

CITY OF BELLMEAD

ORDINANCE 2023-04

AN ORDINANCE OF THE CITY OF BELLMEAD, TEXAS, ADOPTING A WATER CONSERVATION PLAN; AMENDING CHAPTER 22 – WATER, SEWERS AND SEWAGE DISPOSAL, DIVISION 3. – WATER CONSERVATION PLAN; PROVIDING FOR SEVERABILITY; PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, it is necessary that a Water Conservation Plan be adopted by the City of Bellmead; and,

WHEREAS, such a program has been formally submitted to the Texas Water Development Board for approval; and,

WHEREAS, the City Council of the City of Bellmead believes that it is in the best interest of the City of Bellmead to adopt such program.

NOW, THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BELLMEAD, TEXAS:

SECTION 1

Sec. 22-51. – Introduction.

This water conservation plan is presented by the City of Bellmead pursuant to the requirements of the Texas Water Development Board (TWDB) and the Texas Commission on Environmental Quality (TCEQ). This plan has been developed through consultations with City of Bellmead staff, the city's consulting engineer, MRB Group, and the Texas Water Development Board personnel utilizing guidance from the publications made available from the Texas Water Development Board. The plan will meet the requirements of the Texas Administrative Code, Title 31 TAC 10 Rule §363.15 requiring water conservation plans for systems serving three thousand three hundred (3,300) or more connections.

The water conservation plan organizes the implementation of a group of procedures for reducing the consumption of water, reducing the loss or waste of water, improving, or maintaining the efficiency in the use of water and increasing recycling/reuse of water. The procedures identified are based on best management practices measures to try to meet targets and goals identified in the plan.

This plan should not be confused with the drought contingency plan (emergency demand management) which is a combination of strategies for responding to temporary and potentially reoccurring water supply shortages and other water supply and distribution emergencies.

The City of Bellmead Water Utility Profile has been provided in Exhibit "A" and goes into more detail about the City's utility information.

SECTION 2

Sec. 22-52. – Service area description.

The City of Bellmead is located in McLennan County east of the Brazos River and is bordered to the north by the City of Lacy-Lakeview and to the east, south and west by the City of Waco. Major highways through the City of Bellmead include Interstate Highway 35, U.S. Highway 84, U.S. Highway 77, U.S. Highway 81, State Highway 31, and State Highway 340 loop. The Union Pacific Railroad also passes through the city. City of Bellmead provides water and wastewater utilities within the corporate boundaries of the city and within its extraterritorial jurisdiction. The City of Bellmead Service Area Map is provided in Exhibit “B”.

SECTION 3

Sec. 22-53. – Water system description.

The City of Bellmead produces its water supply from five (5) wells drilled into the Trinity Aquifer and also contracts with the City of Waco for a supplemental emergency supply and this contract expires in 2046. The City of Bellmead wells are each located at a water plant which includes chlorination facilities, cooling towers, ground storage tanks and booster pumps. Four (4) of the five (5) water plants also include elevated storage tanks which maintain the pressure sufficient to deliver water through the city's distribution system. Since the last WCP report, a lack of funding has prevented a new water plant from being built, however a new water plant is planned for completion in the next ten to fifteen years. This new water plant will include a new well, new chlorination facility, new cooling tower, new ground storage tank, new booster pumps, and new elevated storage tank.

SECTION 4

Sec. 22-54. – Wastewater system description.

The City of Bellmead receives wastewater from its customers into the city's collection system. The collection system transports the wastewater to interceptors and/or a lift station which pumps the wastewater to an interceptor. The city owns and operates eight (8) lift stations. The interceptors deliver wastewater to a metering station owned by the Waco Metropolitan Area Regional Sewer System (WMARSS). WMARSS is a regional wastewater treatment provider for multiple entities in McLennan County and has received and treated City of Bellmead wastewater since the early 1970s. The city contracts with WMARSS to receive, meter, transport and treat all the city's wastewater.

Definitions.

Average quality: The arithmetic average (weighted by flow value) of all the daily determinations of concentration made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the daily determination of concentration shall be the

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arithmetic average (weighted by flow value) of all the samples collected during that calendar day.

B.O.D. (biochemical oxygen demand): The quantity of oxygen by weight, expressed in milligrams per liter, utilized in the biochemical oxidation of organic matter under standard laboratory conditions for five (5) days at a temperature of twenty (20) degrees centigrade.

City: The City of Bellmead, Texas or any authorized person acting in its behalf.

Domestic sewage: Waterborne waste normally discharged from sanitary conveniences or dwellings, including apartment houses, hotels, office buildings, factories, and institutions, free from storm surface water and industrial waste.

Normal domestic sewage: Normal sewage for Bellmead, Texas, in which the average concentration of suspended solids and five-day B.O.D. are each established at two hundred fifty (250) parts per million. It is further expressly provided that for the purpose of this division any waste discharged into a sanitary sewer that exceeds the above concentration in suspended solids and/or B.O.D. shall be classed as industrial waste and made subject to all regulations pertaining thereto, whether or not such waste was partially of domestic origin.

Garbage: Solid waste from the preparation, cooking and disposing of food and from the handling, storage and selling of produce.

Grab sample: An individual sample collected in less than fifteen (15) minutes.

Hazardous metal: Each of the following metals in its elemental state and any of its compounds expressed as that metal: arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, and zinc.

Properly shredded garbage: The waste from the preparation, cooking and dispensing of food that has been shredded to such degree that all particles will be carried freely under the flow conditions normally prevailing in sanitary sewers, with no particles greater than one-half ($\frac{1}{2}$) inch in any dimension.

Inland waters: All surface waters in the state other than tidal waters.

pH: The reciprocal of the logarithm (base ten (10)) of the hydrogen ion concentration.

Public sewer: Pipe or conduit, carrying either sewage or unpolluted wastewater of which owners of abutting properties shall have the use, subject to control by the city.

Sanitary sewer: A public sewer that conveys sewage (as hereinafter defined) and into which stormwater, unpolluted surface water, groundwater, and other unpolluted wastewaters are not intentionally passed.

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Sewage: A combination of water-carried wastes from residences, business buildings, institutions, and industrial establishments.

Sewage works or wastewater facilities: All facilities for collecting, pumping, treating and disposal of sewage.

Sewer service: The right to use the sewage works.

Sewer use charge: A monthly charge made by the city for sewer service.

Suspended solids: Solids measured in milligrams per liter that either float on the surface of, or are in suspension in, water, wastewater, or other liquids, and which are largely removable by a laboratory filtration device.

Terms used herein and not defined above shall have the definition given them in Chapter III, Standard Plumbing Code, 1975 Edition, with changes.

Building sewers. Building sewers shall be installed in such a way as to comply in every respect with provisions of the Standard Plumbing Code and be approved by the city building inspector.

Individual sewage disposal systems prohibited, generally. It shall be unlawful to install, construct or maintain any privy, privy vault, septic tank, cesspool, holding tank, individual sewage disposal or treatment system, or any other private facility intended or used for the transportation, treatment, holding or disposal of sewage (hereinafter referred to as an "individual sewage disposal system") if any part of the city's sanitary sewer system is located within two hundred (200) feet of any portion of the property. Such two hundred (200) feet shall be measured along the shortest course of public property or an easement granted to the city for utility purposes. Provided that if the city's sanitary sewer system is not located within two hundred (200) feet of any portion of the subject property, or the city has determined that the city's sanitary sewer system is not sufficient to serve the property, or that the line proposed on, over or across the public property or easement will interfere with the city's current or intended use of such property or easement, the owner of the property may construct and maintain an individual sewage disposal system in accordance with the other provisions of this code. See subsections (j), (k), and (l).

Service outside city limits. No provisions of this article shall be construed as giving any person located, living, or residing outside the city's limits the right to tap on to or to enjoy the use of the sewage works of the city. The city council of the city may contract to allow any such person the use of the city's sewage works under such terms and conditions as are in the judgment of the city council in the best interests of the city.

Connection to public sewer; charges. Taps for connection to the public sewer will be accomplished by authorized city personnel after proper application is made to the city. All costs including engineering costs and other expenses incident to the installation and connection of the building sewer shall be borne by the owner. The cost schedule shall be established by resolution as part of the City of Bellmead Master Fee Schedule.

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Use charges; industrial waste surcharge. Monthly use charges for residential and commercial accounts, and industrial waste surcharges, shall be established by resolution as part of the City of Bellmead Master Fee Schedule.

Date and place of payment of sewer use charge. The sewer use charge shall be due and payable monthly, to be billed and paid along with water charges. Charges shall be payable at the water/sewer department at the city hall.

Prohibited discharges. Discharges to sanitary sewers shall not contain any waste which, by itself or in interaction with other waste, may:

- (1) Injure or interfere with sewage treatment processes or facilities;
- (2) Constitute by its presence in the sewage works a hazard to humans or animals;
- (3) Create a hazard in the receiving waters of the treated effluent from the sewage works.

No discharges of sewage shall be made within the city's limits which do not conform to the requirements of this article.

Individual sewage disposal system (as authorized in extra-territorial jurisdiction (ETJ) or older developed areas).

Compliance with Code; building permit required. If property is permitted to be served by an individual sewage disposal system, such individual sewage disposal system shall be constructed, installed, maintained, and operated in accordance with this Code. No individual sewage disposal system shall be constructed, installed, or repaired without a building permit having been issued for same.

Conformance with rules, regulations; approval of plans. All individual sewage disposal systems shall conform to the rules, regulations and standards promulgated, from time to time, by the city and the Waco-McLennan County Health Unit for installation, maintenance, and operation of individual sewage disposal systems. The complete construction design and plans for installation, construction, maintenance, operation, and location of the individual sewage disposal system shall be reviewed and approved by the public works director and the Waco-McLennan County Health Unit prior to the time an application for a building permit for such individual sewage disposal system is made to the city.

Filing of construction plans and drawings. At the time application for a building permit for an individual sewage disposal system is made to the city, the applicant shall file with the public works director a complete set of construction plans and drawings, including a plot plan showing the location of the system on the property and all structures and buildings thereon, together with written certification from the Waco-McLennan County Health Unit and the public works director stating that the design and plan for construction, installation, maintenance and operation of the individual sewage disposal system has been reviewed by the

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Waco-McLennan County Health Unit and the public works director and meets all requirements of the city, Waco-McLennan County Health Unit and all state and federal laws.

Inspections, occupancy permit mandatory. No part of any individual sewage disposal system shall be covered or placed in operation until the same has been inspected by the building official of the city and approved by the building official as being in compliance with all provisions of this article. It shall be unlawful to occupy any building or structure connected to, or in any way using, such individual sewage disposal system until the construction and installation of such system has been approved by the building official of the city and an occupancy permit for such building or structure, as required by the ordinances of the city, has been issued.

Violation of article. Any violation of this article shall be unlawful and punishable pursuant to the provisions of section 22-43 of the Code of Ordinances, City of Bellmead, Texas. Each day a violation occurs or continues shall be a separate offense hereunder.

SECTION 5

Sec. 22-55. – Water utility profile.

As an interval part of the water conservation plan, the Texas Water Development Board requires that the City of Bellmead utilities be evaluated by completion of a Water Conservation Utility Profile Document. This document is an evaluation of the city's water and wastewater system records and includes customer use characteristics to identify water conservation opportunities and potential water saving targets and goals. This document is attached as Exhibit "A".

SECTION 6

Sec. 22-56. – Water conservation opportunities and goals.

Research and development of this plan has identified several areas of opportunity in which the City will pursue the maintenance and expansion of its water conservation efforts by adopting the following goals to achieve the targeted long-term reduction in water consumption. Rolling 5-year averages of water consumption and loss from the Utility Profile were used as baseline values:

TOTAL LOSS GOALS

- | | | |
|----|-----------|------------------------------------|
| a. | GOAL: | Promote Low-Flow Fixture Retrofit |
| | BASELINE: | 124 gpcd |
| | TARGET: | 122 gpcd by 2028; 120 gpcd by 2033 |

RESIDENTIAL GOALS

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- a. GOAL: Water Savings Through Conservation Education;
Reduction of Irrigation Usage
BASELINE: 59 gpcd consumption rate
TARGET: 57 gpcd by 2028; 55 gpcd by 2033

WATER LOSS GOALS

- b. GOAL: Reduce Unaccounted Water Loss
BASELINE: 37 gpcd of water loss
TARGET: 35 gpcd by 2028; 25 gpcd by 2033

MUNICIPAL GOALS

- a. GOAL: Reduction of municipal water consumption

BASELINE: The City has water meters installed at all municipal locations and can track and differentiate municipal usage from residential usage on a daily basis.

SECTION 7

Sec. 22-57. – Conservation Methods and Implementation Plan.

The city currently employs numerous water conservation oriented programs and efforts. In consideration of conserving its water supply, the city has begun to expand its water conservation program to include more specific elements and to verify their effects.

(1) Water Loss control:

Unaccounted water loss is water that is supplied to the system that exits the system without being metered. Such uses include but are not limited to illegal connections, abandoned service lines, faulty metering, and distribution pipe leaks. To reduce unaccounted water loss the city will promote and incorporate the following techniques:

- a. Test master meters annually.

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- b. Test or replace customer meters, based on meter life.
- c. Promote use of smaller custom meters which more accurately meter low flows.
- d. Begin a semi-annual leak detection program using acoustic leak detectors or correlators, as budget allows.
- e. The continuous use of a SCADA system to monitor aberrations in consumption. The City is separating out municipal consumption.

Implementation of a Leak Detection System, including:

- a. Regular visual inspections along distribution lines.
- b. Regularly monitoring the SCADA system for changes in tank levels.
- c. Prioritize leak response work orders.
- d. Incentivizing leak reports.
- e. Notifying customers when leaks discovered by the City are on the customer supply line.

(2) Maintain universal metering program.

To ensure the integrity of the City's consumption data, Bellmead has a universal metering program in place. This program ensures every connection is metered with the correctly-sized meter, and the volume registered is accounted for in the City's records. The meters are replaced once they have reached the end of their useful life (15-20 years) or have become unreliable, whichever comes first.

Production meters utilized to measure the water supply that enters the system from its wells are tested regularly and replaced as needed. It is the City's goal to maintain all meters within an accuracy of plus or minus 5%. Large and compound meters are tested even more frequently to ensure they are working property.

(3) *Provide and promote water conservation education.*

Substantial reduction in water consumption can be realized if the public is informed about water conservation practices. The City of Bellmead will continued to provide education to both staff and the public about how to save water in and around residences and businesses by expanding the use of the following techniques:

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- a. Provide quarterly water conservation literature and brochures to customers at public meeting locations.
- b. New customer packets will include water conservation literature.
- c. Water bills will include water conservation information before the peak demand season.
- d. Public lectures and presentations will be conducted and promoted by the city.
- e. Special conservation communications will be presented in the spring of each year in news media articles, city message boards and websites to encourage summertime conservation.

(4) Promote low-flow plumbing fixture retrofit.

Through the education and information program, plumbers and water consumers will be encouraged to retrofit old fixtures (such as plumbing fixtures, lawn watering equipment, and water using appliances) with water saving devices. The educational process will focus on the advantages of installing water conservation devices as well as the availability of these items. This program will be promoted year-round.

(5) Promote reduction of irrigation usages.

The city will promote reduced irrigation landscaping through the education and information program. Information about plant species which require less water will be provided to existing customers and builders through this program to encourage reduced irrigation. Publishing the cost advantages of more water efficient lawns and landscaping will promote existing landscape retrofitting.

(6) Study water conservation rate structure.

The city currently employs a rate structure which is not "promotional" (does not encourage excessive use) consisting of a monthly minimum charge, which includes two thousand (2,000) gallons of water, plus an additional unit charge per thousand gallons for all water used in excess of two thousand (2,000) gallons. A higher additional unit charge per thousand gallons is applied to those customers outside city limits.

The monthly base charge is the same for all customers. A copy of the rate structure is attached as Exhibit "C".

A study will be conducted to evaluate the potential water conservation benefits when water conservation features are added to the rate structure.

Examples of such features could include the following:

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- a. Monthly base charge based on meter size.
- b. Elimination of water included in base charge.
- c. Increasing the charge per thousand for the higher users.
- d. Seasonal rates based on the customers seasonal variation from summer to winter.

SECTION 8

Sec. 22-58. – Implementation, audits, and tracking.

The city manager or his/her duly appointed representative is responsible for the implementation and enforcement of this plan. This plan will be enforced voluntarily (though compliance is encouraged) by the following methods:

1. Service tap applicants will be encouraged to utilize water conservation plumbing fixtures. Existing water system staff will be used to encourage that water saving plumbing devices are being installed in new buildings.
2. The water rate structure will encourage retrofitting of old plumbing fixtures which are using large amounts of water.
3. Adoption of new plumbing regulations regarding water conserving plumbing fixtures.
4. Potential city ordinance prohibiting water waste such as time-of-day watering

The City Manager will be responsible for maintaining appropriate records for program verification and will supervise the execution and implementation of the elements contained herein.

The City of Bellmead is required to provide an annual report which describes the implementation, and quantitatively tracks the water conservation program relative to the targets and goals identified in the plan. This annual report is due prior to May 1st of each year and will be prepared under the supervision of the City Manager in accordance with the format published by the Texas Water Development Board.

In addition to the annual report and audit for Texas Water Development Board, the City will audit its water consumption monthly to identify separately the total diverted water compared to the total water sold, water used for flushing, firefighting, water leak losses and other contributors to the total diverted water. The monthly audit will be used to evaluate the City's progress in implementation of its Water Conservation Plan.

SECTION 9

Sec. 22-59. – Regional water planning provisions.

The City of Bellmead is located within the Brazos G Water Planning Area and Southern Trinity Groundwater Conservation District. The city will deliver a copy of the approved water conservation plan to each of these entities and thereafter communicate and coordinate its efforts for water conservation to promote the successful efforts of each.

SECTION 10

That the City of Bellmead, Texas Water Conservation Plan attached hereto and made part hereof for all purposes be, and the same is hereby, adopted as the official policy of the City of Bellmead.

SECTION 11

That all ordinances in conflict with the provisions of this ordinance be, and the same are hereby, repealed and all other ordinances of the City not in conflict with the provisions of this ordinance shall remain in full force and effect.

PASSED AND APPROVED ON FIRST READING MAY 16, 2023 .

PASSED AND APPROVED ON SECOND READING JUNE 13, 2023 .

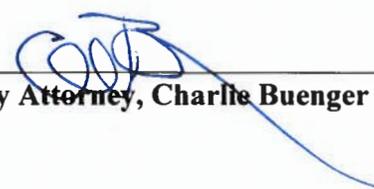
PASSED AND APPROVED ON THIRD READING JUNE 13, 2023 .



Mayor, Travis Gibson

ATTEST:


City Secretary, Holly Owens

APPROVED AS TO FORM & LEGALITY:


City Attorney, Charlie Buenger





Regular 6/13/2023

Item # 10D

CCM/O 2023-04

CITY COUNCIL MEMORANDUM FOR ORDINANCE

Prepared By: Herb Blomquist

Approval: Yousry Zakhary

Water Conservation Plan

DESCRIPTION:

Consider a memorandum/ordinance adopting the City of Bellmead Water Conservation Plan and amending Chapter 22 – Water, Sewers and Sewage Disposal, Division 3. – Water Conservation Plan; Providing for severability; Providing for an effective date.

BACKGROUND:

This Water Conservation Plan is presented by the City of Bellmead pursuant to the requirements of the Texas Water Development Board (TWDB) and the Texas Commission on Environmental Quality (TCEQ). This plan has been developed through consultations with the City of Bellmead staff, the use of previous Water Conservation Plans that were developed by the City's current Consulting Engineer, MRB Group, and the Texas Water Development Board personnel utilizing guidance from the publications made available from the Texas Water Development Board. The plan will meet the requirements of the Texas Administrative Code, Title 31 TAC 10 Rule §363.15 requiring water conservation plans for systems serving 3,300 or more connections.

The Water Conservation Plan organizes the implementation of a group of procedures for reducing the consumption of water, reducing the loss or waste of water, improving, or maintaining the efficiency in the use of water and increasing recycling/reuse of water. The procedures identified are based on best management practices, measures to try to meet targets and goals identified in the plan.

Conservation Coordinator –

Name: Herb Blomquist Title: Director of Public Works

This plan should not be confused with the Drought Contingency Plan (Emergency Demand Management) which is a combination of strategies for responding to temporary and potentially reoccurring water supply shortages and other water supply and distribution emergencies.

The first reading for the Water Conservation Plan was held on May 16, 2023 with a unanimous vote of 5-0. This is the second and third final reading and if approved will be effective immediately.

FISCAL IMPACT / FUNDING SOURCE:

NA

STAFF RECOMMENDATION:

Staff recommends that the City Council adopt the City of Bellmead Water Conservation Plan.

ATTACHMENT(S):

Ordinance
Water Conservation Plan
WCA Utility Profile

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

CONTACT INFORMATION

Name of Utility:

Public Water Supply Identification Number (PWS ID):

Certificate of Convenience and Necessity (CCN) Number:

Surface Water Right ID Number:

Wastewater ID Number:

Contact: First Name: Last Name:

Title:

Address: City: State:

Zip Code: Zip+4: Email:

Telephone Number: Date:

Is this person the designated Conservation Coordinator? Yes No

Regional Water Planning Group:

Groundwater Conservation District:

Our records indicate that you:

- Received financial assistance of \$500,000 or more from TWDB
- Have 3,300 or more retail connections
- Have a surface water right with TCEQ

A. Population and Service Area Data

1. Current service area size in square miles:

Attached file(s):

File Name	File Description
Service Area.jpg	

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

2. Historical service area population for the previous five years, starting with the most current year.

Year	Historical Population Served By Retail Water Service	Historical Population Served By Wholesale Water Service	Historical Population Served By Wastewater Water Service
2022	10,556	0	
2021	10,556	0	
2020	9,900	9,900	
2019	9,900	0	
2018	10,052	0	

3. Projected service area population for the following decades.

Year	Projected Population Served By Retail Water Service	Projected Population Served By Wholesale Water Service	Projected Population Served By Wastewater Water Service
2030			
2040			
2050			
2060			
2070			

4. Described source(s)/method(s) for estimating current and projected populations.

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UTILITY PROFILE FOR RETAIL WATER SUPPLIER

B. System Input

System input data for the previous five years.

Total System Input = Self-supplied + Imported – Exported

Year	Water Produced in Gallons	Purchased/Imported Water in Gallons	Exported Water in Gallons	Total System Input	Total GPCD
2022	372,742,857	0	0	372,742,857	97
2021	438,694,444	0	0	438,694,444	114
2020	461,280,000	0	0	461,280,000	128
2019	449,719,355	0	0	449,719,355	124
2018	471,068,478	0	0	471,068,478	128
Historic Average	438,701,027	0	0	438,701,027	118

C. Water Supply System

1. Designed daily capacity of system in gallons 5,104,606
2. Storage Capacity
 - 2a. Elevated storage in gallons: 1,200,000
 - 2b. Ground storage in gallons: 3,904,605

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

D. Projected Demands

1. The estimated water supply requirements for the next ten years using population trends, historical water use, economic growth, etc.

Year	Population	Water Demand (gallons)
2024		
2025		
2026		
2027		
2028		122
2029		
2030		
2031		
2032		
2033		120

2. Description of source data and how projected water demands were determined.

E. High Volume Customers

1. The annual water use for the five highest volume **RETAIL** customers.

Customer	Water Use Category	Annual Water Use	Treated or Raw
Bordeaux Apartments	Residential	10,089,268	Treated
Eagle Crest Apartments	Residential	8,185,260	Treated
IMO US West, LLC	Commercial	5,215,684	Treated
Wood Springs Suites	Commercial	5,102,903	Treated
Holiday Inn	Commercial	3,695,532	Treated

2. The annual water use for the five highest volume **WHOLESALE** customers.

Customer	Water Use Category	Annual Water Use	Treated or Raw
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UTILITY PROFILE FOR RETAIL WATER SUPPLIER

F. Utility Data Comment Section

Additional comments about utility data.

Section II: System Data

A. Retail Water Supplier Connections

1. List of active retail connections by major water use category.

Water Use Category Type	Total Retail Connections (Active + Inactive)	Percent of Total Connections
Residential - Single Family	3,446	92.46 %
Residential - Multi-Family	25	0.67 %
Industrial	0	0.00 %
Commercial	240	6.44 %
Institutional	16	0.43 %
Agricultural	0	0.00 %
Total	3,727	100.00 %

2. Net number of new retail connections by water use category for the previous five years.

Net Number of New Retail Connections							
Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2022	3,446	25	0	240	16	0	3,727
2021	3,653	15	13	240	0	0	3,921
2020	3,124	108	22	316	9	0	3,579
2019	3,116	106	22	310	9	0	3,563
2018	3,109	39	21	269	0	37	3,475

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

B. Accounting Data

The previous five years' gallons of RETAIL water provided in each major water use category.

Year	Residential - Single Family	Residential - Multi-Family	Industrial	Commercial	Institutional	Agricultural	Total
2022	188,860,200	25,467,500	0	76,978,900	43,341,400	0	334,648,000
2021	196,226,000	12,396,000	0	87,128,000	14,336,000	0	310,086,000
2020	183,315,200	14,241,500	514,600	97,541,000	13,012,000	0	308,624,300
2019	184,287,400	15,773,300	564,900	98,853,000	13,247,700	0	312,726,300
2018	244,961,500	20,320,100	0	78,539,700	1,440,600	6,572,100	351,834,000

C. Residential Water Use

The previous five years residential GPCD for single family and multi-family units.

Year	Total Residential GPCD
2022	56
2021	54
2020	55
2019	55
2018	72
Historic Average	58

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

D. Annual and Seasonal Water Use

1. The previous five years' gallons of treated water provided to RETAIL customers.

Month	Total Gallons of Treated Water				
	2022	2021	2020	2019	2018
January	29,977,000	30,601,000	30,005,000	32,615,000	34,772,000
February	28,256,000	43,110,000	28,288,000	27,924,000	28,430,000
March	32,294,000	33,319,000	28,245,000	31,079,000	35,471,000
April	31,478,000	29,138,000	31,007,000	29,574,000	35,632,000
May	33,630,000	25,506,000	33,505,000	33,709,000	38,745,000
June	45,324,000	34,416,000	38,591,000	34,298,000	40,416,000
July	44,930,000	35,802,000	43,019,000	42,466,000	45,468,000
August	35,552,000	36,799,000	45,150,000	44,109,000	42,609,000
September	21,786,000	35,449,000	37,565,000	43,268,000	33,975,000
October	16,983,000	35,069,000	35,920,000	37,191,000	36,277,000
November	17,451,000	25,309,000	32,403,000	31,950,000	31,553,000
December	27,607,000	30,307,000	31,454,000	30,056,000	30,035,000
Total	365,268,000	394,825,000	415,152,000	418,239,000	433,383,000

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

2. The previous five years' gallons of raw water provided to RETAIL customers.

Month	Total Gallons of Raw Water				
	2022	2021	2020	2019	2018
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Total					

3. Summary of seasonal and annual water use.

	Summer RETAIL (Treated + Raw)	Total RETAIL (Treated + Raw)
2022	125,806,000	365,268,000
2021	107,017,000	394,825,000
2020	126,760,000	415,152,000
2019	120,873,000	418,239,000
2018	128,493,000	433,383,000
Average in Gallons	121,789,800.00	405,373,400.00

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

E. Water Loss

Water Loss data for the previous five years.

Year	Total Water Loss in Gallons	Water Loss in GPCD	Water Loss as a Percentage
2022	37,258,237	10	0.00 %
2021	127,833,229	33	0.00 %
2020	146,889,700	41	0.00 %
2019	131,371,563	36	0.00 %
2018	112,098,122	31	0.00 %
Average	111,090,170	30	0.00 %

F. Peak Day Use

Average Daily Water Use and Peak Day Water Use for the previous five years.

Year	Average Daily Use (gal)	Peak Day Use (gal)	Ratio (peak/avg)
2022	1,000,734	1367456	1.3665
2021	1,081,712	1163228	1.0754
2020	1,137,402	1377826	1.2114
2019	1,145,860	1313836	1.1466
2018	1,187,350	1396663	1.1763

G. Summary of Historic Water Use

Water Use Category	Historic Average	Percent of Connections	Percent of Water Use
Residential - Single Family	199,530,060	92.46 %	61.66 %
Residential - Multi-Family	17,639,680	0.67 %	5.45 %
Industrial	215,900	0.00 %	0.07 %
Commercial	87,808,120	6.44 %	27.14 %
Institutional	17,075,540	0.43 %	5.28 %
Agricultural	1,314,420	0.00 %	0.41 %

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

H. System Data Comment Section

Section III: Wastewater System Data

A. Wastewater System Data

1. Design capacity of wastewater treatment plant(s) in gallons per day:

2. List of active wastewater connections by major water use category.

Water Use Category	Metered	Unmetered	Total Connections	Percent of Total Connections
Municipal			0	0.00 %
Industrial			0	0.00 %
Commercial			0	0.00 %
Institutional			0	0.00 %
Agricultural			0	0.00 %
Total			0	100.00 %

3. Percentage of water serviced by the wastewater system: %

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

4. Number of gallons of wastewater that was treated by the utility for the previous five years.

Month	Total Gallons of Treated Water				
	2022	2021	2020	2019	2018
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Total					

5. Could treated wastewater be substituted for potable water?

Yes No

B. Reuse Data

1. Data by type of recycling and reuse activities implemented during the current reporting period.

Type of Reuse	Total Annual Volume (in gallons)
On-site Irrigation	
Plant wash down	
Chlorination/de-chlorination	
Industrial	
Landscape irrigation (park,golf courses)	0
Agricultural	
Discharge to surface water	
Evaporation Pond	
Other	
Total	0

UTILITY PROFILE FOR RETAIL WATER SUPPLIER

C. Wastewater System Data Comment

Additional comments and files to support or explain wastewater system data listed below.

Water Conservation Plan

City of Bellmead

Prepared by:

MRB | *group*

15 W. Central Avenue
Temple, TX 76501

TBPE Firm Registration Number F-10615

Phone: 254-774-9611

www.mrbgroup.com — e-mail: info@mrbgroup.com



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Exhibit "A" – Water Utility Profile

Exhibit "B" – City of Bellmead Service Area Map

Exhibit "C" – Rate Structure

Section 1: Introduction

This Water Conservation Plan is presented by the City of Bellmead pursuant to the requirements of the Texas Water Development Board (TWDB) and the Texas Commission on Environmental Quality (TCEQ). This plan has been developed through consultations with the City of Bellmead staff, the use of previous Water Conservation Plans that were developed by the City's current Consulting Engineer, MRB Group, and the Texas Water Development Board personnel utilizing guidance from the publications made available from the Texas Water Development Board. The plan will meet the requirements of the Texas Administrative Code, Title 31 TAC 10 Rule §363.15 requiring water conservation plans for systems serving 3,300 or more connections.

The Water Conservation Plan organizes the implementation of a group of procedures for reducing the consumption of water, reducing the loss or waste of water, improving or maintaining the efficiency in the use of water and increasing recycling/reuse of water. The procedures identified are based on best management practices, measures to try to meet targets and goals identified in the plan.

Conservation Coordinator –

Name: Herb Blomquist Title: Director of Public Works

This plan should not be confused with the Drought Contingency Plan (Emergency Demand Management) which is a combination of strategies for responding to temporary and potentially reoccurring water supply shortages and other water supply and distribution emergencies.

The City of Bellmead Water Utility Profile has been provided in Exhibit "A" and goes into more detail about the City's utility information.

Section 2: Service Area Description:

The City of Bellmead is located in McLennan County east of the Brazos River and is bordered to the north by the City of Lacy Lakeview and to the east, south and west by the City of Waco. Major highways through the City of Bellmead include Interstate Highway 35, U.S. Highway 84, U.S. Highway 77, U.S. Highway 81, State highway 31 and State highway 340 Loop. The Union Pacific Railroad also passes through the City. City of Bellmead provides water and wastewater utilities within the corporate boundaries of the City and within its extraterritorial jurisdiction. The City of Bellmead Service Area Map is provided in Exhibit "B".

Section 3: Water System Description:

The City of Bellmead produces its water supply from five wells drilled into the Trinity Aquifer and also contracts with the City of Waco for a supplemental emergency supply and this contract expires in 2046. The City of Bellmead wells are each located at a water plant which includes chlorination facilities, cooling towers, ground storage tanks and booster pumps. Four of the five water plants also include elevated storage tanks which maintain the pressure sufficient to deliver water through the City's distribution system. Since the last WCP report, a lack of funding has prevented a new water plant from being built, however a new water plant is planned for completion in the next ten to fifteen years. This new water plant will include a new well, new chlorination facility, new cooling tower, new ground storage tank, new booster pumps, and new elevated storage tank.

Section 4: Wastewater System Description:

The City of Bellmead receives wastewater from its customers into the City's collection system. The collection system transports the wastewater to interceptors and/or a lift station which pumps the wastewater to an interceptor. The City owns and operates eight lift stations. The interceptors deliver wastewater to a metering station owned by the Waco Metropolitan Area Regional Sewer System (WMARSS). WMARRS is a regional wastewater treatment provider for multiple entities in McLennan County and has received and treated City of Bellmead wastewater since the early 1970's. The City contracts with WMAARS to receive, meter, transport and treat all of the City's wastewater.

Section 5: Water Utility Profile:

As an integral part of the Water Conservation Plan, the Texas Water Development Board requires that the City of Bellmead utilities be evaluated by completion of a Water Conservation Utility Profile document. This document is an evaluation of the City’s water and wastewater system records and includes customer use characteristics to identify water conservation opportunities and potential water saving targets and goals. This document is attached as Exhibit “A”.

Section 6: Water Conservation Opportunities and Goals:

Research and development of this plan has identified several areas of opportunity in which the City will pursue the maintenance and expansion of its water conservation efforts by adopting the following goals to achieve the targeted long-term reduction in water consumption. Rolling 5-year averages of water consumption and loss from the Utility Profile were used as baseline values:

TOTAL LOSS GOALS

- a. GOAL: Promote Low-Flow Fixture Retrofit
BASELINE: 124 gpcd
TARGET: 122 gpcd by 2028; 120 gpcd by 2033

RESIDENTIAL GOALS

- a. GOAL: Water Savings Through Conservation Education; Reduction of Irrigation Usage
BASELINE: 59 gpcd consumption rate
TARGET: 57 gpcd by 2028; 55 gpcd by 2033

WATER LOSS GOALS

- b. GOAL: Reduce Unaccounted Water Loss
BASELINE: 37 gpcd of water loss
TARGET: 35 gpcd by 2028; 25 gpcd by 2033

MUNICIPAL GOALS

- a. GOAL: Reduction of municipal water consumption

BASELINE: The City has water meters installed at all municipal locations and can track and differentiate municipal usage from residential usage on a daily basis.

Section 7: Conservation Methods and Implementation Plan:

The City currently employs numerous Water Conservation oriented programs and efforts. In consideration of conserving its water supply, the City has begun to expand its water conservation program to include more specific elements and to verify their effects.

a. Water Loss Control:

Unaccounted Water Loss is water that is supplied to the system and exits the system without being metered. Such uses include but are not limited to illegal connections, abandoned service lines, faulty metering and distribution pipe leaks. To reduce unaccounted water loss the City will promote and incorporate the following techniques:

- i. Test master meters annually.
- ii. Test or replace customer meters, based on meter life.
- iii. Promote use of smaller customer meters which more accurately meter low flows.
- iv. Begin a semi-annual leak detection program using acoustic leak detectors or correlators, as budget allows.
- v. The continuous use of a SCADA system to monitor aberrations in consumption. The City is separating out municipal consumption.

Implementation of a Leak Detection System, including:

- i. Regular visual inspections along distribution lines.
- ii. Regularly monitoring the SCADA system for changes in tank levels.
- iii. Prioritize leak response work orders.
- iv. Incentivizing leak reports.
- v. Notifying customers when leaks discovered by the City are on the customer supply line.

b. Maintain Universal Metering Program

To ensure the integrity of the City's consumption data, Bellmead has a universal metering program in place. This program ensures every connection is metered with the correctly-sized meter, and the volume registered is accounted for in the City's records. The meters are replaced once they have reached the end of their useful life (15-20 years) or have become unreliable, whichever comes first.

Production meters utilized to measure the water supply that enters the system from its wells are tested regularly and replaced as needed. It is the City's goal to maintain all meters within an accuracy of plus or minus 5%. Large and compound meters are tested even more frequently to ensure they are working property.

c. *Provide and Promote Water Conservation Education:*

Substantial reduction in water consumption can be realized if the public is informed about water conservation practices. The City of Bellmead will continue to provide ongoing education to staff, residents and the public education institutions about how to save water in and around residences and businesses by expanding the use of the following techniques:

- vi. Provide quarterly water conservation literature and brochures to customers at public meeting locations.
- vii. New customer packets will include water conservation literature.
- viii. Water bills will include water conservation information before the peak demand season.
- ix. Public lectures and presentations will be conducted and promoted by the City.
- x. Special conservation communications will be presented in the spring of each year in news media articles, City message boards and websites to encourage summertime conservation.

d. *Promote Low-flow Plumbing Fixture Retrofit:*

Through the education and information program, plumbers and water consumers will be encouraged to retrofit old fixtures (such as plumbing fixtures, lawn watering equipment, and water using appliances) with water saving devices. The educational process will focus on the advantages of installing water conservation devices as well as the availability of these items. This program will be promoted year-round.

e. *Promote Reduction of Irrigation Usages:*

The City will promote reduced irrigation landscaping through the education and information program. Information about plant species which require less water will be provided to existing customers and builders through this program to encourage reduced irrigation. Publishing the cost advantages of more water efficient lawns and landscaping will promote existing landscaping retrofitting.

f. *Study Water Conservation Rate Structure:*

The City currently employs a rate structure which is not "promotional" (does not encourage excessive use) consisting of a monthly minimum charge, which includes 2,000 gallons of water, plus an additional unit charge per thousand gallons for all water used in excess of 2,000 gallons.

A higher additional unit charge per thousand gallons is applied to those customers outside city limits.

The monthly base charge is the same for all customers. A copy of the rate structure is attached as Exhibit "C".

A study will be conducted to evaluate the potential water conservation benefits when water conservation features are added to the rate structure.

Example of such features could include the following:

- i. Monthly base charge based on meter size.
- ii. Elimination of water included in base charge.
- iii. Increasing the charge per thousand gallons for the higher users
- iv. Seasonal rates based on the customer's seasonal variation from summer to winter.

Section 8: Implementation, Audits and Tracking:

The City Manager or his/her duly appointed representative is responsible for the implementation and enforcement of this plan. This plan will be enforced voluntarily (though compliance is encouraged) by the following methods:

1. Service tap applicants will be encouraged to utilize water conservation plumbing fixtures. Existing water system staff will be used to encourage that water saving plumbing devices are being installed in new buildings.
2. The water rate structure will encourage retrofitting of old plumbing fixtures which are using large amounts of water.
3. Adoption of new plumbing regulations regarding water conserving plumbing fixtures.
4. Potential city ordinance prohibiting water waste such as time-of-day watering

The City Manager will be responsible for maintaining appropriate records for program verification and will supervise the execution and implementation of the elements contained herein.

The City of Bellmead is required to provide an annual report which describes the implementation, and quantitatively tracks the water conservation program relative to the targets and goals identified in the plan. This annual report is due prior to May 1st of each year and will be prepared under the supervision of the City Manager in accordance with the format published by the Texas Water Development Board.

In addition to the annual report and audit for Texas Water Development Board, the City will audit its water consumption monthly to identify separately

the total diverted water compared to the total water sold, water used for flushing, firefighting, water leak losses and other contributors to the total diverted water. The monthly audit will be used to evaluate the City's progress in implementation of its Water Conservation Plan.

Section 9: Regional Water Planning Provisions:

The City of Bellmead is located within the Brazos G Water Planning area and Southern Trinity Groundwater Conservation District. The City will deliver a copy of the approved Water Conservation Plan to each of these entities and thereafter communicate and coordinate its efforts for water conservation to promote the successful efforts of each.

Exhibit "A" – City of Bellmead Utility Profile

(See Attached)

Exhibit "B" – City of Bellmead Service Area Map



Legend

- City Limits

Exhibit "C" – City of Bellmead Rate Structure

<u>WATER SERVICE:</u>	<u>MINIMUM</u>	<u>COST/1,000 GALLONS ABOVE MINIMUM</u>
INSIDE CITY LIMITS		
Residential	\$19.21 [1 st 2,000 gals]	\$3.55
Sprinkler	\$20.77 [1 st 2,000 gals]	\$5.65
Commercial	\$31.20 [1 st 2,000 gals]	\$4.15

OUTSIDE CITY LIMITS 150% of City Water Rates

<u>WASTEWATER SERVICE:</u>	<u>MINIMUM</u>	<u>COST/1,000 GALLONS ABOVE MINIMUM</u>
RESIDENTIAL [maximum of \$21.00]	\$15.66 [1 st 1,000 gals]	\$3.26
COMMERCIAL [no maximum]	\$16.31 [1 st 1,000 gals]	\$3.92

All multiple units will be charged a minimum bill for Water and Wastewater for each unit, as well as a residential rate on water and wastewater, regardless of the number of water and wastewater taps they have.

TAP FEES:

WATER

Residential, ¾-inch	\$1,800.00
Commercial, 1-inch	\$2000.00
Commercial, 1½-inch	\$2,500.00
Commercial, 2-inch	\$3000.00
Larger than 2-inch	Actual cost + 20%

WASTEWATER

Wastewater tap fee, 4-inch	\$1,8000.00
Wastewater tap fee, 6-inch	\$2000.00
Wastewater tap fee, 8-inch	Actual cost + 20%
Man hole set	Actual Cost + 20%

DEPOSIT FEES:

Renter	\$200.00
Home owner	\$150.00
Light commercial	\$350.00
Medium commercial	\$600.00
Heavy commercial	\$800.00

MISCELLANEOUS CHARGES:

Initial connection fee	\$30.00
Initial connection fee, after 4:00 p.m.	\$50.00
Disconnect fees	\$50.00
Reconnect after hour 4:00 p.m.	\$25.00
Transfer fee	\$30.00
Service Fee	\$50.00
Re-read fees, after original read and one re-read	\$25.00
Meter testing fee	\$25.00
Tampering with meter fee	\$500.00
Late penalty	10%