Water Conservation Plan

City of Houston

Effective September 2014 through May 2019

DRAFT

Table of Contents

INTRODUCTION 3
City of Houston Overview 3
Water Conservation Plan 3
REQUIRED WATER CONSERVATION PLAN CONTENT 5
A. Evaluation of Customer Use Characteristics 5
B. Five-year and Ten-year Water Savings Targets 6
C. Implementation Plan 8
D. Method for Tracking the Implementation and Effectiveness 11
E. Master Meter 11
F. Universal Metering 11
G. Measures to Determine and Control Water Loss 12
H. Water Loss Program 12
I. Public Education and Information Programs 13
J. Non-Promotional Water Rate Structure 14
K. Implementation and Enforcement 15
L. Contract Customer Requirements 15
M. Region H Notification 15
N. Drought Contingency Plan 16
O. Adoption 16
P. Reporting Requirement 16

Appendix A. Water Utility Profile
Appendix B. Consumption Awareness Program Dashboard Features
Appendix C. City of Houston Water and Sewer Rates
Appendix D. Ordinance of Official Adoption of Water Conservation Plan
Appendix E. Letter to Region H
Appendix F. Drought Contingency Plan

DRAFT

INTRODUCTION

The City of Houston Water Conservation Plan 2014 highlights water conservation goals and continuous progress that will preserve long-term water supplies for the City of Houston and the greater Houston region. Water supply planning is important to the City of Houston in order to meet long term growth in demand and to comply with 30 TAC Chapter 288 that requires the City to prepare and implement a water conservation plan that meets certain requirements. This plan includes information to fulfill these requirements in addition to information specific to the City of Houston's water supply and treatment system.

The current plan includes measures to be taken internally at the City of Houston as well as programs for water customers. These include current programs such as an in-house public education program, continued enforcement of water-wise building and plumbing codes and the Consumption Awareness Program designed to allow water customers to determine the most effective methods to maximize water-use efficiency inside and outside the home through communicating real-time meter data to household users. This document also summarizes plans to develop an internal Water Loss Program, pilot a Mainline Leak Detection Program and expand the Consumption Awareness Program.

City of Houston Overview

The City of Houston's Department of Public Works and Engineering ensures that the citizens of the City of Houston receive high quality drinking water at sufficient pressure to meet their daily needs. As a regional drinking water provider, the City of Houston's water system is spread across a four-county area, making it one of the most complex water systems in the nation. PWE is also responsible for protecting our regional water supply, operating and maintaining three water purification plants, 92 ground water pumping stations and over 7,000 miles of distribution pipe.

By 2050, the wholesale and retail water customer population is expected be served by the City of Houston water system is 6.2 million. It is imperative that all citizens use water wisely to sustain our most important natural resource. Our first line of defense is an educated and informed community.

Water Conservation Plan

The Texas Water Development Board (TWDB) and Texas Commission on Environmental Quality require all utilities that provide potable water service to 3,300 or more connections have a Water Conservation Plan that meets minimum requirements or explain why the requirement is not applicable per the requirements of 30 TAC Chapter 288. Additionally, the plan should not be older than five years. As the previous City of Houston Water Conservation Plan was prepared in 2009, this document is the required five year update.

The Texas Water Development Board defines a water conservation plan as "a strategy or combination of strategies for reducing the consumption of water, reducing the loss or waste of water, improving or maintaining

DRAFT

the efficiency in the use of water, or increasing recycling and reuse of water". The TWDB also emphasizes that water conservation is increasingly recognized as an integral part of water resource planning and management, stating that water conservation can play an important role in meeting current and future water supply, utility infrastructure, and environmental needs.

Additionally, the State Water Plan, the blueprint that details how Texas will address our state's growing water needs, calls for serious statewide conservation efforts, as fully a quarter of Texas' future water needs are planned to be met through conservation. Region H, the fast growing, mainly urbanized region in which Houston is located, has specific conservation goals articulated in the region's plan. This Region H Plan calls for 12 percent of future additional supplies to be met through municipal conservation efforts.

DRAFT

REQUIRED WATER CONSERVATION PLAN CONTENT

A. Evaluation of Customer Use Characteristics

An evaluation of the Applicant's water and wastewater system and customer use characteristics to identify water conservation opportunities and potential targets and goals. Completion of the Water Conservation Utility Profile, TWDB – 1965 as part of the evaluation is required and should be submitted with the Plan. The utility profile should include water sales and use for the following classifications; residential (both for single-family and multi-family), commercial, institutional, industrial, agricultural, and wholesale; as appropriate.

See Appendix A for the City of Houston's Retail and Wholesale Water Utility Profiles.

Overview of Usage[1]

In 2013, The City of Houston produced a total of 163 billion gallons of treated, potable water. This averages to a production of 447 million gallons per day (MGD). Total authorized usage, both retail and wholesale to contract customers, totaled 140 billion gallons, an average of 384 MGD. A small portion, 4 billion gallons, was used for routine maintenance activities such as line flushing. Therefore, unaccounted for water in 2013 totaled 27 billion gallons or 23 percent of overall production.

Contract Customers

As a regional water provider, the City of Houston has agreements with 274 contract customers to provide potable water. These contract customers include such entities as Municipal Utility Districts, cities, Regional Water Authorities and various industrial customers. In 2013, contract customers who acquired potable water from the City of Houston used a total of 52 billion gallons for an average of 142.5 million gallons per day (MDG)..

Retail Customers

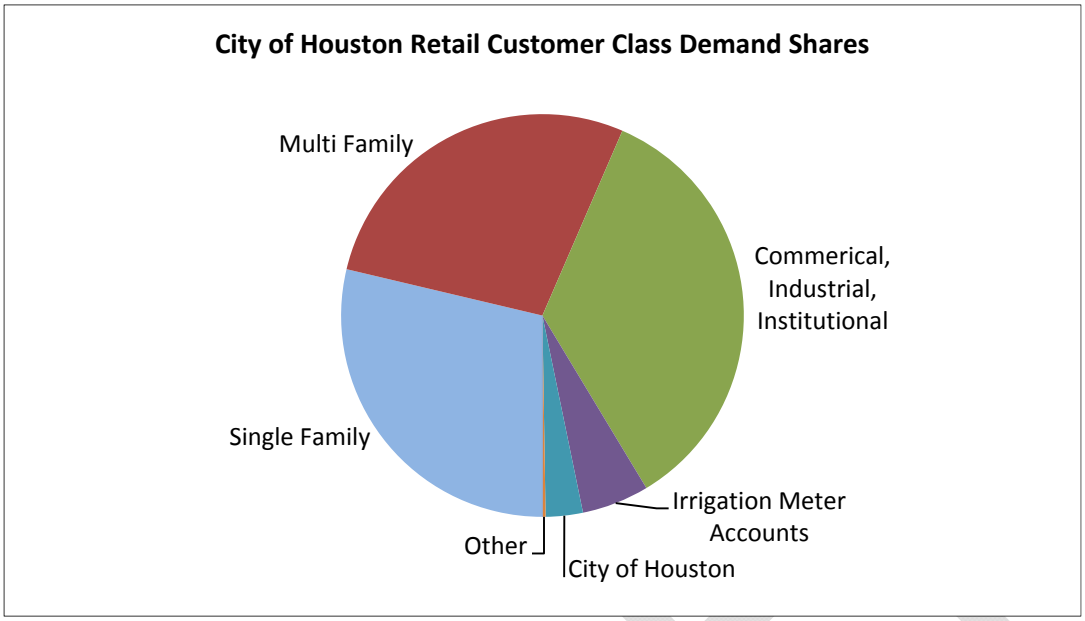
In 2013 usage for all retail customers, located within the City of Houston municipal boundaries, was 84 billion gallons for an average of 230 MGD. Retail usage is roughly divided in three equal parts between single-family, multi-family and commercial, industrial and institutional (CII) customer classes.

Table 1. City of Houston Retail Customer Usage by Customer Class, 2012

Customer Class	No. of Connections	Total Usage 2012 (billons)	Average MGD
CII	65,151	33	90
Single family	408,252	26	71
Multi Family	14,968	25	68.5
TOTAL	**488,371**	**84**	**229.5**

[1] All values in this section are consistent with the 2013 Water Conservation Plan Annual Report submitted to TWBD.

Figure 1. City of Houston Retail Customer Demand Shares, 2012



The 2013 GPCD for all retail customers is 144. This GPCD is based on pumpage volumes – all water that leaves the water treatment plants, including all lost and unaccounted for water. This gives us a more accurate description of the full performance of the system compared to previous GPCD calculations that only accounted for the water that went through a customer's meter and was billed. However, it makes a comparison of this 5-year average to the previous 5-year average to appear to have increased GPCD. Evaluated separately, single-family residential customer usage for 2013 was 64 GPCD with a 5-year historic average of 68 GPCD. The previous 5-year average was 70.9. This confirms that, although the baseline GPCD for all customer types is higher than the previously used baseline of the 2009 due to more comprehensive accounting, as a trend our retail residential customers have been using a decreasing amount of water.

B. Five-year and Ten-year Water Savings Targets

Inclusion of five-year and ten-year targets that are specific and quantified for water savings and include goals for water loss programs in gallons per capita per day, and goals for municipal use and residential use, in gallons per capita per day. A base use figure should be included to be able to calculate your savings. Consider state and regional targets and goals, local climate, and demographics. Consider the anticipated savings that can be achieved by utilizing appropriate best management practices and other conservation techniques.

Over the past thirty years, the City of Houston has averaged an annual rainfall of 49.77 inches.[2] The average was 48 inches for the 2004-2008 period. For the purpose of addressing water conservation, the City of Houston considers rainfall of this amount to be an 'average' year and anything above is considered a 'wet' year. In

[2] http://www.srh.noaa.gov/hgx/?n=climate_iah_normals_summary

general, during a 'dry' year the City will receive 35 to 42 inches of rainfall. Less than 35 inches during the year would result in conditions that would be addressed through the Drought Contingency Plan and not the Water Conservation Plan. During the drought of 2011, the City of Houston still received 25 inches of rainfall and declared a Stage 2 water shortage due breaks in the system and not due to the volume of water in the lakes.

After analysis of historic water use date, dry years show a pattern of increased water use over that typically seen in an average or wet year. So as to address annual weather variability and usage fluctuations, the City of Houston has developed tiered water use reduction targets. The historic 5-year GPCD average has been determined the appropriate baseline for average or wet year (see Table 3). A GPCD baseline of approximately 6% higher has been selected for dry years so as to ensure the City of Houston can reliably meet basic customer needs and essential fire protection even when discretionary use is high (see Table 4).

This plan uses 1.6% reduction target for total and residential GPCD as it is consistent with the water use reduction target adopted by Region H. A focused effort is being made by the City of Houston to reduce lost and unaccounted for water with an overall goal of reducing water loss by two percent every five years with the long-term goal of reaching less than 11 percent water loss.

Table 3. Water Conservation Plan 5-and 10-yr Goals for Water Savings in Average or Wet Years

	Historic 5yr average	Average or Wet Year Baseline	5yr Reduction Goal	10yr Reduction Goal
Total GPCD	144	144	141.7	139.4
Residential GPCD	68	68	66.9	65.8
Water Loss (GPCD)	29	29	28.4	27.8
Water Loss (Percentage)	14	14	11.2	10.9

Table 4. Water Conservation Plan 5-and 10-yr Goals for Water Savings in Dry Years

	Historic 5yr average	Dry Year Baseline	5yr Reduction Goal	10yr Reduction Goal
Total GPCD	144	152	150	147.6
Residential GPCD	68	72	70.8	69.7
Water Loss (GPCD)	29	31	30.4	29.8
Water Loss (Percentage)	14	15	14.7	14.4

DRAFT

C. Implementation Plan

A schedule for implementing the plan to achieve the applicant's targets and goals

To achieve 1.6 % reduction over the next five years, The City of Houston plans to implement, expand or continue the following efforts.

Water Main Replacement Program

Aging infrastructure is a common problem that can lead to regulatory and customer issues as well as loss of treated water. It is the mission of this utility to protect public health and the environment and to provide superior customer service. To meet this mission, continuation of water infrastructure re-investment is required for current and future needs and to ensure the delivery of water in the most efficient manner possible.

Continuing activities range from replacement of broken or inadequate infrastructure, to proactive replacement of aging infrastructure. The City performs a needs assessment that considers the design service life of each type of asset and the remaining life of the asset since its installation, replacement, or rehabilitation. In water, the type of pipe material is an important factor in determining the service life. For example, small diameter asbestos-cement water pipes that were installed in the 1970s of have a 40-year service life, based on the City's experience with line breaks. In comparison, PVC pipes are based on a 50-year service life for this assessment.

Water Transmission includes the large diameter lines, 16" and larger, and valves that are used to move high volumes of drinking water throughout the City and to bring raw surface water to the treatment plants. There are 4.55 million linear feet of pipe from 16" to 108". Six (6) major repump stations re-pressurize the transmission system and 168 storage tanks (groundwater, hydro, elevated) provide water volume in the system to meet average and peak demands. These projects include rehab/replacement of storage tanks, water valves, pumps, and aging large water lines.

Water Distribution includes the small diameter pipes in the system that service individual homes and businesses. The water distribution system also includes meters and the fire hydrants that fire fighters use throughout the City. There are approximately 33.5 million linear feet of pipe less than 16" and approximately 460,000 water meters in the distribution system. These projects replace old and substandard neighborhood water lines to help improve fire protection and water quality.

Currently, the City has dedicated approximately $28 million dollars in FY2015 to the Water Main Replacement Capital Improvement Program construction projects and approximately $118 million in planned projects over the next five years. For more information visit the City of Houston's website at: http://www.houstontx.gov/cip/.

Water Loss Plan

This water loss plan is currently under development by the City of Houston. The City strives to be an exemplar of efficient water usage for its customers. To that end, concerted efforts are made and will

DRAFT

continue to be made to ensure treated water is delivered to customers in the most efficient manner possible. The City of Houston plans to spend the next twelve months developing cost-effective implementation strategies for reducing water loss.

Water Loss Reductions are planned to be achieved through:

- Developing uses of the fixed network for reducing water loss such as predictive leak detection or other potential functionalities
- Developing strategies for reducing water usage by City Departments and other non-revenue users
- Developing strategies for reducing theft (ex. Bypasses, direct connects, etc.)
- Developing a plan for turning water meters off faster when there is no account owner and water use continues to occur

Consumption Awareness Program

To make sure customers get timely and accurate bills, the city measures consumption efficiently through an automated system that transmits water usage data with radio waves, also referred to as an Automated Meter Infrastructure (AMI) network. An attachment on the water meter sends a wireless signal that is picked up by one of the collecting devices located throughout the city, usually on utility poles and in some city buildings like fire stations. Ultimately, the information is transmitted to a central computer where the data can be accessed by account owners, used to generate alerts and used to create water bills.

So this information can be utilized by retail customers, the City of Houston has developed a Consumption Awareness Program (CAP) which affords customers with access to their real-time usage information and crosses multiple communication mediums. For more information on the CAP see *Section I. Public Education and Information Programs* and Appendix B for more information and examples of the information available in the dashboard or visit www.houstonwater.org.

The City of Houston has completed the implementation of the first phase of the CAP which included:

- Converting 75 percent of retail customers to the AMI network
- Web-based portal for single-family residential customers to access real-time water usage
- Smart phone based application for iPhone and Android users

As of the beginning of 2014, approximately 75 percent of retail customer accounts are on the AMI network and 10 percent of single-family retail customers have signed up for the CAP.

Goals of the second phase of the program include:

- Developing web-based portal for commercial and other retail customers
- Developing and implementing an information dissemination campaign with goal of 80 percent customer participation in CAP.
- Development of more in-depth and user friendly portal for single-family customers.

DRAFT

Mainline Detection Leak program

Using the AMI network previously described, the City of Houston is currently in the process of developing a more proactive leak detection program to determine effective next steps for increasing the efficiency of leak detection and repair efforts. Future applications under the network are currently being developed and conceived with manufacturers. These functionalities include pressure sensing, hydrant flow monitoring, water quality sensing, et al. The key to long term viability of this vision is to ensure interoperable end point functionality and open architecture protocols.

Water Wise Building Standards

In 2011, The City of Houston completed a comprehensive update and revision of municipal plumbing codes. As reflected in the single-family residential GPCD of 66, demonstrable water use reductions have been realized due to the implementation and enforcement of these more stringent plumbing and building codes through the years. A section on Low Impact Development was also added to the Infrastructure Design Manual. Low Impact Development can reduce the amount of potable water used for irrigation by utilizing stored rainwater and slowing runoff from properties requiring less overall irrigation. As new construction continues at a brisk pace, the City of Houston plans to continue to rigorously enforce building and plumbing codes and encourage low impact development.

The sections of the Uniform Plumbing Code and Building Code related to water efficiency can be found in the following:

- Uniform Plumbing Code, Chapter 16
- Uniform Plumbing Code Appendix R
- Building Code 29

All documents can be accessed through the City of Houston's website at: www.houstonpermittingcenter.org/code-enforcement

To set an example for private developers, the City of Houston adopted an official resolution (No. 2004-15) establishing the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ as a standard for new or replacement facilities and major renovation of City of Houston owned buildings and facilities over 10,000 square feet of occupied space. LEED™ provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED™ emphasizes state of the art strategies for various energy and environmental aspects of a building including water savings.

The General Services Department is implementing this policy in its management of projects in the City's Capital Improvement Plan. More information about the status of this program can be found on the City of Houston's website at: http://www.houstontx.gov/generalservices/leed.

DRAFT

D. Method for Tracking the Implementation and Effectiveness

A method for tracking the implementation and effectiveness of the plan. The method should track annual water use and provide information sufficient to evaluate the implementation of conservation measures. The plan should measure progress annually, and evaluate the progress towards meeting the goals.

The City of Houston will use the Water Conservation Annual Report and the Water Loss Audit Report due annually to the TWDB and TCEQ as a means for tracking the implementation and effectiveness of the plan. Additionally, the City of Houston will utilize the Alliance for Water Efficiency's Water Conservation Tracking Tool to evaluate the effectiveness of the current conservation efforts and evaluate measures that may be considered in the future.

E. Master Meter

A master meter to measure and account for the amount of water diverted from the source of supply.

The City of Houston has a variety of sources from which water is acquired. These sources include Lake Houston, Lake Livingston, groundwater wells, limited reuse of wastewater effluent and, when necessary, Lake Conroe. There are meters located on all groundwater wells. There is an inflow meter at the head of the Northeast Water Purification Plant, located near the shore of Lake Houston,that tracks all water entering the plant for treatment and eventual delivery to customers. The Trinity River Authority is responsible for tracking all discharges from Lake Livingston. If it is necessary for the City of Houston to divert water from Lake Conroe, the San Jacinto River Authority tracks this amount and conveys this information to the City of Houston.

F. Universal Metering

A program of universal metering of both customer and public uses of water, for meter testing, repair and for periodic replacement.

The City of Houston's Code of Ordinance Chapter47- Section 4(a)(2) states, *"water will be furnished and delivered through the water distribution system of the city only through meters. Meters must be listed on the City of Houston department of Public Waters & Engineering's product approval list."*

The City of Houston's overall objective with regard to meter population measure accuracy is to maintain an average of 98-102% per the American Water Works Association (AWWA) benchmark. This is accomplished through data and population analytics. The specific demarcation line for Houston is meter size. Customer and public uses of water are metered and maintained under the same programs. The programs are grouped into large and small meter scheduled, unscheduled and replacement programs.

The small meters were replaced across the entire system beginning in the year 2000. The population's accuracy performance has been monitored through data captured in customer requests for tests, field

accuracy test results and, when meters are pulled for any reason. A random sampling program began in 2013 and is planned to be conducted annually to gauge the accuracy performance randomly on the meter size population of 5/8”-2”. Additionally, the City of Houston is sampling consumption at the various flow ranges to better understand actual accuracy of measure based on the volume of water consumed at each range. Based on volume and age, subsets of the overall population will be mapped for replacement.

Regarding the large meter population (meter sizes 3” and larger) a scheduled (preventive) maintenance program has been put in to place based on stratifications of meter type and volume that has passed through each meter. The scheduled program is based on meeting or exceeding AWWA accuracy benchmarks and involves testing and calibration at the point of measure. When maintenance costs or manufacture supply dictates, we will plan removal and replacement of the meters.

G. Measures to Determine and Control Water Loss

Measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections, abandoned services, etc.)

The city has multiple levels of oversight to determine and control water loss that is driven by routine data analytics and field inspection presence. Efforts such as a direct theft line allows for the citizen base to report on when or if consumption is perceived to be taken inappropriately. An active relationship with the Houston Police Department and District Attorney tactically addresses issues when they arise. From a monitoring perspective, Houston analyzes data daily and aggregates performance monthly to see where loss or inaccurate accounting might be occurring in the system. The data drive response to account structural issues as well as answering the question, are we accounting for all water consumed.

H. Water Loss Program

A continuous program of leak detection, repair, and water loss accounting for the transmission, delivery and distribution system in order to control water loss.

The City of Houston has developed and implemented a network based on meter reading that is expanding into a variety of functions that will ultimately deliver a more robust Supervisory Control and Data Acquisition (SCADA) view of the entire distribution system. This concept has been successfully developed, tested and put into production with Sanitary Sewer Overflows and is now migrating to main line leak detection. Future applications under the network are currently being developed and conceived with manufacturers. These functionalities include pressure sensing, hydrant flow monitoring, water quality sensing, et al. The key to long term viability of this vision is to ensure interoperable end point functionality and open architecture protocols. In line with this last point, the City of Houston is involved actively with the AWWA Research Foundation to develop industry specifications involving aforementioned networks.

Further, the City of Houston is embarking on an effort to standardize reporting for all municipalities and wholesale water providers across the State to ensure what is reported as loss is consistent. To ensure

DRAFT

compliance, Houston is undertaking review of how water is accounted for in uses such as community fire response, dead end line flushing, new line flushing and general city uses. Houston also has an active transient program that monitors uses by contractors, et al that assures the highest level of measurement and accountability. All of these efforts regardless of maturity level are active and a part of the program to standardize reporting so that a true understanding of loss or unaccounted for water is reached.

I. Public Education and Information Programs

A program of continuing education and information regarding water conservation. This should include providing water conservation information directly to each residential, industrial and commercial customer at least annually, and providing water conservation literature to new customer when they apply for service.

Consumption Awareness Program

The City of Houston works from the premise that having a good understanding of how an individual's home or business uses water is the first step in customers being able to sustainably reduce water use. Working from this premise, the City of Houston developed the Consumption Awareness Program (CAP) which provides customers with access to their real-time usage information and crosses multiple communication mediums. Giving the customer the tools and information to have a clear understanding of their water use thus allows them to identify unusual patterns of water use unique to their property that can be resolved and ultimately results in demonstrable savings.

Customers can access information through the web, mobile apps, email, and phone. CAP provides account summaries that display helpful information such as: Current Balance, Due date, Last Payment Received, Current Usage, Projected Next Bill, Turn on e-bills, and Neighborhood Average Usage. Customers can see their monthly data for up to 18 months, they can see the read date, meter reading, what was used, what was paid for the usage. Customers can also see up to 60 days of past usage on a day-by-day or hourly basis. Customers can select daily, monthly and leak alerts and can choose to be alerted by Email, Text via cell phone or Auto-Call to a phone. See Appendix B for more information and examples of the information available in the dashboard.

Public Education and Information Program

The City maintains a dedicated staff for its Public Education and Information Program. The major public outreach programs are as follows:

WaterWorks Education Center – Opened in 2010, the WaterWorks Center hosts numerous school field trips and tours. Located near the shores of Lake Houston at the City of Houston's Northeast Water Purification Plant, WaterWorks Education Center is a one-of-a-kind water destination whose mission is to promote water education, conservation and stewardship. The City of Houston's WaterWorks Education Center welcomes all educational groups to explore the wonders of water during a field trip designed to imbue them with a sense of wonderment and discovery about one of earth's most precious

DRAFT

resources. The Center offers visitors an innovative environment for creative learning with interactive exhibits, demonstrations and tour. For more information see: http://www.houstonwaterworks.org.

Annual Water Festival – over the past 20 years, this annual event has been used to showcase the water conservation program's message. It primarily offers awareness about water conservation to local schools as well as young adults. Local participants offer support by providing hands on demonstration of essential tools utilized in the water industry.

School Education Curriculum Program – The Public Education and Outreach group has presented to over 24,000 people consisting of water messages to use water efficiently and source water protection to stress the importance and value of clean drinking water. The coordination of water conservation information produces a Houston specific message.

Community Outreach Program – The City of Houston Public Education and Outreach group provides presentations along with providing water conservation retrofit kits that are introduced to local school students throughout the Houston area. The City is involved in providing this program to educate the community about using water more efficiently. Students are taught how to save water throughout their home and are then given a retrofit kit to take home that includes various water saving devices to be placed in their showers and faucets.

Gulf Coast Water Conservation Symposium

The City of Houston is an active participant in the planning of the annual Gulf Coast Water Conservation Symposium, a one day regional event aimed at providing crucial information to water providers and customers in the region about water conservation legislation, planning, education, and smart conservation investment, implementation strategies and industry best practices. City of Houston employees actively participate on the Symposium's Steering Committee and effort is made to raise awareness of the event amongst City of Houston's regional customers through mailings and other means of communication.

In 2014, the theme of the Symposium was "Capitalizing on Water Conservation: Benefits, Opportunities, Requirements, & Lessons Learned" and focused on how Proposition 6, water infrastructure funding and HB4 may affect local communities and examine strategies for smart infrastructure investment, among other topics. City of Houston plans to continue to participate in this annual event.

J. Non-Promotional Water Rate Structure

A water rate structure which is not "promotional' i.e. a rate structure which is cost-based and which does not encourage the excessive use of water. Include copy of the rate structure.

The existing City of Houston rate structure includes inclining blocks and single unit rates for both water and sewer pricing. Sewer pricing is based on total water use. Traditional objectives in rate structure design include that the rates be based on the costs to serve, that they provide adequate and stable revenues, that they be fair or equitable among customer classes and volume users, and that they be easy to implement and administer. These rate structures are cost-based and are not promotional. All rate tables are available in Appendix C and at the City's website www.houstonwater.org.

DRAFT

K. Implementation and Enforcement

A means of implementation and enforcement, evidenced by adoption of the plan:

a. A copy of the ordinance, resolution or tariff indicating official adoption of the water conservation plan by the applicant and

b. A description of the authority by which the applicant will implement and enforce the conservation plan.

See Appendix D for the copy of ordinance of official adoption of the Water Conservation Plan by the City of Houston Council.

The City implements and enforces the regulatory aspects of the Water Conservation Plan through existing codes and ordinances. These include:

- Building and Plumbing Codes: www.houstonpermittingcenter.org/code-enforcement
- Chapter 47 – Water and Sewers, of the City of Houston Code of Ordinances: http://www.houstontx.gov/codes/index.html
- LEED Certification of City of Houston owned facilities (Resolution No. 2004-15): http://www.usgbc.org/Docs/Archive/General/Docs1981.pdf

L. Contract Customer Requirements

If the Applicant will utilize the project financed by the TWDB to furnish water or wastewater services to another supplying entity that in turn will furnish the water or wastewater services to the ultimate consumer, the requirements for the water conservation plan also pertain to these supplier entities. To comply with this requirement the applicant shall:

a. Submit its own water conservation plan;

b. Submit the other entity's (or entities), adopt a water conservation plan

c. Require, by contract, that the other entity (or entities), adopt a water conservation plan that conforms to the board's requirement and submit it to the board. If the requirement is to be included in an existing water or wastewater service contract, it may be included, at the earliest of the renewal or substantial amendment of the contract, or by other appropriate measure.

This requirement is located within all City of Houston water supply contracts.

M. Region H Notification

Documentation that the regional water planning group for the service area of the applicant has been notified of the applicant's water conservation plan.

See Appendix E for letter notifying Region H of the City of Houston's Water Conservation Plan.

DRAFT

N. Drought Contingency Plan

See Appendix F for information on The City of Houston's 2013 Drought Contingency Plan.

O. Adoption

Adoption. No water conservation plan is complete without formal adoption by the governing body of the entity. For a municipal water system, adoption would be by the city council as an ordinance, or a resolution by an entity's board of directors.

Appendix D will contain a copy of the resolution of official adoption of the Water Conservation Plan which will be completed through an act of City Council prior to September 2014.

P. Reporting Requirement

Reporting Requirement: Identify who will be responsible for preparing the annual report on the utility profile form TWDB-1965. Loan/Grant Recipients must maintain an approved water conservation program in effect until all financial obligations to the state have been discharged and shall report annually to the executive administrator of the TWDB on the progress in implementing each of the minimum requirements in its water conservation plan and the status of any of its customers' water conservation plan required by contract. The content and format for the annual reporting is included in the forms: Water Conservation Plan Annual Report, TWDB-1966 for retail water suppliers, TWDB-1967 for non-water suppliers and TWDB-1969 for wholesale water supplies.

The City of Houston's Department of Public Works and Engineering will be responsible for preparing the Water Conservation Plan Annual Report, TWDB-1966 for retail water suppliers and TWDB 1969 for wholesale water supplies.

DRAFT

Appendix A. Water Utility Profile

DRAFT

Texas Water Development Board

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

Fill out this form as completely as possible.
If a field does not apply to your entity, leave it blank.

CONTACT INFORMATION

Name of Utility: City of Houston

Public Water Supply Identification Number (PWS ID): 1010013

Certificate of Convenience and Necessity (CCN) Number: 99144

Surface Water Right ID Number: 4261,4277,4963,4965,5807,5808,5827,2925,5762,5826

Wastewater ID Number: See Attached

Completed By: Shannon K. Smith Title: Engineer

Address: 611 Walker St. 18th Fl City: Houston Zip Code: 77002

Email: shannon.smith@houstontx.gov Telephone Number: 832-395-3097

Date: 3/31/2014

Regional Water Planning Group: H Map

Groundwater Conservation District: HGSD Map

Check all that apply:

- [x] Received financial assistance of $500,000 or more from TWDB
- [x] Have 3,300 or more retail connections
- [x] Have a surface water right with TCEQ

Texas Water Development Board

Section I: Utility Data

A. Population and Service Area Data

1. Current service area size in square miles: 635
(Attach or email a copy of the service area map.)

2. Provide historical service area population for the previous five years, starting with the most current year.

Year	Historical Population Served By Retail Water Service	Historical Population Served By Wholesale Water Service	Historical Population Served By Wastewater Service
2009	2,060,444	2,008,811	2,093,621
2010	2,190,456	2,029,102	2,112,010
2011	2,119,831	2,086,264	2,127,071
2012	2,151,475	2,143,426	2,142,133
2013	2,201,027	2,200,588	2,157,194

3. Provide the projected service area population for the following decades.

Year	Projected Population Served By Retail Water Service	Projected Population Served By Wholesale Water Service	Projected Population Served By Wastewater Service
2020	2,370,040	2,600,721	2,262,624
2030	2,600,128	2,813,387	2,446,529
2040	2,806,453	2,953,541	2,623,586
2050	3,087,538	3,075,619	2,799,197
2060	3,303,789	3,187,275	2,977,809

4. Describe the source(s)/method(s) for estimating current and projected populations.

1) Service Area of 635 sq. mi. is only the retail service area. Retail and wholesale service area is estimated to be 1,536 sq. mi.
2) 2010 and 2012 historical retail populations are US Census data. 2009, 2011 and 2013 historical retail populations are as reported in previous TWDB Water Use Surveys.
3) 2020-2040 projected retail populations were determined using existing US Census and H-GAC data. 2050 and 2060 projections were estimated using data provided by HGSD.
4)Historical and projected populations are based upon TWDB Region H data.

Texas Water Development Board

B. System Input

Provide system input data for the previous five years.

Total System Input = Self-supplied + Imported – Exported

Year	Self-supplied Water in Gallons	Purchased/Imported Water in Gallons	Exported Water in Gallons	Total System Input	Total GPCD
2009	145,338,834,000	0	0	145,338,834,000	193
2010	149,611,309,000	0	0	149,611,309,000	187
2011	180,776,752,000	0	0	180,776,752,000	234
2012	163,764,008,000	0	0	163,764,008,000	209
2013	166,965,113,000	0	0	166,965,113,000	208
Historic 5-year Average	161,291,203,200	0	0	161,291,203,200	206

C. Water Supply System (Attach description of water system)

1. Designed daily capacity of system 745,000,000 **gallons** per day.
2. Storage Capacity:
   Elevated 17,400,000 **gallons**
   Ground 195,700,000 **gallons**

3. List all current water supply sources in gallons.

Water Supply Source	Source Type*	Total Gallons
Lake Houston	Surface	59,337,467,100
Lake Conroe	Surface	21,723,508,617
San Jacinto River	Surface	13,034,040,000
Mult. Bayous	Surface	137,007,963,162
Lake Livingston	Surface	294,178,282,800
Groundwater	Ground	41,851,000,000

*Select one of the following source types: *Surface water, Groundwater, or Contract*

4. If surface water is a source type, do you recycle backwash to the head of the plant?
   - (●) Yes 15,250,000 estimated **gallons** per day
   - ( ) No

D. Projected Demands

1. Estimate the water supply requirements for the next ten years using population trends, historical water use, economic growth, etc.

Year	Population	Water Demands (gallons)
2015	2,185,750	119,720,000,000
2016	2,212,511	121,180,000,000
2017	2,239,272	122,640,000,000
2018	2,266,033	124,100,000,000
2019	2,292,794	125,560,000,000
2020	2,319,555	127,020,000,000
2021	2,342,240	128,115,000,000
2022	2,364,925	129,575,000,000
2023	2,387,609	130,670,000,000
2024	2,410,294	132,130,000,000

2. Describe sources of data and how projected water demands were determined. Attach additional sheets if necessary.

1) Item B: Self-supplied water in gallons includes pumpage from each of the three surface water treatment facilities and groundwater wells.
2) Item C1: Comprised of the permitted rate for each surface water treatment facility and current groundwater permits.
3) Item C2: Totals taken from 2014 TCEQ inventory list. Does not include hyd. tanks.
4) Item C4: Recycle Backwash is estimated using an average daily flow for 2013 for each surface water treatment plant and percentages for recycled water provided by plant operators.
5) Item D1: Population Projections were interpolated from 10-year increments shown on page 2. Water demands are strictly retail demands (150 gpcd) and do not include wholesale customers.

Texas Water Development Board

E. High Volume Customers

1. List the annual water use, in gallons, for the five highest volume **RETAIL customers**. Select one of the following water use categories to describe the customer; choose Residential, Industrial, Commercial, Institutional, or Agricultural.

Retail Customer	Water Use Category*	Annual Water Use	Treated or Raw
Confidential	Commercial		Treated
Rhone-Poulenc Basic	Commercial	205,341,000	Treated
Dr. Pepper Bottling Company	Commercial	136,980,000	Treated
Maximus Coffee Group	Commercial	118,691,000	Treated
United States Gypsum	Commercial	106,171,000	Treated

*For definitions on recommended customer categories for classifying customer water use, refer to the online Guidance and Methodology for Reporting on Water Conservation and Water Use.

2. If applicable, list the annual water use for the five highest volume **WHOLESALE customers**. Select one of the following water use categories to describe the customer; choose Municipal, Industrial, Commercial, Institutional, or Agricultural.

Wholesale Customer	Water Use Category*	Annual Water Use	Treated or Raw
Equistar	Industrial	9,160,000,000	Raw
NHCRWA	Municipal	8,191,937,000	Treated
Shell Oil	Industrial	7,977,432,000	Raw
WHCRWA	Municipal	6,589,480,000	Treated
City of Pasadena	Municipal	6,738,196,000	Treated

*For definitions on recommended customer categories for classifying customer water use, refer to the online Guidance and Methodology for Reporting on Water Conservation and Water Use.

F. Utility Data Comment Section

Provide additional comments about utility data below.

1) Item E1: 5 largest retail customers are based upon the largest five year consumption averages
2) Item E2: 5 largest wholesale customers are based upon 2009-2013 average water use

Texas Water Development Board

Section II: System Data

A. Retail Connections

1. List the active retail connections by major water use category.

Water Use Category*	Active Retail Connections			
	Metered	Unmetered	Total Connections	Percent of Total Connections
Residential – Single Family	408,252		408,252	84%
Residential – Multi-family (units)	14,968		14,968	3%
Industrial			0	0%
Commercial	65,151		65,151	13%
Institutional			0	0%
Agricultural			0	0%
TOTAL	488,371	0	488,371	

*For definitions on recommended customer categories for classifying customer water use, refer to the online Guidance and Methodology for Reporting on Water Conservation and Water Use.

2. List the net number of new retail connections by water use category for the previous five years.

Water Use Category*	Net Number of New Retail Connections				
	2009	2010	2011	2012	2013
Residential – Single Family	2,312	1,911	-19,749	6,937	997
Residential – Multi-family (units)	49	37	-3,722	412	258
Industrial	0	0	0	0	0
Commercial	1,195	1,386	-24,363	5,604	792
Institutional					0
Agricultural					
TOTAL	3,556	3,334	-47,834	12,953	2,047

*For definitions on recommended customer categories for classifying customer water use, refer to the online Guidance and Methodology for Reporting on Water Conservation and Water Use.

Texas Water Development Board

B. Accounting Data

For the previous five years, enter the number of gallons of RETAIL water provided in each major water use category.

Water Use Category*	Total Gallons of Retail Water				
	2009	2010	2011	2012	2013
Residential - Single Family	27,943,840,000	26,990,863,000	30,926,982,000	26,841,291,000	25,828,964,000
Residential – Multi-family	25,404,043,000	24,975,045,000	24,874,822,000	25,114,558,000	25,046,779,000
Industrial			0		
Commercial	33,373,154,000	32,774,362,000	34,222,713,000	32,944,398,000	33,171,253,000
Institutional	0	0	0	0	
Agricultural	0	0	0	0	
TOTAL	86,721,037,000	84,740,270,000	90,024,517,000	84,900,247,000	84,046,996,000

*For definitions on recommended customer categories for classifying customer water use, refer to the online Guidance and Methodology for Reporting on Water Conservation and Water Use.

C. Residential Water Use

For the previous five years, enter the residential GPCD for single family and multi-family units.

Water Use Category*	Residential GPCD				
	2009	2010	2011	2012	2013
Residential - Single Family	68	65	79	67	64
Residential – Multi-family	52	52	51	51	51

D. Annual and Seasonal Water Use

1. For the previous five years, enter the gallons of treated water provided to RETAIL customers.

Month	Total Gallons of Treated Retail Water				
	2009	2010	2011	2012	2013
January	6,573,889,000	6,815,680,000	6,642,039,000	6,458,791,000	6,486,442,000
February	6,431,074,000	5,781,350,000	5,956,173,000	6,051,779,000	6,091,924,000
March	6,894,791,000	6,599,297,000	5,913,082,000	5,963,343,000	5,944,987,000
April	5,917,972,000	6,291,046,000	6,943,171,000	6,577,492,000	6,651,255,000
May	6,288,192,000	6,922,663,000	8,157,577,000	7,030,330,000	6,856,435,000
June	7,375,690,000	8,179,846,000	8,928,349,000	8,118,206,000	7,585,950,000
July	9,535,084,000	7,162,845,000	8,380,826,000	7,657,558,000	8,002,308,000
August	8,613,536,000	7,912,947,000	9,086,579,000	7,817,419,000	8,013,680,000
September	8,153,184,000	8,089,027,000	9,015,828,000	8,027,632,000	8,288,128,000
October	7,288,396,000	7,260,478,000	7,989,353,000	7,197,311,000	7,096,119,000
November	6,818,019,000	7,313,942,000	7,145,639,000	6,984,877,000	6,563,308,000
December	6,831,210,000	6,611,149,000	6,782,412,000	7,015,509,000	6,466,460,000
TOTAL	86,721,037,000	84,940,270,000	90,941,028,000	84,900,247,000	84,046,996,000

2. For the previous five years, enter the gallons of raw water provided to RETAIL customers.

Month	Total Gallons of Raw Retail Water				
	2009	2010	2011	2012	2013
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
TOTAL	0	0	0	0	0

3. Summary of seasonal and annual water use.

Water Use	Seasonal and Annual Water Use					Average in Gallons
	2009	2010	2011	2012	2013	
Summer Retail (Treated + Raw)	25,524,310,00	23,255,638,(	26,395,754,0(	23,593,183,0(	23,601,938,0(	24,474,164,600 5yr Average
TOTAL Retail (Treated + Raw)	86,721,037,00	84,940,270,(	90,941,028,0(	84,900,247,0(	84,046,996,0(	86,309,915,600 5yr Average

E. Water Loss

Provide Water Loss data for the previous five years.

Water Loss GPCD = [Total Water Loss in Gallons ÷ Permanent Population Served] ÷ 365

Water Loss Percentage = [Total Water Loss ÷ Total System Input] x 100

Year	Total Water Loss in Gallons	Water Loss in GPCD	Water Loss as a Percentage
2009	17,040,300,000	23	12%
2010	13,349,609,000	17	9%
2011	27,857,441,036	36	15%
2012	25,899,177,000	33	16%
2013	26,948,330,000	34	16%
5-year average	22,218,971,407	29	14%

F. Peak Water Use

Provide the Average Daily Water Use and Peak Day Water Use for the previous five years.

Year	Average Daily Use (gal)	Peak Day Use (gal)	Ratio (peak/avg)
2009	398	535	1.34
2010	410	505	1.23
2011	495	672	1.36
2012	447	554	1.24
2013	457	581	1.27

G. Summary of Historic Water Use

Water Use Category	Historic 5-year Average	Percent of Connections	Percent of Water Use
Residential SF	27,706,388,000	84%	0%
Residential MF	25,083,049,400	3%	0%
Industrial	0	0%	0%
Commercial	33,297,176,000	13%	0%
Institutional	0	0%	0%
Agricultural	0	0%	0%

H. System Data Comment Section

Provide additional comments about system data below.

1) Item C: Single Family homes were estimate to have 2.69 persons per connection as stated in 2088-201 Census data.
2) Item E: This water loss is based upon that submitted in the Water Loss Surveys. This value includes evaporative losses from open channel flow whereas a majority of the included numbers are solely treated water values.

Texas Water Development Board

Section III: Wastewater System Data

If you do not provide wastewater system services then you have completed the Utility Profile. Save and Print this form to submit with your Plan. Continue with the Water Conservation Plan Checklist to complete your Water Conservation Plan.

A. Wastewater System Data (Attach a description of your wastewater system.)

1. Design capacity of wastewater treatment plant(s): 564,813,000 **gallons** per day.

2. List the active wastewater connections by major water use category.

Water Use Category*	Active Wastewater Connections			
	Metered	Unmetered	Total Connections	Percent of Total Connections
Municipal		403,823	403,823	92%
Industrial		143	143	0%
Commercial		35,331	35,331	8%
Institutional			0	0%
Agricultural			0	0%
TOTAL	0	439,297	439,297	

2. What percent of water is serviced by the wastewater system? 100 %

3. For the previous five years, enter the number of gallons of wastewater that was treated by the utility.

Month	Total Gallons of Treated Wastewater				
	2009	2010	2011	2012	2013
January	6,372,761,000	7,276,398,000	7,828,930,000	6,917,851,000	6,500,419,000
February	5,972,917,000	7,864,189,000	5,794,083,000	8,472,526,000	5,473,652,000
March	7,041,643,000	7,131,150,000	6,054,174,000	8,803,444,000	5,668,971,000
April	9,125,673,000	6,507,066,990	5,733,403,000	6,518,185,000	6,834,143,000
May	6,762,458,000	7,033,216,000	5,785,794,000	6,972,268,000	6,781,259,000
June	6,206,123,000	7,122,962,000	5,763,376,000	6,268,461,000	6,243,470,000
July	6,756,221,000	10,416,386,000	5,910,319,000	8,557,814,000	6,665,528,000
August	6,649,940,000	6,561,450,000	5,748,625,000	6,670,852,000	6,645,197,000
September	6,472,798,000	7,162,829,000	5,748,804,000	6,285,126,000	7,072,036,000
October	9,491,334,000	5,886,904,000	6,351,205,000	5,777,841,000	8,109,924,000
November	6,471,768,000	6,542,641,000	5,511,525,000	5,491,785,000	7,301,809,000
December	8,698,262,000	6,708,729,000	5,258,221,000	5,908,974,000	6,544,466,000
TOTAL	86,021,898,000	86,213,920,990	71,488,459,000	82,645,127,000	79,840,874,000

4. Can treated wastewater be substituted for potable water?

○ Yes ◉ No

B. Reuse Data

1. Provide data on the types of recycling and reuse activities implemented during the current reporting period.

Type of Reuse	Total Annual Volume (in gallons)
On-site irrigation	
Plant wash down	
Chlorination/de-chlorination	
Industrial	
Landscape irrigation (parks, golf courses)	
Agricultural	
Discharge to surface water	
Evaporation pond	
Other	
TOTAL	0

C. Wastewater System Data Comment

Provide additional comments about wastewater system data below.

1) A1: Design capacity of wastewater treatment plants is based on TCEQ permitted ADF. Please see the attachment for individual plant capacities.

You have completed the Utility Profile. Save and Print this form to submit with your Plan. Continue with the Water Conservation Plan Checklist to complete your Water Conservation Plan.

Texas Water Development Board

UTILITY PROFILE FOR WHOLESALE WATER SUPPLIER

Fill out this form as completely as possible.
If a field does not apply to your entity, leave it blank.

CONTACT INFORMATION

Name of Utility: City of Houston

Public Water Supply Identification Number (PWS ID): 1010013

Certificate of Convenience and Necessity (CCN) Number: 99144

Surface Water Right ID Number: 4261,4277,4963,4965,5807,5808,5827,2925,5762,5826

Wastewater ID Number: See Attached

Completed By: Shannon K. Smith Title: Engineer

Address: 611 Walker 18th Fl. City: Houston Zip Code: 77002

Email: shannon.smith@houstontx.gov Telephone Number: 832-395-3097

Date: 3/31/2014

Regional Water Planning Group: H Map

Groundwater Conservation District: HGSD Map

Check all that apply:

- [x] Received financial assistance of $500,000 or more from TWDB
- [x] Have a surface water right with TCEQ

Texas Water Development Board

Section I: Utility Data

A. Population and Service Area Data

1. Current service area size in square miles: 1,536
(Attach or email a copy of the service area map.)

2. Provide projected and historical service area population below.

Year	Historical Population Served By Wholesale Water Service		Year	Projected Population Served By Wholesale Water Service
2009	2,008,811		2020	2,600,721
2010	2,029,102		2030	2,813,387
2011	2,086,264		2040	2,953,541
2012	2,143,426		2050	3,075,619
2013	2,200,588		2060	3,187,275

4. Describe the source(s)/method(s) for estimating current and projected populations.

1) Populations were estimated using TWDB Region H data

Texas Water Development Board

B. System Input

Provide system input data for the previous five years.

Total System Input = Self-supplied + Imported

Year	Self-supplied Water in Gallons	Purchased/Imported Water in Gallons	Total System Input	Total gal/day
2009	145,338,834,000	0	145,338,834,000	398,188,586
2010	149,611,309,000	0	149,611,309,000	409,893,997
2011	180,776,752,000	0	180,776,752,000	495,278,773
2012	163,764,008,000	0	163,764,008,000	448,668,515
2013	166,965,113,000	0	166,965,113,000	457,438,666
Historic 5-year Average	161,291,203,200	0	161,291,203,200	441,893,707

C. Water Supply System (Attach description of water system)

1. Designed daily capacity of system 745,000,000 **gallons** per day.
2. Storage Capacity:
   Elevated 17,400,000 **gallons**
   Ground 195,700,000 **gallons**

3. List all current water supply sources in gallons.

Water Supply Source	Source Type*	Total Gallons
Lake Houston	Surface	59,337,467,100
Lake Conroe	Surface	21,723,508,607
San Jacinto River	Surface	13,034,040,000
Mult. Bayous	Surface	137,007,963,162
Lake Livingston	Surface	294,178,282,800
Groundwater	Ground	41,851,000,000

*Select one of the following source types: *Surface water, Groundwater, or Contract*

4. If surface water is a source type, do you recycle backwash to the head of the plant?
   - (●) Yes 15,250,000 estimated **gallons** per day
   - ( ) No

D. Projected Demands

1. Estimate the water supply requirements for the next ten years using population trends, historical water use, economic growth, etc.

Year	Population	Water Demands (gallons)
2015	4,500,662	134,978,472,956
2016	4,584,854	136,695,004,166
2017	4,668,507	138,411,535,376
2018	4,752,430	140,128,066,586
2019	4,836,353	141,844,597,796
2020	4,920,276	143,561,129,006
2021	4,964,228	144,885,711,702
2022	5,008,179	146,210,294,398
2023	5,052,130	147,534,877,094
2024	5,096,081	148,859,459,789

2. Describe sources of data and how projected water demands were determined. Attach additional sheets if necessary.

1) Item D1 - Population projections include retail and wholesale customers. Water demands also includes retail and treated wholesale demands, but does not include raw water customer projections.

Texas Water Development Board

E. High Volume Customers

1. If applicable, list the annual water use for the five highest volume customers. Select one of the following water use categories to describe the customer; choose Municipal, Industrial, Commercial, Institutional, or Agricultural.

Customer	Water Use Category*	Annual Water Use	Treated or Raw
Equistar	Industrial	9,160,000,000	Raw
NHCRWA	Municipal	8,191,937,000	Treated
Shell Oil	Industrial	7,977,432,000	Raw
WHCRWA	Municipal	6,589,480,000	Treated
City of Pasadena	Municipal	6,738,196,000	Treated

*For definitions on recommended customer categories for classifying customer water use, refer to the online Guidance and Methodology for Reporting on Water Conservation and Water Use.

F. Utility Data Comment Section

Provide additional comments about utility data below.

1) Item E1 are the 5 largest wholesale customers and are based upon a 5-year average for 2009-2013

Texas Water Development Board

Section II: System Data

A. Wholesale Connections

1. List the active wholesale connections by major water use category.

Water Use Category*	Active Wholesale Connections		
	Metered	Unmetered	Total Connections
Municipal	64		64
Industrial	103		103
Commercial			0
Institutional			0
Agricultural			0
TOTAL	167	0	167

*For definitions on recommended customer categories for classifying customer water use, refer to the online Guidance and Methodology for Reporting on Water Conservation and Water Use.

2. List the net number of new wholesale connections by water use category for the previous five years.

Water Use Category*	Net Number of New Wholesale Connections				
	2009	2010	2011	2012	2013
Municipal	0	4	4	-2	0
Industrial	11	-21	7	2	1
Commercial					
Institutional					
Agricultural					
TOTAL	11	-17	11	0	1

*For definitions on recommended customer categories for classifying customer water use, refer to the Guidance and Methodology for Reporting on Water Conservation and Water Use.

B. Wholesale Water Accounting Data - Water Use Categories

For the previous five years, enter the number of gallons of WHOLESALE water exported (*sold or transferred*) to each major water use category.

Customer Category*	Total Gallons of Wholesale Water				
	2009	2010	2011	2012	2013
Municipal	52,601,904,000	51,223,875,000	60,082,593,000	54,569,318,000	64,518,284,000
Industrial	68,341,011,000	71,081,300,000	72,478,123,000	70,270,990,000	69,723,979,000
Commercial	1,485,580,000	1,294,850,000	1,279,170,000	1,155,785,000	1,113,830,000
Institutional					
Agricultural					
TOTAL	122,428,495,000	123,600,025,000	133,839,886,000	125,996,093,000	135,356,093,000

*For definitions on recommended customer categories for classifying customer water use, refer to the online Guidance and Methodology for Reporting on Water Conservation and Water Use.

Texas Water Development Board

C. Wholesale Water Accounting Data - Annual and Seasonal Use

For the previous five years, enter the number of gallons exported (*sold or transferred*) to WHOLESALE customers.

Month	Total Gallons of Treated Water				
	2009	2010	2011	2012	2013
January	2,424,564,000	2,452,062,000	2,129,574,000	3,514,926,000	3,642,062,000
February	2,182,710,000	2,321,643,000	3,765,047,000	2,809,860,000	3,304,747,000
March	2,541,623,000	2,583,959,000	3,861,136,000	3,477,637,000	4,341,021,000
April	2,713,398,000	3,203,702,000	4,708,885,000	4,017,406,000	4,049,978,000
May	2,896,325,000	3,887,454,000	5,297,692,000	4,894,740,000	4,808,643,000
June	3,516,460,000	3,715,579,000	5,365,421,000	5,040,144,000	4,219,098,000
July	3,436,504,000	3,687,541,000	5,415,742,000	4,246,725,000	5,393,626,000
August	3,349,490,000	4,428,719,000	5,625,325,000	4,971,450,000	5,507,434,000
September	2,981,363,000	3,810,576,000	5,310,216,000	4,525,503,000	10,822,130,000
October	2,560,639,000	4,489,895,000	4,618,897,000	4,571,712,000	4,652,108,000
November	2,383,731,000	3,363,639,000	4,426,529,000	4,427,173,000	4,024,874,000
December	2,324,744,000	3,486,426,000	3,648,059,000	3,921,020,000	3,929,835,000
TOTAL	33,311,551,000	41,431,195,000	54,172,523,000	56,714,923,000	58,695,556,000

Month	Total Gallons of Raw Water				
	2009	2010	2011	2012	2013
January	6,864,971,000	7,232,350,000	6,004,969,000	6,389,056,000	5,933,216,000
February	6,578,713,000	7,273,758,000	6,043,378,000	5,890,456,000	5,277,191,000
March	7,254,762,000	7,273,920,000	5,977,554,000	6,257,306,000	6,255,657,000
April	6,706,537,000	7,483,936,000	6,258,971,000	5,790,879,000	5,776,719,000
May	7,525,806,000	6,862,547,000	6,426,797,000	6,799,746,000	6,696,801,000
June	8,449,606,000	6,854,779,000	6,857,442,000	6,906,280,000	6,644,062,000
July	8,907,736,000	6,876,220,000	7,665,829,000	6,760,433,000	7,064,003,000
August	8,617,568,000	7,296,258,000	7,866,249,000	6,805,209,000	7,327,564,000
September	7,563,727,000	6,591,456,000	7,451,502,000	6,046,954,000	6,842,303,000
October	7,185,019,000	6,548,474,000	6,657,773,000	6,111,675,000	6,534,347,000
November	6,861,461,000	5,805,102,000	6,108,889,000	5,855,676,000	6,182,106,000
December	6,601,038,000	6,070,029,000	6,348,011,000	5,964,127,000	6,126,569,000
TOTAL	89,116,944,000	82,168,829,000	79,667,364,000	75,577,797,000	76,660,538,000

WHOLESALE	2009	2010	2011	2012	2013	**Average in Gallons**
Summer Wholesale (Treated + Raw)	36,277,364,00	32,859,096	38,796,008,0	34,730,241,0	36,155,787,	35,763,699,200 5yr Average
TOTAL Wholesale (Treated + Raw)	122,428,495,0	123,600,02	133,839,887,	132,292,720,	135,356,094	129,503,444,000 5yr Average

D. Water Loss

Provide Water Loss Data for the previous five years.

Water Loss GPCD = [Total Water Loss in Gallons ÷ Permanent Population Served] ÷ 365

Water Loss Percentage = [Total Water Loss ÷ Total System Input] x 100

Year	Total Water Loss in Gallons	Water Loss per day	Water Loss as a Percentage
2009	17,040,300,000	23	12%
2010	13,349,609,000	18	9%
2011	27,857,441,036	37	15%
2012	25,899,177,000	33	16%
2013	26,948,330,000	34	16%
5-year average	22,218,971,407	29	14%

E. Peak Day Use

Provide the Average Daily Use and Peak Day Use for the previous five years.

Year	Average Daily Use (gal)	Peak Day Use (gal)	Ratio (Peak/Avg)
2009	398	535	1.34
2010	410	505	1.23
2011	495	672	1.36
2012	447	554	1.24
2013	457	581	1.27

F. Summary of Historic Water Use

Water Use Category	Historic 5-year Average	Percent of Water Use
Municipal	56,599,194,800	44%
Industrial	70,379,080,600	54%
Commercial	1,265,843,000	1%
Institutional	0	0%
Agricultural	0	0%

G. Wholesale System Data Comment Section

Provide additional comments about wholesale system data below.

1) Item E is based upon treated water reports and does not include raw water customers
2) Item D - Water Loss is the Total Loss submitted in the TWDB Water Loss Audit

Texas Water Development Board

Section III: Wastewater System Data

If you do not provide wastewater system services then you have completed the Utility Profile. Save and Print this form to submit with your Plan. Continue with the Water Conservation Plan Checklist to complete your Water Conservation Plan.

A. Wastewater System Data (Attach a description of your wastewater system)

1. Design capacity of wastewater treatment plant(s): 564,813,000 **gallons** per day.

2. List the active wastewater connections by major water use category.

Water Use Category*	Active Wastewater Connections			
	Metered	Unmetered	Total Connections	Percent of Total Connections
Municipal		403,823	403,823	92%
Industrial		143	143	0%
Commercial		35,331	35,331	8%
Institutional			0	0%
Agricultural			0	0%
TOTAL	0	439,297	439,297	

*For definitions on recommended customer categories for classifying customer water use, refer to the online Guidance and Methodology for Reporting on Water Conservation and Water Use.

2. What percent of water is serviced by the wastewater system? 100 %

3. For the previous five years, enter the number of gallons of wastewater that was treated by the utility.

Month	Total Gallons of Treated Water				
	2009	2010	2011	2012	2013
January	6,372,761,000	7,276,398,000	7,828,930,000	6,917,851,000	6,500,419,000
February	5,972,917,000	7,864,189,000	5,794,083,000	8,472,526,000	5,473,652,000
March	7,041,643,000	7,131,150,000	6,054,174,000	8,803,444,000	5,668,971,000
April	9,125,673,000	6,507,066,990	5,733,403,000	6,518,185,000	6,834,143,000
May	6,762,458,000	7,033,216,000	5,785,794,000	6,972,268,000	6,781,259,000
June	6,206,123,000	7,122,962,000	5,763,376,000	6,268,461,000	6,243,470,000
July	6,756,221,000	10,416,386,000	5,910,319,000	8,557,814,000	6,665,528,000
August	6,649,940,000	6,561,450,000	5,748,625,000	6,670,852,000	6,645,197,000
September	6,472,798,000	7,162,829,000	5,748,804,000	6,285,126,000	7,072,036,000
October	9,491,334,000	5,886,904,000	6,351,205,000	5,777,841,000	8,109,924,000
November	6,471,768,000	6,452,641,000	5,511,525,000	5,491,785,000	7,301,809,000
December	8,698,262,000	6,708,729,000	5,258,221,000	5,908,974,000	6,544,466,000
TOTAL	86,021,898,000	86,123,920,990	71,488,459,000	82,645,127,000	79,840,874,000

Texas Water Development Board

4. Could treated wastewater be substituted for potable water?

○ Yes ◉ No

B. Reuse Data

1. Provide data on the types of recycling and reuse activities implemented during the current reporting period.

Type of Reuse	Total Annual Volume (in gallons)
On-site irrigation	
Plant wash down	
Chlorination/de-chlorination	
Industrial	
Landscape irrigation (parks, golf courses)	
Agricultural	
Discharge to surface water	
Evaporation pond	
Other	
TOTAL	0

C. Wastewater System Data Comment

Provide additional comments about wastewater system data below.

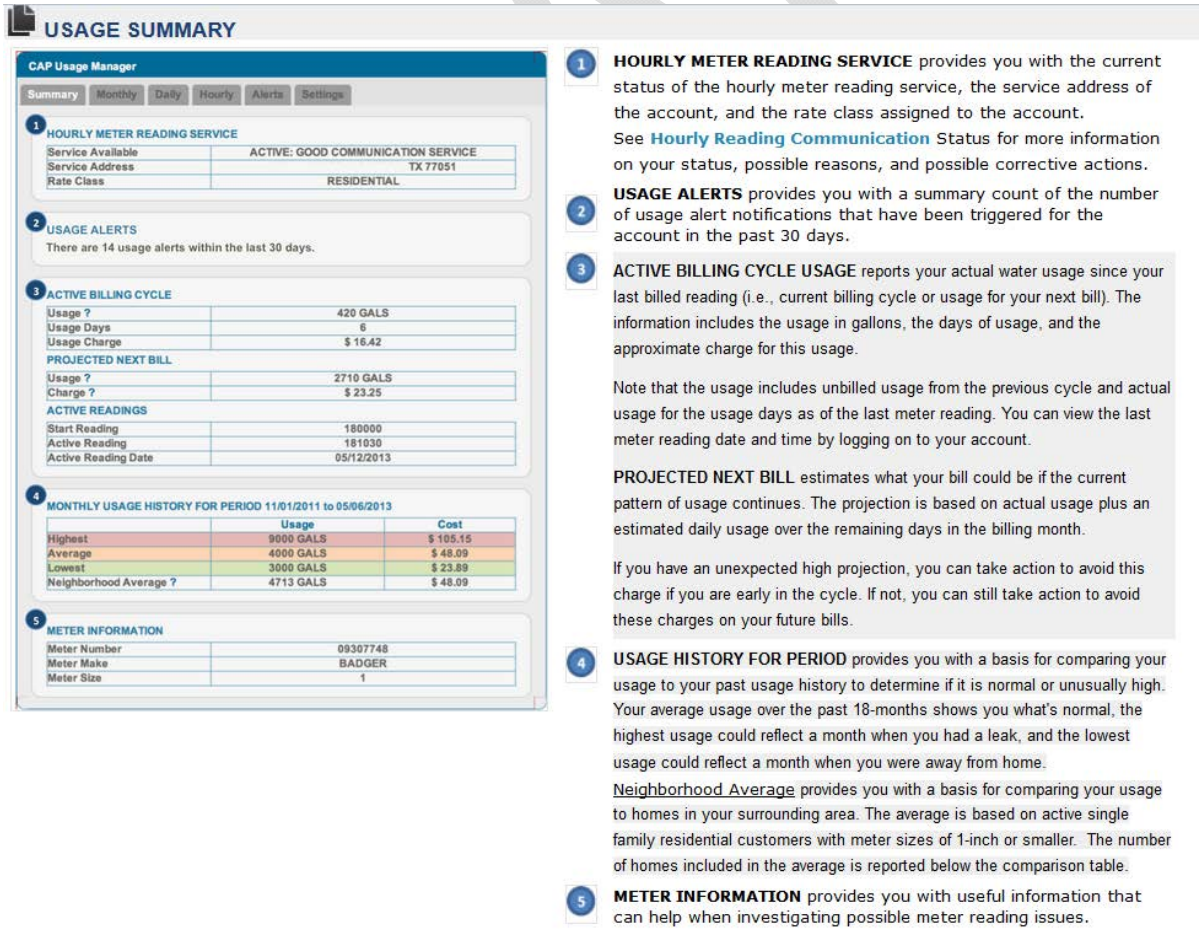
1) A1: Design capacity of wastewater treatment plants is based upon TCEQ permitted ADF. Please see the attachment for individual design capacities.

You have completed the Utility Profile. Save and Print this form to submit with your Plan. Continue with the Water Conservation Plan Checklist to complete your Water Conservation Plan.

Appendix B.
Consumption Awareness Program Dashboard Features

Features of Usage Calculator:

- USAGE SUMMARY - provides you with a dashboard of information about your water usage including reading status, actual usage, project usage for next bill, and usage comparison information.
- MONTHLY USAGE HISTORY - provides you with a chart and table of monthly usage and billed history for up to the past 18 months. This information is useful for reviewing your usage and charge trends across seasons as well as from month to month.
- DAILY USAGE HISTORY - provides you with up to 90 days of daily usage history useful for comparing usage by day of week or from week to week. The daily usage is also a good tool for quickly identifying when unexpected high usage began.
- HOURLY USAGE HISTORY - provides you with hourly usage for any selected day up to the past 90 days. This tool is helpful for associating usage to specific events in your home or business (i.e., irrigation use, bathroom use, appliance use, etc.).
- USAGE ALERT HISTORY - provides you with a history of usage alert notifications sent for your account.
- USAGE ALERT SETTINGS - provides you with options for custom daily, monthly, and leak threshold alert settings that can be delivered to your mobile phone as a text or app notification, email, or phone call.



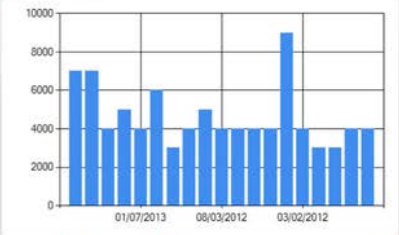
MONTHLY USAGE HISTORY

CAP Usage Manager

Summary | Monthly | Daily | Hourly | Alerts | Settings

Monthly Consumption

1



2 Reading Date	3 Reading	4 Consumption (gallons)	5 Charges
05/06/2013	180000	7000	$ 84.64
04/04/2013	173000	7000	$ 78.00
03/06/2013	166000	4000	$ 47.68
02/06/2013	162000	5000	$ 56.27
01/07/2013	157000	4000	$ 47.68
12/06/2012	153000	6000	$ 66.97
11/05/2012	147000	3000	$ 25.47
10/04/2012	144000	4000	$ 47.68
09/05/2012	140000	5000	$ 56.27
08/03/2012	135000	4000	$ 47.68
07/05/2012	131000	4000	$ 47.68
06/05/2012	127000	4000	$ 47.72
05/03/2012	123000	4000	$ 52.32
04/03/2012	119000	9000	$ 92.19
03/02/2012	110000	4000	$ 44.09
02/03/2012	106000	3000	$ 23.68
01/05/2012	103000	3000	$ 23.68
12/03/2011	100000	4000	$ 44.09
11/01/2011	96000	4000	$ 44.09

1 **MONTHLY USAGE HISTOGRAM CHART** provides you with graphical representation of the distribution usage by month.

2 **READING DATE** provides you with meter reading date that was used for the corresponding billing period.
You can click the column heading title to sort the table. Click twice to reverse the order.

3 **READING** provides you with the meter reading (in thousands of gallons) recorded on the specified reading date. Your usage is charged in thousands of gallons and any usage in excess of a factor of one thousand will be charged in the next billing cycle.

You can click the column heading title to sort the table. Click twice to reverse the order.

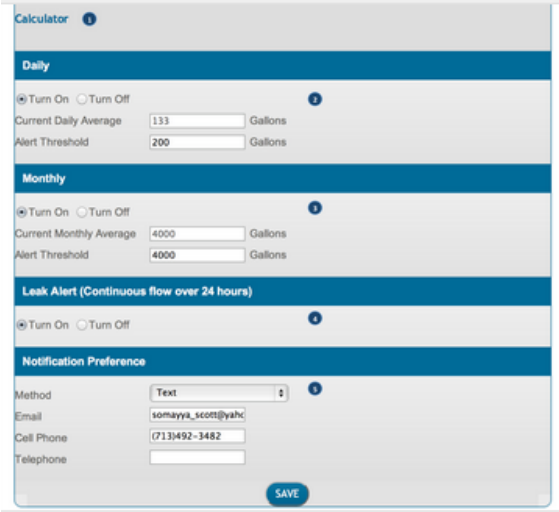
4 **CONSUMPTION** provides you the billed usage for the corresponding billing month.

You can click the column heading title to sort the table. Click twice to reverse the order.

5 **CHARGES** provides you with the amount that was actually billed for corresponding billing month.
You can click the column heading title to sort the table. Click twice to reverse the order.

DRAFT

USAGE ALERT SETTINGS



CALCULATOR provides you with a tool that can be used to determine what your daily and monthly water usage should be based on key factors impacting your household such as: the total number of people in your household, bathroom usage, number of loads typically washed or the frequency for yard watering, etc.

This tool will effectively estimate the expected daily, monthly and annual water consumption for your household and compare it to the average of similar households across the City of Houston.

DAILY USAGE THRESHOLD SETTING provides you with tool that monitors your daily water usage.

The Daily Alert feature includes the average daily consumption based on a rolling 12-month period. You can set the alert threshold by entering the consumption amount that you believe is unusually high for a given day. Review your daily consumption history to help determine an effective high consumption threshold.

1. Click the 'Turn On' option to turn on the notification.
2. Review the daily average for the past 12 months.
3. Select a usage alert threshold based on your desired notification needs.
    - Set the threshold at twice your average if you want to be notified of unusually high usage or...
    - Set the threshold to 10 if you have a vacant property where you want to be notified of any use.

MONTHLY USAGE THRESHOLD SETTING provides you with a tool that can be used to notify you when your projected month charge exceeds your monthly budget threshold.

The Monthly Alert feature includes the average monthly consumption based on a rolling 12-month period. You can set the alert threshold by entering the consumption amount that you believe is unusually high for a given month. Review your daily consumption history to help determine an effective high consumption threshold.

LEAK ALERT SETTING provides you with a tool that detects a continuous flow of water through your meter for 1 to 7 days (depending on meter type). This scenario typically indicates a leak for residential single family accounts but may not be an effective indicator for multi-family or commercial accounts.

Notification Preference allows you to choose a preferred method of notification (i.e., text, mobile app, email, or phone).

Appendix C.
City of Houston Water and Sewer Rates

2014 WATER & SEWER RATES

Rate increase effective date April 1, 2014

City of Houston Ordinance 2010-305 requires the Combined Utility System (CUS) to implement an annual rate adjustment to be effective April 1st of each year. The required water and wastewater rate adjustment under this ordinance for April 1, 2014 is 1.2%. This rate adjustment is based on Producer Price Index.

This annual rate adjustment is intended to help cover cost increases that impact the provision of safe, clean drinking water and the collection and treatment of wastewater. This includes operational costs as well as the costs involved in the repair and replacement of portions of the System's aging infrastructure. The bill you will receive in May will reflect a full month of the rate adjustment.

The new rate tables will be posted on the City's updated website www.houstonwater.org.

DRAFT

Effective date April 1, 2014

The basic service charge for both water and sewer is affected by the water meter size. For all classes that include sewer, the water consumption is used to determine the appropriate sewer consumption charge.

Single-Family Residential – TU 01, 02, & 03:

The basic charge for each meter size is listed below. For simplicity, this table adds volume and base charges together for 1,000 to 6,000 gallons. From 7,000 to 12,000 gallons the rate is $4.72 per 1,000 gallons, regardless of meter size. Starting at 13,000 gallons, the rate is $7.78 per 1,000 gallons.

Water Rates				
	5/8 or ¾" meters	1 inch meter	1.5 inch meter	2 or 3 inch meter
Basic charge, per meter size	$ 4.79	$ 5.93	$ 8.98	$10.57
The numbers below this line include both Base and Volume charges				
1,000 gallons	$ 4.92	$ 6.06	$ 9.11	$10.70
2,000 gallons	$11.21	$12.35	$15.41	$17.00
3,000 gallons	$11.59	$12.72	$15.78	$17.37
4,000 gallons	$21.92	$23.06	$26.11	$27.71
5,000 gallons	$26.27	$27.41	$30.47	$32.06
6,000 gallons	$30.62	$31.76	$34.82	$36.41
7,000 to 12,000 gallons	The total charge for 6,000 gallons + $4.72 per 1,000 gallons			
Over 12,000 gallons	The total charge for 12,000 gallons + $7.78 per 1,000 gallons			

Sewer Rates					
	5/8 or ¾" meters	1 inch meter	1.5 inch meter	2 inch meter	3 inch meter
Basic charge, per meter size	$10.17	$10.69	$12.39	$12.91	$23.12
The numbers below this line include both Base and Volume charges					
1,000 gallons	$10.33	$10.85	$12.55	$13.07	$23.28
2,000 gallons	$10.67	$11.19	$12.89	$13.40	$23.62
3,000 gallons	$10.94	$11.46	$13.16	$13.68	$23.89
4,000 gallons	$25.10	$25.62	$27.32	$27.84	$38.05
5,000 gallons	$30.21	$30.73	$32.43	$32.95	$43.16
6,000 gallons	$37.65	$38.17	$39.87	$40.39	$50.60
Over 6,000 gallons	The total charge for 6,000 gallons + $7.44 per 1,000 gallons				

DRAFT

EXAMPLES OF RESIDENTIAL BILLINGS:

1,000 gallons, 5/8" meter	**$ 4.92 Water** **$ 10.33 Sewer** **$ 15.25 Total/Month**		
7,000 gallons, 5/8" meter	**$ 35.34 Water** **$ 45.09 Sewer** **$ 80.43 Total/Month**	$30.62 for 6,000 gallons plus 1,000 gallons at $4.72 = $35.34	$37.65 for 6,000 gallons plus 1,000 gallons at $7.44 = $45.09
14,000 gallons, 5/8" meter	**$ 74.50 Water** **$ 97.17 Sewer** **$ 171.67 Total/Month**	$30.62 for 6,000 gallons plus 6,000 gallons at $4.72 plus 2,000 gallons at $7.78 = $74.50	$37.65 for 6,000 gallons plus 8,000 gallons at $7.44 = $97.17

Multi-Family – TU 14-19:

- 14 (duplex – 2 units)
- 15 (tri-plex – 3 units)
- 16 (quad-plex – 4 units)
- 17 (master-metered townhomes – any number of units)
- 18 (apartments — 5+ units)
- 19 (trailer parks)

Consumption is no longer included with the basic charge. The volume charges are applied to all usage.

Rate	Meter size (Inches)	Basic Water Charge	Basic Sewer Charge
Basic Charge (0 consumption)	5/8	$4.97	$8.75
	¾	$5.13	$8.75
	1	$6.16	$9.19
	1.5	$9.33	$10.66
	2	$10.99	$11.10
	3	$29.09	$19.88
	4	$39.65	$22.52
	6	$67.96	$32.19
	8	$177.44	$78.17
	10	$177.44	$95.02
Volume Charge	All	+ $3.82 per 1,000 gallons	+ $5.56 per 1,000 gallons

DRAFT

Commercial – TU 21-60:

Consumption is no longer included with the basic charge. The volume charges are applied to all usage.

Rate	Meter Size (Inches)	Basic Water Charge	Basic Sewer Charge
Basic Charge (0 consumption)	5/8	$ 4.97	$8.75
	3/4	$ 5.13	$8.75
	1	$ 6.16	$9.19
	1.5	$ 9.33	$10.66
	2	$ 10.99	$11.10
	3	$ 29.09	$19.88
	4	$ 39.65	$22.52
	6	$ 67.96	$32.19
	8	$ 177.44	$78.17
	10	$ 177.44	$95.02
Volume Charge	All	+ $3.92 per 1,000 gallons	+ $5.56 per 1,000 gallons

Industrial, No Surcharge – (WSC 6) TU 21-60, 61, 62:

Industrial rates include a monthly basic charge and volume charges for both water and sewer. No consumption is included with the basic charge for water or sewer. Some customers are billed for sewer only, based on readings from non-City of Houston water meters.

Rate	Meter Size (Inches)	Water Charge	Basic Sewer Charge
Basic Charge (0 consumption)	5/8	$ 4.97	$14.79
	3/4	$ 5.13	$14.79
	1	$ 6.16	$14.79
	1.5	$ 9.33	$14.79
	2	$ 10.99	$14.79
	3	$ 29.09	$19.71
	4	$ 39.65	$22.52
	6	$ 67.96	$32.19
	8	$ 177.44	$78.17
	10+	$ 177.44	$95.02
Volume Charge	All	+ $3.92 per 1,000 gallons	Up to 2,000 gallons at $3.42 per 1,000 gallons
			All over 2,000 gallons $6.84 + $6.09 per 1,000 gallons.

DRAFT

Transient Meters – TU 71:

These accounts have rental fees, base charges and consumption charges.

Rate	Basic Water Charge		
	1”	2”	3”
Basic Charge/Rental Fee (0 consumption)	$16.59	$22.13	$27.66
Volume Charges	+$4.40 per 1,000 gallons		

Please refer questions to Rockette Simpson at 713-371-1355 or fax to 713-371-1349.

Lawn/Outdoor Meters – TU 72:

No consumption is included with the basic charge. Volume charges are applied to all usage, but there are two rate tiers. The “defined quantity” marks the point where the tier changes, which is different for each meter size. Volume up to the defined quantity are charged at the lower rate tier; volume in excess of the defined quantity are charged at the higher rate tier.

Rate	Meter Size (Inches)	Basic Water Charge	Defined Quantity (First Tier of Volume Charges)
Basic Rate, per meter size, (plus first tier of volume charges)	5/8	$ 24.76	None – all consumption at 2nd tier
	3/4	$ 24.76	None – all consumption at 2nd tier
	1	$ 27.76	None – all consumption at 2nd tier
	1.5	$ 73.70	Up to 10,000: + $2.88 per 1,000 gallons
	2	$ 113.92	Up to 16,000: + $2.88 per 1,000 gallons
	3	$ 247.32	Up to 35,000: + $2.88 per 1,000 gallons
	4	$ 418.71	Up to 60,000: + $2.88 per 1,000 gallons
	6	$ 862.27	Up to 125,000: + $2.88 per 1,000 gallons
	8	$ 1,246.94	Up to 180,000: + $2.88 per 1,000 gallons
	10	$ 1,246.94	Up to 180,000: + $2.88 per 1,000 gallons
Volume Charges Second Tier (All meter sizes)	All consumption over defined quantity: + $6.63 per 1,000 gallons		

Customers may choose to close these accounts in winter, subject to the usual $5.00 fee for re-opening them. This will avoid monthly basic charges if there is no consumption. Customers will remain responsible for all charges in any month water passes through the meter, even if the account is closed.

EXAMPLES OF LAWN BILLING:

5/8” Meter w/2,000 gallons		1” Meter w/12,000 gallons		3” meter w 60,000 gallons		6” meter w 60,000 gallons	
Basic:	24.76	Basic:	$27.76	Basic:	$247.32	Basic:	$862.27
2nd tier: 2*6.63	$13.26	2nd tier: 12*6.63	$79.56	1st tier: 35*2.88	$100.80	1st tier: 60*2.88	$172.80
				2nd tier: 25*6.63	$165.75		
TOTAL:	$38.02	TOTAL:	$107.32	TOTAL:	$513.87	TOTAL:	$1035.07

DRAFT

Other Classes:

Industrial w/Surcharge – (WSC 9) TU 21-60, 61, 62, 63:

Industrial rates include a monthly basic charge and volume charges for both water and sewer. Some customers are billed for sewer only, based on readings from non-City of Houston water meters. These customers take their water from non-City of Houston sources and may choose to install a water meter of the type and standard approved by the department for the purpose of measuring the amount of water taken into such facilities. The water consumption indicated by such meter shall be the basis of determining the sewer charge. Rates are the same as if the water is from City of Houston source.

No consumption is included with the basic charge for water or sewer. While the basic charge for water and sewer is determined by meter size, the volume charge for sewer may vary based on the results of effluent testing.

Rate	Meter Size (Inches)	Water Charge	Basic Sewer Charge
Basic Charge (0 consumption)	5/8	$ 4.97	$14.79
	3/4	$ 5.13	$14.79
	1	$ 6.16	$14.79
	1.5	$ 9.33	$14.79
	2	$ 10.99	$14.79
	3	$ 29.09	$19.71
	4	$ 39.65	$22.52
	6	$ 67.96	$32.19
	8	$ 177.44	$78.17
	10+	$ 177.44	$95.02
Volume Charge	All	+ $3.92 per 1,000 gallons	See below

Additional surcharges for industrial sewer accounts are determined by application of a special formula to the results of effluent tests:

R= X + (BOD * 8.337 * Y/1000) + (SS * 8.337 * Z/1000)

Or R= Rate / TG as 47-122(b)(2)(b), whichever is greater

Where:

X = $4.09 per 1000 gallons, R= 8.337, Y= $0.7049 / lb., Z = $0.2782 / lb.

BOD = Five-day, 20 degrees Centigrade biochemical oxygen demand content of the waste delivered, in mg/l.

SS = Suspended solids content of the waste delivered, in mg/l.

Any questions on how the surcharges are calculated, or regarding prohibited discharges, should be referred to the Wastewater Operations Branch by calling (832) 395-5800 or by emailing clyde.smith@houstontx.gov.

DRAFT

Resale – TU 73:

These customers purchase water from the City of Houston for resale.

Rate	Meter Size (Inches)	Basic Water Charge
Basic Charge, per meter size (0 consumption)	5/8	$18.78
	3/4	$18.78
	1	$21.78
	1.5	$53.74
	2	$81.96
	3	$177.42
	4	$298.89
	6	$612.62
	8 and above	$887.45
Volume Charge (All meter sizes, all consumption)	$4.71 per 1,000 gallons	

Emergency Backup Service – TU 74:

The Contact Center at 713-371-1400 can answer routine questions about these accounts. To notify UCS of EBS use, fax the report to 832-395-5255.

Rate	Meter Size (Inches)	Basic Water Charge
Basic Charge, per meter size (0 consumption)	5/8,3/4	$ 7.14
	1	$ 10.15
	1.5	$ 14.97
	2	$ 19.93
	3	$ 41.74
	4	$ 66.27
	6	$ 128.01
	8	$ 189.63
	10+	$ 196.29
Volume Charge (All meter sizes, all consumption)	$7.28 per 1,000 gallons	

DRAFT

Un-Metered Fire Line Charge – TU 21-60, 75:

Un-metered fire lines are charged a flat fee every month, under the provisions of City of Houston Ordinance §47-64. These lines must be equipped with backflow prevention assemblies.

Corresponding size of the diameter of service line	**Monthly Charge for Basic Service**
5/8 inch	$ 13.02
3/4 inch	$ 13.02
1.0 inch	$ 13.02
1.5 inch	$ 51.88
2.0 inch	$ 76.52
3.0 inch	$ 76.52
4.0 inch	$ 76.52
6.0 inch	$ 85.24
8.0 inch	$ 145.50
10.0 inch	$ 196.28

Metered Fire Line Charge Only – TU 21-60:

These customers have their fire service isolated from the remainder of the water supply, and served through an independent meter. Normally they will have zero consumption, but a consumption charge applies if consumption occurs.

Rate	**Meter Size (Inches)**	**Basic Water Charge**
Basic Charge, per meter size (0 consumption)	5/8	$ 4.97
	¾	$ 5.13
	1	$ 6.16
	1.5	$ 9.33
	2	$ 10.99
	3	$ 29.09
	4	$ 39.65
	6	$ 67.96
	8 and above	$ 177.44
Volume Charge (All meter sizes, all consumption)	$3.92 per 1,000 gallons	

DRAFT

Un-Metered Sewer Only Customer – TU 81-82:

Special rates apply to sewer customers without City of Houston water or effluent meters. These are monthly rates, but will continue to be billed on a bi-monthly basis.

Class	Monthly Fee
Single Family Residential	$25.10
Duplex	$53.24
Multi-family (3+ units)	$31.14 per single family unit
Commercial	$58.76 per unit (defined in §47-1002)
Industrial	$58.74 per unit (defined in §47-1002)

Contract, Untreated and Reclaimed Water (TU 91):

Treated Water (TU 91) – contracted

	R1=	$2.722	**/ TG**	**R2=**	$3.322	**/ TG**	**N1=**	$0.675	**/ TG**	**N2=**	$0.675	**/ TG**
with airgap water: p * R1 + (p-m) * N1 without airgap = p* R2 + (p - m) * N2 (p: total water delivery in the month, M: minimum monthly water quantity in contract)												

Untreated Water (TU 91) – no contract

Consumption (/TG)	Per /TG
0 - 10,000	$1.5590
11,000-20,000	$1.4009
21,000-50,000	$1.3212
51,000-150,000	$1.2414
151,000 & up	$1.2016

Reclaimed/ Untreated Water (TU 91) – contracted

Surcharge (S)	Quantity Charge (/TG)
R= $0.6232 /TG	$0.6232

If (P – M) > 10% M, S = P * R * 5% (M; Max. Qty in contract)

If you have further questions on these accounts, contact Lynette Howe in Contract Water at (832) 395-5205.

Contract Sewer:

These rates vary, based on whether the contracting district has participated in capital outlays.

If you have further questions on these accounts, contact Lynette Howe in Contract Water at (832) 395-5205.

DRAFT

Agricultural and Rice Farmers (TU 91):

Agricultural - General

Quantity Charge (/MG)	**$127.17**

Agricultural - Rice

First Watering (/MG or /Acre)	**$127.17**
Additional Watering (/MG or /Acre)	**$23.13**

If you have further questions on these accounts, contact Lynette Howe in Contract Water at (832) 395-5205.

Groundwater Reduction Plan (GRP) Participants:

GRP: R*P*Q where

- R is the base rate for contract treated water customer receiving water through airgap
- P is the percentage reduction for groundwater production required for GRP participant
- Q is the quantity of groundwater produced by the GRP participant during the month.

	R1=	$2.722	**/ TG**	**R2=**	$3.322	**/ TG**	**N1=**	$0.675	**/ TG**	**N2=**	$0.675	**/ TG**
with airgap water: p * R1 + (p-m) * N1 without airgap = p* R2 + (p - m) * N2 (p: total water delivery in the month, M: minimum monthly water quantity in contract)												

If you have further questions on these accounts, contact Lance Tillman at (832) 395-2470.

For additional reference, see chart on next page.

DRAFT

Fee Schedule

Name	Description	Statutory Authority	Amount	As Of
Water Rates	Untreated Water Sales No Contract Standard Rate for volume from 1,000 to 10,000,000 gallons, per 1,000 gallons	47-84(d)(1)	$1.5590	4/1/2014
Water Rates	Untreated Water Sales No Contract Standard Rate for volume from over 10,000,000 to 20,000,000 gallons, per 1,000 gallons (in addition to Volume Charge for the first increment of 10,000,000 gallons)	47-84(d)(2)	$1.4009	4/1/2014
Water Rates	Untreated Water Sales No Contract Standard Rate for volume from over 20,000,000 to 50,000,000 gallons, per 1,000 gallons (in addition to Volume Charges for the first increment of 10,000,000 gallons and for the second increment of 10,000,000 gallons)	47-84(d)(3)	$1.3212	4/1/2014
Water Rates	Untreated Water Sales No Contract Standard Rate for volume from over 50,000,000 to 150,000,000 gallons, per 1,000 gallons (in addition to Volume Charges for the first increment of 10,000,000 gallons, the second increment of 10,000,000 gallons and the third increment of 30,000,000 gallons)	47-84(d)(4)	$1.2414	4/1/2014
Water Rates	Untreated Water Sales No Contract Standard Rate for volume over 150,000,000 gallons, per 1,000 gallons (in addition to Volume Charges for the first 10,000,000 gallons, the second increment of 10,000,000 gallons, the third increment of 30,000,000 gallons and the fourth increment of 100,000,000 gallons)	47-84(d)(5)	$1.2016	4/1/2014
Water Rates	Contract Untreated Water sold in excess of contract amount, per 1,000 gallons	47-85	$0.6232	4/1/2014
Water Rates	Contract Untreated Water for agricultural use, general agriculture, per 1,000,000 gallons	47-89(b)(1)	$127.17	4/1/2014
Water Rates	Contract Untreated Water for agricultural use, rice irrigation, rate for first watering, per acre of contracted land (if diverted through a meter on canal / conveyance system - per 1,000,000 gallons actually used)	47-89(b)(2)a	$127.17	4/1/2014
Water Rates	Contract Untreated Water for agricultural use, rice irrigation, Rate for each additional watering, per acre of contracted land (if diverted through a meter on canal / conveyance system - per 1,000,000 gallons actually used)	47-89(b)(2)b	$23.13	4/1/2014

Appendix D.
Ordinance of Official Adoption of Water Conservation Plan

DRAFT

Appendix E.
Letter to Region H

CITY OF HOUSTON
Public Works and Engineering Department

Annise D. Parker
Mayor

Dale A. Rudick, P.E.
Director
P.O. Box 1562
Houston, Texas 77251-1562

www.houstontx.gov

September 4, 2014

Mr. Mark Evans
Chair, Region H Water Planning Group
3648 Cypress Creek Pkwy. #110
Houston, TX 77068

RE: 2014 Update of the Water Conservation Plan for the City of Houston

Dear Mr. Evans:

Per enclosed, please find a copy of the 2014 update of the Water Conservation Plan for the City of Houston. This plan is an updated version of the plan submitted in 2009. In order to comply with 30 TAC Chapter 288, the City is required to notify Region H Water Planning Group of this update. A copy of this plan is also being provided to the Texas Water Development Board.

Respectfully,

Dale A. Rudick, P.E.
Director

DAR:CEH:RB:tc

DRAFT

Appendix F.
2013 Drought Contingency Plan

The purpose of the Drought Contingency Plan is to establish policies and procedures for the City of Houston (City) to follow in case of a water shortage emergency. A water shortage emergency caused by drought or other uncontrollable circumstances which hinder the City of Houston's ability to meet water demand, can range from mild to critical and can disrupt the normal availability of water supplies. Therefore, it is important that the City establish this procedure so that guidelines exist in the event that a water shortage emergency occurs. The City of Houston Code Chapter 47, Article VII contains the policy regarding the actions the City will take in the event of a water shortage or emergency.

A copy of the plan is on file with both the Texas Water Development Board and the Texas Commission on Environmental Quality. A copy can also be found on the City of Houston's website at: http://www.publicworks.houstontx.gov/utilities/dwsm.html

DRAFT