



WATER CONSERVATION & DROUGHT CONTINGENCY PLAN 2013

429 Fourth Street
Graham, TX 76450
(940) 549-3322

Prepared by:

LaCosta
ENVIRONMENTAL LLC

Table of Contents

WATER CONSERVATION PLAN..... 3
Utility Profile..... 3
Water Conservation Goals..... 4
Metering Devices..... 4
Water Loss..... 5
Public Education..... 5
Water Rates..... 6
Recycling & Reuse..... 6
Plumbing Codes..... 7
Water Conserving Landscaping..... 7
Water Waste..... 8
Best Management Practices..... 9
Wholesale Contracts..... 9

DROUGHT CONTINGENCY PLAN..... 10
Declaration of Policy, Purpose, and Intent..... 10
Public Involvement..... 10
Public Education..... 11
Authorization..... 11
Application..... 12
Drought and Emergency Triggers..... 12
Response Stages..... 14
Variances..... 20
Enforcement..... 21

COORDINATION WITH REGION G PLANNING GROUP..... 23

ORDINANCE..... 24

WATER CONSERVATION PLAN

Utility Profile

Utility Information

CCN#: 11153
 PWS#: 2520001
 RWPG: Region G Planning Group
 COUNTY: Young
 WATER SOURCE: Lake Graham/Eddleman
 STORAGE CAPACITY: 2.5 MGD
 WASTEWATER CAPACITY: 2.5 MGD
 REUSE VOLUME: 3,000,000 gallons

Population and Customer Data

YEAR	POPULATION	TOTAL GPCD	RESIDENTIAL GPCD	WATER LOSS
2012	8,901	288	112	1%
2011	8,903	274	168	19%
2010	8,900	230	132	5%
2009	8,900	224		
2008	8,900	302		

SECTOR	CONNECTIONS	2012 GALLONS SOLD
RESIDENTIAL	3,660	364,083,000
INDUSTRIAL	0	0
COMMERCIAL	640	337,200,000
INSTITUTIONAL	633	220,000,000
AGRICULTURAL	0	0
TOTAL	4,933	921,283,000

Water Conservation Goals

The City of Graham's specific and quantified 5 and 10-year water conservation goals for its retail and wholesale service areas are as follows:

	5-Year Goal (2019)	10-Year Goal (2023)
TOTAL GPCD	230	225
RESIDENTIAL GPCD	120	115
WATER LOSS	< 15%	< 15%

The City's previous 5 and 10-years goals for total gpcd were 255 and 242 respectively. The previous 5 and 10-year goals for residential gpcd were 136 and 129 respectively.

Historic gpcd data for the City has fluctuated significantly due to drought conditions and meter replacement programs. The City continues to improve its data collection and records management programs in an effort to improve the ongoing tracking and evaluation of water conservation programs.

The City's billing software does not differentiate between single family and multi-family sub-sectors. Therefore, the City's residential data and goals includes both single-family and multi-family sub-sectors. Multi-family water use is a relatively small portion of overall residential use.

Metering Devices

The City of Graham meters 100% of water use in residential, commercial, and institutional, and wholesale accounts. Meters are tested upon customer request. The City's meter testing, repair, and replacement includes:

1. Investigation, testing, repair, or replacement of meters indicating abnormally high or low usage
2. Biannual testing of all meters 2" or larger
3. Master meters are tested and calibrated annually to an accuracy of plus or minus 5%

During 2012, the following meter testing, repair, and replacement activities were performed:

	Meters larger than 1 ½"	Meters 1 ½" or smaller
Tested	100	80
Repaired	200	223
Replaced	275	275

The city replaced all meters with an Automated Meter Reading (AMR) system in 2005 and continues to upgrade its registers. This AMR system allows for the collection of consumption, diagnostic, and status data from each meter. The City will consider Antenna Read meter systems in the future.

Water Loss

The City maintains an ongoing program of leak detection and repair. A periodic water audit measures water loss by comparing sold vs. produced water. Any abnormalities are investigated by the Utility Department staff using both visual and leak detection equipment. Water lines found to have leaks are replaced as quickly as practical. City utility staff repaired approximately 200 leaks in 2012.

Public Education

The City of Graham will conduct a program of ongoing public education and outreach over the next planning cycle that will include:

- Distribution of TWDB, AWWA, and Water IQ water conservation information to customers, civic groups, and public schools
- Articles are published in local newspapers to reinforce the distributed materials
- Radio public service announcements and interviews are periodically conducted to promote water conservation awareness

- New customers will receive water conservation information when applying for service
- Consideration of implementation of Best Management Practice for Public Information

During 2012, the following public awareness and educational activities were conducted:

- 3 Press releases
- 3 Radio public service announcements
- 2 facility tours
- 500 cubic yards of mulch distributed

Water Rates

The City of Graham has a minimum first 2,000 gallons charge of \$15.50. After the first 2,000 gallons, the City has a uniform rate of \$2.70 per thousand gallons for all retail customers. This rate is cost based and does not encourage the excessive use of water. The City is, however, considering adopting an inclining block rate structure in the future.

Recycling & Reuse

Approximately 3 million gallons is recycled and reused annually at the City's wastewater treatment plant. Treated wastewater effluent is used for all wash down of plant structures. The City will consider use of treated effluent for landscape irrigation uses during the next planning cycle for landscape irrigation of park land as well as sales to hydraulic fracturing operations.

Plumbing Codes

All new construction must comply with City Code by using water saving plumbing fixtures. Additionally, the State of Texas has recently adopted more stringent water saving performance measures for plumbing fixtures, found in the Health & Safety Code Chapter 372. The following maximum flow standards are subsequently listed in the Texas Administrative Code Title 30 Chapter 290 Subchapter G:

- Faucet or aerator 2.2 gpm
- Shower head 2.5 gpm
- Urinal and associated flush valve* 0.5 gpf
- Single and dual flush toilets* 1.28 gpf
- Pre-rinse spray valve 1.6 gpm

* Effective January 1, 2014

Customers in existing building that do not have water saving plumbing fixtures are encouraged through educational materials to retrofit their old plumbing fixtures. These educational materials will explain the water savings that can be achieved.

Service taps will not be given to customers that do not meet the City's requirements for service, including compliance with the adopted plumbing code requiring the installation of water conserving plumbing fixtures. The City of Graham Code Enforcement Department inspects all new and repaired plumbing within the city limits. Certificates of Occupancy and permanent water service are not granted to facilities that fail to meet all requirements.

Water Conserving Landscaping

The City will continue to provide educational materials on water-wise landscaping practices. The City's year-round voluntary water schedule allows customers with odd numbered addresses to water on Mondays, and those with even numbered addresses to water on Tuesday. Irrigation of landscapes is prohibited between 10:00AM and 7:00PM when the Drought Contingency Plan is in effect and are encouraged to voluntarily comply during all other times.

The City has a program to provide mulch for residential landscapes. Additional mulch in tree and flower beds allow landscapes to more efficiently utilize landscape irrigation. The City has plans to deliver approximately 2,500 cubic yards of mulch annually to customers.

Water Waste

Water waste is prohibited at all times. Water waste is defined as:

1. Failure to repair a controllable leak, including:
 - Irrigation systems
 - Plumbing fixtures
 - Pipes
2. Operating a permanently installed irrigation system with:
 - A broken or missing head
 - A head that is out of adjustment where the arc of the spray head is over a street, parking area, or other impervious surface
3. During irrigation:
 - Allowing water to run off a property such that there is a trail of water running in a street, parking area, or other impervious surface for a distance of 50 feet or greater
 - Allowing water to pond to a depth greater than $\frac{1}{4}$ of an inch in a street, parking area, or other impervious surface.

Each instance of a violation is a separate offense and a Class C misdemeanor punishable by fines.

Best Management Practices

The City will consider implementing the following BMPs during the next reporting cycle:

- System Water Audit and Water Loss
- Public Information
- Conservation Programs for Industrial, Commercial, and Institutional Accounts

Wholesale Contracts

The City of Graham provides water service to Ft. Belknap WSC and Graham East WSC.

- The City of Graham will include a requirement in every wholesale water supply contract entered into or renewed after official adoption of the 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 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 30 TAC Chapter 288.

DROUGHT CONTINGENCY PLAN

Declaration of Policy, Purpose, and Intent

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City of Graham hereby adopts the following regulations and restrictions on the delivery and consumption of water by City Ordinance.

Water uses regulated or prohibited under this Drought Contingency Plan are considered to be non-essential or discretionary and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in the Enforcement of Drought Contingency Plan section of this Plan.

Public Involvement

Opportunity for the public to provide input into the preparation and subsequent revisions of this Plan was provided by the City of Graham by means of:

1. City Council meetings scheduled bi-weekly at City Hall on Thursdays at 9:30 AM
2. Direct mailing
3. Phone
4. Personal correspondence

Public Education

The City of Graham will periodically provide the public with information about this Drought Contingency Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. Water conservation tips and information will also be provided.

This information will be provided by means of:

1. Posting a Notice of Drought Conditions at the City Hall
2. General circulation to newspapers
3. Notifying local radio stations
4. Direct mailing to each water account
5. Handouts to customers, schools, civic groups, and clubs upon request
6. Water plant tours
7. The plan will be posted on the City's website

A copy of this Plan will be available at the City Hall during business hours. The Plan will also be available electronically.

Authorization

The City Manager or his/her designee is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The City Council shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

Application

The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the City of Graham. The terms “person” and “customer” as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities.

Drought and Emergency Triggers

The City Manager or his/her designee shall monitor water supply and/or demand conditions on a daily basis and shall determine when conditions warrant initiation or termination of each stage of the Plan, that is, when the specified triggers are reached.

DROUGHT TRIGGERS

Stage 1

- The static water level at Lake Graham/Eddleman is equal to or less than 1,067.8 feet above msl or 65% capacity
- Excessive demand on the system
- U.S. Drought Monitor indicates abnormally dry to moderate drought conditions

Stage 2

- The static water level at Lake Graham/Eddleman is equal to or less than 1,065.3 feet above msl or 55% capacity
- Inability to maintain 70% storage capacity over-night due to high demand
- Demand exceeds 85% treatment capacity for 3 consecutive days
- Demand exceeds 90% treatment capacity for 1 day
- U.S. Drought Monitor indicates severe, extreme, or exceptional drought conditions

Stage 3

- The static water level at Lake Graham/Eddleman is equal to or less than 1,062.5 feet above msl or 45% capacity
- Inability to maintain 50% storage capacity over-night due to high demand
- Demand exceeds 90% treatment capacity for 3 consecutive days
- Demand exceeds 95% treatment capacity for 1 day
- U.S. Drought Monitor indicates extreme or exceptional drought conditions

Stage 4

- The static water level at Lake Graham/Eddleman is equal to or less than 1,059.4 feet above msl or 35% capacity
- Inability to maintain 35% storage capacity over-night due to high demand
- Demand exceeds 95% treatment capacity for 3 consecutive days
- Demand exceeds 100% treatment capacity for 1 day
- U.S. Drought Monitor indicates exceptional drought conditions
- Major limitations of water system components

Stage 5: Emergency

- The static water level at Lake Graham/Eddleman is equal to or less than 1,058.0 feet above msl
- Water production or distribution system limitations
- Supply source contamination
- System outage due to the failure or damage of major water system components

Response Stages

The City Manager or his/her designee shall monitor water supply and/or demand conditions on a daily basis and, in accordance with the triggering criteria set forth in this Plan, shall determine that a mild drought, moderate drought, severe drought, exceptional drought, or emergency condition exists. The City shall notify the public by the means of notification described in the Public Education section of this plan.

During times of high demand, or distribution limitations, the City Manager or his/her designee may implement the appropriate Drought Response Stage.

City of Graham Watering Schedule

Drought Stage	Compliance	Odd Addresses	Even Addresses
1	Voluntary	Wednesday, Saturday	Thursday, Sunday
2	Mandatory	Wednesday, Saturday	Thursday, Sunday
3	Mandatory	Wednesday	Thursday
4	Mandatory	Wednesday 7PM-8PM*	Thursday 7PM-8PM*

* Hand held hose, watering can, or bucket only

During times when this Drought Contingency Plan is in effect, it is a violation of this Plan for any person, firm, corporation, or entity to irrigate landscapes between 10:00 a.m. and 7:00 p.m.

As appropriate, the City Manager or his/her designee shall notify directly, or cause to be notified directly, the following individuals and entities:

Mayor and City Council

City Fire Chief

City and County Emergency Management Coordinators

Municipal Court Judge

County Judge

DPS, Division of Emergency Management, (512) 424-2208

TCEQ, Water Supply Division, (512) 239-4697

Stage 1 Response

Target: Achieve a 5 percent reduction in total water use.

Water-Use Restrictions

1. Customers are requested to voluntarily follow to the City of Graham's 2-day/week watering schedule
2. Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential or discretionary purposes*
3. Customers may water potted plants and landscapes at any time with a watering can or bucket
4. Request that wholesale customers follow Stage 1 Drought responses.

Utility Actions

1. Formal public notification by City officials of Stage 1 Drought conditions
2. Initiate increased public information efforts
3. Notify major commercial and institutional water users
4. Increase leak detection and repair efforts
5. Reduced flushing of water mains
6. If coming from Stage 2, 3, or 4 Response, notify TCEQ Water Supply Division of no mandatory restrictions

*** The following uses of water are defined as non-essential or discretionary:**

- Wash down of any sidewalks, driveways, parking lots, or other hard-surfaced areas
- Use of water to wash down buildings or structures for purposes other than immediate fire protection
- Use of water for dust control
- Use of water for washing vehicles
- Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).

Stage 2 Response

Target: Achieve a 10 percent reduction in total water use.

Water-Use Restrictions

1. Customers are required to follow to the City of Graham's 2-day/week watering schedule
2. Water customers are requested to continue to practice water conservation and to minimize or discontinue water use for non-essential or discretionary purposes
3. Customers may water potted plants and landscapes at any time with a watering can or bucket
4. Discontinue irrigation of City parks and institutional landscapes
5. Require that wholesale customers follow Stage 2 Drought responses

Utility Actions

1. Continue Stage 1 actions
2. Formal public notification by City officials of Stage 2 Drought conditions
3. Increase utility oversight of watering schedule and water waste
4. Notify TCEQ Water Supply Division of current mandatory drought stage

Stage 3 Response

Target: Achieve a 20 percent reduction in total water use.

Water-Use Restrictions

1. Customers are required to comply with the City of Graham's 1-day/week watering schedule
2. Filling of swimming pools, ornamental fountains, and artificial water features on watering days only
3. Customers may water potted plants and landscapes at any time with a watering can or bucket
4. Require that wholesale customers follow Stage 3 Drought responses

Utility Actions

1. Continue Stage 1 and 2 actions
2. Formal public notification by City officials of Stage 3 Drought conditions
3. Implement utility enforcement of watering schedule and water waste
4. Consider reducing the volume of water sold at bulk water filling stations
5. Notify TCEQ Water Supply Division of current mandatory drought stage

Stage 4 Response

Target: Achieve a 30 percent reduction in total water use.

Water-Use Restrictions

1. All outdoor, non-essential, or discretionary uses of water is prohibited except with hand held hose, water can, or bucket between 7:00PM and 8:00PM
2. Require that wholesale customers follow Stage 4 Drought response s

Utility Actions

1. Continue Stage 1, 2, and 3 actions
2. Formal public notification by City officials of Stage 4 Drought conditions
3. Increase utility enforcement of watering schedule and water waste
4. Require commercial car washes to apply for a Variance and document use of water conserving practices
5. Discontinue water sold at bulk water filling stations
6. Notify TCEQ Water Supply Division of current mandatory drought stage
7. Consider pro rata allocation to wholesale customers according to TWC 11.039

Stage 5 Response: Emergency

Emergency water shortage

In the event of an identified water shortage declaration from the City of Graham, the City will implement pro rata allocation to wholesale customers according to the Texas Water Code Chapter 11.039.

Supply source contamination

In the event of a contamination event, appropriate emergency procedures will be implemented and appropriate emergency response officials will be notified immediately.

In the event of a backflow incident, loss of pressure, or an Acute Maximum Contaminant Level coliform violation, a Boiled Water Notice will be implemented as prescribed in 30 TAC Chapter 290.

System outage due to the failure or damage of major water system components

In the event of a catastrophic failure due to natural or man-made events, appropriate emergency procedures will be implemented and appropriate emergency response officials will be notified as appropriate.

Alternative Sources

The City has a water right reserve with the Brazos River Authority for water from Possum Kingdom Lake. This right has never been enacted but, in an emergency, the City would work with the BRA to plan for use from Possum Kingdom if water is available. There has also been exploratory work on groundwater availability that, in a pending emergency situation, would be more fully considered.

Variances

The City Manager or his/her designee may, in writing, grant temporary variance for existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the person requesting such variance and if one or more of the following conditions are met:

1. Compliance with this Plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which the Plan is in effect.
2. Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Ordinance shall file a petition for variance with the City of Graham within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by City Manager or his/her designee, and shall include the following:

1. Name and address of the petitioner(s).
2. Purpose of water use.
3. Specific provision(s) of the Plan from which the petitioner is requesting relief.
4. Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance.
5. Description of the relief requested.
6. Period of time for which the variance is sought.
7. Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
8. Other pertinent information.

Enforcement

1. No person or entity shall knowingly or intentionally allow the use of water from the City of Graham for residential, commercial, institutional, industrial, agricultural, governmental, recreational, wholesale, or any other purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by the City Manager or his/her designee, in accordance with provisions of this Plan;
2. A City of Graham code enforcement officer, police officer, or other official designated by the City Manager or his/her designee, may issue a written Notice of Violation to a person or entity he/she reasonably believes to be in violation of this Plan. For subsequent violations following written notice:
 - a. The utility may issue a misdemeanor;
 - b. The utility may install a flow restricting device in the line to limit the amount of water which will pass through the meter in a 24-hour period. The utility may charge the customer for the actual cost of installing and removing the flow restricting device, not to exceed \$50.00;
 - c. The utility may discontinue service at the meter for a period of seven (7) days, or until the end of the calendar month, whichever is LESS. The normal reconnect fee of the utility will apply for restoration of service;
3. Any person who violates this Plan is guilty of a misdemeanor and, upon conviction shall be punished by a fine of not more than one thousand dollars (\$1,000.00). Each day that one or more of the provisions in this Plan is violated shall constitute a separate offense. If a person is convicted of three or more distinct violations of this Plan, the City Manager or his/her designee shall, upon due notice to the customer, be authorized to discontinue water service to the premises where such violations occur. Services discontinued under such circumstances shall be restored only upon payment of a re-connection charge, hereby established at \$20.00, and any other costs incurred by the City of Graham in discontinuing service. In addition, suitable assurance must be given to the City Manager

or his/her designee that the same action shall not be repeated while the Plan is in effect. Compliance with this plan may also be sought through injunctive relief in the district court;

4. Any person or entity, including a person classified as a water customer of the City of Graham, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.

COORDINATION WITH REGION G PLANNING GROUP

The service area of the City of Graham is located within the Region G Water Planning Group and the City will provide a copy of this Plan to the Region G Planning Group at:

Brazos River Authority
P.O. Box 7555
Waco, TX 76714