



City of Dallas

# 2019 Water Conservation Plan

*Adopted by Resolution of the  
Dallas City Council on April 24, 2019*

**Dallas Water Utilities**  
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Dallas, Texas 75201

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# Water Conservation Plan for the City of Dallas Water Utilities

## 1.0 Introduction

Dallas Water Utilities (DWU) is a major retail and wholesale provider of water in North Texas, currently serving over 2.5 million people within a 699 square mile service area. This includes all of the City of Dallas, 23 wholesale treated water customers, and five wholesale raw water customers located in the metropolitan area surrounding Dallas.

Dallas has actively procured water supplies, constructed reservoirs, and developed water treatment facilities which make it possible for DWU to provide water to its customers. In Fiscal Year (FY) 2017-2018, DWU delivered over 142 billion gallons of treated water, over 62 billion gallons of treated wastewater and approximately 9 billion gallons of untreated water. As the regional population grows, so grows water demand. To meet that demand, DWU must plan to increase the available water supply and expand its transmission, treatment, and distribution facilities. DWU considers water conservation an integral part of this planning process. The 2014 Dallas Long Range Water Supply Plan (2014 LRWSP) identified and recommended conservation as a water management strategy. Of the recommended strategies, water conservation represents approximately 12% of Dallas' recommended future water supply.

The City of Dallas has had a water conservation program since the early 1980s. In 2001, Dallas increased its conservation efforts with the amendment of CHAPTER 49, "WATER AND WASTEWATER," of the Dallas City Code to include, CONSERVATION MEASURES RELATING TO LAWN AND LANDSCAPE IRRIGATION.

In 2016, DWU developed its *Water Conservation Five-Year Work Plan* (2016 Work Plan) an update to its *2010 Water Conservation Five-Year Strategic Plan*. The 2016 Work Plan includes phased implementation of best management practices (BMPs). This Water Conservation Plan incorporates data and strategies from the 2016 Work Plan.

### 1.1 State of Texas Requirements

The Texas Administrative Code Title 30, Chapter 288 (30 TAC § 288) requires holders of an existing permit, certified filing, or certificate of adjudication for the appropriation of surface water in the amount of 1,000 acre-feet a year or more for municipal, industrial, and other non-irrigation uses to develop, submit, and implement a water conservation plan and to update it according to a specified schedule. As such, DWU is subject to this requirement. Since DWU provides water as a municipal public and wholesale water supplier, DWU's Water Conservation Plan must include information necessary to comply with Texas Commission on Environmental Quality (TCEQ) requirements for each of these designations.

The requirements of Subchapter A that must be included in the City of Dallas Water Conservation Plan are summarized below.

#### ➤ *Minimum Requirements for Municipal Public and Wholesale Water Suppliers*

- Utility Profile: Includes information regarding population and customer data, water use data (including total gallons per capita per day (GPCD) and residential GPCD), water supply system data, and wastewater system data. (Appendices A-C)
- Description of the Wholesaler's Service Area: Includes population and customer data, water use data, water supply system data, and wastewater data. (Figure 3-1)
- Goals: Specific quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal and residential use, in GPCD. The goals

established by a public water supplier are not enforceable under this subparagraph. (Sections 2.2 and 2.3)

- Accurate Metering Devices: The TCEQ requires metering devices with an accuracy of plus or minus 5 percent for measuring water diverted from source supply. (Section 5.1)
  - Universal Metering, Testing, Repair, and Replacement: The TCEQ requires that there be a program for universal metering of both customer and public uses of water for meter testing and repair, and for periodic meter replacement. (Section 5.2)
  - Leak Detection, Repair, and Control of Unaccounted for Water: The regulations require measures to determine and control unaccounted-for water. Measures may include periodic visual inspections along distribution lines and periodic audits of the water system for illegal connections or abandoned services. (Sections 5.3 and 5.4)
  - Continuing Public Education Program: TCEQ requires a continuing public education and information program regarding water conservation. (Section 5.5)
  - Non-Promotional Rate Structure: Chapter 288 requires a water rate structure that is cost-based, and which does not encourage the excessive use of water. (Section 5.8 and Appendix E)
  - Reservoir Systems Operational Plan: This requirement is to provide a coordinated operational structure for operation of reservoirs owned by the water supply entity within a common watershed or river basin in order to optimize available water supplies. (Section 5.10)
  - Wholesale Customer Requirements: The water conservation plan must include a requirement in every water supply contract entered into or renewed after official adoption of the Water Conservation Plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of Title 30 TAC Chapter 288. (Section 5.9)
  - A Means of Implementation and Enforcement: The regulations require a means to implement and enforce the Water Conservation Plan, as evidenced by an ordinance, resolution, or tariff, and a description of the authority by which the conservation plan is enforced. (Sections 5.0 through 5.17)
  - Coordination with Regional Water Planning Groups: The water conservation plan should document the coordination with the Regional Water Planning Group for the service area of the public water supplier to demonstrate consistency with the appropriate approved regional water plan. (Section 5.12 and Appendix I).
- ***Additional Requirements for Cities of More than 5,000 People***
- Program for Leak Detection, Repair, and Water Loss Accounting: The plan must include a description of the program of leak detection, repair, and water loss accounting for the water transmission, storage, delivery, and distribution system. (Sections 5.3 and 5.4)
  - Record Management System: The plan must include a record management system to record water pumped, water deliveries, water sales and water losses which allows for the desegregation of water sales and uses into the following user classes (residential; commercial; public and institutional and industrial). (Sections 5.4 and 5.13)

- Requirements for Wholesale Customers: The plan must include a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in 30 TAC § 288. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of 30 TAC § 288. (Section 5.9)
- Additional Conservation Strategies: TCEQ Rules also list additional optional but not required conservation strategies which may be adopted by suppliers. The following optional strategies are included in this plan:
  - Conservation-Oriented Water Rates. (Section 5.8 and Appendix E) and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
  - Ordinances, Plumbing Codes and/or Rules on Water Conservation Fixtures. (Section 5.14)
  - Fixture Replacement Incentive Programs. (Sections 5.7.1 through 5.7.3)
  - Reuse and/or Recycling of Wastewater and/or Gray Water. (Sections 5.16 through 5.16.3)
  - Ordinance and/or Programs for Landscape Water Management (Sections 5.5.4 and 5.14).
  - Method for Monitoring the Effectiveness of the Plan.

This Water Conservation Plan sets forth a program of long-term measures under which the City of Dallas can improve the overall efficiency of water use and conserve its water resources. Short-term measures which respond to specific water management conditions (i.e., periods of drought, unusually high water demands, unforeseen equipment or system failure, or contamination of a water supply source) on the other hand, are described in the City of Dallas Drought Contingency Plan.

## **1.2 The Water Conservation Planning Process**

Water conservation has increasingly been an important element of Dallas’s long-range water supply strategy. Since adoption of the water conservation ordinance relating to lawn and landscape irrigation in October of 2001, Dallas has dramatically increased its efforts to promote water conservation. Since 2002, Dallas has had a broad-based media campaign to increase public awareness on water efficiency, particularly relating to outdoor use. This ongoing campaign has expanded to a regional campaign, shared with the Tarrant Regional Water District. Since the 2016 Water Conservation Five-Year Work Plan (Work Plan), DWU has continued to improve upon its diverse menu of programs with an ongoing, dynamic approach to conservation whereby programs are continually measured and evaluated systematically for effectiveness and efficiency.

This Water Conservation Plan is heavily based on the data and information gathered in the 2016 Work Plan. This included review of numerous water conservation programs, initiatives, data and literature, as well as input from industry personnel. The process for development of the 2016 Work Plan can be outlined as follows:

- Analyzed Dallas Water Utilities data;
- Reviewed water conservation programs in other large cities;
- Reviewed Texas Regulations pertaining to Water Conservation;

- Reviewed City of Dallas water system and associated master plans;
- Developed potential water conservation strategies;
- Evaluated water conservation strategies; and
- Sought input from stakeholder groups.

### 1.3 Organization of the Water Conservation Plan

The following information and procedures are provided in this plan:

- **Section 2.0, Water Conservation Planning Goals**, describes the benefits of water conservation, DWU's water conservation planning goals, and the specific, water demand reduction goals established by DWU for this Water Conservation Plan, including quantified five- and ten-year water loss and GPCD reduction goals.
- **Section 3.0, Population and Per Capita Water Demand Forecasts**, identifies DWU's wholesale customers, provides populations and per capita water demand projections, and discusses the impact wholesale customers will have on future water demand.
- **Section 4.0, Description of the DWU Water System**, describes DWU's water supply sources, water treatment plants, treated water storage and distribution systems, and wastewater treatment plants.
- **Section 5.0, DWU's Water Conservation Program**, describes DWU's existing water conservation program and enhancements as well as new conservation measures that are likely to be implemented.
- **Appendices A through F** provide the completed TCEQ Utility Profiles for Municipal Public Water Suppliers and Wholesale Public Water Suppliers, water supply system data, an implementation schedule, Dallas' Standard Water Rates and service area map.

## 2.0 Water Conservation Planning Goals

The objective of this Water Conservation Plan is to achieve efficient use of water through practices and measures that reduce water consumption and water losses and increase water reuse. Meeting this objective will allow available water supplies and existing infrastructure to be extended into the future.

### 2.1 Benefits of Water Conservation

A well-designed Water Conservation Plan will provide a blueprint for efficient water use. The benefits of water conservation not only include avoided costs, but include others benefits that hold significant importance in terms of value. Benefits of water conservation include:

- Delaying the need to develop expensive future water supplies. Costs associated with developing new water supplies (or purchasing new water) are numerous. These can include capital costs for construction of reservoirs, pumping facilities, pipelines, treatment plants, water storage, and related facilities; costs of obtaining water rights and permits; and operational costs such as labor, energy, and chemicals. To illustrate this fact the water demand projection in the 2014 LRWSP was on average, over the planning horizon (2020 to 2060), 19.3% lower primarily due to Dallas' conservation efforts
- Extending the life of existing water supplies and infrastructure. When water demands are maintained or reduced through conservation, higher system pressure is avoided. Without conservation, pressures within the water system will increase in localized areas to meet increasing



customer demands. Increased pressures within an aging infrastructure will mean more leaks from the system.

- Reduced peak requirements. A water system is sized to meet its customers' peak demands. When peak demands are reduced through water conservation, part of the system's capacity is available for other water customers. This, in effect, increases the base capacity of the system.
- Lowered capital and operating costs of the existing system. The need for expanding the water treatment and distribution system is delayed or avoided. Operational costs, such as power and chemicals, are also reduced.

Other benefits include positive environmental effects, improving customer good will and promoting a positive image for the City of Dallas.

## **2.2 DWU's Water Conservation Planning Goals**

Listed below are many of the planning goals considered important to DWU during the water conservation planning process:

- Reduce seasonal peak demands
- Reduce water loss and waste
- Decrease consumption measured as gallons per capita per day (GPCD)
- Maintain quality of life
- Allow continued economic growth and development
- Maintain public education for a heightened public awareness of water conservation in Dallas and the surrounding region
- "Lead by example" by continuing to upgrade city facilities with water efficient fixtures, landscapes, and irrigation systems wherever possible
- Facilitate regional conservation efforts among DWU wholesale customer cities and neighboring municipalities, districts and agencies
- Establish the foundation for continuation of water savings targets for the following five-year period
- Remain consistent with the Region C Water Plan
- Incorporate, to the extent practicable, measures identified in the Texas Water Development Board's (TWDB's) best management practices (BMP) Guide.

## **2.3 Quantified Five- and Ten-Year Goals for Water Savings**

Specific elements of the Water Conservation Plan, including planned initiatives, are described in Section 5.0. The development of the planned initiatives involved the identification and examination of numerous conservation strategies. These strategies were derived from several sources, including state agency directives, regional water planning groups, water conservation literature, water conservation programs used by other municipalities, and the City's existing Work Plan.

Targeted water savings are based on the planned BMPs, historical water use patterns, literature values, and experience with other utilities. Savings include the combined efforts of all program elements and components.

**Table 2-1: City of Dallas Five- and Ten-Year Goals for Water Savings**

	<b>Historic 5-yr Average</b>	<b>Baseline</b>	<b>5-yr Goal for Year 2019</b>	<b>10-yr Goal for Year 2024</b>
Total GPCD	181.8	181.8	172.89	164.41
Residential GPCD	67.8	67.8	64.48	61.31
Water Loss GPCD	31.8	31.8	30.24	8.76
Water Loss (Percentage)	18.11%	18.11%	10%	10%

The “Total” GPCD five- and ten-year targets (Table 2-1) include water use by DWU industrial customers. However, Dallas also uses other metrics to track the effectiveness of its water conservation efforts, including:

- Non-industrial per capita water use. Exclusive of water use by industrial customers, the five-year rolling average per capita water use in fiscal year 2017-18 was 181.8 GPCD.
- Residential per capita water use. Including single-family and multi-family residential uses, the five-year rolling average per capita water use in fiscal year 2017-18 was 67.8 GPCD.

### **3.0 Population Forecasts and Per Capita Water Use**

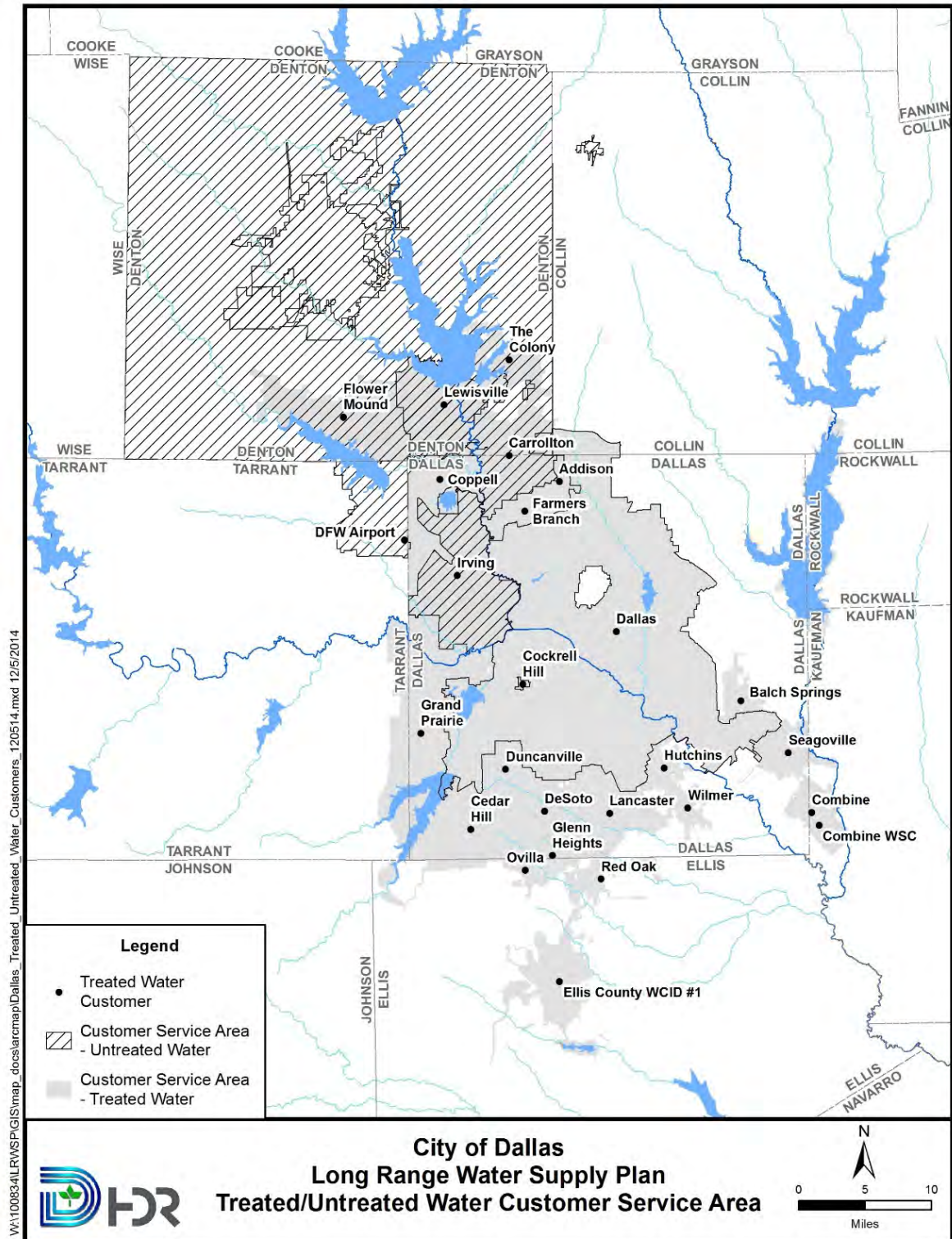
#### **3.1 DWU’s Customer and Population Forecast**

DWU supplies retail treated municipal water to the City of Dallas. The 2018 estimated population of the City of Dallas was 1,286,380, according to the North Central Texas Council of Governments (NCTCOG). DWU supplies wholesale treated municipal water to 23 customer cities or entities and serves five wholesale raw water customers (one customer receives both treated and raw water). These wholesale customers are primarily located in Dallas, Denton, and Tarrant counties; however, portions extend into Collin, Ellis, and Kaufman counties. A map of the DWU service area, identifying the wholesale customers, is shown in Figure 3-1. The 2018 estimated total population of the wholesale customers was approximately 1,174,110, according to NCTCOG. The total treated water population served for the past five years, based on NCTCOG population estimates, is illustrated in Table 3-1.

#### **3.2 Long-Range Water Planning Efforts**

The City of Dallas conducts long-range water planning efforts on a regular basis in order to maintain a reliable supply that meets the demand of the service area. The 2014 LRWSP, includes projected population, per capita consumption, and total demand projections for Dallas and its wholesale customers. The updated population projections are presented in Table 3-2.

Figure 3-1: Dallas Water Utilities Service Area



**Table 3-1: Population Served (Retail and Wholesale Customers)**

<b>Year</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Total Population</b>	<b>2,469,220</b>	<b>2,493,030</b>	<b>2,345,170</b>	<b>2,431,140</b>	<b>2,460,490</b>

**Table 3-2: Population Projections for City of Dallas and Customer Cities**

<b>City/Region</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
City of Dallas	1,242,135	1,347,717	1,531,681	1,707,057	1,841,064	1,905,498
Current Wholesale Customer Cities	1,820,739	2,179,474	2,464,242	2,781,101	3,100,019	3,430,458
Total	3,062,874	3,527,194	3,995,923	4,488,158	4,941,083	5,335,956

### **3.3 Impact of Wholesale Water Customers on Water Demand**

Wholesale water customers account for a significant portion of DWU's water demand. These customers currently use approximately 40 percent of all water (treated and untreated) and 33 percent of treated water supplied by DWU. By year 2070, use by DWU's current wholesale water customers could increase to approximately 50 percent of all water and 62 percent of treated water. Therefore, water demand reductions by DWU's wholesale customers are considered essential if DWU is to achieve its long-range water supply objectives.

Strategies to address this challenge are discussed in Section 5.5 (*Continuing Public Education Program*) and Section 5.9 (*Water Conservation Provisions in Wholesale Water Supply Contracts*).

### **4.0 Description of the DWU Water System**

DWU has supplied water to meet the needs of the City of Dallas since 1881. Additionally, DWU currently supplies treated water to 23 wholesale customers and untreated water to an additional five wholesale customers. Dallas meets these needs through a system of surface water reservoirs and through its transmission, treatment, and distribution facilities. Recycled water projects, existing and proposed, are also components of the DWU water system.

#### **4.1 Water Supply Sources**

DWU has seven surface water reservoirs, located in three geographically diverse river basins. Of the seven surface water reservoirs, six are currently connected to DWU's system with the seventh being scheduled for connection by 2027. DWU can balance the level of use in each connected reservoir to ensure that the supply of any single reservoir will not be prematurely exhausted.

The reservoirs comprising DWU's system are subdivided into western reservoirs and eastern reservoirs. This designation corresponds to DWU's overall water treatment system infrastructure, which includes the two western water treatment plants, Bachman Water Treatment Plant (WTP) and Elm Fork WTP, and one eastern water treatment plant, East Side WTP. DWU's distribution system is one integrated system which

the three water treatment plants feed into. A detailed list of City of Dallas Water Rights is included in Appendix D.

#### **4.1.1 Western System**

The reservoirs in the western system in which DWU holds water rights include:

- Ray Roberts Lake
- Lewisville Lake
- Grapevine Lake
- Elm Fork Channel of the Trinity River (above Frazier Dam)

DWU also holds water rights for uncontrolled portions of the Elm Fork of the Trinity River watershed (i.e., areas located downstream of Lewisville Lake and Grapevine Lake which contribute stream flow to DWU's water supply diversion points on the Elm Fork).

Additionally, DWU holds water rights in Lake Palestine, but this reservoir is not presently connected to the DWU Water System. Lake Palestine, which is physically located southeast of Dallas, will be connected to the Western System through the Bachman WTP. This connection is scheduled for 2027.

#### **4.1.2 Eastern System**

The reservoirs in the eastern system in which Dallas holds water rights and/or supply contracts include:

- Lake Ray Hubbard
- Lake Tawakoni
- Lake Fork
- Lake Palestine (unconnected)

DWU holds water rights and a water supply contract in Lake Palestine, but this reservoir is not presently connected to the DWU water system. In addition, DWU treats raw water from Lake Jim Chapman for the City of Irving and delivers treated water to the City of Irving.

#### **4.1.3 Others**

DWU holds storage and diversion rights for White Rock Lake, located on White Rock Creek, in northeastern Dallas. The City of Dallas also has permitted reuse of return flows from the City of Lewisville Wastewater Treatment Plant (WWTP) and Town of Flower Mound WWTP in the Elm Fork of the Trinity River and from Dallas' Southside and Central WWTPs in the Trinity River.

Table 4-1 presents a summary of the current water rights associated with each of the reservoirs comprising DWU's raw water sources. A listing of DWU reservoirs is located in Appendix C.

## **4.2 Water Treatment Plants**

DWU maintains three water treatment plants (Elm Fork, Bachman, and East Side) serving both retail and wholesale customers. The treatment plants have a combined treatment capacity of 900 million gallons per day (MGD) and a current total firm pumping capacity of 905 MGD.

**The Elm Fork Water Treatment Plant (WTP)** is located in Carrollton near the intersection of I-35 East and Whitlock Lane. The plant has a rated treatment capacity of 310 MGD with a high-service pumping capacity of 324 MGD. The plant receives gravity flow through the Elm Fork of the Trinity River from Ray Roberts Lake, Lewisville Lake, and Grapevine Lake. The intake structure, located north of the Carrollton Dam, diverts water by gravity flow to two low-service pump stations. One pump

station is off-site and the other is on the plant site. The raw water is then pumped to the ozone application facility located at the plant.

**Table 4-1: Summary of Available Water Supply Sources**

	Source	Amount Authorized (MGD)	Firm Yield Available to DWU (MGD)
Surface Water	Lake Ray Hubbard	186.9	50.0
	Lewisville Lake	491.0	162.0
	Ray Roberts Lake	582.2	
	Elm Fork Run-of-River	19.4	
	Grapevine Lake	75.4	12.8
	Reuse	220.7	95.3 <sup>a,b</sup>
Groundwater	NA	--	--
Contracts	Sabine River Authority – Lake Tawakoni	164.8	157
	Sabine River Authority – Lake Fork	107	107 <sup>b</sup>
	Upper Neches River Municipal Water Authority – Lake Palestine	102.0	102 <sup>c</sup>
Other	NA	--	--

<sup>a</sup> Yield is based on 2018 annual wastewater discharges with Water Reuse Permit 12468B conditions and restrictions. This number will vary annually depending upon discharge.

<sup>b</sup> Not fully connected

<sup>c</sup> Not connected

**The Bachman WTP** is located in Dallas, Texas, north of Love Field Airport and adjacent to Bachman Lake. Bachman WTP is Dallas’ oldest operating water treatment plant with a rated treatment capacity of 150 MGD, a storage capacity of 9.5 million gallons (MG), and a high-service pumping capacity of 180 MGD. Raw water is diverted from the Elm Fork of the Trinity River through Fishing Hole Lake to a raw water pump station located off-site of the water treatment plant. The raw water is then pumped to the ozone application facility located at the plant.

**The East Side WTP** is located in Sunnyvale, Texas. The plant is Dallas’ largest water treatment plant with a rated treatment capacity of 440 MGD and a firm raw water pumping capacity of 500 MGD. The plant receives raw water from three reservoirs- Lake Ray Hubbard, Lake Tawakoni and Lake Fork via

three raw water pump stations and one balancing reservoir. From the east, the Iron Bridge Pump Station, located at Lake Tawakoni, and the Lake Fork Pump Station transport raw water to the Tawakoni Balancing Reservoir (TBR). From TBR, raw water flows by gravity through two water lines to the ozone application facility at the plant. The Forney Raw Water Pump Station transports raw water from Lake Ray Hubbard directly to the ozone application facility utilizing two pressurized lines.

Several improvements are currently under consideration to increase the overall capacity of the eastern system including the construction of new 144-inch raw water pipelines from Lake Tawakoni to the TBR and from TBR to the East Side WTP as well as treatment capacity improvements at the East Side WTP to increase the plant's rated capacity to 540 MGD.

### **4.3 Treated Water Storage and Distribution Systems**

The DWU distribution system is divided into nine major pressure zones (Central Low, North High, South High, East High, Pleasant Grove, Red Bird High, Renner High, Trinity Heights and Cedar Dale) with several intermediate areas of service supplied via inline boosters and pressure reducing valves. Each pressure zone includes one or more ground/elevated storage tanks that are designed to act both as pressure equalizer and fire protection storage within the area.

Once water has been treated at one of the three DWU treatment plants (Bachman; Elm Fork; East Side), the finished water is then pumped into the distribution system. Transfers from treatment plants are accomplished by means of "high service" pumps that are located at the plant sites and throughout the system. These "high service" stations are supplied directly from the plant clear wells. There are 30 pump stations, 11 clear wells, 12 ground storage reservoirs, and nine elevated storage tanks in the Dallas distribution system.

The treatment plant clear wells have a combined storage capacity of 90 MG; the ground storage reservoirs and elevated storage tanks have a total 178.4 MG and 15.5 MG, respectively. The total combined storage capacity of the system is approximately 260.4 MG.

DWU's treated water distribution system consists of approximately 4,982 linear miles of pipe. The capacity of the treated water distribution system is constantly being upgraded and re-assessed to improve the ability of the distribution system to meet customers' needs and to replace aging infrastructure.

### **4.4 Wastewater Treatment Plants**

DWU operates two wastewater treatment plants (WWTPs) - Central and Southside - that serve the City of Dallas as well as 11 wholesale wastewater customer cities. The WWTPs have a combined annual average flow permitted capacity of 280 MGD with 545 MGD 2-hour peak. A general description of the plants is as follows:

- Central WWTP is currently rated at 170 MGD and is located four miles south of downtown Dallas. The Central WWTP permit includes a future capacity of 200 MGD. The annual average flow for FY 2017-18 was 88.47 MGD. The Central WWTP consists of two parallel treatment trains known as the Dallas Plant and White Rock Plant. Each has influent pump stations, preliminary treatment facilities, primary clarification, trickling filters, and secondary clarifiers. The combined flow from the Dallas and White Rock plants is then pumped to common aeration basins, final clarifiers, chlorination, filtration, and de-chlorination facilities. Sludge from the Central WWTP is pumped approximately 13 miles to the Southside WWTP for additional treatment.
- Southside WWTP is currently permitted at 110 MGD and is located 18 miles southeast of downtown Dallas. The annual average flow for FY 2017-18 was 52 MGD. The Southside WWTP consists of an influent pump station, preliminary treatment facilities, primary clarification, aeration basins, secondary clarifiers, chlorination, filtration, and dechlorination facilities. The sludge handling facilities at the Southside WWTP include solids thickening, anaerobic digestion, solids dewatering, and dedicated land disposal.

A small portion of the city's wastewater is transported to the Trinity River Authority (TRA) Central Regional Wastewater Treatment Facility and to the City of Garland Duck Creek WWTP. Additional DWU wastewater system data is presented in the TCEQ's Utility Profiles for Municipal and Wholesale Suppliers provided in Appendix A and Appendix B.

## **5.0 DWU's Water Conservation Program**

DWU continues to be a leader in water conservation efforts in the North Texas Region. DWU was the first in North Texas to implement mandatory Time of Day and Maximum Twice-Weekly watering requirements, and the first to have a public awareness campaign. Additionally, DWU continues to expand its diverse menu of incentive-based programs, public education and outreach strategies. Most recently, DWU revamped its SaveDallasWater.com website to reflect a fresh approach to interfacing with the public and a proactive social media presence.

This section provides a description of DWU's existing water conservation program and the enhancements or new conservation measures that are planned to achieve or exceed DWU's stated water conservation goal.

### **5.1 Accurate Supply Source Metering**

DWU has a comprehensive program to meter water diverted from supply sources within the DWU water system. All untreated water diversions or conveyances to the City of Dallas's Water Treatment Plants (WTPs) are metered. In the Eastern System, DWU has flow metering capability at each of the raw water pump stations and at the outlet of the Tawakoni Balancing Reservoir. The East Side WTP utilizes raw water flow meters. In the Western System, water flows to the Bachman and Elm Fork WTPs by gravity, from the intake to the plants' respective low lift pump stations. Raw water is metered entering each plant. DWU contracts require that wholesale customers (treated and untreated water) use a meter that conforms to American Water Works Association (AWWA) standards with review and approval by DWU. The meters are calibrated in accordance with those standards to an accuracy of plus or minus 1.5 percent. This is well within the TCEQ requirement of 5 percent accuracy. All untreated water diverted from supply sources is compiled in an annual Surface Water Report, which shows diversions on a monthly basis.

### **5.2 Universal Metering, Meter Testing and Repair, and Periodic Meter Replacement**

**Universal Metering** – The current City of Dallas ordinance requires metering of all connections, except closed fire systems with alarms. Individual metering is required at all single-family residential locations. Most multifamily residential locations, such as apartments and condominiums, have master meters for each building. However, multifamily units are individually metered at the discretion of the owner or management company. Most commercial businesses are individually metered, although some are combined on a master meter. Irrigation metering is provided to some customers based on the individual needs of the user. All treated water pumped from the WTPs is compiled in an annual Pumped Water Report, which shows water pumped on a monthly basis.

Most of the treated water used by wholesale customers is metered by DWU using Venturi meters with rate-of-flow controllers (ROFCs). The remaining treated water usage by wholesale customers is metered by volumetric meters. All treated water pumped from the WTPs to treated water wholesale customers is included in the Annual Pumped Water Report.

**Meter Testing and Repair** – All production meters are tested and calibrated in accordance with Dallas Water Utilities ISO standards. The city maintains a program to pull, test, and replace any meters determined to be functioning outside of these parameters.

**Periodic Meter Replacement** – Most residential meters in the City of Dallas are replaced at 10- or 15-year intervals depending on meter size and accuracy life of the meter. Most large and high capacity general service meters are tested on an annual basis. DWU will also repair or replace any meter reported as inaccurate by a water customer.



### **5.3 Leak Detection, Repair, and Control of Unaccounted-for Water**

DWU has an extensive leak detection and repair program and is committed to maintaining a rate of less than 10 percent for unaccounted-for water losses in its water system. Annual unaccounted-for water, based on the difference between treated water pumped and sold, averaged 5.21 percent in 2018.

Currently, DWU has an annual budget of \$34 million for maintenance and upkeep of the distribution system. The majority of the budget is used for personnel, equipment, and materials. DWU operates 23 four-person repair crews. Most leaks, illegal connections, or abandoned services are discovered through the visual observation of field crews or are reported by the public.

DWU also has fourteen staff members to detect hard-to-find leaks. The Leak Detection Program has the goal of surveying the entire water system and improving the integrity of the water system by identifying weaknesses in water pipelines before breaks develop. The goal is to survey all pipelines every 2.5 years. Leak detection staff members utilize state-of-the-art leak detection equipment, including leak listening devices, leak noise loggers, and a leak noise correlator. The DWU leak detection program continues to meet and exceed its annual goal and in FY 2018 surveyed approximately 3,300 miles of the water system.

### **5.4 Monitoring and Record Management of Water Deliveries, Sales and Losses**

DWU regularly monitors all water deliveries and sales to both treated and untreated water customers. All critical data, such as raw water conveyances to WTPs or wholesale customers, treated water pumped, and unaccounted-for water losses are available on a regular basis, as needed. All water sources and service connection accounts are individually metered and read on a regular basis to facilitate accurate comparisons and analysis.

### **5.5 Continuing Public Education Program**

The City of Dallas' public education program is considered one of the best information and education programs in the State of Texas. DWU's program has received recognition from the Texas Water Development Board, the Texas Section of the American Water Works Association (TAWWA), the Texas Water Conservation Association, the American Advertising Federation, the U.S. Environmental Protection Agency (EPA), and the Obama Administration's 2011 Clean Water Framework Report. Specifically, the school program has received awards from the TAWWA, Keep Texas Beautiful, and the Oak Cliff Chamber of Commerce.

DWU has implemented a number of public education and outreach strategies, including an expanded public awareness campaign that incorporates both local and regional conservation messaging; the Environmental Education Initiative, focusing on K-12 students; a water conservation mascot; a revamped SaveDallasWater.com website; free irrigation system evaluations; free Industrial, Commercial and Institutional (ICI) Water Efficiency Assessments and Rebates; year-round water-wise landscape seminars and events, and a robust social media presence.

#### **5.5.1 Public Awareness Campaign**

Launched in the summer of 2002, the now regional public awareness campaign promotes water conservation using a well-diversified approach that includes broadcast and digital television ads, broadcast and digital radio ads, and social media advertising. The regional campaign is also featured on billboards on heavily traveled thoroughfares, in messaging placed both inside and outside Dallas Area Rapid Transit (DART) buses and trains, and in print ads in a variety of community publications. The SaveDallasWater.com website contains information about water conservation programs for Dallas ratepayers, City of Dallas water conservation ordinance restrictions, and various sustainability events year-round. On August 1, 2018, a revamped version of the SaveDallasWater.com website was launched. The new website offers a curated selection of informative tiles and images focused around the many facets of conservation and programs available, providing the public with a more user-friendly, interactive experience.

In addition, City of Dallas Water Conservation is active across all social media platforms including Facebook, Twitter and Instagram, pushing out new content to the public several times each week.

Although the Dallas-Fort Worth area has four primary water providers, it is a single media market. As a result, the broadcast portion of the DWU public awareness media buy delivers messages to customer of other water service providers, and any broadcast media purchase made by other water providers would reach DWU customers. In 2009, DWU formed a partnership with the Tarrant Regional Water District (TRWD) to minimize the potential for customer confusion by providing uniform regional water conservation messaging. This also resulted in campaign development savings and leveraged the media buy budget for both entities.

Since 2002, Dallas has spent nearly \$20 million on its public awareness campaign, thus demonstrating its continuing commitment to water conservation for the entire North Texas region.

### **5.5.2 Environmental Education Initiative K-12**

In FY 2006, DWU expanded its existing school education programs with an Environmental Education Initiative (EEI) to provide programs for grades kindergarten through twelve in the Dallas school district and in other area schools and private schools that serve City of Dallas residents. The EEI website ([dallaseei.org](http://dallaseei.org)) is an online resource for teachers with links to videos on outdoor water use, indoor water use, watersheds, the power of many conserving, and surface-groundwater interactions. The website also has a description of water lessons for kindergarten through fifth grade children. Teachers can register for a free in-class presentation through this website. To date, the EEI program has reached more than 140,000 students, 376,000 City of Dallas citizens and trained more than 12,000 teachers, in a total of 272 schools.

### **5.5.3 Water Conservation Mascot**

In 2005, DISD students elected Dallas' official water conservation mascot "Dew". Through frequent public appearances and community outreach, Dew helps to educate kids and adults alike about the importance of using water wisely. Dew has reached thousands of Dallas residents and businesses since his 2006 inauguration. More information on Dew's efforts can be accessed through the "Conservation for Kids" link on the city's water conservation website, [www.savedallaswater.com](http://www.savedallaswater.com).

### **5.5.4 Free Irrigation System Evaluations**

In 2007, DWU added two TCEQ-licensed irrigators to its water conservation staff and began providing free irrigation system evaluations. These inspectors serve residential and commercial retail customers and assist City of Dallas departments with proper irrigation system maintenance and operations. The evaluations include identification of potential system leaks, diagnosis of equipment malfunctions, recommended irrigation controller scheduling and recommendations for equipment upgrades to enhance efficiency. More than 7,000 inspections have been performed since the program was launched. Projected water savings based on implemented recommendations for FY 2018 is 16 MG/year. The irrigators also respond to high-bill concerns from DWU customers by evaluating their automatic irrigation systems for potential water loss and suggesting other areas of potential water savings.

DWU's licensed irrigators also work with Dallas departments on proper maintenance, operation of city irrigation systems and new system design. Over 200 irrigation system evaluations have been performed at Dallas parks facilities to date.

### **5.5.5 Water Wise Landscape Events**

FY 2018 marked the 24<sup>th</sup> anniversary of the city's Water-wise Landscape Tour of Homes and Public Gardens program. This initiative is designed to raise public awareness and save water by publicizing demonstration gardens, recognizing water-wise award winners, and promoting the replacement of water-thirsty yards with landscaping that requires minimal water and maintenance.

The City of Dallas has “water-wise” demonstration gardens at the historic White Rock Lake Pump Station and Texas Discovery Gardens at Fair Park. The use of water-wise landscaping is also promoted through year-round water-wise seminars and the city’s water conservation ([savedallaswater.com](http://savedallaswater.com)) website which includes a list of water-wise landscape locations, photos and virtual tours.

It is difficult to quantify water savings achieved specifically from water-wise events. However, these programs heighten awareness of the beauty and reduced need for water and maintenance in the use of native and adapted plantings, as well as providing tools for landscape conversion and proper maintenance.

### **5.5.6 Other Public Education**

The City of Dallas also uses other approaches to public outreach, including water bill inserts, brochures, speaking engagements, special events and promotions, and conservation-oriented signage in City facilities. Since its inception in 2001, Dallas Water Conservation has hosted hundreds of free water-wise seminars, workshops and events year-round, promoting a variety of relevant conservation topics.

The City of Dallas has partnered with regional North Texas water providers Tarrant Regional Water District and North Texas Municipal Water District for the past several years, to host the Annual North Texas Regional Water Conservation Symposium. This collaborative event provides an opportunity for water conservation experts to present best management practices on a number of related topics. In 2018, the 12<sup>th</sup> Annual Regional Water Conservation Symposium hosted 130 water professionals from across the state. Other regions of the state, including the Central and Gulf Coast regions, host similar symposiums.

The City also recognizes that an important component of public education includes educating City of Dallas employees on the value of water. To that end, City of Dallas Water Conservation hosts a ‘Conservation on the Plaza’ event each Spring, in coordination with National Drinking Water Week. This event is an opportunity to provide in-reach to city employees in a fun, interactive way while collaborating with other City departments such as Dallas Fire and Rescue and Dallas Animal Services. Nearly 500 city employees attended the 2nd Annual Conservation on the Plaza event in 2018.

### **5.5.7 Industrial, Commercial, and Institutional (ICI) Free Water Efficiency Surveys**

In 2012, the Dallas City Council authorized an ICI Water Efficiency Survey Program to help ICI customers save water and money by identifying opportunities to increase water use efficiency and to reduce water, wastewater and energy costs. Those free assessments continue and include a full examination of:

- Cooling Towers, Boilers & Other Thermodynamic Operations
- Plumbing Fixtures, Fittings & Equipment
- Landscape Irrigation
- Food Service Operations
- Laundry Operations
- Laboratory & Medical Facilities
- Swimming Pools, Spas & Fountains
- Vehicle Washes
- Alternate Sources of Water

Over 400 water efficiency assessments have been performed since the program was launched, with an estimated water savings of over 400 million gallons per year if recommended process and equipment improvements are implemented.

### **5.5.8 ICI Hospitality Program**

In 2011, the Dallas City Council authorized a program to encourage hotels/motels and restaurants to expand their efforts to save water by participating in the city's Water Conservation Hospitality Program. The initiative was voluntary. Participating hotels and motels urged guests to embrace fewer linen and towel changes, as well as serving water on request only in their dining areas. In support, the City provided free public service announcements to participating lodging facilities to educate their guests about the program. Dallas area restaurants were also encouraged to serve water on request only. This simple measure not only saves our water resources but also provides energy savings through less frequent dishwasher and heated water use. Free marketing and promotional materials were provided for participating establishments. In total, 79 hotels and restaurants participated in the ICI Hospitality Program. In FY 2016-17, it was determined that the ICI Hospitality Program would merge with the Industrial, Commercial, and Institutional (ICI) Free Water Efficiency Assessments, where it remains as of FY 2018-19.

### **5.5.9 Planned Public Education Measures**

#### **ICI Training Programs (FY 2020)**

DWU plans to develop, lead, and manage ongoing water efficiency training programs for ICI facility managers and irrigators, with a focus on the EPA WaterSense programs. Topics will include industrial cooling and process, food processing, irrigation management, and leakage control. Bi-monthly or quarterly training programs will be conducted. As facility managers and irrigators become more aware of available water-efficient technologies and methods, they will begin to implement these measures. DWU will work with local businesses, green building organizations, and energy utilities to seek their input on the curriculum development and certification process.

#### **ICI Business Partnership Program (FY 2020)**

DWU plans to establish an ongoing Business Partnership Task Force or work group for the purpose of engaging the ICI community in DWU's water conservation program, particularly business leaders who represent companies that are top water users. The Task Force will meet four to six times per year for the purpose of discussing water conservation practices, sharing conservation success stories, and discussing DWU ICI water conservation programs.

### **5.6 City Leadership and Commitment Measures**

City leadership and commitment strategies are intended to demonstrate a strong commitment to water conservation, with the city "leading by example." To that goal, the City has expanded its water conservation staff, expanded its leak detection program, revised its water conservation ordinance, and conducted retrofits at City-owned facilities. In addition, the City uses its website to publicize its leadership, commitment, and conservation practices. Moreover, in 2012 Dallas was the first municipality in North Texas to adopt a permanent ordinance limiting outdoor landscape watering to a maximum of twice weekly by implementation of a mandatory schedule. The ordinance served as a model for many cities across the region, the state and the nation.

#### **5.6.1 Water Conservation Division Staff**

DWU currently maintains 12 staff positions in the Water Conservation Division, up from 7 fulltime employees in 2005. Staff members are tasked with analyzing and tracking Best Management Practices (BMPs), providing customer water assessments, administering education programs, and facilitating retrofit programs. It is anticipated that additional staff may be added in the years to come, as new Conservation programs are introduced and current programs expanded further.

#### **5.6.2 Retrofit of City Owned Facilities**

Retrofits of city facilities have included replacement of plumbing fixtures and irrigation audits and corresponding irrigation system improvements. Between the years 2016-2018, DWU partnered with the

City departments of Economic Development, Housing/ Community Service, Planning and Urban Design and Park and Recreation to implement a water conservation and beautification project concentrated on the South Dallas/ Fair Park Community in Dallas. The project focused on the local area fire stations and the Martin Luther King Jr. Center and Library. Over a three-year period the project achieved the following:

- 103 new trees and 2,150 native plants planted
- Traditional turf landscapes replaced with water-wise landscapes created, incorporating more than 30 tons of stone
- Retention basins added for the capture and re-use of storm water
- Plumbing upgrades in all buildings including:
  - Replacement and/ or retrofit of 65 toilets
  - Replacement of 67 lavatory sinks
  - Installation or retrofit of 75 lavatory faucets
  - Replacement of 67 urinals
  - Replacement of 6 water fountains
  - Replacement of 12 kitchen faucets

In all, the project resulted in an estimated water savings of 1.39 MG/Y. These improvements were made possible through the City Leadership and Commitment Grant Program which provides funding to City departments for water conservation activities. Grants are awarded on a competitive basis annually. Since FY 2009, grants totaling more than \$1.3M have been awarded, with a total estimated water savings of 3.95 MG/Y. For FY2019-20, grant funds have been awarded to the Office of Cultural Affairs and the Dallas Park and Recreation Department. The office of Cultural Affairs will use awarded grant funds to make indoor plumbing upgrades and retrofits to The Majestic Theater and The Kalita Humphreys Theater. Dallas Park and Recreation Department will use awarded grant funds to continue the Dallas City Hall median renovation design project, focusing on the Akard and Ervay medians, to demonstrate regionally suitable low water usage landscape design around Dallas City Hall.

### **5.6.3 Planned City Leadership and Commitment Measures**

#### **Water-Wise Landscape Design Requirements (Under Review FY 2020)**

DWU will collaborate with the city's Building Inspection Office to revise, upon City Council approval and adoption, its landscape ordinance to limit turf areas in all new landscapes and require low-water-use landscaping in other areas. Other requirements could include minimum soil depths, soil amendments, and turf grass dormancy capability. Turf grass requires more water than native grasses and low-water-use plants. Reducing the turf grass area in new landscapes will reduce irrigation water use.

#### **ICI Commercial Equipment Rule**

With the adoption of the International Green Building Construction Code (Section 5.14), the city has put into place requirements for certain water efficiency standards for newly constructed and newly-occupied ICI establishments.

## **5.7 Rebate and Incentive Programs**

DWU has implemented the following rebate and incentive programs: residential and multi-family toilet vouchers (*New Throne for Your Home*); Minor Plumbing Repair program; and the ICI rebate program. Each of these programs is described below.

### **5.7.1 Toilet Voucher Program**

The *New Throne for Your Home* program, initiated in July 2007, offers vouchers and rebates of up to \$90 for replacement of older, inefficient toilets with high efficiency (HET) models. Applicants must be DWU customers whose toilets were installed prior to January 1, 1994 and who do not already have water-efficient toilets. Single-family vouchers are limited to two per household. A rebate option is also available for \$90 per toilet. Multi-family requests are handled on a first-come, first-served basis, as funding is limited. The program is promoted in print, social media and on the savedallswater.com website.

To date, more than 110,000 toilets have been replaced through the *New Throne for Your Home* program. These efficient toilets are projected to save over 392 MG annually.

### **5.7.2 Minor Plumbing Repair Program**

In 2005, the Minor Plumbing Repair (MPR) program began with the goal of assisting low-to-moderate income water customers reduce water waste and increase water efficiency. The program replaces inefficient water use fixtures such as toilets (up to 2 per household), faucet aerators, and showerheads with efficient water use fixtures for qualified homeowners. The program also includes minor repairs to leaking faucets, hose bib leaks, easily accessible pipe joint leaks, and water heaters. To date, over 4,300 families have participated. Measures implemented through the MPR program are projected to save over 26 MG annually.

### **5.7.3 Industrial, Commercial and Institutional Rebate Program (Currently Undergoing Restructuring FY 2019)**

In FY 2011/12, the Dallas City Council authorized funding for ICI rebates in an effort to help industrial, commercial and institutional customers defray the costs for large water conservation projects. Up to \$100,000 (per project) in site-specific rebates are available to ICI customers towards the cost of new equipment and processes that conserve water at existing facilities. All ICI water users served by the City of Dallas Water Utilities, in good-standing, are eligible to apply. Five customers have received rebates to date, resulting in savings of 17.50 MG annually.

### **5.7.4 Planned Rebate and Incentive Measures**

#### **Residential Irrigation System Incentive (FY 2021)**

DWU plans to offer a rebate or other incentive to all single- and multi-family residential customers that retrofit their existing irrigation systems with water-conserving equipment. Qualifying equipment may include:

- Drip irrigation equipment
- Spray heads with greater distribution uniformity
- Smart irrigation controllers
- Other devices

#### **Residential Clothes Washer Incentive (FY 2021)**

DWU plans to offer a rebate to single- and multi-family residential customers for replacing older, inefficient clothes washers with water-efficient models (modified energy factor of at least 1.8 and water factor of no more than 7.5). Efficient clothes washers use up to sixty percent less energy and up to forty percent less water than conventional machines.

## **5.8 Non-promotional Water Rate Structure**

DWU has a conservation-oriented rate structure for customers within the City of Dallas. Under the increasing block rate structure, customers are billed a water meter service charge which increases with the size of their meters. Customers are also billed for water usage and increasing usage results in a higher unit cost for water. To that end, DWU has incorporated conservation tiered rates into its structure since 2001. In 2018, DWU added its highest rate in a new fifth tier. Connecting higher rates to increased consumption discourages customers from wasting water. A copy of DWU's rates is provided in Appendix E.

**Wholesale Customer Water Rates** – The rate structure for 98 percent of wholesale treated water customers is two-part, based on demand and volume. The remaining two percent is charged at a flat volume rate. Current wholesale customer contracts include a provision that promotes water conservation by discouraging high one-year water use and then returning to lower demand levels.

Under this provision, wholesale customers pay annual demand charges based on the current water year demand or the highest demand established during the five preceding water years, whichever is greater. Wholesale untreated water customers are charged either a non-interruptible rate or an interruptible rate.

## **5.9 Water Conservation Provisions in Wholesale Water Supply Contracts**

Current contracts between the City of Dallas and wholesale customers contain the following typical provisions related to water conservation: (1) the customer agrees to develop a water conservation plan which incorporates loss-reduction measures and demand management practices designed to ensure that the available supply is used in an economically efficient and environmentally sensitive manner, and (2) if Dallas grants authorization for the customer to sell water purchased from Dallas, then Dallas may establish the terms and conditions of the conveyance.

In accordance with 30 TAC § 288, the City of Dallas will include a requirement in every wholesale water supply contract entered into, including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of Chapter 288. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of Chapter 288.

## **5.10 Reservoir Systems Operations Plan**

DWU operates the water supply system foremost to assure adequate, good quality available water throughout a drought as severe as the worst drought of record. Secondly, DWU considers operational economy. The Dallas water supply system consists of several surface water reservoirs, transmission facilities, water treatment plants and related infrastructure. Infrastructure maintenance and expansion to meet future water requirements are essential to system operations.

Reservoir water withdrawal procedures are prepared to assure that water supplies are conserved in the event of severe drought conditions. These procedures are periodically reviewed and revised as conditions change.

These operational procedures are tested using computer simulations maintained and operated by DWU staff. These models simulate lake operations over time periods of historical hydrologic records. The modeling includes projected water demands and the constraints of the transmission, water treatment and distribution systems. Program utilization normally involves the trial operation of a set of lake operation procedures, assuming that the critical drought of record begins at the start time of the simulations.

DWU's computer program chooses monthly drafts from each lake based primarily on lake levels. When lakes are near full, less expensive western sources are drafted heavily. When these lakes drop to defined levels, their drafts are reduced and drafts are switched to more remote sources. Each potential operating rule is tested over the hydrological period of record to ensure the operation would not cause the supply in any reservoir to be exhausted should a drought equal in severity to the worst drought of record recur. The

potential operating rules are compared, and from the results a set of operating guidelines for the upcoming year is developed. These guidelines are then modified if conditions warrant.

### **5.11 Means to Implement and Enforce the Water Conservation Plan**

DWU administers and implements various components of the Water Conservation Program within the City of Dallas as authorized by the Dallas City Code, Chapter 49, Water and Wastewater. The enforcement of the water rate structure and metering is automatic. Water conservation lawn and landscape restrictions are enforced by the Department of Code Compliance. The DWU budget includes funding for enforcement activities by the Department of Code Compliance equivalent to two full-time personnel. For wholesale customers, clauses within their water supply contracts require development of water conservation plans to ensure that available supplies are used efficiently.

### **5.12 Coordination with Regional Water Planning Groups**

DWU will provide a copy of this Water Conservation Plan to the Region C Water Planning Group. As the largest water supplier in the region, DWU will provide leadership and work with the Regional Water Planning Group to improve efficient utilization of existing water resources and/or develop new resources which meet the needs of the entire region. A copy of the letter of Coordination with Region C Planning Group is provided in Appendix J.

### **5.13 Desegregation of Water Sales by Customer Class**

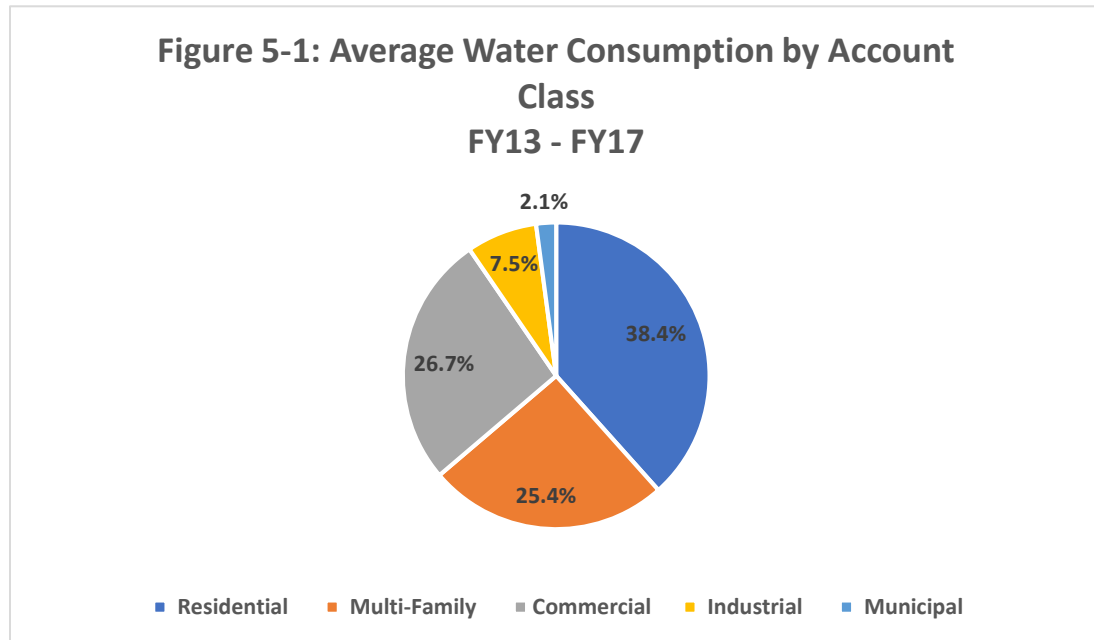
DWU separates City of Dallas water customers into four general account classes:

- Residential – The Residential class includes single-family residences, individually and master metered duplexes, individually metered apartments, and individually metered mobile homes.
- General Services – The General Service class includes master metered multi-family housing, master metered apartments, and master metered mobile homes, office buildings, restaurants, hotels, churches, and other commercial and light industrial customers.
- Optional General Service – The Optional General Service class mainly consists of large industrial customers, but the data shown also include some master metered apartment complexes.
- Municipal – The Municipal class consists of city buildings, parks, fire stations, libraries, and some hospitals.

Based on the average retail water sold within the City of Dallas from FY 2012-13 through FY 2016-17, General Service and Residential customers account for most of the City's treated water consumption (Figure 5-1). To better illustrate actual water use in Figure 5-1, consumption within the General Service account class has been divided into two categories:



- GS Multi-Family, consisting of master metered multi-family housing, master metered apartments, and master metered mobile homes, and
- GS Commercial, consisting of the remainder of General Service accounts



#### 5.14 Plumbing Code Ordinances

The State of Texas has placed maximum flow rate requirements on plumbing fixtures. As of January 1, 2014, the law requires maximum average flow rates of 1.28 gallons per flush (gpf) for toilets and 0.5 gpf for urinals. Effective October 12, 2013, the City of Dallas amended the plumbing code by adopting the 2012 Edition of the International Green Construction Code of the International Code Council, Inc. with specified exceptions. Dallas' code at a minimum complies with State of Texas requirements.

#### 5.15 Water Waste Prohibition

*Dallas's water and wastewater ordinance prohibits the following wasteful practices:*

- Runoff from irrigation onto a street or other drainage area
- Irrigation of impervious areas
- Operation of an irrigation system with broken or missing sprinkler heads
- Irrigation during a precipitation event
- Irrigation between the hours of 10:00 a.m. and 6:00 p.m. from April 1 through October 31 of any year (except irrigation by hand and the use of soaker hoses)

In addition, the water and wastewater ordinance require all irrigation systems to be equipped with rain-sensing devices and freeze sensors.

Beginning in April of 2012, additional changes were made to the ordinance allowing a maximum of twice-weekly lawn and landscape watering based on property street address. Provisions were included to allow temporary variances for specific situations that may require more than twice weekly watering.

## 5.16 Wastewater Reuse and Recycling

DWU has developed water recycling projects and plans for additional projects, as described in the following sections: direct reuse projects, indirect reuse projects, and contracts for return flows into Dallas reservoirs. Table 5-1 presents a summary of direct and indirect recycled water projects for DWU along with the projected water supply.

**Table 5-1: Summary of DWU Recycled Water Projects**

<b>Project</b>	<b>Projected 2020 Average Supply (MGD)</b>	<b>Projected 2070 Average Supply (MGD)</b>
<b>Direct Recycle Projects</b>		
Cedar Crest/ Stevens Park Pipeline	1.0	1.0
White Rock Pipeline Alternate/ Cedar Crest Pipeline Extension	2.2	2.2
<b>Indirect Recycle Augmentation</b>		
NTMWD/ DWU Exchange	23.0	31.1
Main Stem Balancing Reservoir	0.0	102
<b>Total</b>	<b>26.2</b>	<b>136.3</b>

### 5.16.1 Direct Reuse Projects

DWU provides recycled water from the Central WWTP to the Cedar Crest and Stevens Park golf courses for irrigation. The golf courses currently use up to 1.0 MGD. DWU plans to add additional customers on this line in the future for non-potable applications, such as irrigation and industrial uses.

DWU also plans to develop the White Rock Pipeline Alternative to provide recycled water for non-potable applications, such as irrigation and industrial uses.

### 5.16.2 Indirect Reuse Projects

DWU has agreed in principle with the North Texas Municipal Water District (NTMWD) to an exchange of recycled water. This planned exchange includes the following elements:

- DWU will use a portion of the recycled water discharged to Lewisville Lake from NTMWD-operated WWTPs in Frisco.
- Upon completion of a Main Stem Pump Station in approximately 2019, recycled water that originates from DWU WWTPs will be diverted from the main stem of the Trinity River to the NTMWD's East Fork Wetlands.
- Upon completion of the Main Stem Pump Station, DWU will use all recycled water discharged to Lake Ray Hubbard from NTMWD-operated WWTPs.

DWU identified in the 2014 Dallas Long Range Water Supply Plan (LRWSP) a Main Stem Balancing Reservoir. The Main Stem Balancing Reservoir is an off-channel reservoir that will store Dallas' permitted

reuse. The Main Stem Balancing Reservoir is anticipated to be constructed and connected by 2050 and has a project yield of 102 MGD.

### **5.16.3 Return Flow Permits**

Dallas has received a State water right permit for the return flows from its Southside and Central wastewater treatment plants as well as the City of Lewisville and Town of Flower Mound wastewater treatment plants.

### **5.17 Method to Monitor the Effectiveness of the Plan**

The effectiveness and efficiency of the water conservation program will be monitored on an ongoing basis by DWU staff. DWU determines the extent of water conservation by compiling implementation data, monitoring water consumption, modeling water demand, and tracking water conservation costs.

*Annual Report on Water Conservation Activities* – 30 TAC § 288 requires that each entity that is required to submit a water conservation plan to the TWDB or the TCEQ shall file an annual report to the TWDB on the entity's progress in implementing each of the minimum requirements in their water conservation plan. The 2019 report will be submitted May 1, 2019, in accordance with the requirement, provided in Appendix K.

*Quantified Marketing Analysis* – DWU conducts surveys at the conclusion of each year's local and regional public awareness campaigns to evaluate and improve their effectiveness. Results are analyzed and used in planning for the subsequent year.

**APPENDIX A:**

**UTILITY PROFILES FOR MUNICIPAL RETAIL SUPPLIERS**



**Texas Commission on Environmental Quality**  
**UTILITY PROFILE AND WATER CONSERVATION PLAN**  
**REQUIREMENTS FOR MUNICIPAL WATER USE**  
**BY RETAIL PUBLIC WATER SUPPLIERS**

This form is provided to assist retail public water suppliers in water conservation plan development. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4691.

Name: City of Dallas Water Utilities

Address: 1500 Marilla St., Room 4AS, Dallas, TX 75201

Telephone Number: (214) 2431175 Fax: (214) 6705244

Water Right No.(s): 057004

Regional Water Planning Group: Region C

Form Completed by: \_\_\_\_\_

Title: \_\_\_\_\_

Person responsible for implementing conservation program: Holly Holt-Torres on behalf of the City of Dallas Water Utilities Phone: (214) 2431175

Signature: \_\_\_\_\_

Holly Holt-Torres Date: 4/12/2019

**2**

**NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.**

## UTILITY PROFILE

### I. POPULATION AND CUSTOMER DATA

#### A. Population and Service Area Data

1. Attach a copy of your service-area map and, if applicable, a copy of your Certificate of Convenience and Necessity (CCN).
2. Service area size (in square miles): 699  
(Please attach a copy of service-area map)
3. Current population of service area: 2,460,490
4. Current population served for:
  - a. Water 2,460,490 - (Retail - 1,286,380 / Wholesale - 1,084,010)
  - b. Wastewater 1,345,990 - (Retail - 1,239,074 / Wholesale - 106,916)

5. Population served for previous five years:
6. Projected population for service area in the following decades:

<i>Year</i>	<i>Population</i>	<i>Year</i>	<i>Population</i>
2017	2,431,140	2020	3,062,874
2016	2,345,170	2030	3,527,191
2015	2,493,030	2040	3,995,923
2014	2,469,220	2050	4,488,158
2013	2,427,010	2060	4,941,083

7. List source or method for the calculation of current and projected population size.  
North Texas Council of Governments (NCTOG)

#### B. Customers Data

Senate Bill 181 requires that uniform consistent methodologies for calculating water use and conservation be developed and available to retail water providers and certain other water use sectors as a guide for preparation of water use reports, water conservation plans, and reports on water conservation efforts. A water system must provide the most detailed level of customer and water use data available to it, however, any new billing system purchased must be capable of reporting data for each of the sectors listed below. [http://www.tceq.texas.gov/assets/public/permitting/watersupply/water\\_rights/sb181\\_guidance.pdf](http://www.tceq.texas.gov/assets/public/permitting/watersupply/water_rights/sb181_guidance.pdf)

1. Current number of active connections. Check whether multi-family service is counted as  Residential or  Commercial?

<i>Treated Water Users</i>	<i>Metered</i>	<i>Non-Metered</i>	<b>Totals</b>
Residential	251,319		251,319
Single-Family			
Multi-Family			
Commercial	42,145		42,145
Industrial/Mining	88		88
Institutional	1256		1,256
Agriculture			
Other/Wholesale	44		44

2. List the number of new connections per year for most recent three years.

<i>Year</i>	2017	2016	2015
<i>Treated Water Users</i>	1,671	1,431	1,155
Residential			
Single-Family			
Multi-Family			
Commercial			
Industrial/Mining			
Institutional			
Agriculture			
Other/Wholesale			

3. List of annual water use for the five highest volume customers.

	<i>Customer</i>	<i>Use (1,000 gal/year)</i>	<i>Treated or Raw Water</i>
1.	Texas Instruments Inc.	1,490,000	Treated
2.	Niagra Bottling, LLC	460,000	Treated
3.	UT Southwestern Medical Center	436,000	Treated
4.	White Wave Food Company Dallas County Hospital	301,000	Treated
5.	District/Pleasant Grove Health Clinic	244,000	Treated

## II. WATER USE DATA FOR SERVICE AREA

### A. Water Accounting Data

1. List the amount of water use for the previous five years (in 1,000 gallons). Indicate whether this is  diverted or  treated water.

<u>Year</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<i>Month</i>					
January	5,082,785	4,125,966	4,116,801	5,237,512	4,544,955
February	4,013,230	4,116,903	3,222,331	3,959,130	4,059,796
March	4,334,933	4,239,746	4,631,803	4,717,331	4,862,878
April	4,400,027	4,700,603	4,087,687	4,375,541	3,967,167
May	5,745,108	5,035,775	3,894,255	4,890,156	5,499,844
June	5,331,751	5,723,566	4,672,712	4,056,940	5,693,851
July	6,466,383	6,169,392	6,292,386	5,787,603	5,266,730
August	7,498,577	6,208,026	7,690,490	7,416,441	6,584,378
September	6,794,831	6,899,943	7,972,055	5,898,552	5,627,763
October	7,067,603	6,590,231	6,919,294	6,314,960	7,129,105
November	4,517,115	4,656,947	5,131,610	4,902,758	4,645,202
December	4,915,347	4,925,130	4,633,744	4,565,618	4,664,580
<b>Totals</b>	<b>66,167,690</b>	<b>63,392,228</b>	<b>63,265,168</b>	<b>62,122,542</b>	<b>62,546,249</b>

Describe how the above figures were determine (e.g, from a master meter located at the point of a diversion from the source, or located at a point where raw water enters the treatment plant, or from water sales).

The above numbers were collected from our billing software SAP that tracks water consumption by classes and accounts.

2. Amount of water (in 1,000 gallons) delivered/sold as recorded by the following account types for the past five years.

<u>Year</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<i>Account Types</i>					
Residential					
Single-Family	25,528,479	24,786,003	24,319,109	23,570,889	23,372,313
Multi-Family	16,521,958	15,970,413	22,064,255	15,944,116	16,584,410
Commercial	17,473,850	16,849,820	16,578,684	16,478,527	16,208,189
Industrial/Mining	5,302,885	4,627,648	4,927,648	4,641,502	5,027,407
Institutional	1,340,517	1,158,522	1,391,957	1,493,508	1,355,930
Agriculture					
Other/Wholesale	54,452,327	53,059,688	51,723,313	53,778,653	55,458,814



3. List the previous records for water loss for the past five years (the difference between water diverted or treated and water delivered or sold).

<i>Year</i>	<i>Amount (gallons)</i>	<i>Percent %</i>
2013	14,052,400,000	9.74%
2014	1,113,045,5815	12%
2015	13,040,930,643	15%
2016	6,861,320,851	8.58%
2017	5,228,231,303	6.61%

*B. Projected Water Demands*

If applicable, attach or cite projected water supply demands from the applicable Regional Water Planning Group for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirements from such growth.

**III. WATER SUPPLY SYSTEM DATA**

*A. Water Supply Sources*

List all current water supply sources and the amounts authorized (in acre feet) with each.

<i>Water Type</i>	<i>Source</i>	<i>Amount Authorized Acre Feet/Year</i>
Surface Water	Lake Grapevine	85,019
	Elm Fork System	1,2030,305
	Additional Elm Fork Return Flows	247,216
	Lake Palestine	114,255
	Lake Ray Hubbard	89,724
	Lake Tawakoni	190,425
	Lake Fork	131,057

Elm Fork System: Lake Ray Roberts, Lake Lewisville and run-of-river diversions made at Frasier Dam.

*B. Treatment and Distribution System*

1. Design daily capacity of system (MGD): 900
2. Storage capacity (MGD):
  - a. Elevated 14.1
  - b. Ground 231
3. If surface water, do you recycle filter backwash to the head of the plant?  
 Yes       No      If yes, approximate amount (MGD):

**IV. WASTEWATER SYSTEM DATA**

*A. Wastewater System Data (if applicable)*

1. Design capacity of wastewater treatment plant(s) (MGD): 280
2. Treated effluent is used for  on-site irrigation,  off-site irrigation, for  plant wash-down, and/or for  chlorination/dechlorination.  
  
If yes, approximate amount (in gallons per month): 41,397,342 gallons per month
3. Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and the receiving stream if wastewater is discharged.

*B. Wastewater Data for Service Area (if applicable)*

1. Percent of water service area served by wastewater system: 100 %
2. Monthly volume treated for previous five years (in 1,000 gallons):

<u>Year</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
<u>Month</u>					
January	<u>3,968,144</u>	<u>3,441,912</u>	<u>3,439,298</u>	<u>4,475,556</u>	<u>3,657,370</u>
February	<u>3,319,101</u>	<u>3,456,701</u>	<u>2,768,803</u>	<u>3,309,871</u>	<u>3,277,322</u>
March	<u>3,506,456</u>	<u>3,521,579</u>	<u>3,920,449</u>	<u>3,680,551</u>	<u>3,854,237</u>
April	<u>3,452,072</u>	<u>3,708,860</u>	<u>3,452,039</u>	<u>3,328,513</u>	<u>3,102,245</u>
May	<u>4,194,692</u>	<u>3,684,563</u>	<u>3,174,574</u>	<u>3,776,916</u>	<u>4,074,375</u>
June	<u>3,924,838</u>	<u>3,964,597</u>	<u>3,729,165</u>	<u>2,890,748</u>	<u>4,050,217</u>
July	<u>4,148,223</u>	<u>4,111,420</u>	<u>4,215,687</u>	<u>3,717,721</u>	<u>3,675,555</u>

August	4,628,444	3,985,137	4,313,864	4,547,875	4,369,906
September	3,982,762	4,373,200	4,305,361	3,764,439	3,397,718
October	4,676,614	4,424,786	4,094,847	4,127,076	4,529,500
November	3,424,517	3,422,717	3,587,890	3,461,778	3,748,534
December	4,141,575	3,876,347	3,671,620	3,583,973	3,517,872
<b>Totals</b>	47,367,434	45,971,818	44,673,597	44,665,016	45,254,850

**V. ADDITIONAL REQUIRED INFORMATION**

*In addition to the utility profile, please attach the following as required by Title 30, Texas Administrative Code, §288.2. Note: If the water conservation plan does not provide information for each requirement, an explanation must be included as to why the requirement is not applicable.*

*A. Specific, Quantified 5 & 10-Year Targets*

The water conservation plan must include specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in gallons per capita per day. Note that the goals established by a public water supplier under this subparagraph are not enforceable

*B. Metering Devices*

The water conservation plan must include a statement about the water suppliers metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply.

*C. Universal Metering*

The water conservation plan must include and a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement.

*D. Unaccounted- For Water Use*

The water conservation plan must include measures to determine and control unaccounted-for uses of water (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.).

*E. Continuing Public Education & Information*

The water conservation plan must include a description of the program of continuing public education and information regarding water conservation by the water supplier.

*F. Non-Promotional Water Rate Structure*

The water supplier must have 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. This rate structure must be listed in the water conservation plan.

*G. Reservoir Systems Operations Plan*

The water conservation plan must include a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plan shall include optimization of water supplies as one of the significant goals of the plan.

*H. Enforcement Procedure and Plan Adoption*

The water conservation plan must include a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan.

*I. Coordination with the Regional Water Planning Group(s)*

The water conservation plan must include documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

*J. Plan Review and Update*

A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. The revised plan must also include an implementation report.

## **VI. ADDITIONAL REQUIREMENTS FOR LARGE SUPPLIERS**

*Required of suppliers serving population of 5,000 or more or a projected population of 5,000 or more within ten years*

### *A. Leak Detection and Repair*

The plan must include a description of the program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted for uses of water.

### *B. Contract Requirements*

A requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

## **VII. ADDITIONAL CONSERVATION STRATEGIES**

### *A. Conservation Strategies*

Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements of this chapter, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:

1. Conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;

2. Adoption of ordinances, plumbing codes, and/or rules requiring water conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;
3. A program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;
4. A program for reuse and/or recycling of wastewater and/or graywater;
5. A program for pressure control and/or reduction in the distribution system and/or for customer connections;
6. A program and/or ordinance(s) for landscape water management;
7. A method for monitoring the effectiveness and efficiency of the water conservation plan; and
8. Any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

### ***Best Management Practices***

*The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: <http://www.twdb.state.tx.us/conservation/bmps/index.asp>*

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact 512-239-3282.

**APPENDIX B:**

**UTILITY PROFILES FOR WHOLESALE SUPPLIERS**



# Texas Commission on Environmental Quality

## PROFILE AND WATER CONSERVATION PLAN REQUIREMENTS FOR WHOLESALE PUBLIC WATER SUPPLIERS

This form is provided to assist wholesale public water suppliers in water conservation plan development. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4691.

Name: City of Dallas Water Utilities

Address: 1500 Marilla St., Room 2AN, Dallas, TX 75201

Telephone Number: (214) 2431175 Fax: (214) 6705244

Water Right No.(s): 057004

Regional Water Planning Group: Region C

Form Completed by: \_\_\_\_\_

Title: \_\_\_\_\_

Person responsible for implementing conservation program: Holly Holt-Torres on behalf of the City of Dallas Water Utilities Phone: (214) 2431175

Signature: *Holly R Holt-Torres* Date: 4/11/2019

**NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.**

### PROFILE

#### I. WHOLESALE SERVICE AREA POPULATION AND CUSTOMER DATA

##### A. Population and Service Area Data

1. Service area size (in square miles): 699  
(Please attach a copy of service-area map)
2. Current population of service area: 2,460,490



3. Current population served for:
  - a. Water 2,460,490 (2018) - (Retail - 1,286,380 / Wholesale - 1,084,010)
  - b. Wastewater 1,345,990 - (Retail - 1,239,074 / Wholesale - 106,916)
  
4. Population served for previous five years:
5. Projected population for service area in the following decades:

Year	Population	Year	Population
2017	2,431,410	2020	3,062,874
2016	2,345,170	2030	3,527,191
2015	2,493,030	2040	3,995,923
2014	2,469,220	2050	4,488,158
2013	2,427,010	2060	4,941,083

6. List source or method for the calculation of current and projected population size.  
NCTCOG – North Central Texas Council of Governments

*B. Customers Data*

List (or attach) the names of all wholesale customers, amount of annual contract, and amount of annual use for each customer for the previous year:

	Wholesale Customer	Contracted Amount (acre-feet)	Previous Year Amount of Water Delivered (acre-feet)
1.	Addison	12,322	5,333
2.	Balch Springs	4,705	2,461
3.	Carrollton	45,926	21,626
4.	Cedar Hill	11,201	6,663
5.	Cockrell Hill	Flat Rate - Unspecified	606
6.	Combine WSC	Flat Rate - Unspecified	296
7.	Coppell	20,723	9,998
8.	DeSoto	16,424	8,355
9.	Duncanville	10,641	4,820
10.	Farmers Branch	19,042	8,023
11.	Flower Mound	12,322	6,136
12.	Glenn Heights	37,861	20,153

13.	Grand Prairie	37,861	20,153
14.	Hutchins	Flat Rate - Unspecified	1,652
15.	Irving	78,074	11,462
16.	Lancaster	8,961	6,121
17.	Lewisville	10,081	10,549
18.	Ovilla	Flat Rate - Unspecified	547
19.	Red Oak	1,680	1,055
20.	Seagoville	5,265	1,773
21.	The Colony	6,721	4,111
22.	DCPCMUD	Flat Rate - Unspecified	53
23.	DFW Airport	3,921	2,503
24.	Upper Trinity Regional Water District	Flat Rate - Unspecified	255
25.	Grapevine (Raw)	2,016	583
26.	Irving (Raw)	Interruptible Rate - Unspecified	547
27.	Lewisville (Raw)	7,393	7,179
28.	Upper Trinity Regional Water District (Raw)	18,482	7,884

## II. WATER USE DATA FOR SERVICE AREA

### A. Water Delivery

Indicate if the water provided under wholesale contracts is treated or raw water and the annual amounts for the previous five years (in acre feet):

Year	Treated Water	Raw Water
2017	136,108	30,087
2016	131,987	44,996
2015	128,707	43,713
2014	131,130	97,221
2013	133,587	76,401
<b>Totals</b>	<b>661,519</b>	<b>292,418</b>

### B. Water Accounting Data

- Total amount of water diverted at the point of diversion(s) for the previous five years (in 1000 gallons) for all water uses:

Year	2013	2014	2015	2016	2017
<i>Month</i>					
January	2,97,948	2,464,260	2,652,531	2,958,850	3,023,146
February	2,743,778	2,712,868	2,116,484	2,916,897	2,856,897
March	3,015,405	2,689,607	2,489,864	2,899,178	3,068,791
April	3,087,085	3,132,167	2,620,167	3,220,240	3,457,334
May	3,604,093	3,776,630	2,815,624	3,228,346	4,011,753
June	3,924,975	3,926,879	3,541,708	3,598,393	3,919,847
July	4,954,270	4,299,971	4,755,622	4,783,582	4,596,715
August	4,851,451	4,435,255	5,496,856	4,690,765	4,065,049
September	5,261,119	4,955,975	5,297,279	4,575,481	4,776,325
October	3,364,718	4,093,897	4,140,315	3,586,927	5,028,764
November	2,813,576	3,317,143	3,286,832	3,628,704	4,213,497
December	2,981,129	2,924,256	2,726,018	2,920,741	3,977,144
<b>Totals</b>	<b>43,529,547</b>	<b>42,728,908</b>	<b>41,939,300</b>	<b>43,008,104</b>	<b>46,995,262</b>

2. Wholesale population served and total amount of water diverted for **municipal use** for the previous five years (in acre-feet):

Year	Total Population Served	Total Annual Water Diverted for Municipal Use
2017	1,160,970	450,565
2016	1,136,360	470,744
2015	1,248,760	467,785
2014	1,236,860	505,900
2013	1,213,410	491,550

C. *Projected Water Demands*

If applicable, project and attach water supply demands for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirements from such growth.

**III. WATER SUPPLY SYSTEM DATA**

A. *Projected Water Demands*

List all current water supply sources and the amounts authorized (in acre feet) with each.

Water Type	Source	Amount Authorized
Surface Water	Lake Grapevine	85,019
	Elm Fork System	1,2030,305
	Additional Elm Fork Return Flows	247,216
	Lake Palestine	114,255
	Lake Ray Hubbard	89,724
	Lake Tawakoni	190,425
	Lake Fork	131,057

Elm Fork System: Lake Ray Roberts, Lake Lewisville and run-of-river diversions made at Frasier Dam.

B. *Treatment and Distribution System (if providing treated water)*

1. Design daily capacity of system (MGD): 900
2. Storage capacity (MGD):
  - c. Elevated 14.1
  - d. Ground 231
3. Please attach a description of the water system. Include the number of treatment plants, wells, and storage tanks.  
Please refer to the fact sheet attached to this form.

**IV. WASTEWATER SYSTEM DATA**

A. *Wastewater System Data (if applicable)*

1. Design capacity of wastewater treatment plant(s) (MGD): 280
2. Briefly describe the wastewater system(s) of the area serviced by the wholesale public water supplier. Describe how treated wastewater is disposed. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and the receiving stream if wastewater is discharged.

B. *Wastewater Data for Service Area (if applicable)*

1. Percent of water service area served by wastewater system: 100 %
2. Monthly volume treated for previous five years (in 1,000 gallons):

<i>Year</i>	2013	2014	2015	2016	2017
<i>Month</i>					
January	356,832	330,631	359,703	368,525	350,785
February	338,606	347,723	360,827	351,951	339,761
March	331,995	314,434	374,992	369,059	328,942
April	342,603	325,477	374,387	402,196	358,995
May	330,575	336,927	474,269	373,434	338,555
June	323,309	327,893	377,376	396,661	376,674
July	333,001	324,575	292,537	325,001	372,427
August	308,781	310,704	321,381	322,509	342,225
September	337,633	338,076	292,011	329,278	354,160
October	312,353	303,466	317,937	328,156	376,674
November	322,086	315,589	436,163	348,928	372,427
December	355,650	324,106	425,800	336,030	342,225

<b>Totals</b>	3,993,424	3,899,601	4,407,383	4,251,728	4,253,850
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**V. ADDITIONAL REQUIRED INFORMATION**

*In addition to the description of the wholesaler’s service area (profile from above), a water conservation plan for a wholesale public water supplier must include, at a minimum, additional information as required by Title 30, Texas Administrative Code, Chapter 288.5. Note: If the water conservation plan does not provide information for each requirement an explanation must be included as to why the requirement is not applicable.*

*A. Specific, Quantified 5 & 10-Year Targets*

The water conservation plan must include specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler’s service area, maximum acceptable unaccounted-for water, and the basis for the development of these goals. Note that the goals established by wholesale water suppliers under this subparagraph are not enforceable.

*B. Metering Devices*

The water conservation plan must include a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply.

*C. Record Management Program*

The water conservation plan must include a monitoring and record management program for determining water deliveries, sales, and losses.

*D. Metering/Leak-Detection and Repair Program*

The water conservation plan must include a program of metering and leak detection and repair for the wholesaler’s water storage, delivery, and distribution system.

*E. Reservoir Systems Operations Plan*

The water conservation plan must include a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plan shall include optimization of water supplies as one of the significant goals of the plan.

*F. Contract Requirements for Successive Customer Conservation*

The water conservation plan must include a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of Title 30 TAC Chapter 288. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

*G. Enforcement Procedure and Official Adoption*

The water conservation plan must include a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan.

*H. Coordination with the Regional Water Planning Group(s)*

The water conservation plan must include documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

Example statement to be included within the water conservation plan:

*The service area of the \_\_\_\_\_ (name of water supplier) is located within the \_\_\_\_\_ (name of regional water planning area or areas) and \_\_\_\_\_ (name of water supplier) has provided a copy of this water conservation plan to the \_\_\_\_\_ (name of regional water planning group or groups).*

*I. Plan Review and Update*

A wholesale water supplier shall review and update its water conservation plan, as appropriate based on an assessment of previous five-year and ten-year targets and any other new or updated information. A wholesale water supplier shall review and update the next revision of its water conservation plan no later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. The revised plan must also include an implementation report.

*J. Additional Conservation Strategies*

Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of this chapter, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:

1. Conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
2. A program to assist agricultural customers in the development of conservation, pollution prevention and abatement plans;
3. A program for reuse and/or recycling of wastewater and/or graywater;
4. A cost-share program;
5. A technical assistance and outreach program;
6. A program for purchase and direct distribution of water conservation equipment; and
7. Any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

### ***Best Management Practices***

*The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: <http://www.twdb.state.tx.us/conservation/bmps/index.asp>*

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact 512-239-3282.



**APPENDIX C:**

**WATER SUPPLY SYSTEM DATA**

# DWU Wholesale Customers

## Demands and Usage for CY2017

Wholesale Customer	"Contracted" Amount (Ac-Ft/Yr)	Calendar Year 2017 Usage (Ac-Ft/Yr)
<b>Treated Water</b>		
Addison	12,322	5,333
Balch Springs	4,705	2,461
Carrollton	45,926	21,626
Cedar Hill	11,201	6,663
Cockrell Hill	Flat Rate - Unspecified	606
Combine WSC	Flat Rate - Unspecified	296
Coppell	20,723	9,998
*DCPCMUD	Flat Rate - Unspecified	53
D/FW Airport	3,921	2,503
DeSoto	16,242	8,355
Duncanville	10,641	4,820
Farmers Branch	19,042	8,023
Flower Mound	12,322	6,136
Glenn Heights	2,576	1,557
Grand Prairie	37,861	20,153
Hutchins	Flat Rate - Unspecified	1,652
Irving	78,074	11,462
Lancaster	8,961	6,121
Lewisville	10,081	10,549
Ovilla	Flat Rate - Unspecified	547
Red Oak	1,680	1,055
Seagoville	5,265	1,773
The Colony	6,721	4,111
*Upper Trinity Regional Water District	Flat Rate - Unspecified	255
<b>Total Amount of Treated Water Sold to Wholesale Customers During Calendar Year 2017:</b>		<b>136,108</b>
<b>Untreated Water</b>		
Grapevine	2,016	583
Irving	Interruptible Rate - Unspecified	14,441
Lewisville	7,393	7,179
Upper Trinity Regional Water District	18,482	7,884
<b>Total Amount of Untreated Water Sold to Wholesale Customers During Calendar Year 2017:</b>		<b>30,087</b>
<b>GRAND TOTAL:</b>		<b>166,196</b>

\*Emergency treated water service.

**APPENDIX D:**

**WATER RIGHTS SOURCES**

<b>Water Rights</b>				
Water Supply Source	Water Right/Permit	Permitted Diversion Acre-Foot/Year	Firm Yield Acre-Foot/Year	Non-Consumptive Hydroelectric Acre-Foot/Year
Ray Roberts Lake	08-2455	591,704.00	181,463.31	115,100.00
Lewisville Lake	08-2456	549,976.00		451,030.00
Elm Fork Trinity River	08-2457	21,678.20		0.00
Elm Fork Trinity River	5414	40,000.00		0.00
Grapevine Lake	08-2458	84,500.00	14,337.84	0.00
White Rock Lake	08-2461	8,703.15	3,215.00	0.00
Lake Ray Hubbard	08-2462	209,300.00	56,007.19	0.00
Reuse <sup>1</sup>	12468	247,200.00	106,804	0.00
Sub-Total		1,753,061.35	361,827.34	566,130.00
<b>Water Contracts</b>				
Lake Tawakoni	1583	184,600.00	184,600.00	0.00
Lake Fork	450	120,000.00	120,000.00	0.00
Lake Palestine	173A	114,337.00	114,337.00	0.00
Sub-Total		418,937.00	418,937.00	0.00
Total Water Supplies		2,171,998.35	780,764.34	566,130.00

Note:

<sup>1</sup>Firm Yield will vary form year to year. Firm yield provided is based on 2018 Central and Southside WWTP discharges and 2018 hydrologic conditions.

**APPENDIX E:**

**STANDARD RATE SCHEDULE**



## Water & Wastewater Retail Rates

Effective October 1, 2018

Customer Charge			
Meter Size	Water	Sewer	Total
5/8* Inch Meter	\$5.33	\$4.78	\$10.11
3/4 Inch Meter	\$7.40	\$6.55	\$13.95
1 Inch Meter	\$10.78	\$9.45	\$20.23
1 1/2 Inch Meter	\$20.00	\$18.30	\$38.30
2 Inch Meter	\$32.54	\$28.50	\$61.04
3 Inch Meter	\$77.00	\$69.50	\$146.50
4 Inch Meter	\$126.62	\$111.42	\$238.04
6 Inch Meter	\$251.45	\$219.31	\$470.76
8 Inch Meter	\$418.53	\$366.09	\$784.62
10 Inch Meter or larger	\$642.66	\$575.21	\$1,217.87

\* 5/8 is the average residential customer size

Usage charge per 1,000 gallons	Water	Sewer
<b>Residential</b>		
Up to 4,000 gallons	\$1.86	\$5.36
4,001 to 10,000 gallons	\$4.00	\$5.36
10,001 to 20,000 gallons	\$6.50	\$5.36
20,001 to 30,000 gallons	\$9.30	\$5.36
Above 30,000 gallons	\$10.70	\$5.36
<b>General Services</b>		
Up to 10,000 gallons	\$3.73	\$4.11
Above 10,000 gallons	\$4.05	\$4.11
Above 10,000 gallons & 1.4 times annual average monthly usage	\$6.15	\$4.11
<b>Optional General Services</b>		
1st million gallons or less (minimum)	\$2,287.29	\$3.86
Above 1 million gals. (per 1,000 gals.)	\$3.24	\$3.86
Sewer Metered Separately		\$3.91
<b>Untreated Water</b>		
Regular Service	\$0.8572	
Interruptible Service	\$0.3440	

The above rates apply if payment is received on or before the due date shown on the bill.

Payments received after the due date will incur a 5% late fee.

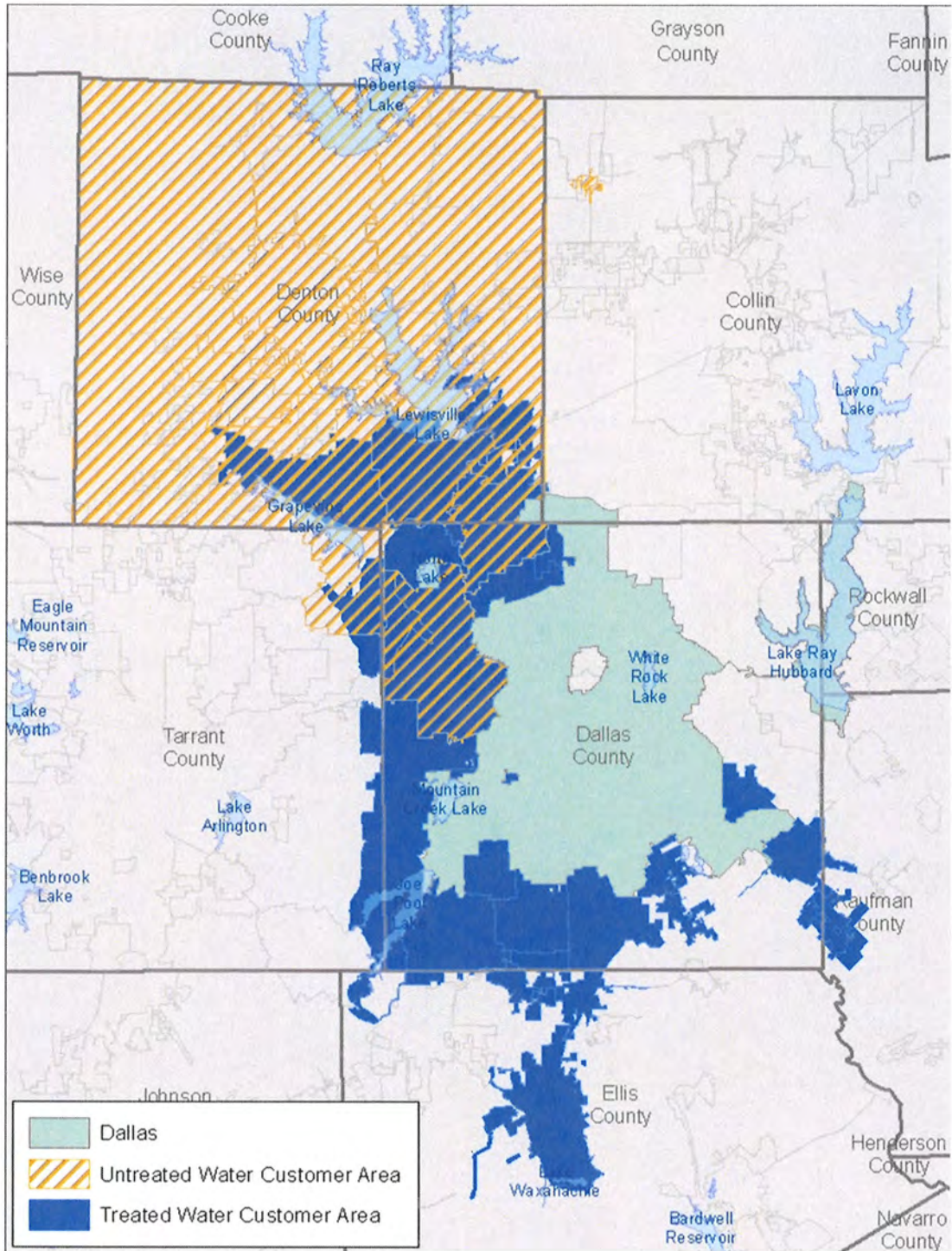
Sewer charges for residential accounts are calculated on an average of the water billed in December, January, February and March (40,000 gallons maximum) or the actual month's water consumption, whichever is less.

Sewer charges for general services and optional general services accounts are based on the month's water consumption unless sewer is metered separately.

Industrial wastewater discharges containing concentrations of BOD and/or Suspended Solids greater than 250 milligrams per liter are assessed sewer surcharges. Certain commercial users such as restaurants, bars/lounges, small food processors and equipment service facilities are assessed standard surcharges. These surcharges are included as part of the monthly bill.

**APPENDIX F:**

**CITY OF DALLAS WATER UTILITIES SERVICE AREA MAP**



City of Dallas Water Utilities service-area map



**APPENDIX G:**

**IMPLEMENTATION SCHEDULE**

**Dallas Water Utilities Conservation Strategies**  
 Implementation Schedule – Subject to annual appropriations approved by Dallas City Council

Strategy	Description	Implementation Date	Status
<b>Metering</b>			
Accurate Supply Source Metering	Comprehensive program to meter water diverted from supply sources within DWU system. Meters calibrated to accuracy of ±1.5% to AWWA standards.	Historically a DWU best management practice.	
Universal Metering, Meter Testing Repair and Periodic Replacement	Metering of all connections. Testing meters to maintain specified accuracy. Periodic 10- or 12-year replacement schedule depending on type of meter and accuracy.	Historically a DWU best management practice.	
<b>Leak Detection</b>			
Leak Detection, Repair & Control of Unaccounted for Water	Program to methodically seek out leaks, illegal connections and abandoned services. DWU maintains an annual budget of \$25M for this purpose.	Historically a DWU best management practice.	
<b>Monitoring &amp; Record Management</b>			
Monitoring & Record Management of Water Deliveries, Sales and Losses	Process in place to routinely monitor all water deliveries and sales to both treated and untreated water customers.	Historically a DWU best management practice.	
<b>Continuing Public Education</b>			
Public Awareness Campaign	DWU conservation program branding "Save Water, Nothing Can Replace It" is used to promote water conservation with various media including television, radio, newspaper, website and social media. DWU has spent a total of \$14.4 million on the public awareness campaign since 2002.	FY2002	Continuing Program
Environmental Education Initiative K-12	Collaborative effort with the Department of Sanitation to provide in-school programs in the Dallas and Richardson Independent School Districts.	FY2006	Continuing Program
Water Conservation Mascot	Water "Dew" drop mascot used to promote conservation at frequent public appearances. Mascot was "elected" over other concepts by Dallas Independent School District students.	FY2006	Continuing Program
Free Irrigation System Inspections	Through the use of two licensed irrigators on staff, DWU provides free automatic irrigation system inspections to customers and makes recommendations for improvements in efficiency. The process serves to educate the customer about the effective use of their system.	FY2007	Continuing Program

WaterWise Landscape Events	WaterWise Landscape Tours and Seminars provided to teach residents about the use of native and adapted plants to reduce outdoor water use.	FY1994	Continuing Program
Other Public Education	DWU promotes water conservation through other outreach events including special events and promotions, speaking engagements, water bill inserts, brochures and signage encouraging conservation at city facilities.	Historically a DWU best management practice.	
<b>New Public Education Measures</b>			
Industrial Commercial and Institutional (ICI) Free Water Efficiency Surveys	Free water efficiency surveys offered to commercial customers to help them find ways to increase water use efficiency.	FY2012	Continuing Program
ICI Hospitality Program	A program to encourage hotels/motels and restaurants to expand their efforts to save water. Participating customers encourage their guests to embrace fewer linen and towel changes and to serve water only upon request in their dining areas.	FY2011	Merged with Industrial Commercial and Institutional (ICI) Free Water Efficiency Surveys Program in 2017
<b>Planned Public Education Measures</b>			
ICI Training Programs	DWU plans to develop, lead and manage ongoing water efficiency training programs for ICI facility managers and irrigators.	FY2020	Pending
ICI Business Partnership Program	DWU plans to establish an ongoing Business Partnership Task Force or work group for the purpose of engaging the ICI community in DWU's water conservation program.	FY2020	Pending
<b>City Leadership and Commitment Measures</b>			
City's Strategies to "Lead by Example"	Included as a major focus in the strategic plan, a commitment to water conservation is demonstrated through structured programs including but not limited to an expanded leak detection program, revised ordinances to promote conservation, and ongoing and continually updated web site and multimedia efforts to promote conservation practices.	FY2006	Continuing Program
Water Conservation Staff	DWU currently maintains 12 staff positions, an increase from seven in 2005. Additional staff has helped with implementation of new conservation strategies as well as routinely measuring the effectiveness of implemented programs.	FY2006	Continuing Program
Retrofit of City-owned Facilities	Beginning with an audit of fixtures at City-owned facilities in 2006, DWU provides funds on an annual basis for upgrades of plumbing fixtures, conversion of landscapes to water-wise landscapes and maintenance and upgrades of automatic irrigation systems.	FY2007	Continuing Program

<b>Planned City Leadership and Commitment Measures</b>		
Water-Wise Landscape Design Requirements	DWU staff is working with the city's Building Inspection Office to revise, upon City Council approval and adoption, its landscape ordinance to limit turf areas in all new landscapes and to require low-water-use landscaping in other areas.	FY2020 Pending
ICI Commercial Equipment Rule	Effective October 12, 2013, the city amended its construction code to require certain water efficiency standards for new and newly-occupied ICI establishments.	FY2014 Continuing Program
<b>Rebate and Incentive Programs</b>		
Toilet Voucher Program	The <i>New Throne for Your Home</i> program offers vouchers and rebates to DWU residential customers for replacement of older, water-wasting toilets with more efficient models. To date, more than 110,000 toilets have been replaced through this program at a projected annual water savings of over 392 MG.	FY2007 Continuing Program
Minor Plumbing Repair Program (MPR)	The MPR program serves low-to-moderate income water customers by assisting them with minor plumbing repairs and replacement of water-wasting fixtures. To date, over 4,300 families have participated with a projected annual water savings of over 26 MG.	FY2006 Continuing Program
<b>New Rebate and Incentive Measures Since 2010 Plan Update</b>		
ICI Rebate Program	Rebates available to ICI customers for conservation projects. Several customers have been identified as potential recipients to date. Others continue through the required preliminary free audit process.	FY2010 Continuing Program
<b>Planned Rebate and Incentive Measures</b>		
Residential Irrigation System Incentives	DWU is currently developing a program to offer rebates for residential irrigations system upgrades, subject to City Council approval.	FY2021 Pending
Residential Clothes Washer Incentive	DWU is currently developing a program to offer rebates to residential customers for replacement of old inefficient clothes washers, subject to City Council approval.	FY2021 Pending
<b>Non-promotional Water Rate Structure</b>		
Increase Block Rate Structure	DWU has a conservation-oriented rate structure for customers whereby rates increase as consumption increases by classified increments.	FY2001 Continuing Process
Wholesale Customer Water Rates	The rates structure for 97 percent of wholesale treated water customers based on demand and volume. The remaining three percent is charged at a flat volume rate.	Historically a DWU best management practice.
<b>Water Conservation Wholesale Water Supply Contracts</b>		
Conservation Requirement	Current contracts between the City of Dallas and wholesale customers require the customer to develop a water conservation plan that	FY2014 Continuing Practice

	incorporates loss-reduction measures and demand management practices.		
Conservation Requirement for Resell of Water Purchased from DWU	In accordance with 30 TAC chapter 288, new and/or renewed contracts require that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of Chapter 288.	FY2001	Continuing Practices
<b>Reservoir Systems Operation Plan</b>			
Economical and Efficient Operation of Distribution System	DWU operates the water supply system to achieve the most economical operation consistent with assuring adequate supply for future years, maintenance of water rights, and maintenance requirements of the supply and transmission facilities. Reservoir operating procedures are periodically updated in order to balance these factors as conditions change.		Historically a DWU best management practice.
<b>Means to Implement and Enforce the Water Conservation Plan</b>			
Measures to Implement the Plan	City of Dallas has a water conservation ordinance enforced by the Department of Code Compliance. Clauses within the wholesale water supply contracts require development of water conservation plans to ensure that available supplies are used efficiently.		Historically a DWU best management practice.
<b>Coordination with Regional Water Planning Group</b>			
DWU will provide a copy of this Plan to the Region C Water Planning Group	DWU not only provides leadership within the Regional Water Planning Group (RWPG), it also works with the RWPG to improve efficient utilization of existing water supplies and/or develop new resources to help meet the needs of the entire region.	FY2002	Continuing Practice
<b>Desegregation of Water Sales Customer Care</b>			
DWU Customer Classes	DWU segregates customers into the following user classes: Residential, General Services, Optional Services and Municipal.		Historically a DWU best management practice.
<b>Plumbing Code Ordinances</b>			
Amendment of City Plumbing Code	Effective October 12, 2013, the city amended its construction code by adopting the 2012 Edition of the International Green Building Construction Code of the International Code Council which requires water efficiency standards for new residential and commercial properties.	FY2014	Continuing Practice
<b>Water Waste Prohibition</b>			
DWU Water and Wastewater Ordinances	The city amended its ordinances in 2001 to prohibit water waste from lawn and landscape irrigation and to require all automatic irrigation systems have a rain and freeze sensor installed. In April of 2012, a	FY2002	Continuing Practice

	maximum of twice-weekly watering schedule for lawns and landscapes was added to the city's ordinances.		
<b>Waste Water Reuse and Recycling</b>			
Direct Reuse	DWU provides recycled water from the Central WWTP to the Dallas Zoo, Cedar Crest and Stevens Park golf courses for irrigation. DWU plans to add additional customers on this line in the future for non-potable applications. DWU also plans to develop the White Rock Pipeline Alternative to provide recycled water for non-potable applications.	FY2000	Continuing Practice
Indirect Reuse	DWU and North Texas Municipal Water District (NTMWD) have mutually agreed to an exchange of recycled water.	Work In Progress	
<b>Return Flow Permit</b>			
Permit	Dallas has received a State water right permit for the return flows from its wastewater treatment plants as well as the treatment plants of other entities.	Work In Progress	
<b>Method to Monitor the Effectiveness of the Plan</b>			
Annual Report on Water Conservation Activities	DWU staff measures the effectiveness of its water conservation programs on an ongoing basis. DWU will submit an Annual Report to the TCEQ as required by 30 TAC Chapter 288.	FY2010	Continuing Practice
Quantified Marketing Analysis	DWU conducts surveys at the conclusion of each year's public awareness campaign to evaluate and improve the effectiveness of the campaign. Results are analyzed and used in planning for subsequent years.	FY2002	Continuing Practice

**APPENDIX H:**

**CITY COUNCIL RESOLUTION**

April 24, 2019

**WHEREAS**, the Texas Commission on Environmental Quality (TCEQ) requires municipal and wholesale water suppliers to submit an updated Water Conservation Plan approved by the City Council every five years; and

**WHEREAS**, Section 49.20 of the Dallas City Code requires the Director of Dallas Water Utilities to promulgate and submit a Water Conservation Plan to the City Council for approval; and

**WHEREAS**, the updates for the Water Conservation Plan have been completed and meet all the requirements of the TCEQ.

**Now, Therefore,**

**BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DALLAS:**

**SECTION 1.** That the 2019 Water Conservation Plan is hereby approved and adopted.

**SECTION 2.** That the City Manager is hereby authorized to submit the 2019 Water Conservation Plan to the TCEQ as required by state law.

**SECTION 3.** That the City Manager is hereby authorized to undertake necessary actions to implement the adopted 2019 Water Conservation Plan.

**SECTION 4.** That this resolution shall take effect immediately from and after its passage in accordance with the provisions of the Charter of the City of Dallas, and it is accordingly so resolved.





**APPENDIX I:**

**COORDINATION WITH REGION C PLANNING GROUP**



**dallas water utilities**  
**city of dallas**

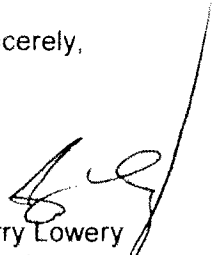
Mr. Kevin Ward, Chair  
Region C Water Planning Group  
c/o Trinity River Authority  
P.O. Box 60  
Arlington, TX 76004

Dear Mr. Ward:

In accordance with Texas Administrative Code, Title 30, Chapter 288, the City of Dallas respectfully submits the attached Water Conservation and Drought Contingency Plans as required. The plans were approved by the Dallas City Council on April 24, 2019 and will be submitted to the Texas Commission on Environmental Quality.

Please let me know if you have any questions regarding the attached plans.

Sincerely,



Terry Lowery  
Director  
City of Dallas Water Utilities

Attachments

Our Vision: To be an efficient provider of superior water and wastewater service and a leader in the water industry.

1500 Marilla, 4AN, Dallas, Texas 75201  
Telephone: (214) 670-3146 • Fax: (214) 670-3154

**APPENDIX J:**

**TITLE 30 CHAPTER 288, SUBCHAPTER A OF TEXAS ADMINISTRATIVE CODE**

**SUBCHAPTER A: WATER CONSERVATION PLANS**  
**§§288.1 - 288.7**  
**Effective August 16, 2018**

**§288.1. Definitions.**

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

(1) Agricultural or Agriculture--Any of the following activities:

(A) cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;

(B) the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower;

(C) 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;

(D) raising or keeping equine animals;

(E) wildlife management; and

(F) 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.

(2) Agricultural use--Any use or activity involving agriculture, including irrigation.

(3) Best management practices--Voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and that can be implemented within a specific time frame.

(4) Conservation--Those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses.

(5) Commercial use--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.

(6) Drought contingency plan--A strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).

(7) Industrial use--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.

(8) Institutional use--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.

(9) Irrigation--The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water from a public water supplier.

(10) Irrigation water use efficiency--The percentage of that amount of irrigation water which is beneficially used by agriculture crops or other vegetation relative to the amount of water diverted from the source(s) of supply. Beneficial uses of water for irrigation purposes include, but are not limited to, evapotranspiration needs for vegetative maintenance and growth, salinity management, and leaching requirements associated with irrigation.

(11) Mining use--The use of water for mining processes including hydraulic use, drilling, washing sand and gravel, and oil field re-pressuring.

(12) Municipal use--The use of potable water provided by a public water supplier as well as the use of sewage effluent for residential, commercial, industrial, agricultural, institutional, and wholesale uses.

(13) Nursery grower--A person engaged in the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or nonsoil media, who grows more than 50% of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, grow means the actual cultivation or propagation of

the product beyond the mere holding or maintaining of the item prior to sale or lease, and typically includes activities associated with the production or multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.

(14) Pollution--The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

(15) Public water supplier--An individual or entity that supplies water to the public for human consumption.

(16) Regional water planning group--A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.

(17) 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.

(18) Residential use--The use of water that is billed to single and multi-family residences, which applies to indoor and outdoor uses.

(19) Retail public water supplier--An individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.

(20) Reuse--The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.

(21) Total use--The volume of raw or potable water provided by a public water supplier to billed customer sectors or nonrevenue uses and the volume lost during conveyance, treatment, or transmission of that water.

(22) Total gallons per capita per day (GPCD)--The total amount of water diverted and/or pumped for potable use divided by the total permanent population divided by the days of the year. Diversion volumes of reuse as defined in

this chapter shall be credited against total diversion volumes for the purposes of calculating GPCD for targets and goals.

(23) Water conservation coordinator--The person designated by a retail public water supplier that is responsible for implementing a water conservation plan.

(24) Water conservation plan--A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

(25) Wholesale public water supplier--An individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.

(26) Wholesale use--Water sold from one entity or public water supplier to other retail water purveyors for resale to individual customers.

Adopted July 25, 2018

Effective August 16, 2018

**§288.2. Water Conservation Plans for Municipal Uses by Public Water Suppliers.**

(a) A water conservation plan for municipal water use by public water suppliers must provide information in response to the following. If the plan does not provide information for each requirement, the public water supplier shall include in the plan an explanation of why the requirement is not applicable.

(1) Minimum requirements. All water conservation plans for municipal uses by public water suppliers must include the following elements:

(A) a utility profile in accordance with the Texas Water Use Methodology, including, but not limited to, information regarding population and customer data, water use data (including total gallons per capita per day (GPCD) and residential GPCD), water supply system data, and wastewater system data;

(B) a record management system which allows for the classification of water sales and uses into the most detailed level of water use data currently available to it, including, if possible, the sectors listed in clauses (i) - (vi) of this subparagraph. Any new billing system purchased by a public water supplier must be capable of reporting detailed water use data as described in clauses (i) - (vi) of this subparagraph;

- (i) residential;
  - (I) single family;
  - (II) multi-family;
- (ii) commercial;
- (iii) institutional;
- (iv) industrial;
- (v) agricultural; and,
- (vi) wholesale.

(C) specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in total GPCD and residential GPCD. The goals established by a public water supplier under this subparagraph are not enforceable;

(D) metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply;

(E) a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;

(F) 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.);

(G) a program of continuing public education and information regarding water conservation;



(H) 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;

(I) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies; and

(J) a means of implementation and enforcement which shall be evidenced by:

(i) a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan by the water supplier; and

(ii) a description of the authority by which the water supplier will implement and enforce the conservation plan; and

(K) documentation of coordination with the regional water planning groups for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.

(2) Additional content requirements. Water conservation plans for municipal uses by public drinking water suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the next ten years subsequent to the effective date of the plan must include the following elements:

(A) a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system;

(B) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of this chapter.

(3) Additional conservation strategies. Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements in paragraphs (1) and (2) of this subsection, if they are necessary to achieve the stated water conservation goals of the plan. The commission may require that any of the following strategies be implemented by the water supplier if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan:

(A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;

(B) adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;

(C) a program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;

(D) reuse and/or recycling of wastewater and/or graywater;

(E) a program for pressure control and/or reduction in the distribution system and/or for customer connections;

(F) a program and/or ordinance(s) for landscape water management;

(G) a method for monitoring the effectiveness and efficiency of the water conservation plan; and

(H) any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(b) A water conservation plan prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a memorandum of understanding between the commission and the Texas Water Development Board.

(c) A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-

year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Adopted November 14, 2012

Effective December 6, 2012

**§288.3. Water Conservation Plans for Industrial or Mining Use.**

(a) A water conservation plan for industrial or mining uses of water must provide information in response to each of the following elements. If the plan does not provide information for each requirement, the industrial or mining water user shall include in the plan an explanation of why the requirement is not applicable.

(1) a description of the use of the water in the production process, including how the water is diverted and transported from the source(s) of supply, how the water is utilized in the production process, and the estimated quantity of water consumed in the production process and therefore unavailable for reuse, discharge, or other means of disposal;

(2) specific, quantified five-year and ten-year targets for water savings and the basis for the development of such goals. The goals established by industrial or mining water users under this paragraph are not enforceable;

(3) a description of the device(s) and/or method(s) within an accuracy of plus or minus 5.0% to be used in order to measure and account for the amount of water diverted from the source of supply;

(4) leak-detection, repair, and accounting for water loss in the water distribution system;

(5) application of state-of-the-art equipment and/or process modifications to improve water use efficiency; and

(6) any other water conservation practice, method, or technique which the user shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(b) An industrial or mining water user shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The industrial or mining water user shall review and update the next revision of its water

conservation plan every five years to coincide with the regional water planning group.

Adopted November 14, 2012

Effective December 6, 2012

**§288.4. Water Conservation Plans for Agricultural Use.**

(a) A water conservation plan for agricultural use of water must provide information in response to the following subsections. If the plan does not provide information for each requirement, the agricultural water user must include in the plan an explanation of why the requirement is not applicable.

(1) For an individual agricultural user other than irrigation:

(A) a description of the use of the water in the production process, including how the water is diverted and transported from the source(s) of supply, how the water is utilized in the production process, and the estimated quantity of water consumed in the production process and therefore unavailable for reuse, discharge, or other means of disposal;

(B) specific, quantified five-year and ten-year targets for water savings and the basis for the development of such goals. The goals established by agricultural water users under this subparagraph are not enforceable;

(C) a description of the device(s) and/or method(s) within an accuracy of plus or minus 5.0% to be used in order to measure and account for the amount of water diverted from the source of supply;

(D) leak-detection, repair, and accounting for water loss in the water distribution system;

(E) application of state-of-the-art equipment and/or process modifications to improve water use efficiency; and

(F) any other water conservation practice, method, or technique which the user shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(2) For an individual irrigation user:

(A) a description of the irrigation production process which shall include, but is not limited to, the type of crops and acreage of each crop to be

irrigated, monthly irrigation diversions, any seasonal or annual crop rotation, and soil types of the land to be irrigated;

(B) a description of the irrigation method, or system, and equipment including pumps, flow rates, plans, and/or sketches of the system layout;

(C) a description of the device(s) and/or methods, within an accuracy of plus or minus 5.0%, to be used in order to measure and account for the amount of water diverted from the source of supply;

(D) specific, quantified five-year and ten-year targets for water savings including, where appropriate, quantitative goals for irrigation water use efficiency and a pollution abatement and prevention plan. The goals established by an individual irrigation water user under this subparagraph are not enforceable;

(E) water-conserving irrigation equipment and application system or method including, but not limited to, surge irrigation, low pressure sprinkler, drip irrigation, and nonleaking pipe;

(F) leak-detection, repair, and water-loss control;

(G) scheduling the timing and/or measuring the amount of water applied (for example, soil moisture monitoring);

(H) land improvements for retaining or reducing runoff, and increasing the infiltration of rain and irrigation water including, but not limited to, land leveling, furrow diking, terracing, and weed control;

(I) tailwater recovery and reuse; and

(J) any other water conservation practice, method, or technique which the user shows to be appropriate for preventing waste and achieving conservation.

(3) For a system providing agricultural water to more than one user:

(A) a system inventory for the supplier's:

(i) structural facilities including the supplier's water storage, conveyance, and delivery structures;

(ii) management practices, including the supplier's operating rules and regulations, water pricing policy, and a description of practices and/or devices used to account for water deliveries; and

(iii) a user profile including square miles of the service area, the number of customers taking delivery of water by the system, the types of crops, the types of irrigation systems, the types of drainage systems, and total acreage under irrigation, both historical and projected;

(B) specific, quantified five-year and ten-year targets for water savings including maximum allowable losses for the storage and distribution system. The goals established by a system providing agricultural water to more than one user under this subparagraph are not enforceable;

(C) a description of the practice(s) and/or device(s) which will be utilized to measure and account for the amount of water diverted from the source(s) of supply;

(D) a monitoring and record management program of water deliveries, sales, and losses;

(E) a leak-detection, repair, and water loss control program;

(F) a program to assist customers in the development of on-farm water conservation and pollution prevention plans and/or measures;

(G) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter. If the customer intends to resell the water, the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter;

(H) official adoption of the water conservation plan and goals, by ordinance, rule, resolution, or tariff, indicating that the plan reflects official policy of the supplier;

(I) any other water conservation practice, method, or technique which the supplier shows to be appropriate for achieving conservation; and

(J) documentation of coordination with the regional water planning groups, in order to ensure consistency with appropriate approved regional water plans.

(b) A water conservation plan prepared in accordance with the rules of the United States Department of Agriculture Natural Resource Conservation Service, the Texas State Soil and Water Conservation Board, or other federal or state agency and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a memorandum of understanding between the commission and that agency.

(c) An agricultural water user shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. An agricultural water user shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Adopted November 14, 2012

Effective December 6, 2012

#### **§288.5. Water Conservation Plans for Wholesale Water Suppliers.**

A water conservation plan for a wholesale water supplier must provide information in response to each of the following paragraphs. If the plan does not provide information for each requirement, the wholesale water supplier shall include in the plan an explanation of why the requirement is not applicable.

(1) Minimum requirements. All water conservation plans for wholesale water suppliers must include the following elements:

(A) a description of the wholesaler's service area, including population and customer data, water use data, water supply system data, and wastewater data;

(B) specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable water loss, and the basis for the development of these goals. The goals established by wholesale water suppliers under this subparagraph are not enforceable;

(C) a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply;

(D) a monitoring and record management program for determining water deliveries, sales, and losses;

(E) a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system;

(F) a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of this chapter. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter;

(G) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plans shall include optimization of water supplies as one of the significant goals of the plan;

(H) a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan; and

(I) documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

(2) Additional conservation strategies. Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of paragraph (1) of this section, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:



(A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;

(B) a program to assist agricultural customers in the development of conservation pollution prevention and abatement plans;

(C) a program for reuse and/or recycling of wastewater and/or graywater; and

(D) any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(3) Review and update requirements. The wholesale water supplier shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. A wholesale water supplier shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

Adopted November 14, 2012

Effective December 6, 2012

**§288.6. Water Conservation Plans for Any Other Purpose or Use.**

A water conservation plan for any other purpose or use not covered in this subchapter shall provide information where applicable about those practices, techniques, and technologies that will be used to reduce the consumption of water, prevent or reduce the loss or waste of water, maintain or improve the efficiency in the use of water, increase the recycling and reuse of water, or prevent the pollution of water.

Adopted April 5, 2000

Effective April 27, 2000

**§288.7. Plans Submitted with a Water Right Application for New or Additional State Water.**

(a) A water conservation plan submitted with an application for a new or additional appropriation of water must include data and information which:

(1) supports the applicant's proposed use of water with consideration of the water conservation goals of the water conservation plan;

(2) evaluates conservation as an alternative to the proposed appropriation; and

(3) evaluates any other feasible alternative to new water development including, but not limited to, waste prevention, recycling and reuse, water transfer and marketing, regionalization, and optimum water management practices and procedures.

(b) It shall be the burden of proof of the applicant to demonstrate that no feasible alternative to the proposed appropriation exists and that the requested amount of appropriation is necessary and reasonable for the proposed use.

Effective May 3, 1993

**APPENDIX K:**

**WATER CONSERVATION ANNUAL REPORT RETAIL SUPPLIER**

## Water Conservation Plan Annual Report Retail Water Supplier

### CONTACT INFORMATION

Name of Utility: Dallas Water Utility

Public Water Supply Identification Number (PWS ID): TX0570004

Certification of Convenience and Necessity (CCN) Number: P0001

Surface Water Right ID Number: 173-A, 450, 1415, 1583, 2389, 2455-B, 2456-F, 2457-D, 2458-C, 2459, 2460, 2461-B, 2462-H, 5176, 5280, 5414, 5448, 5464, 5496, 12110, 12468-A

Wastewater ID Number: \_\_\_\_\_

Check all that apply:

- Retail Water Supplier
- Wholesale Water Supplier
- Wastewater Treatment Utility

Address: 1500 Marilla St, 4AS City: Dallas Zip Code: 75201

Email: malini.banerjee@dallascityhall.com Telephone Number: 2146704022

Regional Water Planning Group: C

Groundwater Conservation District: \_\_\_\_\_

Contact: First Name: Malini Last Name: Banerjee

Title: Senior Coordinator

Is this person the designated Conservation Coordinator?  Yes  No

Regional Water Planning Group: C

Groundwater Conservation District: \_\_\_\_\_

Reporting Period (Calendar year):

Period Begin (mm/yyyy): 01/2018 Period End (mm/yyyy): 12/2018

Check all that apply:

- Received financial assistance of \$500,000 or more from TWDB
- Have 3,300 or more retail connections

Have a surface water right with TCEQ

**SYSTEM DATA**

1. For this reporting period, select the category(s) used to classify customer water usage:

Retail Customer Water Usage Categories	
<input checked="" type="checkbox"/>	Residential - Single Family
<input type="checkbox"/>	Residential - Multi-family
<input checked="" type="checkbox"/>	Industrial
<input checked="" type="checkbox"/>	Commercial
<input checked="" type="checkbox"/>	Institutional
<input type="checkbox"/>	Agricultural

**Retail Customers Categories\***

- Residential Single Family
- Residential Multi-Family
- Industrial
- Commercial
- Institutional
- Agricultural

*\*Recommended Customer Categories for classifying customer water use. For definitions, refer to Guidance and Methodology on Water Conservation and Water Use.*

2. For this reporting period, enter the number of connections for and the gallons of metered retail water used by each category. If the Customer Category does not apply, enter zero or leave blank. These numbers should be the same as those reported on the Water Use Survey.

Retail Customer Category	Number of Connections	Gallons Metered
Residential - Single Family	277,241	23,929,039,410
Residential - Multi-family	0	0
Industrial	2	85,095,728
Commercial	54,555	37,290,542,900
Institutional	1,678	1,357,970,700
Agricultural	0	0
<b>Total Retail Water Metered<sup>1</sup></b>	<b>333,476</b>	<b>62,662,648,738</b>

<sup>1</sup>Residential + Industrial + Commercial + Institutional + Agricultural = Total Retail Water Metered

### Water Use Accounting

	Total Gallons During the Reporting Period
<b>1. Corrected Input Volume:</b> The volume of treated water input to the distribution system from own production facilities. Same as line 13b of the Water Loss Audit for reporting periods >= 2015. Same as line 14 of the Water Loss Audit for reporting periods <= 2014.	138,026,770,000
<b>2. Corrected Treated Purchased Water Volume:</b> The amount of treated purchased wholesale water transferred into the utility's distribution system from other water suppliers system. Same as line 14b of the Water Loss Audit for reporting periods >= 2015. Same as line 15 of the Water Loss Audit for reporting periods <= 2014.	0
<b>3. Corrected Treated Wholesale Water Sales Volume:</b> The amount of treated wholesale water transferred out of the utility's distribution system, although it may be in the system for a brief time for conveyance reasons. Same as line 15b of the Water Loss Audit for reporting periods >= 2015. Same as line 16 of the Water Loss Audit for reporting periods <= 2014.	56,286,985,000
<b>4. Total System Input Volume:</b> This is the sum of the corrected input volume plus corrected treated purchased water volume minus corrected treated wholesale water sales volume. Same as line 16 of the Water Loss Audit for reporting periods >= 2015. Same as line 17 of the Water Loss Audit for reporting periods <= 2014. Produced + Imported - Exported = Total System Input Volume	81,739,785,000
<b>5. Billed Metered:</b> All retail water sold and metered. Same as line 17 of the Water Loss Audit for reporting periods >= 2015. Same as line 18 of the Water Loss Audit for reporting periods <= 2014.	62,662,648,738
<b>6. Other Authorized Consumption:</b> Water that is authorized for other uses such as back flushing, line flushing, storage tank cleaning, fire department use, municipal government offices or municipal golf courses/parks. This water may be metered or unmetered. Same as lines 18, 19, and 20 of the Water Loss Audit for reporting periods >= 2015. Same as lines 19, 20, and 21 of the Water Loss Audit for reporting periods <= 2014.	11,661,579,312
<b>7. Total Authorized Consumption:</b> All water that has been authorized for use. Same as Line 21 of the Water Loss Audit for reporting periods >= 2015. Same as line 22 of the Water Loss Audit for reporting periods <= 2014. Total Billed and Metered Retail Water + Other Authorized Consumption = Total Authorized Consumption	74,324,228,050
<b>8. Total Apparent Losses:</b> Water that has been consumed but not properly measured or billed (losses due to customer meter inaccuracy, systematic data handling discrepancy and/or unauthorized consumption such as theft). Same as line 27 of the Water Loss Audit for reporting periods >= 2015. Same as line 28 of the Water Loss Audit for reporting periods <= 2014.	204,349,462

<b>9. Total Real Loss:</b> Physical losses from the distribution system prior to reaching the customer destination (losses due to reported breaks and leaks, physical losses from the system or mains and/or storage overflow). Same as line 30 of the Water Loss Audit for reporting periods >= 2015. Same as line 31 of the Water Loss Audit for reporting periods <= 2014.	7,211,207,487
<b>10. Total Water Loss:</b> Apparent + Real = Total Water Loss	7,415,556,949

### Programs and Activities

1. What year did your entity adopt or revise their most recent Water Conservation Plan? 2014
2. Does The Plan incorporate Best Management Practices?  Yes  No
3. Using the table below select the types of Best Management Practices or water conservation and reuse strategies actively administered during this reporting period and estimate the savings incurred in implementing water conservation and reuse activities and programs. Leave fields blank if unknown. **Please separate reuse volumes from gallons saved.**

Methods and techniques for determining gallons saved are unique to each utility as they conduct internal cost analyses and long-term financial planning. Texas Best Management Practice can be found at TWDB's Water Conservation Best Management Practices [webpage](#). The [Alliance for Efficiency Water Conservation Tracking Tool](#) may offer guidance on determining and calculating savings for individual BMPs.

Best Management Practice	Check if Implemented	Estimated Gallons Saved	Estimated Gallons Reused
<b>Conservation Analysis and Planning</b>			
Conservation Coordinator	<input checked="" type="checkbox"/>	0	0
Cost Effective Analysis	<input type="checkbox"/>		
Water Survey for Single Family and Multi-family Customers	<input type="checkbox"/>		
<b>Financial</b>			
Wholesale Agency Assistance Programs	<input type="checkbox"/>		
Water Conservation Pricing	<input checked="" type="checkbox"/>	0	0
<b>System Operations</b>			
Metering New Connections and Retrofitting Existing Connections	<input checked="" type="checkbox"/>	0	0
System Water Audit and Loss Control	<input checked="" type="checkbox"/>	0	0
<b>Landscaping</b>			
Landscape Irrigation Conservation and Incentives	<input type="checkbox"/>		
Athletic Fields Conservation	<input type="checkbox"/>		
Golf Course Conservation	<input type="checkbox"/>		
Park Conservation	<input type="checkbox"/>		

Residential Landscape Irrigation Evaluation	<input checked="" type="checkbox"/>	25,417,800	0
<b>Education and Public Awareness</b>			
School Education	<input checked="" type="checkbox"/>	0	0
Public Information	<input checked="" type="checkbox"/>	0	0
Small Utility Outreach and Education	<input type="checkbox"/>		
Partnerships with Nonprofit Organizations	<input type="checkbox"/>		
<b>Rebate, Retrofit, and Incentive Programs</b>			
Conservation Programs for ICI Accounts	<input checked="" type="checkbox"/>	0	0
Residential Clothes Washer Incentive Program	<input type="checkbox"/>		
Water Wise Landscape Design and Conversion Programs	<input checked="" type="checkbox"/>	0	0
Showerhead, Aerator, and Toilet Flapper Retrofit	<input checked="" type="checkbox"/>	4,761,290	0
Residential Toilet Replacement Programs	<input checked="" type="checkbox"/>	15,516,150	0
ICI Incentive Programs	<input checked="" type="checkbox"/>	0	0
<b>Conservation Technology &amp; Reuse</b>			
New Construction Graywater	<input type="checkbox"/>		
Rainwater Harvesting and Condensate Reuse	<input type="checkbox"/>		
Reuse for On-site Irrigation	<input checked="" type="checkbox"/>	0	10,000
Reuse for Plant Washdown	<input checked="" type="checkbox"/>	0	2,700,000,000
Reuse for Chlorination/Dechlorination	<input checked="" type="checkbox"/>	0	2,000,000,000
Reuse for Industry	<input type="checkbox"/>		
Reuse for Agriculture	<input type="checkbox"/>		
<b>Regulatory and Enforcement</b>			
Prohibition on Wasting Water	<input checked="" type="checkbox"/>	0	0
<b>Retail</b>			
Other	<input checked="" type="checkbox"/>	54,954,304,760	0
<b>Totals</b>		<b>55,000,000,000</b>	<b>4,700,010,000</b>

The other category is calculated based on a time series regression model that shows an estimated water savings on an annual basis. This includes all forms of water conservation efforts in a collective manner.

4. For this reporting period, estimate the savings from water conservation activities and programs.

Gallons Saved/Conserved	Gallons Recycled/Reused	Total Volume of Water Saved <sup>1</sup>	Dollar Value of Water Saved <sup>2</sup>
55,000,000,000	4,700,010,000	59,700,010,000	57,059,658

<sup>1</sup>Estimated Gallons Saved + Estimated Gallons Recycled/Reused = Total Volume Saved

<sup>2</sup>Estimated this value by taking into account water savings, the cost of treatment or purchase of water, and deferred capital cost due to conservation.



5. Comments or Explanations Regarding Data Entered in Sections Above.  
 Files to support or explain this may be attached below.

The dollar value of the water saved was calculated by using the simple production and delivery cost of the treated water and not the retail or wholesale rate that includes many other cost factors in it.

6. During this reporting period, did your rates or rate structure change?     Yes     No

Select the type of rate pricing structure used. Check all that apply.

<input type="checkbox"/>	Uniform Rates
<input type="checkbox"/>	Flat Rates
<input checked="" type="checkbox"/>	Inclining/Inverted Block Rates
<input type="checkbox"/>	Declining Block Rates
<input type="checkbox"/>	Seasonal Rates
<input type="checkbox"/>	Water Budget Based Rates
<input type="checkbox"/>	Excess Use Rates
<input type="checkbox"/>	Drought Demand Rates
<input type="checkbox"/>	Tailored Rates
<input type="checkbox"/>	Surcharge - usage demand
<input type="checkbox"/>	Surcharge - seasonal
<input type="checkbox"/>	Surcharge - drought
<input type="checkbox"/>	Other

7. For this reporting period, select the public awareness or educational activities used.

Name	Implemented This Year	Number Of Times This Year	Total Population Reached this Year
Brochures Distributed	<input checked="" type="checkbox"/>	37,821	37,821
Messages Provided on Utility Bills	<input checked="" type="checkbox"/>	4,590,000	270,000
Press Releases	<input type="checkbox"/>		
TV Public Service Announcements	<input type="checkbox"/>		
Radio Public Service Announcements	<input type="checkbox"/>		
Educational School Programs	<input checked="" type="checkbox"/>	275	7,392
Displays, Exhibits, and Presentations	<input checked="" type="checkbox"/>	17	856
Community Events	<input checked="" type="checkbox"/>	57	13,193
Social Media campaign - Facebook	<input checked="" type="checkbox"/>	43,919	43,919
Social Media campaign - Twitter	<input checked="" type="checkbox"/>	99,867	99,867
Social Media campaign - Instagram	<input type="checkbox"/>		
Social Media campaign - YouTube	<input checked="" type="checkbox"/>	85,619	85,619
Facility Tours	<input type="checkbox"/>		
Other	<input checked="" type="checkbox"/>	52,001,947	52,001,947
<b>Total</b>		56,859,522	52,560,614

Other category includes media impressions and website clicks that were not included in any of the previous categories.

### Leak Detection and Water Loss

1. During this reporting period, how many leaks were repaired in the system or at service connections? 3975

2. Select the main cause(s) of water loss in your system.

Water Loss Causes	
<input checked="" type="checkbox"/>	Distribution line leaks and breaks
<input checked="" type="checkbox"/>	Unauthorized use and theft

<input checked="" type="checkbox"/>	Master meter problems
<input checked="" type="checkbox"/>	Customer meter problems
<input checked="" type="checkbox"/>	Record and data problems
<input type="checkbox"/>	Other

3. For this reporting period, provide the following information on your distribution lines.

Total Length of Main Lines (miles)	Total Length Repaired (feet)	Total Length Replaced (feet)
4983	5328	147007

4. For this reporting period, provide the following information regarding your meters:

Type of Meter	Total Number	Total Tested	Total Repaired	Total Replaced
Production Meters	314222	8901	1383	26712
Meters larger than 1 1/2 inches	32349	5544	559	6267
Meters 1 1/2 inches or smaller	281873	3357	824	20445

5. Does your system have automated meter reading?  Yes  No

**Program Effectiveness**

1. Program Effectiveness

In your opinion, how would you rank the overall effectiveness of your conservation programs and activities?

Customer Classification	Less Than Effective	Somewhat Effective	Highly Effective	Does Not Apply
Residential Customers	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Industrial Customers	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Institutional Customers	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Commercial Customers	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Agricultural Customers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

2. During the reporting period, did you implement your Drought Contingency Plan?  Yes  No

3. Select the areas for which you would like to receive more technical assistance:

	Technical Assistance Areas
<input type="checkbox"/>	Best Management Practices
<input type="checkbox"/>	Drought Contingency Plans
<input checked="" type="checkbox"/>	Landscape Irrigation
<input type="checkbox"/>	Leak Detection and Equipment
<input type="checkbox"/>	Rainwater Harvesting
<input type="checkbox"/>	Rate Structures
<input type="checkbox"/>	Educational Resources
<input type="checkbox"/>	Water Conservation Annual Reports
<input type="checkbox"/>	Water Conservation Plans
<input type="checkbox"/>	Water IQ: Know Your Water
<input type="checkbox"/>	Water Loss Audits
<input checked="" type="checkbox"/>	Recycling and Reuse

### Water Loss, Target and Goals

#### Total, Residential and Water Loss Gallons Per Capita per Day (GPCD) and Water Loss Percentage

The tables below display your current GPCD totals and water loss percentage for your service area.

Total System Input in Gallons Water Produced + Wholesale Imported - Wholesale Exported	Retail Population <sup>1</sup>	Total GPCD (System Input / Retail Population) / 365
81,739,785,000	1,286,380	174

<sup>1</sup>Retail Population is the total permanent population of the service area, including single family, multi-family, and group quarter populations

Residential Use in Gallons (Single Family + Multi-family)	Residential Population <sup>2</sup>	Residential GPCD (Residential Use / Residential Population) / 365
23,929,039,410	1,286,380	51

<sup>2</sup>Residential Population is the total residential population of the service area, including only single family and multi-family populations

Total Water Loss in Gallons Apparent + Real = Total Water Loss	Retail Population	Water Loss GPCD <sup>3</sup>	Water Loss Percent
7,415,556,949	1,286,380	16	9.07%

<sup>3</sup>(Total Water Loss / Residential Population) / 365 = Water Loss GPCD  
 (Total Water Loss / Total System Input) \* 100 = Water Loss Percentage

The table below displays the specific and quantified five-year and ten-year goals listed in your current Water Conservation Plan alongside the current GPCD and water loss totals.

Achieve Date	Target for Total GPCD	Current Total GPCD	Target for Residential GPCD	Current Residential GPCD	Target for Water Loss GPCD	Current Water Loss GPCD	Target for Water Loss Percentage	Current Water Loss Percentage
Five-year Target Date 2019	196	174	97	51	28	16	14.29 %	9.07 %
Ten-year Target Date 2024	195	174	96	51	27	16	13.85 %	9.07 %

**APPENDIX L:**

**WATER CONSERVATION ANNUAL REPORT WHOLESAL SUPPLIER**

# Water Conservation Plan Annual Report Wholesale Water Supplier

## CONTACT INFORMATION

Name of Entity: City of Dallas Water Utilities

Public Water Supply Identification Number (PWS ID): 057004

CCN Number: P0001

Water Rights ID Number: 12468, etc.

Wastewater ID Number: TX0047848, TX47830

Check all that apply:

- Retail Water Supplier
- Wholesale Water Supplier
- Wastewater Treatment Utility

Address: 1500 Marilla, 2AN City: Dallas Zip Code: 75201

Email: holly.holt@dallascityhall.com Telephone Number: 214.670.5244

Regional Water Planning Group: C [Map](#)

Groundwater Conservation District: N/A [Map](#)

Form Completed By: Malini Banerjee Title: Water Conservation Coordinator

Date: 04/29/2019

Reporting Period (check only one):

- Fiscal Period Begin(mm/yyyy) \_\_\_\_\_ Period End(mm/yyyy) \_\_\_\_\_
- Calendar Period Begin(mm/yyyy) 01/2018 Period End(mm/yyyy) 12/2018

Check all that apply:

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

## SYSTEM DATA

1. For this reporting period, provide the **total volume of wholesale water exported** (transferred or sold): 56,286,985,000 gallons

2. For this reporting period, does your billing/accounting system have the capability to classify customers into the Wholesale Customer Categories?

Yes       No

**Wholesale Customer Categories\***

- Municipal
- Industrial
- Commercial
- Institutional
- Agricultural

\*Recommended Customer Categories for classifying customer water use. For definitions, refer to [Guidance and Methodology on Water Conservation and Water Use.](#)

3. For this reporting period, select the category(s) used to calculate wholesale customer water usage:

- Municipal
- Industrial
- Commercial
- Institutional
- Agricultural

4. For this reporting year, enter the gallons of **WHOLESALE water exported** (transferred or sold). Enter zero if a Customer Category does not apply.

Wholesale Customer Category	Gallons Exported (transferred or sold)	Number of Customers
Municipal	56,286,985,000	
Industrial		
Commercial		
Institutional		
Agricultural		
<b>Total</b>	56,286,982,144	<b>0</b>



## Water Use Accounting

	Total Gallons During the Reporting Period
<b>Water Produced:</b> Water from permitted sources such as rivers, lakes, streams, and wells.	138,026,770,000
<b>Wholesale Water Imported:</b> Purchased wholesale water transferred into the system.	
<b>System Input:</b> Total water supplied to system and available for use.	138,026,762,240 <small>Produced + Imported = System Input</small>
<b>Wholesale Water Exported:</b> Wholesale water sold or transferred out of the system.	56,286,982,144
<b>Gallons Per Day:</b>	154,210,918 <small>Wholesale Water Exported ÷ 365 = Gallons Per Day</small>
<b>Population:</b> Estimated total population for municipal customers.	1,174,110
<b>Municipal Gallons Per Capita Per Day:</b>	131 <small>Municipal Exported ÷ Municipal Population ÷ 365 = Municipal Gallons Per Capita Per Day</small>

Provide the **specific and quantified five and ten-year targets** as listed in your most current Water Conservation Plan.

	Date to Achieve Target	Specified and Quantified Targets
Five-year target	2019	196
Ten-year target	2024	195

## Water Conservation Programs and Activities

### 1. Water Conservation Plan

What year did your entity adopt or revise their most recent Water Conservation Plan? 2019

Does The Plan incorporate Best Management Practices?  Yes  No

### 2. Water Conservation Programs

Has your entity implemented any type of water conservation activity or program?

Yes  No

If yes, select the type(s) of Best Management Practices or water conservation strategies implemented during this reporting period.

Wholesale Supplier Activities and Practices	
<input type="checkbox"/>	Agricultural Conservation Programs
<input checked="" type="checkbox"/>	Conservation Analysis & Planning
<input checked="" type="checkbox"/>	Conservation Rate Structures
<input checked="" type="checkbox"/>	Conservation Technology
<input checked="" type="checkbox"/>	Education & Public Awareness
<input checked="" type="checkbox"/>	Industrial Conservation Programs
<input checked="" type="checkbox"/>	Leak Detection/ Water Loss Program
<input checked="" type="checkbox"/>	Rebate, Retrofit, and Incentive Programs
<input checked="" type="checkbox"/>	Regulatory & Enforcement
<input checked="" type="checkbox"/>	System Operations
<input checked="" type="checkbox"/>	Water Efficient Landscape Programs
<input checked="" type="checkbox"/>	Water Use Audits

Other activities, list or describe.

### 3. Recycle/Reuse (Water or Wastewater Effluent)

For this reporting period, provide direct and indirect reuse activities.

Reuse Activity	Estimated Volume (in gallons)
On-site irrigation	10,000
Plant wash down	2,700,000,000
Chlorination/de-chlorination	2,000,000,000
Industrial	
Landscape irrigation (parks, golf courses)	
Agricultural	
Other, please describe:	
<b>Estimated Volume of Reuse</b>	<b>4,700,010,000</b>

#### 4. Water Savings

For this reporting period, estimate the savings that resulted from water conservation activities and programs.

Estimated Gallons Saved/Conserved	Estimated Gallons Recycled/Reused	Total Volume of Water Saved <sup>1</sup>	Dollar Value of Water Saved <sup>2</sup>
55,000,000,000	4,700,010,000	59,700,012,544	\$ 57,059,658

1. Estimated Gallons Saved + Estimated Gallons Recycled/Reused = Total Volume Saved

2. Estimate this value by taking into account water savings, the cost of treatment or purchase of water, and deferred capital costs due to conservation.

#### 5. Program Effectiveness

In your opinion, how would you rank the overall effectiveness of your conservation programs and activities?

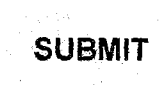
Less Than Effective	Somewhat Effective	Highly Effective	Does Not Apply
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

6. What might your entity do to improve the effectiveness of your water conservation program?

7. Select the areas for which you would like to receive technical assistance:

- Agricultural Best Management Practices
- Wholesale Best Management Practices
- Industrial Best Management Practices
- Drought Contingency Plans
- Landscape Efficient Systems
- Leak Detection and Equipment
- Educational Resources

- Water Conservation Plans
- Water IQ: Know Your Water
- Water Loss Audits
- Rainwater Harvesting Systems
- Recycling and Reuse



**APPENDIX M:**

**WATER CONSERVATION FIVE-YEAR IMPLEMENTATION REPORT**



Texas Commission on Environmental Quality

Water Conservation Implementation Report
Public Water Supplier

This five year report must be completed by entities that are required to submit a water conservation plan to the TCEQ in accordance with Title 30 Texas Administrative Code, Chapter 288. Please complete this report and submit it to the TCEQ. If you need assistance in completing this form, please contact the Resource Protection Team in the Water Availability Division at (512) 239-4691.

CONTACT INFORMATION

Name of Entity: Dallas Water Utility

Public Water Supply Identification Number (PWS ID): TX057004

CCN numbers: P0001

Water Right Permit numbers: 173, 450, 1415, 1583, 2389, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 5176, 5280, 5414, 5448, 5464, 5496, 12110, 12468

Wastewater ID numbers: TX0047848, TX47830

Check all that apply:

- Retail Public Water Supplier
Wholesale Public Water Supplier

Address: 1500 Marilla St City: Dallas Zip Code: 75201

Email: Click here to enter text. Telephone Number: Click here to enter text.

Regional Water Planning Group: C Map

Groundwater Conservation District: Click here to enter text. Map

Form Completed By: Holly R. Holt-Torres Title: Water Conservation Manager

Signature: [Handwritten Signature] Date: 4/29/2019

Contact information for the person or department responsible for implementing the water conservation plan:

Name: Holly R. Holt-Torres Phone: 214-243-1175 Email: holly.holt@dallascityhall.com

Report Completed on Date: 4/29/2019

Reporting Period (check only one):

- Fiscal Period Begin: Click here to enter a date. Period End: Click here to enter a date.
Calendar Period Begin: January 2018 Period End: December 2018

Please check all of the following that apply to your entity:

- A surface water right holder of 1,000 acre-feet/year or more for non-irrigation uses
- A surface water right holder of 10,000 acre-feet/year or more for irrigation uses

*\*Important\**

*If your entity meets the following description, please skip page 3 and go directly to page 4.*

Your entity is a Wholesale Public Water Supplier that ONLY provides wholesale water services for public consumption. For example, you only provide wholesale water to other municipalities or water districts.

## Water Use Accounting

### **Retail Water Sold:** *All retail water sold for public use and human consumption.*

Helpful Hints: There are two options available for you to provide the requested information. Both options ask the same information; however, the level of detail and break down of information differs between the two options. Please select just one option that works best for your entity and fill in the fields as completely as possible.

Fields that are gray are entered by the user. Select fields that are white and press F9 to updated fields.

For the five-year reporting period, enter the gallons of **RETAIL water sold** in each major water use category. Use **only one** of the following options.

### Option 1

Water Use Category*	Gallons Sold
Single Family Residential	
Multi-Family Residential	
<b>TOTAL Residential Use<sup>1</sup></b>	0
Industrial	
Commercial	
Institutional	
<b>TOTAL Retail Water Sold<sup>2</sup></b>	0

1. [SF Res +MF Res = Residential Use]
2. [Res +Ind +Com +Ins = Retail Water Sold]

### Option 2

Water Use Category *	Gallons Sold
<b>Residential</b> Select all of the sectors that your account for as "Residential". <input checked="" type="checkbox"/> Single Family <input type="checkbox"/> Multi-Family	119,977,350,531
<b>Commercial</b> Please select all of the sectors that your account for as "Commercial". <input checked="" type="checkbox"/> Commercial <input checked="" type="checkbox"/> Multi-Family <input type="checkbox"/> Industrial <input type="checkbox"/> Institutional	172,973,879,401
<b>Industrial</b> Please select all of the sectors that your account for as "Industrial". <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Institutional	343,659,931
<b>Other</b> Please select all of the sectors that your account for as "Other". <input type="checkbox"/> Commercial <input type="checkbox"/> Multi-Family <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Institutional Includes Agricultural use (2014-2016)	23,081,448,008
<b>TOTAL Retail Water Sold<sup>1</sup></b>	316,376,337,871

1. [Res +Com +Ind + Other = Retail Water Sold]

**Wholesale Water Exported:** *Wholesale water sold or transferred out of the distribution system.*

For the five-year reporting period, enter the gallons of **WHOLESALE water exported** to each major water use category.

<b>Water Use Category*</b>	<b>Gallons of Exported Wholesale Water</b>
Municipal Customers	289,810,198,354
Agricultural Customers	
Industrial Customers	
Commercial Customers	
Institutional Customers	
<b>TOTAL Wholesale Water Exported <sup>1</sup></b>	<b>289,810,198,354.00</b>

1. [Mun +Agr +Ind +Com +Ins = Wholesale Water Exported]



## System Data

Fields that are gray are entered by the user.  
Select fields that are white and hit F9 to  
updated fields.

	<b>Total Gallons During the Five-Year Reporting Period</b>
<b>Water Produced:</b> Volume produced from own sources	711,566,902,275
<b>Wholesale Water Imported :</b> Purchased wholesale water imported from other sources into the distribution system	0
<b>Wholesale Water Exported:</b> Wholesale water sold or transferred out of the distribution system (Insert Total Volume calculated on Page 4)	289,810,198,354
<b>TOTAL System Input :</b> Total water supplied to the infrastructure	421,756,703,921
	[Produced + Imported - Exported = System Input]
<b>Retail Water Sold :</b> All retail water sold for public use and human consumption (Insert Total Residential Use from Option 1 or Option 2 calculated on Page 3)	316,376,337,871
<b>Other Consumption Authorized for Use but not Sold:</b> <ul style="list-style-type: none"> <li>- back flushing water            - line flushing</li> <li>- storage tank cleaning        - golf courses</li> <li>- fire department use         - parks</li> <li>- municipal government offices</li> </ul>	61,918,997,042
<b>TOTAL Authorized Water Use:</b> All water that has been authorized for use or consumption.	378,295,334,913
	[Retail Water Sold + Other Consumption = Total Authorized]
<b>Apparent Losses – Water that has been consumed but not properly measured</b> (Includes customer meter accuracy, systematic data discrepancy, un- authorized consumption such as theft)	1,717,287,021
<b>Real Losses – Physical losses from the distribution system prior to reaching the customer destination</b> (Includes physical losses from system or mains, reported breaks and leaks, storage overflow)	40,722,334,676
<b>Unidentified Water Losses</b>	1,021,747,311
	[System Input- Total Authorized - Apparent Losses - Real Losses = Unidentified Water Losses]
<b>TOTAL Water Loss</b>	10,915,329,261
	[Apparent + Real + Unidentified = Total Water Loss]

## Targets and Goals

In the table below, please provide the **specific and quantified five and ten-year targets for water savings** listed in your water conservation plan.

Fields that are gray are entered by the user.  
Select fields that are white and hit F9 to update fields.

Date	Target for: Total GPCD	Target for: Water Loss (expressed in GPCD)	Target for: Water Loss Percentage (expressed in Percentage)
Five-year target date: dd/mm/2019	196	28	10%
Ten-year target date: dd/mm/2024	195	27	10%

Are targets in the water conservation plan being met? Yes  No

If these targets are not being met, provide an explanation as to why, including any progress on these targets: [Click here to enter text.](#)

## Gallons per Capita per Day (GPCD) and Water Loss

Compare your current gpcd and water loss to the above targets and goals set in your previous water conservation plan.

Total System Input in Gallons	Permanent Population	Current GPCD
84351340784 (5 Year Average Input) [Produced + Imported – Exported = System Input]	1258182 (5 Year Average Population)	183.68 [ (System Input ÷ Permanent Population) / 365 ]

Permanent Population is the total permanent population of the service area. This includes single family, multi-family, and group quarter populations.

Total Residential Use	Permanent Population	Residential GPCD
23995470 (5 Year Average Residential Use)	1258182 (5 Year Average Population)	52.25 [ (Residential Use ÷ Residential Population) / 5/ 365 ]

Residential Population is the total residential population of the service area including single & multi-family population.

Total Water Loss	Total System Input in Gallons	Permanent Population	Water Loss calculated in	
			GPCD <sup>1</sup>	Percent <sup>2</sup>
218306585.2 [Apparent + Real + Unidentified = Total Water Loss]	84351340784.2 [Water Produced + Wholesale Imported - Wholesale Exported]	1258182	18.6	9.66%

1. [Total Water Loss ÷ Permanent Population] / 5/ 365 = Water Loss GPCD]
2. [Total Water Loss ÷ Total System Input] x 100 = Water Loss Percentage]

## Water Conservation Programs and Activities

*As you complete this section, please review your water conservation plan to see if you are making progress towards meeting your stated goals.*

Fields that are gray are entered by the user. Select fields that are white and hit F9 to updated fields.

### 1. Water Conservation Plan

What year did your entity adopt, or revise, their most recent water conservation plan: 2019

Does the plan incorporate Best Management Practices? Yes  No

### 2. Water Conservation Programs

For the reporting period, please select the types of activities and programs that have been actively administered, and estimate the expense and savings that incurred in implementing the conservation activities and programs for the past five years. Leave the field blank if unknown:

Program or Activity	Estimated Expenses	Estimated Gallons Saved
<b>Conservation Analysis &amp; Planning</b>		
<input checked="" type="checkbox"/> Conservation Coordinator	\$500,000	
<input type="checkbox"/> Water Survey for Single-Family and Multi-Family Customers		
<b>Financial</b>		
<input type="checkbox"/> Wholesale Agency Assistance Programs		
<input checked="" type="checkbox"/> Water Conservation Pricing/ Rate Structures		
<b>System Operations</b>		
<input checked="" type="checkbox"/> Water Loss Audits		
<input checked="" type="checkbox"/> Leak Detection		
<input checked="" type="checkbox"/> Universal Metering and Metering Repair		
<b>Landscaping</b>		

<input checked="" type="checkbox"/> Landscape Irrigation Conservation and Incentives	\$750,000	
<input type="checkbox"/> Athletic Fields Conservation		
<input type="checkbox"/> Golf Course Conservation		
<input type="checkbox"/> Park Conservation		
Education & Public Awareness		
<input checked="" type="checkbox"/> School Education	\$2,250,000	
<input checked="" type="checkbox"/> Public Information	\$4,759,000	
Rebate, Retrofit, and Incentive Programs		
<input checked="" type="checkbox"/> Conservation Programs for ICI Accounts	\$842,320	1,583,070
<input type="checkbox"/> Residential Clothes Washer Incentive Program		
<input type="checkbox"/> Water Wise Landscape Design and Conversion Programs		
<input checked="" type="checkbox"/> Showerhead, Aerator, and Toilet Flapper Retrofit	\$2,000,000	22,298,360
<input checked="" type="checkbox"/> Residential Toilet Replacement Programs	\$1,500,000	234,887,628
<input type="checkbox"/> Rainwater Harvesting Incentive Program		
<input checked="" type="checkbox"/> ICI Incentive Programs		
Conservation Technology		
<input type="checkbox"/> Recycling and Reuse Programs (Water or Wastewater Effluent)		
<input type="checkbox"/> Rainwater Harvesting and Condensate Reuse Programs		
Regulatory and Enforcement		
<input checked="" type="checkbox"/> Prohibition on Wasting Water		
<b>TOTAL</b>	<b>\$12,601,320</b>	<b>258,769,058</b>

### 3. Reuse (Water or Wastewater Effluent)

For the reporting period, please provide the following data regarding the types of direct and indirect reuse activities that were administered for the past five years:

Reuse Activity	Estimated Volume (in gallons)
On-site irrigation	67,031,000
Plant wash down	30,900,000,000
Chlorination/de-chlorination	5,000,000,000
Industrial	
Landscape irrigation (parks, golf courses)	
Agricultural	
Other, please describe:	

<b>Estimated Volume of Recycled or Reuse</b>	35,967,031,000
--	----------------

**4. Water Savings**

For the five-year reporting period, estimate the total savings that resulted from your overall water conservation activities and programs?

<b>Estimated Gallons Saved</b> (Total from Conservation Programs Table) <i>Includes our water savings estimates produced by our Time Series Model</i>	<b>Estimated Gallons Recycled or Reused</b> (Total from Reuse Table)	<b>Total Volume of Water Saved <sup>1</sup></b>	<b>Dollar Value of Water Saved <sup>2</sup></b>
285,502,277,330	3,596,7031,000	321,469,308,330	\$308,610,536

- [Estimated Gallons Saved + Estimated Gallons Recycled or Reused = Total Volume Saved]
- Estimate this value by taking into account water savings, the cost of treatment or purchase of your water, and any deferred capital costs due to conservation.

**5. Conservation Pricing / Conservation Rate Structures**

During the five-year reporting period, have your rates or rate structure changed? Yes  No

Please indicate the type of rate pricing structures that you use:

<input type="checkbox"/> Uniform rates	<input type="checkbox"/> Water Budget Based	<input type="checkbox"/> Surcharge - seasonal
<input type="checkbox"/> Flat rates	<input type="checkbox"/> Excess Use Rates	<input type="checkbox"/> Surcharge - drought
<input checked="" type="checkbox"/> Inclining/ Inverted Block	<input type="checkbox"/> Drought Demand rates	<input type="checkbox"/> Surcharge - usage demand
<input type="checkbox"/> Declining Block rates	<input type="checkbox"/> Tailored rates	
<input type="checkbox"/> Seasonal rates		

**6. Public Awareness and Education Program**

For the five-year reporting period, please check the appropriate boxes regarding any public awareness and educational activities that your entity has provided:

	<b>Implemented</b>	<b>Number/Unit</b>
<i>Example: Brochures Distributed</i>	<input type="checkbox"/>	<i>10,000/year</i>
<i>Example: Educational School Programs</i>	<input type="checkbox"/>	<i>50 students/month</i>
Brochures Distributed	<input checked="" type="checkbox"/>	79,699
Messages Provided on Utility Bills	<input checked="" type="checkbox"/>	11,258,064

Press Releases	<input checked="" type="checkbox"/>	409
TV Public Service Announcements	<input checked="" type="checkbox"/>	7296
Radio Public Service Announcements	<input checked="" type="checkbox"/>	5417
Educational School Programs	<input checked="" type="checkbox"/>	59,050
Displays, Exhibits, and Presentations	<input checked="" type="checkbox"/>	213
Community Events	<input checked="" type="checkbox"/>	154
Social Media campaigns	<input checked="" type="checkbox"/>	4,963,494,946
Facility Tours	<input checked="" type="checkbox"/>	4
Other :	<input checked="" type="checkbox"/>	

### 7. Leak Detection

During the five-year reporting period, how many leaks were repaired in the system or at service connections: [Click here to enter text.](#)

Please check the appropriate boxes regarding the main cause of water loss in your system during the reporting period:

- Leaks and breaks
- Un-metered utility or city uses
- Master meter problems
- Customer meter problems
- Record and data problems
- Other: [Click here to enter text.](#)
- Other: [Click here to enter text.](#)

### 8. Universal Metering and Meter Repair

For the five-year reporting period, please provide the following information regarding meter repair:

	Total Number	Total Tested	Total
Production Meters	96,091	28,723	106,171
Meters larger than 1 ½"	21,880	16,174	50,603
Meters 1 ½ or smaller	76,774	21,246	92,948

Does your system have automated meter reading? Yes  No

	Do not have activities or programs that target this type customer.	Less Than Effective	Somewhat Effective	Highly Effective
Residential Customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Industrial Customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Institutional Customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Commercial Customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Agricultural Customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 9. Conservation Communication Effectiveness

In your opinion, how would you rank the effectiveness of your conservation activities in reaching the following types of customers for the past five years?

### 10. Drought Contingency and Emergency Water Demand Management

During the five-year reporting period, did you implement your Drought Contingency Plan?

Yes  No

If yes, indicate the number of days that your water use restrictions were in effect: [Click here to enter text.](#)

If yes, please check all the appropriate reasons for your drought contingency efforts going into effect.

<input type="checkbox"/> Water Supply Shortage	<input type="checkbox"/> Equipment Failure
<input type="checkbox"/> High Seasonal Demand	<input type="checkbox"/> Impaired Infrastructure
<input type="checkbox"/> Capacity Issues	<input type="checkbox"/> Other:

If you have any questions on how to fill out this form or about the Water Conservation program, please

**contact us at 512/239-4691.**

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512-239-3282.