CITY OF ANGLETON WATER CONSERVATION PLAN 2024

Section I. 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 Angleton (the "City") hereby adopts the following regulations and restrictions on the delivery and consumption of water.

This Plan shall be effective from and after the date of its adoption and all prior water conservation plans, including any such plan related to Customers, as herein defined, adopted by the City shall be revoked and no longer in force and effect as of said date.

The purpose of the Water Conservation Plan (the "Plan") is to set forth uniform requirements, guidelines and recommendations to minimize water use through implementation of efficient water use practices. The City has followed the requirements set forth by the Texas Water Development Board (the "TWDB") and Texas Administrative Code, Title 31, Chapter 363.15.

The objectives of this Plan are:

1. To inform and educate the public concerning water conservation aspects and methods;

2. To improve water use efficiency in existing buildings by recommending guidelines;

3. To maintain a water rate structure for the City that is non-promotional in order to encourage users to conserve water;

4. To require utility personnel to inspect, repair and replace water meters throughout the City for accurate water meter readings;

5. To encourage water conserving landscaping;

6. To require utility personnel to detect water leaks in the City's water pipes and find sources of water loss;

7. To encourage the City, commercial and industrial establishments to recycle and reuse water in aesthetic ponds, fountains and for irrigation when possible; and

Section II. 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 Manager or his/her designee shall have the authority to initiate or terminate water supply conservation measures as described in this Plan.

Section III. Rules Governing Water Conservation Plans

Rules and requirements pertaining to water conservation plans are published by the Texas Commission on Environmental Quality (TCEQ) and the Texas Water Development Board (TWDB) under 30 TAC §288 and 31 TAC §363, respectively.

The TCEQ requires that a water conservation plan be prepared and submitted for entities holding a surface water right of 1,000 acre-feet or more for municipal, industrial, and other non-irrigation uses, or entities holding a surface water right of 10,000 acre-feet or more for irrigation uses.

The TWDB requires that each retail public utility that provides water service to 3,300 or more connections submit a water conservation plan to the TWDB.

The City of Angleton is not a surface water right holder, but does have more than 3,300 connections. As such, this plan is being submitted to satisfy the requirements by the TWDB as outlined in 31 TAC §363.

Section IV. Application

To the extent that the City is a Retail Public Water Supplier, as that term is defined in 30 TAC §288.1(16), as amended from time to time, the applicable provisions of this Plan shall apply to all Retail Water Customers of the City.

Section V. Definitions

For the purposes of this Plan, the following definitions shall apply:

The term "Aesthetic Water Use" shall mean water use for ornamental, decorative or recreational purposes such as fountains, amenity lakes, reflecting pools, swimming pools, hot tubs, and water gardens.

The term "Commercial and Institutional Water Use" shall mean water use which is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, non-emergency medical facilities, hotels and motels, restaurants, and office buildings, schools and homeowner's associations.

The term "Commission" shall mean the Texas Commission on Environmental Quality, or its successor.

The term "Conservation" shall mean 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 supply is conserved and made available for future or alternative uses.

The term "Critical Care Water Use" shall mean water use which is an absolute necessity for certain critical infrastructure or critical care facilities, including, but not limited to, fire stations, hospitals or other emergency medical facilities, police stations (as may be necessary), and similar uses.

The term "Customers" shall mean all Retail Water Customers, if any, and all Wholesale Water Customers, if any.

The term "Domestic Water Use" shall mean water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

The term "Engineer" shall mean a qualified Firm or Person engaged from time to time by the City as its engineer.

The term "Household" shall mean the residential premises served by the Retail Water Customer's meter.

The term "Industrial Water Use" shall mean the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

The term "Landscape Irrigation Use" shall mean potable water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians.

The term "Non-essential Water Use" shall mean water uses that are not essential nor required for the protection of public, health, safety, and welfare, including, but not limited to:

(a) Landscape Irrigation Use, except as otherwise provided under this Plan;

(b) use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;

(c) use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;

(d) use of water to wash down buildings or structures for purposes other than immediate fire protection;

(e) flushing gutters or permitting water to run or accumulate in any gutter, ditch, or street;

(f) Aesthetic Water Use, including, without limitation, use of water to fill, refill, or add to any indoor or outdoor swimming pools or hot tubs and use of water in a fountain, lake or pond for aesthetic or scenic purposes except where necessary to sustain aquatic life;

(g) failure to repair a controllable leak(s) within a reasonable period after having actual knowledge of or having been given notice by the City directing the repair of such leak(s);

(h) use of water from hydrants for construction purposes or any other purposes other than firefighting.

(i) The term "Person" shall include individuals, corporations, partnerships, associations, and all other legal entities.

(j) The term "PSI" shall mean pounds per square inch.

(k) The term "Rate Order" shall mean the City's Rate Ordinance as adopted and amended by the City Council from time to time.

(l) The term "Retail Water Customers" shall mean any Person using water supplied by the City except for Wholesale Water Customers (if any).

(m) The term "Wholesale Water Customers" shall mean any Person receiving water from the City for resale to the public, except said term shall not apply when the water is received through an emergency water interconnect between the City and another entity which normally remains closed.

Section VI. Water Conservation Utility Profile, TWDB-1965

The required Water Conservation Utility profile for the City is included as Attachment A to this Water Conservation Plan.

The City of Angleton is located 40 miles south of Houston, and 20 miles from the Gulf of Mexico. Known as the county seat of Brazoria County, the City has a population of 19,429 based on the most recent census data. Majority of these customers are residential but the City has many commercial customers as well.

Section VII. Conservation Coordinator

The City Manager or his/her designee will be the Conservation Coordinator. This person will be responsible for implementing the water conservation plan. The City will identify, in writing, the water conservation coordinator to the Executive Administrator of the TWDB.

Section VIII. 5- and 10-Year Goals in GPCD

The purpose of the Plan is to provide a framework to reduce long-term demand on limited water resources by encouraging more efficient water use practices in the City. TWDB rules require that the Plan contain specific, quantified 5-year and 10-year targets for water savings which are to include goals for water loss programs and goals for municipal use in total and residential gallons per capita per day (GPCD).

The baseline total GPCD and residential GPCD are based on the most recent five years of water use data and estimated population. Both the 5-year and 10-year goals for total GPCD and Residential GPCD

are based on a reduction of 0.5% per year. The City feels that this is a realistic goal given a GPCD that is already lower than most communities and the water conservation elements contained in this Plan.

The 5-year goal of the Plan is to keep the level of water loss in the system at or below thirteen percent (13%). The 10-year goal of the Plan is to keep the level of water loss in the system at or below ten percent (10%). In addition, a goal of the Plan is to raise public awareness of water conservation and encourage responsible public behavior by a public education and information program as discussed in Section XIII.

	Historic 5-year Average	*Baseline*	*5-year goal for Plan*	*10-year goal for Plan*
Total GPCD	102	102	99	97
Residential GPCD	50	50	49	48
Water Loss GPCD	15	15	13	10
Water Loss Percentage	15%	15%	13%	10%

Notes:
Total GPCD = (Total Gallons in System ÷ Permanent Population) ÷ 365
Residential GPCD = (Gallons Used for Residential Use ÷ Residential Population) ÷ 365
Water Loss GPCD = (Total Water Loss ÷ Permanent Population) ÷ 365
Water Loss Percentage = (Total Water Loss ÷ Total Gallons in System) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100

Section IX. Achieving Targets

The planned implementation schedule for each water conservation practice contained in the Plan is shown below. It can be seen that the City has already implemented many of the water conservation practices contained in this Plan. Those practices will continue to be in place and possibly enhanced as conditions dictate. In addition, the City will implement new water conservation measures throughout the next 5-year and 10-year periods.

BMP Description	Already Implemented	Planned Implementation in the next 5-years	Planned Implementation in Years 5 through 10
Records Management System	X		
Production Meters	X		
City-Wide Automatic Meter Reading		X	
Water Loss Control Program	X		
Leak Detection Program	X		
Conservation Water Rate Structure	X		
Water Reuse / Recycling		X	
Water Conservation Plumbing Fixtures			X
Water Conservation Landscaping			X
Public Information and Education	X		

Section X. Tracking Targets and Goals

The City will evaluate the efficiency and effectiveness of this Plan's 5-year and 10-year goals for water use reductions on an annual basis. As the City completes its annual Texas Water Development Board Use Survey and water loss audit, the data will be compared against the targets for total and residential GPCD and water losses.

Section XI. Water Conservation Plan Elements

1. Records Management System

The City administers a comprehensive records management system which accounts for water use and use characteristics throughout the water system. It also allows for the separation of aggregate water sales and water usage characteristics into customer-specific categories.

2. Production Meters

The City meters all water supplied from the Brazosport Water Authority (BWA) to the City. Production meter calibrations are performed, at a minimum, on an annual basis, and more frequently if needed. Calibrations of these meters are performed by qualified personnel and copies of the calibrations log sheets are maintained by the City's utility department. All meters monitoring diversion and production flows are in accordance with American Water Works Association (AWWA) standards and calibrated to maintain a minimum accuracy of plus or minus 5%. This program will be continued by the City.

3. City-Wide Automatic Meter Reading (Universal Metering)

Metering the amount of water being used by customers is an essential part of any water utility. Metering helps measure the amount of water being used and also helps limit the use of water. This is further enhanced by the use of Automatic Meter Reading (AMR) or "smart meters" which provides for real-time readings that are accurate and not estimated. In addition, these smart meters can detect water leaks within twenty-four hours and provide for a much quicker repair response time and thus a reduction in water loss.

The City replaced eighty five percent (85%) of its meters with AMR smart meters in 2022. The remainder of these meters will be completed by 2025. All City water is metered, and it is unlawful to use water from the City's water supply without it being metered by a city-authorized water meter. The only water use allowed without metering would be for the use of fire-fighting and main flushing. This program will be continued by the city.

4. Water Loss Control Program

Water loss is generally defined as the difference between water delivered to customers of the City and metered deliveries to customers plus authorized but unmetered uses. Authorized but unmetered uses would include use for fire fighting and releases for flushing of lines. Water loss can include several categories.

- Inaccuracies in customer meters.
- Accounts which are being used but have not yet been added to the billing system.
- Losses due to water main breaks and leaks in the water distribution system.
- Losses due to illegal connections and theft.

Measures to control water loss are part of the routine operations of the City. The first conversion to AMR smart meters in 2022 has provided for a quicker identification of potential leaks in the water distribution system and is also a tool to identify potential theft. City maintenance crews and personnel are tasked to identify, report and repair any discovered water leaks. In addition, the water department generates a monthly water loss report that compares metered production with metered consumption as well as other accounted-for water uses to help identify water loss. This report provides an effective tracking system of water loss. The City also completed a detailed water system audit conforming to TWDB guidelines each year. The water system audit determines the volume of actual water loss, the identification of water loss sources, the status and condition of the primary water meters, and an analysis of water line breaks.

With the measures described in this plan, the City intends to maintain water loss at or below thirteen percent (13%) for the next five years and then further reduce this water loss to at or below ten percent (10%) within ten years. If the water loss exceeds this goal, the City will implement a more intensive audit to determine the source(s) of and reduce the water loss.

5. Leak Detection Program

A continuous leak detection, location and repair program is an important part of this Plan. City utility employees periodically check for leaks when performing other maintenance tasks on the water system and when driving around the City during regular maintenance. Major leaks are usually quickly detected by either City employees or customers and are repaired within 24 hours. The City maintains an inventory of equipment and materials needed to promptly repair all detected or reported leaks.

6. Conservation Water Rate Structure

The City's current water rate structure is an increasing block type (increased cost with increased usage). This is a "non-promotional" rate structure which is cost-based and does not encourage the excessive use of water. The City's current rate ordinance is contained within this Plan as Attachment B.

7. Wholesale Water Supply Contracts

Every contract for the wholesale provision of water by the City that is entered into, renewed, or extended after the adoption of this Plan, in conjunction with the City's adopted Drought Contingency Plan, will include a requirement that the wholesale customer develop and implement a water conservation plan meeting all TWDB requirements in effect at that time. This plan shall also be submitted to the TWDB.

8. Water Reuse / Recycling

The City is planning on installing a water reuse system at the Wastewater Treatment Plant Facility for daily operations within the next five (5) years. This will eliminate the need to use potable water for daily operations.

9. Water Conservation Plumbing Fixtures

The State of Texas has required water conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 3.0 gpm for showerheads, and 1.6 gpm per flush for toilets. Similar standards are now required nationally under federal law. These state and federal laws assure that all new construction and renovations will use water conserving fixtures.

The City shall make information available through its Public Involvement Program (Section XIII) for plumbers and customers to utilize when purchasing and installing plumbing fixtures, lawn watering equipment or water using appliances. Information regarding retrofit devices, such as low-flow shower heads or toilet dams, that reduce water usage by replacing or modifying existing fixtures or appliances shall be provided.

The City shall also encourage the use of the following water conserving devices:

- Toilet displacement bottles
- Water closet dams
- Flow restrictors
- Reduced flow shower heads
- Shower cutoff valves
- Faucet aerators
- Pipe insulation

- Water hook-up pressure reducing valves

10. Water Conservation Landscaping

In order to reduce demand on the City's water system by landscape watering, the City encourages:

1. Irrigation contractors to use drip irrigation systems when possible and to design all irrigation systems with water conservation features, such as sprinklers that emit large drops rather than a fine mist and a sprinkler layout that accommodates prevailing wind direction.

2. Commercial establishments to use drip irrigation for landscape watering when possible and to install only ornamental fountains that recycle and use the minimum amount of water.

Section XII. Regional Water Planning Group Notification and Coordination with the Texas Water Development Board

The service area of the City is located within the Region H Regional Water Planning Group and the City will provide a copy of this Plan to such regional water planning group within ninety (90) days following its adoption. Further, the City will also submit the Plan to the TWDB, as required. To the extent applicable, the City may provide a copy of this Plan to the Brazosport Water Authority (the "BWA") or such other regional water authority with jurisdiction.

Section XIII. Public Participation

1. Program

A. In recognition of public participation in water conservation, all City water users shall be informed regarding methods to save water in their daily use. The City shall display conservation literature and brochures at City Hall and on the City's website. Upon new service connections, new customers shall receive a water conservation package. Contents to include water conservation tips and description of retrofitted water conserving devices to house plumbing. In addition, the City shall provide public education programs using one or more of the following methods:

1. Annual direct mailings of brochures or newsletters concerning the Plan to users (the first distribution shall describe the plan and provide in detail). Future mailouts shall discuss water conservation tips for outdoors and irrigation usage, indoor and retrofitting water conservation devices for all water fixtures;

2. Public and civic organization meetings;

3. Published newspaper articles concerning water conservation (published before the City's high usage season);

4. Posters and public displays; or

5. School programs, book cover distribution.

B. Suggested Tips for Consumers:
In all participation programs, customers will be encouraged to use the following water conservation techniques:

1. In the bathroom:

   a. Take a short shower instead of filling the tub and taking a bath. Showers usually use less water than tub baths. Long showers will use more water than tub baths.

   b. Install a low-flow showerhead, which restricts the quantity of flow at 60 PSI to no more than 2.5 GPM.

   c. Take short showers and install a cutoff valve or turn the water off while soaping and back on again only to rinse.

   d. Do not use hot water when cold will do. Washing hands with soap and cold water can save water and energy. Use hot water only when hands are especially dirty.

   e. Reduce the level of the water used in a bathtub by one or two inches if a shower is not available.

   f. Turn water off when brushing teeth until it is time to rinse.

   g. Do not let the water run when washing hands. Instead, hands should be wet, and water should be turned off while soaping and scrubbing and turned on again to rinse. A cutoff valve may also be installed on the faucet.

   h. Shampoo hair in the shower. Shampooing in the shower takes only little more water than is used to shampoo hair during a bath and much less than shampooing and bathing separately.

   i. Hold hot water in the basin when shaving instead of letting the faucet continue to run.

   j. Test toilets for leaks. To test for a leak, a few drops of food coloring can be added to the water in the tank the toilet should not be flushed. The customer can then watch to see if the coloring appears in the bowl within a few minutes. If it does, the fixture needs adjustment or repair.

k. Use a tank displacement device. A half-gallon plastic milk bottle can be filled with stones or water, recapped, and placed in the toilet tank. This will reduce the amount of water in the tank but still provide enough for flushing.

l. Install faucet aerators to reduce water consumption.

m. Never use the toilet to dispose of cleaning tissues, cigarette butts or other trash. This can waste a great deal of water and places an unnecessary load on the sewage treatment plant or septic tank.

n. Install a new low-volume flush toilet that uses 1.6 gallons or less per flush when building a new home or remodeling a bathroom.

2. In the kitchen:

a. Use a pan of water (or place a stopper in the sink) when rinsing pots and pans and cooking implements when cooking rather than turning on the water faucet each time a rinse is needed.

b. Never run the dishwasher without a full load. In addition to saving water, expensive detergent will last longer and significant energy savings will appear on the utility bill.

c. Use the sink disposal sparingly, and never use it for just a few scraps.

d. Keep a container of drinking water in the refrigerator. Running water from the tap until it is cool is wasteful. Keeping cold water in a picnic jug on a kitchen counter to avoid opening the refrigerator door frequently can save both water and energy.

e. Use a small pan for cleaning vegetables rather than letting the faucet run.

f. Use only a little water in the pot and put a lid on it for cooking most food.

g. Always keep water conservation in mind and think of other ways to save in the kitchen.

3. In the laundry:

a. Wash only a full load when using an automatic washing machine (32 to 59 gallons are required per load).

b. Use the lowest water level setting on the washing machine for light loads whenever possible.

c. Use cold water as often as possible to save energy and to conserve the hot water for uses which cold water cannot serve.

4. For appliances and plumbing:

   a. Check water requirement of various models and brands when considering purchasing any new appliance that uses water. Some use less water than others do.

   b. Check all water line connections and faucets for leaks if the water bill is unusually high.

   c. Promptly replace faucet washers to stop drips. It can represent a substantial amount saved in plumbing and water bills.

   d. Check for water leakage, such as a leak between the water meter and the house. To check meter, all indoor and outdoor faucets should be off. If the meter continues to run or turn, a leak probably exists and needs to be located.

   e. Insulate all hot water pipes to avoid the delays (and wasted water) experienced while waiting for the water to “run hot.”

   f. Be sure the hot water heater thermostat is not set too high. Extremely hot settings waste water and energy because the water has to be cooled with cold water before using.

   g. Use a moisture meter to determine when houseplants need water. Most plants die from over watering than from being on the dry side.

5. For outdoor use:

   a. Water lawns early in the morning during the hotter summer months. During the day, much of the water used on the lawn evaporates between the sprinkler and the grass.

   b. Use a sprinkler that produces large drops of water, rather than a fine mist, to avoid evaporation.

   c. Turn soaker hoses so the holes are on the bottom to avoid evaporation.

   d. Water slowly for better absorption, and never water on windy days.

   e. Do not water the street, walks or driveways.

   f. Condition the soil with compost before planning grass or flowerbeds so

that water will soak in rather than run off.

g. Fertilize lawns at least twice a year for root stimulation. Grass with a good root system makes better use of less water.

h. Learn to know when grass needs watering. If it has turned a dull gray- green or if footprints remain visible, it is time to water.

i. Do not water lawns too frequently. Too much water can overload the soil so that air cannot get to the roots and can encourage plant diseases.

j. Do not overwater. Soil can absorb only so much moisture and the rest simply runs off. A timer will help, or an alarm clock will do. An inch and one-half of water applied once a week will keep most Texas grasses alive and healthy.

k. Operate automatic sprinkler systems only when the demand on the City's water supply is lowest: set the system to operate between four and six a.m.

l. Do not scalp lawns when mowing during hot weather. Taller grass holds moisture better. Cut grass often, so that only ½ to ¾ inch is trimmed.

m. Use a watering can or hand water with the hose in small areas of the lawn that need more frequent watering (those near walks or driveways).

n. Learn what types of grass, shrubbery and plants do best in the area arid in which parts of the lawn; and then plant accordingly.

o. Consider decorating areas of the lawn with rocks, gravel, wood chips or other materials now available that require no water.

p. Do not "sweep" walks and driveways with the water hose. Use a broom or rake.

q. Use a bucket of soapy water and a cut off nozzle on the hose for rinsing when washing the car.

Section XIV. Severability, Amendment

It is hereby declared to be the intention of the City that the sections, paragraphs, sentences, clauses, and phrases of this Plan are severable and, if any phrase, clause, sentence, paragraph, or section of this Plan shall be declared invalid, unenforceable or unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such invalidity, unenforceability, or unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Plan, which shall be enforceable as if the same had been enacted by the City without the incorporation into this Plan of any such invalid, unenforceable or unconstitutional

phrase, clause, sentence, paragraph, or section.

The City has and specifically reserves the right to change, alter or amend any provision of this Plan at any time. The City shall renew and update, as appropriate, this Plan at least every five (5) years, based on new or updated information, such as adoption or revision of any applicable regional water plan, or as may otherwise be required by applicable statutes or rules of the TWDB.