CITY OF PFLUGERVILLE
WATER CONSERVATION PLAN
APRIL 12, 2011

1.0 Introduction

The City of Pflugerville (the "City") has developed this Water Conservation Plan (the "Plan") for its wholesale and retail treated water utility systems to effectively manage public water resources and to plan appropriate responses to emergency and drought conditions. The Plan recognizes that conservation is a valuable tool in managing water and wastewater utility systems. Benefits of water conservation include: extending available water supplies; reducing the risk of shortage during periods of extreme drought; reducing water and wastewater utility operating costs; improving the reliability and quality of water utility service; reducing customer costs for water service; reducing wastewater flows; improving the performance of wastewater treatment systems; and enhancing water quality and the environment.

This Plan applies to all of the City of Pflugerville's retail and wholesale treated water customers. This plan was adopted on September 10, 2002, amended on September 12, 2006 and updated on this date of April 12, 2011 and will be updated at least every five years to account for changes in water usage due to growth in the customer base.

2.0 Authorization, Implementation and Enforcement

The City Manager, or his/her designee, of the City of Pflugerville is hereby authorized and directed to implement the applicable provisions of this Plan. The City Manager, or his/her designee, will act as Administrator of the Water Conservation Program. He/she will oversee the execution and implementation of the program and will be responsible for keeping adequate records for program verification.

This Amended Plan was presented to the Pflugerville City Council for approval on April 12,, 2011. This Amended Plan will be enforced by the following methods:

a. City Council adopting this plan by ordinance. The ordinance adopting this plan is included as Exhibit F.

b. The water rate structure will be enforced; water service will be discontinued for any customers not paying the monthly bill; and

c. The building inspector will not certify new construction unless it meets adopted plumbing codes.

3.0 Utility Profile—Baseline Evaluation of Water and Wastewater Utility System and Customer Use

3.1 *Population and Service Area.* The City of Pflugerville's current water service area population is 36,771 based on 12,257 connections. The estimated January 2011 population for the City of Pflugerville is 51,359. The City experienced a population boom in the 1990's, growing from a population of 4,444 in 1990 to a population of 16,335 in 2000. Since 2000 growth has continued and projections show that the City's population will continue to grow, with the population

estimated to be at 55,200 by the year 2020. The water service area has grown as well. The City's current water service area is presented in Exhibit A.

3.2 *Water Utility System and Water Usage.* The City of Pflugerville serves 23,502 customers. Residential customers comprise nearly 96% of total connections and nearly 86% of total yearly consumption. The peak-to-average ratio of water use was nearly 2.6. More detailed water and wastewater utility data is found in Exhibit C.

4.0 Water Conservation Plan Elements

4.1 *Water Conservation Goals.* **The City's goal is to reduce water use by 5% by 2015 and 13.6% by 2020.** These percentages translate to daily use of 4.26 million gallons in 2015 and 3.97 million gallons by 2020, excluding population growth. On a per person basis the City estimates that the current user needs an average of 204 gallons of water per day. The City aims to reduce per user needs to 176.21 gallons per day by 2020. The City will measure its progress on reduction in water use by comparing the current daily per resident use to per resident use multiplied by the population each year. **Pflugerville's unaccounted for water is less than 10%. Their goal therefore is to maintain unaccounted for water at 10% or less.**

4.2 **Water Conservation Measures**

(1) *Universal Metering and Meter Replacement and Repair.* All utility customers will be metered. A regularly scheduled maintenance program of meter repair and replacement will be performed in accordance with the following schedule:

Production (master) meters:	Test once a year
Meters larger than 1":	Test once a year
Meters 1" or smaller:	Test or replace once every 10 years

Zero consumption accounts will be checked to see if water is actually being used or not recorded. In addition, the meters will be checked for proper sizing.

(2) *Distribution System Leak Detection and Repair.* The City's unaccounted-for-water is due to sections of the water distribution system being polybutylene pipe, which has a known history of leakage. The City has a year round leak detection and pipe replacement program in place.

(3) *Plumbing Retrofit Program.* State and federal laws require that homes built after 1992 have low-flow (less than 3 gallons per minute) showerheads, faucet aerators and ultra low flush (less than 1.6 gallons per flush) toilets installed. Most homes in Pflugerville were built after that time and would have the water efficient fixture. However, the City will consider offering low-flow showerheads, faucet aerators, toilet leak detection dye tablets, and other conservation materials to customers in older homes.

(4) *Water Pricing Incentives.* The City charges a volumetric increasing block rate to all customers. A copy of the city's current rate structure is found in Exhibit B.

(5) *Continuing education program on water conservation.*

a. As part of a continuing public education and information campaign based on this Plan, the city will:

i. Develop and provide water conservation packets for new retail water customers;

ii. Provide all retail water customers with at least one brochure/flier on water conservation each year;

iii. Implement an extensive landscape water management public information program;

iv. Assist wholesale water customers in their public education efforts.

b. In the spring of 2001, the City implemented a pilot "Drop by Drop" landscape rebate program. The City offered rebates of between $50 and $500 to residential customers that installed approved plants in the landscape. This program has now been adopted as an ongoing water conservation program.

c. The City offers rain barrels and home composters to its citizens at reduced cost to encourage water conservation.

(6) *Coordination with Regional Planning Group.* The City of Pflugerville has sent a copy of this plan to the Lower Colorado Regional Water Planning Group for their review.

A copy of the letter transmitting this plan to the Regional Water Planning Group is included as Exhibit E.

(7) *Wholesale Customers.* For every wholesale water supply contract entered into or renewed after official adoption of this water conservation plan, including any contract extensions, the wholesale water customer must develop and implement a water conservation plan or water conservation measures according the TCEQ guidelines. 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 LCRA and TCEQ guidelines.

(8) *Measures to determine and control unaccounted-for uses of water and for universal metering of customer and public uses of water.* The City is using INCODE Utility Billing software meter reading reports. Monthly readings are done using Neptune drive-by unit or hand-held devices and software. City staff conducts visual inspections to determine if the system is distributing to illegal connections or connections where service has been abandoned.

(9) *Other Conservation Strategies.* The city will also pursue adopting codes or ordinances that promote the use of water conserving technologies, promote water efficiency, or avoid water waste. In addition, the city provides recycled wastewater to Travis County in order to irrigate numerous soccer and baseball fields in the Travis County Northeast Metropolitan Park. A more detailed discussion of the City's water conservation strategies is attached as Exhibit D.

EXHIBIT A

WATER SERVICE AREA MAP

Water CCN

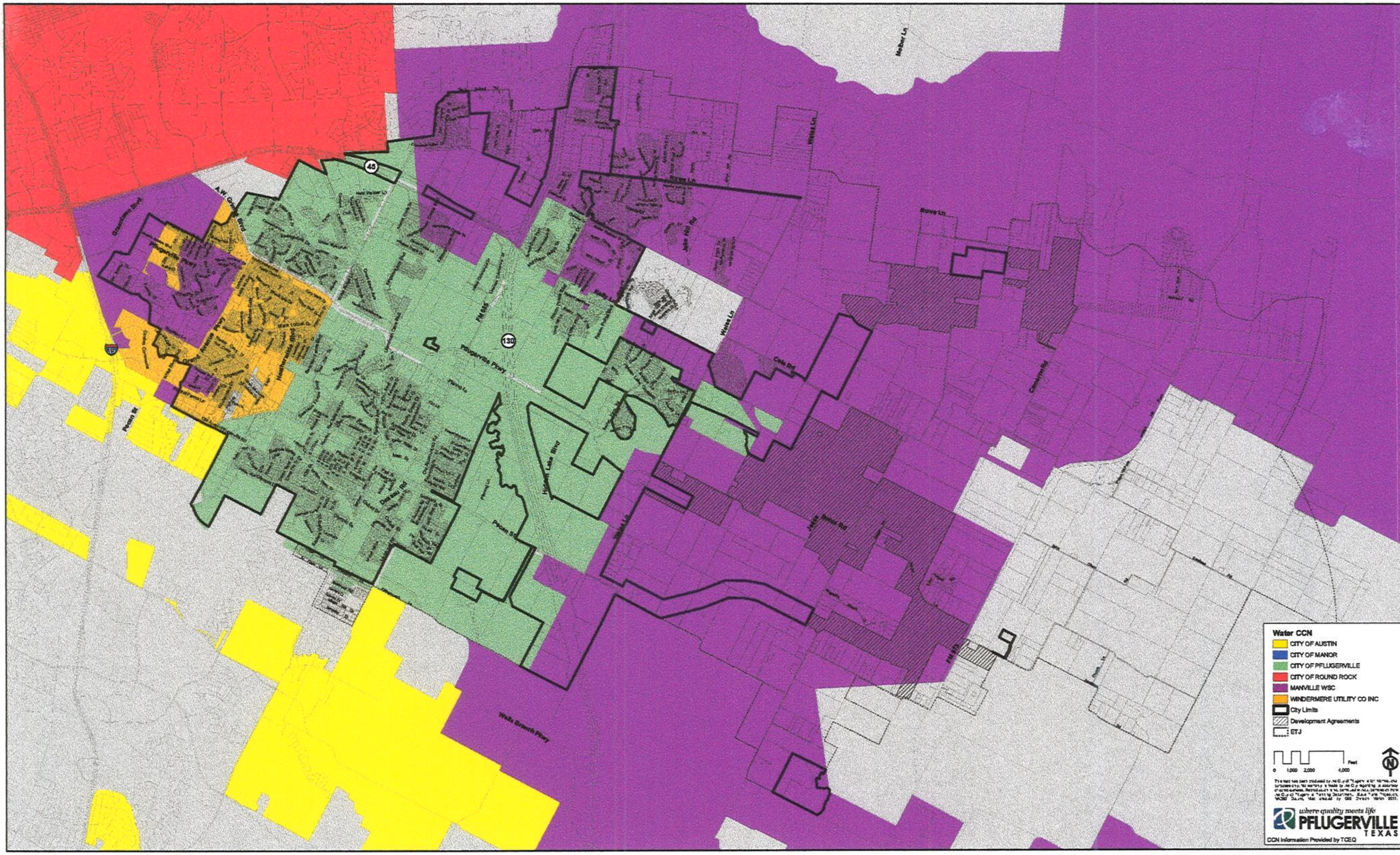
Water CCN
CITY OF AUSTIN
CITY OF MANOR
CITY OF PFLUGERVILLE
CITY OF ROUND ROCK
MANVILLE WSC
WINDERMERE UTILITY CO INC
City Limits
Development Agreements
ETJ
Feet
0
1,000
2,000
4,000
where quality meets life
PFLUGERVILLE
TEXAS
CCN Information Provided by TCEQ
45
130
Pflugerville Pkwy
Hidden Lake Blvd
Wells Branch Pkwy
Weiss Ln
Cele Rd
Melber Ln
Rowe Ln
Cameron Rd

EXHIBIT B

CURRENT WATER RATE ORDINANCE

(As of October 12, 2010)

ORDINANCE NO. 1051-10-10-12

AN ORDINANCE OF THE CITY OF PFLUGERVILLE, TEXAS, AMENDING RATES, CHARGES AND FEES FOR WATER, WASTEWATER AND SOLID WASTE UTILITY SERVICE AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City Council desires to waive deposits for new customers who enroll in the automatic draft program for a minimum of one full year, a $25.00 connection charge will apply.

WHEREAS, the City Council has determined that a $1200.00 deposit is required for construction or fire hydrant meters, which will be returned, less any outstanding balance, upon receipt of meter.

WHEREAS, the City Council has determined that service is no longer provided to the Northtown Municipal Utility District and therefore, specified rates are not required and are removed from this Ordinance.

WHEREAS, these rates will be effective on first reading..

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF PFLUGERVILLE, TEXAS:

Section 1. Retail Water Rates.

The City will charge every retail utility customer of the city water rates that include the Monthly Base Charge and the Volume Charge, set forth in (A) and (B) in this Section.

(A) The Monthly Base Charge is as follows:

Meter Size	Customer Costs
5/8"	$13.68
3/4"	$13.68
1"	$22.84
1 1/2"	$45.11
2"	$72.85
3"	$136.68
4"	$227.83
6"	$455.52
8"	$728.84

Rates for larger size meter subject to separate agreement with the city.

(B) The Volume Charge for all meter sizes is:

Gallons	Charge per 1000 gallons
0- 12000	$4.35
12001-26000	$4.61
26001+	$4.73

Section 2. Catastrophic Water Leaks.

In the event of a catastrophic water leak by a residential water customer the City may allow a credit to the customer's bill under the following circumstances. A minimum usage of 40,000 gallons more than the previous month's usage will make the customer eligible for consideration of a credit to the customer's account. The average of the past twelve months of usage will be used as a base for crediting 100% of the excess usage billed (amount of credit will be based on the highest rate per 1,000 gallons). The City would require the customer to submit a written request for a credit with a copy of the bill from a licensed plumber certifying that the leak has been repaired and a copy of a valid City of Pflugerville Building Permit for the repair. The request must detail location and dates of the leak. Customers who have been notified of a leak, but have not repaired it within 15 days of notification, will not qualify for the credit. Customers are eligible for only one credit per account location.

Section 3. Retail Wastewater Rates.

The City will charge every retail utility customer served by the City wastewater rates that include the Monthly Base Charge and the Volume Charge set for the in (A) and (B) in this section.

(A) The Monthly Base Charge is as follows;

(1) In-City Customers.

Water Meter Size	Monthly Base Charge
5/8"	$18.50
3/4"	$18.50
1"	$19.51
1 ½"	$21.99
2"	$24.96
3"	$31.95
4"	$41.90
6"	$66.78
8"	$106.43

(2) Out-of-City Customers.

Water Meter Size	Monthly Base Charge
5/8"	$23.50
3/4"	$23.50
1"	$24.51
1 ½"	$26.99
2"	$29.96
3"	$36.95
4"	$46.90
6"	$71.78
8"	$111.43

(B) The Volume Charge for all meter sizes is $3.51 per 1000 gallons for every 1000 gallons over 3000.

(C) The quantity of wastewater used to calculate the Volume Charge for wastewater will be determined as follows:

(1) Residential Customers. Each March, the City will determine each customer's water usage during the preceding November, December, January and February and calculate the average of the 3 lowest water usage months during that period. The average will be used to calculate the customer's Volume Charges until the next March, when the average will be recalculated. For customers that do not receive water service from the City, the quantity of wastewater used to calculate the monthly bill will be determined by calculating the city average usage for residential customers during the preceding November, December, January and February.

(2) Non-Residential Customers. The City will determine each customer's water usage during the month and that amount will be used to calculate the customer's Volume Charges. For customers that do not receive water service from the City, the quantity of wastewater used to calculate the monthly bill will be determined by calculating the city average usage for residential customers during the preceding November, December, January and February.

Section 4. Wholesale Wastewater Rates

(A) Wilke Lane Treatment Plant.

The City will charge a rate of $26.50 per LUE per month to all wholesale customers served by the Wilke Lane wastewater treatment plant.

Section 5. Solid Waste Disposal Rates.

The City will charge each customer $15.60 for in-city residents and $17.60 for out-of-city residents plus applicable taxes for removing residential refuse and for resource recovery services, as described in Chapter 52 of the City of Pflugerville, Texas Code of Ordinances.

Section 6. Special Charges.

The City will charge each of the following charges for service calls and delinquent bills:

(A) Connect initial utility service (not including tap or impact fees) - No Charge;

(B) Connect initial water service with enrollment in draft program - $25.00.

(C) Move existing customer's service from one location to another - $25.00;

(D) Disconnect service for Nonpayment of Bill - $25.00;

(E) Reinstate service that was disconnected for Nonpayment of Bill - $25.00; and

(F) Any customer account that is delinquent will incur a 10% per month penalty charge on all accrued and unpaid charges.

Section 7. Deposits.

Each customer must pay the deposit set forth in this Section, or replenish the deposit if the City draws upon it, when the customer initially applies for the service or when the customers applies to reinstate service that has been disconnected for nonpayment of a bill. The amount of the deposit is as follows:

Service	Deposit Amount
Solid Waste Only	$25.00
Wastewater Only	$50.00
Water Only	$125.00
Any Combination	$125.00
Construction/Fire Hydrant	$1,200.00

The customer's deposit will be returned in full if the customer's account has not been delinquent for 12 consecutive months. The customer's deposit will be returned, less any outstanding balance, within 30 days from the day the customer's account is closed. Construction/Fire Hydrant meter deposits will be returned, less any outstanding balance, upon receipt of meter.

A customer may enroll in the automatic draft program for a period of not less than one year, in lieu of placing a utility deposit.

Section 8. Effective Date.

This will be effective on October 1, 2010.

Section 9. Severability.

If any provision of this Ordinance is illegal, invalid, or unenforceable under present or future laws, the remainder of this Ordinance will not be affected and, in lieu of each illegal, invalid, or unenforceable provision, a provision as similar in terms to the illegal, invalid, or unenforceable provision as is possible and is legal, valid, and enforceable will be added to this Ordinance.

PASSED AND APPROVED this 12th day of October, 2010.

CITY OF PFLUGERVILLE, TEXAS

By: _____
Jeff Coleman, Mayor

ATTEST:

Karen Thompson, City Secretary

APPROVED AS TO FORM:

Floyd Akers, City Attorney

EXHIBIT C

WATER AND WASTEWATER SYSTEM DATA

WRD-264 (2-25-05)

TEXAS WATER DEVELOPMENT BOARD

UTILITY PROFILE

The purpose of the Utility Profile is to assist with water conservation plan development and to ensure that important information and data be considered when preparing your water conservation plan and its target and goals. Please complete all questions as completely and objectively as possible. See *Water Conservation Plan Guidance Checklist* (WRD-022) for information on other water conservation provisions. You may contact the Municipal Water Conservation Unit of the TWDB at 512-936-2391 for assistance.

APPLICANT DATA

Name of Utility: City of Pflugerville

Address & Zip: PO Box 589, Pflugerville, TX 78691-0589

Telephone Number: 512-990-6100 Fax: 512-251-5786

Form Completed By: Darrell Winslett Title: Water Superintendent

Signature: _____ Date: _____

Name and Phone Number of Person/Department responsible for implementing a water conservation program:

Name: Darrell Winslett Phone: 512-251-5786

UTILITY DATA

I. CUSTOMER DATA

A. Population and Service Area Data

1. Please attach a copy of your Certificate of Convenience and Necessity (CCN) from the TCEQ CCN # 11303. A map of the service area is attached as Exhibit A

2. Service area size (square miles): 9.5

3. Current population of service area: 36,771

4. Current population served by utility: a: water 36,771
b: wastewater _____

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

Year	Population
2004	18,306
2005	19,545
2006	21,048
2007	21,874
2008	22,410

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

Year	Population
2010	22,932
2020	37,692
2030	51,333
2040	55,862
2050	61,523

7. List source(s)/method(s) for the calculation of current and projected population:
Planning department projects our city growth and population. They only look out to 2030. The growth beyond 2030 will only be a guess.

B. Active Connections

1. Current number of active connections by user type. If not a separate classification, check whether multi-family service is counted as Residential _____ or Commercial X

Treated water users:	Metered	Not-metered	Total
Residential-Single-Family	11,283	0	
Residential-Multi-Family	0	0	0
Commercial	399	0	
Industrial	0	0	
Public	44	0	
Other	0	0	0

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

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

Year	2006	2007	2008
Residential--Single-Family	1,049	886	475
Residential-Multi-Family	1	6	8
Commercial	33	36	23
Industrial	0	0	0
Public	2	2	2
Other	3	1	0

C. High Volume Customers

List annual water use for the five highest volume retail and wholesale customers (Please indicate if treated or raw water delivery.)

	Customer	Use (1,000gal./yr.)	Indicate Treated OR Raw
(1)	Manville WSC	393,511,800	treated
(2)	Windermere Utility	127,287,000	treated
(3)	Travis County TNR	61,017,000	treated
(4)	PISD	59,658,700	treated
(5)	City of Manor	27,046,900	treated

II. WATER USE DATA FOR SERVICE AREA

A. Water Accounting Data

1. Amount of water use for previous five years (in 1,000 gal.):
Please indicate: Diverted Water ____
Treated Water X

Year	2008	2007	2006	2005	2004
January	101,965	79,415	80,608	58,723	66,882
February	97,650	79,447	65,403	51,065	60,657
March	110,354	101,305	75,442	57,800	66,785
April	118,740	102,518	91,258	76,697	71,054
May	138,738	110,893	166,952	91,771	77,605
June	222,455	106,808	150,198	122,626	80,542
July	223,374	108,759	119,363	119,220	94,099
August	235,328	149,146	192,500	97,407	104,670
September	207,662	138,844	111,862	120,052	103,667
October	176,811	151,382	101,657	105,092	72,363
November	156,144	128,981	98,624	86,577	62,144
December	128,641	106,165	85,664	76,888	59,412
Total	1,917,962	1,363,663	1,339,731	1,066,118	919,880

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

Master meter on our wells and at our surface water treatment plant.

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

Year	Residential	Commercial	Industrial	Wholesale	Other	Total Sold
2004	723,711	159,512	0	29,726	32,162	945,111
2005	879,360	183,723	0	33,120	51,120	1,147,323
2006	1,026,027	219,574	0	80,737	53,825	1,380,163
2007	930,397	212,345	0	323,180	44,173	1,510,095
2008	1,284,138	337,492	0	493,030	50,158	2,164,818

3. List previous five years records for water loss (See #2, Appendix A)

Year	Amount (gal.)
2004	111298650
2005	183000000
2006	103500000
2007	103500000
2008	103500000

4. List previous five years records for annual peak-to-average daily use ratio (See #3, Appendix A)

Year	Average MGD	Peak MGD	Ratio
2004	2.520	4.848	1.92
2005	2.920	7.641	2.61
2006	3.670	8.904	2.42
2007	3.736	6.586	1.76
2008	5.254	9.896	1.88

5. Total per capita water use for previous five years (See #4, Appendix A):

Year	Population	Total Diverted (or Treated Less Wholesale Sales (1,000 gal.)	Per Capita (gpcd)
2004	18306	9,153.91	136
2005	19515	1,114.203	148
2006	19545	1,299.426	182
2007	21873	1,186.915	156
2008	22410	1,674.768	204

6. Seasonal water use for the previous five years (in gallons per person per day) (See #5, Appendix A):

Year	Population	Base Per Capita Use	Summer Per Capita Use
2004	18306	116	169.53
2005	19515	96.33	193
2006	19545	127.8	262.7
2007	21873	124.21	185
2008	22410	151	337.7

B. Projected Water Demands

Project water supply requirements for at least the next ten years using population trends, historical water use, and economic growth, etc. Indicate sources of data and how projected water demands were determined.

Attach additional sheets if necessary.

Year	gpcpd	Service Population	Annual Water Use In 1000 gal.	Year	gpcpd	Service Population	Annual Water Use In 1000 gal.
2010	204.00	22,932	1,707,517	2015	194.00	30,312	2,146,415
2011	201.96	24,408	1,799,245	2016	190.63	31,786	2,211,765
2012	199.94	25,864	1,888,969	2017	187.31	33,264	2,274,191
2013	197.94	27,360	1,976,718	2018	184.05	34,740	2,333,776
2014	195.96	28,836	2,062,523	2019	180.85	36,216	2,390,598
2015	194.00	30,312	2,146,415	2020	177.14	37,692	2,437,016

Took the average number of connection from last 5 years, did the same for water average per capita for the next ten years.
**On the number of connections took 2/3 of total for our CCN, others 1/3 is outside our water service area.

III. WATER SUPPLY SYSTEM

A. Water Supply Sources

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

	Source	Amount Available
Surface Water:	Lake Pflugerville / LCRA Colorado River	16.5 MGD
Groundwater:	3 wells in Edwards Aquifer	7.7 MGD
Contracts:	NA	- MGD
Other:	NA	- MGD

B. Treatment and Distribution System

1. Design daily capacity of system: 23.2 MGD
2. Storage Capacity: Elevated 1.750 MGD, Ground 3.487 MGD
3. If surface water, do you recycle filter backwash to the head of the plant?
   Yes _____ No X** . If yes, approximately _____ MGD.
   **Not at this time, work on project to recycle water should start January 2010.
4. Please describe the water system. Include the number of treatment plants, wells, and storage tanks. If possible, include a sketch of the system layout.

Pfenning Ln Booster Pump Station

Kelly Ln Elevated Tank

Well # 4 Ground Storage

Pfennig Ln Standpipe

Clearwell SWTP

*Interconnect with SWW for Windermere

Surface water is supplied to about 3/4 of the City, the other 1/4 on the south and southwest side of town get blended water from surface and wells.

Well # 6 Ground Storage

South Standpipe

Well # 7 Ground Storage

Appendix A

Definitions of Utility Profile Terms

1. **Residential – Single Family** should include water sold to single family and duplexes.
   Residential – Multi-Family should include water sold to this class of customers only.
   Commercial/Institutional sales should include water sold to retail businesses, offices, hospitals, etc.
   Industrial sales should include water sold to manufacturing and other heavy industry.
   Wholesale sales should include water sold to another utility for resale to the public.
   Other water sales should be noted as necessary.

2. **Total use in gallons per capita per day** is defined as total average daily amount of water treated or raw water provided for potable use by a public water supply system. The calculation is made by dividing the water diverted or pumped for treatment by population served. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculation gallons per capita per day for targets and goals developed for the water conservation plan. Total water use is calculated by subtracting the wholesale sales from the total treated or raw water.

3. **Residential use in gallons per captita per day** is calculated by dividing the total single family plus multi-family residential water sales by the population served and then dividing by 365.

4. **Seasonal water use** is the difference between winter daily per capita use and summer daily per capita use. To calculate **the winter daily per capita use**, add the monthly diversions for December, January, and February, and divide by 90. Then divide this figure by the population. To calculate the **summer daily per capita use**, use the months of June, July, and August.

5. **Water Loss** is the difference between water a utility purchases or produces and the amount of water that it can account for in sales and other use, metered and unmetered, such as firefighting, line flushing, and water for public buildings and water treatment plants. Water loss can result from:
   1. Inaccurate or incomplete record keeping;
   2. Meter error;
   3. Leaks; and
   4. Water theft and unauthorized use.

6. The **peak-day to average-day ratio** is calculated by dividing the maximum daily pumpage by the average daily pumpage. Average daily pumpage is the total pumpage for the year divided by 365.

EXHIBIT D

DISCUSSION OF WATER CONSERVATION GOALS

Water Conservation Goals

The technical potential for reducing per capita water use is the range in potential water savings that can be achieved by implementing specific water conservation measures. The bottom of the range represents the potential savings under a "most likely", or real-world conservation scenario. The top of the range represents the potential savings under an "advanced" conservation scenario. The conservation measures include:

- Reducing unaccounted-for water uses;
- Reducing indoor water use due to water conserving plumbing fixtures;
- Reducing seasonal water use; and
- Reducing water use through public education program

Guidelines for calculating the technical potential water savings for each of the conservation measures are given below.

1. Reducing unaccounted-for water uses.

   The Texas Commission on Environmental Quality (TCEQ) considers unaccounted-for water uses of 15% or less acceptable for communities serving more than 5,000 people. Smaller, older systems that have a larger service area may legitimately experience larger losses. Losses above 15% may be an area of concern, and provide a conservation potential.

2. Reducing indoor water use due to water-conserving plumbing fixtures

   The TCEQ uses 20.5 gpcd as the most reliable figure upon which to base potential water savings, which represents the "most likely" conservation scenario. This figure is based upon the estimate that by 2050, 90% of the pre-1992 homes, and all new homes will have been equipped with water conserving plumbing fixtures.

   The figure used for the "advanced" conservation scenario, 21.7 gpcd, is an estimate of the average savings that would result from a home equipped exclusively with water-conserving plumbing fixtures. This figure is considered "advanced" because in a typical city, 100% of the homes are not exclusively equipped with water-conserving fixtures.

3. Reducing seasonal water use

   The Texas Water Development Board (TWDB) has calculated seasonal use as a percentage of average annual per capita use for East Texas (20%), West Texas (25%), and a statewide average of 22.5%. Seasonal water use is calculated by multiplying the average annual per capita use in the gpcd by the appropriate percentage,

The technical potential for reduction in seasonal use is then calculated by multiplying the seasonal use by 7% for the "most likely" conservation scenario, and by 20% for the "advanced" scenario.(based on LCRA calculations)

4. Reducing Water Use through Public Education Programs

The technical potential for water conservation from public education program is estimated to be from 2% of the average annual per capita use for the "most likely" conservation scenario to 5% for the "advanced" scenario, according to the "Water Conservation Guidebook", published in 1993 by the America Water Works Association.

To calculate the total technical potential for reducing municipal per capita water use, add the individual technical potential amounts.

Summary of Technical Potential Calculations		
Conservation Measure	**Calculation Procedure**	**Result**
Reducing unaccounted-for uses	(Dry-year demand) x (Unaccounted for percentage if more than 15%, minus 15%)	0 to 12.81 gpcd
Reducing indoor water use due to water-efficient plumbing fixtures	20.5 gpcd ("rule of thumb") to 21.7 gpcd (advanced)	20.5 to 21.7 gpcd
Reducing seasonal water use	Seasonal use (Avg use x 22.5%) x 7% and 20%	3.21 to 9.18 gpcd
Reducing water use through public education program	Average use x 2% and 5%	4.08 to 10.2 gpcd
	Total Technical Potential Savings	**27.79 to 41.08**

To calculate the long-run planning goal, subtract these totals from the dry-year water demand.

Estimation of the technical potential for reducing per capita water use	
Conservation Measure	**Conservation Scenario Most Likely**
Reduction in unaccounted-for uses	0
Reduction in indoor water use due to water-conserving plumbing fixtures	20.5 gpcd
Reduction in seasonal use	3.21 gpcd
Reduction in water use due to public education programs	4.08 gpcd

TOTAL TECHNICAL POTENTIAL FOR REDUCING PER CAPITA WATER USE: 27.79

*Subtract these totals from the dry-year per capita use to calculate the long-run planning goal.

Planning Goal

The planning goal equals the dry year per capita water use minus the total technical potentials calculated above.

Planning goal (in gpcd):	176.21
Goal to be achieved by year:	2020

Needed reduction in per capita use to meet planning goal

Current per capita use:	204
Planning Goal:	176.21
Difference between current use and goal:	27.79

(Represents needed reduction in per capita use to meet goal)

TOTAL TECHNICAL POTENTIAL FOR REDUCING PER CAPITA WATER USE: 27.79

*Subtract these totals from the dry-year per capita use to calculate the long-run planning goal.

Planning Goal

The planning goal equals the dry year per capita water use minus the total technical potentials calculated above.

Planning goal (in gpcd):	176.21
Goal to be achieved by year:	2020

Needed reduction in per capita use to meet planning goal

Current per capita use:	204
Planning Goal:	176.21
Difference between current use and goal:	27.79

(Represents needed reduction in per capita use to meet goal)

EXHIBIT F

RESOLUTION