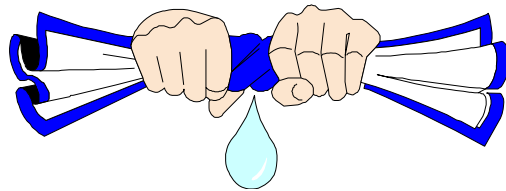


**MUNICIPAL WATER
CONSERVATION PLAN
FOR THE
CITY OF EL DORADO**



INTRODUCTION

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MUNICIPAL WATER CONSERVATION PLAN

The City of El Dorado has a long history of striving to provide adequate quantities of good, clean water to its citizens. The first official action taken by the City of El Dorado regarding a water system was the passage of Ordinance No. 115 on October 18, 1883. This ordinance granted the construction of the El Dorado Waterworks. The purpose of the system, as stated in the ordinance, was to supply the city and its citizens with water for domestic, sanitary and other purposes as well as for the better protection of the city against fires. In 1885, James A. Jones, who incidentally had just finished constructing a system of wooden water mains for the City of Wichita, was granted the right to construct El Dorado's water system. The first water mains in El Dorado ranged in size from 4-12 inches, were cast iron and enamel varnish coated inside and out. The primary source of water was a pair of wells in the vicinity of the water plant, which pumped into a reservoir near the pump house. The original 1885 pump house still stands today, off the southeast corner of the present Water Plant, although it has had a brick facing installed over the original stonework.

El Dorado has faced numerous droughts over the years and there will undoubtedly be droughts to hit El Dorado again, but the drought of 1981 will be the last one to seriously affect the water supply of the City for a long time. This optimism is founded on the subsequently constructed El Dorado Lake, which should provide the water needs of The City of El Dorado and the surrounding area for the foreseeable future.

Today, El Dorado Lake provides over 50 billion gallons of storage for the City of El Dorado's water needs. The El Dorado Water Treatment Plant has a production capacity of 8.5 million gallons per day and serves 7 rural water districts, Potwin, Whitewater, as well as numerous other cities within the boundaries of the rural water districts. The lake also provides the raw water needs of the Holly Frontier refinery and the City of Augusta's Water Plant.

MUNICIPAL WATER CONSERVATION PLAN

The primary objectives of the Water Conservation Plan for the City of El Dorado 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 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 El Dorado 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 El Dorado used 263 gallons per person per day (GPCD) in 2022. This GPCD figure included:

- a) Water sold to residential/commercial customers;
- b) Water distributed for free public services (parks, cemeteries, swimming pools, fire hydrant flushing etc.)
- c) Water lost by leaks in the water distribution system.
- d) Water used at the Water Treatment Plant in the production process (filter backwashing, basin flushing, etc.)

According to Figure 1, shown in the 2017 Kansas Municipalities Water Use Publication (the most up-to-date as of 2023), our City is located in Region 7. From this publication it was determined that our City GPCD water use was 162, which was 25.3% above the region average of 121 GPCD among cities in Region 7 during 2017. The average GPCD for all of the state of Kansas was 106.

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 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. In an effort to become more involved in the process of teaching water conservation in our schools, the City of El Dorado distributes information to teachers at the annual Walnut River Water Festival each year. Our personnel also participate in the Walnut River Water Festival, teaching

several classes dealing with water conservation, water testing and the importance of water quality in the environment.

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 and the cost of the water.	Implemented
2. Water bills will show the amount of water used in gallons during this billing period and the number of gallons used last year during the same billing period.	Implemented
3. Water conservation tips will be provided with the monthly water bills during the summer months.	Not Planned
4. Water conservation articles or issues will be provided or discussed each month during the summer by the local news media.	Only after the first trigger point has been reached.
5. The Board of Education and teachers will be encouraged to become involved in water conservation through classroom lectures and incentives for children to conduct home checks.	Not planned, but currently distribute information to teachers through Walnut River Water Festival
6. Make available information on water conserving landscape practices through publications, local news media, seminars or other appropriate means.	As needed/see Walnut River Water Festival
7. Provide information to the general public on lawn water needs on a regular basis during the summer months.	Done by County Ext. Agent in local newspaper

Management

The City of El Dorado meters all flows from El Dorado Lake. The meter is read on a continuous basis through the SCADA system. Raw water flows into the plant is checked for accuracy against water metered through the filters and water pumped.

Water meters were installed for all residential/commercial customers by 1965. Customer meters are scheduled for an accuracy check and possible repair or replacement upon receiving a request to do so from the customer. The City of El Dorado has a meter replacement program in which all meters are replaced after 15 years of service.

The City of El Dorado reads each customer's water meter and mails a monthly water bill to each customer.

Water leaks from the City public water distribution systems are repaired when detected. Water pressure is monitored continuously at the water plant and checked in the distribution system when customers complain about low pressure. The El Dorado Fire Department also performs annual fire flow tests on all fire hydrants.

The water rate structure for the City was passed July 18, 2017. The minimum monthly Readiness to Serve (RTS) is \$10.44. Water use between 0-224,400 gal is charged at \$1.69 per 1000 gal and over 224,400 gal is \$1.63 per 1000 gal. Outside City rates are 1.75 times the city rate.

The City of El Dorado realizes that a great emphasis must be placed on obtaining accurate measurement of water use at our raw water intake and at customer meters, and that a water use records system must be in place to more effectively and efficiently manage the City public water distribution system. Hence, the City of El Dorado 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 at source water will be tested for accuracy at least once every three years. Each meter will be repaired or replaced if its test measurements are not within two percent of the actual volume of water passing through the meter.	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 at least every 15 years, if they are one inch or less. Meters between one inch and four inches will be tested for accuracy at least once every 10-15 years and meters four 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 three percent of the actual volume of water passing through the meter.	Implemented
5. All meters at source water will be read at least on a monthly basis and meters at individual service connections will be read at least once every two months.	Implemented
6. A reading will be taken at each source water meter at the same time that meters for individual connections are made.	Implemented

7. A water utility 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 raw water intake 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.	Not planned
10. Develop and implement a program to incorporate water conserving landscape principles into future landscape development projects, including renovation of existing landscapes.	Not Planned
11. Develop and implement an irrigation management program for irrigated grounds.	Not Planned
12. Encourage the recycling of wastewater for selected industrial or irrigation purposes.	Not Planned

Regulation

The City of El Dorado currently has a water conservation ordinance that addresses water use during periods of drought.

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 – US Plumbing Code
2. Adopt a landscape water conservation ordinance	Not Planned

DROUGHT/EMERGENCY CONTINGENCY

The City of El Dorado 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 Public Utilities Director is authorized by ordinance to implement the appropriate conservation measures.

STAGE 1: WATER WATCH

Triggers

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

1. El Dorado Lake has fallen 15 percent below conservation pool (Lake Elev. 1332.55).
2. Treatment plant operations are at 80 percent capacity (6.8 MGD) or more for three consecutive days.

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

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 months summaries of precipitation, temperature, water levels and storage will be made public at the beginning of each month.

Management Actions

1. Leaks will be repaired within 48 hours of detection.
2. The City will monitor its use of water and will curtail activities such as hydrant flushing.

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

Triggers

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

1. El Dorado Lake has fallen 25 percent below conservation pool (Lake Elev. 1328.25).
2. Treatment plant operations are at 85 percent capacity (7.23 MGD) or more for three consecutive days.

Goals

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

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 Thursday.
3. Water conservation articles will be provided to the local newspaper.

Management Actions

1. The City water supplies will be monitored daily.
2. Leaks will be repaired within 24 hours of detection.
3. The City will curtail its water usage, including operation of fountains, watering of City grounds and washing of vehicles.

Regulation Actions

1. Outdoor water use, including lawn watering and car washing will be restricted to before 10:00 am and after 9:00 pm.
2. Golf courses will restrict watering to tees and greens after sunset.
3. Refilling of swimming pools will be allowed one day a week after sunset.
4. Waste of water will be prohibited.

STAGE 3: WATER EMERGENCY

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

1. El Dorado Lake has fallen 30 percent below conservation pool (Lake Elev. 1326.1).
2. Treatment plant operations are at 90 percent capacity (7.65 MGD) for more for three consecutive days.

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 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.

Management Actions

1. The City water supplies will be monitored daily.
2. Leaks will be repaired within 24 hours of detection.

Regulation Actions

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

PLAN REVISION, MONITORING & EVALUATION

The City of El Dorado 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 El Dorado 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 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.