



2009
Water Conservation Plan

TCEQ
PWS #2200029

Utility Profile

I. Population and Customer Data

A. Population and Service Area Data

1. A copy of the Water Authority's service-area map and a copy of the Certificate of Convenience and Necessity are included in this plan.
See Appendix #1
2. The City of Benbrook has a service area of 12.05 square miles.
3. The current population of the service area is 24,904.
4. The current population served by the water and wastewater utilities is approximately 97%.
5. The population served by the Water Authority over the previous 5 years is as follows:
2004 – 23,621
2005 – 24,116
2006 – 24,504
2007 – 24,732
2008 – 24,904
6. The projected population for the service area is as follows:
2010 – 27,675
2020 – 31,155
2030 – 33067*
* The 2030 population figure is the build-out population for the service area
7. The current population figures were obtained by taking current water connections multiplied by 2.3 (2.3 average persons per household). Freese and Nichols Engineering Firm using TSZ data and growth trends did the projected population figures.

B. Active Connections

1. The following is the number of active connections. The multi-family services are counted as residential. These are all treated water metered users.
Residential – 7476

Residential-Multi Family - 169
 Commercial / Industrial – 401
 Other – 18

2. The following are the net number of new connections for the most recent three years

2006
 128 Residential and 9 Commercial
 2007
 102 Residential and 9 Commercial
 2008
 64 Residential and 16 Commercial

C. High Volume Customers

The following are the highest annual volume customers of treated water (in 1000 gallons)

1. Copper Crossing Apts. – 27,186.060
2. Highland Park Partners Apts. – 16,122.714
3. Villas at Team Ranch – 14,735.024
4. MB Greenwood Creek Apts. – 13,829.024
5. Ft. Worth I.S.D. – 12,521.857

II Water Use Data for Service Area

A. Water Accounting Data

1. The following is the amount of water diverted for the previous 5 years

Total Amount for the past 5 years – 7,208,900

o Year	2008	2007	2006	2005	2004
o Jan	91,350	78,660	115,430	81,070	79,990
o Feb	87,280	77,340	89,450	68,530	69,800
o Mar	90,380	99,430	99,040	85,190	82,780
o April	87,850	90,100	127,290	110,800	76,650
o May	115,100	93,410	145,050	118,540	112,890
o June	165,310	96,960	186,170	164,000	102,950
o July	210,740	105,350	214,710	174,880	151,320
o Aug	165,240	148,150	237,810	177,300	148,890
o Sept	130,730	122,100	141,400	197,870	148,320
o Oct	124,700	128,260	132,090	164,770	102,590

○ Nov	102,150	107,460	101,280	121,830	78,320
○ Dec	94,660	87,560	84,550	103,540	80,960

Total 1,465.490 1,234.780 1,674.250 1,568,320 1,255,240

The above figures were determined by using a master meter at the raw water pump station and by master meters at each well head.

2. The following is the amount of water sold in 1000 gallons for the past 5 years.

Year	Residential	Commercial	Other
2008	957,176.794	192,410.733	15,169.029
2007	798,479.132	133,876.314	13,537.573
2006	1,077,566.720	192,004.892	27,146.745
2005	949,698.656	161,914.952	29,256.770
2004	734,587.043	108,255.436	16,298.770

Total Sold

2008 – 1,164,756.556

2007 – 945,893.019

2006 – 859,141.249

2005 – 1,140,870.378

2004 – 859,141.249

3. The following is the water loss for the previous 5 years in 1000 gallons

2008 – 150,902.805

2007 – 113,602.190

2006 – 169,848,609

2005 – 239,405.698

2004 – 230,344.447

4. The following is the previous 5 years annual peak-to-average use ratio

Year	Average MGD	Peak MGD	Ratio
2008	4.02	7.33	1.82
2007	3.38	7.15	2.11
2006	4.37	9.18	2.10
2005	3.97	7.79	1.96
2004	3.24	6.59	2.03

5. Municipal water use for the previous 5 years

Year	Population	Total Water Diverted for Treatment (1000 gallons)
2008	24,904	1,465,490
2007	24,732	1,234,490
2006	24,504	1,674,250
2005	24,116	1,568,320
2004	23,621	1,255,240

Gallons Per Capita Per Day

2008 - 161
2007 - 136
2006 - 187
2005 - 178
2004 - 145

6. Seasonal water use for the previous 5 years in gallons per person per day

Year	Population	Base Per Capita Use	Summer Per Capita Use
2008	24,904	163	225
2007	24,732	137	159
2006	24,504	180	262
2005	24,116	167	240
2004	23,621	141	185

B. Projected Water Demands

See **Appendix #2** for the projected water supply demands for the next 10 years.

III. Water Supply System Data

A. Water Supply Sources

The following are the water supply sources for the water Authority
Surface Water – Lake Benbrook – Annual Authorized Amount – 3380 acre feet
TRWD East Texas Pipeline – Unlimited use
Ground Water – Paluxy and Trinity Aquifers – Unlimited Use

Contracts – City of Ft. Worth – Emergency Use

B. Treatment and Distribution System

The daily capacity of the system is 13.1 MGD
The elevated storage capacity is 8 MG and the ground storage capacity is 4.2MG.

The water treatment plant recycles filter backwash water back to the head of the plant at a rate of .15 MGD.

The existing water system includes one 12 MGD water treatment plant and 12 active ground water wells with a capacity of 1.3 MGD. There are 7 elevated water storage towers, 6 ground storage tanks, and 1 standpipe.

IV. Wastewater System Data

A. Wastewater System Data

The Water Authority does not own or operate any wastewater treatment facilities. All wastewater is sent to The City of Ft. Worth, Village Creek Wastewater Treatment Plant for treatment.

B. Wastewater Data for Service Area

97% of the service area is served by the Water Authorities wastewater collection system. The following are the previous three years wastewater sent to the City of Ft. Worth’s wastewater treatment facility in (1000 gallons).

Year	2008	2007	2006
Jan	66,859.470	80,841.512	66,619.482
Feb	60,662.672	68,866.569	65,247.877
Mar	80,297.691	84,826.391	73,705.775
Apr	82,009.056	78,504.023	69,870.053
May	72,230.997	96,577.294	68,652.949
June	61,914.221	108,377.896	71,982.883
July	60,920.130	93,304.410	65,405.239
Aug	63,697.819	77,565.800	69,470.674
Sept	64,494.022	74,260.723	75,004.389
Oct	63,805.823	71,755.854	70,504.221
Nov	66,722.422	66,524.098	66,770.393
Dec	62,398.958	69,317.870	73,577.381
Totals	806,013.281	970,722.440	836,811.316

Section 1. Minimum Requirements

1.1 Specific, Quantified 5 & 10 Year Targets

The Water Authority's average year per capita reductions are a result of the conservation efforts and polices. The Authority's per capita municipal use targets for average climatic year uses are as follows:

Actual Use 2008 – 161 gpcd

Five Year goal – 156 gpcd

Ten Year goal – 151 gpcd

Water Loss Goals

Actual 2008 – 16.6 gpcd

Five Year Goal – 14.94 gpcd – 10% reduction

Ten Year goal – 13.44 gpcd – 20% reduction

1.2 Metering Devices

The Water Authority has a master meter located at the raw water pump station which meters all water diverted from Lake Benbrook to the treatment plant. This meter is calibrated annually.

1.3 Universal Metering

Programs for universal metering, meter testing, meter repair, and periodic meter replacement are in place and have been developed using AWWA standards.

The Water Authority uses a meter maintenance program to replace residential meters after 15 years of use and commercial meters at 10 years. All meters that are to be tested are sent to a third party for testing and rebuilding.

The Water Authority has an ongoing meter replacement program and is changing out all residential meters to touch reach meters for a more efficient meter-reading program.

1.4 Unaccounted For Water Use

The Water Authority uses Section 16.0121 of the Texas water Code to conduct water loss audits and reports the results to the Texas Water Development Board (TWDB).

The water audit addresses four main points of water loss:

Loss from Distribution Lines

Inaccuracies in Meters

Deficiencies in Accounting

Theft of Service

1.5 Continuing Public Education & Information

The Water Authority will promote water conservation by informing the public of ways to conserve water. The following methods will be used in inform water users, including wholesale customers.

1. Regular Articles will be published in the local paper 4 or more times per year, and more often if conditions warrant.
2. New customers will receive general conservation information when applying for service

Brochures prepared by the Texas Commission on Environmental Quality (TCEQ) and or other entities will be used. The public information program will include at least the following topics. (1) Purpose and goals of the Water Conservation and Drought Contingency Plan; (2) economic benefit to customers due to reduced water bills; (3) benefit to customers due to improved performance of individual wastewater disposal systems; (4) indoor water conservation techniques; and (5) water conserving techniques for irrigation and landscaping.

1.6 Non-Promotional Water Rate Structure

The current water rate structure should promote water conservation practices. The Authority will maintain its escalating rate water charges as such rates should encourage water conservation. The water rate structure resolution is included in this conservation plan. **See Appendix #3**

1.7 Reservoir Systems Operations Plan

TRWD, as Benbrook's raw water supplier, is responsible for operations of the reservoir system. TRWD coordinates its operations plan with all of its water customers and provides recommendations for the operations of regional treatment systems.

1.8 Enforcement Procedure & Adoption Plan

The Water Authority's discourages wasting of water. The drought contingency plan details water restrictions during different stages of the plan.

More detailed information on the specifics of these restrictions can be found in the Drought Contingency Plan.

During non-drought times water conservation is voluntary. (See section 2.3 for the details of voluntary water conservation.)

Implementation of the Water Authority's Water Conservation Plan is by resolution adopted by the Authorities Board of Directors.

1.9 Regional Water Planning Groups

The Water Authority worked with the local Regional Water Planning Group to help develop this entities water conservation plan. This Water Conservation Plan is consistent with their methodology and structure.

Section 2. Additional Conservation Efforts

2.1 Leak Detection and Repair

The current detection program uses state of the art technologies and techniques to search for leaks. In addition to customer and field operations visual leak reports, the Water Authority utilizes acoustic leak-noise detectors to target suspected leaks and correlators to define leak locations.

The Water Authority will supplement its leak detection program to enhance water conservation by including the following:

1. Monitoring by the billing department to identify high water use and notifying customers of potential water leaks
2. Monthly comparison of total water sales and water production.
3. Continuous monitoring of the distribution system to detect water main breaks.
4. Visual inspection by meter readers and Authority employees for abnormal conditions indicating leaks.
5. Prompt repair of water system leaks and water main breaks.

Another part of the Authority's ongoing leak-detection program is the integration of the Geographical Information System (GIS) tools to analyze the system down to the individual meter. This data is used as a proactive tool to determine and assess the under-registration of meters and to assess areas of high and low usage.

The Water Authority has an ongoing line repair and replacement program to minimize the loss due to leakage.

The Water Authority does an annual Water Loss Audit to account for water loss.

2.2 Record Management System

The Water Authority has an effective record management system in place with its existing billing system and the annual statistical report.

2.3 Implementation and Enforcement

Except as provided for by the Water Service Agreement, compliance with the Authority's water conservation program will be voluntary. The charges for water are substantial in comparison to medium family income, per year. Therefore, voluntary compliance with water conservation measures through customer awareness should be effective.

2.4 Conservation Plan Annual Report

The Authority will file an annual report with the Executive Administrator of the Texas Water Development Board. The report will address the progress and effectiveness of the water conservation plan and will include:

1. Public information that has been issued.
2. Public response
3. Effectiveness of water conservation plan in reducing water use by providing consumption data.
4. Implementation progress and status of the Authority's water conservation program.