Texas Water Development Board

Water Use of Texas Water Utilities

Report to the 84th Texas Legislature
January 2015

WATER USE OF TEXAS WATER UTILITIES

A BIENNIAL REPORT TO THE TEXAS LEGISLATURE, JANUARY 1, 2015

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1 EXECUTIVE SUMMARY

Since 2011, Texans have been forced to reconsider how they use their water. That year produced the worst single-year drought in recorded history, and more than 1,000 public water systems enacted voluntary or mandatory water restrictions for their customers. The following year saw a continuation of restrictions by water utilities on how individuals and businesses used water, but it also saw the completion of the 2012 State Water Plan, in which approximately 20 percent of the 2060 municipal water needs are expected to be met by conservation activities of utilities. Now, and in the future, it is vital that Texans understand how they use water and how to use it most efficiently.

In 2011, the 82nd Texas Legislature enacted Senate Bill 181, directing the Texas Water Development Board (TWDB) and the Texas Commission on Environmental Quality (TCEQ) to develop a uniform method for calculating water use and a related reporting program for municipalities and water utilities. This report provides a description of the reporting program, as well as information regarding the customers and the volumes delivered of responding Texas water utilities.

The TWDB and TCEQ staffs, in conjunction with the Water Conservation Advisory Council, have developed a uniform and consistent method of calculating water use and have provided such guidance to water utilities and the public. From the 2013 data collected, 304 water utilities met the size and data-quality requirements to be analyzed in this report. Significant findings of the reporting from these utilities include:

- More than two-thirds of these utilities were municipal-owned, although all types of ownership were represented by at least one utility.
- On average, the majority of metered water (58 percent) is delivered to single-family and multi-family residential customers.
- Thirty-four utilities, or 11 percent of the total analyzed, reported significant deliveries to customers in the non-residential sectors (institutional, commercial, and industrial). For such utilities, the water delivered to residential customers represented a much smaller portion of the volume delivered, an average of only 35 percent.
- In general, as utilities become larger, the relative percentage of their metered water delivered to residential sectors decreases, and deliveries to non-residential sectors increase. The utilities were analyzed in four size categories; in the smallest category, residential sectors averaged 69 percent of total deliveries, while in the largest, an average of 48 percent of the deliveries went to residential connections.
- While the per-person volume of all metered water varied greatly between utilities, the per-person volume of water delivered to residential customers varied much less.

This report finds that the pattern and volume of utility water usage can vary significantly, but there also appear to be commonalities that might allow utilities with similar customer profiles to share ideas and strategies. In addition, more utilities are making progress in being able to categorize to whom they deliver water, and how much. As demands on the water supply of Texas utilities increase, whether through droughts that may occur next year, or in 50 years, it will be essential to understand how the water is used. With this knowledge, water utilities will be able to customize and maximize their conservation efforts to make the most of this precious resource.

2 INTRODUCTION

As documented in regional and state water plans, as well as reported in the media throughout the past several drought years, planning for the state's water supply is essential to avoid negative economic impacts and ensure the health and safety of the citizens of Texas. Of all the identified strategies to ensure future water supply, conservation is, generally speaking, the least expensive. To use our current water supply more efficiently is usually less expensive than developing new supplies. However, in order for Texas water utilities to develop effective programs to save water, they must have a comprehensive understanding of how that water is used. Such understanding requires measuring water use and interpreting the meaning of those metrics. That needed understanding is the basis of the Senate Bill 181 legislation and this biennial report.

2.1 GENERAL DESCRIPTION OF SENATE BILL 181

In 2011, the 82nd Texas Legislature passed Senate Bill 181 to address the calculation and reporting of water usage by municipalities and water utilities for state water planning and other purposes. Through amendments to Chapter 16 of the Texas Water Code, this legislation established a consistent method for reporting water use data and to improve conservation reporting procedures.

Texas Water Code §16.053(e) requires that regional water plans include information on projected water use and conservation in the regional water planning area, as well as the implementation of projects and water conservation strategies necessary to meet the state's water demands based on these projections. Evaluating implementation of such conservation strategies is dependent upon utilities measuring their water use in a consistent manner over time.

Prompted by the legislature's call to track water use over time and evaluate the effects of water conservation programs, Senate Bill 181 added §16.403 and §16.404 to the Texas Water Code. Section 16.403, Water Use Reporting, requires the TWDB and the TCEQ, in consultation with the Water Conservation Advisory Council, to develop a uniform, consistent methodology for calculating water use and a guidance document for reporting on water conservation. Municipalities and water utilities with more than 3,300 connections are to use these methodologies in their efforts to develop water conservation plans and prepare annual reports and five-year implementation reports. Section 16.404, Rules and Standards, directs the TWDB and the TCEQ to require an entity to report the most detailed level of water use data that the entity is capable of producing.

Senate Bill 181 required that by January 1, of 2015 and of each subsequent odd-numbered year, the TWDB shall submit to the legislature a report regarding the statewide water usage by water utilities in the residential, industrial, agricultural, commercial, and institutional sectors, as well as the data collection and reporting program developed.

2.2 DEVELOPMENT OF THE DATA COLLECTION AND REPORTING PROGRAM

The development of the reporting methodology was conducted by a committee described as the "Senate Bill 181 Committee", composed of staff from the TWDB and the TCEQ, as well as interested members of the Water Conservation Advisory Council. The committee met periodically in late 2011 and early 2012 to

discuss rules, definitions, calculations, guidance documents, and other requirements pertaining to the implementation of the bill. Documents developed by the Senate Bill 181 Committee were posted on the TWDB's website for public review and resulted in the *Guidance and Methodology for Reporting on Water Conservation and Water Use.*[1] Much of the following information can be found in the guidance document available on the TWDB's website.

2.3 Water Use Calculation Methodology

Senate Bill 181 stated that "a sector-based water use metric, adjusted for variables in water use by municipalities and water utilities, is necessary in order to provide an accurate comparison of water use and water conservation among municipalities and water utilities" (Texas Water Code §16.403(a)(6)). The TWDB and TCEQ, in consultation with the Water Conservation Advisory Council, were tasked to develop a uniform, consistent methodology and guidance for calculating water use and conservation to be used by a municipality or water utility in developing water conservation plans and preparing reports required under this code. At a minimum, this sector-based methodology and guidance was required by Senate Bill 181 (Texas Water Code §16.403(b)) to include:

- A method of calculating total water use by a municipality or water utility, including water billed and nonrevenue water used, and a method of calculating water use for each sector of water users served by a municipality or water utility.
- A method of calculating total water use by a municipality or water utility in gallons per capita per day.
- A method of classifying water users within sectors.
- A method of calculating water use in the residential sector that includes both single-family and multi-family residences, in gallons per capita per day.
- A method of calculating water use in the industrial, agricultural, commercial, and institutional sectors that is not dependent on a municipality's population or the number of customers served by a water utility.
- Guidelines on the use of service populations by a municipality or water utility in developing a per-capita-based method of calculation, including guidance on the use of permanent and temporary populations in making calculations.

2.3.1 Total Water Use and Residential Water Use

The legislature directed the TWDB and the TCEQ, in consultation with the Water Conservation Advisory council, to develop "a uniform, consistent methodology and guidance for calculating water use…" including total water use in gallons per capita daily and residential (single-family and multi-family) in gallons per capita daily (Texas Water Code §16.403b). The previously mentioned Senate Bill 181 Committee developed such methodology and guidance and a full description of such gallons per capita daily figures can be found in the guidance document[1].

Total Water Use

"Total gallons per capita per day takes into account all water use sectors that a system may have including residential, industrial, commercial, institutional, and agricultural. This metric then divides the total

[1] http://www.twdb.texas.gov/conservation/doc/SB181Guidance.pdf. (Hereafter referred to as Guidance.)

volume of water taken into the system by a population number even though not all of the water use may be population-dependent," (Guidance, p. 29).

Residential Water Use

"Residential gallons per capita per day - the total gallons sold for residential use by a public water supplier divided by the residential population served and then divided by the number of days in the year," (Texas Administrative Code Chapter 288.1) (Guidance, p. 33).

2.3.2 Water Use Sector Descriptions

Single-Family Residential

Single-family residential use is defined as the use of water that is delivered to single residences, which applies to indoor and outdoor uses. Single-family residential use is a classification of housing where a single detached dwelling is a free-standing residential building. However, duplexes are also included in the single-family residential sector due to the similarity in water use and the common practice of allowing duplexes within single-family residential zoning areas.

Multi-Family Residential

Multi-family residential use is a classification of housing where multiple separate housing units for residents are contained within one building or several buildings within one complex. Water use and the number of units (connections) are often difficult for utilities to report as the apartment complex may be categorized as commercial and the complex may have a single meter.

Institutional

Institutional use is defined as the use of water by an establishment dedicated to public service, such as a school, university, church, hospital, nursing home, prison, or government facility. All facilities dedicated to public service are considered institutional regardless of ownership (Guidance, p. 15).

Commercial

Commercial use is defined as the use of water by a place of business, such as a hotel, restaurant, or office building. This does not include multi-family residences or agricultural, industrial, or institutional users (Guidance, p. 14).

Industrial

Industrial use is defined as the use of water in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, and the development of power by means other than hydroelectric, but does not include agricultural use (Guidance, p. 14).

Agricultural

Agricultural use is defined as any water use involving agriculture, including irrigation. Agriculture is defined to include the following activities:

- Cultivating the soil to produce crops for human food, animal feed, or planting seed, or for the production of fibers.
- The practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower.

- Raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value.
- Raising or keeping equine animals.
- Wildlife management.
- Planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure (Guidance, p. 14).

Benefits of Sector-Based Water Data

Sector-based reporting can be highly beneficial to water providers by providing more specific information regarding such customers and their usage. With well-defined and consistent analysis of data and information per sector, water providers and user groups can develop more effective conservation initiatives and programs.

When a utility only knows the total volume of water diverted and the population served, total gallons per capita per day is by default the single metric often used to evaluate performance. This can be misleading because of highly variable water use profiles. It is important to keep in mind that the more detailed the information obtained per water use sector, the greater the understanding of how water is being used and where opportunities for conservation exist.

Total gallons per capita per day can be used by a utility for internal evaluation purposes and as a planning tool in evaluating their own conservation programs and system needs. Total gallons per capita per day and population-based sectors, targets, and goals should be considered by public water suppliers when developing utility profiles and water conservation plans, as required by the state. Similarly, state planning efforts can benefit from higher-resolution, sector-based water data that improves understanding of water use and conservation opportunities for various types of water use throughout the state.

3 STATEWIDE WATER USE

At the time of this report, the most recent statewide water use summary was for the year 2012. Such water use volumes are developed based on the TWDB annual survey of water systems and industrial facilities, and estimated volumes, particularly for the irrigation and livestock usage. The largest category of water use in Texas is for irrigated agriculture at 58 percent of the state's water use (Table 1). Second to irrigation is the municipal sector at 28 percent, which is composed of residential, institutional, and commercial water use. Some small-scale or light industrial water usage is included in the municipal sector while large-scale or self-supplied manufacturing firms are represented in the manufacturing sector.

Table 1. Statewide Water Use Summary, 2012

Water Use Sector	2012 Water Use Estimate (Acre-Feet[1])	Percentage of Total State Water Use
Irrigation	9,490,008	59
Livestock	269,413	2
Manufacturing	1,090,041	7
Mining	165,833	1
Municipal	4,470,999	28
Steam-Electric Power	526,251	3
Texas	**16,012,545**	

[1]One acre-foot equals 325,851 gallons.

While the six water use summary categories are similar to the utility water use sectors as described in Senate Bill 181, there is not a direct comparison. Most of the utility water use described later in this report would be included in the general municipal category, with lesser amounts being delivered to the manufacturing and steam-electric power categories. The analysis of utility water use indicates that some water is being delivered for field irrigation, livestock, and mining purposes, but at much lower levels than for the other categories.

4 Utility Water Use

4.1 Ability of Water Utilities to Report

The Texas Legislature and water professionals recognize that many utilities' customer accounting and billing systems may not be able to categorize their customers and their water use. While single-family residential accounts are generally easy to identify due to the small size of the meter, the institutional, commercial, and industrial customers are often grouped together. How the water is used within the institutional, commercial, and industrial sectors may not be distinguishable by the meter size or volume of water used by the customer. Because of the possible difficulties in reporting water use by the specified categories, Senate Bill 181 specified that the TCEQ may not adopt a rule requiring an entity to report data that is more detailed than a utility's existing billing system is able to produce directly (Texas Water Code §16.404). The TCEQ may however require that billing systems purchased after September 1, 2011, be capable of reporting such detailed information. Regardless of the replacement of billing systems, some water utilities in the state are working to categorize their customers with existing billing systems (See GARLAND, TEXAS on p. 7).

4.2 2013 Water Use by Sector

While 2012 is the most recent year for which statewide water use estimates are compiled by the TWDB, 2013 data is available for sector water usage reported by water utilities through the annual water use survey and the conservation plan annual reports administered by the TWDB. Because the water use survey is sent to nearly all of the community public water systems in the state and would represent the most complete set of information, the following analysis is based on responses to the 2013 water use survey.

TWDB staff sent water use surveys to more than 4,000 public water systems in 2013. Each water utility, whether municipal-owned, a district, a water supply corporation, or an investor-owned utility, may own

GARLAND, TEXAS – RENOVATION OF A UTILITY BILLING SYSTEM

The City of Garland has proactively taken up the challenge to categorize all of its customer accounts. Garland, located in North Texas with a population of 230,000 and more than 87,000 metered customer accounts, undertook a project in February of 2014 to categorize all of its metered accounts. The project required the involvement of multiple departments of the city: Customer Service, Garland Water Utility, and Information Technology.

Garland currently uses the Banner billing application from Ventyx, and, because the customization of such a third-party application would be expensive, the Customer Service staff was able to identify an existing "Dwelling Type" data field within the application that could be repurposed to hold the new categories of water use. While more than 70 percent of Garland's metered connections are for single-family residences and could be easily categorized, the remainder of the metered customers required manual categorization by Garland Water Utility staff.

City staff adjusted approximately 15 percent, or approximately 13,000, of the customer accounts in the existing billing system between February and April, and by July was able to finalize the changes in the system. The result is that Garland became one of 31 water utilities in this report's analysis that was able to report water use in five of the six utility customer categories, the sixth sector being the infrequently-reported agriculture sector. In addition to the customer categorization, the project required the creation of new reports to display the water utility's use, connection counts, and billing by category.

Garland and its regional water provider, the North Texas Municipal Water District, have experienced significant impacts from the current drought and, in response, have enacted a range of water conservation measures. The City's efforts to report water use by the various categories of customers will allow Garland Water Utility staff to select the most appropriate conservation strategies, measure their success, and identify areas of further potential water savings.

one or more of the surveyed public water systems. After summing the water system information by the owning utility, it was determined that 344 utilities met the criteria of serving more than 3,300 connections. Of the 344 utilities, 304 were able to categorize at least 90 percent of their metered water use into one or more of the six water use categories specified in Senate Bill 181: single-family residential, multi-family residential, institutional, commercial, industrial, and agricultural. The 304 water utilities are owned by a variety of entities: municipal-owned utilities (206) make up 68 percent of the total, followed by districts (68 utilities or 22 percent), water supply corporations (19 utilities or 6 percent), authorities (5 utilities or 2 percent), investor-owned utilities (5 utilities or 2 percent) and a single county-owned utility (Figure 1). The data analyzed and presented in this section of the report represents the metered water used (delivered) that was self-reported by the water utilities. See Appendix A for a listing of all 304 utilities.

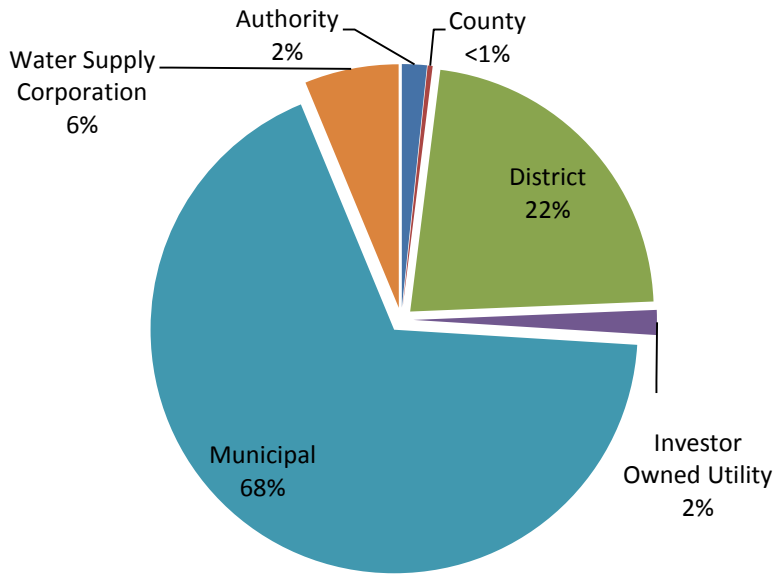

Figure 1. Analyzed Water Utilities by Ownership Type

When the averages are weighted by the volumetric size of the utility, the percentage of water for residential uses is 58 percent due to the influence of a number of very large water systems (Table 2). Thirty-four water utilities are identified as providing significant percentages of their water to the institutional, commercial, and industrial sectors[2] (Figure 2). For such institutional, commercial, and industrial-focused utilities, the weighted average of water use going to residential uses is 37 percent, with both the commercial and industrial categories utilizing nearly a third of the metered water use (Figure 3).

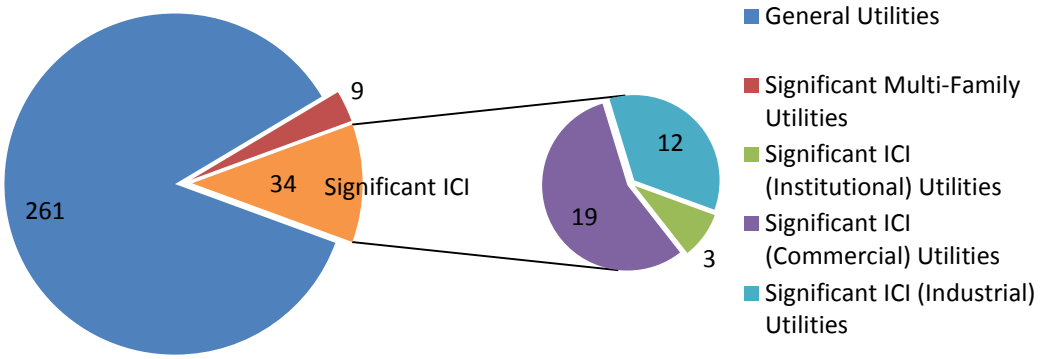

Figure 2. Count of Analyzed Water Utilities, Including Those with Significant Multi-Family, Institutional, Commercial, and Industrial (ICI) Water Use

[2] Identification criteria of utilities with significant institutional, commercial, and industrial usage includes: single-family residential being less than half of the metered usage and percentages of one or more of the three categories (institutional, commercial, or industrial) being more than 30 percent of the total metered usage.

Table 2. Average Categorical Percentage of Metered Water Use

	Total Residential	Single-Family Residential	Multi-Family Residential	**Institutional**	**Commercial**	**Industrial**	**Agricultural**	**Other[1]**
All Utilities (344)	**58%**	48%	10%	**4%**	**21%**	**15%**	**<1%**	**2%**
Significant ICI[2] Utilities (34)	**35%**	25%	10%	**4%**	**30%**	**31%**	**<1%**	**1%**

[1]An "Other" sector was included in the 2012 and 2013 water use survey in order to capture water volumes from water systems which were not able to break out their water use. The 2014 water use survey will include only the legislation-specified categories.
[2]ICI refers to the institutional, commercial, and industrial sectors.

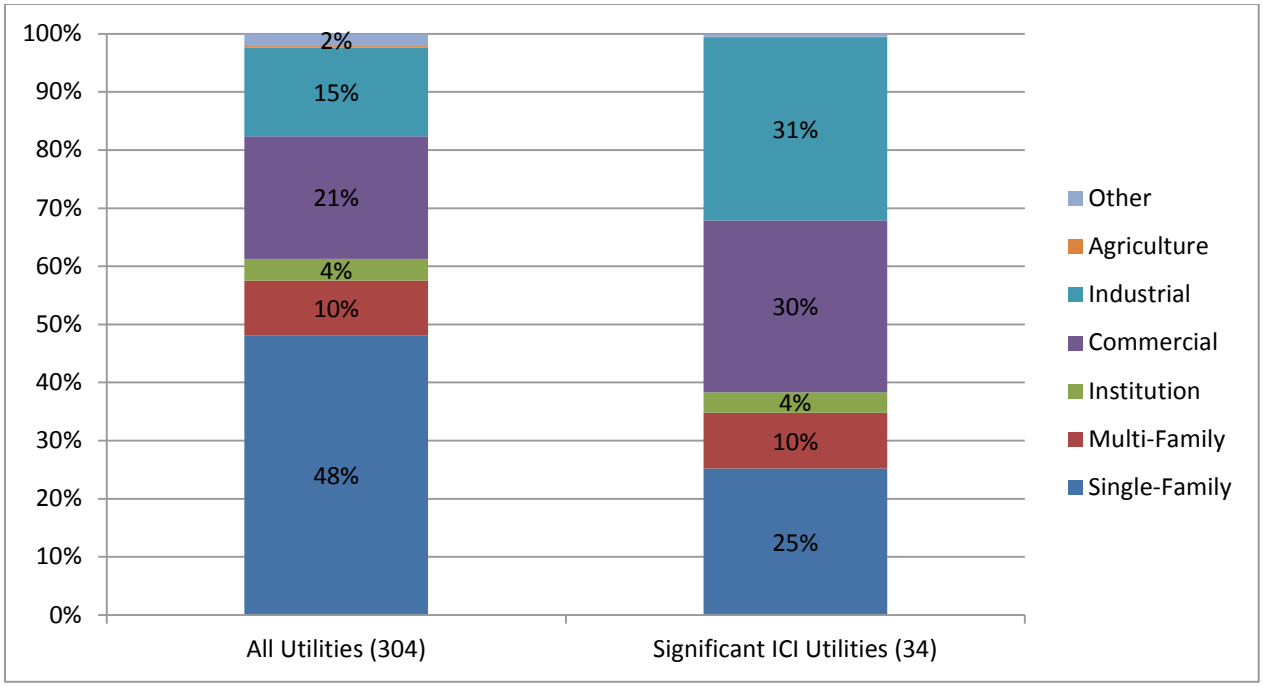

Figure 3. Water Use by Sector for All Water Utilities and Water Utilities with Significant ICI (Institutional, Commercial, and Industrial) Water Deliveries (Categories with less than one percent are not labeled on chart)

4.2.1 RESIDENTIAL WATER USE

Single-Family Residential

All of the 304 analyzed water utilities were able to report single-family residential water use and such use represented on average 48 percent of metered water provided by water utilities, although the percentage varies quite significantly from a low of 11 percent to a high of 100 percent. The average water use per single-family residential connection per day is 246 gallons. This average ***per-connection*** daily use of 246 gallons should not be confused with a ***per-person*** daily residential water use volume. The 2012 residential gallons per capita daily of surveyed water systems that were able to report residential water use in the annual TWDB water use survey is estimated to be 86 gallons[3]. While the set of water systems used to calculate both values is different, if the per-connection use of 246 gallons is divided by the 2010 U.S. Census average persons-per-household for Texas of 2.75, the result is 89 gallons per person. Thus, the per-connection daily use is consistent with other estimates of water use.

Multi-Family Residential

Despite the challenges that utilities face in categorizing accounts, 226 of the 304 utilities reported a volume for multi-family residential for an average of 10 percent of the metered water provided by utilities. The average residential water use per multi-family **connection** is 367 gallons per day. This average is more than the single-family residential average and may be indicative of the difficulty faced by utilities in determining the number of apartment units/connections versus a master meter for an entire apartment complex.

Nine water utilities reported multi-family water use constituting a large percentage of their metered water use and can be described as Significant Multi-Family Utilities[4] (Table 3). Of such utilities, three are city-owned utilities and six are municipal utility districts. See Appendix B, Table B1 for the listing of significant multi-family utilities.

Table 3. Significant Multi-Family Utilities – Weighted Average Categorical Percentage of Metered Water Use (9 Utilities)

Single-Family Residential	Multi-Family Residential	Institutional	Commercial	Industrial	Agricultural	Other
28%	45%	3%	16%	3%	2%	2%

[3] The gallons per capita daily of 86 is an average per-person residential water use of those water systems that have been able to report in the Texas Water Development Board's annual water use survey the residential (single-family and multi-family) water use and an applicable population served or connection count. This analysis was based upon each applicable surveyed public water system, regardless of size. However, due to the inability of some systems to report the data, the residential gallons per capita daily does not represent a statewide average. Additional information can be found at http://www.twdb.state.tx.us/waterplanning/waterusesurvey/estimates/index.asp.

[4] Significant Multi-Family Utilities are those utilities who reported their single-family residential water use as less than half of the metered total volume and the multi-family water use as more than 30 percent of the metered total.

4.2.2 INSTITUTIONAL

Of the utilities, 165 reported institutional water use, for an overall average of 4 percent of all utilities' metered water delivered. On average, institutional customers used 16,473 gallons per day per connection, although the types of facility are not known and could greatly affect the average daily use.

Three water utilities reported significant usage by institutional customers[5] (Table 4). The average volume reported delivered to institutional customers was 39 percent of the total water use. All three utilities provide water to one or more Texas Department of Criminal Justice units. See Appendix B, Table B2 for the listing of significant institutional water use.

Table 4. Significant Institution Utilities – Weighted Average Categorical Percentage of Metered Water Use (3 Utilities)

Single-Family Residential	Multi-Family Residential	Institutional	Commercial	Industrial	Agricultural	Other
17%	6%	39%	13%	25%	<1%	0%

4.2.3 COMMERCIAL

Of the 304 utilities, 289 reported water use for the commercial sector, for an average of 21 percent of the metered water delivered and an average daily water use per connection of 229 gallons. Nineteen utilities reported delivering a significant portion of metered water to commercial customers[6] (Table 5). On average, these utilities provided 48 percent of their metered water to commercial customers. See Appendix B, Table B3 for the listing of significant commercial water use.

Table 5. Significant Commercial Utilities – Weighted Average Categorical Percentage of Metered Water Use (19 Utilities)

Single-Family Residential	Multi-Family Residential	Institutional	Commercial	Industrial	Agricultural	Other
38%	2%	7%	48%	5%	<1%	0%

4.2.4 INDUSTRIAL

One hundred twenty utilities reported industrial water use with a weighted average of 15 percent of total metered water used and 13,214 gallons per connection. Twelve water utilities can be described as having

[5] Significant Institution Utilities are those utilities who reported their single-family residential water use as less than half of the metered total volume and the institutional water use as more than 30 percent of the metered total.
[6] Commercial Weighted Utilities are those utilities who reported their single-family residential water use as less than 50 percent of the metered total volume and the commercial water use as more than 30 percent of the metered total.

significant industrial use[7], providing an average of 46 percent of their metered water to industrial customers (Table 6). See Appendix B, Table B4 for the listing of significant industrial water use.

Table 6. Significant Industrial Utilities – Weighted Average Categorical Percentage of Metered Water Use (16 Utilities)

Single-Family Residential	Multi-Family Residential	Institutional	Commercial	Industrial	Agricultural	Other
19%	**14%**	**1%**	**20%**	**46%**	**<1%**	**1%**

4.2.5 AGRICULTURAL

Of the 304 water utilities, only 51 reported delivering water for agricultural purposes for an average of 0.3 percent of the total metered water use. Five water utilities reported providing more than 10 percent of their metered water use to agricultural customers: City of Bellmead, City of Levelland, Fort Bend County Water Control and Improvement District 2, Laguna Madre Water District, and the City of League City[8]. Specific agricultural sales information was not collected in the water use survey to identify what types of firms used such water.

4.2.6 COMPLETE REPORTING WATER UTILITIES

It was previously acknowledged that reporting water use by customer categories can be difficult for water utilities as it may require the revamping of existing billing systems. However, 31 water utilities reported in each of the five water use categories (not including agriculture) and ranged in size from the City of Ingleside (3,618 connections) to the City of Austin (213,296 connections). As can be seen in Figure 4, while single family customers account for an average of 80 percent of the utilities' connections, such customers account for 49 percent of the water use (Figure 4). Inversely, the institutional, commercial, and industrial sectors on average account for 7, 1, and 0.2 percent of the connections, but account for an average of 22, 5, and 10 percent of the metered water use statewide. See Appendix B for a listing of complete reporting utilities.

[7] Industrial Weighted Utilities are those utilities who reported their single-family residential water use as less than 50 percent of the metered total volume and the industrial water use as more than 30 percent of the metered total.
[8] The City of Bellaire, located in southwest Harris County, also reported delivering 18 percent of their metered water to agricultural customers. However, based on previous surveys, this may have been a miscategorization of the customers and volumes.

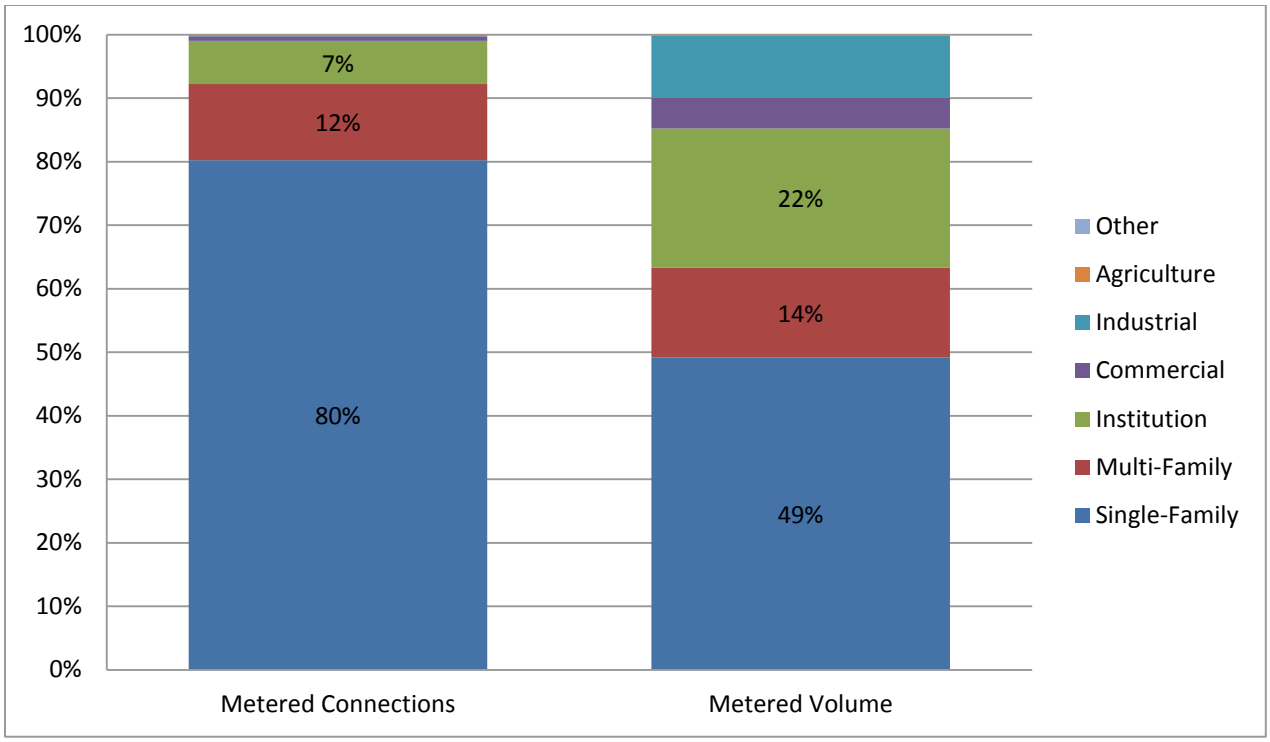

Figure 4. Percentage of Volume and Metered Connections of Complete Reporting Utilities (Categories with less than one percent are not labeled on chart)

4.3 2013 Water Use by Utility Size

Each utility has a different customer base to serve; however, it is helpful to categorize water utilities into general size categories to examine if there are common characteristics within the utilities of a similar size. For example, it is generally assumed that smaller utilities will have a greater percentage of their water used for single-family residences. As a community and its water utility grows, more multi-family, institutional, commercial, and industrial customers tend to be established. The following section summarizes water use information for four general size categories based upon the total connections reported in the TCEQ's Safe Drinking Water Information System:

- **Medium Water Utilities**[9] – 3,300 to 16,667 connections (generally 9,900 to 50,000 population)
- **Medium-Large Water Utilities** – 16,668 to 33,333 connections (generally 50,000 to 100,000 population)
- **Large Water Utilities** – 33,334 to 166,666 connections (generally 100,000 to 500,000 population)
- **Metropolitan Water Utilities** – more than 166,666 connections (generally more than 500,000 population)

[9] The category of "Medium" is used to distinguish such systems from the small-system designation of utilities with less than 3,300 used by the U.S. Environmental Protection Agency's Drinking Water Infrastructure Needs Survey and Assessment.

The criteria of 3,300 connections were set in Senate Bill 181. The additional break points for the size categories were selected for this report based upon population thresholds for various local government development powers, such as extra-territorial jurisdiction buffer size and eligibility for federal Community Development Block Grants (Figure 5).

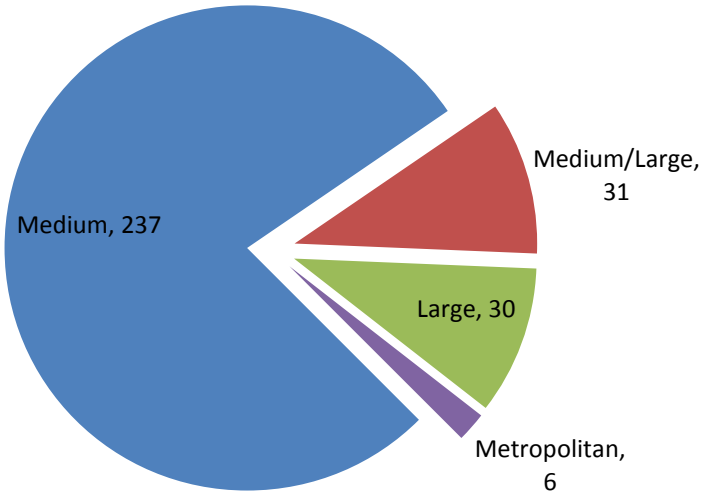

Figure 5. Count of Water Utilities by Size Category

Medium-Sized Water Utilities

By far, the largest number of water utilities (237) is in the medium category with 3,300 to 16,667 connections (Figure 5). Sixty-one percent of such utilities (145) are municipal-owned, with 29 percent being districts (68), and the remainder being made up of other types of water utilities. In 2013, the utilities reported delivering a combined 600,779 acre-feet of metered water, for an average of 2,535 acre-feet per utility. Average single-family residential made up 63 percent of the metered water use, the highest of any size sector (Figure 6).

The medium-sized sector included 35 utilities which provided significant percentages of their total use to one of the institutional, commercial, or industrial sectors[10] (Figure 6). The average categorical water use of such utilities can be seen in Figure 6**.** For such utilities, the average percentage of metered water delivered to single-family residences dropped to 31 percent, while the percentage of water delivered to commercial and industrial sectors increased substantially, from 17 to 27 percent and from 7 to 28 percent (Figure 6).

Single-family connections used an average of 232 gallons per day, while multi-family connections used 264 (Table 7). Instructions in the water use survey specify the intent in collecting the number of housing *units* rather than a count of the master connections for each apartment complex. The higher per-

[10] Identification criteria of utilities with significant institutional, commercial, or industrial usage includes: single-family residential being less than half of the metered usage, and one or more of the institutional, commercial, or industrial sector percentages being more than 30 percent of the total metered usage.

connection water usage for multi-family connections appears to suggest that some of the connections may represent a single meter for multiple housing units (apartments) rather than counting each unit as a connection. Within the significant other, each institutional connection uses an average of 1,463 gallons per day, commercial connections use 791 gallons per day, and industrial connections use 21,053 gallons per day.

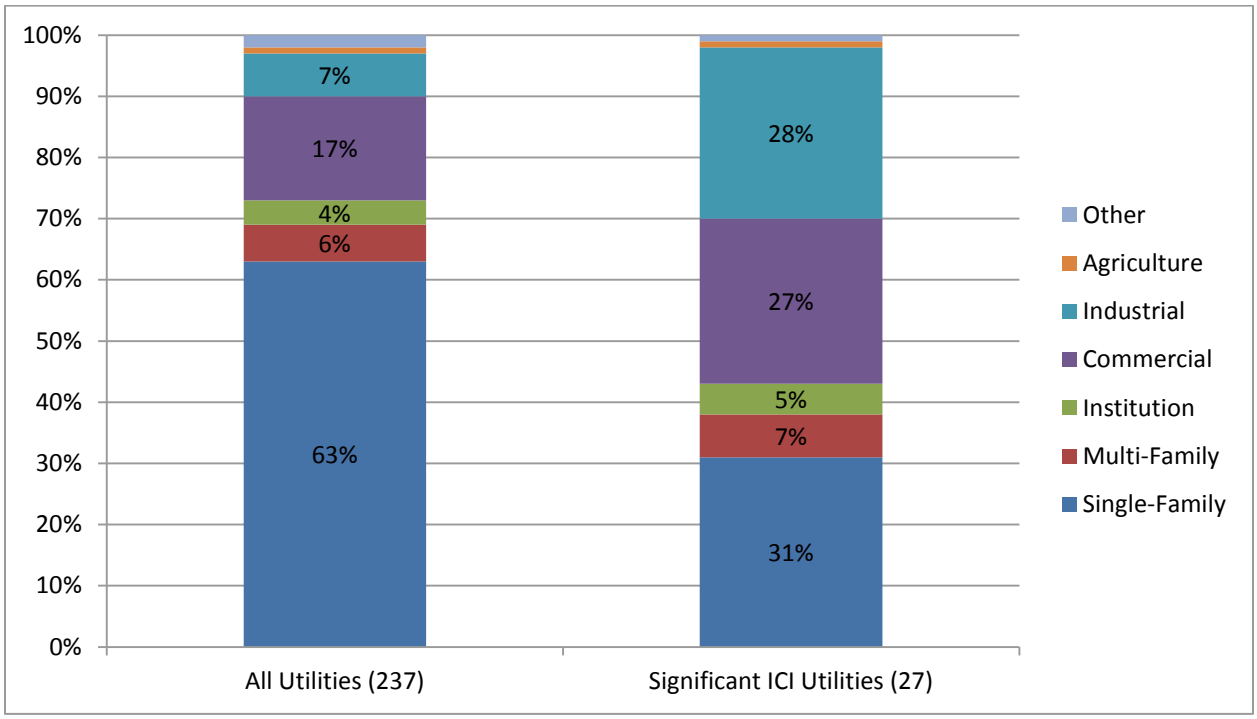

Figure 6. Water Use by Sector for All Medium-Sized Water Utilities and Medium-Sized Water Utilities with Significant Institutional, Commercial, and Industrial (ICI) Water Deliveries (Categories with less than one percent are not labeled on chart)

Table 7. Average Per-Connection Daily Water Use (Gallons) by Utility Size

	Single-Family Residential	Multi-Family Residential[1]	Institutional	Commercial	Industrial	Agricultural	Other[2]
Medium Utilities (237)	**232**	**264**	**1,463**	**791**	**21,053**	**777**	**1,049**
Medium Significant ICI[4] Utilities (27)	*228*	*270*	*2,267*	*1,154*	*119,405*	*2,268*	*1,099*
Medium-Large Utilities[3] (31)	**300**	**233**	**3,374**	**1,276**	**40,663**	**1,482**	**1,322**
Medium-Large Significant ICI Utilities (5)	*288*	*116*	*7,140*	*1,880*	*104,185*	*2,614*	*1,047*
Large Utilities (30)	**271**	**224**	**3,004**	**1,377**	**29,474**	**1,533**	**2,875**
Large Significant ICI Utilities (5)	*246*	*452*	*4,385*	*1,695*	*181,548*	*0*	*600,994*
Metropolitan Utilities (6)	**229**	**689**	**1,721**	**6,625**	**11,126**	**0**	**6,429**

[1]High per-connection water use per Multi-Family connection may be indicative of the use of a single-metered connection for the complex, which would produce high per-connection rates rather than an accurate measure of each multi-family unit's water usage.

[2]An "Other" sector was included in the 2012 and 2013 Water Use Survey in order to capture water volumes from water systems which were not able to break out their water use. The 2014 water use survey will include only the legislation-specified categories.

[3]City of San Marcos data is not included due to issues with the connection data.

[4] ICI refers to the institutional, commercial, and industrial sectors.

Medium-Large Water Utilities

The number of water utilities in the next category of utility size between 16,668 and 33,333 connections drops considerably to 31 utilities. Nearly all of these utilities are municipal-owned, with the exception of two water supply corporations, two investor-owned utilities, and a water authority. In 2013, these utilities delivered a combined 301,556 acre-feet of metered water, for an average of 9,728 acre-feet per utility.

The medium-large utilities provide 67 percent of their metered water to residential users: 60 percent to single-family, and 7 percent to multi-family. The average percentage of water use by commercial sectors is the second largest category of water use as a percentage of the total at 17 percent. Five of these utilities would constitute having significant institutional, commercial, or industrial usage, with a diversity of water usage similar to what was seen in the medium-sized water systems. Utilities with the significant institutional, commercial, or industrial usage include the cities of Bryan, Georgetown, Huntsville, Longview, and San Marcos (Figure 7).

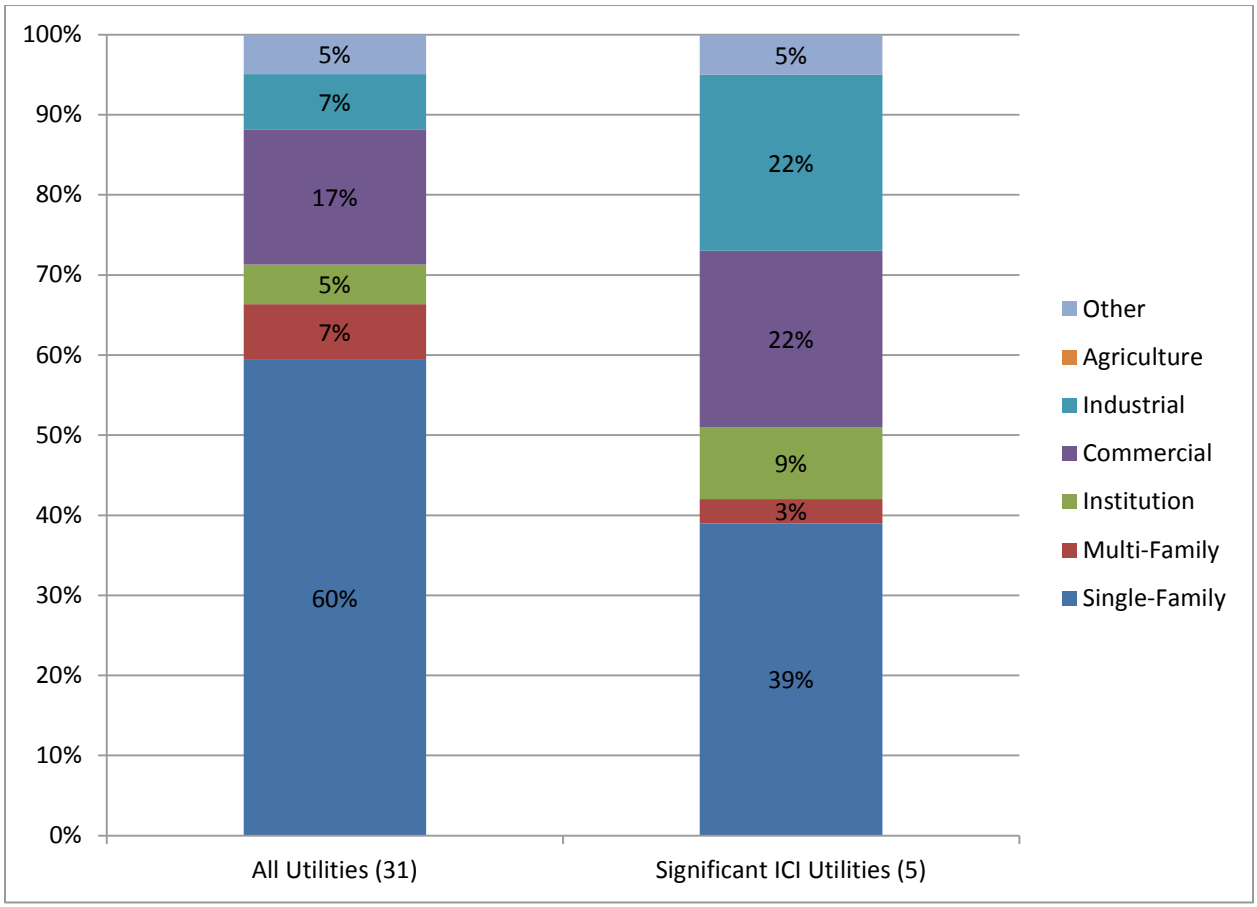

Figure 7. Water Use by Sector for All Medium-Large Water Utilities and Medium-Large Water Utilities with Significant Institutional, Commercial, and Industrial (ICI) Water Deliveries

Residential water use per connection for the medium-large systems is similar to that of the medium systems. However, for the institutional, commercial, and industrial categories, the daily water use per connection increased significantly in the institutional and commercial sectors: institutional use increased to 7,140 gallons and commercial increased to 1,880 gallons (Table 7).

Large Water Utilities

The number of large water utilities with between 33,333 and 16,667 connections (generally between 100,000 and 500,000 residents) is very similar to the previous category: 30 water utilities and 5 utilities with significant institutional, commercial, or industrial water use. The utilities reported delivering 734,862 acre-feet of water in 2013, an average of 24,495 acre-feet per utility. While still more than half of the water of the utilities is being delivered to single-family residences (52 percent), it is a decrease from the percentages delivered by smaller utilities (Figure 8 and Table 7). The water use sector percentages for utilities with significant institutional, commercial, and industrial is similar to other such systems in the smaller size categories: residential use ranged between 38 and 44 percent and the combined institutional, commercial, and industrial usage ranged between 53 and 60 percent of the total metered usage.

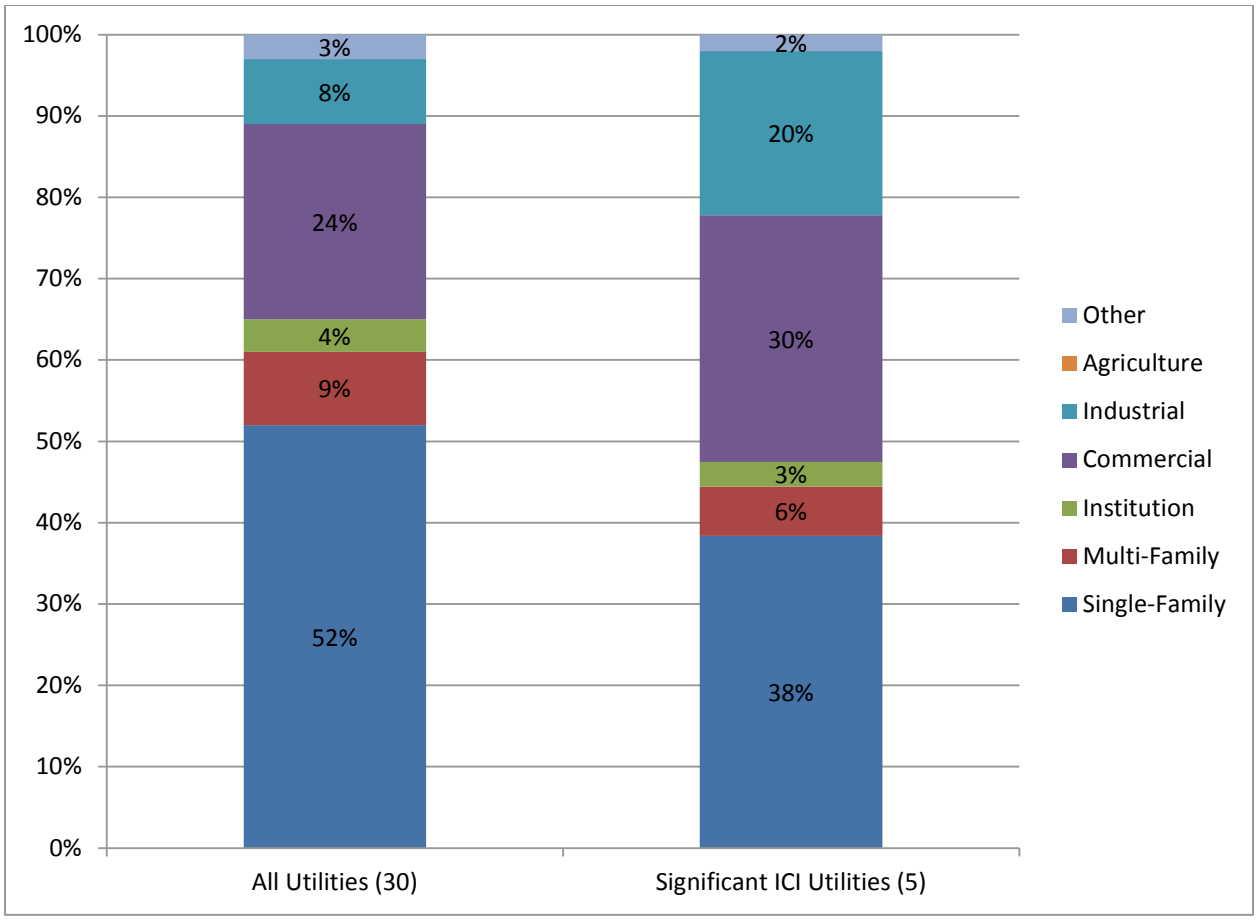

Figure 8. Water Use by Sector for All Large-Sized Water Utilities and Large-Sized Water Utilities with Significant Institutional, Commercial, and Industrial (ICI) Water deliveries. (Categories with less than one percent are not labeled on chart.)

Metropolitan Water Utilities

The six metropolitan water utilities, with total connections greater than 16,667 or roughly 500,000 population or greater, reported delivering more than 1,222,054 acre-feet of metered water to customers. These utilities show an even more pronounced decrease in the average percentage of water use delivered to the single family sector compared to smaller utilities, while the industrial sector received a substantially larger percentage of the metered water (Figure 9). One thing to note, however, is that this average is heavily weighted by the response of the City of Houston, reporting 47 percent of its metered water being used by industry.

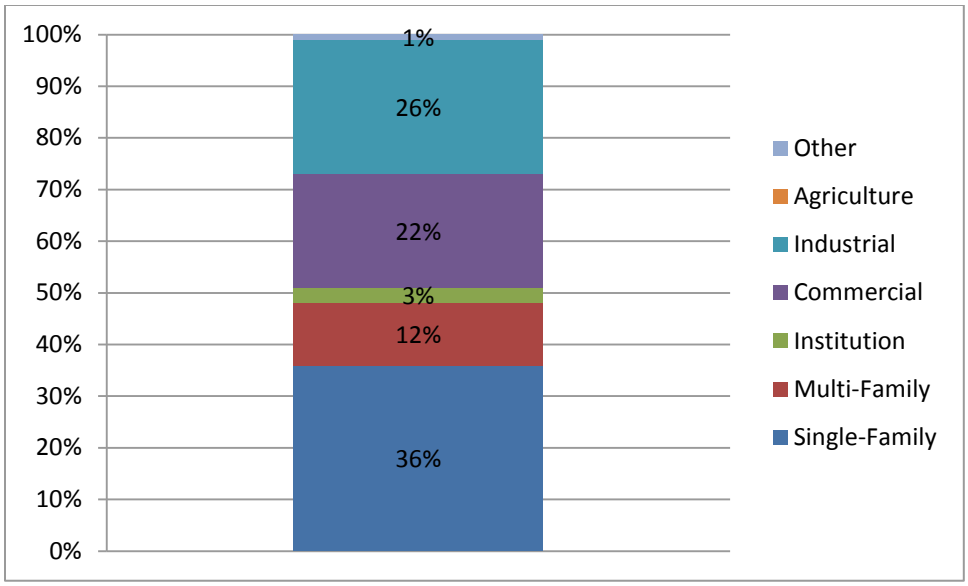

Figure 9. Water Use by Sector for All Metropolitan-Sized Water Utilities (Categories with less than one percent are not labeled on chart)

5 Water Use in Gallons Per Capita Daily

As mentioned previously, the Senate Bill 181 legislation directed the TWDB and TCEQ to develop a uniform methodology of calculating the total and residential water use in gallons per capita daily. The average total gallons per capita daily increases with the size of the utility due to the fact that larger utilities tend to have more institutional, commercial, and industrial customers which will increase the gallons per capita daily; more water is used, but not necessarily by residents (Table 8). Similarly, even between size categories, the utilities with significant institutional, commercial, or industrial water use have similar total water gallons per capita daily use, ranging from 233 to 251 gallons per capita daily.

No correlation appears between the average Residential Water Use gallons per capita daily and the size category of the utility. This may be due to the difficulty in refining the connection count and water use reporting of multi-family facilities, but it may also be that there is little variation in the average single-family residential water use between utilities of a different size. A larger variation may occur when examining other characteristics, including: the geographic location of the utility, the residential water rates, or automatic irrigation characteristics of residential lots.

Table 8. Average Water Use In Gallons Per Capita Daily, 2013

	Average Total Water Use Gallons Per Capita Daily	Average Residential Water Use Gallons Per Capita Daily
Medium Utilities (237)	**141**	**79**
Medium Significant ICI[1] Utilities (27)	*233*	*74*
Medium-Large Utilities[3] (31)	**163**	**90**
Medium-Large Significant ICI Utilities (5)	*252*	*88*
Large Utilities (30)	**167**	**85**
Large Significant ICI Utilities (5)	*251*	*76*
Metropolitan Utilities	**239**	**69**
All Analyzed Utilities	**189**	**77**

[1] ICI refers to the institutional, commercial, and industrial sectors.

6 FUTURE AND RELATED EFFORTS

6.1 UTILITY EFFORTS TO MEASURE WATER USE BY SECTORS

As discussed earlier, 2012 was the first year that water utilities were surveyed for their categorical water use and the number of connections, as specified in Senate Bill 181. Of the 304 water utilities that were able to categorize 90 percent or more of their 2013 metered water use, 238 met that 90-percent threshold in 2012. This represents an increase in reporting for 66 utilities, or more than 20 percent of the 238 that reported in 2012. Utility efforts shown in the information reported and in such examples of the City of Garland provide encouragement in the efforts to better understand utility water use.

6.2 TWDB ONLINE DATA-COLLECTION EFFORTS

The 83rd Texas Legislature directed the TWDB to develop a consolidation of online reporting for the Water Use Survey, Water Loss Audit, and the Conservation Plan Annual Report. As was noted earlier, the information analyzed in this report was collected in the Water Use Survey due to its annual and near universal collection of data from community public water systems which are the building blocks of water utilities. The integration of the data collection between the annual Water Loss Audit and the Conservation Plan Annual Report will provide a unique opportunity to view how utilities use, lose, and work to save their water. In 2015, the two reports (with existing online tools), the Water Use Survey, and the Water Loss Audit will be integrated such that all common information entered into the survey will automatically be populated in the audit's online form. This integration will be active beginning in January 2015 for the 2014 reporting year. A subsequent phase of the project will entail the creation of an online reporting tool for the Conservation Plan Annual Report. Similar to the Survey-Audit integration, any common data entered into the first two forms will be populated in the Conservation Annual Report.

7 CONCLUSION

Texas water utilities are increasing their ability to understand their individual customer base and the volume of water delivered to customers. This will allow Texans to better understand how water is being used by their water utilities. Consequently, such knowledge will allow the utilities to focus their water conservation efforts and programs on the customer sectors for which the results will be most cost-effective.

8 APPENDIX A – LIST OF ANALYZED WATER UTILITIES

(FWSD = Fresh Water Supply District; MUD = Municipal Utility District; SUD = Special Utility District; WCID = Water Control and Improvement District; WSC = Water Supply Corporation)

Table A1. Analyzed Water Utilities

ACTON MUD	CITY OF HUNTSVILLE	CITY OF WHITE SETTLEMENT
AGUA SUD	CITY OF HURST	CITY OF WICHITA FALLS
AMARILLO MUNICIPAL WATER SYSTEM	CITY OF HUTTO	CITY OF WOODWAY
AQUA WSC	CITY OF INGLESIDE	CITY OF WYLIE
ATASCOSA RURAL WSC	CITY OF JACINTO CITY	CLEAR BROOK CITY MUD
BENBROOK WATER AUTHORITY	CITY OF JACKSONVILLE	CLEAR LAKE CITY WATER AUTHORITY
BENTON CITY WSC	CITY OF JASPER	CNP UTILITY DISTRICT
BETHESDA WSC	CITY OF KATY	CRYSTAL CLEAR WSC
BORGER MUNICIPAL WATER SYSTEM	CITY OF KELLER	CYPRESS SPRINGS SUD
BRIDGESTONE MUD	CITY OF KERRVILLE	DALHART MUNICIPAL WATER SYSTEM
BROOKESMITH SPECIAL UTILITY DISTRICT	CITY OF KILGORE	DALLAS COUNTY WCID 6
BROWNSVILLE PUBLIC UTILITIES BOARD	CITY OF KILLEEN	DALLAS WATER UTILITY
BRUSHY CREEK MUD	CITY OF KINGSVILLE	DEL RIO UTILITIES COMMISSION
CADDO BASIN SUD	CITY OF KYLE	EAST CEDAR CREEK FWSD
CANYON LAKE WATER SERVICE COMPANY	CITY OF LA MARQUE	EAST CENTRAL WSC
CANYON MUNICIPAL WATER SYSTEM	CITY OF LA PORTE	EAST RIO HONDO WSC
CASH SUD	CITY OF LAKE JACKSON	EL JARDIN WSC
CHISHOLM TRAIL SUD	CITY OF LAMESA	EL PASO WATER UTILITIES PUBLIC SERVICE B
CITY OF ABILENE	CITY OF LANCASTER	FORT BEND COUNTY MUD 23
CITY OF ALAMO	CITY OF LAREDO	FORT BEND COUNTY MUD 25
CITY OF ALICE	CITY OF LEAGUE CITY	FORT BEND COUNTY WCID 2
CITY OF ALLEN	CITY OF LEANDER	GALVESTON COUNTY WCID 1
CITY OF ALVIN	CITY OF LEVELLAND	G-M WSC
CITY OF ANDREWS	CITY OF LEWISVILLE	GOFORTH SUD
CITY OF ANGLETON	CITY OF LIBERTY	GREEN VALLEY SUD
CITY OF ANNA	CITY OF LIVINGSTON	HARLINGEN WATER WORKS SYSTEM
CITY OF ARANSAS PASS	CITY OF LOCKHART	HARRIS COUNTY FWSD 51
CITY OF ARLINGTON	CITY OF LONGVIEW	HARRIS COUNTY FWSD 61
CITY OF ATHENS	CITY OF LUBBOCK	HARRIS COUNTY MUD 102
CITY OF AUSTIN	CITY OF MABANK	HARRIS COUNTY MUD 120
CITY OF BASTROP	CITY OF MANSFIELD	HARRIS COUNTY MUD 165
CITY OF BAY CITY	CITY OF MARSHALL	HARRIS COUNTY MUD 168
CITY OF BAYTOWN	CITY OF MCKINNEY	HARRIS COUNTY MUD 200 CRANBROOK

CITY OF BEAUMONT WATER UTILITY	CITY OF MERCEDES	HARRIS COUNTY MUD 26
CITY OF BEEVILLE	CITY OF MESQUITE	HARRIS COUNTY MUD 368
CITY OF BELLAIRE	CITY OF MIDLAND	HARRIS COUNTY MUD 53
CITY OF BELLMEAD	CITY OF MIDLOTHIAN	HARRIS COUNTY MUD 55 HERITAGE PARK
CITY OF BELTON	CITY OF MINERAL WELLS	HARRIS COUNTY MUD 71
CITY OF BIG SPRING	CITY OF MISSION	HARRIS COUNTY MUD 81
CITY OF BOERNE	CITY OF MONAHANS	HARRIS COUNTY WCID 109
CITY OF BONHAM	CITY OF MOUNT PLEASANT	HARRIS COUNTY WCID 36
CITY OF BRENHAM	CITY OF MURPHY	HMW SUD
CITY OF BRIDGE CITY	CITY OF NACOGDOCHES	HORIZON REGIONAL MUD
CITY OF BROWNFIELD	CITY OF NEDERLAND	JOHNSON COUNTY SUD
CITY OF BROWNWOOD	CITY OF NORTH RICHLAND HILLS	JONAH WATER SUD
CITY OF BRYAN	CITY OF ODESSA	KEMPNER WSC
CITY OF BURKBURNETT	CITY OF ORANGE	LAGUNA MADRE WATER DISTRICT
CITY OF BURLESON	CITY OF PAMPA	LAKE CITIES MUNICIPAL UTILITY AUTHORITY
CITY OF CARROLLTON	CITY OF PARIS	LAKE LIVINGSTON WSC
CITY OF CARTHAGE	CITY OF PASADENA	LAKEWAY MUD
CITY OF CEDAR HILL	CITY OF PECOS	LAMAR COUNTY WATER SUPPLY DISTRICT
CITY OF CEDAR PARK	CITY OF PHARR	LEE COUNTY WSC
CITY OF CIBOLO	CITY OF PLANO	LINDALE RURAL WSC
CITY OF CLEBURNE	CITY OF PLEASANTON	LUMBERTON MUD
CITY OF CLUTE	CITY OF PORT LAVACA	MCALLEN PUBLIC UTILITY
CITY OF COLLEGE STATION	CITY OF PORT NECHES	MILITARY HWY WSC PROGRESO
CITY OF CONROE	CITY OF PORTLAND	MISSION BEND MUD 2
CITY OF CONVERSE	CITY OF RICHARDSON	MONARCH UTILITIES LP
CITY OF COPPELL	CITY OF RICHMOND	MONTGOMERY COUNTY MUD 46
CITY OF COPPERAS COVE	CITY OF RIO GRANDE CITY	MONTGOMERY COUNTY MUD 47
CITY OF CORINTH	CITY OF ROBINSON	MONTGOMERY COUNTY MUD 60
CITY OF CORPUS CHRISTI	CITY OF ROCKPORT	MONTGOMERY COUNTY MUD 7
CITY OF CORSICANA	CITY OF ROCKWALL	MOUNTAIN PEAK SUD
CITY OF CROWLEY	CITY OF ROMA	MUSTANG SUD
CITY OF DENISON	CITY OF ROSENBERG	NEW BRAUNFELS UTILITIES
CITY OF DENTON	CITY OF ROUND ROCK	NORTH ALAMO WSC
CITY OF DESOTO	CITY OF ROWLETT	NORTHWEST HARRIS COUNTY MUD 5
CITY OF DONNA	CITY OF SACHSE	NORTHWEST PARK MUD
CITY OF DUNCANVILLE	CITY OF SAGINAW	NUECES COUNTY WCID 4
CITY OF EAGLE PASS	CITY OF SAN ANGELO	ORANGE COUNTY WCID 1
CITY OF EDINBURG	CITY OF SAN BENITO	PECAN GROVE MUD
CITY OF EL CAMPO	CITY OF SAN MARCOS	PERRYTON MUNICIPAL WATER SYSTEM
CITY OF ENNIS	CITY OF SCHERTZ	PORTER SUD

CITY OF EULESS	CITY OF SEABROOK	QUADVEST INC
CITY OF FARMERS BRANCH	CITY OF SEAGOVILLE	QUAIL VALLEY UTILITY DISTRICT
CITY OF FORNEY	CITY OF SEGUIN	RAYFORD ROAD MUD
CITY OF FORT STOCKTON	CITY OF SHERMAN	RED RIVER AUTHORITY
CITY OF FORT WORTH	CITY OF SNYDER	REMINGTON MUD 1
CITY OF FREDERICKSBURG	CITY OF SOUTH HOUSTON	ROCKETT SUD
CITY OF FREEPORT	CITY OF SOUTHLAKE	S S WSC
CITY OF FRIENDSWOOD	CITY OF STEPHENVILLE	SAN ANTONIO WATER SYSTEM
CITY OF GAINESVILLE	CITY OF SUGAR LAND	SARDIS LONE ELM WSC
CITY OF GARLAND	CITY OF SULPHUR SPRINGS	SHARYLAND WSC
CITY OF GEORGETOWN	CITY OF SWEETWATER	SOUTHERN MONTGOMERY COUNTY MUD
CITY OF GLENN HEIGHTS	CITY OF TERRELL	SOUTHERN UTILITIES COMPANY
CITY OF GRAHAM	CITY OF TEXAS CITY	SPRINGS HILL WSC
CITY OF GRANBURY	CITY OF THE COLONY	TIMBER LANE UTILITY DISTRICT
CITY OF GRAND PRAIRIE	CITY OF TOMBALL	TOWN OF FAIRVIEW
CITY OF GRAPEVINE	CITY OF TYLER	TOWN OF FLOWER MOUND
CITY OF GREENVILLE	CITY OF UNIVERSAL CITY	TOWN OF HIGHLAND PARK
CITY OF GROVES	CITY OF UNIVERSITY PARK	TOWN OF LITTLE ELM EAST
CITY OF HALTOM CITY	CITY OF UVALDE	TOWN OF PROSPER
CITY OF HENDERSON	CITY OF VERNON	TRAVIS COUNTY WCID 17
CITY OF HEREFORD	CITY OF VICTORIA	TRI SUD
CITY OF HEWITT	CITY OF WACO	TRINITY BAY CONSERVATION DISTRICT
CITY OF HIDALGO	CITY OF WATAUGA	WALNUT CREEK SUD
CITY OF HIGHLAND VILLAGE	CITY OF WEATHERFORD	WELLBORN SUD
CITY OF HILLSBORO	CITY OF WEBSTER	WELLS BRANCH MUD 1
CITY OF HONDO	CITY OF WESLACO	WEST CEDAR CREEK MUD
CITY OF HOUSTON	CITY OF WEST UNIVERSITY PLACE	WEST TRAVIS COUNTY REGIONAL WS
CITY OF HUMBLE	CITY OF WHARTON	WINDERMERE COMMUNITY
		ZAPATA COUNTY WATER WORKS

9 APPENDIX B – UTILITIES WITH SIGNIFICANT WATER USE IN SINGLE SECTOR

(MUD = Municipal Utility District; WCID = Water Control and Improvement District)

Table B1. Utilities with Significant Multi-Family Water Use

Utility	Multi-Family Water Use as Percent of Total Metered Volume
CITY OF CLUTE	30
CITY OF FORNEY	49
CITY OF SAN MARCOS	42
CNP UTILITY DISTRICT	62
HARRIS COUNTY MUD 168	39
HARRIS COUNTY MUD 200 CRANBROOK	64
MISSION BEND MUD 2	51
SOUTHERN MONTGOMERY COUNTY MUD	32
WELLS BRANCH MUD 1	39

Table B2. Utilities with Significant Institutional Water Use

Utility	Institution Water Use as Percent of Total Metered Volume
CITY OF BEEVILLE	51
CITY OF LIVINGSTON	48
CITY OF HUNTSVILLE	35

Table B3. Utilities with Significant Commercial Water Use

Utility	Commercial Water Use As Percent Of Total Metered Volume
CITY OF BRYAN	41
CITY OF CONROE	43
CITY OF ENNIS	36
CITY OF FARMERS BRANCH	45
CITY OF FREEPORT	45
CITY OF GEORGETOWN	38
CITY OF GRANBURY	50
CITY OF HILLSBORO	47
CITY OF HUMBLE	58
CITY OF JACKSONVILLE	44
CITY OF LAKE JACKSON	43
CITY OF LIBERTY	39
CITY OF MIDLOTHIAN	33
CITY OF SOUTH HOUSTON	30
CITY OF TOMBALL	48
CITY OF WACO	54
CITY OF WEBSTER	54
DALLAS WATER UTILITY	49
FORT BEND COUNTY WCID 2	32

Table B4. Utilities With Significant Industrial Water Use

Utility	Industrial Water Use As Percent Of Total Metered Volume
BORGER MUNICIPAL WATER SYSTEM	73
CITY OF CARTHAGE	36
CITY OF CLEBURNE	42
CITY OF HEREFORD	39
CITY OF HOUSTON	73
CITY OF LONGVIEW	37
CITY OF MARSHALL	35
CITY OF MOUNT PLEASANT	62
CITY OF NACOGDOCHES	30
CITY OF PARIS	75
CITY OF SEGUIN	43
CITY OF VERNON	38

10 APPENDIX C - COMPLETE REPORTING UTILITIES

(SUD = Special Utility District; WCID = Water Control and Improvement District)

Utility	Single-Family Residential	Multi-Family Residential	Institutional	Commercial	Industrial
AMARILLO MUNICIPAL WATER SYSTEM	46	5	26	9	13
BORGER MUNICIPAL WATER SYSTEM	19	1	4	2	73
BROWNSVILLE PUBLIC UTILITIES BOARD	59	8	27	4	3
CANYON LAKE WATER SERVICE COMPANY	81	1	12	6	<1
CITY OF ANDREWS	70	3	7	20	<1
CITY OF AUSTIN	40	24	28	1	7
CITY OF BEEVILLE	26	7	16	51	0
CITY OF BURKBURNETT	60	2	12	23	3
CITY OF CARROLLTON	52	18	23	4	3
CITY OF CONVERSE	80	7	9	2	2
CITY OF CORSICANA	50	9	20	5	16
CITY OF FREEPORT	30	11	45	6	9
CITY OF GARLAND	60	12	16	4	7
CITY OF GREENVILLE	45	14	27	8	6
CITY OF HENDERSON	44	3	10	21	22
CITY OF INGLESIDE	58	8	16	2	16
CITY OF LEWISVILLE	39	22	28	10	1
CITY OF MOUNT PLEASANT	22	3	11	2	62
CITY OF NEDERLAND	66	10	17	3	3
CITY OF PORT NECHES	65	7	5	5	18
CITY OF RICHARDSON	49	12	15	9	15
CITY OF ROCKWALL	71	5	21	3	<1
CITY OF TERRELL	42	13	29	7	8
CITY OF VERNON	41	4	11	6	38
CLEAR LAKE CITY WATER AUTHORITY	66	15	15	4	<1
GALVESTON COUNTY WCID 1	68	16	11	4	1
JOHNSON COUNTY SUD	86	3	6	1	3
LAGUNA MADRE WATER DISTRICT	35	21	22	3	3

Utility	Single Family Residential	Multi-Family Residential	Institutional	Commercial	Industrial
LAMAR COUNTY WATER SUPPLY DISTRICT	92	3	2	0	2
MONARCH UTILITIES LP	93	2	6	<1	<1
TOWN OF FLOWER MOUND	87	1	6	5	<1