City of Bellaire

Water Conservation Plan, Drought Contingency Plan for Retail Water Supplier, and Utility Profile

April 2014

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INTRODUCTION

The 75th legislature of the State of Texas has passed Senate Bill 1 (SB1). This legislation requires Regional Water Planning Groups to develop water plans to be incorporated into a State Water Plan. The goal is to "*provide for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions, in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; further economic development, and protect the agricultural and natural resources of the state*." As part of the Regional and State Water Plans, all communities are required to develop Water Conservation and Drought Contingency Plans. This coordinated effort by all communities across Texas will ensure success in achieving the goals set by SB1. Acting in concert with other communities throughout the State, the City of Bellaire has prepared this Water Conservation and Drought Contingency Plan.

The City of Bellaire's water production, distribution, wastewater collection, and wastewater treatment systems are owned by the City of Bellaire. The system serves approximately a 3.6 square mile area. Under policy direction of the City Council, the City Manager has the managing control and operation of the City's water and wastewater facilities. The City Council must approve final budgets and rates.

CONSERVATION GOALS

It is the goal of the City to enact a Water Conservation and Drought Contingency Plan to achieve a 5% reduction in water consumption over the next 5 years and 7.5% over the next 10 years.

Conservation is expected to be a long-term program, with a time frame of five to ten years duration. It is expected to take five years to obtain the full benefits of applying retrofits and replacing fixtures in the community, as well as educating the community to practice water conservation techniques.

The City requires all new construction or substantial modification to use water saving plumbing fixtures, e.g. low flow toilets, showerheads, and faucets. Existing structures are encouraged to retrofit with water-saving devices. High consumption users are identified and encouraged to retrofit with water-saving devices. The City currently reuses some wastewater within the Wastewater Treatment Plant as part of its ongoing Conservation program. The City will continue to investigate and identify further uses for recycled water for public and institutional irrigation. New construction and substantial modification is encouraged to use xeriscape landscaping. All new irrigation systems are required to use low flow designs. High consumption users are identified and encouraged to modify their designs to reduce consumption.

The following reductions were used for estimating projected per capita use:

Reduction in unaccounted for uses	1.0 gpcd
Reduction in indoor water use	3.0 gpcd
Reduction in seasonal use	2.0 gpcd
Reduction due to public education programs	2.0 gpcd
Reduction in irrigation water use	1.0 gpcd
Total	9.0 gpcd

The basis for estimates from guidelines published by Texas Commission on Environmental Quality (TCEQ).

The City will continue to monitor the efficiency and effectiveness of the Water Conservation Plan by comparing with previous consumption patterns on a monthly basis. The success of the Water Conservation Plan can thus be gauged, and any necessary changes made.

QUANTIFIED FIVE AND TEN-YEAR TARGETS

The quantified five and ten-year targets are listed below.

Current 5 – year average Per Capita Municipal Use
(2009 -2013): 187 GPCD

Current 5 – year average Per Capita Municipal Use, **Year 2011 Removed**:
(2009 -2013): 180 GPCD (Baseline of Conservation Efforts)

5-Year Specific/Quantified Target: 171 GPCD

Date to achieve target: 2019

10-Year Specific/Quantified Target: 167 GPCD

Date to achieve target: 2024

Due to the drought of 2013, the water saving targets of the previous 5 year plan were not met. The City is optimistic that the goals can be met in the future. There was an increase in residential irrigation due to the drought and also since 2011 there has been an increased use of irrigation meters.

If the goals stated above can be met, the actual amount of water saved per year will be 17 gallons per capita per day (107 million gallons per year) by year 2019 and 20 gallons per capita per day by year 2024 (127 million gallons per year).

METERING

The City uses production meters on its production facilities to measure the amount of water supplied. These meters are checked for accuracy and calibrated once a year to within plus-or-minus 5.0% accuracy. In addition, the water operators monitor daily production for unusual changes in apparent usage. Any unusual change will trigger a meter test by volumetric means.

The City measures 100% of the water used, and has a policy that all connections will be metered. A portable meter is available for metering water use from fire hydrants. Other water uses, such as major water line leaks and fire fighting, are estimated. Meter readings are monitored each month for abnormally high or low usage, with high usage indicating a possible customer leak and low usage indicating a possible inaccurate meter. Both situations are investigated by City staff. All meters are subjected to the following regular testing and/or repair schedule:

- Production meters – once a year
- Service meters 2 inches or larger – once every three years
- Service meters less than 2 inches – once every five years

Meters indicating a possible inaccuracy are tested and/or repaired. Subsequent to repair, meters failing an accuracy requirement of plus-or-minus 5.0% are replaced.

UNACCOUNTED-FOR WATER USE

City Publics Works personnel periodically inspect the distribution system for leaks. They look for suspicious water flow in streets and storm sewers. They respond immediately to reports of leaks and effect repairs in a timely fashion. Meter readers inspect for illegal connections as part of their meter reading duties. The City Building Inspection Department notifies the City Water Distribution Department promptly of vacant properties so that service can be disconnected and prevent illegal usage.

Monthly comparisons are made of water production and usage to identify and correct discrepancies. Customers with abnormally high usage are identified and investigated for onsite leaks or illegal connections.

PUBLIC EDUCATION AND INFORMATION

A program of education will be instituted to inform the public of issues regarding Water Conservation and Drought Contingency. A packet of information will be made available to the public, which will include:

- The reasons Water Conservation and Drought Contingency planning must be practiced
- Suggestions for how the public may conserve water in their daily activities
- The availability of low consumption appliances and fixtures
- How to retrofit existing fixtures with water saving devices
- Use of xeriscape plantings and water saving irrigation
- Trigger Conditions and Drought Response Measures to Drought Stages
- Implementation and Enforcement of Drought Response Measures

This packet will be made available to new residents of the City. Selected excerpts will be used as bill stuffers and mail outs on a semi-annual basis timed to correspond with the peak summer and winter demand periods. Select City personnel will give talks to area groups concerning Water Conservation and Drought Contingency. News articles will be placed in local media, with articles explaining the Water Conservation and Drought Contingency programs. City personnel will be trained in advising and educating customers on Water Conservation and Drought Contingency issues.

The public has an opportunity for comments and questions at regularly scheduled City Council meetings. Suggestions by the public at these meetings are taken under advisement.

The public is informed about Water Conservation and Drought Contingency issues through the City's website. The City participates in a program to educate school children on water issues as part of its Groundwater Credits Program as administered by the Harris/Galveston County Subsidence District.

Information listed in **Appendix B** and sources listed in **Appendix A** are the basis for public education.

NON-PROMOTIONAL WATER RATE STRUCTURE

A water rate structure that is cost-based and does not promote excessive use of water is currently in place. The rate structure uses a progressive method of determining the monthly water bill based on consumption. Customers pay both water and wastewater charges for the water they consume, which promotes conservation.

Rates for a 5/8 or ¾ inch meter:

Water Rates:

Residential rates (per month)

Minimum charge	4.48
0-2000 gallons	1.50 for each 1000 gallons
2001-9000 gallons	2.50 for each 1000 gallons
9000+	3.50 for each 1000 gallons

Commercial rates (per month)

Minimum charge	4.48
0-75000 gallons	2.75 for each 1000 gallons
75000+	3.50 for each 1000 gallons

Irrigation Rates (per month)

Minimum charge	4.48
0-75000 gallons	3.50 for each 1000 gallons
75000+	4.00 for each 1000 gallons

Other meter sizes minimum charge:

1 inch	$11.20
1 ½ inch	22.40
2 inch	35.84
3 inch	71.69
4 inch	123.21
6 inch	252.25
8 inch	380.80

Examples

5/8" or ¾" Residential rate minimum of $4.48 plus $1.50 for a total of $5.98
4" Commercial rate minimum of $123.21 plus $2.75 for a total of $125.96
1" Irrigation rate minimum of $11.20 plus $3.50 = for a total of $14.70

ENFORCEMENT PROCEDURE AND PLAN ADOPTION

No person shall knowingly or intentionally allow the use of water from the City of Bellaire for residential, commercial, industrial, agricultural, governmental, 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 Mayor, or his/here designee, in accordance with provisions of this Plan.

Any person who violates this Plan is guilty of a misdemeanor and, upon conviction shall be punished by a fine 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 Mayor 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, and any other costs incurred by the City of Bellaire in discontinuing service. In addition, suitable assurance must be given to the Mayor 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.

Any person, including a person classified as a water customer of the City of Bellaire, 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 to 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 the property within the parents' control shall constitute a rebuttable presumption 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.

Any employee of the City of Bellaire, police officer, or other employee designated by the Mayor, may issue a citation to a person he/she reasonably believes to be in violation of this Ordinance. The citation shall be prepared in duplicate and shall contain the name and address of the alleged violator, if known, the offense charged, and shall direct him/her to appear in the municipal court on the date shown on the citation for which the date shall be not less than 3 days nor more than 5 days from the date the citation was issued. The alleged violator shall be served a copy of the citation. Service of the citation shall be complete upon delivery of the citation to the alleged violator, to an agent or employee of a violator, or to a person over 14 years of age who is a member of the violator's immediate family or is a resident of the violator's residence. The alleged violator shall appear in municipal court to enter a plea of guilty or not guilty for the violation of this Plan. If the alleged violator fails to appear in municipal court, a warrant for his/her arrest may be issued. A summons to appear may be issued in lieu of an arrest warrant. These cases shall be expedited and given preferential setting in municipal court before all other cases.

AUTHORIZATION

The Mayor, 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 Mayor or his/her designee 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 Bellaire. The terms "person" and "customer" as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities.

VARIANCES

The Mayor, 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 Bellaire within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the Mayor or his/her designee, and shall include the following:

(a) Name and address of the petitioner(s).
(b) Purpose of water use.
(c) Specific provision(s) of the Plan from which the petitioner is requesting relief.
(d) 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.
(e) Description of the relief requested.
(f) Period of time for which the variance is sought.
(g) 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.
(h) Other pertinent information.

RESOLUTION NO. _____

A RESOLUTION FINDING AND DETERMINING THAT THE WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN FOR THE CITY OF BELLAIRE, TEXAS, A COPY OF WHICH IS ATTACHED HERETO AND MARKED EXHIBIT "A," HAS BEEN PREPARED IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES, REGULATED BY APPROPRIATE AUTHORITY, AND FURTHER, THAT SUCH PLAN IS ADEQUATE TO PROVIDE AN EFFECTIVE MEANS FOR WATER CONSERVATION AND DROUGHT CONTINGENCY WITHIN THE CITY LIMITS OF THE CITY OF BELLAIRE, ADOPTING THE SAME AS THE OFFICIAL WATER CONSERVATION AND DROUGHT CONTINGENCY PLAN FOR THE CITY OF BELLAIRE, TEXAS, AND REQUIRING ADHERENCE TO ALL REQUIREMENTS, CONDITIONS AND PROCEDURES SPECIFIED THEREBY.

WHEREAS, heretofore previously, the City of Bellaire has undertaken such studies and surveys as were necessary to determine appropriate facts upon which to base and develop a Water Conservation and Drought Contingency plan for the City of Bellaire; and

WHEREAS, as a result of such preliminary work, a Water Conservation and Drought Contingency plan has been prepared, which fairly represents a sound policy for the City of Bellaire; NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL
OF THE CITY OF BELLAIRE, TEXAS:

1. That the City Council of the City of Bellaire hereby finds and determines that the Water Conservation and Drought Contingency plan, a copy of which is attached hereto and marked Exhibit "A," has been prepared in accordance with all applicable laws, rules, regulations, standards and guidelines promulgated by appropriate authority.
2. That the City Council of the City of Bellaire further finds and determines that the said Water Conservation and Drought Contingency plan is adequate to provide an effective means for water conservation and drought management within the city limits of the City of Bellaire.
3. That the Water Conservation and Drought Contingency plan, a copy of which is attached hereto and marked Exhibit "A," is hereby adopted as the official Water Conservation and Drought Contingency Plan for the City of Bellaire, Texas.
4. Further, that all of the requirements, conditions and procedures specified in the attached Water Conservation and Drought Contingency Plan for the City of Bellaire shall be adhered to by all persons affected thereby, including but not limited to all residents, citizens and inhabitants of the City of Bellaire.

PASSED and APPROVED this, the _____ day of _____, 2014.

_____
Mayor, City of Bellaire, Texas

ATTEST:

_____
City Clerk

DEFINITIONS

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use, which is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants and office buildings.

Conservation: 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.

Customer: any person, company, or organization using water supplied by the City of Bellaire.

Domestic water usage: 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.

Even number address: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use: 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.

Non-essential water use: water uses that are neither essential nor required for the protection of public health, safety, and welfare, including:

(a) Irrigation of landscape areas, including parks, athletic fields, and golf courses, except 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 or street;

(f) Use of water to fill, refill, or add to any indoor our outdoor swimming pools or Jacuzzi-type pools;

(g) Use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;

(h) Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and

(i) Use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

COORDINATION WITH REGIONAL WATER PLANNING GROUPS

Region H is the Regional Water Planning Group for the Houston-Galveston area. As part of its planning and management goals, Region H is required to submit its Regional Plan to be incorporated into the State Water Plan. The Harris-Galveston Coastal Subsidence District is mandating conversion from groundwater sources to surface water sources.

The population projections were taken from the Region H projection. The plans to convert from groundwater to surface water are consistent with Region H and the Harris-Galveston Coastal Subsidence District planning to reduce groundwater pumping. This Water Conservation and Drought Contingency Plan is consistent with the goal of Region H in the conservation of water resources and preparation for and response to drought conditions.

The City is in Area 2 designated by the Harris-Galveston Coastal Subsidence District. In coordination with the Subsidence District, the City has submitted a plan outlining the methods the City has taken to reduce groundwater usage. A Surface Water Conversion Project has been completed which allows the City to purchase surface water from the City of Houston to reduce consumption of groundwater.

The City has submitted or will submit this Water Conservation and Drought Contingency Plan to the Region H Regional Water Planning Group for their review.

PROGRAM FOR LEAK DETECTION, REPAIR, AND WATER LOSS ACCOUNTING

City of Bellaire Water Distribution Department crews periodically inspect the distribution system for leaks. They look for suspicious water flow in streets and storm sewers. They respond immediately to reports of leaks and effect repairs in a timely fashion. Meter readers inspect for illegal connections as part of their meter reading duties. Distribution crews abandon services properly and promptly to prevent illegal usage. The Building Inspection Department notifies the Water Distribution Department promptly of vacant properties so that service can be disconnected and prevent illegal usage.

Monthly comparisons are made of water production and usage to identify and correct discrepancies. Customers with abnormally high usage are identified and investigated for onsite leaks or illegal connections.

RECORD MANAGEMENT SYSTEM

The City of Bellaire Utility Billing Department keeps records of water sales and water losses, which allows for desegregation of water sales and uses into the following user classes (residential; commercial; public; institutional; and industrial). **The City of Bellaire makes no water deliveries.** The City of Bellaire Water Production Department maintains the records of water pumped and is emailed to the Utility Billing Department on the first week of every month.

PLAN REVIEW AND UPDATE

The City of Bellaire Public Works reviews and updates its water conservation plan, as appropriate, based on an assessment of the previous five-year and ten-year targets and any other new or updated information, and shall review and update the next revision of its water conservation plan every five years with the regional water planning group. The revised plan will include an implementation report.

WATER SUPPLY SYSTEM INFORMATION

The water system consists of a water distribution system and four plants with the following listed components. Each plant pumps independently into the distribution system. The plants are located throughout the City. Ground water is pumped to ground storage tanks by the water wells and chlorinated. Booster pumps the pump from the ground storage tanks into the distribution system. The elevated storage tanks connect directly to the distribution system. See attached Water Distribution System map for location of plant sites.

- Central Water Plant
  - Booster Pumps
    1. 600 GPM
    2. 800 GPM
    3. 1,100 GPM
    4. 750 GPM
  - Well – 2,019 GPM
  - Ground Storage Tanks
    1. 500,000 Gallons
    2. 225,000 Gallons
  - Elevated Storage Tank – 500,000 Gallons
  - COH Surface Water Supply Point – 521 GPM*

- Feld Park Water Plant
  - Booster Pumps
    1. 1,000 GPM
    2. 1,000 GPM
    3. 2,000 GPM
  - Well – 2,200 GPM
  - Ground Storage Tanks – 500,000 Gallons
  - Elevated Storage Tank – 500,000 Gallons
  - COH Surface Water Supply Point – 521 GPM*

- Renwick Water Plant
  - Booster Pumps
    1. 750 GPM
    2. 750 GPM
    4. 750 GPM
  - Well – 2,000 GPM
  - Ground Storage Tanks – 1,000,000 Gallons

**City of Houston (COH) Surface water supply contract for 1.500 MGD, supplied at two (2) City of Bellaire Water Plant facilities (0.750 MGD average per water plant).*

WASTEWATER SYSTEM INFORMATION

Wastewater System Data

The wastewater system consists of a wastewater collection system with four lift stations and a conventional activated sludge treatment plant. Wastewater progresses through fine screens, aeration tanks, final clarifiers, chlorination and dechlorination tanks, and then discharges to the Cypress Ditch, then to Brays Bayou. The treatment capacity of the plant is 4.500 MGD average daily flow and 11.5 MGD 2-hour peak flow.

TCEQ name:	Bellaire Wastewater Treatment Facility
TPDES Number:	WQ0010550001
Operator:	City of Bellaire
Owner:	City of Bellaire

APPENDIX A

WATER CONSERVATION AND DROUGHT MANAGEMENT INFORMATION SOURCES

Texas Water Development Board
P.O. Box 13231
1700 N. Congress Ave.
Austin TX 78711-3231
(512) 463-7847 voice
(512) 475-2053 fax
www.twdb.state.tx.us

Texas Commission on Environmental Quality
P.O. Box 13087
Austin TX 78711-3087
(512) 239-1000
www.tceq.state.tx.us

Water Resource Center
U.S. EPA
Mail Code RC-41OO
401 M Street, S.W.
Washington, D.C. 20460
Telephone: (202) 260-7786
Fax: (202) 260-0386
Email: waterpubs@epamail.epa.gov
www.epa.gov/ow

American Water Works Association
6666 West Quincy Ave
Denver CO 80235
(303) 794-7711
www.awwa.org

APPENDIX B

PUBLIC INFORMATION SUGGESTIONS

Suggestions on ways to save water, which may be included in public information, are listed below:

Bathroom

1. Take a shower instead of filling the tub and taking a bath. Showers usually use less water than tub baths.
2. Install a low-flow showerhead, which restricts the quantity of flow at 60 psi to no more than 3.0 gallons per minute.
3. Take short showers and install a cutoff valve or turn the water off while soaping and back on again only to rinse.
4. Do not use hot water when cold will do. Washing hands with soap and cold water can save water and energy; hot water should only be added when hands are especially dirty.
5. Reduce the level of the water being used in a bathtub by one or two inches if a shower is not available.
6. Turn water off when brushing teeth until it is time to rinse.
7. Do not let 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.
8. Shampoo hair in the shower. Shampooing in the shower takes only a little more water than is used to shampoo hair during a bath and much less than shampooing and bathing separately.
9. Hold hot water in the basin when shaving instead of letting the faucet continue to run.
10. 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.
11. Use a toilet tank displacement device. A one-gallon plastic milk bottle can be filled with stones or with water, recapped, and placed in the toilet tank. This will reduce the amount of water in the tank but still provide enough for flushing. (Bricks, which some people use for this purpose, are not recommended, since they crumble eventually and could damage the working mechanism.) Displacement devices should never be used with new low-volume flush toilets.
12. Install faucet aerators to reduce water consumption.
13. Never use the toilet to dispose of cleaning tissues, cigarette butts, or other trash. This can waste a great deal of water and also places and unnecessary load on the wastewater treatment plant.
14. Install a new low-volume toilet that uses 1.6 gallons or less per flush when building a new home or remodeling a bathroom.

Kitchen

1. Use a pan of water (or place a stopper in the sink) for rinsing pots and pans and cooking implements when cooking rather than turning on the water faucet each time a rinse is needed.
2. Never run the dishwasher without a full load. In addition to saving water, expensive detergent will last longer and a significant energy saving will appear on the utility bill.
3. Use the sink disposal sparingly, and never use it for just a few scraps.
4. Keep a container of drinking water in the refrigerator. Running water from the tap until it is cool is wasteful. Better still; keeping cold water in a picnic jug on a kitchen counter to avoid opening the refrigerator door frequently can save both water and energy.
5. Use a small pan of cold water when cleaning vegetables rather than letting the faucet run.
6. Use only a little water in the pot and put a lid on it for cooking most food. Not only does this method save water, but also food is more nutritious since vitamins and minerals are not poured down the drain with the extra cooking water.
7. Use a pan of water for rinsing when hand washing dishes rather than running the faucet.
8. Always keep water conservation in mind, and think of other ways to save in the kitchen. Small kitchen savings from not making too much coffee or letting ice cubes melt in a sink can add up over a year's time.

Laundry

1. Wash only a full load when using an automatic washing machine (32 to 59 gallons are required per load.)
2. Use the lowest water level setting on the washing machine for light loads whenever possible.
3. Use cold water as often as possible to save energy to conserve the hot water for uses which cold water cannot serve. (This is also better for clothing made of today's synthetic fabrics).

Appliances and Plumbing

1. Check water requirements of various models and brands when considering purchasing any new appliance that uses water. Some use less water than others.
2. Check all water connections and faucets for leaks. A slow drip can waste as much as 170 gallons of water EACH DAY, and can add as much as $10.00 per month to the water bill.
3. Learn to replace washers so that drips can be corrected promptly. It is easy to do, costs very little, and can represent a substantial amount saved in plumbing and water bills.
4. Check for water leakage you may be unaware of, such as a leak between the water meter and the house. To check, all indoor and outdoor faucets should be turned off, and the water meter should be checked. If it continues to run or turn, a leak probably exists and needs to be located.
5. Insulate all hot water pipes to avoid the delays (and wasted water) experienced while waiting for water to turn hot.

6. Be sure the hot water heater thermostat is not set too high. Extremely hot settings waste water and energy because the water often has to be cooled with cold water before it can be used.
7. Use a moisture meter to determine when houseplants need water. More plants die from over-watering than from being on the dry side.

Out-of-Doors Use

1. Water lawns between the hours of 8:00 p.m. to 4:00 a.m. during the hotter summer months. Much of the water used on the lawn can simply evaporate between the sprinkler and the grass.
2. Use a sprinkler that produces large drops of water, rather than a fine mist, to avoid evaporation.
3. Turn soaker hoses so the holes are on the bottom to avoid evaporation.
4. Water slowly for better absorption, and never water in high winds.
5. Forget about watering the streets, walks and driveways. They will never grow a thing.
6. Condition the soil with compost before planting grass or flowerbeds so the water will soak in rather than run off.
7. Fertilize lawns at least twice a year for root stimulation. Grass with a good root system makes better use of less water.
8. 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.
9. Do not water too frequently. Too much water can overload the soil so that air cannot get to the roots and can encourage plant disease.
10. Do not over-water. Soil can absorb only so much moisture and the rest simply runs off. A timer will help, and either a kitchen timer 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.
11. Operate automatic sprinkler systems only when the demand on the town's water supply is lowest. Set the system to operate between the hours of 8:00 p.m. to 4:00 a.m.
12. Do not scalp lawns when mowing during hot weather. Taller grass holds moisture better. Rather, grass should be cut fairly often, so that only ½ to ¾ inch is trimmed off. A better-looking lawn will result.
13. Use watering cans or hand water with the hose in small areas of the lawn that need more frequent watering (those near walks or driveways or in especially hot, sunny spots).
14. Learn what types of grass, shrubbery, and plants do best in the area and in which parts of the lawn, and then plant accordingly. If one has a heavily shaded yard, no amount of water will make roses bloom.
15. Consider decorating areas of the lawn with rocks, gravel, wood chips, or other materials now available that require no water at all.
16. Do not "sweep" walks and driveways with the hose. Use a broom or rake instead.
17. Use a bucket of soapy water and use the hose only for rinsing when washing the car.

Public information can be found on the City's website at www.ci.bellaire.tx.us.

APPENDIX C

UTILITY PROFILE & WATER CONSERVATION PLAN REQUIREMENTS

Texas Commission on Environmental Quality

UTILITY PROFILE AND WATER CONSERVATION PLAN REQUIREMENTS FOR MUNICIPAL WATER USE BY RETAIL PUBLIC WATER SUPPLIERS

This form is provided to assist retail public water suppliers in water conservation plan development. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4691.

Name:	City of Bellaire	
Address:	7008 South Rice Avenue, Bellaire TX 77401	
Telephone Number:	(713) -6628150	Fax: (713) -6628179
Water Right No.(s):	N/A	
Regional Water Planning Group:	H	
Form Completed by:	Diane White/James Andrews	
Title:	Assistant City Manager/City Engineer	
Person responsible for implementing conservation program:	Diane White	Phone: (713) 662-8223
Signature:		Date: / /

NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.

UTILITY PROFILE

I. POPULATION AND CUSTOMER DATA

A. *Population and Service Area Data*

1. Attach a copy of your service-area map and, if applicable, a copy of your Certificate of Convenience and Necessity (CCN).

2. Service area size (in square miles): 3.6 miles

   (Please attach a copy of service-area map)

3. Current population of service area: 16,855

4. Current population served for:

   a. Water 16,855

   b. Wastewater 16,855

5. Population served for previous five years:

Year	*Population*
2009	15,642
2010	16,855
2011	16,907
2012	16,960
2013	17,012

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

Year	*Population*
2020	17,378
2030	17,593
2040	17,681
2050	17,716
2060	17,730

7. List source or method for the calculation of current and projected population size.

   2010 population from U.S. Census data. Projected population estimated from historical census data. City borders will not likely expand as City is surrounded by the City of Houston.

B. *Customers Data*

Senate Bill 181 requires that uniform consistent methodologies for calculating water use and conservation be developed and available to retail water providers and certain other water use sectors as a guide for preparation of water use reports, water conservation plans, and reports on water conservation efforts. A water system must provide the most detailed level of customer and water use data available to it, however, any new billing system purchased must be capable of

reporting data for each of the sectors listed below. http://www.tceq.texas.gov/assets/public/permitting/watersupply/water_rights/sb181_guidance.pdf

1. Current number of active connections. Check whether multi-family service is counted as ☒ Residential or ☐ Commercial?

Treated Water Users	*Metered*	*Non-Metered*	**Totals**
Residential	6,214	0	6,214
Single-Family	6,212	0	6,212
Multi-Family	2	0	2
Commercial	373	0	373
Industrial/Mining			
Institutional			
Agriculture	955	0	955
Other/Wholesale			

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

Year	2013	2012	2011
Treated Water Users			
Residential	-10	60	-400
Single-Family	-10	60	-280
Multi-Family	0	0	-120
Commercial	-34	6	100
Industrial/Mining			
Institutional			
Agriculture	-3	26	-141
Other/Wholesale			

3. List of annual water use for the five highest volume customers.

	Customer	*Use (1,000 gal/year)*	*Treated or Raw Water*
1.	Bellaire High School	175,878	Treated
2.	Foundation Surgical Hospital	171,187	Treated
3.	Texaco, Inc	91,940	Treated
4.	BRI 1833 6330 LP	53,218	Treated

5.	South Western Bell	51,400	Treated

II. WATER USE DATA FOR SERVICE AREA

A. Water Accounting Data

1. List the amount of water use for the previous five years (in 1,000 gallons). Indicate whether this is ☐ diverted or ☒ treated water.

Year	2013	2012	2011	2010	2009
Month					
January	64,743	62,298	66,414	69,868	76,667
February	68,204	63,981	69,533	55,445	73,586
March	94,108	69,176	126,375	72,973	81,250
April	75,587	56,134	111,217	84,946	81,139
May	100,717	85,870	119,106	110,511	104,157
June	119,484	115,932	90,918	105,662	132,746
July	133,402	98,488	87,507	86,354	132,103
August	136,353	134,152	176,316	129,174	118,000
September	100,334	125,994	152,133	93,588	100,507
October	92,972	109,121	129,655	108,632	74,386
November	69,110	103,842	99,628	81,797	73,315
December	77,359	72,504	73,904	81,543	65,942
Totals	1,132,373	1,097,492	1,302,706	1,080,493	1,113,798

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

Measured by Master Meter located at Water Plants

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

Year	2013	2012	2011	2010	2009
Account Types					
Residential	737,484	664,387.5	726,000	654,101.1	639,524.1
Single-Family	732,670	659,663.9	722,126	649,450.6	
Multi-Family	4,814	4,723.6	3,674	4,650.5	
Commercial	169,607	147,097	137,048	144,819.6	154,953.5
Industrial/Mining					
Institutional					

Agriculture	195,878	189,207.5	339,885	186,278.1	181,049.4
Other/Wholesale					

3. List the previous records for water loss for the past five years (the difference between water diverted or treated and water delivered or sold).

Year	*Amount (gallons)*	*Percent %*
2013	49,278,044	4%
2012	96,799,892	8.82%
2011	99,803,000	7.67%
2010	95,294,225	8.82%
2009	138,271,000	12.41%

B. Projected Water Demands

If applicable, attach or cite projected water supply demands from the applicable Regional Water Planning Group for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirements from such growth.

III. WATER SUPPLY SYSTEM DATA

A. Water Supply Sources

List all current water supply sources and the amounts authorized (in acre feet) with each.

Water Type	*Source*	*Amount Authorized*
Surface Water		
Groundwater	Well Water	1,680.20
Contracts	City of Houston (Surface Water)	1,680.22
Other		

B. Treatment and Distribution System

1. Design daily capacity of system (MGD):10.46

2. Storage capacity (MGD):
   a. Elevated 1 MG
   b. Ground 2.2250

3. If surface water, do you recycle filter backwash to the head of the plant?

☐ Yes ☒ No If yes, approximate amount (MGD):

IV. WASTEWATER SYSTEM DATA

A. *Wastewater System Data (if applicable)*

1. Design capacity of wastewater treatment plant(s) (MGD): 4.5MGD

2. Treated effluent is used for ☐ on-site irrigation, ☐ off-site irrigation, for ☒ plant wash-down, and/or for ☒ chlorination/dechlorination.

   If yes, approximate amount (in gallons per month): 660,000

3. Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and the receiving stream if wastewater is discharged.

   Please see attached description of the Wastewater System.

B. *Wastewater Data for Service Area (if applicable)*

1. Percent of water service area served by wastewater system: 100 %

2. Monthly volume treated for previous five years (in 1,000 gallons):

Year	2013	2012	2011	2010	2009
Month					
January	40,970	60,588	53,899	55,886	43,695
February	46,089	71,844	43,570	53,410	40,520
March	46,718	63,015	47,647	55,085	59,270
April	56,308	54,075	43,767	50,855	48,700
May	42,715	62,049	46,469	51,996	42,531
June	47,729	29,550	40,590	59,586	46,394
July	57,463	37,355	47,368	68,542	47,717
August	56,479	31,496	50,127	49,969	47,049
September	64,065	33,429	48,894	56,300	46,339
October	66,067	50,460	55,911	44,156	56,629
November	59,027	38,550	58,350	46,872	47,373
December	55,151	37,045	70,537	43,037	57,059
Totals	638,781	596,456	607,131	635,694	586,276

V. ADDITIONAL REQUIRED INFORMATION

In addition to the utility profile, please attach the following as required by Title 30, Texas Administrative Code, §288.2. Note: If the water conservation plan does not provide information for each requirement, an explanation must be included as to why the requirement is not applicable.

A. *Specific, Quantified 5 & 10-Year Targets*

The water conservation plan must include specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use in gallons per capita per day. Note that the goals established by a public water supplier under this subparagraph are not enforceable

B. *Metering Devices*

The water conservation plan must include a statement about the water suppliers metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply.

C. *Universal Metering*

The water conservation plan must include and a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement.

D. *Unaccounted- For Water Use*

The water conservation plan must include measures to determine and control unaccounted-for uses of water (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.).

E. *Continuing Public Education & Information*

The water conservation plan must include a description of the program of continuing public education and information regarding water conservation by the water supplier.

F. *Non-Promotional Water Rate Structure*

The water supplier must have a water rate structure which is not "promotional," i.e., a rate structure which is cost-based and which does not encourage the excessive use of water. This rate structure must be listed in the water conservation plan.

G. *Reservoir Systems Operations Plan*

The water conservation plan must include a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plan shall include optimization of water supplies as one of the significant goals of the plan.

H. *Enforcement Procedure and Plan Adoption*

The water conservation plan must include a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan.

I. Coordination with the Regional Water Planning Group(s)

The water conservation plan must include documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

J. Plan Review and Update

A public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. The revised plan must also include an implementation report.

VI. ADDITIONAL REQUIREMENTS FOR LARGE SUPPLIERS

Required of suppliers serving population of 5,000 or more or a projected population of 5,000 or more within ten years

A. Leak Detection and Repair

The plan must include a description of the program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted for uses of water.

B. Contract Requirements

A requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), 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 of this chapter.

VII. ADDITIONAL CONSERVATION STRATEGIES

A. Conservation Strategies

Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements of this chapter, if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:

1. Conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;

2. Adoption of ordinances, plumbing codes, and/or rules requiring water conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;

3. A program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;

4. A program for reuse and/or recycling of wastewater and/or graywater;

5. A program for pressure control and/or reduction in the distribution system and/or for customer connections;

6. A program and/or ordinance(s) for landscape water management;

7. A method for monitoring the effectiveness and efficiency of the water conservation plan; and

8. Any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

Best Management Practices

The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: http://www.twdb.state.tx.us/conservation/bmps/index.asp

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact 512-239-3282.

APPENDIX D

DROUGHT CONTINGENCY PLAN FOR A RETAIL PUBLIC WATER SUPPLIER

Drought Contingency Plan
for a Retail Public Water Supplier

Texas Commission on Environmental Quality

Instructions: The following form is a model of a drought contingency plan for a retail public water supplier. Not all items may apply to your system's situation. This form is supplied for your convenience, but you are not required to use this form to submit your plan to the TCEQ. Submit completed plans to: Water Supply Division MC 160, TCEQ, P.O. Box 13087, Austin TX 78711-3087.

City of Bellaire
(Name of Utility)

7008 S. Rice Avenue, Bellaire, Texas 77401
(Address, City, Zip Code)

11154
(CCN#)

1010004

March, 2014
(Date)

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 Bellaire** hereby adopts the following regulations and restrictions on the delivery and consumption of water through an ordinance/or resolution (see Appendix C for an example).

Water uses regulated or prohibited under this Drought Contingency Plan (the Plan) are considered to be non-essential 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 Section XI of this Plan.

Section II: Public Involvement

Opportunity for the public to provide input into the preparation of the Plan was provided by the City of Bellaire by means of public and civic organizational meetings.

Section III: Public Education

The City of Bellaire will periodically provide the public with information about the 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. This information will be provided by means of direct mailings and public and civic organizational meetings, published newspaper articles, the City's website, postings and public displays, school programs, customer water conservation packages and other conservation literature made publically available.

Section IV: Coordination with Regional Water Planning Groups

The service area of the City of Bellaire is located within the Region H and City of Bellaire has provided a copy of this Plan to the Region H.

Section V: Authorization

The Mayor, 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 Mayor or his /her designee shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

Section VI: Application

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

Section VII: Definitions

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

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use which is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings.

Conservation: 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.

Customer: any person, company, or organization using water supplied by the City of Bellaire

Domestic water use: 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.

Even number address: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

Landscape irrigation use: 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.

Non-essential water use: water uses that are neither essential nor required for the protection of public, health, safety, and welfare, including:

(a) irrigation of landscape areas, including parks, athletic fields, and golf courses, except 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 or street;
(f) use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi-type pools;
(g) use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
(h) failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
(i) use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

Safe Distribution Capacity: the amount of water the City can provide for the public health, safety and welfare without placing an overburden on the infrastructure.

Section VIII: Criteria for Initiation and Termination of Drought Response Stages

The Mayor 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.

The triggering criteria described below are based on known system capacity limits and Drought of Record conditions.

Stage 1 Triggers -- Annual Drought and Conservation Awareness Campaign

Requirements for initiation
Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses, defined in Section VII - Definitions, when:

1. Public announcement issued **each year in May** to increase customer awareness of water conservation and encourage the most efficient use of water

Requirements for termination
Stage 1 of the Plan will be rescinded on November 1.

Stage 2 Triggers -- MILD Water Shortage Conditions

Requirements for initiation
Customers shall be requested to comply with the requirements and restrictions on certain non-essential water uses provided in Section IX of this Plan when:

1. Average Daily Water Usage reaches **65%** of safe distribution capacity for three (3) consecutive days, defined as **4.74 MGD daily usage rate**.
2. Director determines that supply or delivery is under stress.
3. City of Houston initiates voluntary water restrictions. (Surface water is purchased from the City of Houston.)
4. Consideration will be given to weather conditions, time of year, and customer complaints of low water pressure.

Requirements for termination
Stage 2 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of _5_ consecutive days. Upon termination of Stage 2, Stage 1 becomes operative.

Stage 3 Triggers -- MODERATE Water Shortage Conditions

Requirements for initiation
Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 3 of this Plan when:

1. Average Daily Water Usage reaches **70%** of safe distribution capacity for three (3) consecutive days, defined as **5.10 MGD daily usage rate**.
2. Purchased water intake (surface water) is limited to 90% or less of standard draw rates. (Surface water is purchased from the City of Houston.)
3. Water pressures drop below 40 psi in the distribution system as measured by the pressure gauges in the system.
4. Equipment outage reduces water production by 20%.

Requirements for termination
Stage 3 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of _5_ consecutive days. Upon termination of Stage 3, Stage 2 becomes operative.

Stage 4 Triggers -- SEVERE Water Shortage Conditions

Requirements for initiation
Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 4 of this Plan when:

1. Average Daily Water Usage reaches **80%** of safe distribution capacity for two (2) consecutive days, defined as 5**.83 MGD daily usage rate**.
2. Purchased water intake (surface water) is limited to 80% or less of standard draw rates. (Surface water is purchased from the City of Houston.)
3. The imminent or actual failure of a major component of the system, which would cause a reduction in production capacity by 33%.
4. Contamination of the supply source, water well, or storage tanks.
5. Power outage.
6. Water pressures drop below 35 psi in the distribution system as measured by the pressure gauges in the system.

Requirements for termination
Stage 4 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of _5_ consecutive days. Upon termination of Stage 4, Stage 3 becomes operative.

Section IX: Drought Response Stages
The Mayor, 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 Section VIII of this Plan, shall determine that a mild, moderate, severe, critical, emergency or water shortage condition exists and shall implement the following notification procedures:

Notification
Notification of the Public:
The Mayor or his/ her designee shall notify the public by means of:

publication in a newspaper of general circulation,
public service announcements,
signs posted in public places,
announcements on the City's website http://www.ci.bellaire.tx.us/

Additional Notification:
The Mayor or his/ her designee shall notify directly, or cause to be notified directly, the

following individuals and entities:

Members of the City Council
Fire Chief
TCEQ
Parks / street superintendents & public facilities managers

Stage 1 Response -- Annual Drought and Conservation Awareness Campaign

Target: Achieve a voluntary 5 percent reduction in daily water demand.

Best Management Practices for Supply Management:

- Water customers are encouraged to practice water conservation.
- Notice will be placed in the following locations:
    - City website
    - Notify Me email
    - Press release to local media
    - Notices posted at City Hall, Library, Recreation Center and Public Works
- Notice will be updated every 15 days from May through October or as needed.

Stage 2 Responses -- MILD Water Shortage Conditions

Target: Achieve a 10 percent reduction in daily water demand.

Best Management Practices for Supply Management:

- Inform the customers within the City of a Mild Drought by the posting of a Notice of Mild Drought Condition and notifying the news media of a Mild Drought Condition.
- Included in the information to the public will be the recommendation that water users look for ways to conserve water.
- The Step I Curtailment will be enacted by the City.
- The public will be advised of the Mild Drought situation daily.

Voluntary Water Use Restrictions for Reducing Demand:

(a) Water customers are requested to voluntarily limit the irrigation of landscaped areas to even-numbered days for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and odd-numbered days for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and to irrigate landscapes only between the hours of 12:00 a.m. to 3:00 a.m. and 9:00 p.m. to 12:00 a.m. on designated watering days.

(b) All operations of the _City of Bellaire_ shall adhere to water use restrictions

prescribed for Stage 3 of the Plan.

(c) Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.

Stage 3 Responses -- MODERATE Water Shortage Conditions

Target: Achieve a 15 percent reduction in daily water demand.

Best Management Practices for Supply Management:

- The Public will be informed of a Moderate Drought as above.
- The Step II Curtailment will be enacted by the City.
- The public will be advised of the Moderate Drought situation daily.

Mandatory Water Use Restrictions for Demand Reduction:

Under threat of penalty for violation, the following water use restrictions shall apply to all persons:

The City may restrict the use of water for outdoor sprinkling, watering of lawns and shrubs, and washing driveways and automobiles to certain areas of the city by days and to certain hours. Said restrictions will remain in effect until the City lifts the restrictions. The Curtailment shall include the following:

- Inform the public through the news media that a trigger condition has been reached, and that they should look for ways to voluntarily reduce water use. Specific voluntary steps, which can be taken will be provided to the public by the City.
- Notify major commercial water users of the situation and request voluntary water use restrictions.
- The following mandatory lawn-watering schedule shall be implemented. Customers with even numbered addresses may water on Sundays and Thursdays. Customers with odd numbered addresses may water on Saturdays and Wednesdays. Watering shall occur only between the hours of 12:00 a.m. to 3:00 a.m. and 9:00 p.m. to 12:00 a.m. on designated watering days. During winter months, request water users to insulate pipes rather than running water to prevent freezing.

Stage 4 Responses -- SEVERE Water Shortage Conditions

Target: Achieve a 20 percent reduction in daily water demand.

Best Management Practices for Supply Management:

- The Public will be informed of a Severe Drought as above.
- The Step III Curtailment will be enacted by the City.

- The public will be advised of the Severe Drought situation daily.

Mandatory Water Use Restrictions for Demand Reduction:

The City will ban the use of water not essential for public health or safety. Said restrictions will remain in effect until the City lifts the restrictions. The Curtailment shall include the following:

- Continue implementation of all relevant actions in preceding phase.
- The following water uses, not essential for public health or safety, are prohibited:
  - Watering lawns and shrubs
  - Street washing
  - Washing driveways and automobiles
  - Water hydrant flushing
  - Filling swimming pools
  - Athletic field watering

Section X: Enforcement

(a) No person shall knowingly or intentionally allow the use of water from the City of Bellaire for residential, commercial, industrial, agricultural, governmental, 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 Mayor, or his/her designee, in accordance with provisions of this Plan.

(b) Any person who violates this Plan is guilty of a misdemeanor and, upon conviction shall be punished by a fine not more than one thousand dollars ($1000.00). 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 Mayor 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, and any other costs incurred by the City of Bellaire in discontinuing service. In addition, suitable assurance must be given to the Mayor 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.

(c) Any person, including a person classified as a water customer of the City of Bellaire, 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.

(d) Any employee of the City of Bellaire, police officer, or other employee designated by the Mayor, may issue a citation to a person he/she reasonably believes to be in violation of this Ordinance. The citation shall be prepared in duplicate and shall contain the name and address of the alleged violator, if known, the offense charged, and shall direct him/her to appear in the municipal court on the date shown on the citation for which the date shall not be less than 3 days nor more than 5 days from the date the citation was issued. The alleged violator shall be served a copy of the citation. Service of the citation shall be complete upon delivery of the citation to the alleged violator, to an agent or employee of a violator, or to a person over 14 years of age who is a member of the violator's immediate family or is a resident of the violator's residence. The alleged violator shall appear in municipal court to enter a plea of guilty or not guilty for the violation of this Plan. If the alleged violator fails to appear in municipal court, a warrant for his/her arrest may be issued. A summons to appear may be issued in lieu of an arrest warrant. These cases shall be expedited and given preferential setting in municipal court before all other cases.

Section XI: Variances

The Mayor, 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:

(a) 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.
(b) 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 Bellaire within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the Mayor or his/her designee, and shall include the following:

(a) Name and address of the petitioner(s).
(b) Purpose of water use.
(c) Specific provision(s) of the Plan from which the petitioner is requesting relief.
(d) 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.
(e) Description of the relief requested.

(f) Period of time for which the variance is sought.

(g) 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.

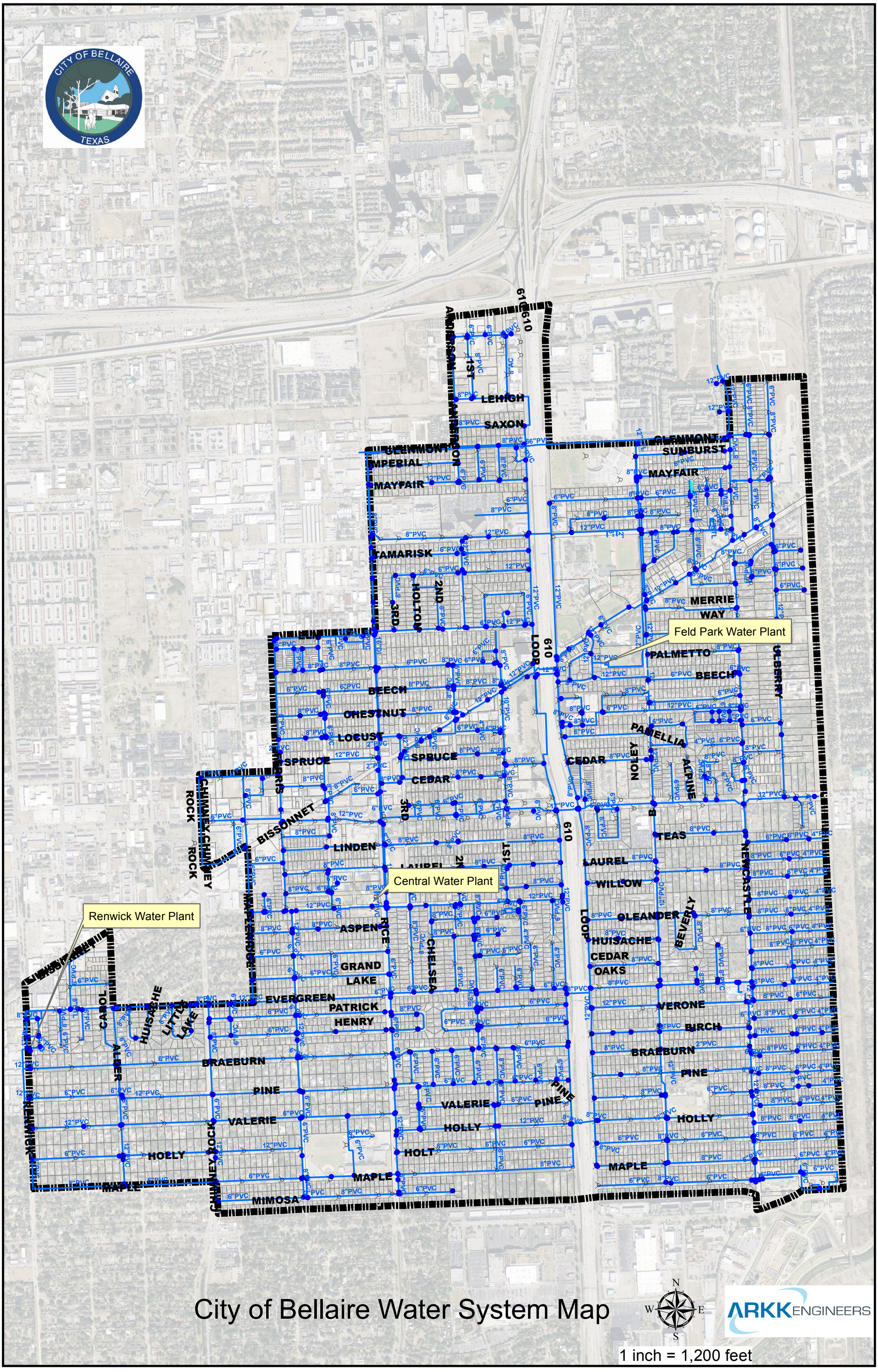
(h) Other pertinent information.

If you have any questions on how to fill out this form or about the Drought Contingency program, please contact us at 512/239-3282.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512-239-3282.

APPENDIX E

WATER SERVICE AREA MAP



City of Bellaire Water System Map

N
W E
S

ARKK ENGINEERS

1 inch = 1,200 feet

APPENDIX F

SUMMARY OF GOALS

Texas Water
Development Board

WATER CONSERVATION PLAN
5- AND 10-YR GOALS FOR WATER SAVINGS

Facility Name: City of Bellaire

Water Conservation Plan Year: 2014

	Historic 5yr Average	Baseline	5-yr Goal for year 2019	10-yr Goal for year 2024
Total GPCD[1]	186	180	171	167
Residential GPCD[2]	186	180	171	167
Water Loss (GPCD)[3]	16	16	14	12
Water Loss (Percentage)[4]	9 %	9 %	8 %	7 %

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) x 100; or (Water Loss GPCD ÷ Total GPCD) x 100