



City of Dallas

## **Water Conservation Plan**

*Adopted by Resolution of the Dallas  
City Council on June 9, 2010*

**Dallas Water Utilities**  
Conservation Division  
1500 Marilla, Room 5AS  
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 that currently serves over 2.4 million people within a 700 square mile service area. This includes all of the City of Dallas, 22 major wholesale treated water customers, and 4 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) 2008-09, DWU delivered over 148 billion gallons of treated water. As the regional population grows, so grows water demand. To meet demand, DWU must plan for increasing the available water supply and expanding its transmission, treatment, and distribution facilities. DWU considers water conservation an integral part of this planning process.

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 (Appendix A).

In 2005, DWU adopted a Water Conservation Five-Year Strategic Plan (Strategic Plan) that included phased implementation of best management practices (BMPs) under the following major elements:<sup>1</sup>

- City Leadership and Commitment
- Education and Outreach Initiatives
- Rebate and Incentive Programs

In 2010, DWU completed an update to the Strategic Plan (Updated Strategic Plan) that proposes implementation of additional BMPs through FY 2014-15.<sup>2</sup> The Water Conservation Plan contained herein will incorporate data obtained in the update of the Five-Year Strategic Plan.

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<sup>1</sup> Alan Plummer Associates, Inc. in association with Chris Brown Consulting, Baker Consulting Associates, and Enviromedia, *Water Conservation Five-Year Strategic Plan*, prepared for City of Dallas, April 2005.

<sup>2</sup> Alan Plummer Associates, Inc. in conjunction with CP&Y, Inc., Amy Vickers & Associates, Inc., and Miya. *Updated Water Conservation Five-Year Strategic Plan*, prepared for City of Dallas, June 2010.

## 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 a water right holder, DWU is subject to this requirement. Because 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.<sup>3</sup>

Copies of 30 TAC § 288 Subchapters A and C are provided in Appendix A. 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, water supply system data, and wastewater system data.
- Description of the Wholesaler's Service Area: Includes population and customer data, water use data, water supply system data, and wastewater data.
- Goals: 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 (gpcd). The goals established by a public water supplier are not enforceable under this subparagraph.
- Accurate Metering Devices: The TCEQ requires metering devices with an accuracy of plus or minus 5 percent for measuring water diverted from source supply.
- 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.
- 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.

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<sup>3</sup> DWU also holds water rights to provide water for industrial use. However, since DWU uses these rights to provide water to TXU Electric as a wholesale supplier, a water conservation plan for industrial or mining use is not required.

- Continuing Public Education Program: TCEQ requires a continuing public education and information program regarding water conservation.
  - 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.
  - 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.
  - 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.
  - 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.
  - 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.
- ***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.
  - 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).
  - 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.

- **Additional Conservation Strategies:** 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:
  - 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;
  - adoption of ordinances, plumbing codes or rules requiring water-conserving fixtures;
  - a program for replacement or retrofit of water-conserving plumbing fixtures in existing structures;
  - reuse and /or recycling of wastewater and/or gray water;
  - a program for pressure control and/or reduction in distribution system and/or for customer connections;
  - a program and/or ordinance(s) for landscape water management;
  - a method for monitoring the effectiveness and efficiency of the water conservation plan.
  - 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.

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) 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. In 2002, Dallas launched a two-year multi-media campaign to increase public awareness of the city's new ordinance prohibiting lawn and landscape water waste. The ongoing public awareness campaign has been broadened to further educate water customers about the importance of conservation. Since adoption of the Strategic Plan in 2005, DWU has implemented plumbing, landscape, and irrigation system retrofits at city facilities; additional educational and outreach programs; water audit programs; and rebate and incentive programs.

The Water Conservation Plan is heavily based on the data and information gathered in the update of the Five-Year Strategic Plan. This involved a multi-faceted approach that included review of numerous water conservation programs, initiatives, data and literature, as well as input from

industry personnel and community stakeholders. The process for development of the Updated Strategic 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 candidate water conservation strategies
- Evaluated water conservation strategies
- Sought input from wholesale customer cities and stakeholder groups
- Developed Water Conservation Plan

### 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 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.
- **Appendix A** provides a copy of 30 TAC § 288 Subchapter A, a copy of 30 TAC § 288 Subchapter C, and a copy of the City of Dallas water conservation ordinance.
- **Appendix B** provides the completed TCEQ Utility Profiles for Municipal Public Water Suppliers and Wholesale Public Water Suppliers, a map of DWU's service area, a list of

Water Supply System Sources, Wholesale Customers Data, Standard Rates Schedule for DWU, and a map of the water and wastewater treatment plants.

- **Appendix C** provides documentation of the adoption of the Water Conservation Plan by the Dallas City Council and documentation of coordination with the Region C Planning Group, stakeholder groups, and wholesale customers.
- **Appendix D** provides Dallas's Water Conservation Program Annual Report (dated April 26, 2010), which is required to be submitted to the Texas Water Development Board.

## 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 the use of 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 not deprive the community of essential water uses; rather, it will provide a blueprint for efficient water use. The benefits of water conservation not only include those derived from avoided costs, but also others that may not be as easily enumerated in terms of dollars yet hold significant importance to the City in terms of value. Benefits of water conservation include:

- Delays 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.
- Extends the life of existing water supplies and infrastructure. Pressures within the water system will increase in localized areas in order to meet increasing customer demands. Increased pressures within an aging infrastructure will mean more leaks from the system. When water demands are maintained or reduced through conservation, higher system pressure is avoided.
- Reduces peak requirements. A water system is sized to meet its customers' peak demands. When these peak demands are reduced through water conservation, a portion of the system's capacity is freed-up for other water customers. This, in effect, increases the base capacity of the system.
- Lowers 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.

- Positions the City to obtain future water rights. In its Long-Range Water Supply Plan (LRWSP), Dallas has identified several future water sources located in East Texas that would involve inter-basin transfer of raw water.<sup>4</sup> With Senate Bill 1, the 75th Texas Legislature required that an applicant for a water right involving an inter-basin transfer must develop and implement a water conservation plan that will result in the highest practicable levels of water conservation and efficiency achievable within the jurisdiction of the applicant.

Other benefits include the generation of positive environmental effects, improving customer good will and promoting a positive image for 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 a heightened public awareness of water conservation in Dallas and the surrounding region
- Include broad-based public and private stakeholder groups in new program development and implementation processes
- “Lead by example” by upgrading city facilities with water efficient fixtures, landscapes, and irrigation systems wherever possible
- Facilitate regional conservation efforts among DWU wholesale customer cities and neighboring municipalities
- Establish the foundation for continuation of water savings targets for the following five-year period

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<sup>4</sup> Chiang, Patel & Yerby, Inc. and Mehta West Brashear Group, 2005 Update Long Range Water Supply Plan: prepared for Dallas Water Utilities, December 31, 2005.

- 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

### 2.3 Quantified Five- and Ten-Year Reduction Goals

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, stakeholder feedback, water conservation programs used by other municipalities, and the City’s existing Strategic 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 effects of all program elements and the components thereof. The five-year water savings target is a reduction in total water use (based on a five-year rolling average) of 8.3 gpcd, and the ten-year water savings target is a reduction in total water use of 9.1 gpcd (Table 2-1). The five- and ten-year goals for water loss are to maintain water losses of less than ten percent of total water use.

**Table 2-1: City of Dallas Five- and Ten-Year Savings Targets**

Description	Unit	2009	2010	2015	2020
City of Dallas Population	capita	1,306,350	1,312,324	1,382,101	1,451,878
Total Water Use <sup>a</sup>	gpcd <sup>b</sup>	205	203	195	194
Total Water Reduction Target	%	-	-	4.1%	4.5%
System Losses	%	9.11%	<10%	<10%	<10%

<sup>a</sup> Total Water Use is the same as City of Dallas municipal use as defined in 30 TAC § 288.1(11). Indirect reuse volumes are credited against total diversion volumes. However, the reduction goals offered here do not include water saved from reuse.

<sup>b</sup> Based on a five-year rolling average.

The ten-year goal of 4.5 percent is considered achievable based on sustaining measures implemented within the first five years. Additional plans for the sixth through tenth years will be developed as part of the next update to the Strategic Plan. After that update, the program for the sixth through tenth years can be better defined, and the ten-year goal can be reassessed.

The “Total Water Use” 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 2008-09 was 194 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 2008-09 was 102 gpcd.

In the 2007 Texas Water Use Survey Summary Estimates, the most recent water use figures reported, the TWDB began tracking residential per capita water use.<sup>5</sup> The most recent annual figure for Dallas was 92 gpcd. This figure is included in the five-year rolling average reported above.

### **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 2009 estimated population of the City of Dallas was 1,306,350, according to the North Central Texas Council of Governments (NCTCOG). DWU supplies wholesale treated municipal water to 22 customer cities or entities, and serves four 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 DWU service area, along with a list of wholesale customers, is shown in Figure 3-1. The 2009 estimated total population of the wholesale customers was approximately 1,180,750, 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.

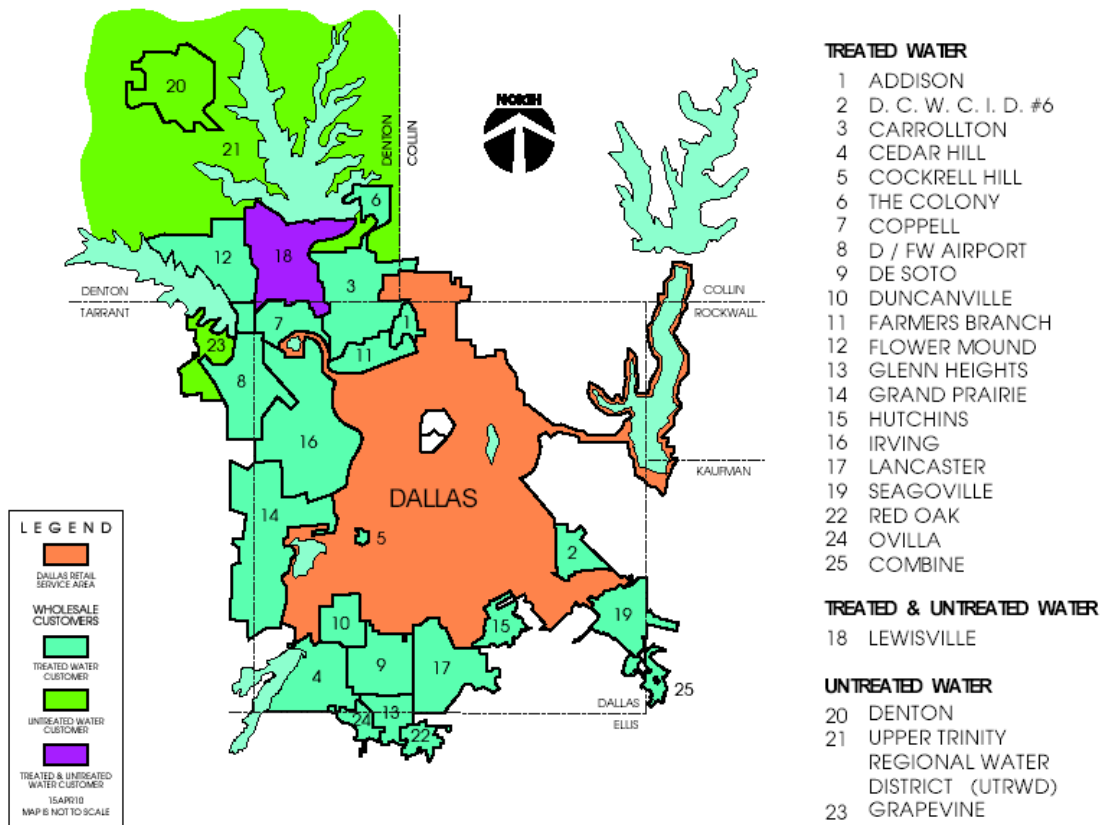
#### **3.2 Long-Range Water Planning Efforts**

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 LRWSP included revised population, per capita consumption, and total demand projections for Dallas and its wholesale customers. The population projections are presented in Table 3-2.

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<sup>5</sup> Texas Water Development Board, 2007 Texas Water Use Survey Summary Estimates. URL: <http://www.twdb.state.tx.us/wrpi/wus/2007est/2007wus.asp>.

**Figure 3-1: Dallas Water Utilities Service Area**



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

Year	2005	2006	2007	2008	2009
<b>Total Population</b>	2,261,200	2,334,000	2,371,550	2,454,550	2,487,100

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

City/Region	2010	2020	2030	2040	2050	2060
City of Dallas	1,312,324	1,451,878	1,525,450	1,598,222	1,650,000	1,700,000
Current Wholesale Customer Cities	1,452,177	1,786,424	2,093,651	2,352,346	2,589,734	2,783,982
Potential Wholesale Customer Cities	5,500	7,500	8,800	10,500	14,000	22,000
<b>Total</b>	<b>2,770,001</b>	<b>3,245,802</b>	<b>3,627,901</b>	<b>3,961,068</b>	<b>4,253,734</b>	<b>4,505,982</b>

### **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 37 percent of all water (treated and untreated) and 32 percent of treated water supplied by DWU. By year 2050, use by DWU's current wholesale water customers could increase to approximately 49 percent of all water and 43 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 and also currently supplies treated water to 22 wholesale customers. DWU also supplies untreated water to an additional four 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 geographically diverse surface water reservoirs, located in different watersheds, and can balance the level of use in each 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 and eastern systems. This designation corresponds to DWU's overall water treatment system infrastructure, which includes the two western treatment plants, Bachman Water Treatment Plant (WTP) and Elm Fork WTP, and one eastern treatment plant, East Side WTP. A detailed list of City of Dallas Water Utilities Water Rights is included in Appendix B.

#### ***4.1.1 Western System***

The reservoirs and watersheds 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 streamflow to DWU's water supply diversion points on the Elm Fork).

#### **4.1.2 Eastern System**

The reservoirs and watersheds in the eastern system in which Dallas holds water rights include:

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

DWU holds water rights in Lake Palestine, but this reservoir is not presently connected to the DWU water system. In addition, DWU treats raw water from Lake 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 receives return flows into Lewisville Lake, Ray Roberts Lake, and Lake Ray Hubbard.

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

## **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 I-35 and Whitlock Lane. It has a current net treatment capacity of 310 MGD and a pumping capacity of 324 MGD. The Elm Fork WTP 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 located at Broadway and Whitlock Lane and the other is on the plant site. Recently two new high service pumps have been installed that increased the overall firm pumping capacity at the plant by 72 MGD.

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

Source	Firm Yield Available to DWU for 2010 <sup>a</sup> (MGD)
<b>Western System</b>	
Elm Fork Channel/Ray Roberts Lake/ Lewisville Lake System <sup>b</sup>	152.3
Grapevine Lake <sup>c</sup>	6.5
Elm Fork Channel (CF 75)	10.0
Elm Fork Channel (Permit 5414)	8.9
<b>Eastern System</b>	
Lake Ray Hubbard	53.9
Lake Tawakoni	163.9
Lake Fork	107.0
Lake Palestine (Unconnected)	102.0
<b>Others</b>	
Return Flows <sup>d</sup>	30.7
<b>Total Connected</b>	<b>533.2</b>
<b>Total Available</b>	<b>635.2</b>

<sup>a</sup> 2005 Update to the Long Range Water Supply Plan

<sup>b</sup> The firm yield of the Elm Fork Channel/Ray Roberts Lake/Lewisville Lake System is based on a system operations yield. DWU’s share is 74.0% of Ray Roberts Lake firm yield and 95.1835% of Lewisville Lake firm yield.

<sup>c</sup> DWU’s share of Grapevine Lake firm yield is limited by the reservoir allocation plan.

<sup>d</sup> 2005 DWU Recycled Water Implementation Plan.

- The Bachman WTP** is located north of Love Field Airport and adjacent to Bachman Lake. Bachman is Dallas’ oldest WTP and has a current net treatment capacity of 150 MGD, current storage capacity of 12.6 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 the Raw Water Pump Station (PS) which is located off-site from the WTP. The raw water is then pumped to the Ozone Facility located at the plant. Recent improvements increased the treatment and pumping capacities of the plant to their current levels.
- The East Side WTP** is located in Sunnyvale. The East Side WTP is Dallas’ largest WTP and has a current treatment capacity of 440 MGD and a firm pumping capacity of 401 MGD. The East Side WTP 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 PS (at Lake Tawakoni) and the Lake Fork PS pump raw water to the Tawakoni Balancing Reservoir (TBR). From the TBR, raw water flows by gravity into the Ozone Facility located at the plant. The Forney Raw Water PS pumps raw water from Lake Ray Hubbard directly to the Ozone Facility.

Several improvements are currently in progress to increase the overall capacity of the eastern system. The Lake Fork PS has recently been completed along with a new raw water transmission line that connects it to the Iron Bridge PS. New raw water pipelines from Lake Tawakoni to the TBR and from TBR to the East Side WTP are currently in the planning phases. In addition, improvements are presently underway at the East Side WTP to increase the treatment capacity of the plant from 440 MGD to 540 MGD and to implement the new enhanced coagulation and biological filtration treatment scheme.

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

The DWU consists of 17 pressure zones, 25 pump stations, 12 ground storage reservoirs, and 9 elevated storage tanks.

The ground storage reservoirs and elevated storage tanks have a total storage capacity of 201 MG and 15.5 MG, respectively.

DWU's treated water distribution system contains approximately 4,900 linear miles of pipe, which can deliver approximately 760 MGD. The capacity of the treated water distribution system is constantly being upgraded and reassessed to improve the ability of the distribution system to meet customers' needs and to replace aging infrastructure. Currently several new pump stations have recently been completed or are under construction or in the design phase. These new pump stations will replace existing pump stations.

Currently the new Transfer Pump Station No. 3 (TPS3), which will ultimately house eight pumps is under construction at East Side WTP. Also, four new 15-MG ground storage reservoirs are under construction at the East Side WTP. This pump station will increase the firm pumping capacity out of East Side WTP from 401 MGD to 701 MGD. Also, the new ground storage reservoirs will increase storage capacity from 6 MG to 60 MG.

To connect the new TPS3 at East Side WTP to the system and to fully realize a pumping capacity increase at the East Side WTP, a new 120-inch diameter water transmission pipeline is currently in the planning phases. This new pipeline will travel around the southeast side of the city from TPS3 at the East Side WTP to the proposed Wintergreen Pump Station and ground storage reservoir located on the southeast side of the city. From there the new pipeline will travel west and tie into the existing Sorcey Road Pump Station on the southwest side of the city.

The Wintergreen Pump Station and ground storage reservoir has been proposed but is not yet in the planning stages. The proposed facilities would supply treated water to the southeast service area and to customer cities, with remaining water pumped to the existing Sorcey Road Pump Station as described above.

### **4.4 Wastewater Treatment Plants**

DWU operates two wastewater treatment plants (WWTPs) - Central and Southside - that serve the City of Dallas as well as eleven wholesale wastewater customer cities. The WWTPs have a

combined annual average flow permitted capacity of 270 MGD. A general description of the plants is as follows:

- **Central WWTP** is currently rated at 150 MGD and is located 4 miles south of downtown. The Central WWTP permit includes a future capacity of 200 MGD. The annual average flow for FY 2008-09 was 101 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 dechlorination facilities. Sludge from the Central WWTP is pumped approximately 13 miles to the Southside WWTP.
- **Southside WWTP** is currently permitted at 110 MGD and is located 18 miles southeast of downtown. The annual average flow for FY 2008-09 was 57 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 B. Also included in Appendix B is a map of DWU's water and wastewater treatment plants.

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

DWU has a long history of providing leadership in the area of water conservation. 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 WTPs are metered using venturi meters located at the WTPs. 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 2 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 individual metering for each building or designated water user. Some commercial businesses are combined through a single master meter as well. Dual metering is currently 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 DWU meters are tested and calibrated in accordance with AWWA standards to accuracy within plus or minus 2 percent. 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-year or 15-year intervals depending on meter size. Repair or replacement of larger general service meters is generally provided at five-year intervals. 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 9.11 percent in 2009. This is well below the national average of 12 percent and below the AWWA goal of 10 percent.

Currently, DWU has an annual budget of \$16.5 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.

During implementation of its Updated Strategic Plan, beginning in FY 2010-11, DWU plans to enhance water loss reduction with additional leak detection, leak repair, and data analysis staff, equipment, and software. This enhancement is subject to annual appropriations.

#### **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 AWWA, and the Texas Water Conservation Association. The school program has received awards from the Texas Section of the AWWA, 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, the Environmental Education Initiative for K-12, a water conservation mascot, free irrigation system inspections, water-wise landscape events, and other public education.

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

The ongoing Public Awareness Campaign, branded "Save Water, Nothing Can Replace It," promotes water conservation with television ads on major stations, radio ads during peak traffic periods, billboards on heavily traveled thoroughfares, and print ads in the *Dallas Morning News* and minority publications. An updated web site featuring the "Save Water" logo contains information about water conservation programs, the water conservation ordinance restrictions, and various "green" events sponsored by the city.

Although the Dallas-Fort Worth metroplex receives water service from many different water providers, it is a single media market. As a result, the DWU Public Awareness Campaign delivers messages within other water service areas, and the DWU water service area receives water conservation messages from other water providers. In 2009, DWU partnered with the Tarrant Regional Water District (TRWD) to minimize the potential for customer confusion by providing uniform water conservation messages to the entire media market and to leverage its Public Awareness Campaign budget. The public awareness campaign budget has grown from \$1,150,000 in FY 2003-04 to \$1,380,000 in FY 2009-10. Through the partnership with TRWD, Dallas leveraged an additional \$650,000 in media exposure in 2009. Since 2002, Dallas has spent a total of \$9.25 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***

DWU augmented its existing school education programs with an Environmental Education Initiative (EEI) through a collaborative effort with the Department of Sanitation to provide programs for grades kindergarten through twelve in the Dallas Independent School District and the Richardson Independent School District. The EEI web site<sup>6</sup> 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 web site also has a description of recycling lessons and water lessons for kindergarten through fifth grade children. Teachers can also register for a free in-class presentation through this web site. To date, the EEI has held programs for over 41,000 students, and over 900 teachers have participated in the staff development program. The annual EEI budget has increased from \$171,000 in FY 2005-06 to \$274,000 in FY 2009-10.

### ***5.5.3 Water Conservation Mascot***

In 2006, DISD students elected Dallas' official water conservation mascot. "DEW" debuted in July 2006, with a seven-day tour at seven recreation centers. Nearly 700 children participated. As part of the mascot kick-off, DWU water conservation staff and local artists taught children about water conservation and provided comic strip drawing lessons, encouraging children to participate in the educational campaign by creating their own cartoons for a competition. The winner of the competition became a creative director for the animated DWU commercial based on her concept. The DEW commercial aired in 2007 in English and Spanish. The video "DEW Helps Kids Save Water" received the 2007 Watermark Award for Communications Excellence from the Texas Section of the AWWA and the Water Environment Association of Texas. DEW spots aired on Nickelodeon and the Cartoon Network in the summer of 2007, and DEW now has his own MySpace and Facebook web pages. DEW information can also be accessed through the "Kids Corner" link on the city's webpage, [www.savedallaswater.com](http://www.savedallaswater.com).

DEW also introduces and narrates the Environmental Education Initiative videos. In summer 2009, the DWU held a "Create a Slogan for DEW" contest to augment its Public Awareness Campaign. Elementary and middle school students submitted 582 slogans to the contest, and the winning slogan was "You can't go green without going blue."

### ***5.5.4 Free Irrigation System Inspections***

DWU added two licensed irrigators to its water conservation division staff and began providing free irrigation system inspections in FY 2006-07. The inspectors serve residential and commercial customers and work with other city departments on proper maintenance and operation of city irrigation systems. The inspections include identification of potential system leaks, diagnosis of equipment malfunctions, and recommendations for equipment upgrades to enhance efficiency. As of March 2010, over 1,000 inspections have been performed. At city facilities alone, these inspections are estimated to save more than thirty-one MG annually.

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<sup>6</sup> URL: [dallaseei.org](http://dallaseei.org).

### ***5.5.5 Industrial, Commercial, and Institutional (ICI) Cooling Tower Audits***

The ICI cooling tower audit program is an outreach effort by DWU to assist large users of cooling water in finding ways to operate more efficiently, save water and energy, and lower their costs. Water savings are realized as the ICI customers implement audit recommendations. The first ICI cooling tower audit was conducted in March 2007. To date, 60 audits have been performed. If all previous audit recommendations are implemented, the ICI cooling tower audit program is projected to save 242 MG per year.

### ***5.5.6 Water Wise Landscape Events***

DWU's water-wise landscapes program 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 has "water-wise" landscapes and demonstration gardens at the historic White Rock Lake Pump Station and Fair Park. DWU also promotes the use of water-wise landscaping with annual water-wise awards, tours of homes, and semi-annual water-wise seminars. Water-wise landscaping is also presented on the DWU's water conservation web site ([www.savedallaswater.com](http://www.savedallaswater.com)) including a list of water-wise landscape locations and virtual tours.

During FY 2003-04 through FY 2007-08, DWU held 10 water-wise events. It is difficult to quantify water savings achieved specifically from these events. However, this conservation measure heightens awareness of the need for water conservation and provides tools for landscape conversion and proper maintenance.

Water savings resulting from customer conversion to water-wise landscaping is not tracked by the city, but continued education events and potential water-wise landscape ordinances for future construction are expected to contribute to water use reduction over time.

### ***5.5.7 Other Public Education***

DWU also uses other approaches to public education, including water bill inserts, brochures, speaking engagements, special events and promotions, and conservation-oriented signs in city facilities.

### ***5.5.8 Planned New Public Education Measures***

#### **Voluntary Twice-Weekly Irrigation Schedule (FY 2010-11)**

From FY 2003-04 through FY 2007-08, more than forty-two percent of total water use was for seasonal purposes, including irrigation and cooling. Dallas plans to encourage all customers to limit irrigation to a maximum of two days per week from April 1 through October 31. A twice-per week irrigation limitation will reduce over-irrigation but will allow customers to meet plant needs.

#### **Industrial, Commercial, and Institutional (ICI) Customer Water Audits (FY 2011-12)**

At a customer's request, a DWU auditor will visit an ICI establishment with the company's engineers or other employees knowledgeable about company water use. The auditor will review

all end uses of water, identify potential water-efficiency improvements and potential costs, directly install small, low-cost devices as appropriate, document the findings, inform the company of applicable DWU water conservation programs, and follow up with the company to track implementation of the recommendations. The ICI customer water audit will be conducted at no cost to the customer. This program is an enhancement of the existing cooling tower water audit program (Section 5.5.5).

#### **ICI Training Programs (FY 2012-13)**

DWU plans to develop, lead, and manage ongoing water efficiency training programs for:

- ICI facility managers for premise types that use the most water, and
- Irrigators, with a focus on 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 2011-12)**

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 discussion of water conservation practices, sharing of conservation success stories, and discussion of DWU ICI water conservation programs.

#### **ICI Hospitality Program (FY 2011-12)**

DWU will engage hotels, motels, and restaurants in the city's water conservation program and train hospitality staff on methods to reduce water use and waste. Measures will include water on request, reuse of towels and linens, and others. To encourage guest participation, DWU will provide printed materials such as table cards, door hangers and pillow cards. This program is scheduled for implementation in FY 2011-12.

## **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." Within this element of the Strategic Plan, 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 web site to publicize its leadership, commitment, and conservation practices. Moreover, Dallas was the first municipality in the North Texas area to adopt an ordinance prohibiting landscape water waste. The ordinance now serves as a model for many cities across the region.

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

DWU currently maintains 10.8 staff positions in the Water Conservation Division, up from 7 full-time employees in 2005. New staff members included a water conservation analyst and two licensed irrigators. Staff members were added to analyze and track BMP programs, provide

customer water audits, administer education programs, and facilitate retrofit programs. Significant expansion of water conservation programs with the implementation of the Strategic Plan required more water conservation staff to coordinate and support the enhanced program.

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

Retrofits of city facilities included replacement of plumbing fixtures and irrigation audits and corresponding improvements. The city also increased its employee and public awareness with campaigns publicizing improvements or retrofits at city-owned facilities. In FY 2004-05, a total of 152 indoor plumbing fixtures were installed as retrofits in 25 city facilities, with an estimated annual water savings of 2.7 MG.

DWU irrigators work with city departments on proper maintenance and operation of city irrigation systems. Three detailed irrigation audits were performed at city facilities in both FY 2005-06 and FY 2006-07. In FY 2007-08, the Park and Recreation Department replaced 825 pop-up spray heads at the main entrance and adjacent north parking lot of the Dallas Zoo with new heads that provide more efficient and effective water usage. These improvements are expected to reduce irrigation water use at these locations by 25 percent annually. Pop-up spray heads in medians at Dallas City Hall were also replaced with more efficient heads. These improvements are expected to reduce irrigation water use by 30 to 40 percent annually.

Finally, the DWU City Leadership Grant Program makes funding for water conservation activities available to other city departments on a competitive basis. Dallas has made the following improvements through this initiative:

- Installed water-wise landscaping and redesigned the irrigation system at Kiest Park, (estimated savings of more than 431,000 gallons per year)
- Installed an “earth-kind” rose garden at the Samuell Grand Recreation Center, and
- Replaced eighty urinals at forty fire stations.

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

#### **Water-Wise Landscape Design Requirements (FY 2013-14)**

Upon City Council approval and adoption, Dallas plans to revise 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 (FY 2013-14)**

Upon City Council approval and adoption, Dallas plans to adopt an ordinance requiring certain water efficiency standards for new and newly-occupied ICI establishments. Example requirements could include repairing all leaks, retrofitting high-flow plumbing fixtures, and other equipment and service requirements, depending on the nature of the business. DWU plans to collaborate with the city’s Building Inspection Office to verify and enforce inspections and installation of water efficiency measures prior to occupancy.

## **5.7 Rebate and Incentive Programs**

DWU has implemented the following rebate and incentive programs: toilet vouchers (*New Throne for Your Home*); Minor Plumbing Repair program; and the ICI pre-rinse spray nozzle replacement program (*Spray to Save*). 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 of up to \$90 for replacement of older, inefficient toilets with more efficient models. Voucher applicants must be DWU customers who own or rent a single- or multi-family residence built prior to 1992 and who do not already have water-efficient toilets. Residential vouchers are limited to two per household. Multi-family requests are handled on a first-come, first-served basis, as funding is limited. The program has been promoted in print and on the DWU water conservation web site.

To date, more than 20,400 toilets have been replaced through the *New Throne for Your Home* program. These efficient toilets are projected to save 93.2 MG annually.

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

The *Minor Plumbing Repair* (MPR) program replaces inefficient water use fixtures such as toilets (up to 2 per household), faucet aerators, and showerheads with efficient water use fixtures. The program also includes minor repairs to leaking faucets, hose bib leaks, easily accessible pipe joint leaks, and water heaters. The MPR program assists low-income DWU customers at no cost to the customer.

The MPR program was initiated in FY 2005-06. To date, over 1,700 families have participated. Currently, measures implemented through the MPR program are projected to save 16.5 MG annually.

### **5.7.3 ICI Pre-Rinse Spray Nozzle Replacement Program**

The *Spray to Save* program is a pre-rinse spray nozzle replacement program that provides efficient pre-rinse spray nozzles free to restaurants, cafeterias, and other commercial food service providers. With the efficient nozzles, food service businesses may save up to \$1,000 per year in energy, water, and wastewater costs. Eligible businesses are DWU customers with an existing, inefficient pre-rinse spray nozzle assembly.

The *Spray to Save* program was initiated in September 2007. Since inception, more than 8,500 fixtures have been replaced at more than 3,100 food service facilities, providing estimated annual savings of 475 MG per year.

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

#### **Residential Irrigation System Incentive (FY 2012-13)**

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

#### **ICI Financial Incentives (FY 2011-12)**

DWU plans to implement a site-specific rebate program for ICI customers to promote water-efficient equipment installation and upgrades. Examples could include cooling processes, plumbing fixtures, laundry processing, medical/dental devices, landscape irrigation, etc. Candidates could include office buildings, hotels/motels, restaurants, grocery stores, Laundromats, schools, manufacturers, food processing, and parks/golf courses.

Customers would propose water-efficiency improvements and project the associated water savings and costs. After review of the proposal, DWU could agree to fund a portion of the cost (up to a maximum amount per customer) for water efficiency measures that meet certain water savings performance standards. The customer would install the approved water-efficiency measures. Upon confirmation of installation, DWU would rebate a portion of the measure costs.

#### **Enhanced Residential Toilet Incentive (FY 2011-12)**

DWU plans to expand the *New Throne for Your Home* program to replace additional existing single- and multi-family residential toilets that use 3.5 gallons per flush or more with high-efficiency toilets (1.28 gallons per flush or less).

#### **Residential Clothes Washer Incentive (FY 2011-12)**

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.

All new and existing rebate and incentive programs are available subject to annual appropriations.

## **5.8 Nonpromotional 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. Connecting higher rates to increased consumption discourages customers from wasting water. A copy of DWU's standard rates is provided in Appendix B.

**Wholesale Customer Water Rates** – The rate structure for 97 percent of wholesale treated water customers is two-part, based on demand and volume. The remaining three percent is charged at a flat volume rate. Current wholesale customer contracts include a clause 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 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. To balance these factors, a revised reservoir operating procedure has been developed. This procedure is revised periodically as conditions change.

The operation procedures are tested using computer simulations developed by DWU staff. The modeling considers projected water demands, power costs, chemical costs, treatment and distribution constraints, and hydrological data. Program utilization normally involves the trial operation of a set of lake operations, assuming that the critical drought of record begins at the time the simulations are made.

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, which is currently updating the Regional Water Plan. 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.

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

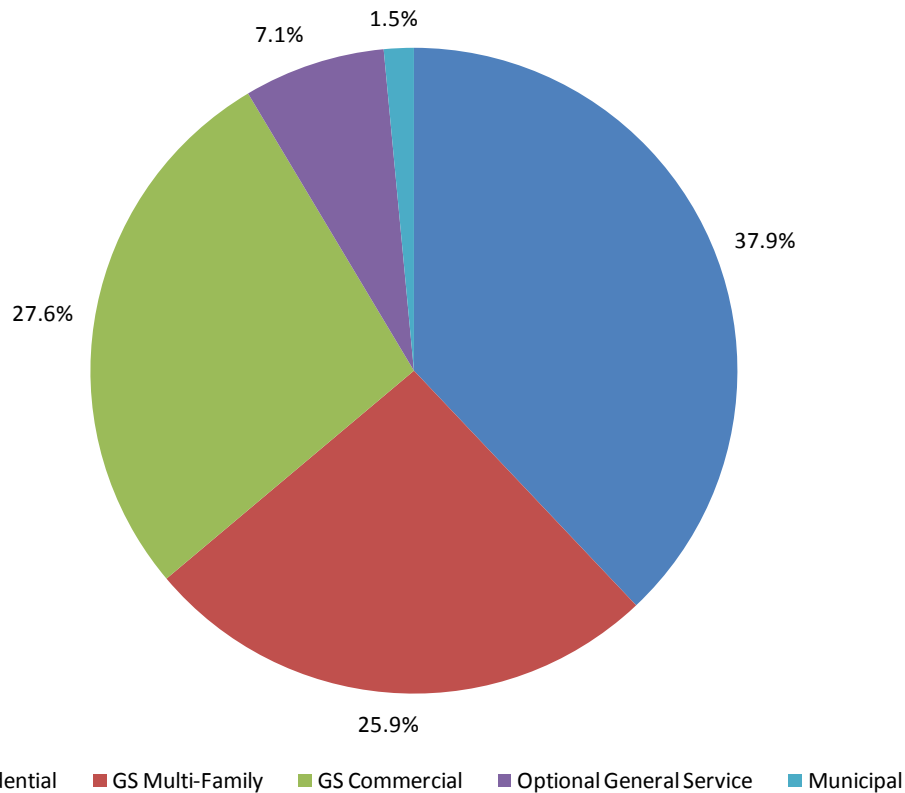
DWU separates City of Dallas water customers into four general account classes:

- 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 2003-04 through FY 2007-08, 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.

**Figure 5-1: Average Water Consumption by Account Class, FY 2003-04 to FY 2007-08**



### 5.14 Plumbing Code Ordinances

The State of Texas has placed maximum flowrate requirements on plumbing fixtures. Examples include maximum flowrates of 2.2 gallons per minute (gpm) for faucets and 2.5 gpm for showerheads. Current law allows maximum flowrates of 1.6 gallons per flush (gpf) for new toilets and 1.0 gpf for new urinals. As of January 1, 2014, the law requires maximum average flowrates of 1.28 gpf for toilets and 0.5 gpf for urinals. Effective March 26, 2008, the City of Dallas adopted a plumbing code based on the 2006 Edition of the International Plumbing Code of the International Code Council, Inc. (Ordinance No. 27111). Dallas's code 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)

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

### 5.16 Wastewater Reuse and Recycling

DWU has developed water recycling projects and plans for additional projects, as described in the following sections. Projects and plans 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**

Project	Projected 2020 Average Supply (MGD)
<b>Direct Recycle Projects</b>	
Cedar Crest Pipeline	0.5
White Rock Pipeline Alternate/Cedar Crest Pipeline Extension	18.3
<b>Indirect Recycle Augmentation</b>	
Return Flows to Dallas Reservoirs	37.5
NTMWD/DWU Exchange	28.2
<b>Total</b>	<b>84.5</b>

#### 5.16.1 Direct Reuse Projects

DWU provides recycled water from the Central WWTP to the Cedar Crest Golf Course for irrigation. The golf course currently uses up to 0.5 MGD. DWU plans to extend the Cedar Crest Pipeline to provide additional recycled water 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 2013, 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.

### ***5.16.1 Return Flow Contracts***

Dallas has contracted with multiple entities to continue to receive their return flows (discharges of highly treated wastewater) in its reservoirs.

## **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. DWU submitted the first of these yearly reports on April 26, 2010. This report is presented in Appendix D.

***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 the subsequent year.

## **APPENDIX A**

- **TAC, Title 30 Chapter 288, Subchapter A, Rules 288.2 & 288.5**
- **TAC, Title 30 Chapter 288, Subchapter C**
- **City of Dallas Conservation Ordinance**



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TITLE 30

ENVIRONMENTAL QUALITY

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CHAPTER 288

WATER CONSERVATION PLANS, DROUGHT  
CONTINGENCY PLANS, GUIDELINES AND  
REQUIREMENTS

SUBCHAPTER A

WATER CONSERVATION PLANS

RULE §288.2

**Water Conservation Plans for Municipal Uses by Public  
Water Suppliers**[Historical](#)[Texas Register](#)

(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 drinking water suppliers must include the following elements:

(A) a utility profile including, but not limited to, information regarding population and customer data, water use data, water supply system data, and wastewater system data;

(B) until May 1, 2005, specification of conservation goals including, but not limited to, municipal per capita water use goals, the basis for the development of such goals, and a time frame for achieving the specified goals;

(C) beginning May 1, 2005, 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. 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 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.);

(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 in order to control unaccounted-for uses of water;

(B) 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:

(i) residential;

(ii) commercial;

(iii) public and institutional; and

(iv) industrial;

(C) 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) Beginning May 1, 2005, 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.

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**Source Note:** The provisions of this §288.2 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384

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SUBCHAPTER A

WATER CONSERVATION PLANS

RULE §288.5

**Water Conservation Plans for Wholesale Water Suppliers**[Historical](#)[Texas Register](#)

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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) until May 1, 2005, specification of conservation goals including, where appropriate, target per capita water use goals for the wholesaler's service area, maximum acceptable unaccounted-for water, the basis for the development of these goals, and a time frame for achieving these goals;

(C) beginning May 1, 2005, 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. The goals established by wholesale water suppliers under this subparagraph are not enforceable;

(D) 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;

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

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

(G) 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;

(H) 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;

(I) 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

(J) 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. Beginning May 1, 2005, 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 not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group.

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**Source Note:** The provisions of this §288.5 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384

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SUBCHAPTER C

REQUIRED SUBMITTALS

RULE §288.30

**Required Submittals**[Historical](#)[Texas Register](#)

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In addition to the water conservation and drought contingency plans required to be submitted with an application under §295.9 of this title (relating to Water Conservation and Drought Contingency Plans), water conservation and drought contingency plans are required as follows.

(1) Water conservation plans for municipal, industrial, and other non-irrigation uses. The holder 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 shall develop, submit, and implement a water conservation plan meeting the requirements of Subchapter A of this chapter (relating to Water Conservation Plans). The water conservation plan must be submitted to the executive director not later than May 1, 2005. Thereafter, the next revision of the water conservation plan for municipal, industrial, and other non-irrigation uses must be submitted not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any revised plans must be submitted to the executive director within 90 days of adoption. The revised plans must include implementation reports. The requirement for a water conservation plan under this section must not result in the need for an amendment to an existing permit, certified filing, or certificate of adjudication.

(2) Implementation report for municipal, industrial, and other non-irrigation uses. The implementation report must include:

(A) the list of dates and descriptions of the conservation measures implemented;

(B) data about whether or not targets in the plans are being met;

(C) the actual amount of water saved; and

(D) if the targets are not being met, an explanation as to why any of the targets are not being met, including any progress on that particular target.

(3) Water conservation plans for irrigation uses. The holder of an existing permit, certified filing, or certificate of adjudication for the appropriation of surface water in the amount of 10,000 acre-feet a year or more for irrigation uses shall develop, submit, and implement a water conservation plan meeting the requirements of Subchapter A of this chapter. The water conservation plan must be submitted to the executive director not later than May 1, 2005. Thereafter, the next revision of the water conservation plan for irrigation uses must be submitted not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any revised plans must be submitted to the executive director within 90 days of adoption. The revised plans must include implementation

reports. The requirement for a water conservation plan under this section must not result in the need for an amendment to an existing permit, certified filing, or certificate of adjudication.

(4) Implementation report for irrigation uses. The implementation report must include:

(A) the list of dates and descriptions of the conservation measures implemented;

(B) data about whether or not targets in the plans are being met;

(C) the actual amount of water saved; and

(D) if the targets are not being met, an explanation as to why any of the targets are not being met, including any progress on that particular target.

(5) Drought contingency plans for retail public water suppliers. Retail public water suppliers shall submit a drought contingency plan meeting the requirements of Subchapter B of this chapter (relating to Drought Contingency Plans) to the executive director after adoption by its governing body. The retail public water system shall provide a copy of the plan to the regional water planning group for each region within which the water system operates. These drought contingency plans must be submitted as follows.

(A) For retail public water suppliers providing water service to 3,300 or more connections, the drought contingency plan must be submitted to the executive director not later than May 1, 2005. Thereafter, the retail public water suppliers providing water service to 3,300 or more connections shall submit the next revision of the plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any revised plans must be submitted to the executive director within 90 days of adoption by the community water system. Any new retail public water suppliers providing water service to 3,300 or more connections shall prepare and adopt a drought contingency plan within 180 days of commencement of operation, and submit the plan to the executive director within 90 days of adoption.

(B) For all the retail public water suppliers, the drought contingency plan must be prepared and adopted not later than May 1, 2005 and must be available for inspection by the executive director upon request. Thereafter, the retail public water suppliers shall prepare and adopt the next revision of the plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any new retail public water supplier providing water service to less than 3,300 connections shall prepare and adopt a drought contingency plan within 180 days of commencement of operation, and shall make the plan available for inspection by the executive director upon request.

(6) Drought contingency plans for wholesale public water suppliers. Wholesale public water suppliers shall submit a drought contingency plan meeting the requirements of Subchapter B of this chapter to the executive director not later than May 1, 2005, after adoption of the drought contingency plan by the governing body of the water supplier. Thereafter, the wholesale public water suppliers shall submit the next revision of the plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any new or revised plans must be submitted to the executive director within 90 days of adoption by the governing body of the wholesale public water supplier. Wholesale public water suppliers shall also provide a copy of the drought contingency plan to the regional water planning group for each region within which the wholesale water supplier operates.

(7) Drought contingency plans for irrigation districts. Irrigation districts shall submit a drought

contingency plan meeting the requirements of Subchapter B of this chapter to the executive director not later than May 1, 2005, after adoption by the governing body of the irrigation district. Thereafter, the irrigation districts shall submit the next revision of the plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any new or revised plans must be submitted to the executive director within 90 days of adoption by the governing body of the irrigation district. Irrigation districts shall also provide a copy of the plan to the regional water planning group for each region within which the irrigation district operates.

(8) Additional submissions with a water right application for state water. A water conservation plan or drought contingency plan required to be submitted with an application in accordance with §295.9 of this title must also be subject to review and approval by the commission.

(9) Existing permits. The holder of an existing permit, certified filing, or certificate of adjudication shall not be subject to enforcement actions nor shall the permit, certified filing, or certificate of adjudication be subject to cancellation, either in part or in whole, based on the nonattainment of goals contained within a water conservation plan submitted with an application in accordance with §295.9 of this title or by the holder of an existing permit, certified filing, or certificate of adjudication in accordance with the requirements of this section.

(10) Submissions to the executive administrator of the Texas Water Development Board.

(A) Water conservation plans for retail public water suppliers. For retail public water suppliers providing water service to 3,300 or more connections, a water conservation plan meeting the minimum requirements of Subchapter A of this chapter and using appropriate best management practices must be developed, implemented, and submitted to the executive administrator of the Texas Water Development Board not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. Any revised plans must be submitted to the executive administrator within 90 days of adoption by the community water system. Any new retail public water suppliers providing water service to 3,300 or more connections shall prepare and adopt a water conservation plan within 180 days of commencement of operation, and submit the plan to the executive administrator of the Texas Water Development Board within 90 days of adoption.

(B) Water conservation plans. Each entity that is required to submit a water conservation plan to the commission shall submit a copy of the plan to the executive administrator of the Texas Water Development Board not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group.

(C) Annual reports. Each entity that is required to submit a water conservation plan to the Texas Water Development Board or the commission, shall file a report not later than May 1, 2010, and annually thereafter to the executive administrator of the Texas Water Development Board on the entity's progress in implementing the plan.

(D) Violations of the Texas Water Development Board's rules. The water conservation plans and annual reports shall comply with the minimum requirements established in the Texas Water Development Board's rules. The Texas Water Development Board shall notify the commission if the Texas Water Development Board determines that an entity has not complied with the Texas Water Development Board rules relating to the minimum requirements for water conservation plans or submission of plans or annual reports. The commission shall take appropriate enforcement action upon receipt of notice from the Texas Water Development Board.

**Source Note:** The provisions of this §288.30 adopted to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective January 10, 2008, 33 TexReg 193

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**SEC. 49-21.1. CONSERVATION MEASURES RELATING TO LAWN AND LANDSCAPE IRRIGATION.**

(a) Purpose. Lawn and landscape irrigation practices within the city, especially during the summer months, can cause a waste of valuable water resources. The purpose of this section is to mandate that water be used for lawn and landscape irrigation in a manner that prevents waste, conserves water resources for their most beneficial and vital uses, and protects the public health.

(b) Lawn and landscape irrigation restrictions.

(1) A person commits an offense if, during the period from April 1 through October 31 of any year and between the hours of 10:00 a.m. and 6:00 p.m. on any day during that period, he irrigates, waters, or causes or permits the irrigation or watering of any lawn or landscape located on premises owned, leased, or managed by him.

(2) A person commits an offense if he knowingly or recklessly irrigates, waters, or causes or permits the irrigation or watering of a lawn or landscape located on premises owned, leased, or managed by the person in a manner that causes:

(A) a substantial amount of water to fall upon impervious areas instead of upon the lawn or landscape, such that a constant stream of water overflows from the lawn or landscape onto a street or other drainage area; or

(B) an irrigation system or other lawn or landscape watering device to operate during any form of precipitation.

(3) A person commits an offense if, on premises owned, leased, or managed by him, he operates a lawn or landscape irrigation system or device that:

(A) has any broken or missing sprinkler head; or

(B) has not been properly maintained in a manner that prevents the waste of water.

(c) Rain sensing devices and freeze gauges.

(1) Any new irrigation system installed within the city on or after January 1, 2002 must be equipped with rain sensing devices and freeze gauges approved as to number and type by the director.

(2) Any irrigation system installed before January 1, 2002 may not be operated after January 1, 2005 without being equipped with rain sensing devices and freeze gauges approved as to number and type by the director.

(3) A person commits an offense if, on premises owned, leased, or managed by him, he:

(A) installs, or causes or permits the installation of, a new irrigation system in violation of Subsection (c)(1);

(B) operates, or causes or permits the operation of, an irrigation system that does not comply with Subsection (c)(1); or

(C) operates, or causes or permits the operation of, an irrigation system that does not comply with Subsection (c)(2).

(d) Variations. The director may, in special cases, grant variances from the provisions of Subsection (b)(1) or Subsection (c) to persons demonstrating extreme hardship and need. The director may grant variances only under all of the following circumstances and conditions:

(1) The applicant must sign a compliance agreement on forms provided by the director, and approved by the city attorney, agreeing to irrigate or water a lawn or landscape only in the amount and manner permitted by the variance.

(2) Granting of a variance must not cause an immediate significant reduction in the city's water supply.

(3) The extreme hardship or need requiring the variance must relate to the health, safety, or welfare of the person requesting it.

(4) The health, safety, and welfare of other persons must not be adversely affected by granting the variance.

(e) Revocation of variances. The director may revoke a variance granted when the director determines that:

(1) the conditions of Subsection (d) are not being met or are no longer applicable;

(2) the terms of the compliance agreement are being violated; or

(3) the health, safety, or welfare of other persons requires revocation. (Ord. Nos. 24745; 26518)

## **APPENDIX B**

- **Utility Profile for Municipal Water Suppliers**
- **Utility Profile for Wholesale Water Suppliers**
- **Map of the Service Area**
- **Water Supply System Data**
- **Customer Data**
- **Standard Rate Schedule**
- **Map of Treatment Plants**



Texas Commission on Environmental Quality



**UTILITY PROFILE & WATER CONSERVATION PLAN  
REQUIREMENTS  
FOR MUNICIPAL WATER USE BY PUBLIC WATER  
SUPPLIERS**

This form is provided to assist entities in water conservation plan development for municipal water use by a retail public water supplier. Information from this form should be included within a water conservation plan for municipal use. 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 Supply Division at (512) 239-4691.


**Name of Entity:** City of Dallas Water Utilities

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

**Telephone Number:** ( 214 ) 670-5245 Fax: ( 214 ) 670-1241

**Form Completed By:** Fujiang Wen

**Title:** Conservation Analyst

**Signature**  Date: 05/24/2010

**Name and Phone Number of Person/Department responsible for implementing a water conservation program:** Carole Davis, Water Conservation, (214) 243-1175

**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).  
**See Attached Map of Service Area**  
**CCN- Not applicable**
2. Service area size (square miles): 699 sq. miles

3. Current population of service area: 1,306,350 (retail population)

4. Current population (retail only) served:

a. water 1,306,350  
b. wastewater 1,261,878

5. Population served by water utility for the previous five years:

6. Projected population for service area in the following decades (retail only):

Year	Population (retail)	Year	Population
<u>2005</u>	<u>1,232,100</u>	<u>2010</u>	<u>1,312,324</u>
<u>2006</u>	<u>1,260,950</u>	<u>2020</u>	<u>1,451,878</u>
<u>2007</u>	<u>1,280,500</u>	<u>2030</u>	<u>1,525,450</u>
<u>2008</u>	<u>1,300,350</u>	<u>2040</u>	<u>1,598,222</u>
<u>2009</u>	<u>1,306,350</u>	<u>2050</u>	<u>1,650,000</u>

7. List source/method for the calculation of current and projected population:

Current – US Census and NCTCOG  
2005 Update Long Range Water Supply Plan  
   
 

**B. Active Connections**

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

Treated water users:	Metered	Not-metered	Total
Residential	<u>249,389</u>	<u>n/a</u>	<u>249,389</u>
Commercial	<u>44,211</u>	<u>n/a</u>	<u>44,211</u>
Industrial	<u>82</u>	<u>n/a</u>	<u>82</u>
Other	<u>1,201</u>	<u>n/a</u>	<u>1,201</u>

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

Year	<u>2007</u>	<u>2008</u>	<u>2009</u>
Residential	<u>1,930</u>	<u>725</u>	<u>-11,243</u>
Commercial	<u>445</u>	<u>197</u>	<u>-8,173</u>
Industrial	<u>-1</u>	<u>-3</u>	<u>19</u>
Other	<u>-7</u>	<u>109</u>	<u>-161</u>

**C. High Volume Customers**

List annual water use for the five highest volume customers  
(indicate if treated or raw water delivery)

	Customer	Use (1,000 gal./year)	Treated/Raw Water
(1)	<u>TX Instrument</u>	<u>1,768,333</u>	<u>TW</u>
(2)	<u>Pilgrims Pride</u>	<u>433,970</u>	<u>TW</u>
(3)	<u>UT Southwestern</u>	<u>211,221</u>	<u>TW</u>
(4)	<u>Vought Aircraft</u>	<u>204,293</u>	<u>TW</u>
(5)	<u>Dallas County Facilities</u>	<u>195,893</u>	<u>TW</u>

**II. WATER USE DATA FOR SERVICE AREA**

**A. Water Accounting Data**

1. Amount of water use including retail, wholesale and unbilled for previous five years  
(in 1,000 gal.):

Please indicate:      Diverted Water  
                                    **Treated Water**

Year	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
January	9,533,394	11,962,000	9,869,700	10,110,000	9,995,200
February	8,604,675	9,577,000	9,200,300	9,273,000	9,430,100
March	10,291,690	11,227,000	11,319,000	9,941,200	10,671,000
April	11,839,896	12,861,000	10,579,300	10,521,400	10,743,000
May	13,233,858	14,722,000	11,162,000	12,175,900	11,405,000
June	15,581,175	17,267,000	11,169,100	14,887,500	14,436,000
July	16,683,072	18,547,000	12,456,400	18,303,700	16,926,000
August	17,166,930	19,393,000	15,882,900	17,086,000	16,233,600
September	16,920,000	15,199,000	13,841,300	14,558,300	12,562,000
October	12,538,600	15,491,000	14,128,600	13,131,700	13,928,000
November	9,890,600	12,711,000	11,746,900	11,957,000	11,546,000
December	9,799,968	11,473,000	10,411,200	10,395,200	10,157,400
<b>Total</b>	<b><u>152,083,858</u></b>	<b><u>170,430,000</u></b>	<b><u>141,766,700</u></b>	<b><u>152,340,900</u></b>	<b><u>148,033,300</u></b>

Indicate how the above figures were determined (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).

**Primary pumpage less net reservoir draw equals daily consumption**

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

<b>Year</b>	<b>Residential</b>	<b>Commercial</b>	<b>Industrial</b>	<b>Wholesale</b>	<b>Other*</b>	<b>Total Sold</b>
<b>2005</b>	28,159,684	38,953,052	5,450,131	55,146,719	1,210,067	128,919,653
<b>2006</b>	33,541,382	43,533,475	5,357,595	67,398,357	1,258,455	151,089,264
<b>2007</b>	25,057,089	36,352,064	5,285,944	53,099,545	903,920	120,698,562
<b>2008</b>	27,781,075	37,699,875	4,893,742	53,600,837	1,014,768	124,990,296
<b>2009</b>	27,320,341	36,298,105	4,816,202	57,288,197	1,165,100	126,887,945

\* Wholesale excluding raw water

\*\* Municipal

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

<b>Year</b>	<b>Amount (gal.)</b>	<b>%</b>
<u>2005</u>	<u>17,267,782,145</u>	<u>11.4</u>
<u>2006</u>	<u>14,814,468,795</u>	<u>8.7</u>
<u>2007</u>	<u>15,381,231,858</u>	<u>10.9</u>
<u>2008</u>	<u>20,729,336,688</u>	<u>13.6</u>
<u>2009</u>	<u>13,485,351,522</u>	<u>9.1</u>

4. Municipal water use for previous five years (retail consumption and population):

<b>Year</b>	<b>Population</b>	<b>Total Water Diverted or Pumped for Treatment (1,000 gal.)</b>
<u>2005</u>	<u>1,232,100</u>	<u>96,936,881</u>
<u>2006</u>	<u>1,260,950</u>	<u>103,031,643</u>
<u>2007</u>	<u>1,280,500</u>	<u>88,469,655</u>
<u>2008</u>	<u>1,300,350</u>	<u>98,732,163</u>
<u>2009</u>	<u>1,306,350</u>	<u>90,777,303</u>

**B. Projected Water Demands**

If applicable, attach projected 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 requirement from such growth.

**III. WATER SUPPLY SYSTEM DATA**

**A. Water Supply Sources**

List all current water supply sources and the amounts authorized with each:

	Source	Amount Authorized
Surface Water:	<u>See Attached</u>	_____ acre-feet
Groundwater:	_____	_____ acre-feet
Contracts:	_____	_____ acre-feet
Other:	_____	_____ acre-feet

**B. Treatment and Distribution System**

1. Design daily capacity of system: 900 MGD
2. Storage Capacity: Elevated 15.5 MGD, Ground 201 MGD
3. If surface water, do you recycle filter backwash to the head of the plant?  
Yes X No \_\_\_\_\_. If yes, approximately 7-8% recycle flow  
compared to the production MGD.
4. Please attach a description of the water system. Include the number of treatment plants, wells, and storage tanks. If possible, include a sketch of the system layout.

**IV. WASTEWATER SYSTEM DATA**

**A. Wastewater System Data**

1. Design capacity of wastewater treatment plant(s): 270 MGD
2. Is treated effluent used for irrigation on-site n/a, off-site yes, plant washdown n/a, or chlorination/dechlorination n/a?  
If yes, approximately 5,000,000 gallons per month.

- Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed of. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and, if wastewater is discharged, the receiving stream. If possible, attach a sketch or map which locates the plant(s) and discharge points or disposal sites.

Dallas Water Utilities operates a conventional treatment system.

2 wastewater treatment plants:

Central Wastewater Treatment Plant 150 MGD TCEQ#10060-001,

Southside Wastewater treatment plant 110MGD TCEQ#10060-006.

The treated effluent is discharged to the 0805 stream segment of the Trinity River.

The treatment plants are operated and owned by the City of Dallas.

## **B. Wastewater Data for Service Area**

- Percent of water service area served by wastewater system: 50 %
- Monthly volume treated for previous three years (in million gallons):

<b>Year</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<u>January</u>	<u>7,271</u>	<u>4,551</u>	<u>4,243</u>
<u>February</u>	<u>5,239</u>	<u>4,505</u>	<u>3,938</u>
<u>March</u>	<u>6,044</u>	<u>7,330</u>	<u>4,934</u>
<u>April</u>	<u>6,238</u>	<u>5,887</u>	<u>4,696</u>
<u>May</u>	<u>6,122</u>	<u>4,891</u>	<u>5,677</u>
<u>June</u>	<u>7,368</u>	<u>4,664</u>	<u>5,640</u>
<u>July</u>	<u>7,535</u>	<u>4,648</u>	<u>4,859</u>
<u>August</u>	<u>5,358</u>	<u>4,835</u>	<u>4,864</u>
<u>September</u>	<u>5,813</u>	<u>4,395</u>	<u>5,976</u>
<u>October</u>	<u>5,673</u>	<u>5,489</u>	<u>4,459</u>
<u>November</u>	<u>5,307</u>	<u>4,993</u>	<u>4,468</u>
<u>December</u>	<u>6,053</u>	<u>5,205</u>	<u>4,278</u>
<b><u>Total</u></b>	<b><u>74,020</u></b>	<b><u>61,394</u></b>	<b><u>44,826</u></b>

## **REQUIREMENTS FOR WATER CONSERVATION PLANS FOR MUNICIPAL WATER USE BY PUBLIC WATER SUPPLIERS**

**In addition to the utility profile, a water conservation plan for municipal use by a public water supplier must include, at minimum, additional information 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.**

### **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* (see Appendix A). Note that the goals established by a public water supplier under this subparagraph are not enforceable.

### **Metering Devices**

The water conservation plan must include a statement about the water supplier's 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.

### **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.

### **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.).

### **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.

### **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.

### **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 in order to optimize available water supplies.

### **Enforcement Procedure & Plan Adoption**

The water conservation plan must include a means of implementation and enforcement which shall be evidenced by 1) a copy of the ordinance, resolution, or tariff indicating **official adoption** of the water conservation plan by the water supplier; and 2) a description of the authority by which the water supplier will implement and enforce the conservation plan.

### **Coordination with the Regional Water Planning Group(s)**

The water conservation plan must include documentation of coordination with the regional water planning group(s) for the service area of the public 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).*

### **Additional Requirements:**

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

#### **1. 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, delivery, and distribution system in order to control unaccounted-for uses of water.

#### **2. 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).

## **Plan Review and Update**

Beginning May 1, 2005, 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.

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

*On November 2004, the Texas Water Development Board (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. 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 BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.*

<http://www.twdb.state.tx.us/assistance/conservation/TaskForceDocs/WCITFBMPGuide.pdf>

## Appendix A

### Definitions of Commonly Used Terms

**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.

**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, commercial fish production, and the development of power by means other than hydroelectric, but does not include agricultural use.

**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 through a municipal distribution system.

**Municipal per capita water use** ■ The sum total of water diverted into a water supply system for residential, commercial, and public and institutional uses divided by actual population served.

**Municipal use** ■ The use of potable water within or outside a municipality and its environs whether supplied by a person, privately owned utility, political subdivision, or other entity as well as the use of sewage effluent for certain purposes, including the use of treated water for domestic purposes, fighting fires, sprinkling streets, flushing sewers and drains, watering parks and parkways, and recreational purposes, including public and private swimming pools, the use of potable water in industrial and commercial enterprises supplied by a municipal distribution system without special construction to meet its demands, and for the watering of lawns and family gardens.

**Municipal use in gallons per capita per day** ■ The total average daily amount of water diverted or pumped for treatment for potable use by a public water supply system. The calculation is made by dividing the water diverted or pumped for treatment for potable use by population served. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculating gallons per capita per day for targets and goals.

**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.

**Public water supplier** ■ An individual or entity that supplies water to the public for human consumption.

**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.

**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.

**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.

**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).

**Water loss** - The difference between water diverted or treated and water delivered (sold). Water loss can result from:

1. inaccurate or incomplete record keeping;
2. meter error;
3. unmetered uses such as firefighting, line flushing, and water for public buildings and water treatment plants;
4. leaks; and
5. water theft and unauthorized use.

**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.

**If you have any questions on how to fill out this form or about the \_\_\_\_\_ program, please contact us at 512/239-\_\_\_\_\_.**

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.



Texas Commission on Environmental Quality



PROFILE & WATER CONSERVATION PLAN  
REQUIREMENTS FOR WHOLESALE PUBLIC  
WATER SUPPLIERS

This form is provided to assist wholesale public water suppliers in water conservation plan development. Information from this form should be included within a wholesale public water supplier water conservation plan. 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 Supply Division at (512) 239-4691.


**Name of Entity:** City of Dallas Water Utilities

**Address & Zip:** 1500 Marilla St., 4AS, Dallas Texas 75201

**Telephone Number:** (214) 670-5245 **Fax:** (214) 670-5122

**Form Completed by:** Fujiang Wen

**Title:** Conservation Analyst

**Signature:**  **Date:** 05/24/2010

**Name and Phone Number of Person/Department responsible for implementing a water conservation program:** Carole Davis, Water Conservation (214) 243-1175

**PROFILE**

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

**A. Population and Service Area Data**

1. Service area size in square miles: 699 sq. miles  
(attach a copy of service-area map)
2. Current population of service area: 1,197,850
3. Current population served for:
  - a. water 980,130
  - b. wastewater 200,620

4. Population served for previous five years:

<u>Year</u>	<u>Population</u>
<u>2005</u>	<u>1,029,100</u>
<u>2006</u>	<u>1,061,150</u>
<u>2007</u>	<u>1,091,050</u>
<u>2008</u>	<u>1,154,200</u>
<u>2009</u>	<u>1,197,850</u>

5. Projected population for service area in the following decades:

<u>Year</u>	<u>Population</u>
<u>2010</u>	<u>1,476,835</u>
<u>2020</u>	<u>1,817,243</u>
<u>2030</u>	<u>2,129,843</u>
<u>2040</u>	<u>2,393,570</u>
<u>2050</u>	<u>2,637,610</u>

6. List source or method for the calculation of current and projected population:

<u>Historical – NCTOG and U.S. Census</u>
<u>Projections – 2005 Update Long Range Water Supply Plan</u>

**B. Customers Data**

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

	<u>Wholesale Customer</u>	<u>Contracted Amount (acre-feet)</u>	<u>Previous Year Amount of Water Delivered (acre-feet)</u>
(1)	_____	_____	_____
(2)	_____	_____	_____
(3)	_____	_____	_____
(4)	_____	_____	_____
(5)	_____	_____	_____

## II. WATER USE DATA FOR SERVICE AREA

### A. Water Delivery

Indicated if the water provided under wholesale contracts is treated or raw water and the annual amount for each for previous year (wholesale service area only):

	Total amount delivered or sold for previous year (acre-feet)
Treated	<u>175,811</u>
Raw	<u>17,507</u>

### B. Water Accounting Data

- Total amount of water diverted at point of diversion(s) for previous five years (in 1,000 gal.) for all water uses:

<u>Year</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
January	5,645,562	4,789,940	4,141,978	7,683,664	4,342,313
February	3,231,390	4,439,431	2,660,601	3,933,221	3,881,106
March	3,853,402	3,028,084	3,964,919	3,019,702	3,321,863
April	3,815,325	5,252,116	3,984,182	3,678,591	4,707,408
May	4,912,258	5,047,415	4,533,889	5,477,285	4,903,130
June	5,305,079	6,664,472	4,956,853	5,511,560	5,475,442
July	5,051,954	7,894,561	5,809,029	5,550,170	6,902,383
August	6,965,424	8,374,040	6,672,418	6,450,710	8,075,817
September	9,645,985	8,344,121	8,229,428	5,728,344	6,881,931
October	5,647,490	7,015,760	6,856,018	6,197,028	5,636,469
November	4,016,723	6,699,534	7,169,412	5,815,997	4,490,920
December	3,957,928	5,075,815	4,314,649	3,338,079	4,374,220
<b>Total</b>	<b><u>62,048,520</u></b>	<b><u>72,625,289</u></b>	<b><u>63,293,376</u></b>	<b><u>62,384,351</u></b>	<b><u>62,993,002</u></b>

- Wholesale population served and total amount of water diverted for **municipal use** for previous five years:

<b>Year</b>	<b>Total Population Served</b>	<b>Total Annual Water Diverted for Municipal Use (1,000 gal.)</b>
2005	1,029,100	62,048,520
2006	1,061,150	72,625,289
2007	1,091,050	63,293,376
2008	1,154,200	62,384,351
2009	1,197,850	62,993,002



Dallas Water Utilities operates a conventional treatment system.  
 2 wastewater treatment plants:  
 Central Wastewater Treatment Plant 150 MGD TCEQ#10060-001,  
 Southside Wastewater treatment plant 110MGD TCEQ#10060-006.  
 The treated effluent is discharged to the 0805 stream segment of the Trinity River.  
 The treatment plants are operated and owned by the City of Dallas.

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

1. Percent of water service area served by wastewater system: 50 %
2. Monthly volume treated for previous three years (in 1,000 gal.):

<u>Year</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
<u>January</u>	<u>472,635</u>	<u>346,083</u>	<u>343,127</u>
<u>February</u>	<u>376,868</u>	<u>386,455</u>	<u>349,019</u>
<u>March</u>	<u>388,383</u>	<u>437,448</u>	<u>365,827</u>
<u>April</u>	<u>384,176</u>	<u>427,412</u>	<u>354,951</u>
<u>May</u>	<u>436,958</u>	<u>375,304</u>	<u>413,161</u>
<u>June</u>	<u>461,051</u>	<u>347,533</u>	<u>367,041</u>
<u>July</u>	<u>459,170</u>	<u>356,147</u>	<u>349,545</u>
<u>August</u>	<u>389,096</u>	<u>376,541</u>	<u>333,461</u>
<u>September</u>	<u>391,930</u>	<u>343,529</u>	<u>388,926</u>
<u>October</u>	<u>393,082</u>	<u>372,401</u>	<u>336,007</u>
<u>November</u>	<u>356,901</u>	<u>345,331</u>	<u>330,284</u>
<u>December</u>	<u>384,694</u>	<u>358,836</u>	<u>343,724</u>
<b><u>Total</u></b>	<b><u>4,894,944</u></b>	<b><u>4,473,020</u></b>	<b><u>4,275,073</u></b>

## **REQUIREMENTS FOR WATER CONSERVATION PLANS FOR WHOLESALE PUBLIC WATER SUPPLIERS**

**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, §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.**

### **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.

### **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.

### **Record Management Program**

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

### **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.

### **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 plans shall include optimization of water supplies as one of the significant goals of the plan.

### **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 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 the provisions of Title 30 TAC Chapter 288.

### **Enforcement Procedure & 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.

### **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).*

### **Plan Review and Update**

Beginning May 1, 2005, 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 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.

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

*On November 2004, the Texas Water Development Board's (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. 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 BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.*

<http://www.twdb.state.tx.us/assistance/conservation/TaskForceDocs/WCITFBMPGuide.pdf>

**If you have any questions on how to fill out this form or about the Wholesale Public Water Suppliers 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.

## Appendix A

### Definitions of Commonly Used Terms

**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.

**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, commercial fish production, and the development of power by means other than hydroelectric, but does not include agricultural use.

**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 through a municipal distribution system.

**Municipal per capita water use** ■ The sum total of water diverted into a water supply system for residential, commercial, and public and institutional uses divided by actual population served.

**Municipal use** ■ The use of potable water within or outside a municipality and its environs whether supplied by a person, privately owned utility, political subdivision, or other entity as well as the use of sewage effluent for certain purposes, including the use of treated water for domestic purposes, fighting fires, sprinkling streets, flushing sewers and drains, watering parks and parkways, and recreational purposes, including public and private swimming pools, the use of potable water in industrial and commercial enterprises supplied by a municipal distribution system without special construction to meet its demands, and for the watering of lawns and family gardens.

**Municipal use in gallons per capita per day** ■ The total average daily amount of water diverted or pumped for treatment for potable use by a public water supply system. The calculation is made by dividing the water diverted or pumped for treatment for potable use by population served. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculating gallons per capita per day for targets and goals.

**Public water supplier** ■ An individual or entity that supplies water to the public for human consumption.

**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.

**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.

**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.

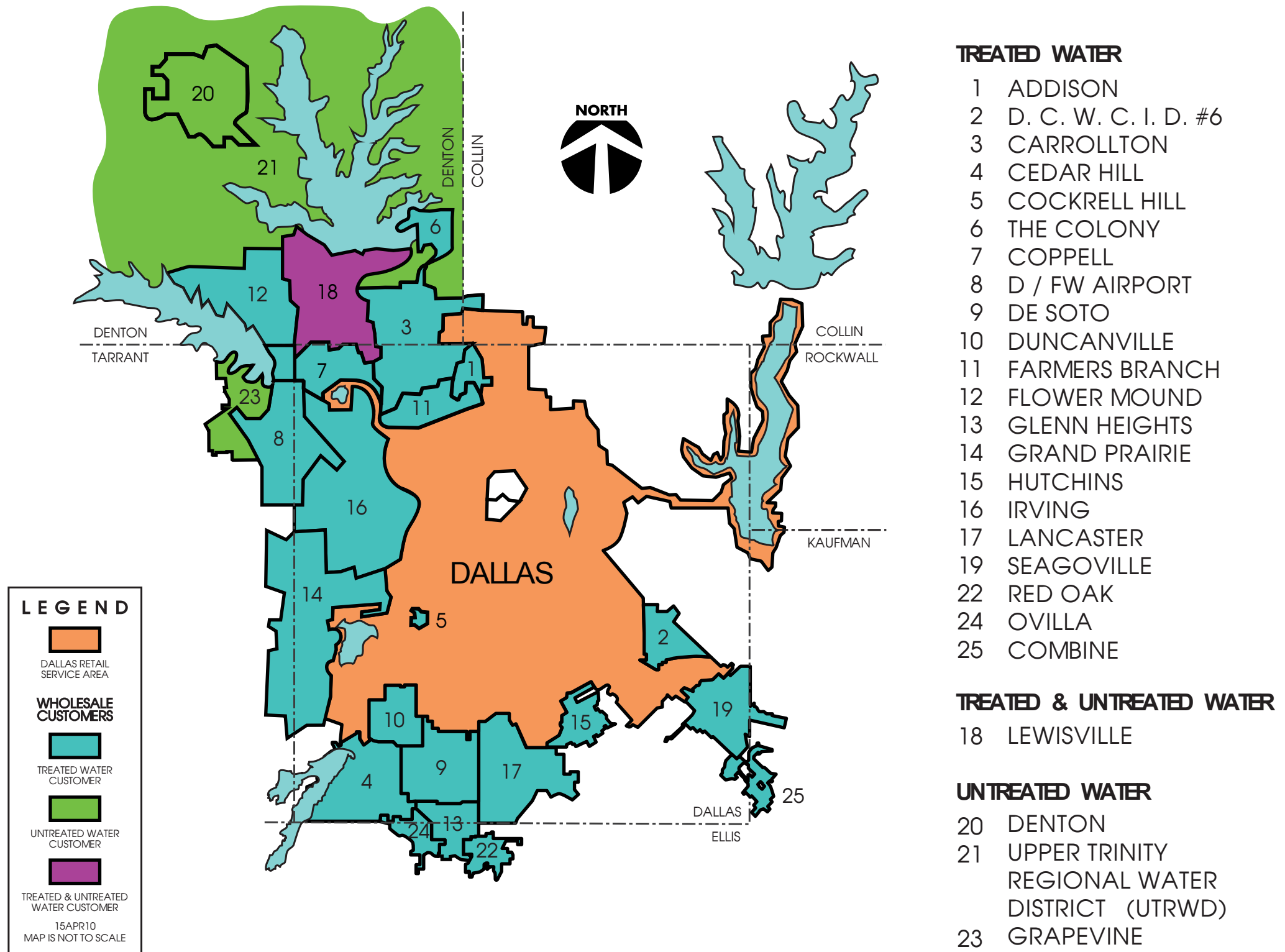
**Water conservation plan** ■ A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for 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).

**Water loss** - The difference between water diverted or treated and water delivered (sold). Water loss can result from:

1. inaccurate or incomplete record keeping;
2. meter error;
3. unmetered uses such as firefighting, line flushing, and water for public buildings and water treatment plants;
4. leaks; and
5. water theft and unauthorized use.

**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.

# DALLAS WATER UTILITIES CUSTOMERS





<b>Water Supply Sources</b>	<b>Right/Permit</b>	<b>Total (ac-ft/yr)</b>	<b>Non- Consumptive Hydroelectric (ac-ft/vr)</b>
1 Ray Roberts	08-2455B	591,704.00	115,100.00
2 Lewisville	08-2456F	549,976.00	451,030.00
3 Grapevine	08-2458C	84,500.00	
4 Elm Fork Trinity River	08-2457D	21,678.20	
5 Elm Fork Trinity River	Aug-59	50.00	
6 White Rock	08-2461B	8,703.15	
7 Ray Hubbard	08-2462H	89,700.00	
8 Ray Hubbard	12110	49,500.00	
9 Elm Fork Trinity River	5414	40,000.00	

Total of Dallas's Water Rights and Permits 1,435,811.35

<b>Water Supply Sources</b>	<b>Contract</b>	<b>Total (ac-ft/yr)</b>	<b>Non- Consumptive Hydroelectric (ac-ft/vr)</b>
10 Tawakoni	1583	184,600.00	
11 Lake Fork	450	120,000.00	
12 Palestine	173A	114,337.00	
13 Lewisville	1415	125.00	

Total of Dallas's Contracted Water Rights 419,062.00

**Total Surface Water Rights 1,854,873.35**

Groundwater Rights 0.00



<b>Wholesale Customer</b>	<b>Contracted Amount (Acre-feet)</b>	<b>Treated or Raw</b>	<b>FY2008-2009 Amount of Water Delievered (Acre-feet)</b>
Addison	12,321.6	Treated	5,120.9
Carrollton	48,166.2	Treated	23,712.4
Cedar Hill	12,993.7	Treated	8,933.5
Cockrell Hill	*	Treated	470.5
The Colony	6,720.9	Treated	3,961.8
Combine	*	Treated	0.0
Coppell	19,042.4	Treated	9,577.5
Denton	1,097.8	Raw	0.0
D/FW International Airport	3,920.5	Treated	2,547.9
Dallas County WCID #6	3,920.5	Treated	2,119.5
DeSoto	16,242.1	Treated	8,177.2
Duncanville	13,441.7	Treated	5,571.3
Farmers Branch	21,730.8	Treated	9,079.9
Flower Mound	12,321.6	Treated	8,087.0
Glenn Heights	*	Treated	1,553.8
Grand Prairie	37,860.9	Treated	25,748.1
Grapevine	78,074.0	Raw	874.3
Hutchins	*	Treated	981.6
Irving	78,074.0	Treated	6,656.1
Lancaster	8,961.2	Treated	5,169.2
Lewisville	10,081.3	Treated	9,456.7
Lewisville	21,282.7	Raw	7,444.6
Ovilla	*	Treated	0.0
Red Oak	1,120.1	Treated	361.4
Seagoville	3,696.5	Treated	1,925.0
UTRWD	12,097.6	Raw	3,248.4

\* Physical constraint due to meter size or n/a





## Water Utilities

### Monthly Payment Rates

Effective October 1, 2009

Customer Charge			
	Water	Sewer	Combined
5/8 Inch Meter	\$4.00	\$3.77	\$7.77
3/4 Inch Meter	5.25	4.78	10.03
1 Inch Meter	7.63	6.93	14.56
1 1/2 Inch Meter	14.37	13.07	27.44
2 Inch Meter	22.44	20.41	42.85
3 Inch Meter	53.87	48.97	102.84
4 Inch Meter	89.77	81060	171.37
6 Inch Meter	179.53	163.21	342.74
8 Inch Meter	300.73	273.38	574.11
10 Inch Meter or larger	457.82	416.18	874.00

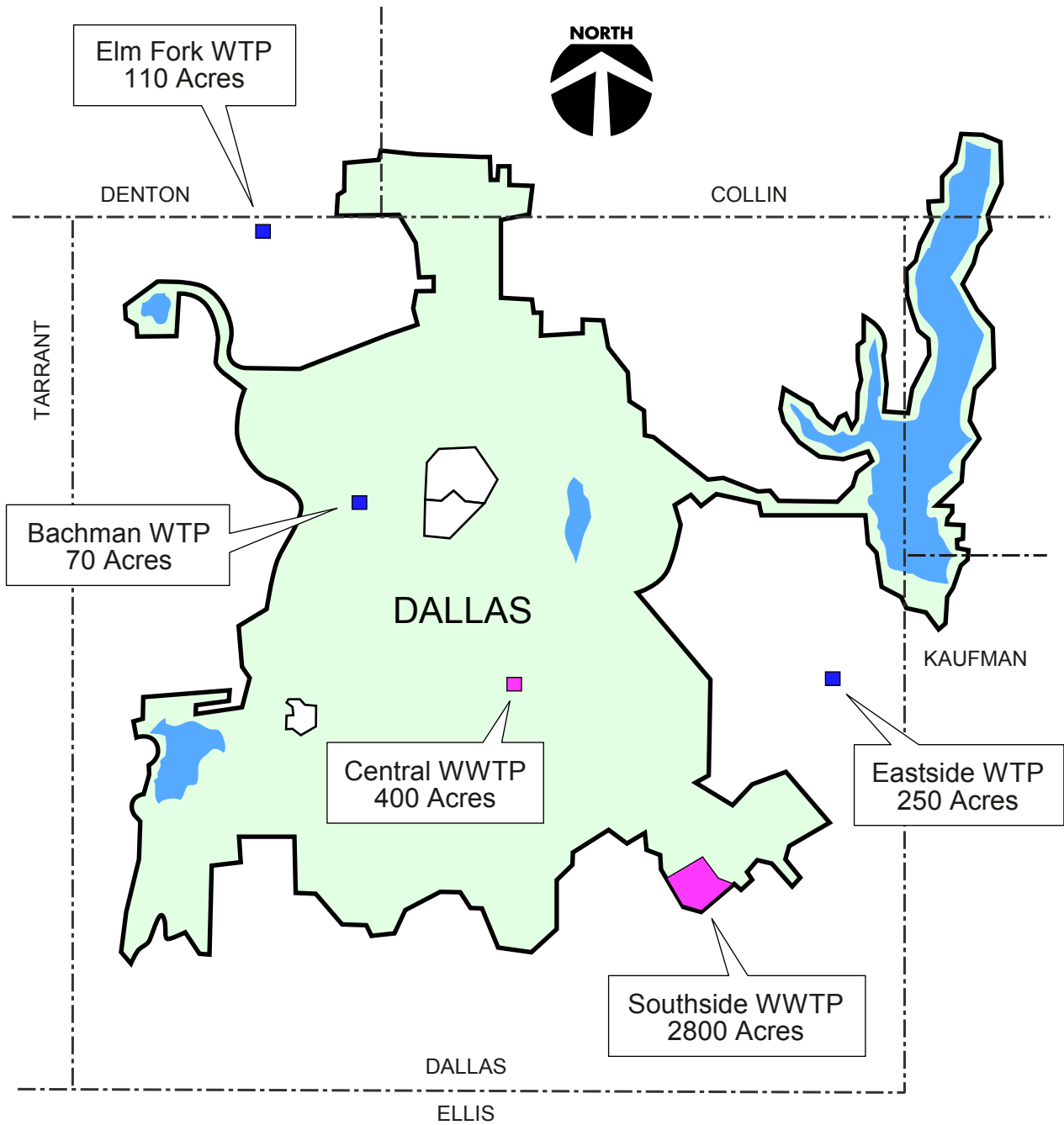
Usage Charge per 1,000 gallons*		
	Water	Sewer
<b>Residential</b>		
Up to 4,000 gallons	\$1.54	\$4.26
4,001 to 10,000 gallons	3.00	4.26
10,001 to 15,000 gallons	4.20	4.26
Above 15,000 gallons	5.38	4.26
<b>General Services</b>		
Up to 10,000 gallons	2.03	2.74
Above 10,000 gallons	2.50	2.74
Above 10,000 gallons & 1.4 times annual average monthly usage	3.68	2.74
<b>Optional General Services</b>		
1st million gallons or less (minimum)	1,593.00	2.68
Above 1 million gallons (per 1,000 gallons)	2.05	2.68
Sewer Metered Separately		2.77
<b>Untreated Water</b>		
Uninterruptible	0.4971	
Interruptible	0.2331	

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.



# Dallas Water Utilities Water & Wastewater Treatment Plants





## **APPENDIX C**

- **City Council Resolution**
- **Coordination with Region C Planning Group**



June 9, 2010

**WHEREAS**, the Dallas City Council passed Resolution No. 05-1221 adopting the Water Conservation Five Year Strategic Plan on April 13, 2005; and,

**WHEREAS**, the 2005 Water Conservation Five-Year Strategic Plan set specific goals and objectives to reach a 1 percent reduction in per capita consumption each year for FY 2005 through FY 2009; and,

**WHEREAS**, the actual reduction in consumption from FY 2005 through FY 2009 averaged a 2.8 percent reduction per year in per capita consumption; and,

**WHEREAS**, Gallons per capita per day in Dallas has dropped 21% since 2001 as a result of City of Dallas Water Utilities water conservation efforts; and,

**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 Management Plan and Water Conservation Plan to the City Council for approval; and,

**WHEREAS**, the updates for the Water Conservation Plan and the Five-year Water Conservation Strategic Plan have been completed and meet all of the requirements of the TCEQ; and,

**WHEREAS**, the Dallas City Council is committed to water conservation; **Now, Therefore,**

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

**Section 1.** That the 2010 Water Conservation Five-Year Plan and the state-mandated Water Conservation Plan are hereby approved and adopted.

**Section 2.** 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.

**Section 3.** That the City Manager be authorized to submit the Water Conservation Plan to the TCEQ as required by state law.

DISTRIBUTION: Water-Administration, 4AN, Cheryl Glenn  
Water-Administration, 4AN, James Carrigan  
Office of Financial Services, 4BN, Shemian Parham

APPROVED BY  
CITY COUNCIL

JUN 09 2010

  
City Secretary





June 25, 2010

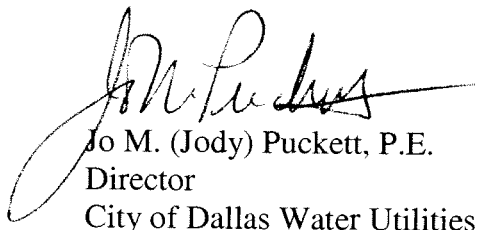
Jim Parks, Chair  
Region C Planning Group  
c/o North Texas Municipal Water District  
P.O. Box 2408  
Wiley, Texas 75098

Dear Mr. Parks:

In accordance with the Texas Administrative Code, Title 30, Chapter 288, City of Dallas Water Utilities respectfully submits the attached Water Conservation and Drought Contingency Plans as required. The plans were approved by the Dallas City Council on June 9, 2010 and will be submitted to the Texas Commission on Environmental Quality prior to June 30, 2010.

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

Sincerely,



Jo M. (Jody) Puckett, P.E.  
Director  
City of Dallas Water Utilities

Attachments



## **APPENDIX D**

- **DWU Water Conservation Program Annual Report**





## Texas Water Development Board Water Conservation Program Annual Report

Texas Water Code requires that each entity that is required to submit a water conservation plan to the Texas Water Development Board (TWDB) or the Texas Commission on Environmental Quality (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. This requirement applies to those entities receiving financial assistance of \$500,000 or more from the TWDB; entities with 3,300 connections or more; and those entities that have a water right through TCEQ. The first report is due by May 1, 2010. Entities receiving financial assistance from the TWDB are to maintain an approved water conservation plan in effect until all financial obligations to the state have been discharged and file a report with the TWDB on the progress in implementing each of the minimum requirements in its water conservation plan and the status of any of its customers' water conservation plans required by contract, within one year after closing on the financial assistance and annually thereafter until all financial obligations to the state have been discharged. Implementation reports prepared for the TCEQ providing the required information may be submitted to the TWDB to fulfill this reporting requirement.

The following questions are designed to provide the TWDB this information in a concise and consistent format. Please fill in the blanks that pertain to your program as completely and objectively as possible. Your water conservation plan should contain long-term elements such as ongoing public education activities, universal metering, water accounting and estimated water savings from water reuse and recycling activities, leak detection and repair and other conservation activities. **As you complete the report form, please review your utility's water conservation plan to see if you are making progress toward meeting your stated goal(s).**

For additional information please check out our website at  
<http://www.twdb.state.tx.us/assistance/conservation/Municipal/Plans/CPlans.asp>

**Return completed form to:**

**Executive Administrator  
Texas Water Development Board  
P.O. Box 13231  
Austin, Texas 78711-3231  
ATTN: MUNICIPAL CONSERVATION**

**UTILITY DATA**

Name of Utility: Dallas Water Utilities

Public Water Supply Identification Number (PWS ID), WR No. : 0570004

Address: 1500 Marilla, 4AN City: Dallas

State: TX Zip Code: 75201 Email: Carole.davis@dallascityhall.com

Telephone Number: (214) 670-3155 Fax: (214) 670-5244

Regional Water Planning Group: C

Groundwater Conservation District: N/A

Form Completed By: Carole Davis Title: Conservation Manager

Signature:  Date: 04/26/2010

Reporting Period: 10/01/2008 to 09/30/2009

Total Gallons of Water (Treated or Raw)	Population of Service Area	Total Gallons per Capita per Day (GPCD)*	Residential GPCD**	Total Number of Connections	Water Loss in Gallons per Capita per Day (GPCD)***
90,777,303,000	1,306,350	190	57	413,000	28

\* **Total GPCD:** form calculation is made by dividing the total water treated or raw by the population served and then dividing by 365

\*\* **Residential GPCD:** user calculation is made by dividing the total single family plus multi-family residential water sales by the population served and then dividing by 365

\*\*\* **Water Loss GPCD:** form calculation is made by dividing the amount you provided in number 7G. on page 4 by the population served and then dividing by 365

Please provide the **specific and quantified five and ten-year targets** as listed in your water conservation plan:

	Total GPCD Target	Water Loss Target	Date to Achieve Target
<b>Five-year target</b>	195	20	2010
<b>Ten-year target</b>	180	18	2015

**LONG TERM WATER CONSERVATION PROGRAM**

1. Approximately how much did the utility save during the reporting period due to the overall conservation program?

Gallons of Water Saved	Dollar Value of Water Savings*
21,648,580,000	\$59,750,081

\* Based on water savings and the cost of treatment or purchase of your water, and any deferred capital costs due to conservation

2. In your opinion, how you would rank the effectiveness of your utility's conservation program?

**Effective                      Somewhat Effective                      Less than Effective                      Not Effective                      Do Not Know**

Please provide additional information about any successes or problems you may have experienced in implementing your plan.

**3. Education and Information Program**

Please check the appropriate boxes regarding any educational and information activities your utility has provided during the reporting period:

	<b>Implemented</b>	<b>Frequency</b>
<b>Brochures Distributed</b>		
<b>Messages Provided on Utility Bills</b>		
<b>Press Releases</b>		
<b>TV Public Service Announcements</b>		
<b>Radio Public Service Announcements</b>		
<b>School Program</b>		
<b>Displays and Presentations</b>		
<b>Plant Tours</b>		
<b>Other, please describe:</b>		

**4. Water Conservation Retrofit and Plumbing Rebate Programs**

Please check the appropriate boxes regarding any plumbing fixture programs your utility has provided during the reporting period:

	<b>Give-away</b>	<b>Rebate</b>	<b>Retrofit</b>
<b>Toilets</b>			
<b>Showerheads</b>			
<b>Faucet Aerators</b>			
<b>Other, please describe:</b>			

**5. Rate Structure**

Have your rates or rate structure changed since your last report? Yes No  
 If yes, please describe the changes, or attach a copy of the new rate structure.

**6. Universal Metering and Meter Repair**

During the reporting period what was the system-wide number of:

	Total Number	Total Tested	Total Repaired	Total Replaced
<b>Production Meters</b>				
<b>Meters larger than 1 ½”</b>				
<b>Meters 1 ½ or smaller</b>				

Does your system have automated meter reading? Yes No

**7. Water Loss and Leak Detection**

Please provide the following data regarding water loss in your utility during the reporting period:

	Total Gallons During the Reporting Period
<b>A. PRODUCTION - Water treated or raw</b>	
<b>B. Water sold</b>	
<b>C. Water used for line flushing</b>	
<b>D. Water used for fire department use</b>	
<b>E. Water used for flushing and storage tank cleaning</b>	
<b>F. Water used for any un-metered use (facility use, etc.)</b>	
<b>G. WATER LOSS* = A minus B,C,D,E,F</b>	

\* **WATER LOSS** includes un-accounted-for water, water lost from main line breaks and customer service line breaks, and storage over-flow.

How many leaks were repaired in the system or at service connections during the reporting period? \_\_\_\_\_

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

<b>Leaks</b>	
<b>Un-metered utility or city uses</b>	
<b>Master meter problems</b>	
<b>Customer meter problems</b>	
<b>Record and data problems</b>	
<b>Other, please describe:</b>	

**Would you like to receive free technical assistance or equipment from the TWDB regarding leak detection and water loss?    Yes            No**

**8. Water Conservation Programs**

Please check the appropriate boxes regarding what conservation programs your utility provided during the reporting period:

<b>Landscape Program</b>	
<b>Educational and Information Program</b>	
<b>School Education Program</b>	
<b>Rainwater Harvesting</b>	
<b>Leak Detection</b>	
<b>Water Loss</b>	
<b>Reuse</b>	
<b>Treated Effluent</b>	
<b>Other, please describe:</b>	

9. How often does your utility staff review your water conservation program?  
 \_\_\_\_\_

10. What year did your utility adopt, or revise, their water conservation plan? \_\_\_\_\_

11. What might your utility do to improve the effectiveness of your water conservation program?

12. What might the TWDB do to assist you in improving the effectiveness of your water conservation program?

13. If known, how much expense has your utility incurred in implementing your water conservation program during the reporting period (*literature, materials, staff time, etc.*)?  
 \_\_\_\_\_ (dollars/year)

**14. Recycling and Reuse of Water or Wastewater Effluent**

Please provide the following data regarding what types of water recycling or reuse activities were practiced by your utility during the reporting period, and what volume:

Use	Total Annual Volume (in gallons)
<b>On-site irrigation</b>	
<b>Plant wash down</b>	
<b>Chlorination/de-chlorination</b>	
<b>Industrial</b>	
<b>Landscape irrigation (parks, golf courses)</b>	
<b>Agricultural</b>	
<b>Other, please describe:</b>	
<b>Total</b>	

Could treated effluent be substituted for certain potable water now being used? Yes  No

**15. Drought Contingency and Emergency Water Demand Management**

During the reporting period, did your utility activate its Drought Contingency Plan?

Yes  No

If yes, please check all the appropriate boxes for the reason why:

Reason	
<b>Water Shortage</b>	<input type="checkbox"/>
<b>High Demand</b>	<input type="checkbox"/>
<b>Capacity Issues</b>	<input type="checkbox"/>
<b>Equipment Failure</b>	<input type="checkbox"/>
<b>Other, please describe:</b>	<input type="checkbox"/>

Start Date \_\_\_\_\_

End Date \_\_\_\_\_

## **Appendix 1.**

We are extremely excited about the success we continue to enjoy as a result of our partnership with the Tarrant Regional Water District. For example in fiscal year 2008/2009, we combined our media budgets to create “One Message and One Voice” in the North Texas region. Collectively, we reached an unprecedented 4 million people with our Save Water message -- a feat that would not have been possible without our collaborative synergies.

Appendix 2.

<p><b>Dallas Water Utilities Monthly Rates</b>  <b>Effective October 1, 2008</b></p>
--

<p><b>Retail Rates</b></p>
----------------------------

<b>Customer Charge</b>	<b>Water</b>	<b>Sewer</b>	<b>Combined</b>
5/8 Inch Meter	\$3.90	\$3.49	\$7.39
3/4 Inch Meter	4.57	4.09	\$8.66
1 Inch Meter	6.64	5.93	\$12.57
1 1/2 Inch Meter	12.50	11.17	\$23.67
2 Inch Meter	19.53	17.44	\$36.97
3 Inch Meter	46.88	41.86	\$88.74
4 Inch Meter	78.13	69.76	\$147.89
6 Inch Meter	156.26	139.51	\$295.77
8 Inch Meter	261.74	233.69	\$495.43
10 Inch Meter or larger	398.47	355.76	\$754.23

**Usage Charge per 1,000 gallons\***

**Residential**

Up to 4,000 gallons	1.50	4.19
4,001 to 10,000 gallons	2.80	4.19
10,001 to 15,000 gallons	3.92	4.19
Above 15,000 gallons	5.02	4.19

**General Services**

Up to 10,000 gallons	1.95	2.62
Above 10,000 gallons	2.39	2.62
Above 10,000 gallons & 1.4 times annual average monthly usage	3.52	2.62

**Optional General Services**

1st million gallons or less (minimum)	1,548.12	2.55
Above 1 million gallons (per 1,000 gallons)	1.97	2.55
Sewer Metered Separately		2.65

**Untreated Water**

Uninterruptible	0.4744
Interruptible	0.232

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 3.**

Plans are currently underway to further strengthen the city's conservation efforts. For example, city leaders are currently updating Dallas' Five-year Strategic Plan on Water Conservation adopted by the City Council in 2005. Increased public education and outreach, enhanced codes and ordinances as well as more rebates and incentives are among the many measures under consideration for inclusion in the Plan. The updated Five-year Plan is slated to be adopted in summer 2010.

#### **Appendix 4.**

TWDB staff should continue to explore methods to standardize metrics and trends that seek to compare utilities and districts. Dallas and the North Texas region have made significant strides in curbing water waste and increasing water use efficiency. These accomplishments are often overlooked and/or ignored by media outlets and other special interest groups intent on sensationalizing the sobering need for adequate water supply planning based on our regional and statewide needs.