

Recommendations submitted on or before July 11, 2016

Note: submissions were not edited except for adjustments made to font type and size

1. Nora Mullarkey, 05/09/16, water conservation coordinator

The state requires municipal water suppliers of over 3,300 connections to develop and implement water conservation plans. However, without dedicated labor resources, the plan may not be implemented.

More and more utilities are recognizing the need to have a water conservation coordinator to implement programs. For example, in 2009, the LCRA modified its water conservation plan rules for municipal contract customers to include a requirement to designate a water conservation coordinator to implement the plan. Since that time, LCRA reports that several of its larger customers (above 3,300 connections) have become more active in implementing water conservation plans and programs. All of these customers had designated conservation coordinators to implement the plan.

The WCAC recommends the state add a requirement that a municipal water supplier must have either an employee or someone representing the supplier be designated as a water conservation coordinator responsible for implementing its conservation plan. In addition, in order to have some consistency in the base knowledge and skills, the water coordinator must be certified by a professional water association recognized by the State.

2. Bill Hoffman, 07/08/16, funding for higher education research

Recommendation for Enhanced Support of Research for
Municipal and Industrial Water Efficiency

Background – How Water Will Be Used in Texas

Total water use in Texas is projected to increase to 21.6 million acre-feet by 2070. ALL of this growth will be in the municipal and industrial sectors. Figure 1. illustrates this. Agricultural (irrigation and livestock) use declines while the municipal and industrial sectors grow substantially. Municipal uses include indoor residential, commercial, institutional, landscape irrigation and leak losses. Industrial includes manufacturing, steam electric and mining uses.

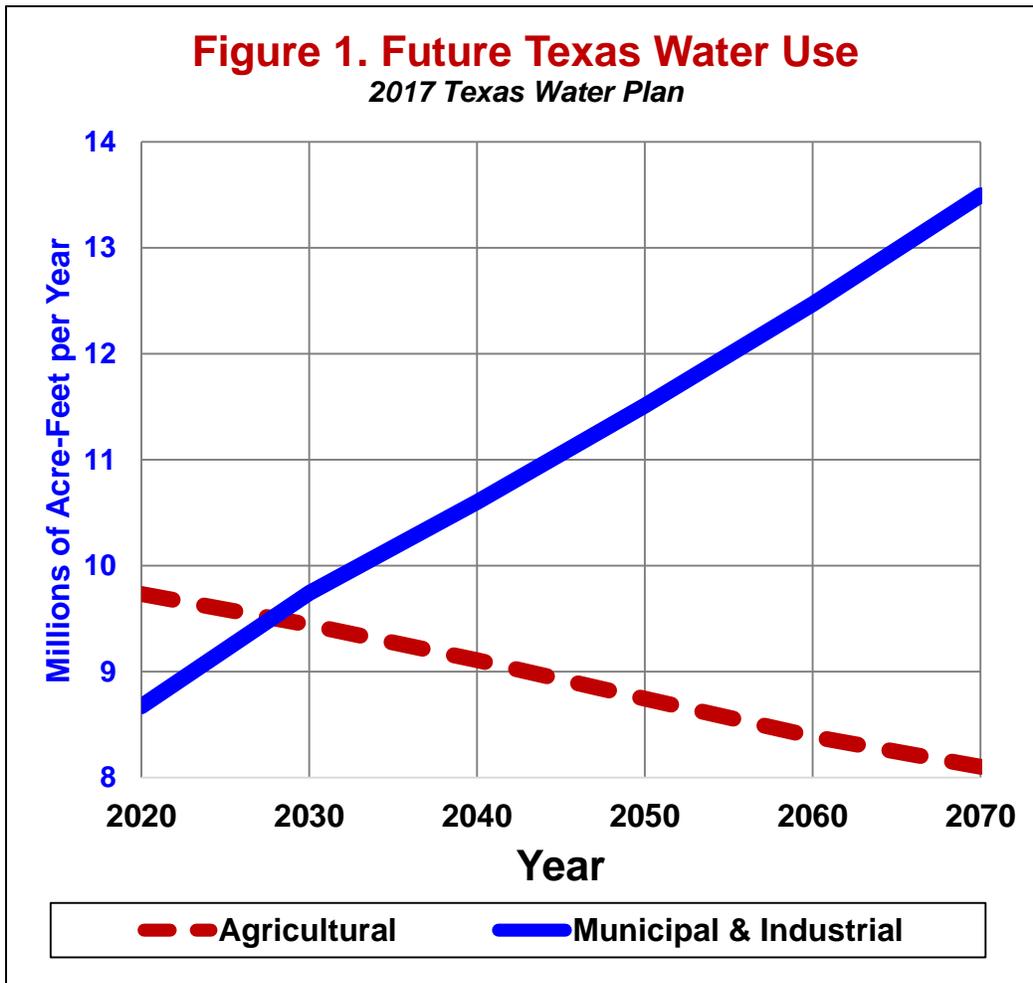
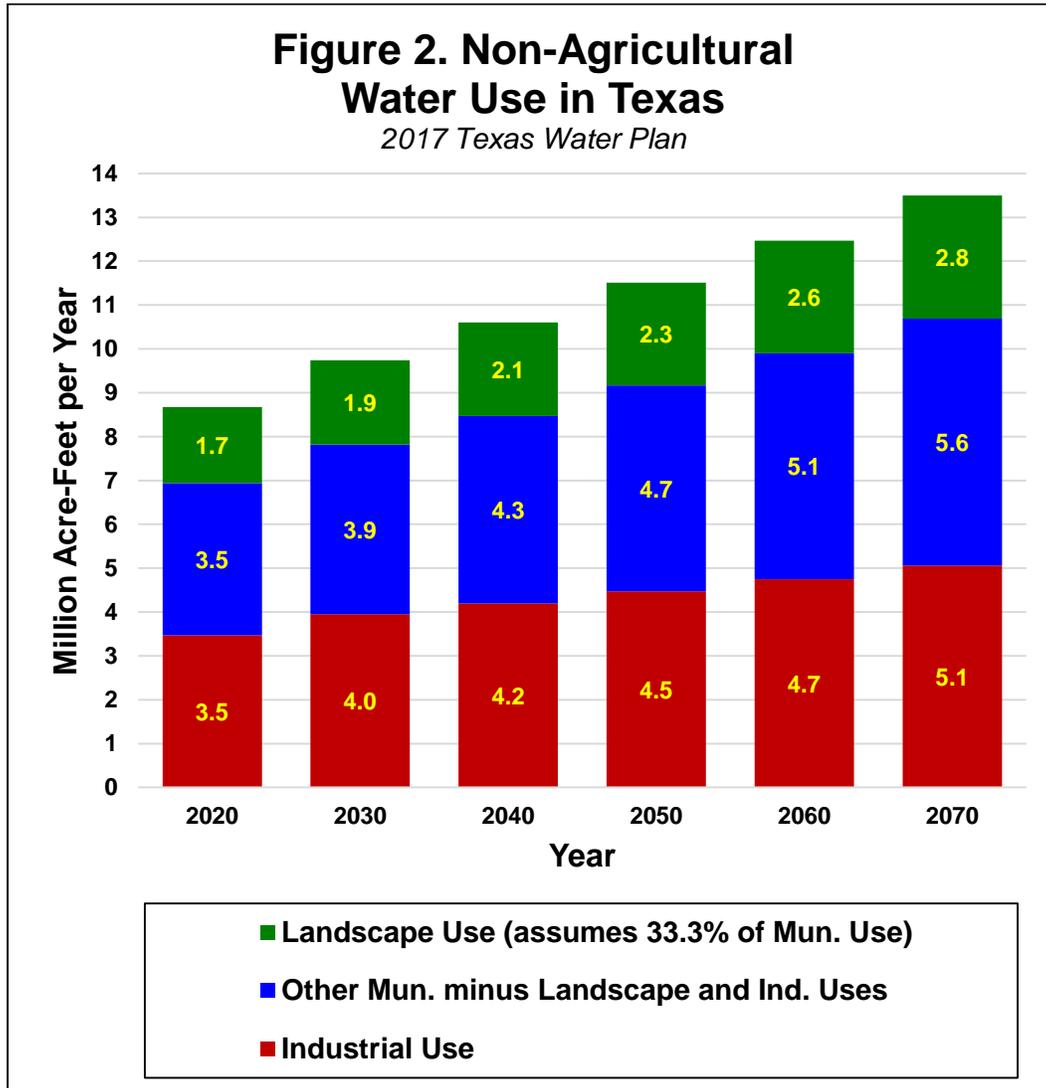


Figure 2. shows how municipal and industrial use breaks down if it is assumed that one third of all municipal use is for landscape irrigation – A HIGH ASSUMPTION.

Based on a 2012 study by the Texas Water Development Board (Technical Note 12-01), 31 percent of single family residential water use is for landscape irrigation. In another analysis of ten years of monthly use by the 27 largest cities in Texas, The volume of water distributed that

is above the winter (December, January and February) use rates is only between 23% and 24% of the water distributed each year (See Figure 3.). Therefore, the amount of landscape irrigation shown in Figure 2. Should be considered a maximum number with reality actually being lower. Figures 4. and 5. show the breakdown for municipal and industrial use in 2070. The manufacturing use supplied by municipalities is taken out of municipal water use projections shown in Figure 2. but included in the industrial figures.



Importantly, this graph shows

Figure 3. Percent of Water Use Above Winter (Dec., Jan., & Feb.) Use for 27 Largest Cities in Texas

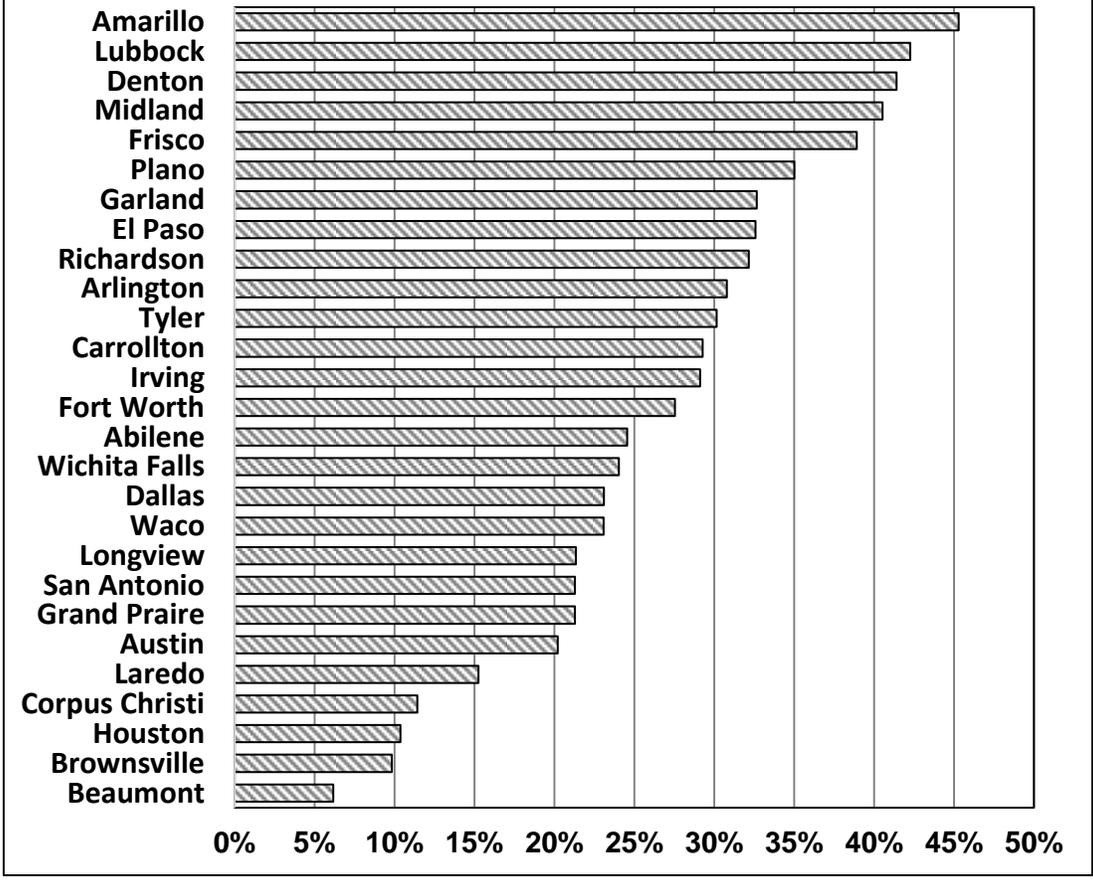


Figure 4. Municipal Water Use in Texas in 2014

Source: WATER USE OF TEXAS WATER UTILITIES - A BIENNIAL REPORT TO THE TEXAS LEGISLATURE, JANUARY 1, 2015.

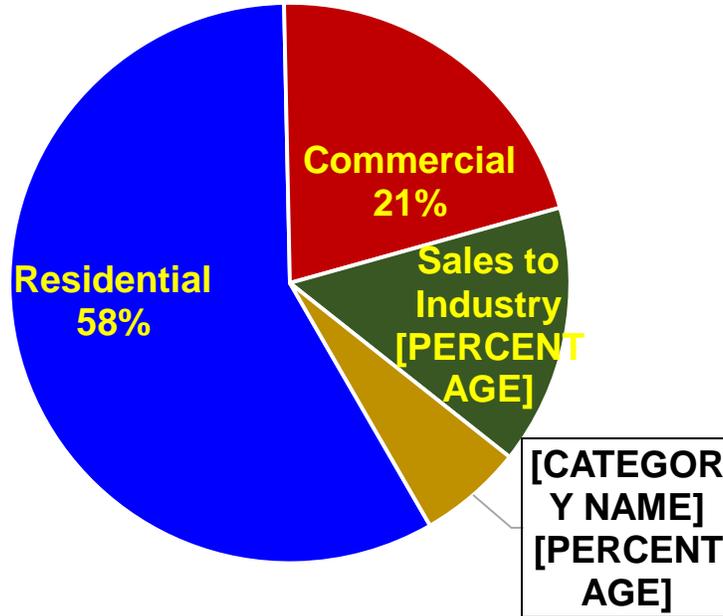
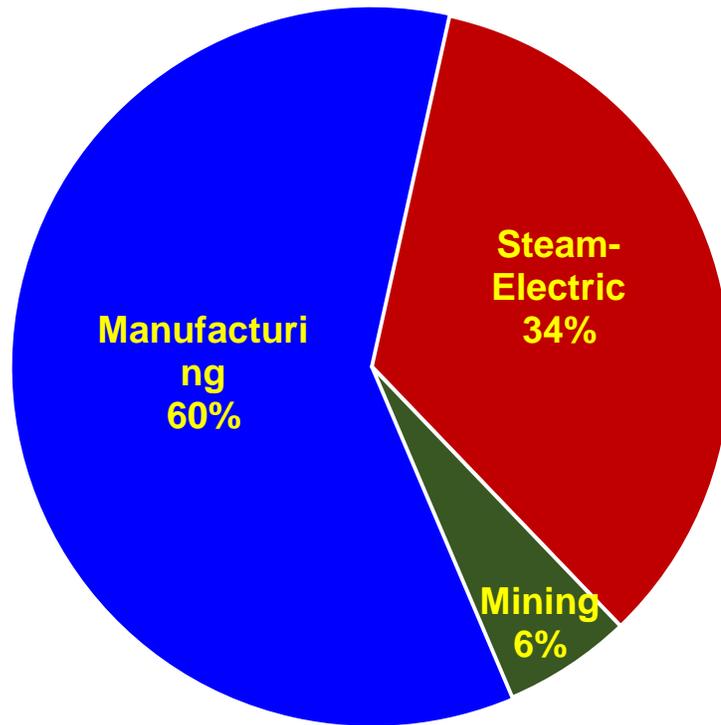


Figure 5. Industrial Water Use in 2070
2017 Texas Water Plan



Discussion - Research Opportunities in Water Conservation

Municipal and industrial water users are the fastest growing water user groups in Texas, but very few research or academic programs exist on this topic other than those focused on horticultural and landscape irrigation research. A recent effort to gather information from major research universities supported by the State revealed that the major constraint was a lack of funding and direction in these areas. This means two things:

1. Few courses are available to look at the total municipal and industrial water conservation opportunities or how water is actually used in this sector, resulting in few new graduates aware of the opportunities or trained in their analysis.
2. Little or no research is occurring to provide insight and development of technologies regarding the technical, economic, sociological, or educational aspects of municipal and industrial water efficiency.

This could lead to an impending shortage of trained professionals in these areas. Institutions of higher learning in Texas are encouraged to address the lack of specific research and focused courses that cover:

- commercial and institutional water use and associated equipment;
- air conditioning and industrial cooling including analysis of systems that reduce both energy and water use;
- benchmarks and quantification of water use and water conservation savings within the urban and industrial water use sectors;
- implementation of urban and industrial water conservation measures;
- the capture and use of alternate on-site sources of water; and
- development of new water efficient technologies and equipment.

Future research should also examine the use of water and energy at the end users level including cooling towers for air conditioning; hot water use; and residential, commercial, and industrial equipment.

Research and analysis are also needed to verify water conservation savings from outdoor landscape irrigation measures, such as the Texas Commission on Environmental Quality irrigation standards for new systems, communities with permanent limits on landscape watering, irrigation technologies such as soil moisture sensors, and the use of drip versus spray irrigation.

An increased emphasis should be placed on incorporating more economic considerations into water conservation research. This topic is typically absent or not well defined in the current literature. For example, agricultural researchers have been quite adept at developing technical alternatives related to saving water, but a primary consideration influencing implementation at the field level is tied to the economic impact on the individual farm.

Research and education are keys to meeting future water demands in Texas. Institutions of higher learning play a vital role in addressing water conservation issues through traditional academic methods and also through on-campus efforts and service learning projects.

Recommendation

It is therefore recommended that the Legislature support, fund and encourage State supported Institutions of Higher Education to increase research in municipal and industrial water conservation and reuse areas beyond landscape irrigation, and that they develop graduate programs and classroom level instruction in these areas where appropriate. This will require additional funding for State supported universities.

It is further recommended that such funding be provided to the Texas Water Development Board for administration and distribution to State universities through grants. The Board should seek the non-binding recommendation of the Texas Water Conservation Council when choosing research funding. The goal would be to provide funding to research projects at Texas Supported universities.

3. Bill Hoffman, 07/08/16, enhanced data collection and analysis

Recommendation to Provide for Enhanced Data Collection and Analysis of Commercial, Institutional, and Industrial (ICI) Water Use by the Texas Water Development Board

Background

If you don't measure it, you can't manage it! The institutional, commercial and institutional (ICI) water use sectors, both self-supplied and supplied by municipalities account for significant portion of non-agricultural water use (Figure 1.). Based on the Texas Water Development Board document “*WATER USE OF TEXAS WATER UTILITIES A BIENNIAL REPORT TO THE TEXAS LEGISLATURE, JANUARY 1, 2015*”, 42 percent of all municipal sales are to the ICI sector (Figure 2.).

In addition approximately 80% + of industrial (manufacturing, steam-electric, and mining) water use is self-supplied. Much data analysis and effort at the State level has gone into examining the potential for water conservation and reuse for landscape and other residential uses. The State does collect industrial water use information, but little is known about the details of water use by the institutional and commercial sectors. Based on Senate Bill 181, the Texas Water Development Board does collect gross annual sales to the commercial and institutional sectors. The first report (*WATER USE OF TEXAS WATER UTILITIES - A BIENNIAL REPORT TO THE TEXAS LEGISLATURE, JANUARY 1, 2015*) shows the general breakdown, but does not show how water is used, its monthly distribution or what technologies offer the best opportunities for conservation

For example, single family landscape irrigation rates have been studied in some detail. Based on a 2012 study by the Texas Water Development Board (Technical Note 12-01), 31 percent of single family residential water use is for landscape irrigation. In another analysis of ten years of monthly use by the 27 largest cities in Texas,

The volume of water distributed that is above the winter (December, January and February) use rates is only between 23% and 24% of the water distributed each year (Figure 3.). However, little data exists to be able to quantify how water is used in the various ICI sectors. Some studies have shown that for larger entities, cooling water use dominates. For manufacturing, information was gathered by the TWDB prior of 2000 on how water is used (cooling, process, sanitation, irrigation, and other), these types of data have not been collected since then. As for commercial and institutional users, little detailed breakdown of how water is used exists.

In a similar manner, Florida, California and many cities across the nation have begun to gather benchmark information on water use by the commercial and institutional sectors. Minneapolis, Atlanta, New York, Washington DC, Philadelphia, and Boston now require larger commercial and institutional users to benchmark energy and water use using the US Environmental Protection Agencies' Energy Star Portfolio Manager energy and water use benchmarking tool.

Figure 1. Future Texas Water Use

2017 Texas Water Plan

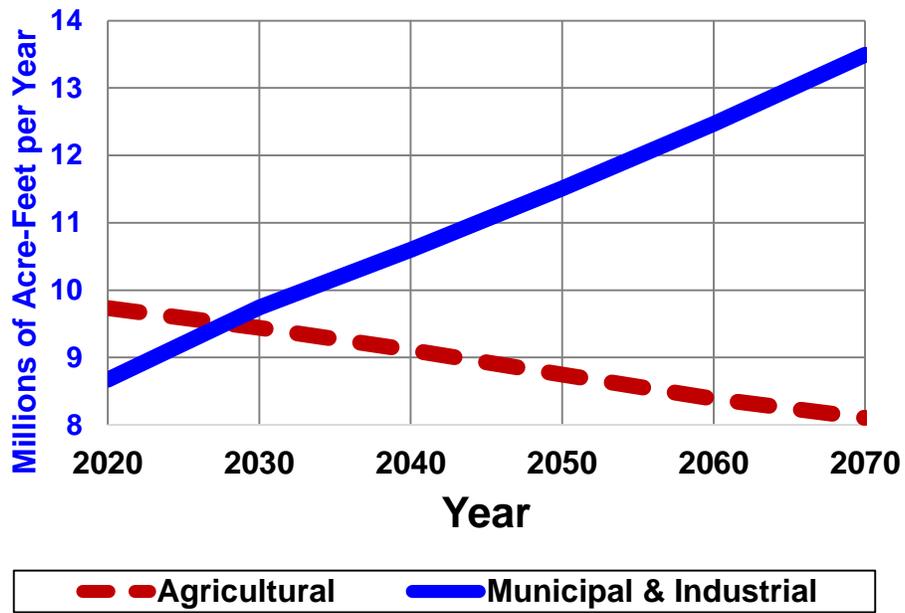
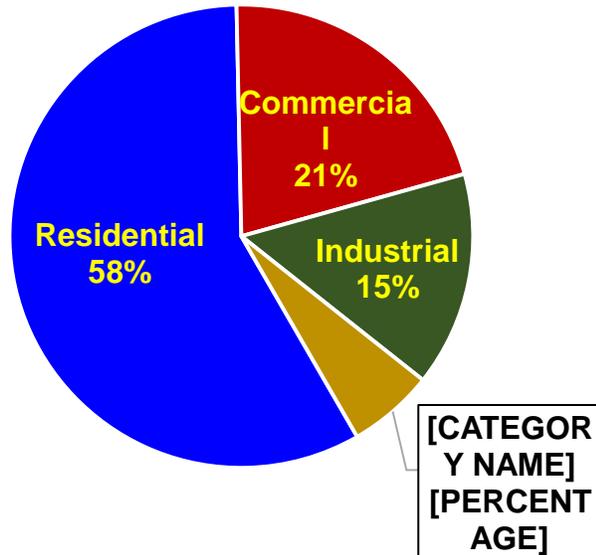
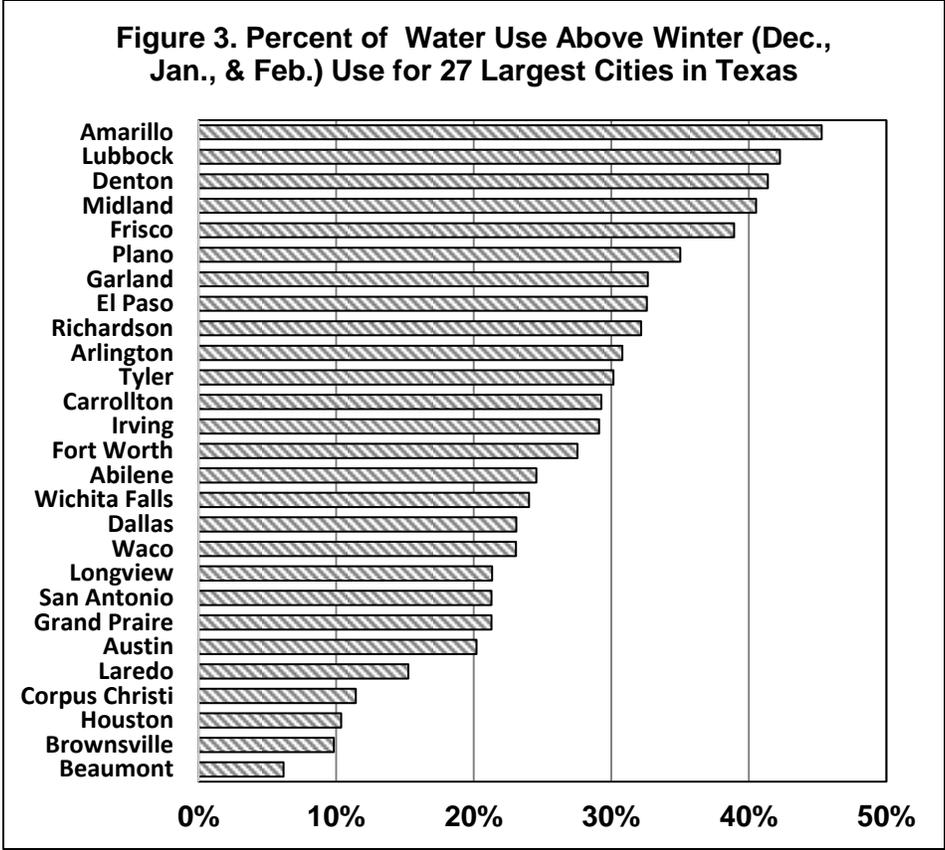


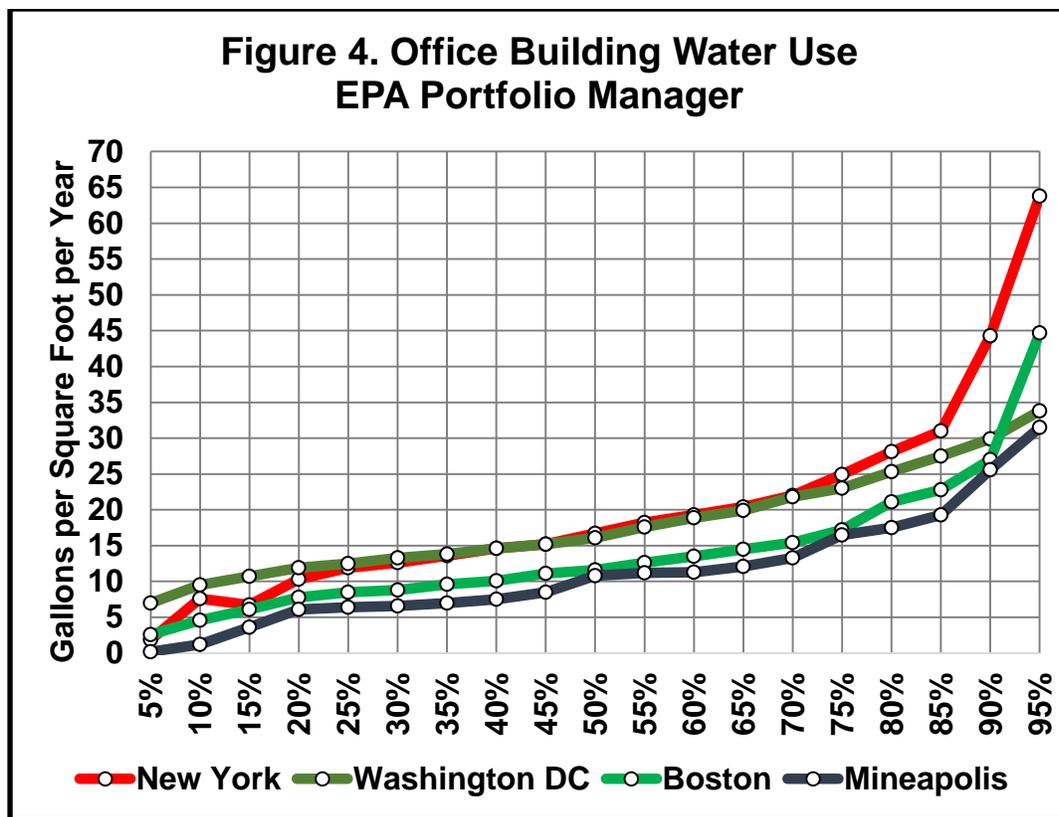
Figure 2. Municipal Water Use in Texas in 2014

Source: WATER USE OF TEXAS WATER UTILITIES A BIENNIAL REPORT TO THE TEXAS LEGISLATURE, JANUARY 1, 2015.





Based on Senate Bill 700, the State Energy Conservation Office (SECO) currently uses the US Environmental Protection Agency’s Energy Star Portfolio Manager energy and water use benchmarking tool to collect information from State facilities and State supported universities. This tool has been successfully used by many cities and states across the nation to benchmark commercial and institutional water use as illustrated in Figure 4.



SECO is primarily an energy efficiency agency. Unfortunately, the SECO staff does not have experts *in water use* in the commercial and institutional sectors and frankly this type of expertise

With the importance of the growth of institutional, commercial, and industrial (ICI) water use in Texas, it is imperative that better data be collected. Figures 5. show both the rapid growth of municipal and industrial use over the next 50 years as well as the importance of ICI water use to the municipal sectors.

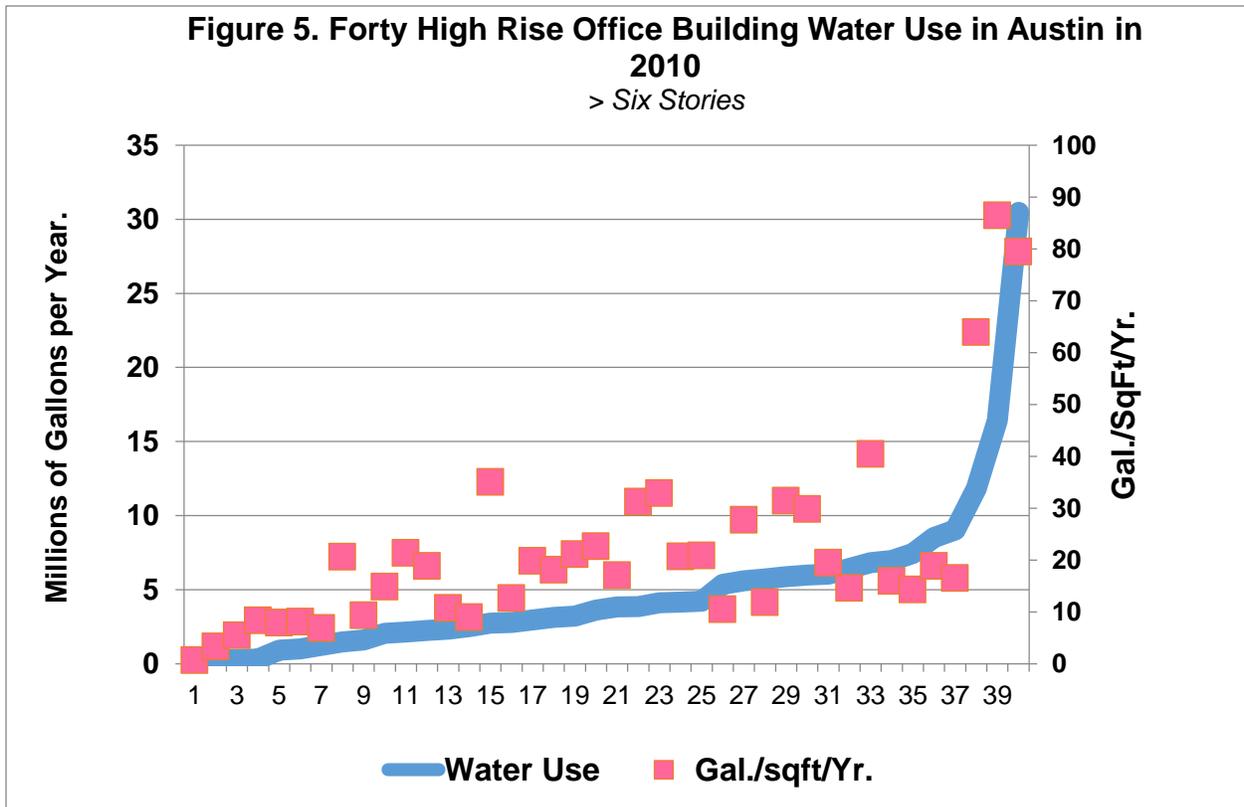
The Problem

Currently, no position at the Texas Water to provide expert technical assistance regarding non-irrigation and plumbing related water using technologies and practices in the ICI sector, no how water is used in ICI sectors. Furthermore, no such data is currently being collected and made available for making better predictions of future needs, the potential for conservation and reuse and related studies for especially the commercial and institutional sectors. More emphasis has been placed on the industrial sectors, but again, much more is needed.

RECOMMENDATION

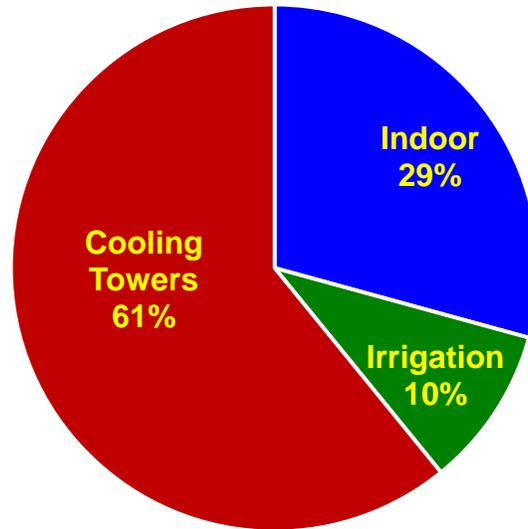
It is recommended that one additional position be created at the Texas Water Development Board for the technical and statistical analysis of water use in the institutional, commercial and industrial sectors. The person should have a background in statistical analysis as well as a chemical or mechanical engineering background so that they have an understanding of commercial and industrial mechanical and process equipment.

It is further recommended that the Texas Water Development Board reinstitute the collection of information on how water is used by manufacturing facilities. The categories of use that should be examined are cooling, process, sanitation, landscape, pollution control and “other”. It is also recommended that that the Board person be assigned to work with the State Energy Conservation Office to assist with the analysis of water information collection and analysis. Other information that should be included is the development of benchmark information on commercial and institutional water use such as the information included in the information in Figures 5. and 6.



**Figure 6. Water Use by 33 Office Buildings
in Texas With Cooling Towers**

Buildings in Dallas, Austin and Fort Worth



4. Ken Kramer , 07/11/16, funding for WaterIQ

Legislative Recommendation for Water IQ Funding for Consideration by the Water Conservation Advisory Council:

Subject to available state revenue for the 2018-2019 biennium, the Texas Legislature should appropriate funds to the Texas Water Development Board to implement the statewide water conservation public awareness program that was created by the Legislature in 2007 with the passage of Senate Bill 3 and House Bill 4, and the Legislature should consider an appropriation for the program of up to \$3 million per year, an amount recommended by the Legislative Budget Board in its 2013 Government Effectiveness & Efficiency Report (GEER).

Rationale for the Recommendation:

- (1) Establishment and funding of a statewide water conservation public awareness program was a consensus recommendation of the Water Conservation Implementation Task Force established for the 2004-2005 biennium by passage of Senator Duncan's Senate Bill 1094 (the Task Force was a diverse set of stakeholders including agricultural, environmental, retail & wholesale water supply, municipal, groundwater district, academic, and other interests)
- (2) The statewide water conservation public awareness program, which is known as Water IQ, was established without opposition in 2007 with the enactment of SB 3 & HB 4, but no funds were specifically appropriated to TWDB then or in subsequent sessions for the program
- (3) TWDB to its credit has implemented the Water IQ program to the extent possible out of existing appropriations but only up to \$50,000 a year when funds were available, which is inadequate to have a real statewide impact in educating Texans about water and the need to conserve (some local & regional entities have adopted Water IQ and are using it in their jurisdictions and some private funds have been raised and spent in cooperation with the Texas Association of Broadcasters to spread the water conservation message, but the reach of these efforts are limited by geography and funding)
- (4) The Legislative Budget Board staff in the 2013 Government Effectiveness & Efficiency Report (GEER) recommended a \$6 million appropriation for the Water IQ program as part of the recommendations to "Enhance State Participation in Municipal Water Conservation"
- (5) Water conservation is the most cost-effective management strategy to meet the state's water needs and municipal water conservation is recommended in the new 2017 state water plan to meet almost 10% of the state's water demands by 2070 but meeting that goal is not guaranteed without funding
- (6) Water conservation will help the state minimize the need for additional infrastructure – the LBB staff calculated in 2013 that a reduction in water consumption of just one gallon per capita per day by all Texans could potentially avoid \$407.2 million of the \$53.1 billion in capital costs that had been projected by the 2012 state water plan – Water IQ can help lower water use by Texans
- (7) Funding the statewide water conservation public awareness program complements and supports local & regional water conservation efforts, and it would provide the opportunity to carry the water conservation message to communities that do not have the financial resources for an extensive education program of their own – research has shown that when educated about water issues people are more likely to conserve their water resources

5. Karen Guz, 07/11/16, water loss audit improvements

Legislative Recommendation for Water Loss Audit Improvement Regulations for Consideration by the Water Conservation Advisory Council:

The Texas Legislature should require water audit reports that are already required to be prepared and submitted annually to be completed by a person trained in water loss auditing, and the Texas Water Development Board should adopt rules to specify training options.

The Texas Legislature should require all retail public water utilities serving an estimated population of 100,000 or more and all political subdivisions or nonprofit water supply corporations receiving financial assistance of more than \$500,000 from the Texas Water Development Board for water supply projects to have their annual water loss audits reviewed for data validity by an approved third party according to rules and guidelines adopted by the Board.

The Texas Water Development Board should consider utilizing the data validity scoring for water loss audits that is provided in the American Water Works Association (AWWA) free water loss audit score card.

Rationale for the Recommendation:

- (1) Water Loss Auditing is a relatively new practice for North American water utilities. As a result understanding of the water loss audit process, vocabulary and even analysis of results is challenging.
- (2) Texas, Georgia and California have regulations requiring water loss audits. Reviews of audits completed in all three states revealed inconsistencies in how inputs are used and invalid results in many of the audits. Without accurate use of the audit tool, utilities are not going to benefit from the audit analysis which should guide infrastructure improvement plans.
- (3) Texas developed a water loss audit reporting tool to facilitate collection of audit data. Since that time a free water loss audit tool has been developed by the American Water Works Association (AWWA) Water Loss Control Committee. This tool includes a rigorous set of guidelines to rank the confidence in each set of data used in the audit. A free worksheet is available from the Water Loss Control Committee that utilities can use to complete their water loss audits which can then be compared to others from across the country. If Texas were to update its water loss audit worksheets and guidelines to match those of the AWWA Water Loss Control Committee, then Texas utilities could use the free peer review process available through the committee to better understand their results.
- (4) Workshops can be offered to explain terms and inputs to the water loss audit worksheets. These could be offered to utility representatives on-line and through workshops offered across Texas. Many such workshops have already been offered with good attendance.
- (5) Large utilities in particular can benefit from a third party, qualified expert in water loss auditing. This could be accomplished through hiring an approved expert consultant or through the free peer review process offered through the AWWA Water Loss Audit Committee.

6. Jay Bragg, 07/11/16, funding for assessing agricultural water use and trends

Agricultural irrigators have been implementing on-farm conservation practices for many years; however, they remain the single largest water use sector in Texas. A recent Texas Water Resources Institute analysis¹ estimated that irrigation efficiency has increased from 60% in the 1970s to 88-95% today throughout most of the state. However, data gaps, inconsistencies in reporting methodologies, and shifting priorities has made it difficult to accurately assess agricultural water use trends. **We recommend that the Legislature consider allocating state funds to more accurately assess agricultural water use, conservation practice adoption, and trends by planning region.**

7. Jay Bragg, 07/11/16, funding for ag water conservation programs at Texas State Soil and Water Conservation Board (TSSWCB) & TWDB

Agricultural water conservation is the single largest and most cost effective strategy listed in the 2017 State Water Plan. However, unlike water conservation practices listed for other sectors, few agricultural water conservation practices result in a direct net benefit for individual agricultural producers. These benefits are generally realized regionally or over an extended period of time. As such, **we recommend that the Legislature maintain and/or increase funding levels for agricultural water conservation programs administered by the Texas State Soil and Water Conservation Board and Texas Water Development Board.**

8. Jay Bragg, 07/11/16, add TSSWCB as non-voting delegate for all regional water planning groups

Given the significance of water conservation in the State and Regional Water Planning process and TSSWCB's role in implementing water conservation and land stewardship programs, **we recommend that the Legislature revise §357.11(e) of the Texas Water Code to include a “staff member of the Texas State Soil and Water Conservation Board designated by its Executive Director” as a non-voting delegate on all Region Water Planning Groups.** Other state agencies already listed in the statute include the TDA, TPWD and TWDB.

9. Jay Bragg, 07/11/16, funding for Texas A&M AgriLife Research and Extension

Research, education, outreach, and training are also needed to help facilitate adoption of new and emerging on-farm water conservation technologies. Advanced irrigation scheduling, the use of drones, sensors and other tools, improved plant genetics, and alternative crops could greatly reduce water consumption and improve irrigation efficiencies and economic output. As the state's lead agency in agricultural education, **we recommend maintaining and/or increasing funding levels for Texas A&M AgriLife Research and Extension Services to provide water conservation research, education, outreach, and training to agricultural producers.**

10. Jay Bragg, 07/11/16, establish a premium finance program for SWIFT set-asides

The Legislature carved out dedicated funding in the State Water Infrastructure Fund for Texas (SWIFT) for agricultural and rural projects to ensure that all sectors could equitably take advantage of the program. However, in order for a project to be considered for SWIFT funding, it must first be recognized in the State Water Plan. While agricultural water conservation is a recommended strategy, few projects have surfaced. We recommend reconsidering the establishment of a premium finance program for the agricultural and rural sector, as well as, the conservation and reuse targets identified in §15.434(b) of the Texas Water Code, if target goals are not met.

11. Ken Kramer , 07/11/16, require enforceable watering limitations if requesting TWDB financial assistance greater than \$500,00

Legislative Recommendation for Requiring Certain Applicants for State Financial Assistance for Water Supply Projects to Adopt Outdoor Watering Limitations:

The Texas Legislature should require any political subdivision applying to the Texas Water Development Board for state financial assistance of more than \$500,000 for a municipal water supply project to adopt enforceable time-of-day outdoor watering limitations and enforceable seasonal or year-round day-of-the-week or days-of-the week outdoor turf watering limitations before a financial commitment is made, in order to reduce evaporative water loss and reduce water waste. This requirement may be waived for state financial assistance for water supply projects to meet an emergency need.

Rationale for the Recommendation:

(1) Outdoor water use, particularly lawn watering, accounts for almost one third of annual residential water use in Texas, and can represent a much higher percentage during our hot, dry summers.

(2) Municipal water use during the summer months in Texas in many areas is as much as 50% to 100% higher than in the winter months, and this increased water use is usually driven by outdoor landscape watering. Indeed, peak water demand, which may determine the sizing of water utility infrastructure, in most municipal utilities occurs during the hot summer months. Shaving this peak demand through reasonable limitations on outdoor watering could help to avoid not only the waste of water but also the cost of building unnecessary infrastructure.

(3) Putting reasonable limitations on outdoor watering is not detrimental to most outdoor landscapes, especially those that are characterized by climate suitable or drought tolerant trees, plants, and grasses. Studies show that homeowners have a tendency to overwater landscapes by as much as two to three times the amount needed.

(4) An increasing number of political subdivisions in Texas – including, for example, the cities of Dallas, Fort Worth, and Irving plus entities such as The Woodlands Joint Powers Authority, have limited outdoor lawn watering to no more than twice-a-week on an ongoing basis. The City of Austin recently adopted a limitation on the use of an automatic lawn irrigation sprinkler to no more than once a week (with the ability to augment that with another day of hose-end sprinkler watering). These entities and a number of others – such as San Antonio – have time-of-day watering limitations so that outdoor watering is not done during the hottest parts of the day. However, despite the trend in this direction, thus far only about one-third of large and medium-size utilities (defined as those serving a population of 25,000 or more) have any limitations on outdoor watering use except during drought conditions. Thus, it is likely that much water in urban and suburban areas is wasted on unnecessary outdoor watering.

(5) Several entities that have implemented outdoor watering limitations on an ongoing basis or during drought – for example, Austin, Dallas, Fort Worth, Tarrant Regional Water District, and The Woodlands – have identified significant reductions in water use, ranging from 7% to 13%, as a result of implementing no-more-than-twice-a-week outdoor watering limitations.

(6) The Texas Legislature has shown its commitment to advancing water conservation and to providing necessary state financial assistance to projects recommended in the state water plan. In order to make the most effective and efficient use of state funding to meet the water needs of Texans, political subdivisions seeking that funding should be required to take prudent steps to conserve that water, including putting reasonable limitations on outdoor watering.

12. Carole Baker, 07/11/16, improve customer access to data

Drawing on four years of lab testing and data-intensive field testing of behavioral change tools, consumer water use and water metering systems, Pecan Street Inc. respectfully offers the following recommendations to the Texas Water Conservation Advisory Committee for inclusion in the WCAC's recommendations to the Texas Legislature.

Better water use data opens the door for significantly improved home water use management and leak detection. The value of this water use data is impacted significantly by its granularity and timeliness. Higher resolution, real-time data offer particular promise in promoting the development of connected home devices targeted to leak detection and more efficient irrigation system use. For instance, if the data provided to the customer (or her/his connected home device) comes at the end of the month and is rounded to the nearest 100 gallons, it will typically produce less conservation and leak detection impact than if a customer can be alerted in near real-time that a toilet flap is stuck open or that his/her sprinkler system used 1,700 gallons last night.

In the area of electric smart grid implementations, Texas is a national leader in ensuring that customers have access to their own data, including in real time. Texas can likewise establish national leadership in using data as a tool for water savings: (1) by ensuring that customers can securely view their own water use data from the day before on a mobile app or the web; and (2) by promoting that make it possible for customers to purchase in-home devices that connect with the utility meter to provide real-time home leak detection and data-driven home irrigation management.

Such measures would make it possible for Texas water providers to achieve dramatic water use savings by harnessing the power of better data and voluntary, market-driven technology innovations.

To achieve these benefits, Texas water providers should do the following:

Recommendations 1 and 2: Customer access to data

Texas water providers should follow the best management practices established by the Texas Public Utility Commission (PUC) for ensuring that customers have timely access to their own use data:

1. *Real-time use data*: Customers should have the opportunity to access their real-time water use by acquiring and installing an in-home device of the customer's choice that can communicate securely with the utility meter, download real-time water use data and communicate this data
2. *Historic use data*: For utilities that adopt advanced metering systems, these utilities should provide customers with the ability to access their own interval use data over a mobile app (both Android and iOS), a web portal, or both.

Recommendation 3: permit non-intrusive monitoring equipment at meter

Where the utility meter is not capable of providing secure real-time streams of water use data to the customer's selected in-home device, utilities should permit the installation of a non-intrusive monitoring system on the utility meter so the customer's in-home device can access real-time data from the meter.

Such non-intrusive monitoring systems should not require the utility to replace the existing meter; in fact, the best practice non-intrusive monitoring system should use technologies similar to those found in water meter data loggers, which utilities have commonly deployed for decades.

Recommendation 4: meter data transmission protocol selection

Electric smart metering systems almost universally broadcast meter data over open industry standards (the most common are ZigBee and ERT). The benefits of this approach are (1) it protects utilities from being locked in to a meter vendor and (2) promotes the development of connected-home products that consumers can pair wirelessly to the meter to access their data securely.

A number of water metering vendors use their own proprietary radio networks that only that particular vendor is authorized to operate. This creates a substantial risk that the water utility will become vendor locked to that company and it also inhibits the ability of customers to acquire connected-home devices that can pair securely with the meter to provide services such as home leak detection and data-driven home irrigation management.

To protect utilities and ratepayers from these risks, water providers who elect to deploy advanced metering systems should either:

- a. Select metering systems that employ an industry standard wireless protocol (such as ERT); or
- b. Contractually require a transition plan from the meter vendor that would make it possible for the utility to select a different service provider that would be authorized to continue acquiring data from the meters already in the ground, even if that requires that the replacement vendor be permitted to use the original vendor's proprietary radio network protocol.

Background on recommendation development

Pecan Street developed these recommendations after carrying out a wide range of real- world, data-intensive testing since 2012 that includes the following:

1. Lab and field testing over 30 models of water meters including legacy displacement meters, ultrasonic meters, advanced meters that broadcast over ERT and advanced meters that broadcast over a range of proprietary networks. Tests included battery life, meter accuracy, radio signal reliability and product reliability.
2. Operating two meter data networks (including operating collectors)
3. Carrying out over 15 behavioral and technology interventions to identify how customers interact with various technologies and the conditions in which customers modify behavior patterns in response to information
4. Building and operating four mobile applications and a web portal
5. Conducting annual research surveys that record demographic and home equipment information
6. Acquiring and managing over 270 million unique electric, gas and water use reads each month (9 million a day) at Pecan Street's datacenter
7. Testing over 40 consumer products in actual homes to measure customer response and the accuracy of product performance claims

13. Karen Guz, 07/11/16, improve access to contents of conservation plans and reports

Recommendation:

TWDB shall allocate resources necessary to make the contents of conservation plans and reports accessible through web access using appropriate reporting and analytics tools.

Background:

- (1) TWDB collects conservation plans every five years and conservation plans annually. While there have been improvements in how reports are linked to each other and submitted electronically, this has not translated to making the contents of the reports available quickly. The volume of data and processes result in conservation report information and reports being summarized and available for review up to two years after the submittal was complete.
- (2) A variety of data reporting tools are available and can be deployed to enhance retrieval and analysis of the data that is submitted. The value of the reports will be greatly enhanced with this additional investment.