

2023 Municipal Water Conservation Plan



City of Bel Aire

7651 E Central Park Avenue
Bel Aire, Kansas 67226
(316) 744-2451

Municipal Water Conservation Plan for the City of Bel Aire

Table of Contents

Introduction.....	2
Municipal Water Conservation Plan.....	3
Long Term Water Use Efficiency.....	3
Water Use Conservation Goals.....	3
Figure 1 (Bel Aire GPCD).....	4
Water Conservation Practices.....	4
Education.....	4
Management.....	5
Regulation.....	6
Drought / Emergency Contingency.....	7
<i>Stage 1: Water Watch</i>	7
Triggers.....	7
Goals.....	7
Education Actions.....	7
Management Actions.....	7
Regulation Actions.....	7
<i>Stage 2: Water Warning</i>	8
Triggers.....	8
Goals.....	8
Education Actions.....	8
Management Actions.....	8
Regulation Actions.....	8
<i>Stage 3: Water Emergency</i>	9
Triggers.....	9
Goals.....	9
Education Actions.....	9
Management Actions.....	9
Regulation Actions.....	9
Plan Revision, Monitoring and Evaluation.....	9

Introduction

The City of Bel Aire has undertaken a number of steps to ensure a dependable water supply for customers since 1980. The original water supply for the City of Bel Aire was obtained from wells in the Equus Beds Aquifer. In 1988, public concerns over the taste and quality of the Equus Bed water source prompted the City of Bel Aire to enter into a twenty year contract with the City of Wichita to supply potable water. A new contract was signed with the City of Wichita in 2018, securing a continued water supply through 2028. The City of Wichita obtains water from two sources; approximately 60% is surface water extracted from Cheney Reservoir, while the remaining 40% is ground water extracted from the Equus Beds near Halstead.

The City of Bel Aire served 3,675 residents in 1990, 10 years after incorporation. The City of Bel Aire's population has increased 261% to an estimated total of 8488 residents in 2022 (based on the most recent estimate from the US Census). Building growth increased 47.4% from 1,976 units in 2000 to 3,041 units in 2018. Under the current water contract with the City of Wichita, the City of Bel Aire is not allowed to service outside the service boundary agreement. However, a provision is included that allows the City of Bel Aire to add up to 320 acres outside the service area per year with consent from the City of Wichita. The two cities also agree to discuss other service expansion possibilities in the future.

In 2002, Bel Aire partnered with the City of Park City to create a regional utility system, known as the Chisholm Creek Utility Authority (CCUA). A new independent body was formed between the two cities to provide water and sewer services to both communities.

The CCUA constructed new water and wastewater treatment plants located in Park City. They went on-line in January 2003, providing services to both communities. Additional water rights were acquired from KGE (later Westar, now Evergy) to secure future growth. The Chisholm Creek Utility Authority receives its water from well fields in the vicinity of the CCUA facility.

Bel Aire receives its water from both CCUA and the City of Wichita, with the total average current demand capable of being supplied by a combination from both sources. The City of Bel Aire maintains a 1 million gallon water tower, as well as a 500,000 gallon water tower, for proper storage and pressure. Chlorine levels are monitored electronically at both the CCUA facility and the water towers, 24 hours a day. Daily testing occurs as required by KDHE to ensure safe drinking water for its customers.

The City of Bel Aire believes the Municipal Water Conservation Plan represents an additional step in providing citizens with a dependable water supply for years to come.

Municipal Water Conservation Plan

The primary objectives of the Municipal Water Conservation Plan for the City of Bel Aire are to develop long-term water conservation plans (Long-Term Water Use Efficiency Section) and short-term water emergency plans (Drought / Emergency Contingency Section) to assure the City customers have an adequate water supply to meet their needs. The efficient use of water also limits or postpones water distribution system expansion, thus limiting or postponing the resultant increase in debt, while conserving the limited water resources of the State of Kansas.

Long-Term Water Use Efficiency

Water Use Conservation Goals

The City of Bel Aire metered 365,956,500 gallons of water sold in 2022 or 69,989,700 more gallons than for year 2021. Based on the estimated US Census population of 8488 residents for 2021, this means that the City of Bel Aire had an average of 118.1 gallons per capita per day (GPCD) in 2022. This GPCD figure does not include:

- a) Water distributed for free public services (parks, swimming pool, etc.);
- b) Water lost by leaks or purging of lines in the water distribution system;
- c) Unaccounted water.

The GPCD figure is obtained by dividing the total gallons used throughout the system by the most recent population estimate from the US Census. It is a strict mathematical computation that does not take into account commercial, industrial, school and hospital water use; it does not mean that each resident of Bel Aire uses 118.1 gallons of water per day, rather it is just an indicator to see how the City of Bel Aire's GPCD figure compares with other cities who may or may not have commercial, industrial, school and hospital water use. 2022 precipitation was 36.2 inches, which was 5.7 fewer inches than for 2021. The decrease of 2022 precipitation and increasing aridification is believed to account for contributing to 2022's increase of 20.1 GPCD.

According to the United States Geological Survey, Public Supply Water Use in Kansas in 2015, the City of Bel Aire is located in Region 7M of Kansas. There are eight regions in Kansas, and Region 7 includes Bel Aire and its Equus-Walnut planning area. The "M" designates water suppliers for populations between 500 and 9999 people. 7M had an average usage of 97 GPCD from 2011 – 2015 compared to Bel Aire's 114 GPCD for the same period. Bel Aire's average GPCD from 2011 – 2017 was 111 GPCD, representing a decrease in usage from 2011 – 2015, even though there has been continued residential and industrial development. Bel Aire did not achieve its GPCD goal of 100 not to exceed for 2022. Bel Aire's 2023 GPCD goal is again not to exceed 100 with expectation of an average rainfall of 34.31 inches.

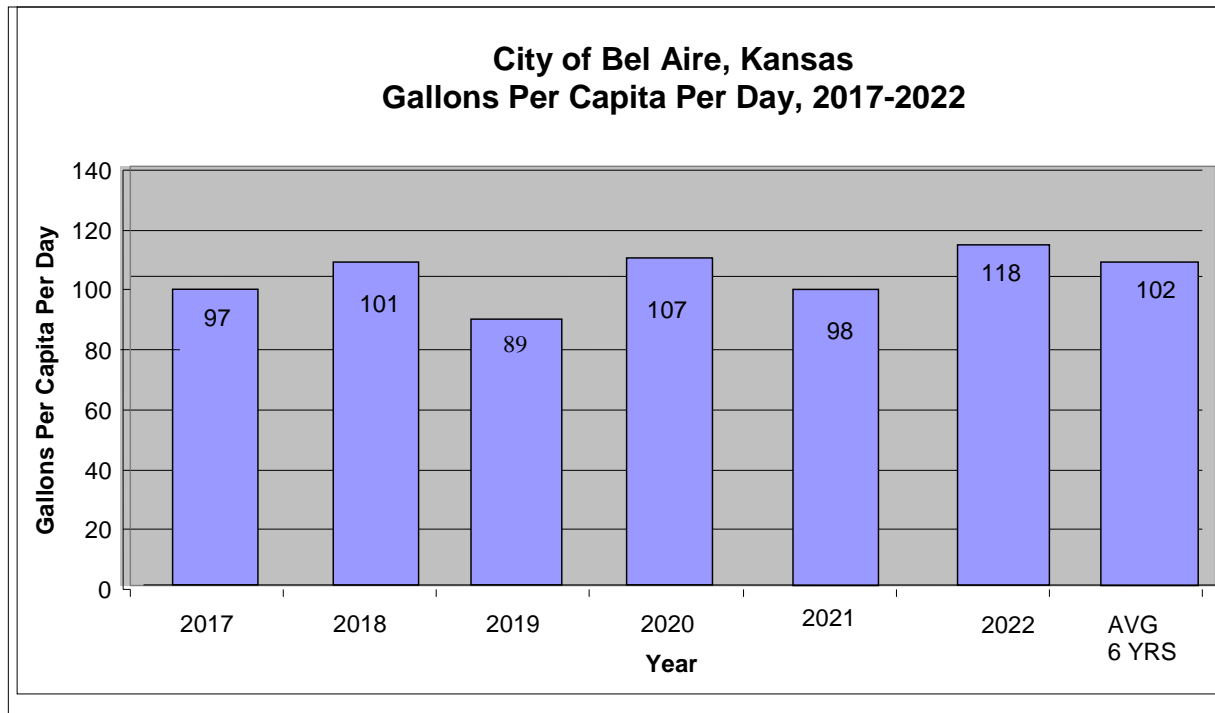


Figure 1 - Gallons Per Capita Per Day
Sources: Bel Aire Water Usages (2017-2022)

Water Conservation Practices

This subsection of the plan summarizes the current education, management, and regulatory efforts that relate to the long-term conservation of water in the City. Specific practices that will be undertaken to conserve water are listed and a target date to begin each practice is also indicated.

Education

The City water bills show the total number of gallons of water used during the billing period, along with the dollar amount of the bill; however, water conservation tips are not normally provided with the water bills. The City is performing ongoing education efforts to develop the community's understanding of water issues and conservation as part of its "*Did You Know?*" information series provided in the *Breeze*, *Beacon*, and City web site. Other efforts could include water conservation pamphlets, media releases, public events and exhibitions, civic presentations, and promotion of landscapes capable of thriving on small water usage. The City of Bel Aire will also participate in any educational campaigns that the City of Wichita publicizes for water conservation.

The City has chosen the following conservation practices and target dates for the Education Component of the Long-Term Water Use Efficiency Section of our Water Conservation Plan.

Education Conservation Practices	Target Date
1. Water Conservation Plan copies available to public	Ongoing
2. Provide information to the general public about lawn water needs on a regular basis during summer months, including the promotion to use Soil Moisture Monitoring systems and/or Smart Controllers for lawn sprinkler control	Ongoing
3. Utility bills will show the amount of water used in gallons and the cost of the water for the current billing period and previous year's usage	Ongoing
4. Water conservation articles, tips and issues will be discussed each month during the summer through local Cox cable Channel 7 and in <i>The Breeze</i> newspaper and <i>Beacon</i> e-letter. A "Did You Know?" information series has begun in these media.	Ongoing
5. Local schools and teachers will be encouraged to become involved in water conservation with information provided by the City and to utilize the educational resources of Wichita's W.A.T.E.R Center at 101 East Pawnee, telephone 316.350.3387	Ongoing
6. Make available information on water conserving landscape practices through publications, local news media, seminars, utility billing inserts, or other appropriate means.	Local Cox cable Channel 7 & City website – ongoing

Management

The City of Bel Aire maintains a water meter for each water customer. The water meters are read on a monthly basis, on or about the tenth (10th) of each month, and customers are billed accordingly. Water meters are installed for all Residential and Commercial customers. Customer meters are scheduled for an accuracy check and possible repair or replacement upon receiving a request to do so from the customer. Water leaks from the City public water distribution systems are repaired when customers report significant leaks in water mains or when located by City personnel. Water pressure is checked and monitored 24 hours per day, 7 days per week, or if a customer is concerned that their water pressure is too low. In 2015, all outdated residential meters within the City were replaced with new, radio-read meters. This improves the accuracy of these meters and allows the City to better track water usage and leaks.

The City of Bel Aire charges customers a base rate as well as a consumption rate per 1,000 gallons used. There are six volumes of consumption rates that charge for water based on a progressive rate structure that increases as consumption increases. This rate structure is in place to encourage conservation and is in line with the requirements of the contract with the City of Wichita. The contract with Wichita does include a "take-or-pay" provision, which was revised in 2018.

The City of Bel Aire realizes that greater emphasis must be placed on maintaining accurate measurement of water use in total at customer meters, which is now within 10% of total water produced, and that a water-use records system must be maintained, that can be used to effectively and efficiently manage the City public water distribution system.

Management Conservation Practices to be Taken	Target Date
1. All source water (CCUA or Wichita) will have meters installed and the meters will be repaired or replaced within two weeks when malfunctions occur	Current Operating Policy
2. Meters for source water will be tested for accuracy as recommended by meter OEM's or if meter readings become suspect. Meters will be replaced if they fail to meet industry standards	Current Operating Policy
3. Meters at each individual service connection will be replaced if they are not within industry standards	Current Operating Policy
4. All meters for source water will be read monthly. Meters at individual service connections will be read at least once a month or more as determined necessary	Current Operating Policy
5. The City will implement a water management review, which will result in a specified change in water management practices or implementation of a leak detection and repair program or plan, whenever the amount of lost exceeds 10% of annual source water	Current Operating Policy
6. Water charges will be based on the amount of water used (per 1,000 gallons of metered consumption)	Current Operating Policy
7. A water rate structure designed to curb excessive use of water will continue	Current Operating Policy
8. Develop and implement a program to incorporate water conserving landscape principles into future City landscape development projects, including renovation of existing landscape	Ongoing
9. Develop and implement an irrigation management program for City irrigated grounds	Current Operating Policy
10. Encourage the recycling of wastewater for selected industrial or irrigation purposes	Current Operating Policy

Regulation

The City of Bel Aire currently regulates water conservation through an adopted Water Policy, the city code (municipal code), the enforced Plumbing Code, and regulations imposed by the City of Wichita. Municipal codes are available at: <http://belaireks.gov/documentcenter>.

A Wholesale Water Sales Agreement with the City of Wichita requires Bel Aire to enforce any restrictive measures when such measures are placed on wholesale customers served by

Wichita. The service agreement between the City of Bel Aire and the Chisholm Creek Utility Authority is subject to availability and capacity restrictions of the CCUA facility. The City will pursue further corrective action as circumstance dictate.

Regulation Action to be Taken	Target Date
1. All new or renovated construction will install toilets that use no more than 1.6 gallons per flush or less and low flow showerheads that use 2.5 gallons per minute or less.	Enforced through Plumbing Code
2. Other appropriate regulation actions	As Circumstances Dictate

Drought / Emergency Contingency

The City of Bel Aire will address any short-term water shortage problems through a series of stages based on conditions of supply and demand with accompanying triggers, goals and actions. Each stage is more stringent in water use than the previous stage as water supply conditions deteriorate. The City Manager is authorized by ordinance (No. 387) to implement the appropriate conservation measures.

STAGE 1: WATER WATCH

Triggers

Currently, the City of Bel Aire is governed by water restrictions imposed by the City of Wichita and the Chisholm Creek Utility Authority's ability to supply and/or distribute water to Bel Aire. This Water Watch Stage is triggered by any one of the following conditions:

1. The City storage has fallen below 70% capacity and has a slower than normal recovery rate.
2. Demand for one day is in excess of 1.6 million gallons per day (mgd).
3. Provider of purchased water has issued a Stage 1 Water Watch.

Goals

The goals of this stage are to heighten awareness of the public on water conditions and to maintain the integrity of the water supply system.

Education Actions

The City will make occasional news releases on Cox cable Channel 7, The Bel Aire Breeze, utility billing inserts, and other media outlets describing present conditions and indicating the water supply outlook. Notification will be broadcast on Cox cable Channel 7, the City's Alert

and Notification system, and other possible communication methods indicating water watch status and will include water conservation information.

Management Actions

1. Leaks will be repaired as soon as detected; work will be completed within 48 hours of detection or as soon as possible depending on severity of the leak.
2. The City monitors its use of water and will curtail activities such as hydrant flushing and street cleaning.

Regulation Actions

Regulations in Stage 1 will be advisory. The public will be asked to curtail outdoor water use and to make efficient use of indoor water, i.e. wash full loads, take short showers, don't let faucets run, etc.

STAGE 2: WATER WARNING

Triggers

Currently, the City of Bel Aire is governed by water restrictions imposed by the City of Wichita and the Chisholm Creek Utility Authority's ability to supply water to Bel Aire. The Water Warning Stage is triggered by any one of the following conditions:

1. The City storage cannot be maintained above 60% capacity or has a slower than normal recovery rate.
2. Demand for one day is in excess of 1.8 million gallons per day (mgd).
3. Provider of purchased water has issued a Stage 2 Water Warning.

Goals

The goals for this stage are to reduce peak demand by 20% and to reduce overall weekly consumption by 10%.

Education Actions

1. The City will make weekly news releases for media outlets and post information at City sites describing present conditions and indicating the water supply outlook for the upcoming week.
2. Water conservation articles will be provided to The Breeze and information will be shown on Channel 7, the City website, and at other City communication outlets.
3. The City will communicate any essential information through its Alert and Notification system.

Management Actions

1. The City water supply is monitored 24 hours a day.
2. Leaks will be repaired within 24 hours of detection; outside contractors may be used to make repairs if needed.
3. The City will curtail its water usage, including operations of fountains, watering of City grounds, filling of swimming pools and washing of vehicles.

4. The City Manager may direct city police to enforce water conservation policies that could include citations or termination of service.
5. If a leak is found in a customer's line, water service may be turned off while repairs are being made.

Regulation Actions

1. An odd / even watering system will be imposed on City residents. Residents with odd numbered addresses will water on odd days; even addresses will water on even days
2. Outdoor water use, including lawn watering and car washing will be restricted to before 5:00 a.m. and after 11:00 p.m.
3. Refilling of swimming pools will not be allowed.
4. Waste of water, as defined by the Water Drought/ Emergency Ordinance (Section 2, Item C) will be prohibited.

STAGE 3: WATER EMERGENCY

Triggers

Currently, the City of Bel Aire is governed by water restrictions imposed by the City of Wichita and the Chisholm Creek Utility Authority's ability to supply water to Bel Aire. The Water Emergency Stage is triggered by any one of the following conditions:

1. The City storage cannot be maintained above 50% capacity and will not recover.
2. Demand for one day is in excess of 2.0 million gallons per day (mgd).
3. Provider of purchased water has issued a Stage 3 Water Emergency.
4. Emergency conditions related to repairs or water quality control.

Goals

The goals of this stage are to reduce peak demands by 50% and to reduce overall weekly consumption by 25%.

Education Actions

1. The City will make daily news releases to media outlets and at City sites describing present conditions and indicating the water supply outlook for the next day
2. The City will hold public meetings to discuss the emergency, the status of the City water supply and further actions which need to be taken.
3. The City will communicate any essential information through its Alert and Notification system.

Management Actions

1. The City water supplies and storage will be monitored 24 hours a day.
2. Leaks will be repaired as soon as possible and damaged line will be taken out of service until repairs can be made or until an outside contractor can make necessary repairs.
3. The City will seek additional emergency supplies from other users, the state or federal government.

4. The City Manager will direct the police to enforce water conservation policies that could include citations and termination of service.
5. If a leak is found in a customer's line, water service may be turned off while repairs are being made.

Regulation Actions

1. Outdoor water use will be banned.
2. Waste of water, as defined by the Water Drought/ Emergency Ordinance (Section 2, Item C), will be prohibited.

<h2>Plan Revision, Monitoring & Evaluation</h2>
--

The City of Bel Aire will establish a monthly management practice of reviewing monthly totals for water production, residential/commercial sales, water provided free-of-charge, and "unaccounted for water." Problems noted during the monthly review will be solved as soon as possible.

The City of Bel Aire Municipal Water Conservation Plan will be reviewed during the month of March each year and on a more frequent basis during drought or other water shortage conditions. If the water conservation GPCD goals for the previous year are not met, the City will review data collected from the previous year in relationship to the status and effectiveness of the conservation practices that are outlined in our plan and will provide a status report to the Kansas Water Office which will also include any additional water conservation practices that may need to be taken in order for the City to achieve and maintain its water use conservation GPCD goals.

Adopted this _____ day of _____, 2023

by the Bel Aire City Council.

Jim Benage, Mayor

Melissa Krehbiel, City Clerk