



# **BORDEN COUNTY**

# **WATER SYSTEM**

# **WATER CONSERVATION PLAN**

**PWS ID#: 0170010**

*BEN JARRETT*

**ADOPTED: OCTOBER 9, 2018**  
**ADOPTED BY RESOLUTION: APRIL 23, 2019**



# BORDEN COUNTY WATER SYSTEM

## WATER CONSERVATION PLAN

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# **WATER CONSERVATION PLAN FOR THE BORDEN COUNTY WATER SYSTEM**

## **SUMMARY**

The Borden County Water System serves more than 250 Borden County and Gail (County Seat) residents in 2018. Our water service population is expected to remain stable through 2050. The water system is currently serviced by two (2) water wells located on the eastern edge of Dawson County. The County purchased the water rights to 1071 acres in 2013. The raw water from the well field is pumped approximately 17 miles to the treatment and elevated storage facility at the edge of Gail. The treated water is supplied to the residents through a County-maintained water distribution system.

The County-owned water well field is within the jurisdiction of the Mesa Underground Water Conservation District. The Water District Board of Directors has ratified and adopted rules in accordance with Section 59 of Article XVI of the Texas Constitution and Acts of the 71<sup>st</sup> Legislature (1989), Ch. 669, SB 1727 and Chapter 36 of the Texas Water Code. The Borden County Water System operates within the perimeters of those rules.

In order to protect our water sources and extend their useful life, it is necessary to examine water use practices and educate the public about ways in which to reduce overall water use. It is also necessary to set goals and outline methodologies in which to achieve those goals.

This Water Conservation Plan identifies water conservation goals and explains conservation practices that will help protect long-term water supplies for Borden County and the town of Gail, and its customers. This Plan includes information required by the Texas Commission on Environmental Quality (TCEQ) for Water Conservation Plans as well as information specific to the Borden County Water System.

## **SECTION 1: OBJECTIVES**

In the Texas Water Code<sup>1</sup>, water conservation is defined as follows:

- a. The development of water resources; and,
- b. Those practices, techniques and technologies that will 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.

Based upon these concepts of water conservation, Borden County's objective is to implement a Water Conservation Plan, which will protect the quality of the raw water supplies and reduce per capita usage. This can be accomplished by increasing water use efficiency, thereby reducing water demands without adversely affecting population and economic growth potentials to its customers. The development of additional water resources to meet the needs of Borden County will be addressed as growth requires. The principal objective of this Plan is to set guidelines for the promotion and publicity of water conservation methods that can be used by retail customers served from the County's water supply system to reduce their daily water use. It also outlines methods within the County's government, which can reduce water losses. If effective and subscribed to by the County and the general population, these methodologies may result in the following:

1. Reduce average daily water demands;
2. Lower peak season water use; and,
3. Delay the time at which additional raw water supplies will be needed.

In reference to emergency demand management, procedures to reduce water use and manage water supplies in the event of severe drought or other emergencies are found in the County's Drought Contingency Plan and Emergency Water Management Plan.

## **SECTION 2: CONSERVATION OVERVIEW**

The Borden County Water Conservation Plan recognizes that the County water resources are within the jurisdiction of the Mesa Underground Water Conservation District. Borden County is committed to meeting or exceeding the conservation methods outlined in the Rules of Mesa Underground Water Conservation District.

<sup>1</sup>Texas Water Code, Section 17.001(23)(A)(B)

## Water Use Summary

Water use is typically expressed in gallons per capita/per day (gcpd). This number is generally the average annual water use expressed in a per day total divided by the population of the service area. It is typically greater than the general person actually uses in any given day themselves. Water use statistics include all water use which can be attributed to a population and may include:

Household use (cleaning, cooking, etc.)	Commercial outdoor water use
Residential landscaping	Industrial/manufacturing use
Vehicle washing	Schools, churches, institutions
Recreation	Fire protection
Workplace water use	Public area use
Commercial indoor water use	Municipal government use

Efforts at conservation in water use must affect all these areas possible in order to accomplish a measurable and significant reduction over time.

### 2.1 GENERAL METHODS OF CONSERVATION

There are many ways to accomplish conservation and the practices are not new. In fact, some significant conservation efforts have been made throughout the State of Texas through the plumbing fixture modifications. The State Code which affected this change is described below. Other conservation efforts are focused at appliance efficiencies, reduction in landscape use, and the modification of personal behaviors.

### 2.2 PLUMBING CODE REQUIREMENTS

The 1991 Texas Legislature passed Senate Bill 587 which established minimum standards for plumbing fixtures sold in Texas<sup>2</sup>. The Bill, effective January 1, 1991, allowed until January 1993 for wholesalers and retailers to clear existing inventories of pre-standards plumbing fixtures. The standards for all new plumbing fixtures, as specified by Senate Bill 587, are as follows:

<u>Fixture</u>	<u>Standard</u>
Wall Mounted Flush Meter Toilets .....	2.00 gallons per flush
All Other Toilets .....	1.60 gallons per flush
Shower Heads.....	2.75 gallons per minute at 80 psi*
Urinals .....	1.00 gallons per flush
Faucet Aerators .....	2.20 gallons per minute at 80 psi*
Drinking Water Fountains.....	Shall be self-closing

\*pounds per square inch

<sup>2</sup>Senate bill 587, Texas Legislature, Regular Session, 1991 Austin, Texas

The Texas Natural Resource Conservation Commission (TNRCC) has promulgated rules requiring the labeling of both plumbing fixtures and water sprinklers, and the amounts of water used per system for clothes washers and dishwashers<sup>3</sup>.

### SECTION 3: WATER CONSERVATION GOALS

The goals established for the Borden County Water System are:

1. Reduce water loss by the repair or replacement of water meters;
2. Use internal programs to find and minimize water loss; and,
3. Work with the school administration and Texas AgriLife Service Extension Service to expand the public education programs within the school system and Ag Producers.

#### 5 and 10 year Goals for Water Savings

	Historic 5 yr. Average	Baseline	5 yr. Goal for 2023	10 yr. Goal for 2028
Total GPCD <sup>1</sup>	363	350	270	265
Residential GPCD <sup>2</sup>	165	140	45	50
Water Loss (GPCD) <sup>3</sup>	171	150	40	33
Water Loss (Percentage) <sup>4</sup>	47 %	43 %	15 %	12 %

1. Total GPCD = (Total Gallons in System ÷ Permanent Population) ÷ 365

2. Residential GPCD = (Gallons Used for Residential Use ÷ Residential Population) ÷ 365

3. Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365

4. Water Loss Percentage = (Total Water Loss ÷ Total Gallons in System) × 100; or (Water Loss ÷ Total GPCD) × 100

The historic 5 year average reflects a greater amount of water loss for years 2016 and 2017 due to the pumping rate required to conduct the pilot plant testing for future water treatment. The 10 year goal is set higher in anticipation of residential population increase.

### SECTION 4: WATER CONSERVATION METHODS

The Borden County Water Conservation plan includes the following water conservation methods:

1. Public information and education;
2. Plumbing Code;
3. Conservation oriented rates;
4. Universal metering, meter testing, repair and replacement;
5. Leak detection and repair;
6. Valve exercising program;
7. Water conserving landscaping;

<sup>3</sup>Texas Administrative Code, Section 290.251, 290.253-290.256, 290.266



8. Landscape water management;
9. Plumbing retrofit program;
10. Water use auditing; and,
11. Water wasting.

Each method is presented and described in the following subsections.

#### **4.1 PUBLIC INFORMATION AND EDUCATION**

The most important part of any water conservation program is public education. The Borden County Water Department works to develop education materials for distribution to citizens. The Borden County Water Department works to educate the public through:

##### **County Website**

An excellent means to provide information to citizens is the County's website. The water department strives to keep updated information on the website including water conservation programs and status of the Water System's Emergency Water Management Plan.

##### **County Judge Facebook Page**

This is another forum that is used to distribute water conservation methods and information to the public. It may also be used to inform the public of the current water system status or any issues with water service.

##### **Publish Information in the Borden Star**

The Borden star has been willing in the past to publish education information and in-depth articles on water related issues. The Borden Star not only reaches Borden County residents, but also many individuals who live outside of the County.

#### **4.2 PLUMBING CODE**

Borden County requires water efficient plumbing fixtures as required by the State of Texas. The State code allows for the implementation on a uniform basis of a system to prevent high-water use fixtures from being installed in new residence or other structures.

#### **4.3 CONSERVATION ORIENTED RATES**

Conservation of water is considered when water rates are set by the Commissioners Court. The rates are determined through a non-promotional rate structure dependent on water use measured by County-owned water meters. The County has a fixed rate for the first 3,000 gallons used and charges a fixed rate for each additional 1,000 gallons. This encourages the users to be water conscious with the consequence of paying higher costs. This rate structure has been helpful in limiting the wasting of water by consumers.

#### **4.4 MASTER METERING SUPPLY**

The Borden County Water Department will maintain meters on each water supply well and record data for submission to the TCEQ and Mesa Underground Water Conservation District. The readings will also be used to evaluate water use and water conservation efforts. The meters shall be routinely tested for accuracy and calibrated accordingly.

#### **4.5 UNIVERSAL METERING, METER TESTING, REPAIR AND REPLACEMENT**

The Borden County Water Department attempts to meter all raw and treated water used within the water distribution system. The raw water is metered at each water well. For treated water, this includes all classes of customers, other governmental entities and all divisions of the Water Department. Treated water is used, but not metered, in filling and flushing new water mains and for free suppressions. This water use is estimated by reporting the length and size of the main or, in case of free suppression, a metering system connected to the fire hydrant will be used by the Fire Department to document water loss. Water meters are read monthly for customer billing and are inspected for proper operation and leaks. Residential water meters are repaired or replaced at least every ten (10) years as needed.

These programs, along with leak detection and repair and the water audits, ensure that water used is metered within an accuracy of five (5) percent.

#### **4.6 LEAK DETECTION AND REPAIR**

All meters install in the Borden County Water System have a leak detection device within the meter. All water leaks reported to the Water Department are promptly repaired.

#### **4.7 VALVE EXERCISING PROGRAM**

Large water valves may leak and large amounts of water may be lost through these connections, the Water Department has an active valve exercising program. A record of each valve will be kept on the Water Department computer software to record proper operation and any valve defects. The goal is to exercise all valves on a cycle of once a year.

#### **4.8 WATER-CONSERVING LANDSCAPE**

The Water Department encourages the planting of water efficient landscaping. The department distributes the State's periscope information on the benefits of native gardens, which require less water.

#### **4.9 LANDSCAPE WATER MANAGEMENT**

The Commissioners Court may in the future develop a rule implementing a year round watering schedule for landscape. This rule would be similar to the Stage 1 response in the Water System

Drought Contingency Plan as referenced in the table below. The schedule prohibits watering between the hours of 10:00 am to 8:00 pm seven (7) days per week.

<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
Commercial institutional irrigation	Residential irrigation	Commercial institutional irrigation	Residential irrigation	Commercial institutional irrigation	NO outdoor watering	Residential irrigation

#### **4.10 PLUMBING RETROFIT**

Although the Water Department does not have an official plumbing retrofit program, an educational effort is made to teach consumers about the possibilities and benefits of retrofitting older homes with new, more water efficient plumbing fixtures. Included in this education effort is an emphasis on water saving appliances which can save large amounts of water over the course of the year, allowing the purchaser to recoup the cost of new appliances.

#### **4.11 WATER USE AUDITING**

The Water Department regularly compares purchased water totals to metered and known use totals. This program aids in the identification of potential water waste situations and acts as a backup to the other programs.

A remote monitoring system for metering at the wells and prior to entering the treatment facility is planned for the near future. This will be beneficial in identifying leaks and other potential problems.

#### **4.12 WATER WASTING**

The Commissioners Court may in the future develop a rule to prohibit the wasting of water. Many water systems in our area charge a fine for wasting water. A water wasting rule would prohibit the following: permitting or causing water to flow, spray, or otherwise move or be discharged from the premises to or upon any street, alley, or other public right-of-way, ditch or drain, and failing to repair a leak in a private plumbing system or in an irrigation system within five (5) working days of the discovery or notification of the same.

#### **4.13 OTHER PROGRAMS**

The County maintains comprehensive records of water pumped, treated, sold, used for internal operations, and lost.

The County will be implementing a new water utility billing software that will aid in compiling accurate customer usage totals when conducting water use audits.

## SECTION 5: SCHEDULE OF WATER CONSERVATION GOALS

The following is the schedule of the implementation of water conservation goals:

<b>Years</b>	<b>Scheduled Activity</b>
Year 1	<ol style="list-style-type: none"> <li>1. Clear supply pipeline Right of Way.</li> <li>2. Schedule public education meeting with the School Administration and the Texas AgriLife Extension Service.</li> <li>3. Review annual water use survey.</li> </ol>
Year 2	<ol style="list-style-type: none"> <li>1. Perform leak detection survey on supply pipeline.</li> <li>2. Schedule public education meeting with the School Administration and the Texas AgriLife Extension Service.</li> <li>3. Review annual water use survey.</li> </ol>
Year 3	<ol style="list-style-type: none"> <li>1. Begin water meter replacement program.</li> <li>2. Schedule public education meeting with the School Administration and the Texas AgriLife Extension service.</li> <li>3. Review annual water use survey.</li> </ol>
Year 4	<ol style="list-style-type: none"> <li>1. Evaluate water rates.</li> <li>2. Schedule public education meeting with the School Administration and the Texas AgriLife Extension Service.</li> <li>3. Review annual water use survey.</li> </ol>
Year 5	<ol style="list-style-type: none"> <li>1. Replace segments of supply pipeline that are subject to flood damage.</li> <li>2. Schedule public education meeting with the School Administration and the Texas AgriLife Extension Service.</li> <li>3. Review annual water use survey.</li> </ol>
Year 6	<ol style="list-style-type: none"> <li>1. Schedule public education meeting with the School Administration and the Texas AgriLife Extension Service.</li> <li>2. Review annual water use survey.</li> </ol>
Year 7	<ol style="list-style-type: none"> <li>1. Evaluate water rates.</li> <li>2. Schedule public education meeting with the School Administration and the Texas AgriLife Extension Service.</li> <li>3. Review annual water use survey.</li> </ol>
Year 8	<ol style="list-style-type: none"> <li>1. Evaluate residential water meter accuracy.</li> <li>2. Schedule public education meeting with the School Administration and the Texas AgriLife Extension Service.</li> <li>3. Review annual water use survey.</li> </ol>
Year 9	<ol style="list-style-type: none"> <li>1. Schedule public education meeting with the School Administration and the Texas AgriLife Extension Service.</li> <li>2. Review annual water use survey.</li> </ol>
Year 10	<ol style="list-style-type: none"> <li>1. Evaluate water rates.</li> <li>2. Schedule public education meeting with the School Administration and the Texas AgriLife Extension Service.</li> <li>3. Review annual water use survey.</li> </ol>

## **SECTION 6: PLAN EFFECTIVENESS ANALYSIS**

To analyze the effectiveness of the Water Conservation Plan, a 6-month review of the water use, water billed, water loss and water consumption will be compared to the baseline values and stated goals. The County will prepare a public notice for posting at the Courthouse, Post Office and the Borden County website informing the public of the County's water conservation efforts and progress.



STATE OF TEXAS

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IN THE COMMISSIONERS COURT

COUNTY OF BORDEN

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RESOLUTION

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**A RESOLUTION FOR THE ADOPTION OF A WATER CONSERVATION PLAN FOR THE BORDEN COUNTY WATER SYSTEM AS REQUIRED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ).**

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**WHEREAS**, a Water Conservation Plan for the Borden County Water system is required by 30 TAC Chapter 288.2, Texas Commission on Environmental Quality and 31 TAC Chapter 363.15, Texas Water Development Board; and

**WHEREAS**, a Water Conservation Plan is a strategy or combination of strategies 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; and

**WHEREAS**, plans are required to be reviewed and revised every five (5) years to include specific quantified five (5) year and ten (10) year targets for water savings, to include goals for water loss programs and goals for municipal use in total gallons per capita per day and residential gallons per capita per day; and

**WHEREAS**, the Borden County Commissioners Court recognizes the need for a Water Conservation Plan to conserve and protect our most precious natural resource; now

**THEREFORE, BE IT RESOLVED** that The Commissioners Court of Borden County, Texas, acting as the administrative body for the Borden County Water System, does hereby adopt the Water Conservation Plan for the Borden County Water System, a copy of which is attached as Exhibit "A".

**THIS RESOLUTION WAS ADOPTED** this 14<sup>th</sup> day of November, 2018 by the Commissioners Court of Borden County.

Ross D. Sharp  
County Judge

ATTEST:

  
Jana Underwood  
County Clerk

Insert copy of Region F receipt of Water Conservation Plan