

**MUNICIPAL WATER
CONSERVATION PLAN
FOR THE
CITY OF
WASHINGTON**

Reviewed and Revised February 5, 2024

Municipal Water Conservation Plan For the City of Washington

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INTRODUCTION

The primary objectives of the Water Conservation Plan for the City of Washington are to develop long-term water conservation plans (Long-Term Water Use Efficiency Section) and short-term water emergency plans (Drought Response Section) to assure customers of an adequate water supply to meet their needs. The efficient use of water also has the beneficial effect of limiting or postponing water distribution system expansion and thus limiting or postponing the resultant increases in costs, in addition to conserving the limited water resources of the State of Kansas.

The City of Washington has undertaken a number of steps to ensure a dependable water supply for our customers. The original water supply for our city was obtained from Mill Creek. The raw water was processed by flowing through a slow sand filter and chlorination. In 1963, three wells were drilled which are now the source of water supply for the city. All three wells pumped through a single meter until October 27, 2020. As of that date, each well is now metered independently. Each well has an estimated pumping capacity of 320 gallons per minute. Chlorination and air stripper (corrosion control) are treatments provided. The City owns a 250,000 gallon elevated tank and a 45,000 gallon underground storage tank at the water plant for treated water storage.

Our city water supply and distribution system have ample capacity to meet current customer demands and future projected demands for several years, except during drought periods.

The City of Washington believes that our Municipal Water Conservation Plan represents an additional major step in ensuring our customers of a dependable water supply in future years.

LONG-TERM WATER USE EFFICIENCY

Water Use Conservation Goals

The City of Washington used 115 gallons per capita per day (GPCD) in 2022. This GPCD figure included:

Water sold to residential/commercial customers;
Water distributed for free public services (swimming pool, public bathrooms, etc.); and
Water lost by leaks in the water distribution system.

However, the GPCD figure does not include municipally supplied water for industries that use over 200,000 gallons per year. According to the 2017 Kansas Municipal Water Use Publication, which is the most recent edition, our city is located in Region 7M. From this publication it was determined that our city GPCD water use was 121 for 2017, which was 32 percent above the regional average of 92 GPCD among cities in Region 7M during that year. In recent years, the City's GPCD has decreased significantly, primarily due to major water improvement project completed in 2021. However, due to exceptional dry period during the summer of 2023 outside watering increased significantly and increased the city's GPCD for

the year. The city had a current total water loss for the year 2023 of just 6.6%, which is a significant improvement historically.

The City desires to set a water use conservation goal for usage not to exceed 92 GPCD based on the regional average of the five years (2013-2017). Our City anticipates not exceeding this goal by carrying out the specific actions that are outlined in our plan.

Water Conservation Practices

This subsection of the plan summarizes the current education, management and regulation 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 shown.

Education

The City water bills show the total number of gallons of water used during the billing period and the amount of the bill. Water conservation tips are not normally provided with the water bills. The City has not provided information on water conservation to the local news media on a regular basis; however, the City does provide this information to local news media during predicted drought conditions and high use periods. City has encouraged area teachers to become involved in water conservation presentations in schools.

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 to be Taken	Target Date
1. Water bills will show the amount of water used in gallons and the cost of the water.	Implemented
2. Make available information on water conserving landscape practices through publications, local news media, press releases, website/social media platforms, seminars or other appropriate means.	Implemented

Management

The City of Washington has water meters on all water supplies and water pumped to the distribution system. Any new supply will have an individual meter on each source of supply. The water meter on the supply line is read monthly. The water meter supplying the distribution system is read daily.

Water meters were installed for all residential/commercial customers. The city installed meters in 2014 and 2015 on all services that are provided unbilled water. Customer meters are scheduled for an accuracy check and possible repair or replacement upon receiving a request to do so from the customer or as indicated by staff.

The City of Washington reads each customer's water meter and mails a monthly water bill to each customer every month. Customer water meters are generally read approximately the 1st day of the month; however, the meter reader sometimes deviates from the scheduled time period. Customers' water meters had been estimated during the winter months until April 2021. At that time the city

installed AMR meters on all water services in conjunction with a major water improvement project, which allows meters to be read every month of the year.

Water leaks from the City public water distribution system are repaired when customers report significant leaks from the water mains or they are located by City personnel. Water pressure is not checked unless customers complain that their water pressure is too low. Water pressure on the distribution system is continuously monitored at City Hall by SCADA system.

The current water rate structure for the City was passed on March 1, 2021. Water rates are based on consumption per 1,000 gallons. The City Council reviews rates and user fees annually to determine if an increase is needed.

The City of Washington realizes that emphasis must be placed on obtaining accurate measurement of water use at our source and at customer meters and that a water use records system must be developed that can be used to more effectively and efficiently manage the City public water distribution system. For that reason, the City of Washington has chosen the following conservation practices and target dates for the Management component of the Long-Term Water Use Efficiency Section of our Water Conservation Plan.

Management Conservation Practices to be Taken	Target Date
1. All source water will have meters installed and the meters will be repaired or replaced within two weeks when malfunctions occur.	Implemented
2. Meters for source water are tested every year when the pumps are tested by an independent contractor. Each meter will be repaired or replaced if its test measurements are not within industry standards (such as AWWA standards).	Implemented
3. Meters will be installed at all residential service connections and at all other service connections whose annual water use may exceed 300,000 gallons, including separate meters for municipally operated irrigation systems which irrigate more than one acre of turf.	Implemented
4. Meters at each individual service connection will be replaced or tested for accuracy on a regular basis, per industry standards (such as AWWA standards), if they are one inch or less. Meters between one inch and six inches will be tested for accuracy at least once every five years and meters six inches and above will be tested on at least an annual basis. Each meter will be repaired or replaced if its test measurements are not within industry standards (such as AWWA standards).	Implemented
5. All meters for source water will be read at least once every month and meters at individual service connections will be read at least once every month.	Implemented
6. A reading will be taken at each source water meter at the same time that meters for individual service connections are read.	Implemented
7. 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 unsold water (amount of water provided free for public service, used for treatment purposes, water loss, etc.) exceeds 20 percent of the total source water for a four-month time period.	Implemented
8. Water sales will be based on the amount of water used.	Implemented
9. A water rate structure designed to curb excessive use of water will be evaluated.	Implemented

10. Encourage the recycling of wastewater for selected industrial or irrigation purposes.	Implemented
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Capital Improvements

As part of the City’s capital improvement plan, the City recently completed a major water improvement project, replacing approximately 85% of the entire water distribution system. This endeavor included mains, services, and Automated Meter Reading (AMR) or radio read meters on all services. The completion date was April 2021. The City’s goals for this project were to reduce interruption of services, possible contamination, and road damage, along with providing increased metering accuracy year-round, eliminating winter water estimations. This should also reduce interruptions in service, along with water loss, throughout the system.

The city also installed VFDs at each of the wells to improve efficiency and individual continuous water level monitoring in each well, which will allow better tracking of water levels during periods of drought. The city has experienced a 30-35% energy savings as a result of the installation of the VFDs.

The city is currently budgeting to replace the 60 year old water line from the wells to the water plant, which has experienced a couple of major leaks in the past 5 years due to corrosion. The city is also scheduling an upgrade to the chlorine treatment room at the water plant.

Regulation

The City of Washington does not have any water conservation regulations in effect at the present time. Because of our ability to supply water during normal periods, regulatory controls on water use are included only in the Drought Response section of this plan and water drought/emergency ordinance where they constitute the primary means for conserving water during a supply shortage.

Washington does have a plumbing code, but has not felt the need to incorporate mandatory use of water conservation units in the plumbing code. The enforcement of any regulations to require use of any water conservation plumbing measures would be very difficult. Most new homes and/or remodeling projects do include the use of water conservation toilets and faucets.

Regulation Actions to be Taken	Target Date
1. All new or renovated construction will install toilets that use 1.6 gallons per flush or less and low flow showerheads that use 2.5 gallons per minute or less.	Implemented

Security Hazard Mitigation

As part of the 2021 infrastructure upgrades to the water system, a SCADA system was installed to monitor various aspects of the water system, including water usage, gallons pumped, etc. As part of mitigation of security threats, a firewall was purchased and installed, and includes remote monitoring to safeguard the system. **DROUGHT RESPONSE**

The City of Washington addresses its 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 since water supply conditions are more deteriorated. The Mayor or City Administrator is authorized by ordinance

to implement the appropriate conservation measures.

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.

Triggers

This stage is triggered by any one of the following conditions:

1. The City's storage has fallen below 85 percent capacity, and will not recover;
2. Groundwater levels have fallen 5 feet below the normal seasonal level;
3. Demand for one day is in excess of 0.3 million gallons per day.

Education Actions

1. The City will make occasional news releases to the local media describing present conditions and indicating the water supply outlook for the upcoming season.
2. Previous month summaries of precipitation, temperature, water levels and storage will be made public at the beginning of each month.
3. The City will post news releases and information on the City's website and social media platforms.

Management Actions

1. The City wells will be cleaned and flushed to maintain them at their most efficient condition.
2. Leaks will be repaired within 48 hours of detection.
3. The City will monitor its use of water and will curtail activities such as hydrant flushing and street cleaning.

Regulation Actions

The public will be asked to curtail some 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

Goals

The goals of this stage are to reduce peak demands by 20 percent and to reduce overall weekly

consumption by 10 percent.

Triggers

This stage is triggered by any one of the following conditions:

1. The City's storage has fallen below 70 percent capacity, and will not recover;
2. Pumping lowers water level to within 10 feet of the top of the well screens;
3. Groundwater levels have fallen 10 feet below the normal seasonal level;
4. Demand for one day is in excess of 0.4 million gallons per day;

Education Actions

1. The City will make weekly news releases to the local media describing present conditions and indicating the water supply outlook for the upcoming week.
2. Previous week summaries of precipitation, temperature, water levels and storage will be made public each week.
3. Water conservation articles will be provided to the local newspaper.
4. The City will post news releases and information on the City's website and social media platforms.

Management Actions

1. The City water supplies will be monitored daily.
2. Leaks will be repaired within 24 hours of detection.
3. Pumping rates at wells will be reduced to decrease drawdown and to maintain water levels over well screens.
4. The City will curtail its water usage, including operation of fountains, watering of City grounds and washing of vehicles.
5. System pressure will be maintained at 60 PSI.

Regulation Actions

These regulation actions apply to City residents.

1. An odd/even lawn 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 10:00 am and after 9:00 pm.
3. Refilling of swimming pools will be allowed one day a week after sunset.
4. Outdoor watering will be restricted to use of a hand-held hose or bucket only.
5. Excess water use charges for usage of water over the amount used in the winter will be considered.
6. Waste of water will be prohibited.

Stage 3: Water Emergency

Goals

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

Triggers:

This stage is triggered by any one of the following conditions:

1. The City's storage has fallen below 50 percent capacity;
2. Pumping lowers water level to within 5 feet of the top of the well screens;
3. Groundwater levels have fallen 15 feet below the normal seasonal level;
4. Demand for one day is in excess of 0.5 million gallons per day;
5. Emergency conditions related to repairs or water quality.

Education Actions

1. The City will make daily news releases to the local media describing present conditions and indicating the water supply outlook for the next day.
2. Previous days summaries of precipitation, temperature, water levels and storage will be made public each day.
3. 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.
4. The City will post news releases, data and public notifications on the City's website and social media platforms daily.

Management Actions

1. The City water supplies will be monitored daily.
2. Leaks will be repaired within 24 hours of detection.
3. Pumping rates at wells will be reduced to decrease drawdown and to maintain water levels over well screens.
4. The City will seek additional emergency supplies from other users, the state or the federal government.

Regulation Actions

These regulation actions apply to City residents.

1. Outdoor water use will be banned.
2. Waste of water will be prohibited.

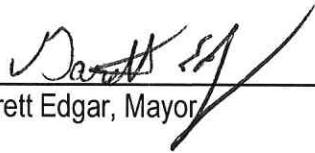
PLAN REVISION, MONITORING & EVALUATION

The City of Washington 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 Washington Municipal Water Conservation Plan will be reviewed during the month of April 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, then the City will review the 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 DWR 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.

Approved By:



Garrett Edgar, Mayor