to institutions such as schools, universities, and other institutions with residential populations. Reclaimed water use should be encouraged where feasible.
2	Provide and strategically implement incentive packages for high water-using commercial activities such as hotels and restaurants.
3	Review plumbing and building codes and amend if necessary to ensure conservation requirements for ICI customers specify up-to-date, water-efficient technology.
Indoor Residential (IR)	
1	Continue existing incentive programs for residential water users; adjust rebate amounts or processes if necessary to increase effectiveness.
2	Provide indoor home water audits in conjunction with outdoor water audits. Continue to partner with Austin Energy to conduct water and energy audits as a package. Develop on-line calculators so residents can self-perform audits.
3	Require (to the extent allowed by law) that those multi-family homes with submeters actually bill their residents based on metered water use.

Strategy Identification Code	Strategy Description
Infrastructure & Facilities Management (IFM)	
1	In future contracts, or contract amendments, include enforceable provisions that require wholesale customers to enact conservation programs that are at least as robust as the City of Austin's program. Require annual system audits and aggressive leak detection programs. In the interim, consider providing incentives to retail customers within wholesale customer service area. (This expands the 2007 Recommendation).
2	Keep repairing leaks and replacing aging infrastructure as a priority in the Capital Improvement Plan.
3	The Parks and Recreation Department should implement strong conservation practices for all its water use, including raw water use. Replacement of or upgrades to irrigation systems, adherence to city city-wide watering schedules, and repair of pool leaks should be a priority.
4	Implement a multi-year smart meter change-out program to provide "real time" water use data. Begin with a pilot program to provide data for benefit-cost evaluation
5	Retrofit all city facilities with efficient plumbing fixtures and appliances; install drought-tolerant landscapes and efficient irrigation systems. Consider adopting internal goal of reducing city use by 2 % per year through 2020. Use city facilities as demonstration sites. COA should post conservation-minded signage in its facilities. (This expands the 2007 Recommendation.)
Reclaimed Water (RU)	
1	Require reuse and reclaimed water users to follow efficiency and conservation standards to avoid waste of this resource. The Water Conservation Ordinance should include benefits for non-potable water users during drought.
2	Incorporate reclaimed water service into service delivery plans and projects that extend potable water and wastewater systems for new developments such as along SH 130.
3	Actively solicit existing utility customers that could use reclaimed water for non-potable uses.

Non-Quantifiable Strategies

The previous section addresses proposed strategies expected to produce quantifiable water savings. Table 2 in this section lists other high priority strategies identified by the Citizens Task Force; they include measures that, while clearly important to a successful conservation program, may yield water savings that are not directly measurable. As previously stated, the measures included in these two tables are thought to be the most critical; additional "priority strategies" are discussed in Section 4. A complete list of strategies identified by the Citizens Task Force is included in Appendix One. Non-quantifiable strategies recommended in Table 2 include the following categories:

- Public Information, Education and Outreach (POE)
- Addressing Impediments to Conservation (IMP)
- Funding and Financial Issues (F)

TABLE 2
Prioritized Non-Quantifiable Strategies

Strategy Identification Code	Strategy Description
Public Information, Education & Outreach (POE)	
1	Implement a strategic marketing program to address all water users. Key elements should include focus groups, strong visual brands, workshops for specific end-users, a pro-active speaker's bureau, a variety of media to reach different users, and simple messages that are a call to action.
2	Support measurable water conservation programs with strong customer information and education. Enable customers to easily access historical and current data about their water use on their bills and online.
Impediments to Conservation (IMP)	
1	Engage a third party to review city code and procedures to ensure that water conserving best practices are incorporated into development codes and criteria manuals, watershed protection regulations, building codes, construction practices, and facilities operations.
Funding & Financial Considerations (F)	
1	Continue to investigate other water rate structures that foster change in water use habits through pricing incentives (e.g., "base-excess use" billing, seasonal surcharges, budget-based billing, or higher rates for outdoor use measured with irrigation-only meters.)
2	Design future rate structures to ensure that both conservation and affordability considerations are incorporated.
5	Set-aside an established percentage of highest residential rate tier revenues for water conservation programs, and consider assessing a modest monthly fee based on meter-size for non-residential customers to fund conservation programs.
6	Rather than assessing impact fees to recover cost of off-site system capacity for "irrigation only" meters, develop capital recovery fees to recover costs of meter purchase and installation for a separate irrigation meter when expected use at the site does not increase.
12	Develop a metric for the cost of water supplies deferred by conservation (i.e., in mgd or acre-feet per year) and use this "price point" to evaluate cost-effectiveness of conservation programs.

Note: A complete list of strategies will be found in Appendix One.

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1.0: Citizens Water Conservation Implementation Task Force Charge and Process Overview

Charge from City Council

Per Resolution Number 20090806-036 passed and approved by the City Council on August 5, 2009, the Citizen's Water Conservation Implementation Task Force ("Citizens Task Force") was directed to recommend additional conservation measures for water use reductions beyond the 2007 Task Force recommendations. Resolution 20091119-066 passed and approved by the City Council on November 19, 2009, extended the Citizens Task Force deadline to April 1, 2010. Specifically, the resolutions charged the Citizens Task Force as follows:

1. The Citizens Task Force shall work with City staff, the Resource Management Commission, Environmental Board, and Water and Wastewater Commission to produce a policy document that recommends these additional conservation measures for water use in the City of Austin.
2. The Citizens Task Force shall meet at least monthly.
3. The Citizens Task Force shall report to the City Council with an update on progress not later than November 5, 2009.
4. The Citizens Task Force shall present the final policy document to City Council on or before April 1, 2010.

Citizens Task Force Policy Document

The Citizens Task Force focused on a variety of strategies to reduce water use. The policy recommendations are expected to establish both a vision for water conservation in the future and strategies to achieve that vision. This policy document differs somewhat from the 2007 Policy Document generated by the previous Water Conservation Task Force. The 2007 Recommendations included 23 implementation strategies designed to meet a Council-adopted quantitative savings goal of reducing peak water use by 1 percent per year through 2017. The measures of that previous effort were preceded and greatly informed by a consultant study⁴ that detailed a large suite of potential strategies, their potential savings, and implementation costs. Thus, the water-saving strategies of the 2007 Recommendations were analyzed and characterized with a set of quantitative criteria to develop a priority set for implementation. Subsequently, the 2007 Recommendations were adopted by City Council, and staff was charged with implementing those recommended measures.

The approach taken to meet the 2009 charge differs, most markedly, in the level of quantitative rigor that we were not able to apply within the confines of the new charge. This document includes some strategies that we believe can be implemented to achieve savings today, but also takes a longer-term view regarding water conservation strategies. It is not intended to be a prescriptive document that establishes mandated recommendations for implementation, but

⁴ Alan Plummer Associates, Inc., "Evaluation of Peak-Day Water conservation Strategies for the City of Austin: 2007 – 2015."

rather it identifies approaches to efficient water use and best practices that staff can further analyze and implement.

Furthermore, the Citizens Task Force addressed concepts that explore rethinking how water is used inside and outside the home, site design strategies, and other issues such as impediments to conservation and financial issues. These concepts would require involvement of various city departments, in addition to Austin Water Utility, stakeholders, and possibly other partners to make them work. For this reason, the strategies presented in this document, although grounded in the experience of other utilities and other communities, need further analysis to ensure they are cost-effective, don't result in unintended consequences, and actually will work as envisioned. It is the intent of the Citizens Task Force that the strategies be further analyzed and those that are cost-effective and feasible be put into an aggressive 10-year action plan by staff during 2010.

Citizens Task Force Process

Membership

The Citizens Task Force met approximately 20 times between September 2009 and March 2010, meeting approximately once a week to discuss water conservation goals, recommendations, and strategies to be considered to meet the recommended goals.

In addition to the appointed members of the Citizens Task Force, the Commissions and Board cited in the charge were invited to designate up to two members to participate in the process. The designated members of the Commissions and Board actively participated in many of the work group and regular Citizens Task Force meetings. The designated members of the Commissions and Board were requested to provide updates to their respective groups at regularly scheduled meetings as a means to facilitate communication among the Commissions, Board, and Citizens Task Force. The Citizens Task Force is grateful for their participation in the discussion and development of this report.

Decision-Making

The Citizens Task Force and designated participants from the affiliated groups worked on a consensus basis to identify water conservation goals and strategies. Only appointed Citizens Task Force members voted on matters related to this document. Staff also participated in the process by presenting information on programs, providing technical support, employing a method of preliminary ranking for newly identified strategies, joining in the discussions and conducting preliminary analyses on some conservation strategies. They did not, however, vote on the final recommendations. Their service is invaluable and much appreciated by the Citizens Task Force.

Open Discussion

Meetings of the Citizens Task Force and the work groups were open to the public. Meeting agendas, support materials, and notes were posted on the Austin Water Utility web site by staff. Each meeting agenda provided opportunities for public comment and idea-sharing at the beginning and at the close of the meeting. Public comments were received at a number of meetings; many of these are included as recommended strategies.

Staff created a more prominent place on the Austin Water Utility Web page for information related to the Citizens Task Force’s work to facilitate easy access to the information for the public.

Broad Review by Board and Commissions

The draft Water Conservation 2020: Strategic Recommendations report was distributed to the Environmental Board, Water and Wastewater Commission and Resource Management Commission and received a briefing on the report during their meetings on March 3, March 10 and March 23, respectively. The Environmental Board unanimously passed a motion recommending conditional approval of this report as a preliminary report to be followed by additional information such as cost/benefit analysis and/or 10-year business plan. The Water and Wastewater Commission unanimously passed a motion recommending approval of the report. Further, the Commission recommended that City Council adopt the 140 gallons per capita per day water use goal and direct staff to prepare a 10-year business/ action plan in two additional motions that each passed with a four to one vote. The Resource Management Commission unanimously passed a resolution recommending among other things that City Council: adopt the 140 gallons per capita per day goal, direct the Citizens Task Force to continue to focus on the 2007 Task Force recommendations, direct staff to proceed with the quantitative analysis of conservation measures and develop an Action Plan, and direct the Citizens Task Force continue to provide input during implementation of the Action Plan.

Detailed Board and Commissions comments are in Appendix Five.

Public Review

On March 9, the Citizens Water Conservation Implementation Task Force and the Austin Water Utility hosted a public event at St. David’s Episcopal Church in downtown Austin. Approximately 25 members of the public attended. After brief presentations by John Sutton, Texas Water Development Board, Drema Gross, Austin Water Utility and Susan Butler, Citizens Task Force Chair, the attendees participated in small break-out sessions. They were asked to answer the following three questions and report their answers to the full group. The questions were:

1. What would success in water conservation look like for the City of Austin (‘City’) in 2020?
2. What types of strategies should the City implement to achieve success?
3. What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it?

Responses and comments from the attendees are included in Appendix Six. The Citizens Task Force urges Austin Water Utility to consider and incorporate the ideas generated at this event in their evaluations and 10-year action plan.

Work Group Focus Areas

The Citizens Task Force and liaisons held monthly “regular” meetings during which over-arching programmatic issues such as the vision, guiding principles and goals for water conservation were discussed. Additionally, the Citizens Task Force held Work Group meetings to focus on particular topics (e.g. indoor residential measures). Each work group identified near-term and long-range *strategies* related to various approaches to conservation, e.g. incentives, regulations, enforcement, education, etc. Potential strategies for consideration at the

policy-level were solicited from the Citizens Task Force and affiliated members, the public, city leadership and staff. Program elements discussed included incentives, regulations, enforcement, research, and education related to the following areas:

- Indoor Residential Conservation (Existing Homes and New Construction)
- Outdoor Conservation (Existing, and New Residential and Commercial Development)
- Institutional, Commercial and Industrial Water Use
- Reclaimed Water
- System and Facility Management
- Impediments to and Opportunities for conservation such as federal, state and local codes or regulations and institutional barriers
- Public Information, Outreach, and Education
- Funding and Financial Issues

A drafting sub-committee was also created to prepare a draft report for the full Citizens Task Force and liaisons to consider and finalize.

2.0: State of Water Conservation: 2009

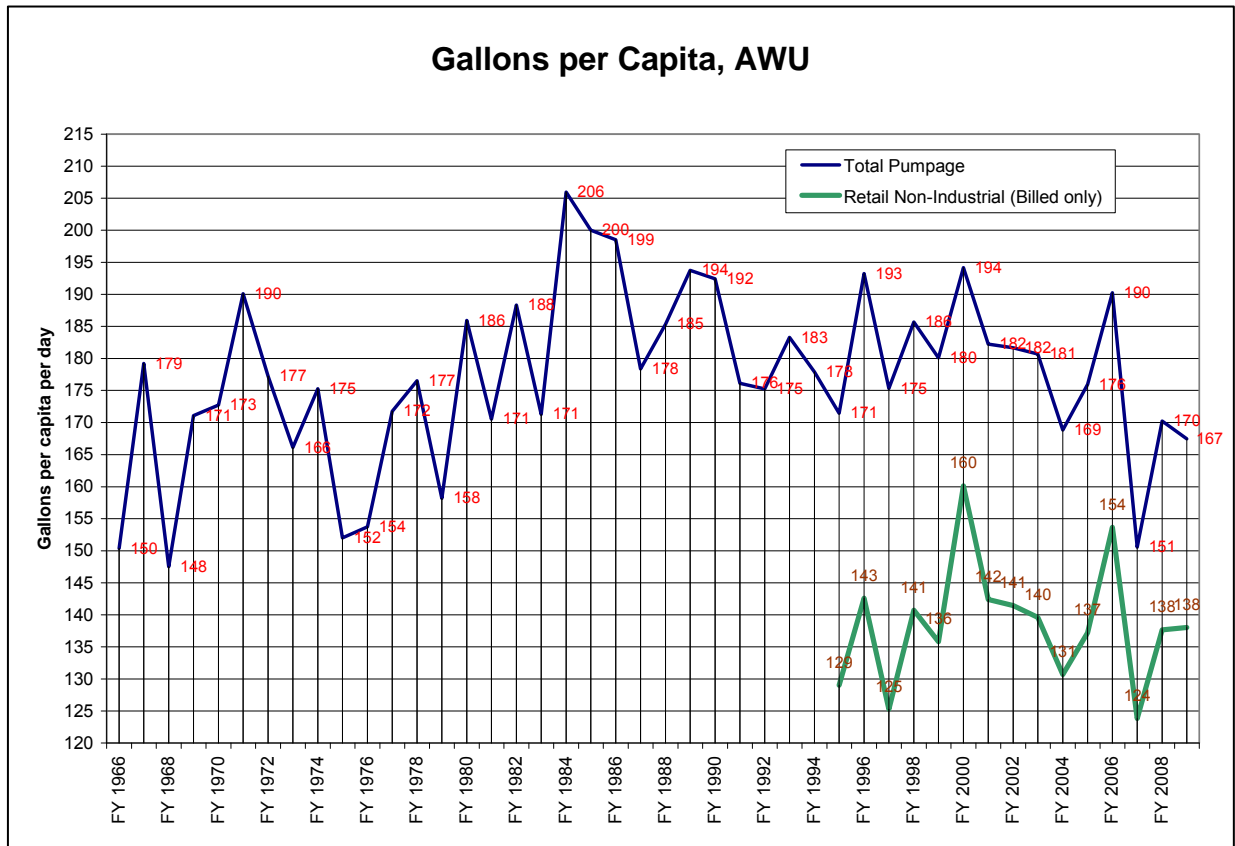
The Austin community, with leadership from City Council and Austin Water Utility has made considerable progress in water conservation over the last twenty-five years. Daily water use per person (gallons per capita per day) was 221 gallons in 1984, as compared to the current 14-year average of 171 gallons per capita per day. While some of the reduction may be explained by the relative increase of apartment and condominium dwellers compared to those living in single family homes, the city's efforts to encourage water use efficiency through incentive programs, such as rebates for and distribution of low-flow fixtures, as well as policies to reduce outdoor water use, have been successful.

Figure 1 shows the results of these efforts since 1980. The "total pumpage" line shows water diverted from the source, the basis for the 140 gallons per capita per day goal recommended by the Task Force. The "retail non-industrial" line in the Figure 1 is another valuable metric for monitoring how water is used within the City.

The City of Austin began its water conservation program in 1984 primarily as an emergency response to a short-term drought. Since then, the conservation programs have evolved to reduce water use as a part of a long-term strategy to meet the city's future water needs. A combination of education, incentive programs, and water use regulations has effectively reduced the water use per person from the 1980's through today. The early years of the program showed substantial reductions in per capita use. During the 1990's the conservation program provided rebates for landscape and irrigation system retrofits, replacement of water-using fixtures such as toilets and showerheads, and industrial/commercial retrofits. Conservation efforts allowed the utility to maintain overall water use at fairly consistent levels, despite a substantial increase in population served.

As per capita water use stabilized in the middle part of the 2000-09 decade, the Council established a goal to reduce peak water demand (i.e., highest system water use as measured in million gallons per day) by 1 percent per year for ten years, for an estimated 25 million gallons per day (mgd) reduction of peak demand. The Water Conservation Task Force of the 2006-07 time frame was empanelled to review potential measures that could be implemented to meet the peak-savings goal. The package of 23 recommendations was adopted by the City Council in May 2007. Since that time, the utility has made substantial progress towards implementing those recommendations, while continuing to promote those programs that were already in place.

FIGURE 1
Gallons Per Capita (Person) Per Day of Water Use for the City of Austin from 1980 -2008



Since adoption of the 2007 Task Force recommendations, the City has made considerable progress toward reaching the 10-year peak reduction goal. Peak-use savings have exceeded the pro-rated annual goal of reducing peak use by 1 percent per year to achieve 25 mgd savings by 2017. The peak-savings goal for fiscal year 2008 was 1.18 mgd; actual savings are estimated between 6.04 -10.4 mgd. The peak-savings goal for fiscal year 2009 was 8.77 mgd. While difficult to differentiate between savings due to long-term conservation efforts, economic factors, and 2007 Task Force recommendations, savings due to new watering restrictions and leak detection efforts are estimated to have reduced peak demand by 7 to 12 mgd for fiscal year 2009.

3.0: Vision, Guiding Principles and Goals

The Citizens Task Force believes that a vision and guiding principles for water conservation provide an essential framework to effectively manage our water supply over time. Once embraced, strategies and measures to save water in every sector of the city can be creatively developed and implemented.

Vision

The City of Austin, in partnership with its stakeholders, will be the leader in sustainable water management by implementing model water conservation measures.

Guiding Principles

Guiding principles provide a foundation for conservation planning and strategy selection and implementation. They articulate a philosophy that guides an organization over time, irrespective of changes in its goals, strategies, type of work, or top management.

The following principles were developed by the Citizens Task Force as a foundation for the City of Austin's conservation program.

- Water conservation is a priority for the City of Austin and its utilities, and will be a fundamental consideration for all of its departments, operations, and facilities.
- Water conservation includes both permanent structural/physical changes that will ensure water-use efficiency over the long-term, and strategies to change attitudes and behavior regarding water use. Conservation strategies will include a balance of incentives, regulations, and education, as well as improvements in system development, operation, and design.
- Education and outreach programs will be implemented that go beyond information dissemination so that Austin residents and businesses will be engaged and inspired to permanently change their perception of water's value and availability as well as their behavior with regard to its use.
- Conservation will be accessible to all water users.
- The City of Austin will pursue cost-effective strategies to meet future water demands; "lowest cost" solutions, however, will be balanced with other criteria such as environmental sustainability, energy use, water quality protection, social equity, and broad participation. Priority will be given to conservation strategies that are cost-effective and provide measurable results.
- Partnerships and cooperation with public entities, customers, trade-groups, developers, industries, community groups, and others are critical elements of effective water

conservation. Such partnerships will help to reach the broadest number of participants, to leverage funding sources, and to further advance common objectives.

- Water conservation is a long-term process. Planning and programming is a dynamic process that must respond to changing conditions over time. The City will periodically evaluate and update its programs based on the results of the evaluation to ensure efficiency and applicability for increasing water use efficiency.

Goals

In 2006 the City Council established a goal for water conservation in Austin, per Resolution Number 20060824-061. The existing goal, focusing on peak demand, is to reduce peak water use by 1 percent per year over a 10-year period (reduction of 25 mgd from peak use by 2017) as a means of delaying addition investment in water treatment capacity.

The Citizens Task Force supports the peak-day reduction goal, and recommends additional goals that focus on reducing overall water use in order to conserve a limited natural resource, as well as to defer infrastructure requirements.

Recommended Goal One

Reduce total per capita potable water production to 140 gallons or less per capita per day by 2020.

It is important to utilize a quantitative method for determining our progress towards increased water use efficiency over time. We believe that the standard metric of total per capita water use can be used – specifically, we suggest total water diverted from the source divided by the total population. This is important not for comparison among cities, but as a measure of our progress. It is intended that the water use savings achieved through reduction in peak use, which remain important for tracking progress on the 2007 strategies, be incorporated into the calculation for overall per capita reductions.

The Citizens Task Force recommends a 10-year goal of reducing total per capita production to 140 gallons or less per person per day, in line with recommendations of the statewide 2004 Texas Water Conservation Implementation Task Force⁵. We feel that this goal is achievable based on the experience of other Texas cities with a programmatic structure and fiscal support for water conservation initiatives. This goal should be periodically re-evaluated to reflect changing conditions such as new industries locating in Austin, revised population data based on the 2010 census or other factors that could affect daily per capita water use calculations. We believe it is important to monitor and report per capita water use in various customer sectors to help assess conservation investment priorities and successes.

Recommended Goal Two

Austin customers will understand their water use and actively find ways to use it more efficiently.

⁵ See Texas Water Conservation Implementation Task Force Report to 79th Legislature (November 2004) available at: <http://www.twdb.state.tx.us/assistance/conservation/taskforce.asp>

Further, the Citizens Task Force believes that water conservation is a partnership between the utility, community groups, and individual water users in all sectors of the community. Because the ultimate responsibility for saving water rests with all individual end-users, creating a community-wide conservation ethic is critical for success. Education is a fundamental element that will lead to changes in attitude and behavior and an increased likelihood of consumer investments in water-saving practices. Knowledge of our water resources, awareness of individual water use levels and waste, and practical tips on how to save water are key to effective water conservation.

The recommended goals presented address the conservation program as a whole. We are also recommending qualitative objectives for various elements of the conservation program which are identified in Appendix One. A list of first and second tier prioritized strategies and measures are included in Section 4 and all measures considered by the Citizens Task Force are included in Appendix One.

4.0: Recommended Priority Implementation Strategies

The Citizens Task Force identified over one hundred total strategies. This suite of strategies consists of measures that could be implemented in the near-term and those to be further developed as part of a long-term plan. Many of these near- and long-term strategies incorporate suggestions by the public presented during the Citizens Task Force deliberations as well as best practices from utilities around the nation. Cost-benefit analyses of the effectiveness of many of the identified measures within the Austin community have not been performed. Performing such analyses is an important next step in developing an action plan for accelerating water conservation in the community. The suite of all strategies identified by the Citizens Task Force is presented in Appendix One to this report.

Of the newly identified near-term strategies to achieve water use reductions, some focus on existing customers and some for new development. Strategies that require additional research and time for implementation were also identified. Further, some of the strategies offer potential methods for increasing awareness, providing long-term funding for a long-term conservation effort or other non-quantifiable approaches for effecting conservation. The Citizens Task Force felt it was important to prioritize identified strategies that it would recommend for additional analysis and inclusion in an action plan.

Using a method generally based on the American Water Works Association guidelines in Manual 52, a Citizens Task Force and liaison sub-committee prioritized those measures with potential quantifiable savings. The process included the following steps:

- 1) Identify potential water conservation strategies and measures
- 2) Develop screening criteria for prioritizing measures
- 3) Prepare list of potential conservation measures for further analysis to be prioritized
- 4) Screen measures

Criteria Used to Prioritize Measures for Further Analysis

The Citizens Task Force established criteria for use in prioritizing measures recommended for further analysis (e.g., technical, financial, and marketability). Because thorough analysis has not yet been conducted regarding projected savings and costs per measure, the rankings were based on qualitative assessment and ranking of the criteria based on knowledge from other systems, Texas Water Development Board savings estimates and other sources. A more thorough analysis for applicability to the Austin community is warranted.

During the screening process, each measure was ranked from 1 (low) to 5 (high) for each criterion by Citizens Task Force sub-committee members and staff, respectively. Those with the highest average within the respective categories were generally considered to be those having a higher priority for additional analysis. We used the ranking as a general guide to help us sort the strategies, not as a strict determinant of those ultimately prioritized for additional study.

The following criteria were applied by a sub-committee of Citizens Task Force members based on their knowledge and expertise. Survey instruments or other quantitative methods were not used.

Service Area Match — Is the measure a “good fit” with the Austin community considering the utility’s customer profile documented in the 2009 Conservation Plan submitted to the Texas Commission on Environment Quality, saturation level of the measure and whether or not the measure is quickly scalable.

End-user/Public Acceptability – Will the end-user and/or the public be willing to implement the measures? What penetration rate is expected? Are measures equitable--will all categories of customers receive or even be interested in benefits?

Customer ability to implement – How feasible will it be for Austin Water Utility customers (existing or new industrial, commercial, institutional, residential customers) to implement the measure? Factors could include timing to resolve legal, financial, or perceived political impediments.

The following criteria were applied by staff based on limited research as well as their knowledge and expertise. The rankings compared various measures against each other on a relative basis and should be considered a qualitative assessment; a quantitative assessment is recommended.

Cost-Effectiveness - What is the relative estimated cost of implementation versus estimated savings on a unit basis? Consideration was given to costs to the City relatively among measures rather than total absolute cost for each measure.

Technology/ Market Maturity – Is the technology available commercially and supported by the local vendors and service industry?

Certainty of Water Savings – How reliably does the measure save water? Consideration factors included reliability of the device, required behavior change, and ability to measure savings.

Potential Magnitude of Water Savings – How much water could potentially be saved within the City’s service area over time?

First and second tier strategies in the following sections reflect the results of the prioritization within categories; however, the categories themselves were not prioritized.

Quantifiable Strategies for Further Analysis

The ranking process resulted in approximately 25 measures being recommended in the “first tier” for further analysis. Priority measures identified herein as “second tier priorities” also merit assessment to determine their utility in the recommended 10-year conservation action plan. We believe that this portfolio includes a healthy mix of measures that can reduce water use by existing customers immediately and those designed to reduce water use by future customers over the long-term.

Outdoor Water Use for Existing Customers

Outdoor watering is the largest discretionary use of water and presents the greatest opportunity for reducing both overall and peak water use (see illustration of time-of-year use pattern in Appendix Two).

Savings from conservation efforts aimed at outdoor use, however, are not as certain as programs such as toilet retrofits because of the extent to which behavior patterns and weather drive such use. Nonetheless, strategies designed to increase water efficiency and reduce use for outdoor purposes should be a high priority. Measures such as those listed below that can be quantified must be coupled with public information and education to be effective.

First Tier Strategies

- O-EC-1 Extend the “no more than twice a week” watering schedule to be year-round, not just during the summer months. As with the current ordinance, exceptions may be granted in some cases.
- O-EC-2 Improve the follow-up to irrigation audits to achieve maximum savings from changed irrigation behaviors and equipment/system and landscape retrofits. Proactively encourage voluntary audits for high water users.
- O-EC-3 Simplify existing rebate programs; suggested changes include 1) combining rainwater harvesting and rain barrel programs into one capacity-based incentive; 2) combining commercial rebates and removing the minimum savings threshold; and 3) restructuring irrigation rebates to incorporate all components, to encourage the use of efficient technologies and practices.
- O-EC-4 Include pool inspections in irrigation audits.
- O-EC-5 Improve enforcement procedures for water-waste violations. Offer water-waste prevention classes or conservation education in some cases.
- O-EC-6 Encourage use of reclaimed water for irrigation on residential lots and commercial properties where reclaimed water is reasonably accessible.

Second Tier Strategies

- O-EC-7 Provide incentives for use of graywater and sub-surface irrigation methods.

Outdoor Water Use for New Construction

With the Austin-area, the population is projected to double within 50 years (as projected in the 2006 Region K Water Plan), thus strategies and policies to increase efficiency for new development are crucial to effecting long-term savings. The following strategies are recommended for additional analysis in this category.

First Tier Strategies

- O-NC-1 Amend the Plumbing Code so that condensate from air conditioning may be beneficially used in new residential and Institutional, Commercial, and Industrial (ICI) construction. (Current code requires discharge into the sewer system and prohibits beneficial reuse).

- O-NC-2 Utility service extension requests should trigger assessment of opportunities for potential on-site water reuse and other methods to reduce water demand (e.g. Low Impact Development site design strategies) and the potential for extension of reclaimed water systems to new development.
- O-NC-3 Criteria to grade and certify the water-efficiency of new development and construction should be developed for use either within Austin’s Green Builder Program or a similar program focused on sustainable water management. While the Green Builder Program does address water conservation to an extent, it does not sufficiently emphasize water conservation.
- O-NC-4 Site plans should include on-site water management strategies to increase efficiency and reuse water when possible. Training should be provided for utility, planning, building/site plan review, and inspection staffs on efficient on-site water use practices, so that such practices can be broadly encouraged for new development, even if not required by code.
- O-NC-5 Adopt an irrigation landscape ordinance that would limit the amount of landscape watered by an automatic irrigation system to 2.5 times the square footage of the footprint of the new home.

Second Tier Strategies

None for this category.

Industrial, Commercial and Institutional (ICI) Water Use

Commercial customers such as offices, retail activities and service industry businesses use approximately 28 percent of water sold by AWU (see Appendix Two). Another 7 percent of consumption is used by industrial customers (mainly in semiconductor facilities). Within the industrial class, the top 5 customers consume about 80 percent of the water sold on average. These use trends suggest a high potential for water savings for these customer classes.

First Tier Strategies

- ICI-1 Provide and strategically market comprehensive retrofit packages to institutions such as universities with residential campuses, K-12 schools, and hospitals. Incentive packages should include toilets, showers, faucets, kitchen facilities, cooling systems, athletic fields, etc. Where appropriate, schools and other institutional users should be encouraged to use reclaimed water for outdoor and other non-potable uses.
- ICI-2 Provide and strategically implement incentive packages for high water-use commercial activities. The incentive packages could include rebates, turn-key installation of water-efficient fixtures and appliances, or other distribution mechanisms. Examples of such programs include:
 - Hotel program (toilets, showers, faucets, laundry facilities, kitchens, cooling systems, and practices such as request-only laundering of towels and sheets)

- Restaurant program (dish-washing spray valves, ice-makers, toilets, faucets, and practices such as water service only upon request)

ICI-3 Review and amend, as required, the plumbing and building codes for existing conservation requirements for ICI customers (e.g., pre-rinse spray valves, air-cooled ice machines, and cooling tower audits) to ensure that codes specify up-to-date, water-efficient technology.

Second Tier Strategies

The ranking process identified other measure that are important to the ICI program, such as developing partnerships with other water providers and strengthening the outreach program; however, these are not well-suited for quantitative analysis (see Appendix One for all strategies).

Indoor Residential Water Use

Conservation measures for indoor water use can be highly effective due to the relative ease of installing water-efficient fixtures that require no further thought or effort on the part of the residents. If, in addition, household members are aware of their water consumption and committed to the idea that water is a valuable resource that should be conserved, residential use efficiency may be substantially increased.

First Tier Strategies

IR-1 Continue existing incentive programs for residential water users (e.g. rebates or direct install), adjusting these as necessary to increase effectiveness and match “market” conditions.

IR-2 Provide and promote interior home water audits in conjunction with outdoor audits to analyze residents’ current indoor water use and help them find ways to reduce waste, such as by repairing leaks. Continue to partner with Austin Energy to conduct water and energy use audits as a package. In addition to on-site audits, develop an on-line water use calculator so that residents can self-perform an audit.

IR-3 Require (to the extent allowed by law) that sub-metered multi-family residences actually bill their residents based for the metered water use. (Based on the 2007 Recommendations, Austin City Code was amended to require new units to sub-meter; however, the code does not require individual billing.)

Second Tier Strategies

The ranking process identified other measure that are important to the indoor water conservation such as developing a conservation-based “welcome” packet for new customers and supporting programs with strong customer information and education; however, these are not well-suited for quantitative analysis (see Appendix One for all strategies).

Infrastructure and Facility Management

Water loss for AWU is currently estimated to be about 10.81 percent. Some portion of that estimate can probably be attributed to inaccurate water use data; none-the-less, water loss is a legitimate concern. AWU is actively working to improve its data collection and analysis as well as leak detection and repair; those efforts should be continued. Additionally, the City uses slightly less than 2 percent of the water sold by AWU. Reducing water consumption in these two categories is within the City's control.

First Tier Strategies

- IFM-1 In future contracts or contract amendments, include enforceable provisions that require wholesale customers to enact conservation programs that are at least as robust as the City of Austin's program. Require annual system audits and aggressive leak detection programs. In the interim consider providing incentives to retail customers within wholesale customer service area. (This expands the 2007 Recommendation).
- IFM-2 Repairing leaks and replacing aging infrastructure should remain a priority in the Capital Improvement Plan.
- IFM-3 The Parks and Recreation Department should implement a robust conservation program for all its water use, including raw water use. Replacement or upgrades of irrigation systems, adherence to city-wide watering schedules, and repair of swimming pool leaks should be a priority.
- IFM-4 Implement a multi-year "smart meter" change-out program to replace conventional meters with those that provide real-time water use data. A pilot project could be implemented to provide data for cost-benefit evaluation prior to system-wide installation.
- IFM-5 Retrofit all city facilities with efficient plumbing fixtures and appliances; install drought-tolerant landscapes and efficient irrigation systems. Consider adopting an internal goal of reducing city use by 2 % per year through 2020. Use city facilities as demonstration sites. COA should post conservation-minded signage in its facilities. (This expands the 2007 Recommendation.)

Second Tier Strategies

None identified for this category.

Reclaimed Water Use

The Citizens Task Force supports expansion of the reclaimed water system. We believe it is important to note that use of reclaimed water does not necessarily result in all of the benefits realized by increased water use efficiency. For instance, distribution of reclaimed water via its own distribution system still entails significant use of energy. We encourage effective conservation plans for reclaimed water users.

First Tier Strategies

- RU-1 Require reuse and reclaimed water users to follow efficiency and conservation standards to avoid waste of this resource. The Water Conservation Ordinance should include benefits for non-potable water users during drought.

- RU-2 Incorporate reclaimed water service into service delivery plans and projects to extend the City’s water and wastewater system for new development such as along SH 130. Examples of methods for achieving this include:
 - Provide for residential use of reclaimed water, especially for new development, as a significant element of the Reclaimed Water Master Plan. Consider impact fee credits for developers who construct or oversize reclaimed water lines.
 - Provide incentives for use of reclaimed water for toilet-flushing and other non-potable uses for new commercial development close to reclaimed water lines.

- RU-3 Develop a stronger marketing program and actively solicit existing utility customers that could use reclaimed water for industrial processes, cooling, irrigation, car washing, or other non-potable uses.

Second Tier Strategies

None identified for this category.

Non-Quantifiable Strategies Recommended by the Citizens Task Force

The previous section addresses proposed strategies expected to produce quantifiable water savings. This section lists other high priority strategies identified by the Citizens Task Force. They include measures that, while clearly important to a successful conservation program, may not yield directly measurable water savings. As previously stated, the measures presented here are thought to be the most critical. Additionally a complete list of strategies identified by the Citizens Task Force is included in Appendix One.

Public Information, Education and Outreach

- POE-1 Implement a strategic marketing program designed to reach all water users. Key elements should include focus groups, strong visual brands for water conservation materials, workshops for specific sectors of end-users, a proactive speaker’s bureau, a variety of media to reach different users, and simple, consistent messages that are a call to action.

- POE-2 Support water conservation programs with compelling customer information and education. Enable customers to easily access data about their water use in their bills and online (for example, a water use graphing tool like Austin Energy’s). Equally important is providing a context for that

4.0: RECOMMENDED PRIORITY IMPLEMENTATION STRATEGIES

data, i.e. whether their use is large, how it compares with an “average” residence, what a target use would be (140 gpcd), etc.

Second Tier Strategies

- POE-3 Train 3-1-1 staff, any customer service staff, and all other city employees having public contact about conservation programs, drought management stages, triggers, and curtailment measures; and reuse projects. Further, provide timely and frequent information about water management and water conservation strategies available within the City of Austin to city employees for dissemination.
- POE-4 Develop sample water budgets (or comparisons to average users) for residential users and establish goals for conservation and drought reductions for individual customers. This information should be simple to understand and communicated on customer bills.
- POE-5 Leverage technology to provide information on water management and conservation, e.g. email subscription service for appropriate landscape watering based on current weather and evapotranspiration conditions, or information kiosks in key locations and accessible by customers that provide program information and links to related sites.
- POE-6 Increase public awareness of drought triggers and implications of lake levels through partnering with the Austin American Statesman and other media. Awareness should include both actual triggers (i.e., lake level or storage) and percent water in storage in the reservoirs. Strong visual cues such as lake level hydrographs (i.e., standard graphics used by various media) should be included in this awareness campaign as well as specific curtailment measures. This will become increasingly important over time as water diversions from the regional water supply reservoir system grow to meet the needs of a growing population.
- POE-7 Partner with other city departments (e.g. Watershed Protection, Austin Energy, and Solid Waste Recycling) that focus on sustainability issues to create a cohesive information and outreach program that provides factual information and a call to action. Leverage various funding sources (including donations from private businesses) for a stronger, more effective information campaign.
- POE-13 Partner with educational and resource management institutions to develop a comprehensive education program that addresses water resources, water quality protection, water conservation and related issues. Comprehensive education programs should leverage funding from other departments and funds (e.g., Austin Energy and Watershed Protection Department) and could address the water-energy-greenhouse gas nexus.

Addressing Impediments to Conservation

First Tier Strategies

- IMP-1 Engage a third party to review city code and procedures to ensure that the best practices in water conservation are incorporated into development codes and criteria manuals, watershed protection regulations, building codes, construction practices, and facilities operations. Review should include, but not be limited to:
- Examine objectives and results of the local plumbing code to ensure that requirements protect public safety, but are not serving as a disincentive to conservation.
 - Review stormwater management provisions in the development code to ensure environmental and water quality protection is achieved, but avoid incentives that preclude beneficial uses for stormwater that maintain public health standards.

Second Tier Strategies

- IMP-8 Support state legislation that would require TCEQ to simplify rules regarding homeowner use of graywater. [In Texas, discharged water from washing machines is the only graywater allowed to be used without going through an on-site sewage facility. While 30 Texas Administrative Code Chapter 317 was amended in 2003 to allow other uses, some requirements are difficult to implement, appear to be without justification and prevent many developers and existing homeowners from using graywater.]
- IMP-9 Explore legislation that would require graywater connections (i.e., pre-plumbed “stub-outs.” or graywater collection plumbing which dead ends at a cap) for new single-family and duplex construction.

Funding and Financial Issues

First Tier Strategies

- F-1 Continue to investigate other water rate structures that foster change in water use habits through pricing incentives (e.g., “base-excess use” billing, seasonal surcharges, budget-based billing, or higher rates for outdoor use measured with irrigation-only meters.)
- F-2 Design future rate structures to ensure that conservation and affordability considerations are incorporated.
- F-5 Set aside an established percentage of highest residential rate tier revenues, and consider assessing a modest monthly fee based on meter-size for non-residential customers, to fund conservation programs.
- F-6 Rather than assessing impact fees for second “irrigation only” meters to recover costs of off-site system capacity, develop capital recovery fees for recouping the costs of meter and installation.

- F-12 Develop a formula for investment levels for conservation programs and use this as a criterion for assessing cost-effectiveness of conservation rebates and incentives. For example, a conservation program would be considered a good investment if it cost less on a unit basis (i.e., mgd or acre-feet per year) than the cost of new water under the contract with LCRA plus cost avoidance for future capital and operations costs for drinking and wastewater treatment and monetized savings for greenhouse gas emissions. Once developed, the formula and cost-basis should be periodically updated. Programs should be compared against this “price-point” and the cost-effectiveness widely communicated.

Second Tier Strategies

- F-3 Incorporate “smart meter” technology so that people can have a better idea of their water use and current charges throughout the month. Such metering systems may also facilitate time-of-day billing strategies in the future.
- F-4 Investigate a secondary rate structure for irrigation-only and second meters serving a single property.

5.0: Next Steps

Conservation is a long-term investment. As with other investments, some actions can be taken right away and others require additional deliberation and analysis. This document is a framework for achieving our vision that Austin will become a leader in sustainable water management practices that conserve water, not a prescriptive list of strategies to be implemented. The Citizens Task Force expects that these identified and prioritized strategies will be further analyzed by staff from throughout the City and used as a basis for a 10-year action plan with a strong technical and business focus.

Recommended next steps include:

- AWU and other city departments should consider these recommendations during fiscal year 2010-2011 and request funding for some strategies that can be implemented right away.
- AWU should accelerate its focus on data collection and analysis.
- AWU should continue to analyze the quantifiable strategies as soon as practical, engaging other city departments as necessary.
- Staff should develop a 10-year action plan (business plan) that identifies strategies and measures for implementation. The plan should include an implementation schedule, identify the City department(s) responsible for implementation, and provide estimated water savings (near and long-term) and estimated costs.
- The 10-year action should be recognized as a living document that can change as the population, customer profiles, and technology changes, and as program results are analyzed. It should be periodically updated.
- The proposed staff action plan should be presented and reviewed by the Citizens Task Force during the latter part of 2010 so that the strategies can be incorporated into the 2011-2012 budget process.

Appendix One: All Identified Goals and Strategies

Outdoor Conservation Strategies

Objectives

1. Establish outdoor water use strategies that encourage native landscapes that are sustainable with on-site water management practices and use non-potable water.
2. Provide information, education, and incentives that promote the use of drought-resistant plant materials.
3. All irrigation systems must be water-efficient.
4. Outdoor water use should be measurable or identified through comparison with winter indoor use and summer peak use. This data can be used to educate customers about their outdoor water use and provide critical information for drought management strategies.
5. Foster changes in water use habits through pricing structure such as base-excess use rate structures or higher rates for outdoor watering measured with separate meters for outdoor use.

Objectives and strategies in this report are numbered for reference only and do not necessarily imply a priority ranking.

Strategies for Existing Residential and Commercial Sites

Near-term (0-5 years)

- O-EC-1 Extend the “no more than twice a week” watering schedule to be year-round, not just during the summer months. As with the current ordinance, exceptions may be granted in some cases.
- O-EC-2 Improve the follow-up to irrigation audits to achieve maximum savings from changed irrigation behaviors and equipment/system and landscape retrofits. Proactively encourage voluntary audits for high water users.
- O-EC-3 Simplify existing rebate programs; suggested changes include 1) combining rainwater harvesting and rain barrel programs into one capacity-based incentive; 2) combining commercial rebates and removing the minimum savings threshold; and 3) restructuring irrigation rebates to incorporate all components, to encourage the use of efficient technologies and practices.
- O-EC-4 Include pool inspections in irrigation audits.

- O-EC-5 Improve enforcement procedures for water waste violations. Offer water waste prevention classes or conservation education in some cases.
- O-EC-6 Encourage use of reclaimed water for irrigation on residential lots and commercial properties where reclaimed water is reasonably accessible.
- O-EC-7 Provide incentives for use of graywater and sub-surface irrigation methods.
- O-EC-8 Continue to evaluate water rates that drive conservation as related to outdoor water use (e.g. “base-excess use” billing; seasonal surcharges’ budget-based billing)
- O-EC-9 Incent installation and use of irrigation controllers that are interruptible and can be monitored in real time.
- O-EC-10 Use Master Gardeners, garden clubs, and similar organizations to assist with irrigation audits, landscaping workshops, and other informational/educational programs.

Strategies for Existing Commercial Sites

Near-term (0-5 years)

- O-EC-11 Provide incentives (rebates) for existing ICI customers to beneficially use air conditioning condensate and to capture and reuse appropriate-quality process water for irrigation or other non-potable uses.

Strategies for New Construction of Residential and/or Commercial Sites

Near-term (0-5 years)

- O-NC-1 Amend the Plumbing Code so that condensate for air conditioning may be beneficially used in new residential and Institutional, Commercial and Industrial (ICI) construction. (Current code requires discharge into the sewer system and prohibits beneficial reuse).
- O-NC-2 Utility service extension requests should trigger assessment of opportunities for potential on-site water reuse and other methods to reduce water demand (e.g. Low Impact Development site design strategies) and the potential for extension of reclaimed water systems to new development.
- O-NC-3 Criteria to grade and certify the water-efficiency of new development and construction should be developed for use either within Austin’s Green Builder Program or a similar program focused on sustainable water management. While the Green Builder Program addresses water conservation, it does not sufficiently emphasize overall water management.
- O-NC-4 Site plans should include on-site water management strategies to increase efficiency and reuse water when possible. Training should be provided for utility, planning, building/site plan review, and inspection staffs on efficient on-site water use practices, so that such practices can be broadly encouraged for new development, even if not required by code.

- O-NC-5 Adopt an irrigation landscape ordinance that would limit the amount of landscape watered by an automatic irrigation system to 2.5 times the square footage of the footprint of the new home.
- O-NC-6 Develop Planned Unit Development ordinance measures that provide incentives for efficient overall water use, including water-sensitive design, use of water treated appropriately for its use, and below-average per capita water use. Investigate tying incentives to achieving efficient water systems for proposed use.
- O-NC-7 Amend the Land Development Code to modify the requirement that commercial properties install an irrigation system. Review the code with respect to landscaping and irrigation of medians. Changes should balance aesthetic landscaping goals with water conservation goals.
- O-NC-8 Consider a tiered landscape rebate program which encourages landscape design that incorporates water efficient practices such as a) preserving native landscapes that require no or minimal irrigation; b) incorporating soil amendments, zoned irrigation systems, use of permeable hardscapes, and/or appropriate plant material for this region; c) addressing existing customers as well as new development (possibly with rebates to developer or new home-owner or some combination). Couple this with training on appropriate irrigation and landscaping practices.
- O-NC-9 Require separate irrigation meters for new ICI construction. This may require amending the impact fee program so that separate irrigation meters do not constitute a separate connection.
- O-NC-10 Partner with a developer to design and construct a “model” water-efficient subdivision which may include decentralized wastewater treatment and reuse infrastructure.
- O-NC-11 Sponsor landscape design contests, develop demonstration projects, and encourage “parade of homes” and other showcases to promote state-of-the-art water conservation features inside and outside the home.
- O-NC-12 Amend the Land Development Code to encourage the “land sponge” concept, whereby site planning and grading are designed to allow infiltration of stormwater that would otherwise run off a site. This practice lowers irrigation demand, recharges local aquifers and evens out the boom-bust cycle of storm water flow into creeks, reducing impact on receiving streams both in volume and quality of storm water.
- O-NC-13 Research opportunities to promote efficient irrigation systems and irrigation technologies. Those systems with verifiable savings could be provided incentives such as exemptions or variances from the weekly watering schedule.

Long-term (5-25 years)

- O-NC-14 Research and evaluate advantages and disadvantages of and appropriate design standards for limiting irrigated areas in new commercial construction, unless

graywater, reclaimed water, or rainwater is used. (e.g., Establish regulations on allowable ratios of irrigated area to building footprint size.)

- O-NC-15 Consider amending development codes and utility infrastructure expansion to require decentralized infrastructure where appropriate. (e.g., decentralized wastewater treatment and reuse.)
- O-NC-16 Develop a water allocation system through water budget-based billing.
- O-NC-17 Encourage installation of rainwater harvesting systems for outside irrigation at new homes and commercial properties if such installations are determined to be cost-effective in light of storage requirements to meet summer irrigation demands.
- O-NC-18 Consider requiring use of Low Impact Development techniques in use of stormwater and rainwater for irrigation. While consistent with the guiding principles and goal to reduce potable use, the Citizens Task Force believes that these alternative sources of water should also be used efficiently.

Industrial, Commercial and Institutional (ICI) Conservation Strategies

Objectives

1. Increase water use efficiency of the highest water-using industrial customers
2. Increase over-all water use efficiency of all ICI customers through implementation of cost-effective incentives and policies

Strategies

- ICI-1 Provide and strategically market comprehensive retrofit packages to institutions such as universities with residential campuses, K-12 schools, and hospitals. Incentive packages should include toilets, showers, faucets, kitchen facilities, cooling systems, athletic fields, etc. Where available, schools and other institutional users should be encouraged to use reclaimed water for outdoor and other non-potable uses.
- ICI-2 Provide and strategically implement incentive packages for high water-use commercial activities. The incentive packages could include rebates, turn-key installation of water-efficient fixtures and appliances, or other distribution mechanisms. Examples of such programs include:
- Hotel program (toilets, showers, faucets, laundry facilities, kitchens, cooling systems, and practices such as laundering of towels and sheets upon request)
 - Restaurant program (dish-washing spray valves, ice-makers, toilets, faucets, and practices such as water service only upon request)
- ICI-3 Review and amend, as required, the plumbing and building codes for existing conservation requirements for ICI customers (e.g., pre-rinse spray valves, air-cooled

ice machines, and cooling tower audits) to ensure that codes specify up-to-date, water-efficient technology.

- ICI-4 Work with ICI customers to explore modifications of the rebate/incentive package to maximize participation while maintaining accountability. Potential modifications include:
- Increasing the per-project rebate cap from \$100,000 and including installation/labor to encourage broader participation in water-saving retrofits.
 - Issue some percentage of the rebate (either as a credit on their water bill or via direct check) at the time of installation and some pre-designated amount each year based on actual savings performance.
 - Remove the 300 gallon per-day minimum savings requirement.
- ICI-5 Develop a partnership of large users and AWU ICI staff to keep lines of communication open and to identify opportunities for conservation projects.
- ICI-6 Key account representatives involved in outreach to ICI customers should prioritize water conservation measures, such as water use audits, on par with energy conservation outreach. Additionally, when applicable, such measures available from other organizations such as the Lower Colorado River Authority should be bundled to increase attractiveness to businesses.
- ICI-7 Identify impediments in code that impact water conservation for ICI customers (e.g., requirement to dispose of air conditioner condensate in the sewer collection system).
- ICI-8 Provide industry-specific training workshops for “big ticket” water savings opportunities, such as cooling towers, landscape management, etc.
- ICI-9 Develop and/or more broadly distribute a manual for ICI customers on structural changes and water management practices that can be implemented to save water and lower water and sewer bills. Work with industry groups to provide information to ICI customers on water saving technologies, practices, and incentive programs available.
- ICI-10 Fund staff involvement with trade groups to provide a venue for outreach to ICI customers regarding the importance of conservation and the existence of programs and requirements, and for adjusting programs to better meet requirements of businesses in Austin.
- ICI-11 Consider businesses as partners in achieving water savings.
- ICI-12 Promote an ordinance that would require new facilities larger than 10,000 square feet of gross space to have water efficiency features such as rainwater harvesting for irrigation, or air conditioning condensate recovery to cooling towers.
- ICI-13 Promote an ordinance that would require new facilities with air conditioning systems larger than 400 tons to recover air conditioning condensate for beneficial reuse.

Indoor Residential Conservation Strategies

Objectives

1. Foster change in indoor water use attitudes through education, incentives, and policies.
2. Implement development codes, policies, incentive programs, and education that encourage efficient water use inside the single-family and multi-family homes. New codes should all consider affordable housing issues.
3. Design conservation programs (e.g. distribution of low-flow fixtures and appliances and/or rebates) to serve every sector of AWU's customer base. Aggressively promote toilet and water-saving fixture replacement to all sectors.
4. Provide incentives to new large scale residential or mixed use developments to offset their water use (net zero water development or water-neutral developments).

Strategies for Existing Residential Buildings

Near-term (0-5 years)

- IR-1 Continue existing incentive programs for residential water users (e.g. rebates or direct install), adjusting them as necessary to increase effectiveness and match "market" conditions.
- IR-2 Provide and promote interior home water audits in conjunction with outdoor audits to analyze residents' current indoor water use and help them find ways to reduce waste, such as by repairing leaks. Continue to partner with Austin Energy to conduct water and energy use audits as a package. In addition to on-site audits, develop an on-line water-use calculator so that residents can self-perform an audit.
- IR-3 Require (to the extent allowed by law) that sub-metered multi-family residences actually bill their residents based for the metered water use. (Based on the 2007 Recommendations, Austin City Code was amended to require new units to sub-meter; however, the code does not require individual billing.)
- IR-4 Support measurable water conservation programs with strong customer information and education. Enable customers to easily access data about their water use in their bills and online (for example, a graphing tool like Austin Energy's).
- IR-5 Develop and provide a conservation information "welcome" packet for all new utility customers.
- IR-6 Retrofit homes having high-flow fixtures with low flow fixtures, such as showerheads and faucet aerators, as part of free-toilet installation or on-site audits.
- IR-7 Develop an incentive or distribution program for soap-up valves (i.e., valves or toggle switches that stop water flow in showers without turning water off) and pipe insulation.

- IR-8 Require water use audits at time of home sale or water utility account change. Couple the audit with a rebate package that provides rebates to replace fixtures, appliances, or irrigation systems indicated in the audit. Seek to work with state-certified inspectors to conduct audits.
- IR-9 Develop an operational plan (including specifications and design standards) to consider how citizens and builders might safely utilize graywater or rainwater for non-potable applications including toilet flushing and irrigation.
- IR-10 Provide rebates for systems that reduce water-waste in producing hot water (such as instant or point-of-use hot water devices). Some water heaters (e.g., whole house circulating systems that do not use timers and so run continuously) consume large amounts of energy; therefore, only water heaters that are both water and energy efficient should be covered by the rebate. The Citizens Task Force recommends further analysis to determine which technologies meet the goals of saving water and energy before incentives are provided for water heaters.
- IR-11 Promote insulation of hot water pipes through rebates or direct installation for existing homes.

Long-term (5-25 years)

- IR-12 Continue to examine water uses inside the home and adjust retrofit and rebate programs over time.
- IR-13 Consider “smart meters” that use telemetry to provide real time information to consumers on water use. Such a system could also be used by the utility to identify and find leaks. This system would also provide data for seasonal rates/ time of day billing, more sophisticated water budgeting, and historical and other water consumption information for monthly customer billing.
- IR-14 In cases of shared billing (duplexes, apartment buildings) where individual residences are not metered, estimate a water budget based on occupancy and reasonable water use. Target customers with high water use with an audit campaign to look at outdoor and indoor conservation measures. [Note: this may apply to all residential uses and not just indoor water use.]

Infrastructure and Facilities Management Strategies

Objectives

1. Reduce system losses in the treatment and distribution system to 8 percent by 2020.
2. Incorporate water use best practices and efficient design in all city facilities

Strategies

- IFM-1 In future contracts or contract amendments, include enforceable provisions that require wholesale customers to enact conservation programs that are at least as robust as the City of Austin’s program. Require annual system audits and aggressive leak detection programs. In the interim consider providing incentives to

- retail customers within wholesale customer service area. (This expands the 2007 Recommendation).
- IFM-2 Repairing leaks and replacing aging infrastructure should remain a priority in the Capital Improvement Plan.
- IFM-3 The Parks and Recreation Department should implement a robust conservation program for all its water use, including raw water use. Replacement or upgrades of irrigation systems, adherence to city-wide watering schedules, and repair of swimming pool leaks should be a priority. Place conservation-minded signage in all city facilities.
- IFM-4 Implement a multi-year “smart meter” change-out program to replace conventional meters with those that provide real-time water use data. A pilot project could be implemented to provide data for cost-benefit evaluation prior to system-wide installation.
- IFM-5 Retrofit all city facilities with efficient plumbing fixtures and appliances; install drought-tolerant landscapes and efficient irrigation systems. Consider adopting internal goal of reducing city use by 2 % per year through 2020. Use city facilities as demonstration sites. COA should post conservation-minded signage in its facilities. (This expands the 2007 Recommendation.)
- IFM-6 Continue the aggressive large-meter certification (re-calibration) program.
- IFM-7 A raw water rate structure that encourages conservation should be implemented (e.g. for the Parks and Recreation Department).
- IFM-8 City should use reuse water at its facilities where feasible (e.g., fleet washing, airplane washing, cooling tower make-up, and irrigation).
- IFM-9 Install flow meters and measure pressure at interim locations where appropriate throughout the water distribution system to assist with finding leaks.
- IFM-10 Revisit design specifications (e.g. HDPE pipe for distribution systems) for water-loss savings opportunities. Consider mechanically restrained pipe joints on new transmission and distribution mains.
- IFM-11 Conduct a long-term study to look at how we treat and distribute water to neighborhoods. (e.g., consider decentralization of some treatment facilities and the feasibility of distributing partially treated water to all homes so that only consumed water would be treated by on-site small scale treatment mechanisms).

Reclaimed Water

The Citizens Task Force strongly supports expansion of the reclaimed water system (i.e., direct reuse program) to supply non-potable water for non-potable uses. While recognizing that the water quality of non-potable sources such as reclaimed water, stormwater, graywater, and others may impact the volume needed for a particular purpose, the mere use of non-potable water does not necessarily mean that it is used efficiently. The Citizens Task Force wishes to

emphasize that it is just as important from a resource management perspective to employ water-efficient practices when alternative sources are used.

Objectives

1. Maximize use of non-potable water for non-potable needs and where feasible, match the quality of water supplied to the water needed by end users.
2. Maximize direct reuse for non-potable needs while balancing environmental concerns (e.g., energy use, environmental flows, and protection of the recharge zone), costs (e.g., dollars, energy, and time), and regulatory constraints.
3. Accelerate the current “build out” plan for the direct reuse system to provide so that the estimated delivery of approximately 21,096 acre-feet per year of reclaimed water occurs prior to 2050. The goal set should be achievable and quantified so that progress can be evaluated.

Strategies

- RU-1 Require reuse and reclaimed water users to follow efficiency and conservation standards to avoid waste of this resource. The Water Conservation Ordinance should include benefits for non-potable water users during drought.
- RU-2 Incorporate reclaimed water service into service delivery plans and projects to extend the City’s water and wastewater system for new development such as along SH 130. Examples of methods for achieving this include:
- Provide for residential use of reclaimed water, especially for new development, as a significant element of the Reclaimed Water Master Plan. Consider impact fee credits for developers who construct or oversize reclaimed water lines.
 - Provide incentives for use of reclaimed water for toilet-flushing and other non-potable uses for new commercial development close to reclaimed water lines.
- RU-3 Develop a stronger marketing program and actively solicit existing utility customers that could use reclaimed water for industrial processes, cooling, irrigation, car washing, or other non-potable uses.
- RU-4 Give a higher priority to the expansion of the reuse system in capital funding plans.
- RU-5 Investigate the feasibility of satellite treatment plants for reuse water (these are not conventional wastewater treatment “package” plants) to serve areas for which construction of reuse transmission mains is not cost-efficient. The Texas Commission on Environmental Quality recently considered rules to allow systems with §210 TAC 30 reuse authorizations and permitted waste-water treatment plants to construct and operate such plants without additional and expensive permitting process.

- RU-6 Implement a public communication program that would include a treated waste water quality “consumer confidence report” similar to that required for drinking water. Such information could allay concerns regarding water quality issues and demonstrate the benefits of using reclaimed water. (The focus of this strategy is on the general public to encourage acceptance of reclaimed water use on sports fields and, over the long-term, residential use via dual distribution systems.)

Public Outreach and Education

Education lays the foundation for active water conservation in the community. While quantifying measurable savings resulting from public information, education, and outreach is difficult, the importance of education programs is critical for successful and sustained water conservation. Outcomes of such programs include a broad awareness of the reasons to conserve as well as specific actions that individuals and businesses can take to wisely use our water supply.

Other metrics can be developed and used to gauge the success of such programs, including measurements such as number of attendees at workshops, “before and after” surveys to assess degree to which awareness or behavior has changed, number of school children participating in activities or festivals, and other metrics commonly used in marketing or education.

Objectives

1. Implement a long-term education campaign that promotes water conservation as a core value for the city of Austin.
2. Expand information and outreach efforts to include audiences that may not have a high awareness of water conservation, but who have a high impact on water use.
3. Provide visible feedback to consumers about water supply, including a campaign to communicate drought triggers (e.g., lake levels and percent of stored water available) to all residents.
4. Provide educational materials about water resources and water conservation to students of all ages, from pre-school to college level.
5. Provide general information about Austin’s water supply, conservation, and reuse/reclaimed water as well as incorporating a marketing budget in all conservation programs, including reuse.
6. Ensure continued funding for water conservation education and communication to ensure consistent messaging and levels of investment regardless of water availability and weather conditions (i.e., long-term conservation effectiveness requires focus even during rainy years.)
7. Develop quantifiable metrics such as number of persons reached to track results of the investment in public information, education, and outreach.
8. Engage community groups to participate in education of end-users.

Strategies

Public Information and Outreach

- POE-1 Implement a strategic marketing program designed to reach all water users. Key elements should include:
- Focus groups to gauge public awareness and messaging;
 - Strong visual “brands” for water conservation materials;
 - Workshops and tailored materials for specific sectors of end-users and service providers, such as cooling tower operators/vendors, golf course irrigation managers, commercial laundries, large irrigation users, landscapers, plumbers, etc.;
 - Learning from successful education campaigns such as the Komen Foundation, Livestrong, or stormwater protection labels;
 - A pro-active speaker’s bureau to present key messages to key markets (e.g., focus on landscape/irrigation conservation in neighborhoods with large summer outdoor peaks, focus on the HELP and other programs in low-income neighborhoods; focus on commercial and ICI incentives and requirements for business and trade groups.) Program should include speaker training for AWU staff as well as other city staff to expand the knowledge base and the available pool of speakers;
 - A variety of media to reach different demographic market segments should be used, such as print, radio, television, email, social networks, neighborhood newsletters, church bulletins, etc.;
 - Messages should be simple, consistent, and include a compelling call to action.
- POE-2 Support water conservation programs with compelling customer information and education. Enable customers to easily access data about their water use in their bills and online (for example, a water use graphing tool like Austin Energy’s). Equally important is providing a context for that data, i.e. whether their use is large, how it compares with an “average” residence, what a target use would be (140 GPCD), etc.
- POE-3 Train 3-1-1 staff, any customer service staff, and all city employees having public contact about conservation programs, drought management stages, triggers, and curtailment measures; and reuse projects. Further, provide timely and frequent information about water management and water conservation strategies available within the City of Austin to city employees for dissemination.
- POE-4 Develop sample water budgets (or comparisons to average users) for residential users and establish goals for conservation and drought reductions for individual customers. This information should be simple to understand and communicated on customer bills.
- POE-5 Leverage technology to provide information on water management and conservation, e.g. email subscription service for appropriate landscape watering based on current weather and evapotranspiration conditions, or information kiosks in key locations and accessible by customers that provide program information and links to related sites..

- POE-6 Increase public awareness of drought triggers and implications of lake levels through partnering with the Austin American Statesman and other media. Awareness should include both actual triggers (i.e., lake level or storage) and percent water in storage in the reservoirs. Strong visual cues such as lake level hydrographs (i.e., standard graphics used by various media) should be included in this awareness campaign as well as specific curtailment measures. This will become increasingly important over time as water diversions from the regional water supply reservoir system grow to meet the needs of a growing population.
- POE-7 Partner with other city departments (e.g. Watershed Protection, Austin Energy, Solid Waste Recycling) that focus on sustainability issues to create a cohesive information and outreach program that provides factual information and a call to action. Leverage various funding sources (including donations from private businesses) for a stronger, more effective information campaign.
- POE-8 Work with nurseries, landscape managers, plumbers, and other vendors to distribute information regarding conservation programs. Helping to implement conservation programs, on-site reuse, etc. can become an economic generator.
- POE-9 Strengthen partnerships and collaboration with other water providers (e.g. Lower Colorado River Authority, Barton Springs Edwards Aquifer Conservation District, cities, Municipal Utility Districts) sharing the media market regarding conservation programs as well as drought stages and curtailment measures.
- POE-10 Partner with local universities to gather and analyze data to advance education and communication efforts. For example, communications, education, and engineering departments are often looking for research opportunities and are skilled at data analysis and curriculum development.
- POE-11 Leverage national and statewide information campaigns when the messaging is consistent with Austin's program and local audiences.
- POE-12 Hold media education and/or individual sessions with local newscasters, meteorologists, and others who are credible with and have strong access to the public so that they can assist with providing information about watering schedules, irrigation strategies, drought triggers, and similar issues.

Education

- POE-13 Partner with educational and resource management institutions to develop a comprehensive education program that addresses water resources, water quality protection, water conservation, and related issues. Comprehensive education programs should leverage funding from other departments and funds (e.g., Austin Energy and Watershed Protection Department) and could address the water-energy-greenhouse gas nexus.
- POE-14 Work with the Texas Education Agency and local school districts to incorporate conservation education into the class room.

- POE-15 Continue current program of having booths at festivals, events, malls, etc. Ensure that customer contacts are tracked so that effectiveness can be evaluated in future budgeting decisions.
- POE-16 Partner with children’s museums, youth organizations, and schools to expand the youth education program from pre-K through college.

Funding/ Financial Considerations

Objectives

1. Ensure that future water rate structures send a strong price signal that encourages conservation, while providing mechanisms to ensure affordability for low-income users.
2. Provide long-term funding certainty for the water conservation program and measures.
3. Ensure that investments in water conservation strategies remain cost-effective.

Strategies

Rate Issues

- F-1 Continue to investigate other water rate structures that foster change in water use habits through pricing incentives (e.g., “base-excess use” billing, seasonal surcharges, budget-based billing, or higher rates for outdoor use measured with irrigation-only meters.)
- F-2 Design future rate structures to ensure that conservation and affordability considerations are incorporated.
- F-3 Incorporate “smart meter” technology so that people can have a better idea of their water use and current charges throughout the month. Such metering systems may also facilitate time-of-day billing strategies in the future.
- F-4 Investigate a secondary rate structure for irrigation-only and second meters serving a single property.

Funding, Fee and Financial Management Issues

- F-5 Set aside an established percentage of highest residential rate tier revenues, and consider assessing a modest monthly fee based on meter-size for non-residential customers, to fund conservation programs.
- F-6 Rather than assessing impact fees for second “irrigation only” meters to recover costs of off-site system capacity, develop capital recovery fees for recouping the costs of meter and installation.
- F-7 Develop an internal accounting protocol to allow conservation revenues (i.e., “set-asides” from rates or meter fees) to be available across fiscal years to match variations in program participation rates.

- F-8 Explore funding some permanent structure conservation measures, where the savings accrue over time, with capital funds to minimize rate implications of paying for conservation investments.
- F-9 Explore the feasibility of assessing a one-time conservation fee for new development to fund conservation programs and/or provide impact fee credits for developers investing in non-required conservation practices where permanent savings can be demonstrated.
- F-10 Establish a “rate stabilization” reserve fund to off-set reduced revenues and ensure adequate levels of service during initial “ramp up” years of the aggressive conservation program and during drought years when curtailments are imposed. Identify specific programs that can be funded by these reserves (e.g. enhanced or increased levels of conservation rebates, increased marketing, or leak repair) and account for them separately from other utility reserve funds.
- F-11 Continue to pursue grants, federal funds (e.g., Bureau of Reclamation funds for the reclaimed water system), and other sources to fund implementation of conservation strategies.

Conservation Investments

- F-12 Develop a formula for investment levels for conservation programs and use this as a criterion for assessing cost-effectiveness of conservation rebates and incentives. For example, a conservation program would be considered a good investment if it cost less on a unit basis (i.e., mgd or acre-feet per year) than the cost of new water under the contract with LCRA plus cost avoidance for future capital and operations costs for drinking and wastewater treatment and monetized savings for greenhouse gas emissions. Once developed, the formula and cost-basis should be periodically updated. Programs should be compared against this “price-point” and the cost-effectiveness widely communicated.
- F-13 Work with ICI customers on modifications of the rebate/incentive package to maximize participation while maintaining accountability. Potential modifications include:
- Increasing the per-customer cap from \$100,000.
 - Issue some percentage of the rebate (either as a credit on their water bill or via direct check) at the time of installation and some pre-designated amount each year based on actual performance. This would stretch available annual funds to a larger number of customers and support rebates based on actual, not projected savings.
- F-14 Require water conservation practices to be in place to qualify for code variances, city grants, etc.
- F-15 Review “price point” or rebate amounts for various programs to assess cost-effectiveness from the city’s perspective and opportunities to increase cost-efficiency.

Strategies to Address Impediments to Conservation

Discussion

Impediments to water conserving practices exist for a variety of reasons, including City procedural hurdles and barriers, regulatory and policy issues at local, state, and federal levels, and challenges with information sharing and dissemination.

Objectives

1. Streamline processes for review of and authorization for new conservation programs and contract awards, while maintaining opportunities for public input and review.
2. Ensure that city requirements (e.g., building codes, plumbing code, and watershed regulations) balance water conservation practices with other objectives such as water quality protection, and change those that impede conservation.
3. Incorporate water conservation as a core value across city departments.
4. Effect changes in local, state, and federal laws and regulations that impede effective water conservation.
5. Encourage state and federal investment in water conserving technologies.

Strategies

City of Austin Procedures, Regulations, and Institutional Barriers

- IMP-1 Engage a third party to review city code and procedures to ensure that the best practices in water conservation are incorporated into development codes and criteria manuals, watershed protection regulations, building codes, construction practices, and facilities operations. Review should include, but not be limited to:
- Reexamine objectives and results of the local plumbing code requirements that are more restrictive than state regulations or federal Uniform Plumbing Code. This adds significant upfront and maintenance costs, including additional permit fees and annual inspection fees. (Backflow prevention to protect drinking water quality is critical; other approaches, however, could achieve the same goal without discouraging use of rainwater or other auxiliary water sources.)
 - Review stormwater management provisions in the development code to ensure environmental and water quality protection is achieved, but avoid provisions or incentives that preclude beneficial, intended uses for the water that maintain public health standards.
- IMP-2 The current review process for large rebates over \$ 52,000 involves presentation and consideration by the CWCITF, Resource Management Commission, and Water and Wastewater Commission, as well as City Council consideration and action, prior to issuance of the rebate to customer. This results in 4-6 week delay for the customer and hours of staff time. We recommend streamlining the process so that

general program criteria are reviewed and endorsed by the appropriate bodies and then detailed monthly reports providing information on number of rebates by program, costs, etc. is provided, rather than individual items for consideration. This would speed up the process for the customer, reduce staff time, and still provide oversight/input opportunities. Exceptions to the process would be brought forward for individual consideration.

- IMP-3 The CWCITF is scheduled to disband in December 2010. The Citizens Task Forces supports the limited duration as a body and actively seeks to fulfill its charge during 2010. If, however, City Council desires to establish a new body to provide it direct feedback regarding the success of water conservation programs and impediments to achieving goals, attention should be given to eliminate overlapping charges among various boards and commissions. Further, the Citizens Task Force recommends that if such a body is created that it report directly to City Council. Currently, overlapping charges results in some confusion among and between bodies, extends implementation schedules, and may not be an efficient use of staff time.
- IMP-4 Improve the city's web site to facilitate customer's accessibility to water conservation information and to provide easy links between programs so that customers and other departments have access to up-to-date information. Current internal "posting" practices may limit access and timely information.
- IMP-5 Ensure enforcement procedures targeting water-waste violators are efficient to administer and are a deterrent to water-wasting practices.
- IMP-6 Elevate water conservation and other sustainability programs in the messaging priorities of the City's Public Information Office. Water conservation is a city-wide priority - not just a priority for Austin Water Utility. Ensure that messaging among city programs does not dilute the water conservation message.

State and Federal Policies and Regulations

- IMP-7 Support state legislation that would prohibit homeowner associations and/or restrictive covenants from requirements, such as irrigation systems or other restrictions that limit or impede water-saving measures, including but not limited to rainwater collection or other water reuse systems. If a homeowner association requires mandatory irrigation systems, an exception must be made for association-approved landscape plans that do not require automatic irrigation systems or impede low-water use landscaping practices.
- IMP-8 Support state legislation that would require TCEQ to simplify rules regarding homeowner use of graywater. [In Texas, discharged water from washing machines is the only graywater allowed to be used without going through an on-site sewage facility. While 30 Texas Administrative Code Chapter 317 was amended in 2003 to allow other uses, some requirements are difficult to implement, appear to be without justification, and prevent many developers and existing homeowners from using graywater.]

- IMP-9 Explore legislation that would require graywater connections (i.e., pre-plumbed “stub-outs.” or graywater collection plumbing which dead ends at a cap) for new single-family and duplex construction.
- IMP-10 Work with the Alliance for Water Efficiency and other national organizations regarding federal water conservation standards, research, and funding for conservation programs.
- IMP-11 Work with the TX Chapter of the American Water Works Association, Texas Association of Clean Water Agencies, Texas Municipal League, and others to address streamlining and consolidation of the 30 Texas Administrative Code Chapters 210 and 285 relating to reclaimed water use and on-site sewage facilities, as well as Chapter 317 related to graywater reuse.

Utility Customers

- IMP-12 Develop and pilot test incentives or other methods (e.g. water budgets and “greatest loser” recognition) to overcome impediments to water conservation in shared billing arrangements (includes multi-family residential and many commercial accounts).

Appendix Two: City of Austin Water Use Profile and Associated Data

Prior to initiating work on the Water Conservation 2020 Report, task force members and liaisons reviewed the 2009 Water Conservation Plan submitted to the Texas Commission on Environmental Quality (TCEQ) that had a significant amount of information about Austin’s water use. During the course of its deliberations, much general discussion took place regarding historical, current and future water use. Some of the data in this appendix were used during deliberations and some data were collected or refined to confirm general information considered by the Citizens Task Force members.

I. Basic Utility and Customer Information

Goals of information in this section:

- a) *Support prioritization of new water saving strategies by comparing and contrasting existing water use information by type of use (water use class);*
- b) *Support prioritization of new water saving strategies by illustrating current versus future water use, with breakdown to water use class to extent possible;*
- c) *Illustrate potential for additional water conservation in Austin through examination of recent water use trends and comparison of use rates (gallons per capita per day) to other major Texas cities.*

1) Existing water use by class for FY08-09.

Category	Total Billed Usage (million gallon / year)	Percent of Total (based on billed use)	Total Usage (million gallon / year)
Total Treated Water ⁶			53,331.3
Total Billed Usage ⁷			48,184.5 ⁸
Residential:	28,976.8	60.2%	
Single Family	19,697.8	40.9%	
Multi Family	9,279.0	19.3%	
Commercial	12,694.5	26.3%	
Large Volume ⁹	2,888.5	6.0%	
Wholesale	3,624.7	7.5%	

⁶ Source: AWU Treatment Division FY08-09 Year End Pumped Water Report.

⁷ Source: AWU Financial Management Division FY08-09 Year End Billing Records.

⁸ The difference between Total Treated Water and Total Billed Usage does not equate to the amount of water loss for the fiscal year as the difference includes unbilled yet accounted for water. AWU has not completed its water loss audit for FY08-09.

⁹ The category “Large Volume” includes accounts previously referred to as “Industrial” accounts; however, this category also includes large volume “Non-industrial” accounts such as The University of Texas. Large Volume accounts are accounts which use at least 85 million gallons of water per year and are assigned an individual use rate based on their usage peaks on the water system. Small manufacturers are considered commercial customers. Commercial customers are defined as non-residential customers that use less than 85 million gallons of water per year.

APPENDIX TWO: CITY OF AUSTIN WATER USE PROFILE AND ASSOCIATED DATA

2a) Anticipated number of new connections in city's/utility's growth projections by class (residential, commercial, large volume, and wholesale) through FY14-15 ¹⁰.

Category	Number of Connections ¹¹		
	Actual FY 08-09	Projected FY 14-15	Difference
Total Connections	208,413	230,812	22,399
Residential	192,666	213,205	20,539
<i>Single family</i>	186,857	206,957	20,100
<i>Multi-family</i>	5,809	6,248	439
Commercial	15,722	17,582	1,860
Large volume	7	7	-
Wholesale	18	18	-

2b) Anticipated growth in consumption by water use class of new connections through year FY14-15.

Category	Consumption [million gallons/year] ¹²		
	Actual FY 08-09	Projected FY 14-15 ¹³	Difference
Total Consumption	48,184.5	49,176.5	992.1
Residential	28,976.8	29,679.6	702.8
<i>Single family</i>	19,697.8	20,012.0	314.2
<i>Multi-family</i>	9,279.0	9,667.6	388.6
Commercial	12,694.5	13,235.0	540.6
Large volume	2,888.5	3,043.2	154.7
Wholesale	3,624.7	3,218.7	(406.0)

¹⁰ Source: AWU Financial Management Division Revenue Forecast Model as of 12/31/2009.

¹¹ Number of Connections represent the average number of connections per class for the years listed (as opposed to the number of connections at either the start or end of the year).

¹² These numbers represent billed usage; values are rounded to nearest 0.1 million gallon per year unit.

¹³ Projected usage is based on a "weather-normalized" year.

3) Austin’s per capita water pumpage and use trends.

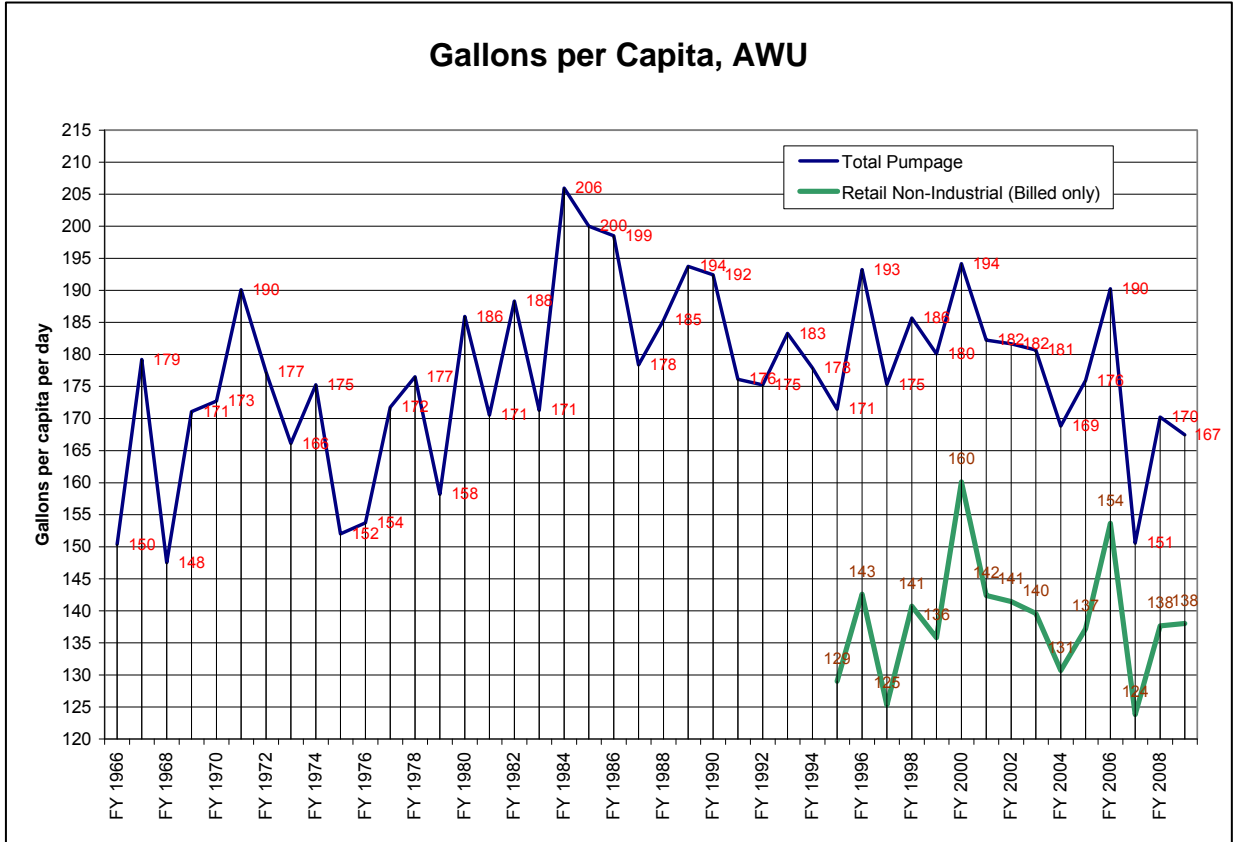


Figure A2-1. Austin’s per capita water use trends. [Notes: “total pumpage” per capita is based on all water pumped per year divided by total population served, including wholesale contracts (including some non-Austin residents); “retail non-industrial” is based on total billed consumption minus that for “large volume” and “wholesale” contracts (does not include unbilled water of approximately 11 percent annually) divided by estimated Austin retail population (i.e. excludes “wholesale” served population); values in figure supplied by Austin Water Utility.]

4) Austin’s water consumption by time of year; 2004 through 2009.

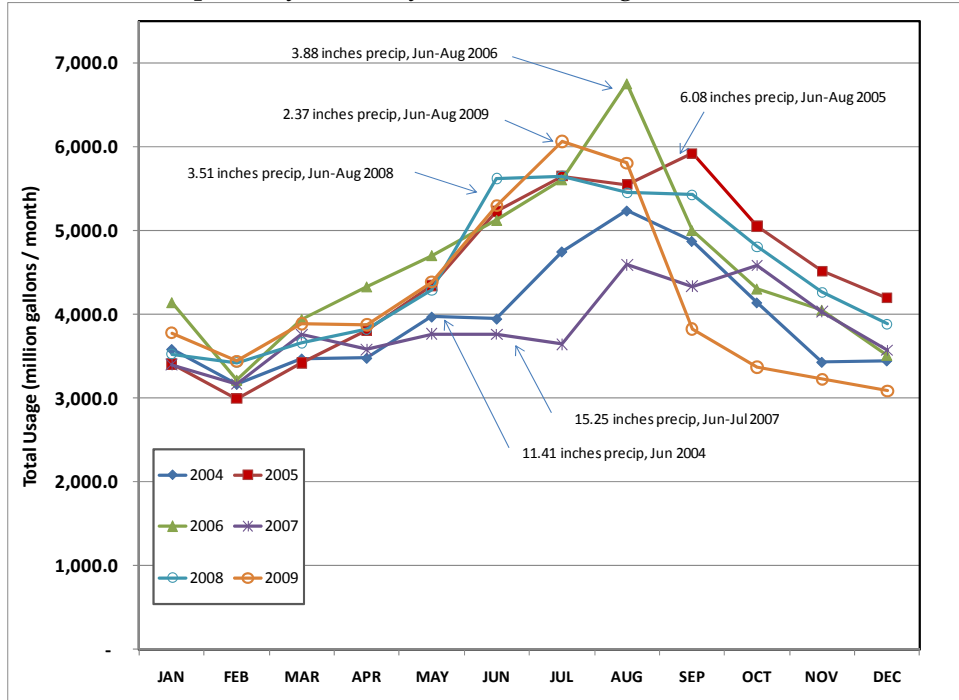


Figure A2-2. Austin’s total water use by month for calendar years 2004 through 2009, with significant summer precipitation totals highlighted¹⁴.

II. Current Conservation Programs, Select Statistics

Goals of information in this section:
 a) Provide context for new water saving strategies by examining current measures and level of adoption.

1) Level of adoption of select current water conservation measures.

Program	Total, Free and Rebated (FY 92-93 through FY 08-09)*	Estimated number of inefficient units remaining (2% to 4% natural replacement rate with incentives)	Level of adoption
Toilets, single-family	77,199	72,814 to 131,038	54% - 75%
Toilets, multi-family	45,118	9,390 to 30,351	71% - 91%
Toilets, ICI	9,597	14,222 to 21,415	50% - 67%
<i>Toilets, total</i>	<i>131,914</i>	NA	NA
Clothes washers**	30,092	NA	NA
Showerheads	54,313	NA	NA
Aerators	23,022	NA	NA

*ICI toilet programs initially implemented in FY 94-95

**Includes SF, MF, and ICI clothes washer rebates; programs not implemented until: SF - FY 96-97, MF - FY 98-99, ICI - FY 03-04

¹⁴ Includes all pumped water; monthly sums based on daily pumped values from Austin Water Utility data; precipitation totals from National Weather Service records for Austin-Bergstrom International Airport available at <http://www.nws.noaa.gov/climate>.

III. Intra-Customer Class Use Pattern & Other Use Information

Goals of information in this section:

a) Support development and prioritization of water saving strategies by examining water use and concentration of water use within customer class (e.g. residential);

1) Usage information for residential class

1a) Single family accounts:

- no. of accounts: 186,857 (over 500,000 people);
- seasonality – high. In FY 2008-09, May – September period (42% of year) use was 50% of total annual use; July-August (17% of year) accounted for 24% of annual use within this class.
- intra-class water use concentration: In FY 2008-09, top 10 accounts (.0054% of accounts) used about 0.08% of total use in class; top 100 accounts (.054% of accounts) used about 0.6% of total within this class.

1b) Multiple family accounts:

- no. of accounts: 5,809 (over 300,000 people);
- seasonality – somewhat. In FY 2008-09, July-August (17% of year) accounted for 19% of annual use within this class.
- intra-class water use concentration: In FY 2008-09, top 10 accounts (0.17% of accounts) used 4% of total use in class; top 100 accounts (1.7% of accounts) used about 19% of total within this class.

2) Commercial accounts:

- no. of accounts: 15,722
- seasonality – somewhat. In FY 2008-09, July-August (17% of year) accounted for 21% of annual use within this class.
- intra-class water use concentration: In FY 2008-09, top 10 accounts (0.064% of accounts) used 5% of total use in class; top 100 accounts (0.64% of accounts) used about 18% of total within this class.

3) Large volume accounts:

- no. of accounts: 7 in FY 2008-09
- seasonality: minimal.

4) Number of accounts with shared billing arrangements: AWU does not currently track this information.

IV. Economic and Pricing Information

Goals of information in this section:

a) Aid the development of cost-effective water conservation strategies by examining current and future cost for raw and treated water.

1) Costs associated with current and additional raw water supply, including the payments to LCRA after 201,000 acre-feet per year usage “trigger” level is reached.

According to the October 7, 1999 amendment to the December 10, 1987 Comprehensive Water Settlement Agreement between the City of Austin and LCRA, the City will trigger payments when the City’s average annual water use for two consecutive years exceeds 201,000 acre-feet per year. The payments will then be for water use in excess of 150,000 acre-feet per year at the future firm water rate in place at that time, even if water use in subsequent years drops below the 201,000 acre feet per year trigger level. The current LCRA water rate per acre foot is \$138 for firm water; it is subject to change in the future. Based on the current rate of \$138 per acre-foot, Austin’s first year annual payment is projected to be in the range of \$7 to 8 million. However, with future rate increases, the first year annual payment is expected to be at least \$10 million. Once payments are triggered, future payments continue to be determined based on use amounts above 150,000 acre-feet per year, so future water use amount increases would result in increased future annual payments.

2) Costs associated with treatment and distribution of drinking water and collection and treatment of wastewater: ¹⁵

Item	FY 09-10 Projected Totals	FY 09-10 Cost Per Million Gallons
Projected Water Billed Usage (in gallons)	47,171,161,500	
Total FY09-10 Water Utility Budgeted Costs ¹⁶	\$220,574,076	\$4,676
Drinking Water Treatment and Pipeline Operations	\$49,977,193	\$1,059
Projected Billed Wastewater Flows (in gallons)	26,911,546,400	
Total FY09-10 Wastewater Utility Budgeted Costs	\$218,148,158	\$8,106
Wastewater Treatment and Pipeline Operations	\$43,785,705	\$1,627

3) Estimates of monetized costs of greenhouse gas emissions used in the city's Climate Protection Plan (if developed):

The monetized costs have yet to be developed, however the following reduction calculations have been completed by AWU staff:

- 2600 kWh of energy saved within water treatment and distribution system per million gallons of water conserved
- 2400 kWh of energy saved within wastewater collection and treatment system per million gallons of water conserved

7.69 metric tons of GHG emissions avoided per million gallons of water conserved

¹⁵ Totals are from the FY 2009-10 Amended Budget.

¹⁶ Total Budgeted Costs is synonymous with the terms Total Requirements and Revenue Requirements and includes all Operating Requirements, Debt Service, and Transfers to other funds.

Appendix Three: Status of 2007 Recommendations

Implementation of the 2007 Recommendations has been on-going since their adoption. The tables in this Appendix provide a brief summary of the status and results of the implementation.

Of the 23 recommendations of the 2007 Task Force, nine measures have been fully implemented and nine measures are partially implemented or in-process. Four of the remaining five measures are being researched or are in the Austin Water Utility's work plan for implementation. One measure (mandatory retrofit of low-fixtures at the time of resale of a home) is under further consideration, in light of the City Council decision not to require a similar retrofit for energy efficiency. Please see Appendix Three for a summary of the status of the 2007 Recommendations.

The staff prioritized implementation of the 2007 Recommendations based on an estimated water savings and cost-effectiveness. Highlights of the implementation of the 2007 Recommendations include:

- Water use management ordinance – A water use schedule that limits landscape irrigation to no more than twice each week was established during October 2007. The savings goal for 2009 is 2.67 MGD. Preliminary analysis indicates that during the first year of the ordinance savings were in a range of 5 to 9 MGD, approaching or exceeding the 6.16 MGD (over 10 years) projected in the task force recommendations.
- Reclaimed water infrastructure expansion and use – Several projects have been completed or are under way including completion of the 51st Street storage tank necessary to provide reclaimed service to the Mueller development, main extension to serve the University of Texas and extensions to Roy Guerrero Park and Austin International Bergstrom Airport. Estimated reclaimed water delivery resulting from the 2007 Recommendations is shown in Table 2.
- Water Rates – A 5th tier for residential users became effective November 1, 2009 that is expected to send a conservation pricing signal to the highest water users. Commercial conservation rates have not yet been established. Savings associated with the new rates will be tracked.
- Water loss prevention activities – Austin Water Utility accelerated its loss prevention program and reports that about 25 percent of the ten-year savings goal was achieved during fiscal year 2008 (1.31 mgd saved; goal is 4.8 mgd).
- Plumbing code amendments - A number of plumbing code amendments for new residential and commercial construction were enacted. Savings are expected to accrue as new development occurs within the service area.

The remaining 2007 Recommendations that have yet to be implemented will be explored as part of the 2010 Citizens Task Force work plan. These include the recommendation to require residential plumbing fixture replacement at the time of resale and some of the proposed irrigation system and landscaping requirements. An Outdoor Working Group of the current Citizens Task Force has been appointed to focus on existing irrigation and landscaping programs and the 2007 Recommendations.

The Citizens Task Force acknowledges the success of the City in meeting or exceeding its water conservation goals. We encourage continued and accelerated efforts to reduce water use, and believe strategies presented in this report provide a sound basis for additional water conservation in our community.

TABLE A3-1
Status Of Water Conservation Task Force Recommendations

PS #	Description	Applicability	Status
Indoor Water Conservation Strategies			
IN-1	Require all plumbing fixtures to perform at current plumbing code volumes.	Commercial and Multi-family customers; Single-family residential properties up for sale	Retrofit on resale postponed due to the Council’s decision to not pursue a point of sale energy audit. Toilets are inspected as part of the Energy Conservation and Disclosure ordinance, and AWU is working with Austin Energy to provide auditor training.
IN-2	Require the use of submeters to bill for water in multi-family properties.	New and some existing multi-family and mixed-use properties	Local amendments to the plumbing code took effect 1/1/08 requiring submeters in new multifamily and mixed use buildings. The ordinance did not require the use of these submeters for billing. AWU is continuing to investigate the issue, but a 2009 survey showed the majority of new properties are using submeters for billing.
IN-3	Amend Plumbing Code to prohibit inefficient fixtures in commercial new construction and renovations.	New commercial construction	Effective January 2008, local amendments to the plumbing code were added to reduce urinal flush volume, prohibit commercial garbage disposals, and prohibit liquid ring surgical and dental vacuum pumps. Language has not yet been added to the Code requiring conductivity controllers for steam boilers or setting water efficiency standards for commercial dishwashers.
IN-4	Establish cooling tower management efficiency requirements for new construction and existing facilities.	All customers	Local amendments to the plumbing code took effect 1/1/08 requiring efficiency features for cooling towers, AWU has not yet implemented the recommendation to require installation of the efficiency features by December 31, 2010 for existing construction or to require new commercial properties to drain A/C condensate to a common drain for reuse.

APPENDIX THREE: STATUS OF 2007 RECOMMENDATIONS

IN-5	Establish water consumption limits for new and existing car wash facilities and equipment.	Commercial car wash facilities	Local amendments to the plumbing code took effect 1/1/08 limiting water use for car washes and car wash equipment. Restrictions have not yet been implemented for existing car washes.
IN-6	Establish efficiency standards for commercial clothes washers in new and existing facilities.	Commercial laundry facilities	This requirement has not yet been implemented. Rebates are available for efficient commercial clothes washers.
Outdoor Water Conservation Strategies			
OU-1	Expand Water Use Management Ordinance.	All customers	The Water Use Management Ordinance was amended effective 10/2007, prohibiting the use of automatic irrigation between 10 a.m. and 7 p.m. year-round. Residential customers are assigned two watering days per week, May through September while Commercial customers follow a two day per week schedule year round. The continued promotion of hose-end timers on sprinklers has been postponed due to cross-connection concerns.
OU-2	Require new residential irrigation systems to meet design standards and permitting requirements.	Residential customers	Local amendments to the plumbing code took effect 1/1/08 requiring the majority of WCTF recommendations. Not included in the amendments are: controller requirements, a distribution uniformity benchmark. Irrigation run off is prohibited in the Water Use Management Ordinance.
OU-3	Create additional design requirements for new commercial irrigation systems and landscaping.	Commercial and multi-family customers	Local amendments to the plumbing code took effect 1/1/08 addressing each of the WCTF recommendations except distribution uniformity and zero runoff (addressed in Water Use Management Ordinance). AWU is working with Watershed Protection to include soil depth requirements in the next revision of the Environmental Criteria Manual.
OU-4	Establish soil-depth requirements for new residential landscapes.	(Volume) home builders	WCTF recommendations to set a minimum soil depth of 6" and require that new turf installations meet dormancy requirements have not been addressed.
OU-5	Require homebuilders to offer a WaterWise landscape option.	(Volume) home builders	AWU is in the process of defining criteria for a WaterWise Landscape option and will work with the Citizen's Task Force and stakeholders to solicit input prior to bringing an ordinance before Council.
OU-6	Require regular analyses of automatic irrigation systems.	All non-residential properties over 1 acre	Recommended revisions to the Code have not been implemented. AWU is in the process of identifying the affected customers and modifying a database to track compliance.
OU-7	Require water audits	Residential	Although irrigation audits by licensed City

APPENDIX THREE: STATUS OF 2007 RECOMMENDATIONS

	for high-volume residential customers.	customers with regular use over 35,000 gallons per month	irrigators have increased, recommended revisions to the Code have not been implemented.
City and Utility Water Conservation Strategies			
CI-1	Ensure funding for leak detection contract	Austin Water Utility	Leak detection contract is in place for distribution lines, and AWU recently conducted additional work to detect leaks in transmission mains.
CI-2	Assure CIP funding for reclaimed water projects.	Austin Water Utility	The Reclaimed Program is on target to meet the projected savings, with the UT, ABIA and Guererro Park projects in varying stages of design and construction. Though funding has been approved, the 183 Rehabilitation and Smith Road Extension are on hold because of the need to meet TXDOT standards.
CI-3	Adjust Utility water rates to encourage conservation.	All customers	AWU completed the Cost of Service study to evaluate possible changes to water rates, and added a fifth tier for residential use above 25,000 gallons per month, effective November 2009. Staff is currently developing changes to water bills and the billing system in accordance with WCTF recommendations.
CI-4	Require conservation by wholesale customers.	Wholesale customers	AWU requires wholesale customers to implement conservation measures, allows customers of wholesale districts to participate in AWU conservation incentives, and provides program implementation assistance. There are currently five (5) wholesale customers with no conservation provisions in their contracts. One contract expires in 2011, the others between 2020 and 2026. Together these customers represented 28% of wholesale consumption in FY2008, or 2% of all AWU water sales.
CI-5	Explore alternative water sources.	Commercial customers	In response to City Council Resolution 20090806-035, WPDR is working with AWU staff to develop requirements for using stormwater runoff to irrigate landscaped medians in parking lots. AWU staff is researching further opportunities for stormwater and graywater reuse. Municipal rainwater harvesting system design standards have not been adopted.
CI-6	Increase water efficiency in City facilities.	All City facilities	AWU has worked with City departments to complete plumbing retrofits recommended through the performance contract and continues to work with City departments to ensure compliance with the mandatory watering

APPENDIX THREE: STATUS OF 2007 RECOMMENDATIONS

			schedule. AWU is helping fund the installation of weather-based controllers for PARD facilities. Recommendations for cooling tower operations improvements and incorporation of specific conservation elements into LEED standards have not yet been addressed.
CI-7	Reduce excessive water use due to high pressure.	Residential customers	Effective January 2008, local amendments to the plumbing code were added to require an approved pressure regulator where the maximum pressure exceeds 65 psi. The Water Conservation Division offers a \$100 rebate for the purchase and installation of a pressure reduction valve.
CI-8	Establish program to alert customers to potential leaks during winter months.	All customers	The new billing system (currently in development) will be capable of sending alerts to customers for atypical water use.
CI-9	Expand public education program.	All customers	The high degree of compliance with the watering schedule can be attributed, in part, to extensive marketing efforts. Marketing and advertising efforts will continue, as will Austin's participation in the WaterIQ regional partnership with the LCRA and the Division's increased active marketing efforts and presence at community outreach events.
CI-10	Create Citizens' Advisory Group on Water Conservation	City of Austin	Resolution No. 20071206-007 established The Citizens Water Conservation Implementation Task Force. Resolution No. 20090806-036 expanded the scope of the Task Force to recommend additional water conservation measures. A policy document on the additional recommendations is due to City Council by April 1, 2010. The Task Force will terminate on December 6, 2010.

APPENDIX THREE: STATUS OF 2007 RECOMMENDATIONS

TABLE A3-2
Estimated Savings of 2007 Task Force Recommendations Compared to Goal

Listed in order of Peak Day Savings	Ten Year (2017) Estimated Peak Day Savings	WCTF FY 2008 Projected	FY 08 Actual
Watering Restrictions	6.16	0.00	5.0 to 9.0
Reclaimed Water Use	5.95	0.00	0.00
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
Mandatory Irrigation Audits (non-residential)	1.47	0.45	0.00
Residential Irrigation Standards	1.32	0.13	0.07
Commercial Irrigation Standards	0.74	0.07	0.00
Mandatory Irrigation Audits (large residential)	0.63	0.21	0.00
Pressure Reduction Program	0.29	0.03	0.001
Car Washes	0.15	0.00	0.00
TOTALS (MGD)	32.65	1.18	6.4 to 10.4

Appendix Four: Preliminary Analysis of Recommended Strategies

This information in Appendix Four summarizes the results of preliminary staff analysis of strategies recommended in this report. While not all strategies have been quantified due to data, resource and time constraints, these results provide an important first step in developing the 10-year action plan. Additional quantification and analysis is needed on other strategies and measures.

Several terms are used in the analysis summaries in this Appendix. Definitions of these terms follow:

Savings Type: This factor indicates whether the measure can be expected to reduce potable water use, reclaimed water use, and/or wastewater use. Strategies identified as having “partial wastewater” savings affect both indoor and outdoor water use, so only a portion of the savings will reduce treated wastewater.

10-Year Cumulative Savings (MG): This factor measures the amount of water expected to be saved by the measure between fiscal year 2011 and fiscal year 2020, and can signify reduced pumping and treatment needs.

Peak reduction by 2020 (MGD): This factor shows the reduction in peak demand, in million gallons per day, that can be expected in fiscal year 2020 as a result of this measure. This can signify a reduction in required capacity.

Additional FTEs: This factor estimates the number of full time employees that would be required to successfully implement the measure.

Average Annual Cost: This factor estimates the average cost to implement the measure, including any costs for FTEs and overhead, vehicles, equipment and marketing. This measure estimates the total cost for the fiscal years 2011 through 2020 and calculates an average; estimated costs for a specific year may differ.

Cost per peak GPD (2020): This factor represents the cost of avoided peak demand in gallons per day, and is calculated by estimating the total implementation cost for fiscal years 2011-2020 and dividing by the expected peak reduction in 2020.

Cost per thousand gallons: This factor represents the cost of avoided pumping and treatment, and is calculated by estimating the total implementation cost for fiscal years 2011-2020 and dividing by the 10-year cumulative savings.

		Peak Day Demand Reduction (2020)		Cumulative Savings through 2020	
Number	Measure Description	MGD	\$/gpd	MG	\$/thousand gallons
O-EC-2	Improve follow-up to irrigation audits, including equipment/system and landscape retrofits.	0.19	1.84	163	\$ 2.14
O-EC-4	Include pool inspections as part of irrigation audits.	0.10	0.13	85	\$ 0.16
O-NC-1	Amend plumbing code to allow beneficial use of air conditioning condensate for residential and commercial properties.	0.34	1.18	280	\$ 1.43
O-NC-3	Develop water-efficiency criteria and certification for new construction as either a part of Green Building or a stand-alone program.	0.14	9.92	270	\$ 4.99
IR-2	Provide indoor home water audits in conjunction with outdoor water audits. Continue to partner with Austin Energy to conduct water and energy audits as a package. Develop on-line calculators so residents can self-perform audits.	0.03	5.81	91	\$ 1.81
RU-1	Require reuse and reclaimed water users to follow efficiency and conservation standards to avoid waste of this resource. The Water Conservation Ordinance should include benefits for non-potable water users during drought.	0.62*	-	1,006	\$ -
RU-3	Actively solicit existing utility customers that could use reclaimed water for non-potable uses.	0.56	1.07	677	\$ 0.89

* RU-1 saves reclaimed water, not potable water

O-EC-2	Improve follow-up to irrigation audits, including equipment/system and landscape retrofits.
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Improve the follow-up to irrigation audits to achieve maximum savings from changed irrigation behaviors and equipment/system retrofits. Proactively encourage voluntary audits for high water users.

Staff Comments:

Calculations assume that an audit conducted in summer has twice the savings of an audit conducted in winter (AWU study), and that savings from an audit decline over time (A&N Technical study for CUWCC). The calculations further assume a 15% increase in expected savings with follow-up contact, based on a published study analyzing increase in survey response rates when participants receive a letter or phone call (Chiu and Brennan, 1990). Additional study would be helpful to obtain local data about the decay curve of irrigation audits (separate from indoor savings).

Savings Type:	Water
10-Year Cumulative Savings (MG):	163
Peak reduction by 2020 (MGD):	0.19
Additional FTEs:	1, phone follow-up and managing mail outs
Average Annual Cost:	\$35,000
Cost per peak GPD (2020):	\$1.84
Cost per thousand gallons:	\$2.14

O-EC-4	Include pool inspections as part of irrigation audits.
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Include pool inspections in irrigation audits.

Staff Comments:

Information is based on the number of pools listed in Travis County tax records and an Alliance for Water Efficiency article estimating that 1 in 20 pools have leaks of 100,000 gallons per year. Little quantitative information is available about the frequency or severity of pool leaks; while staff can instruct homeowners, typical leak tests take a full day and will require homeowner participation. There is no guarantee that if a leak is found, a homeowner will choose to repair it. Staff leak "detection" services should be limited to finding presence of leak or suspected leak (not locating leaks) to avoid competing with area businesses offering such services.

Savings Type:	Water
10-Year Cumulative Savings (MG):	85
Peak reduction by 2020 (MGD):	0.103
Additional FTEs:	0, accomplished with existing staff
Average Annual Cost:	\$1,350
Cost per peak GPD (2020):	\$0.13
Cost per thousand gallons:	\$0.16

O-NC-1	Amend plumbing code to allow beneficial use of air conditioning condensate for residential and commercial properties.
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Amend the Plumbing Code so that condensate from air conditioning may be beneficially used in new residential and Institutional, Commercial and Industrial (ICI) construction. (Current code requires discharge into the sewer system and prohibits beneficial reuse).

Staff Comments:

Information is based on the expected new growth in both the commercial and residential sector and information from the Alliance for Water Efficiency on the amount of condensate generated. For commercial buildings, participation was based on a study in Building Design & Construction magazine on the number of commercial buildings collecting condensate; for residential customers, participation was assumed to be the same as that of new homes in the Green Builder program.

Savings Type:	Water and Wastewater
10-Year Cumulative Savings (MG):	280.45
Peak reduction by 2020 (MGD):	0.34
Additional FTEs:	0.5, outreach & education to developers
Average Annual Cost:	\$40,000
Cost per peak GPD (2020):	\$1.18
Cost per thousand gallons:	\$1.43

O-NC-3	Develop water-efficiency criteria and certification for new construction as either a part of Green Building or a stand-alone program.
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Criteria to grade and certify the water-efficiency of new development and construction should be developed for use either within Austin’s Green Builder Program or a similar program focused on sustainable water management. While the Green Builder Program does address water conservation to an extent, it does not sufficiently emphasize water conservation.

Staff Comments:

Calculations below assume adoption of EPA's WaterSense homes certification and establishment of a new certification program separate from Austin Energy's Green Buildings program. AE's Green Buildings program does encourage or require several water conservation elements, though water is not the program's primary focus. This measure may represent some duplication of efforts with Green Building if builders participate in both programs, and may therefore overstate savings.

Savings Type:	Water, and partial wastewater
10-Year Cumulative Savings (MG):	270
Peak reduction by 2020 (MGD):	0.14
Additional FTEs:	2, for marketing, outreach and certification
Average Annual Cost:	\$135,000
Cost per peak GPD (2020):	\$9.92
Cost per thousand gallons:	\$4.99

IR-2	Provide indoor home water audits in conjunction with outdoor water audits. Continue to partner with Austin Energy to conduct water and energy audits as a package. Develop on-line calculators so residents can self-perform audits.
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Provide and promote interior home water audits in conjunction with outdoor audits to analyze residents’ current indoor water use and help them find ways to reduce waste, such as by repairing leaks. Continue to partner with Austin Energy to conduct water and energy use audits as a package. In addition to on-site audits, develop an on-line water use calculator so that residents can self-perform an audit.

Staff Comments:

Only the first component of the recommendation has been quantified (AE partnership is ongoing and therefore not additional savings, online calculator is in development but considered an educational tool). Quantifications assume indoor measures account for 30% of the reported 33.9 gpd savings from whole-house audits (Alliance for Water Efficiency) and that by year 4, savings are half of what was achieved in the year the audit was conducted (A&N Technical study for CUWCC). Indoor surveys represent a very small portion of likely savings from audits, though they add very little staff time when combined with existing irrigation audits.

Savings Type:		Water and wastewater
10-Year Cumulative Savings (MG):	91	
Peak reduction by 2020 (MGD):	0.03	
Additional FTEs:	0, accomplished with existing staff	
Average Annual Cost:	\$16,500	
Cost per peak GPD (2020):	\$5.81	
Cost per thousand gallons:	\$1.82	

RU-1	Require reuse and reclaimed water users to follow efficiency and conservation standards to avoid waste of this resource. The Water Conservation Ordinance should include benefits for non-potable water users during drought.
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Require reuse and reclaimed water users to follow efficiency and conservation standards to avoid waste of this resource. The Water Conservation Ordinance should include benefits for non-potable water users during drought.

Staff Comments:

Implementing restrictions may deter potable water customers from converting to the reclaimed water system, thereby reducing expected water savings.

Savings Type:		Reclaimed water, partial wastewater
10-Year Cumulative Savings (MG):	1,000	
Peak reduction by 2020 (MGD):	0.62	
Additional FTEs:	0, accomplished with existing staff	
Average Annual Cost:	\$0	
Cost per peak GPD (2020):	\$0.00	
Cost per thousand gallons:	\$0.00	

RU-3	Actively solicit existing utility customers that could use reclaimed water for non-potable uses.
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Develop a stronger marketing program and actively solicit existing utility customers that could use reclaimed water for industrial processes, cooling, irrigation, car washing, or other non-potable uses.

Staff Comments:

AWU already solicits customers as a new main is built. However, in the long-term there is usually some growth in demand or new development that results in additional usage off a main. The analysis assumes planned customers connect within five years of project completion, and additional customers represent a 2% growth beyond that point. Costs include project management and CIP costs to connect new customers.

Savings Type:	Water, partial wastewater
10-Year Cumulative Savings (MG):	677
Peak reduction by 2020 (MGD):	0.56
Additional FTEs:	0.1, project management and marketing
Average Annual Cost:	\$60,000
Cost per peak GPD (2020):	\$1.07
Cost per thousand gallons:	\$0.89

IMP-1	Engage a third party to review city code and procedures to ensure that water conserving best practices are incorporated into development codes and criteria manuals, watershed protection regulations, building codes, construction practices, and facilities operations.
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Engage a third party to review city code and procedures to ensure that the best practices in water conservation are incorporated into development codes and criteria manuals, watershed protection regulations, building codes, construction practices, and facilities operations. Review should include, but not be limited to:

1. Examine objectives and results of the local plumbing code to ensure that requirements protect public safety, but are not serving as a disincentive to conservation.
2. Review storm water management provisions in the development code to ensure environmental and water quality protection is achieved, but avoid provisions or incentives that preclude beneficial, intended uses for the water while maintaining public health standards.

Projected Contract Cost: \$30,000 to \$80,000

Appendix Five: Review by Board and Commissions

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
1	Reclaimed Water	3/10/2010	Water and Wastewater Commission	Commissioner Aaron Googins	Suggested incentivizing reclaimed water and other non-potable water sources, possibly by not requiring adherence to water restrictions during shortages
2	Reclaimed Water	3/11/2010	Water and Wastewater Commission	Commissioner Aaron Googins	Stated concerns regarding indoor use of reclaimed water for residential use
3	Public Information, Education, and Outreach	3/3/2010	Environmental Board	Commissioner Bob Anderson	Austin should have a "face" or spokesperson for water conservation; someone clearly providing leadership
4	Infrastructure and Facilities Management	3/3/2010	Environmental Board	Commissioner Phil Moncada	Provide emphasis on leak detection and repair
5	Infrastructure and Facilities Management	3/3/2010	Environmental Board	Commissioner Phil Moncada	Consider recovering water from training exercises at fire academy for irrigation use
6	General, Impediments to Conservation	3/23/2010	Resource Management Commission	Commissioner Grace Hsieh	Suggested a standing task force to oversee conservation
7	General	3/23/2010	Resource Management Commission	Commissioner Leo Dielmann	Stated that it is important to prioritize some of the strategies in a good business plan
8	Funding/Financial Considerations	3/23/2010	Resource Management Commission	Commissioner Leo Dielmann	Stated that he would like to see that the real economic impact of conservation programs to the City and its citizens is addressed.

Note: Other questions and discussions occurred during the meetings that are not reflected as specific recommendations in this appendix.

Appendix Six: Public Comments

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
1	General	3/9/2010	CWCITF Public Event	Group 2	What types of strategies should the City implement to achieve success? Quantifiable
2	General	3/9/2010	CWCITF Public Event	Group 2	2 page executive summary (not 9)
3	General	3/9/2010	CWCITF Public Event	Group 2	Rank recommendations - quantifiable 1, 2, 3, 4.... Non-quantifiable A, B, C, D... (yes, it's hard, do it anyway)
4	General	3/9/2010	CWCITF Public Event	Group 2	Body of the report - all your great work and great ideas! Thank you!!!
5	General	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? Reduced residential gpcd so that repeat of 2008-2009 drought is not a crisis/news item, prepared to deal with drought
6	General	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? We will still have a green city
7	General	3/24/10	Business Leadership Stakeholder Group Meeting	Frank Niendorff, AARO	Partnerships to implement conservation should include the business community and individual business sectors
8	General	3/24/10	Business Leadership Stakeholder Group Meeting	Frank Niendorff, AARO	AWU should pro-actively invest in research as well as identify and evaluate new conservation technologies. Those with the most promise should be further explored in pilot projects.

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
9	General	3/24/10	Business Leadership Stakeholder Group Meeting (and email)	Brooke Bulow, Home Builders Association, Greater Austin	We agree that (1) water conservation measures should make good business sense, (2) there should be a cost/benefit analysis on any proposals with input from the industries that are affected, and (3) there should be flexibility for changes in the market and with technology. The ability for a family to qualify for a mortgage on their first new home or a move up home is key. Large price increases only cause families to drive farther into the suburbs to buy the home of their choice since that price point is what they can afford.
10	General/ Vision	3/9/2010	CWCITF Public Event	Group 1	What would success in water conservation look like for the City of Austin in 2020? Not using more than needed for the task at hand
11	General/ Vision	3/9/2010	CWCITF Public Event	Group 1	What would success in water conservation look like for the City of Austin in 2020? Visible tangible signs of success (e.g. lake levels)
12	General/ Vision	3/9/2010	CWCITF Public Event	Group 2	What would success in water conservation look like for the City of Austin in 2020? Preserved landscape
13	General/ Vision	3/9/2010	CWCITF Public Event	Group 3	What would success in water conservation look like for the City of Austin in 2020? Increase in participation in incentive programs
14	General/ Vision	3/9/2010	CWCITF Public Event	Group 3	What would success in water conservation look like for the City of Austin in 2020? No need for incentive programs because everyone is as efficient as possible.
15	General/ Vision	3/9/2010	CWCITF Public Event	Group 5	What would success in water conservation look like for the City of Austin in 2020? Austin lifts water restrictions
16	General/ Vision	3/9/2010	CWCITF Public Event	Group 5	What would success in water conservation look like for the City of Austin in 2020? New construction net zero water

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
17	Vision	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? Program has achieved goals/does it need to be terminated
18	Vision	3/9/2010	CWCITF Public Event	Group 5	What would success in water conservation look like for the City of Austin in 2020? National recognition
19	Goal	3/24/10	Business Leadership Stakeholder Group Meeting	Frank Niendorff, AARO	Per capita goal should be re-evaluated periodically
20	Goal	3/24/10	Business Leadership Stakeholder Group Meeting	Frank Niendorff, AARO	Development of a standardized definitions and water conservation metrics should be a priority.
21	Goal	3/9/2010	CWCITF Public Event	Group 1	What would success in water conservation look like for the City of Austin in 2020? Every consumer need to participate, residential and commercial
22	Goal	3/9/2010	CWCITF Public Event	Group 3	What would success in water conservation look like for the City of Austin in 2020? 140 gpcd by 2020
23	Goal	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? Definition of future success - per capita H2O consumption is (1) sustainable (this is a moving target due to climate change/fluctuating H2O supplies) and (2) H2O transfers are not sustainable
24	Goal	3/9/2010	CWCITF Public Event	Group 5	What would success in water conservation look like for the City of Austin in 2020? Greatly reduced water use
25	Goal	3/9/2010	CWCITF Public Event	Group 5	What would success in water conservation look like for the City of Austin in 2020? Beat 140 gpcd

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
26	Goal	3/9/2010	CWCITF Public Event	Group 6	What would success in water conservation look like for the City of Austin in 2020? Understanding the importance of water conservation
27	Goal	3/9/2010	CWCITF Public Event	Group 6	What would success in water conservation look like for the City of Austin in 2020? Meet or exceed 140 gpcd goal
28	Goal	3/24/2010	Business Leadership Stakeholder Group Meeting	Barbara Johnson, AARO	Recommend focusing on residential per capita use so as to not penalize Austin for recruitment of new businesses/ industries
29	Guiding Principles	3/9/2010	CWCITF Public Event	Group 2	What would success in water conservation look like for the City of Austin in 2020? Dedicated environmental flow and protected all the way to the bay
30	Guiding Principles	3/9/2010	CWCITF Public Event	Group 1	What would success in water conservation look like for the City of Austin in 2020? Human behavior and mechanical efficiency
31	Guiding Principles	3/9/2010	CWCITF Public Event	Group 5	What would success in water conservation look like for the City of Austin in 2020? Integrated resource planning
32	Guiding Principles	3/9/2010	CWCITF Public Event	Group 6	What would success in water conservation look like for the City of Austin in 2020? Water remaining (not over allotted) in the Colorado River
33	Funding and Financial Considerations	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? In 2020 water will be 3 to 4 times as expensive - market pricing for water?
34	Funding and Financial Considerations	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? If we price it right, we won't run out - price water according to how scarce it is (winter vs. summer/ drought vs. wet/ high use vs. low use)

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
35	Funding and Financial Considerations	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? Pricing will entice people to use H2O more efficiently
36	Funding and Financial Considerations	3/9/2010	CWCITF Public Event	Group 4	What types of strategies should the City implement to achieve success? Price according to scarcity
37	Funding and Financial Considerations	3/9/2010	CWCITF Public Event	Group 5	What types of strategies should the City implement to achieve success? Billing information - comparisons
38	Funding and Financial Considerations	3/24/10	Business Leadership Stakeholder Group Meeting	Barbara Johnson, AARO	Rates should remain competitive with other utilities with which Austin is competitive to maintain the attractiveness of Austin for future job growth.
39	Impediments to Conservation	3/24/10	Business Leadership Stakeholder Group Meeting		Totally supportive of reviewing and auditing the code for inconsistencies and impediments to conservation.
40	Impediments to Conservation	3/9/2010	CWCITF Public Event	Group 4	What types of strategies should the City implement to achieve success? Remove barriers to greater use of graywater
41	Impediments to Conservation	3/9/2010	CWCITF Public Event	Group 5	What types of strategies should the City implement to achieve success? Plumbing codes

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
42	Indoor Residential	3/24/10	Business Leadership Stakeholder Group Meeting (and email)	Brooke Bulow, Home Builders Association, Greater Austin	<p>In support of water conservation, the HBA is supporting enacting the water saving plumbing fixture requirements far in advance of state law requirements when the 2009 plumbing code is enacted. The council will host a public hearing on April 8 and if approved, the requirements would go into effect 90 days later.</p> <p>The change would require</p> <ul style="list-style-type: none"> • Water closets for all new homes and renovations to decrease from 1.6 gallons per flush (GPF) to 1.28 GPF • Sink, lavatory faucet or a faucet aerator maximum flow at 2.2 gallons of water per minute • Urinal maximum flow at 0.5 GPF • Shower head maximum flow at 2.5 gallons of water per minute
43	Indoor Residential	3/5/2010	Email to Water Conservation	Sandra Thompson	During summers, use water collected from use of Energy Star de-humidifier to flush toilets. During winter, flush toilets with water collected while waiting for water to heat up.
44	Indoor Residential	3/9/2010	CWCITF Public Event	Group 1	What types of strategies should the City implement to achieve success? Rainwater harvesting - expand indoor uses and reduce impediments to indoor use of graywater
45	Indoor Residential	3/9/2010	CWCITF Public Event	Group 6	What types of strategies should the City implement to achieve success? Plumbing fixtures (additional rebates) for recycling water inside homes, i.e. waiting for the water to heat up before using
46	Indoor Residential	3/9/2010	CWCITF Public Event	Group 6	What types of strategies should the City implement to achieve success? Continue work on rebate program for leaks (i.e. share plumbing costs)
47	Infrastructure and Facilities Management	3/9/2010	CWCITF Public Event	Group 1	What types of strategies should the City implement to achieve success? Infrastructure ready for 2020 demand

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
48	Infrastructure and Facilities Management	3/9/2010	CWCITF Public Event	Group 2	What types of strategies should the City implement to achieve success? Strategize alternative delivery methods
49	Infrastructure and Facilities Management	3/9/2010	CWCITF Public Event	Group 3	What would success in water conservation look like for the City of Austin in 2020? Get along with current supply without bringing online new sources
50	Infrastructure and Facilities Management	3/9/2010	CWCITF Public Event	Group 3	What would success in water conservation look like for the City of Austin in 2020? Maximize existing facilities
51	Infrastructure and Facilities Management	3/9/2010	CWCITF Public Event	Group 3	What types of strategies should the City implement to achieve success? Improve water accountability (e.g. meters) and understand where water loss is occurring
52	Infrastructure and Facilities Management	3/9/2010	CWCITF Public Event	Group 4	What types of strategies should the City implement to achieve success? Leak detection and repair
53	Next Steps	3/9/2010	CWCITF Public Event	Group 5	What would success in water conservation look like for the City of Austin in 2020? Prioritized/sequenced programs
54	Outdoor - Existing Construction	3/3/2010	Email to Water Conservation	Rosa	Biweekly watering restrictions, works for me. When watering, need to water deep. That's all that is required, even in drought...water deep, not shallow
55	Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 1	What types of strategies should the City implement to achieve success? Incentive landscaping changes
56	Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 1	What types of strategies should the City implement to achieve success? Better irrigation technology
57	Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 3	What types of strategies should the City implement to achieve success? Landscape conversion rebates

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
58	Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? Benefit for existing homes to convert to xeriscape
59	Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? Extensive onsite graywater systems
60	Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 5	What types of strategies should the City implement to achieve success? Incentives - expand once a week watering (always)
61	Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 5	What types of strategies should the City implement to achieve success? Enforcement
62	Outdoor - Existing Construction, Outdoor - New Construction	3/9/2010	CWCITF Public Event	Group 5	What types of strategies should the City implement to achieve success? Smart meters/irrigation meters
63	Outdoor - New Construction	3/3/2010	Email to Water Conservation	Rosa	Require multi-family new construction to have a grey water recovery system and have grey water be the only source of irrigation for landscaping?
64	Outdoor - New Construction	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? No St. Augustine on new construction
65	Outdoor - New Construction	3/9/2010	CWCITF Public Event	Group 5	What types of strategies should the City implement to achieve success? Rainwater requirements for new construction

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
66	Outdoor - New Construction, Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 4	What types of strategies should the City implement to achieve success? Irrigation efficiency - smart controllers, new construction, irrigation-only meters
67	Outdoor - New Construction, Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 5	What types of strategies should the City implement to achieve success? Grey water systems
68	Outdoor - New Construction, Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 6	What types of strategies should the City implement to achieve success? Individually - rainwater harvesting, reuse, etc
69	Outdoor - New Construction, Outdoor - Existing Construction	3/9/2010	CWCITF Public Event	Group 3	What types of strategies should the City implement to achieve success? Partner with Texas Parks and Wildlife (Wildscape Program)
70	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 1	What types of strategies should the City implement to achieve success? Advertise conservation, especially waste issues
71	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 1	What types of strategies should the City implement to achieve success? Education - active program, ingrain conservation ethic
72	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 1	What types of strategies should the City implement to achieve success? Education - why we have watering days

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
73	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 1	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Bill flyers
74	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 1	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? School contests on water - online
75	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 1	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Address peoples motivations, bottom line; easily accessible use information
76	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 1	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Where does the water come from - powerful motivator
77	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 3	What would success in water conservation look like for the City of Austin in 2020? Broad, authentic support for conservation
78	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 3	What types of strategies should the City implement to achieve success? Education - comprehensive, year-round

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
79	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 3	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Publish quantifiable water usage on bill (a leaky faucet wastes XX gallons); keep it simple, keep it personal, education on how to read water bills
80	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 3	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Point of purchase education - work with retailers and business to educate customers
81	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 3	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Participatory website - show people how they can save water and money
82	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? Education on xeriscape vs. St. Augustine
83	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 4	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Separate meters educate users about water use
84	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 4	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Open billing (can compare water use to neighbors)

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
85	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 4	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? List top water users in papers regularly
86	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 4	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Maintain focus on youth
87	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 4	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Provide information with bill
88	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 4	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Kilowatt type competition for water use
89	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 4	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Robo-call (notifies customer that they have reached a water use threshold)
90	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 5	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? H2O University
91	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 5	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Bill inserts for water (all bills, so even apartments get information)

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
92	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 5	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Marketing - TV/radio
93	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 5	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Outreach to Spanish, low-income, students; intentional focus on major populations (existing residents)
94	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 5	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Programs like weatherization, etc.
95	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 5	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Take it to the people (in their daily lives)
96	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 5	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Focus groups
97	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 6	What types of strategies should the City implement to achieve success? City needs to use media in different ways to communicate to public (reaching broader audience)
98	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 6	What types of strategies should the City implement to achieve success? Having a comprehensive site regarding water conservation that links all departments for developers and others to navigate

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
99	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 6	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Communication is key
100	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 6	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Enforcing "scare tactics" regarding lake levels, ongoing drought, etc #1
101	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 6	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Neighborhood collaborative effort
102	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 6	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Direct mail pieces targeting different water users
103	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 6	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? WC day
104	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 6	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Targeting water conservation education to elementary school kids (behavior change)

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
105	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 6	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Marketing data/comparison to water usage by European countries, etc and neighbors
106	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 2	What types of strategies should the City implement to achieve success? Green jobs
107	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 3	What types of strategies should the City implement to achieve success? Tap into the resources at UT, other schools, to develop ideas, strategies
108	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 3	What types of strategies should the City implement to achieve success? Work with neighboring communities
109	Public Information, Education, and Outreach	3/9/2010	CWCITF Public Event	Group 5	What types of strategies should the City implement to achieve success? Point-of-sale programs (rebates)
110	Public Information, Education, and Outreach, Funding and Financial Considerations	3/9/2010	CWCITF Public Event	Group 4	What is the best way for the City to educate and/or provide information to the community about their individual water consumption and ways to reduce it? Price is the signal (high price sends message therefore education happens)
111	Reclaimed Water	3/3/2010	Email to Water Conservation	Rosa	Draft makes references to reclaimed water but does not provide a clear definition of reclaimed water.

Comment Number	Comment Topic	Comment Date	How received	Commenter	Comment
112	Reclaimed Water	3/9/2010	CWCITF Public Event	Group 4	What would success in water conservation look like for the City of Austin in 2020? Safely and completely reuse treated waste water
113	Reclaimed Water	3/9/2010	CWCITF Public Event	Group 4	What types of strategies should the City implement to achieve success? Increased use of reclaimed water
114	Reclaimed Water	3/9/2010	CWCITF Public Event	Group 6	What types of strategies should the City implement to achieve success? Reuse (ww effluent, graywater, etc) on-site